Harvest of the suburbs:
An environmental history of suburban food production

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This thesis is presented for the degree of Doctor of Philosophy of
the University of Western Australia, Department of History, June 2001.
Abstract

This thesis is an historical study of environmental interaction in everyday action and perception in the habitat of the majority of Australians - the metropolitan suburbs. The narrow focus on food production allows for the construction of a history in which the aims and concerns, as well as the methods, of social and environmental histories can be coherently combined: the breadth and landscape-centredness of environmental history and the specificity and people-centredness of social history. The aim is to produce a history which fleshes out, for one aspect of the urban environment, the complex and often ignored web of connections that exist between environments and human social, political and cultural formations.

On a more specific, pragmatic level, this study also seeks to contribute to the debate over urban consolidation. Presently, the lack of detailed historical examination of activities carried out in the open space around the home means that we are in a poor position to understand exactly what potentials might be (and are being) lost with diminishing private open space, what the implications of such loss are likely to be, and how we can best plan for the mitigation of any detrimental effects.

The main questions tackled in the thesis are, therefore: what proportion of households have produced their own food? Who has grown their own food and why? What impact has food production had on the suburban environment, and vice versa? The focus is on household food production, as an activity involving substantial proportions of the populations of Perth and Melbourne, though examination of the prevalence and ecological aspects of commercial food production is carried out where necessary.

It is argued that food production has constituted a significant use of non-built suburban land since at least the late nineteenth century. Suburban livestock (especially large animals) have become less common since the 1920s, though home production of fruit and vegetables was widespread during the 1930s and 40s, and remained so in the late twentieth century.

Closer investigation of the socio-cultural setting of home food production in Perth and Melbourne suggests that households belonging to the middle class and upper fractions of the working class were over-represented among food producers. More generally, it appears that economic necessity has rarely been a factor in food production, and in most cases, the desire to save money has not been the only motivation behind it.

In considering other motivations, it is possible to tentatively map out some of the meanings invested in food production, and how these relate to class status and associated ideas about work, social organisation, health and bodies, gender, and the relationship between humans and nature. These meanings have often been structured along lines of an independence/dependence dichotomy, although at various times food production also challenged the dichotomy by offering opportunities for appreciation of the value of interdependence.
Suburban food production has long contributed to urban sustainability, for example where it has utilised waste nutrients. However, the activity has also reduced the sustainability of suburban areas, particularly where fertilisers and pesticides have contributed to pollution of air, soil and water. The quality of food produced in suburban areas has also been affected by pollution from urban sources. The choice of materials and methods employed in producing food - critical to its ecological impacts - has been influenced by the economic and socio-cultural dimensions of the activity, as well as technological developments and environmental contexts.

The thesis concludes by discussing the implications of its findings for urban policies engaged with the concept of sustainability, and reflecting on the success of its approach in offering new insights into relationships between people and the environment in Australia.
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Many people have generously assisted me in the course of researching and writing this thesis. I would firstly like to thank my oral history interviewees, correspondents and informants, for giving me their trust and taking the time to contribute to this project. Charlie Fox provided invaluable guidance and encouragement. I am also grateful to John Lack at the University of Melbourne, for granting me permission to use the re-encoded Melbourne University Social Survey database, and for taking the time to arrange for a copy of the codebook and database flat file to be made for me.

I greatly appreciate the interest and helpful assistance of staff at some of the many institutions visited in the course of my research: I would especially like to thank the staff of the National Library (and in particular the Petherick Reading Room), the Australian Archives (Melbourne and Sydney offices), the Melbourne University Archives, the State Library of Victoria, the Battye Library, and the State Records Office of Western Australia. The staff of the Scholars' Centre at the University of Western Australia also rendered valuable assistance in facilitating access to source materials. I also appreciate the assistance of Debbie Haynes and Robin Dalby, at the Australian Bureau of Statistics (Perth Office), Laura Mecca (Co.As. It.), Lalitha Ramachandran (National Environment Resources Coordinator, Environs Australia), Mike Grimm (Quarantine entomologist Agriculture WA), Steve Ryan (GIS officer, Department of Natural Resources and Environment, Victoria), and Judy Horton (Communications Manager, Arthur Yates & Co.). Fellow postgraduate students David Nichols and John McKinley generously brought some relevant source material to my attention. Thank you also to the people who have taken the time to discuss some ideas for sources with me, including Patricia Crawford, Tony Dingle, Andrew Brown-May, Margo Huxley, Libby Robin, Patrick Mullins, Katie Holmes, Deborah Malor, Derek Smith and John Viska. Finally, thanks to my friends and family - especially my mother June - for their support, and to Jamie, for his encouragement and patience.
Chapter 1

Introduction: Why an environmental history?

Running down the garden path in the rain to pick peas for dinner, feeling the warmth of freshly-laid eggs in the morning, breathing in the scent of moist earth with every new potato dug, have been part of the life experience of countless suburban Australians. However, in general these experiences have remained on the fringes of academic discussion. Many fine works have examined the origin of cities, the development and operation of urban power structures, sanitation, architecture, urban society and urban culture, but so far no substantial historical research has considered how, why, and to what extent private and public land has been used for the keeping of livestock and production of vegetables, fruit and other foodstuffs in Australian cities. This thesis seeks to help fill this gap in our knowledge of Australian suburban life.

As well as generally enhancing our understanding of life in the suburbs of Perth and Melbourne in the late nineteenth and twentieth centuries, this analysis of suburban food production contributes to ongoing debate over the kinds of policies to be implemented in the pursuit of more sustainable Australian cities. Stephen Dovers has pointed to the need for environmental history to make itself relevant by addressing itself to current concerns, and suggested that environmental history can be of particular value to sustainability, as a policy field which calls for long-term thinking. In this inquiry, two of Dovers’ suggested lines of relevance - general historical perspective and ‘direct policy and institutional lessons’ - are pursued in relation to the problem of urban sustainability. Since the 1970s, there been a debate in Australia over ways in which to make our cities more sustainable, with those who favour a higher-density ‘consolidated’ city on one side, and those who favour various forms of lower-density development - some featuring food production - on the other (see below). In reducing the amount of private open space available to suburban residents, the path dependence established by urban consolidation would cut off the


3 ibid., pp.137-145. ‘Direct policy and institutional lessons’ is taken here in Dovers’ sense of ‘insights, perspectives or information of direct relevance to a topical policy problem or institutional challenge’ (p.139). This thesis argues for its inclusion in the field of sustainability policy, particularly at the local level, on the basis of past benefits produced by the activity and present challenges to its continuation on a substantial scale. On pp.135-137 Dovers also provides an overview of the history and content of ‘sustainability’, which informs my use of the term. In relation to the relevance of environmental history to policy, see also Stephen Dovers, ‘Still Settling Australia: Environment, History and Policy’, in Stephen Dovers (ed.), Environmental History and Policy Still Settling Australia, Oxford University Press, South Melbourne, 2000, pp.4-8.
potential for traditional forms of suburban food production for many years to come.\textsuperscript{4} As urban residential densities in Australian cities are increasing, and the potential for private home food production consequently diminishing, the need for an examination of the past, present and possible future roles of food production in Australian cities is becoming urgent. In his 1976 study of the use of suburban gardens and yards in Adelaide, Ian Halkett proposed that the argument over urban consolidation turned on whether suburban front and back yards were in fact a waste of space that could and should be dispensed with - an issue which had not then been examined in any depth. Halkett concluded that yards and gardens were in fact put to a variety of uses, from keeping pets and drying laundry to the production of fruit and vegetables, and a widespread reduction in garden space would reduce the number of uses to which gardens could be put, resulting in 'either a more sedentary population or an increased demand for public and commercial recreation facilities'.\textsuperscript{5} Halkett proposed that ultimately, more research was required before any real attempts at urban consolidation were made.

On an international level, in 1992 The United Nations Conference on Environment and Development (the Rio 'Earth Summit') broadly recognised the need to reconcile, in a fashion promoting 'sustainable low-impact lifestyles', the competing demands for land of housing, industry, commerce, agriculture and recreation.\textsuperscript{6} Urban agriculture, however, was not a priority, and in 1994 Luc Mougeot pointed out that it tended to be 'disregarded by governments and planners of western urban economies'.\textsuperscript{7} Two years later, the United Nations Habitat II conference on Human Settlements declared that 'Healthy and environmentally sound agricultural activities and the provision of common land should be integrated into the planning of urban and peri-urban areas',\textsuperscript{8} and that governments at appropriate levels should assist the establishment of sustainable settlements by, \textit{inter alia}, taking into account the need for spaces for everyday activities - for playgrounds, parks,


\textsuperscript{5} I.P.B. Halkett, \textit{The Quarter Acre Block}, Australian Institute of Urban Studies, Canberra, 1976, p.200.


sports and recreation areas and areas suitable for gardening and urban agriculture'. More recently, the United Nations Food and Agriculture Organization Committee on Agriculture has noted that urban agriculture is an activity which presents many opportunities for sustainable development, as well as potential risks, particularly in developing nations. However, planning for urban agriculture is hampered worldwide by substantial gaps in detailed knowledge of the activity. With urbanisation increasing worldwide, continuing disregard for urban food production means opportunities for local sustainability and community satisfaction are potentially being lost. Where local governments and other urban agencies are supporting initiatives in urban farming and community gardening, the results are usually worthwhile, although a greater understanding of trends in private food production in urban areas, including a knowledge of who gardens and why, could result in improved planning in some cases. This study thus also contributes to a small but growing body of in-depth international research into urban agriculture as a component of sustainability.

This study also aims to help fill some gaps in Australian environmental historiography, in which relatively little attention has been paid to urban environments, the effects of patterns and forms of consumption on environments, and relationships between environment and identities other than 'national identity'. Environmental history is a necessarily diverse enterprise, which seeks to explain present landscapes through their history, and more generally explore the historical interaction of people and environments - including the complex and 'ever-mutating' systems that comprise urban environments.

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9 ibid.
11 ibid.
12 The 'Cities Feeding People' programme at the International Development Research Centre in Ottawa, Canada, has published a comprehensive bibliography of this research: Cities Feeding People, 'Bibliography of Urban Agriculture References', (International Development Research Centre), http://www.idrc.ca/cfp/bibliography_e.html, September 1999.
14 On environmental history as a field which seeks to explain present landscapes, see Dovers, 'Australian Environmental History, p.4. Martin Melosi has convincingly argued for the inclusion of urban environments within the main theme of environmental history: Melosi, 'The Place of the City in Environmental History'. The description of cities as 'ever-mutating' is Melosi's (p.9)
Although by no means a complete history of the interaction of people and environment in suburban Perth and Melbourne, this study contributes to our understanding of this interaction by explaining how, why and to what extent suburban dwellers have created - and continue to create - productive places in their surroundings, and what some of the social, cultural, economic and environmental consequences of food production have been. This focus on a single aspect of suburban life and landscape allows different experiences to be examined coherently within broader contexts, without calling an overwhelming amount of data into play. The narrow focus on food production also allows for the construction of a history in which the aims and concerns, as well as the methods, of social and environmental histories can be coherently combined: the breadth and landscape-centredness of environmental history and the specificity and people-centredness of social history. Most Australian environmental histories include an examination of the economic, technological, social and ideological contexts of environmental change, however, few so far have looked closely at the relationships between identity and environment, beyond examination of the place of the ‘bush’ in Australian national identity. Thus ‘people’ often end up appearing in environmental histories as anonymous and amorphous, rather than actors with particular histories and identities.¹⁵ This thesis seeks to add to overcome this tendency by utilising terminology and approaches - including Pierre Bourdieu’s notion of the habitus - which lead to the inclusion of class, gender and other social divisions as vitally important to the construction of physical and psychological relationships between people and environment.

Rather than focusing on the ‘grand themes’ of Australian environmental history, such as the impacts of (ex-urban) agriculture, spread of exotic plants and animals, or development of an Australian environmental consciousness,¹⁶ this thesis is a study of environmental interaction in everyday action and perception, in the habitat of the majority of Australians - the metropolitan suburbs. Since the 1970s, growing one’s own food organically has been, to some, an expression of environmentalism, as an act which simultaneously recycles organic waste, creates healthy soil, and reduces demand for food produced with synthetic pesticides and herbicides and transported long distances. However, to other people it has never been a performance of environmentalism. The intent of the


producers is not the issue: we don’t always adopt an environmental persona in our interaction with the environment and overt environmentalism is therefore not the best criteria for an examination of human-environment relations. Similarly, examination of relationships between people and the environment should not be confined to the ‘bush’: if environmental historians merely look for how people interact with ‘nature’ when such interaction is explicit (i.e. when people are in settings deemed more or less ‘natural’), then we will miss much of what constitutes human-environment interaction, which happens without consciousness of nature or environmental implications. In the broadest possible sense, almost every act is environmental, in that it involves some degree of resource use or creation. For example, production, consumption, and work have been viewed by historians and sociologists (among others) in many different ways. However, as Allan Pred has argued, rarely are they considered in terms of the environmental resource use or creation that they represent.17 David Harvey has also pointed out that:

The intertwinings of social and ecological projects in daily practices as well as in the realms of ideology, representation, aesthetics and the like are such as to make every social ... project a project about nature, environment and ecosystem, and vice versa.18

It is this aspect of environmentalism which this study stresses - the complex and often ignored web of connections that exist between environments and our social, political and cultural ideas and institutions, including technologies, which are mobilised in everyday practices.

This study therefore takes environmental historiography into the realm of the everyday: rather than focusing on ‘the environment’ in history, it seeks to reconnect environment with history, as virtually all landscapes are produced at least in part by the countless small-scale decisions of countless households, operating in broader economic, social and cultural contexts (which they also help to shape), as they interact with other people and the environment. We have grown accustomed to seeing the environment and environmental issues as largely removed from our everyday lives - constructed as a struggle to preserve either ‘wilderness’, integrity of agricultural landscapes, or livable cities - rather than considering the ways in which environmental pressures are increased or reduced as a result of what we plant, what we eat, what we flush. This reconnection of environment with everyday life is necessary if we are to achieve the goal of sustainable living.

In seeking to achieve increased understanding of Australian suburban life, inform Australian policy, and enlarge Australian environmental historiography, this thesis first addresses the question of what proportion of households have produced their own food. Secondly, the thesis asks who has produced their own food, and, perhaps most importantly,

why have they done so? Having gained some idea of the prevalence of suburban food production, and the social and cultural dimensions of the activity, the final question addressed in the thesis relates to the impacts of food production on the local suburban environment, and vice versa, and the ways in which these impacts have been shaped by the social, cultural, economic, political, technological and environmental contexts in which the activity has been carried out. The thesis is structured around these questions, as outlined below. Within each part of the thesis, themes are followed chronologically, divided into parts at points in time which are roughly congruent with transitions to new social, political and/or economic circumstances, namely, the end of the First World War, the beginning of the Second World War, and the start and finish of the post-war 'boom'. Parts II to IV of the thesis are divided into two chapters, with a break at the Second World War. This division is not intended to highlight disjunctures between the pre- and post-war periods, being employed only in order to produce chapters of a reasonable length.

Part I of the thesis demonstrates that suburban food production has been a significant use of non-built suburban land at least since the late nineteenth century, when cities were home to prodigious numbers of livestock. Household cultivation of fruit and vegetable gardens appears to have flourished in the interwar years, though at the same time, numbers of large livestock began to decline. A decline in the number of poultry-keeping households appears to have occurred in Melbourne in this period, though poultry remained more prevalent in Perth until a decline in the 1960s and 70s. Home production of fruit and vegetables remained popular in both cities in the last decades of the twentieth century.

Having established that food production has been carried out on a significant scale in the suburbs of Perth and Melbourne, it remains to account for why people have chosen to engage in the activity. Starting with perhaps the most obvious, and most often proffered explanation, it will be shown in Part II that home food production in Perth and Melbourne has often been carried out for economic reasons. However, economic necessity has rarely been a factor, and in most cases, economic reasons have not been the only, or even the main, motivation for producing one's own food. In at least some urban areas it was apparently not uncommon for costs incurred in producing one’s own vegetables to be greater than the cost of purchasing them. In other cases, the amount of money saved would not have been substantial. Furthermore, production (and consumption) of fruit and vegetables in particular were most popular among the middle class, though food production generally also achieved a fair degree of popularity among the fraction of the working class in stable, skilled employment. The poor, on the other hand, appear to have had less recourse to self-supplying activities, due to lack of space, security of tenure, knowledge, or money for gardening supplies. Home food production in suburban areas cannot, therefore, be explained solely - or even primarily - by economics.

Most academics who have turned their attention to suburban backyards have painted a picture of production (and utility generally) prior to the Second World War, and recreation and display (implying an absence of production) thereafter. Productive places have also
been labelled instrumental, and regarded as thus devoid of meaning. However, productive landscapes - particularly those which are non-commercial - are in fact very rich in meaning. Some of the more dominant meanings are examined in Part III, where it is argued that that for much of the twentieth century, the predilection for home food production may be explained largely in terms of middle-class and 'respectable' working-class habituses. As a practice arising from these habituses, the activity took on particular meanings relating to class status and associated ideas about work, social organisation, health and bodies, gender, and the relationship between humans and nature. These meanings have often been structured along lines of an independence/dependence dichotomy, although at various times food production has also offered opportunities for appreciation of the value of interdependence. For the most part, the meanings and the practice of suburban food production were coherent, which may account for the generic 'satisfaction' claimed by many in relation to the activity. However, it appears that tensions did occasionally arise, particularly in relation to gender roles, and as visions of rational reform and a 'modern outlook' conflicted with a traditional, rural-based yeoman ideal.

Having sketched a rough outline of who has produced food in suburban areas and why, Part IV of the thesis assesses the ecological impact of the activity, and the ways in which food production has been affected by its suburban location. The prevalence, forms and practice of food production have been shaped in quite obvious ways by the different environments of the two cities with, for example, food production being limited by the hot dry summers of Perth before the development of an adequate town water supply. However, the similarities between the two cities have been greater than the differences, indicating that in an Australian urban context, similarities among those carrying out the activity have affected food production more than environmental differences. In both cities, the scale, longevity and techniques of suburban food production have meant that it has significantly affected historical flows of nutrients and energy in suburban areas in a positive way, thus contributing to urban sustainability. However, certain political, technological and cultural contexts of the activity at times diminished some of its ecological value (as well as ease), and saw it contribute to urban pollution. In particular, in the absence of a strong ecological 'science of caution', artificial pesticides and fertilisers - products of industrial chemistry as a 'science of capitalism' - were adopted as convenient, effective and technically rational measures which appeared to deliver independence from the constraints of nature, even whilst they polluted entire ecosystems. The rise of a widespread environmental awareness from the 1970s saw humans increasingly positioned in a relationship of interdependence with other ecosystem elements, and the subsequent (re-)introduction of a range of environmental technologies for food production had positive impacts on urban and wider ecologies. However, lack of skills and time on the part of urban gardeners, as well as a lack of local livestock for nutrient production and recycling, meant that much home food production at the end of the twentieth century relied at least in part on the nursery industry, which itself was by no means sustainable.
**Scope and methodology**

The scope of the thesis is largely restricted to those areas of Perth and Melbourne which were regarded by contemporaries as suburban. This means of defining ‘suburban’, imprecise as it is, captures the area between the central business district and the rural borders of the urban fringe better than changing official definitions of ‘metropolitan’. The thesis begins in 1880, as a point at which suburban development has begun in Perth and achieved a reasonable extent in Melbourne. It ends in 2000, as the point at which research was completed. It was decided to focus on two cities in order to ascertain whether the similarities in the characteristics of food production were greater than the differences between Australian cities. Perth and Melbourne were chosen due to the availability of sources such as the Melbourne University Prest Social Survey in Melbourne, and the detailed statistics and extensive collection of health and municipal archives available in relation to Perth. The major food products considered by the thesis are milk, eggs, fruit and vegetables. Harvesting of fish and game are not included, as these involve quite different land-use questions (and most likely carry some quite different meanings) to horticulture and the keeping of poultry and livestock. The processing of raw products into, for example, sausages and preserves is likewise outside the scope of this study.

Both commercial and home food production in suburban areas are included, although the focus of the middle part of the thesis particularly is on non-commercial production, as the reasons for commercial production are fairly transparent. The importance of activity taking place within the household sector should not be underrated: in 1994 Graeme Snooks, in his *Portrait of the Family Within the Total Economy* sought to estimate the contribution of the household economy to the ‘Total Economy’ in Australia from 1788 to 1990. In Snooks’ model, the Total Economy is comprised of the private economy, public economy and household economy. For the period 1860 to 1990, Snooks estimated that the household sector contributed 35.8% of Gross Community Income (Snooks’ alternative GDP), whereas the private and public sectors were responsible for 32.4% and 31.8% respectively. The household sector is thus seen as ‘the strategic centre of the Total Economy, and of society as a whole’, as it is the multitude of small-scale decisions made in the household with respect to labour, savings, expenditure, as well as government, that make it ‘the driving force in society and hence in history’.

The study presented two main methodological problems: firstly, how to piece together a probable empirical picture from scattered evidence, and secondly, how to use the available material to provide an insight into the experience of suburban food production, as a site of the construction of meaning and identity. The first problem was approached from a ‘triangulation’ perspective, which involved the creation of a picture supported by evidence from a variety of sources, including surveys, magazines, contemporary gardening books,

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19 Though such definitions are of necessity employed when utilising certain statistics.
archived letters from suburban residents, official correspondence, statistics and reports, and oral histories. As few existing oral histories dealt with the subject of home food production in detail, I conducted 25 oral history interviews in each city, with people who have grown their own food.\footnote{In one case in each city, the interviewee had a deceased close relative who was a very keen food-producer.} Details of these interviews appear in Appendix I. The arguments in relation to use of oral history as source material are now quite well-known: whereas oral sources provide valuable source material for areas sparsely covered in contemporary written sources, what is provided in oral history interviews is an account of someone’s memory of an event, activity, or ‘way of life’, which has passed through the filter of time, including subsequent events and changes in ideological contexts and currents. When assessing the utility of oral history as a source, it should be borne in mind that virtually all sources are ‘filtered’ in some way, and the use of all sources thus requires some awareness as to the context of their creation. Oral history therefore, rather than being a ‘less reliable’ source, is probably better regarded as one that requires, on the part of the historian, a greater level of awareness of the processes of filtering which have taken place before the time of the interview.\footnote{This perspective is one which has emerged from the debates surrounding the use of oral sources, and history and memory: see Robert Perks and Alistair Thomson (eds), \textit{The Oral History Reader}, Routledge, London, 1998; Kate Darian-Smith and Paula Hamilton (eds), \textit{Memory and History in Twentieth-century Australia}, Oxford University Press, Melbourne, 1994. The use of oral history in an environmental history project is discussed by Jane Roberts and Geoff Sainty, ‘Oral History, Ecological Knowledge, and River Management’, in Stephen Dovers (ed.), \textit{Environmental History and Policy: Still Settling Australia}, Oxford University Press, South Melbourne, 2000, pp.118-144. The interviews carried out by Roberts and Sainty focused on one particular environment - the Lachlan River - and were used to trace changes in the physical environment over time. My interviews were rather different in that they related to a multitude of different environments, linked by the common thread of food production, and as well as tracing changes in those types of environment over time, they sought to elicit indications as to the subjective importance of those environments for their producers and maintainers.}

A resolution of the second methodological problem relied on the use of oral histories, contemporary first-hand accounts such as letters to Councils, and popular gardening literature. The use of magazines and books as sources may been seen as problematic, as they by no means provide transparent reflections of lived experience. In proposing that examination of gardening literature can offer some insight into the way in which people made sense of their gardening activities (as well as evidence for the employment of particular technologies and techniques), I am assuming that the representations contained in popular literature generally achieve a certain congruence with the expectations and desires of the audience. Different explanations exist for the manner in which such ‘congruence’ is achieved.\footnote{For an overview of these theories, see Denis McQuail, \textit{Mass Communication Theory: An Introduction}, 3rd ed., Sage, London, 1994, chapter 3.} Many theorists propose that commercial (and governmental) constraints on mass media production result in the production of messages subscribing to the most popular
values (whether these are ultimately seen as having emerged from ‘above’ or ‘below’). These positions either assume a general awareness among the magazine staff and contributors (or author and editorial staff) of what their audience wants and expects (determined by involvement with the gardening public, direct audience feedback, and sales figures), or emphasise the ability of those involved in the production of magazines to successfully participate in the construction, or shaping, of their audience through the creation of ‘preferred reading positions’ or ‘ideal reader-identities’ which readers are willing to occupy.

However, unless one accepts that media messages are inevitably received uncritically by audiences, it is also necessary to consider what readers, listeners or viewers are likely to do with the content of messages, on the basis of the social experiences of particular audience groups. Following Birmingham theorists such as Stuart Hall, I argue that individuals simultaneously create and consume culture, and that the meanings of people’s lived experiences are therefore produced in interaction with cultural representations. A balanced use of media as evidence must therefore situate it within the context of the socio-cultural characteristics of its audience at any given time, as well as the broad political and economic contexts of media production. The representations contained in gardening books and magazines thus provide some indication as to the things it was possible, and indeed desirable, to think and do in relation to home food production, for a particular, identified, audience. They also indicate the gender, class position and values of the ideal reader-identity which, in the case of successful magazines, it may be assumed that many (though by no means all) readers sought to occupy. More transparently, magazines and books provide supporting evidence as to the range of possible techniques, materials, and ‘current issues’ (such as garden size, cost of produce, environmental considerations), associated with gardening at particular times.

In the remainder of this chapter I will briefly describe the physical environment of the two cities, before moving on to analysis of some relevant theory and historiography of Australian urban forms - the spatial context in which suburban food production was carried out - including the debate over urban consolidation. I shall then discuss how this study situates itself in relation to a rather diverse body of theory, and outline the points of

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tension in existing theoretical structures which are highlighted when considered in relation to suburban food production.

**The physical setting**

From a settlement at the foot of Mt Eliza, on the banks of the Swan River, Perth has grown into a city which sprawls casually along more than 60 km of the Swan Coastal Plain, between the Darling Scarp and the Indian Ocean. Its climate is Mediterranean, with cool wet winters and hot dry summers: 80% of its 869.4 mm of mean annual rainfall is received between the beginning of May and the end of September. The soils of the Perth region are dominated by four soil systems: Cottesloe and Cottesloe Ridges (yellow or brown sand or loam over limestone), deep yellow Karrakatta sands, deep pale-grey Bassendean sands, and Southern River, in which the higher ground is similar to the Bassendean sands, and the lower ground consists of a duplex soil of sand or loam over clay. Smaller areas of alluvial soils are found immediately adjacent to the Swan and Canning rivers, and black peaty loams have formed around swamps in the Bassendean belt and along the line of wetlands running from Loch McNess in the north to Yangebup Lake in the south. Overall, however, the soils of the Perth region are dominated by sand, which is suitable for both building and cultivation of winter crops, though its very low water-holding capacity means that irrigation is required for the cultivation of most food crops and pastures in Perth’s hot, dry summers.

Melbourne has grown from an initial European settlement at the head of Port Phillip Bay. Over time the city has developed asymmetrically, with most growth to the northeast, east and southeast, where sandy and loamy soils and varied topography compared favourably with the flat basalt plains to the west, northwest and north. The soils of the basalt plains consist of a thin loamy topsoil over shallow heavy clay and basalt. Drainage is poor and the soils are difficult to cultivate, being rock-hard in dry weather, and sticky when wet. The soil also leads to difficulties in building, as its capacity for shrinking and swelling can cause cracking. To the east and southeast of the city proper are areas of sand and loam over clay, which are mostly suitable for both cultivation and building. The coast of Port Phillip bay consists of deep sands which are easily cultivated but very free-draining and prone to erosion, whilst dark loams are found around swamps and on flood plains throughout the city. The climate of Melbourne is warm temperate, with warm summers

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31 ibid.
and cool winters. The mean annual rainfall is 656.8mm which is, on average, distributed fairly evenly throughout the year. Though Kew in Melbourne is rather warmer than its English counterpart, with cooler year-round temperatures and more evenly-distributed rainfall, Melbourne’s climate is decidedly more ‘English’ than Perth’s.

For and Against the Suburbs: Consolidation vs. the Backyard
The development of Perth and Melbourne bore the imprint of physical geography - much less so of climate - though other factors were decisive. It is commonly argued that the basic form of Australian cities is historically related to the type of economy they service, as well as the dominant mode of transport, although prevailing views of what constituted good living were clearly also critical. From their inception, Australia’s cities were commercial or mercantile rather than industrial in character, being basically centres of trade and administration. The low labour requirements of pastoralism and industrial forms of agriculture, capital city-centred rail networks, and the ‘snowball effect’ whereby more manufacturing and service employment was created in the largest centres of population, led to the concentration of population and power in the metropolitan areas of each state. Thus by 1911, 45% of Victorians, and 38% of Western Australians lived in Melbourne and Perth respectively. Up until the 1870s, Melbourne was a fairly dense pedestrian-oriented ‘walking city’, where many people could accomplish their daily tasks on foot. Perth was more of a struggling little town than a walking city. In the boom years of the 1870s and 80s in Melbourne, and 1890s and 1900s in Perth, tram and rail networks were established and the cities became ‘public transport cities’, with residential (and some commercial) development, generally low-density, extending out along the ‘spines’ of the public transport routes.

In the minds of the early suburban developers and residents, the suburbs provided an escape from the noise and evils of the city, where the advantages of country living were reconciled with the advantages of city employment. The new suburbs featured residential segregation along class lines with the upper classes literally taking the high ground and other pleasant areas, subdividing them into large blocks, leaving the low-lying and less desirable


35 Forster, Australian Cities, p.8.

36 Forster, Australian Cities, p.9.

areas for working-class housing. The low-density nature of most suburbs was encouraged by government provision of infrastructure, and protected by local by-laws stipulating minimum lot sizes, as well as sizes of houses and rooms. A strong desire for homeownership in the colonies may in the first instance be traced back to Britain, where property conferred both political rights and status. A longing for independence and security were more enduring motivations. Aspirations for homeownership were translated into high levels of owner/purchaser occupation by relatively high wages (for some) and supportive government policies. In 1911, 41% and 37% of dwellings were occupied by owners or purchasers in Perth and Melbourne respectively, rising to 55% and 45% in 1941. The Australian preference for ownership of a detached house in a garden setting was thus established at an early stage and as we shall see, the garden was not merely the space surrounding the house, but had meaning and importance in its own right.

The cities developed in this fashion until the end of the Second World War. Driven by economic growth, generous housing finance policies, immigration, the ‘baby boom’, and, following the removal of petrol rationing in the 1950s, a rapid increase in car ownership and use, the low-density, primarily residential suburbs expanded outwards, and filled in the areas between public transport ‘spines’ at an unprecedented rate. Ownership of a detached suburban family home was an increasingly obtainable goal, and from 1961, rates of homeownership hovered between 69% and 73% in both cities. Availability of both affordable land and road transport inspired retail and manufacturing enterprises to move to the new suburbs. In this decentralised environment, public transport lost profits and therefore investment, leading to its near-demise. Cars became the preferred transport mode, and in a vicious circle, were increasingly catered for in preference to other options. The dominance of private car transport, combined with ongoing demand for the independence, security and privacy of a detached house in a garden setting, resulted in the continued creation of fairly low-density suburbs, as there was perceived to be no need to restrict residential development to areas adjacent to public transport corridors. The end result of this process was an urban structure characterised by low-density residential suburbs interspersed with commercial and industrial districts.


42 ibid., pp.23-24, 29.

43 ibid., p.31.


45 ibid., p.31.
Although regarded by countless Australian families as a desirable place to make (and own) a home, the low-density residential suburbs have also had their critics. From the late nineteenth century, the nationalist Bulletin writers began a conspicuous attack on suburban life. In 1906, for example, Louis Esson published his ‘Song of the Sububbs’ (in which food production was part and parcel of the suburban malaise):

When the office is locked, the sububb returns to
rest in its backyard bowers;
It clasps its leaking hose with joy and sprinkles
the cauliflowers;
It eats and drinks and goes to bed at
unsensational hours.46

Academics and social commentators proceeded to associate the suburbs with stifling materialism, spiritual banality, parochialism, monotony, conformity and rampant conservatism, with alternatives to suburbia located in the danger and intellectualism of cosmopolitan life, and/or the mateship and character-building rigours of 'the bush'.47 Gradually, economic arguments about the inefficiencies of low-density development were added to the extensive list of objections to suburbia.48 Some feminists also added their voices to the anti-suburban chorus, on the grounds that the segregation of residential and commercial/industrial land reflects and perpetuates a 'separation of spheres' which isolates women in suburban homes.

Suburbia has also had some strong proponents, including those such as Robert Menzies who saw the privacy and individualism of the suburbs - condemned by socialist writers and disputed by others - in a very positive light.49 One of the most prominent proponents of suburbia was Hugh Stretton, who acknowledged that the suburbs are where most Australians - 'poets and painters and inventors and protesters' included, grow up and live with 'space' and 'freedom'.50 For Stretton, the suburbs did indeed represent the best of both worlds, particularly for children.

The environmental movement which emerged as a force in Australia in the 1970s, along with the oil crises and the increasingly evident problem of urban air pollution,51 forced intellectuals to consider the environmental costs of the privatised low-density urban form of Australian cities. More or less simultaneously, the work of feminist writers, along with the apparent end to full employment in the industrialised nations, provoked a renewed interest in the social costs or possibilities of suburbia. Three main streams of thought on

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suburban society and environment emerged: one which saw the current low-density development as environmentally sound, one which proposed the creation of village-scale 'green' urban areas, and one which proposed higher-density 'consolidated' cities.

The first stream is evident in Hugh Stretton's 1976 work *Capitalism, Socialism and the Environment*, in which he discusses the environmental benefits of the privatised low-density suburban form and way of life:

It is in private houses with storage space and some land around them that it is easiest to use more human energy in a satisfying way, and to manage with less powered commercial services ... Environmental policies will always be determined chiefly by peoples' values; and urban houses and gardens are the nursery of most of the best environmental values. People who live in town but grow some foliage of their own, and keep a cat to deter mice, are the mainstay of all movements which work to protect larger landscapes and eco-systems. Private residential land is both an environmental good which ought to be fairly shared, and a vital educator: a classroom for work-skills, play-skills, nature study and environmental values which an environmentally careful society could be mad to deny to any of its people.52

This analysis is in keeping with Stretton's view that the scope and importance of non-wage domestic labour based on home-ownership should be increased in order to provide a means of escape from industrial wage labour - a theme later echoed in some respects by writers such as R.E. Pahl (see below).

In the late 1970s and early 1980s, two more 'environmental' streams of thought about how to improve Australian urban environments emerged. These portray privatised low-density suburbia as 'Sprawlsville': an unsustainable feature of Australian life whose expansion threatens valuable forest and wetlands as well as agricultural land, and whose operation - based on the use of private cars - is highly polluting. One stream of thought, dubbed the 'rural commons' view by Peter Newman, is best represented in Australia by Ted Trainer and Allan Rodger. 53 It draws on ideas which emerged internationally amongst anarchists and radical environmentalists in the 1960s and 70s, starting perhaps with Murray Bookchin's 1965 *Crisis in our Cities*, and going on to include Permaculture, bioregionalism and social justice.54 It proposes the breaking down of cities into villages - small-scale,

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largely self-sufficient communities which operate co-operatively, rely on renewable energy for power, and use electronic communication to keep in touch with the rest of the world. Critiques of this view have located it within the long Australian tradition of anti-urbanism - a tradition which played a part in the creation of the suburbs in the first place and which, the critics argue, would lead the rural commons to basically replicate existing suburbs in a way which is more ‘green’, but restricts opportunity for human achievement.\textsuperscript{55}

The ‘urban commons’ view, promoted most vigorously in Australia by Newman and Jeff Kenworthy, envisages a ‘consolidated’ city of higher-density living, shopping and working areas with an infrastructure favouring walking, cycling and public transport.\textsuperscript{56} In this form of urban renewal, public gardens replace private yards and unnecessary roadway and parking space. Agriculture on the urban fringe is not threatened by the consolidated city, but on the subject of suburban food production, Newman is clear: ‘To respect the flows of nature does not mean you have to produce food from it.’\textsuperscript{57} Some ‘gastronomic’ positions on sustainable urban development have also emerged. Broadly speaking, they are characterised by a tension between the rural and urban commons: a desire for increased production of fresh food at home vies with a longing for more densely-populated, cosmopolitan cities which (at least in theory) support a greater variety of food outlets and local, sociable dinner companions.\textsuperscript{58}

The ‘urban commons’ view has been criticised by Graeme Davison and Tony Dingle as drawing on the ‘old anti-suburban rhetoric, offering us cities which will grow more exciting and diverse as they grow more dense.’\textsuperscript{59} Another more extensive critique of both the ‘urban commons’ and ‘rural commons’ views has been offered by Patrick Troy.\textsuperscript{60} Like Davison and Dingle, Troy has challenged the assumption that increasing density leads to a more creative or ‘cultured’ society. He also questions the consolidationists’ use of figures, claiming both that the quarter-acre block is now a rarity, and that to achieve any substantial savings in space, densities would have to be greatly increased, with less public space available


\textsuperscript{57} Newman, ‘Sustainable Settlements’, p.21.


per capita. Troy has also challenged the urban village solution, on the grounds that the concept was imported from very different socio-economic settings, without consideration for Australian contexts. He ascribes village ‘community spirit’ to grinding poverty, and claims that ‘village’ proponents ignore the ‘inexorable polarisation, marginalisation and exclusion’ associated with villages. In conclusion, he dismisses the urban village idea as a product of middle-class insecurity.61

The alternative offered by Troy includes government policy to ensure freedom, social justice and minimisation of ‘environmental stress’, combined with free market provision of appropriate housing in response to demand. Troy acknowledges that the single-family detached house and garden represents the housing choice of an overwhelming majority of people. In defending this choice on environmental grounds, he places the onus of environmental responsibility fair and square on the shoulders of the householder, advocating on-site waste separation and composting plus collection and use of rainfall, leafy private gardens for climate modification and air purification, private tree planting for amenity and fuel, house design to utilise solar energy and wind, and greater ‘autarchy’ or self-sufficiency in food, in order to ‘reduce the demand for large scale monocultural food production which would, in turn, reduce the environmental stress elsewhere’.62 Like Stretton, Troy thus locates urban sustainability in the suburban house and garden, with the response to environmental degradation based around domestic production and the reproduction of labour power. Neither Troy nor Stretton, however, identify their domestic environmental workforce. Given the historically entrenched nature of the sexual division of labour in Australia, this approach begs the question: might this decentralised environmental work not just add to women’s household work, and thus their oppression?

**Feminism and the city**

Although links between gender and urban form are generally overlooked by Troy, feminist authors have asserted that in order to understand urban form, particularly as it relates to the lives of women, one must also consider gender-based power structures. Canadian feminist Suzanne Mackenzie argues that ‘gender and urban environments are constructed interdependently ... Gender is an essential parameter of city development and change.’63 In their writing on urban form and its relationship to gender-based power structures, feminists have focused to a large extent on the doctrine of the separate spheres, that is, the separation in ideology and physical space of men’s paid work from women’s often unpaid domestic work.64 Many argue that from the late nineteenth century, low-density suburbs replete with detached houses in garden settings were seen to be the ideal venue for the

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64 This has often been referred to the split between home and work, although this terminology is somewhat repugnant as it implies that work done in the home is somehow not 'work'.
expression of women's femininity in their role as care-givers for children and a weary husband, and as household managers. The city, on the other hand, was constructed as a masculine domain, a rough-and-tumble, harsh and competitive world of 'real' work. Of course, many women, and particularly working-class women, entered this domain every day. Furthermore, the private house was the venue for the exploitation of women engaged in sweated labour. However, in spite of these challenges, the 'separate spheres' remained a powerful ideal, and was certainly implicated in the physical separation of commercial and industrial areas from residential ones. Urban forms featuring 'feminine' suburbs isolated from masculine centres of employment and power in the city are thus seen as having been shaped by the ideal, and in turn playing an important role in maintaining the social construction both of women's domestic labour as 'not-work', and of women's 'natural' role as a home-maker dependent on a male breadwinner, with the associated restrictions placed on opportunities for women in paid employment.

The 'feminine suburbs, masculine cities' interpretation of separate spheres ideology is, however, complicated by suburban food production: if the suburban home was regarded as woman's sphere, and the suburbs as feminised in constrast to a 'masculine' city, how is this reconciled with the fact that the work of food production in suburban 'pens and patches' was, in the late nineteenth and much of the twentieth century, predominantly constructed as a masculine activity? I will argue that in the suburban context, food production was seen as men's work, and often carried out by men, because it was constructed in a way that tied it to three basic tenets of contemporary dominant masculinity - manly independence, productive physical labour, and the breadwinner role. As an activity so strongly bound up with masculine ideals, it is unsurprising that food production in suburban backyards was rarely represented as women's work. Instead, women's place in the garden was aligned with a narrow, dependent construction of femininity: women were the observers, consumers, and producers of beauty and ornament (i.e. flowers), not producers of essentials such as food. Where public discussion of women's involvement in home food production was necessary, as for example during the Second World War, the activity was represented as an extension of women's indoor role as mothers and wives rather than independent, productive work for


women. Furthermore, this ‘feminine’ construction of food production was not accorded the same legitimacy as the masculine one. This layering of gendered meanings of food production illustrates one way in which understandings of a place can change according to who is occupying it, what they are doing there, and who is observing them. However, the productive spaces of Australian backyards were for the late nineteenth and much of the twentieth century clearly regarded as predominantly masculine spaces. Whilst this does not refute the notion that ‘two spheres’ ideology was influential, it does suggest that the idea was less coherent and hegemonic than is often assumed, particularly with regard to the gendering of ‘city’ and ‘suburb’: ideal spaces for women may not have existed in the city, but masculinity could be at home in the suburb.

Katie Holmes and Jean Duruz have also painted a picture of complexity in relation to the gendered nature of gardening. Duruz argues that ‘there is not one gendered garden of the suburbs, but a multiplicity of gardens and meanings to be trod and reworked within specific relationships’. Nevertheless, she sees the ‘home’ - of which the garden is an integral component - as ‘feminised territory—as a site of female labour and of feminine identity’. More specifically, gardens are seen as places ‘where women negotiate identities, and draw meanings for femininity’, and as ‘secret landscapes of feminine subjectivities’.

I would add that they were also not-so-secret landscapes of masculine subjectivities, as there was a well-defined public masculine subject position for male vegetable-growers, fruit-producers and poultry-keepers to occupy. Holmes contends that the garden was ‘a place where traditional understandings of gender could become blurred’, and gender dynamics negotiated, contested and performed.  

In relation to food production, however, traditional understandings of gender were generally reinforced, rather than blurred, leaving little room for negotiation.

Individual and community

Louise Johnson, Anna Rubbo and Margo Huxley in Australia, and Dolores Hayden in the USA have all looked at the way in which masculinist designs for housing and urban areas can all be altered or ignored to give entirely different ‘feminist’ uses and functions of space.

For example, Hayden has suggested altering an ordinary suburban block in a way which provides common space and facilities, including communal child care and a (large)

68 ibid., p.204.
69 ibid., p.201
70 ibid., p.213
communal vegetable garden. Huxley has urged us to consider communal, creative uses for large homes on large lots, and Anna Rubbo has suggested that community or allotment gardens could become centres of both community interaction and food production. The common feature of these feminist designs, and indeed much feminist writing, is the challenge they represent to the old masculinist dualisms: work/home, public/private, culture/nature. A communal, public vegetable garden represents both nature and culture, and blurs the distinction between the visible (public) market garden and the invisible (private) backyard garden. Community gardens and city farms have been a part (albeit a small one) of urban life in Melbourne since the early 1970s - 'those halcyon Whitlam years', which also saw the setting up of community-based child care, schools and health centres. In Perth, they were established from the 1980s. To what extent do they reflect the development of a wider communal orientation in Australian urban society? And what can food production more generally tell us about relationships between individual (or individual household) and community in Australian suburban society?

Mark Peel has recently remarked that the 'commonsense story' of Australian suburbia tells of a decline in 'community', from the days when neighbours were friendly and looked out for each other, to today's 'drawn blinds and high fences', hiding neighbours you rarely see. Peel asserts that although stories of the decline of 'community' are not necessarily nostalgia, the larger story of 'community' is rather more complex, with close communities forming patchily among particular groups of people, in particular times and places. Peel also points to the 'persistently tense relationship between neighbourliness and distance, community and privacy', whereby many stories of a decline in 'community' are counterbalanced by stories of pride in the achievement of a 'real home' which is private and self-contained. The desire for autonomy, privacy, and self-containment has been consistently popular, but as it has been increasingly realised since the 1950s, particularly by the working class, an apparent decline of neighbouring has been the result. With reference to the ongoing attempts of planners and architects to construct community, Peel suggests that attempts should be made to design environments which facilitate community

73 Dolores Hayden, 'What Would a Non-Sexist City Be Like?', in E. Stimpson et al (eds.), Women and the American City, University of Chicago Press, Chicago, p.181; cited in Huxley, 'Space, knowledge, power and gender', p.188.
78 Peel, 'Between the Houses', p.270, 277.
79 ibid., p.276.
interaction, though not at the expense of the perceived autonomy and privacy which most Australians clearly cherish so dearly.80

Judy Wilks is more sceptical of planners' attempts to create 'community', arguing that in recent decades, where 'community' is deployed by planners it is used as 'a convenient term, a cover-all and mean-nothing'.81 However, Wilks also suggests that there is some error of perspective involved here - 'community' exists, but not in the planners' image of it: principally the domain of women and children, the elderly and unemployed, 'community' goes largely unrecognized by planners simply because they spend much of their time away from the residential sphere in which it is located.

There is also a strategic concern over the notion of 'community' in the debate over urban consolidation, with each side apparently determined to show that its own strategy produces authentic 'communities' or alternately, that other strategies result in a 'community' which is either 'feeble' or altogether illusory. As noted above, Troy sees the 'community' supposedly located in 'urban villages' as the fantasy of an insecure middle class. On the opposite side of the debate, both the 'rural commons' and 'urban commons' streams of urban environmental thought attack the highly privatised nature of Australian suburban society, in the belief that

it over-emphasises the private, individualised world at the expense of the commons. It provides for private splendour in our houses and backyards and in our cars, but public squalor in our air and water, at the urban fringe as it falls under the subdivision's bulldozer, in the global environment due to greenhouse, in the feeble attempts at community which characterise our suburbs, and in our public transport, which is allowed to run down and become vandalised.82

The 'private splendour, public squalor' thesis was clearly outlined in Jim Kemeny's 1983 work The Great Australian Nightmare, which explored one aspect of the relationship between housing form, public provision of services and urban structure. Subtitled 'A critique of the home-ownership ideology', Kemeny's book is highly critical of what he sees as the deliberately-manufactured Australian tradition of detached-house ownership which he views as leading to and perpetuating, in combination with a weak welfare state, an urban infrastructure in which public facilities are underdeveloped.83 Kemeny concedes that there is no necessary relationship between form of tenure and dwelling type, but claims that the association makes sense in countries like Australia, where poor provision of public transport and other facilities means that maximising private space becomes important. This line of thought goes back at least to 1958, when J.K. Galbraith argued in The Affluent Society that capitalist societies oversupply the population with private property, whilst

80 That autonomy is indeed only 'perceived' because, as Peel points out, it is only possible when supported by a variety of shared connections and resources provided in common, including power, water and transport infrastructure. Peel, p.283.
81 Wilks, 'Community - You're Standing In It!', p.37.
undersupplying public services.\textsuperscript{84}

This notion of the private, individual and independent city versus the public, communal and interdependent one forms a central theme of this thesis. Suburban food production in Australia has historically been carried out privately within individual households. Although it has occasionally offered opportunities for appreciating the value of interdependence, it has long reflected more generally a strong orientation towards independence, a general disposition which has influenced popular approaches to various facets of suburban life, from housing to relationships with nature. Although community gardens are increasing in popularity in Australia, they still only account for a small proportion of all private food production. Furthermore, it is the allotment gardens, which most closely mimic the individualism of the backyard, that are proving most popular and productive. Gardens where the cultivation is cooperative and areas of individual responsibility are not defined tend to be less successful, indicating that the shift from a focus on the virtues of independence, to those of interdependence, is likely to be a gradual one.

From suburban peasants to suburban consumers?

Another author to have considered the relationship between urban form, social structure, production and consumption is Australian sociologist Patrick Mullins, who in 1981 wrote two articles on the social and material components of the reproduction of Australian labour power.\textsuperscript{85} Mullins’ hypothesis sought to relate forms of capitalism to urban structure, proposing that ‘mercantile urbanisation threw up one type of housing, industrial urbanisation another, and corporate urbanisation still another’.\textsuperscript{86} Like Kemeny, he examined the relationship between levels of public and private investment in urban infrastructure, arguing that because the mercantile capitalism dominant in Australia from the 1820s to 1940s did not need to concentrate workers around particular industries, there was no concentration of property capital in rental dwellings, and no infrastructural spin-off to residential areas. Mercantile urbanisation therefore featured reproduction of labour power under a system of ‘urban peasantry’, characterised by: relatively high rates of owner-occupancy of single-family detached housing; emphasis on self-sufficiency through food production, maintenance and/or construction of house etc.; relative lack of public residential facilities (including waste disposal and water provision); centrality of the family and domestic economy, with highly skilled domestic workers (mostly women); and a privatised, individualistic, loose-knit social structure. This was a contrast to cities which developed along the lines of industrial capitalism, and featured widespread rental


\textsuperscript{86} Mullins, ‘Theoretical Perspectives on Australian Urbanisation: I. Material Components’, p.73.
accommodation, extensive residential facilities and a tight-knit community structure - all products of the need to locate industrial workers close to factories, and the consequent investment in property capital. Mullins demonstrates that the more industrial Australian cities, Melbourne and Sydney, in actual fact exhibited more of these features than the less industrial cities.

With the end of the Second World War and the advent of globalisation of capital, the mode of production in Australia shifted to monopoly capitalism, and, argues Mullins, the form of urbanisation consequently shifted from from mercantile to corporate. Corporate urbanisation featured reproduction of labour power under a system of suburban consumerism, with even higher rates of owner-occupancy of single-family detached housing, emphasis on mass consumption of consumer durables, and increased investment in public residential facilities which aid consumption (such as roads). Individualism and privatisation remained the basis of social relations. Mullins believes that although mercantile and corporate urbanisation may superficially appear quite similar, they are in fact very different, with one being tied to self-sufficiency, the other to mass consumption. He therefore interprets Stretton's works as a 'somewhat nostalgic' call for the return of the urban peasantry, with its emphasis on the supposedly unalienated labour of the domestic economy. Almost twenty years after he first floated the 'urban peasantry' thesis, Mullins revisited it, with Chris Kynaston. After surveying a range of quantitative data and qualitative material from Australia and New Zealand, Mullins and Kynaston concluded that the evidence indeed pointed to the existence of a prewar urban peasantry and its relative absence in the postwar period. Since the mid-1970s, Mullins and Kynaston argue, the informal economy has revived, although the focus is on activities which generate cash rather than basic goods such as food.

In this thesis it will be argued that there are a range of difficulties with the urban peasantry hypothesis. Firstly, it appears to ignore environmental limitations on self-sufficiency in the context of limited infrastructure: sometimes the greater level of provision of residential facilities associated with the more industrial cities was actually necessary for substantial levels of self-sufficiency. Thus Melbourne, a more 'industrial' city than Perth, was fairly well-supplied with piped water by 1891, whereas well into the 1890s the potential for self-sufficiency in the Perth was limited by scarcity of water during the summer months when vast quantities of water were required for successful vegetable gardening on sand in hot weather. Even in the 1920s it was assumed that summer gardening in Perth would be limited by water.

Mullins also errs in proposing that the high levels of homeownership and thriving domestic economy - including home food production - arose from necessity, as the necessaries of life could not otherwise be had or afforded. The 'urban peasantry' concept is


88 This issue is explored in more detail in chapter 7.
said to identify ‘the forced self-sufficiency placed upon workers under mercantile urbanisation, appearing in the ownership of a single-family house and in the productive use made of the yard’. However, the evidence suggests that most food items were usually conveniently accessible, being available from nearby grocery stores or door-to-door vendors. Furthermore, it was sometimes more expensive to grow one’s own fruit and vegetables than to buy them, although the production of animal foods could often be more economical. As will be shown in chapter 7, in some cases poor rubbish and sewerage services increased the attractiveness of food production, as a means by which a useful product could be obtained from a household’s or locality’s own waste, which had to be disposed of in any case. However, there is no necessary link between the two: much rubbish was dumped on vacant land, and composts and manures could also be used for ornamental plants.

Another substantial difficulty relates to various assumptions made with regard to class and household economies. Firstly, Mullins refers only to the ‘working class’. The absence of a middle class in Mullins’ analysis means that differences between the working and middle class, in terms of culture and access to economic and other resources, are overlooked, when the evidence suggests that these differences were clearly significant. As I will demonstrate in Parts II and III of this thesis, home food production was most prevalent, and carried to its fullest extent, among the more economically-secure (if not wealthy) middle class, who could have bought their fruit, vegetable and egg requirements with little diminution in their living standard. Mullins also fails to identify the class dimensions of the different forms of food production, and in particular the fact that the greater political power of the middle class (particularly as exercised through local government) ensured that in many cases the potential for middle-class fruit and vegetable production was protected, whilst restrictions were placed on working-class animal-keeping. The environmental determinism largely associated with middle-class reformers, along with the concern for property values among predominantly middle-class property-owners, motivated the introduction of by-laws regulating or prohibiting the keeping of various animals. Thus in some cases where food production was carried out as a matter of necessity, as with the working-class goat-owners of Victoria Park around the First World War, the viability or even possibility of the activity was diminished by the introduction of fees or regulations intended to prevent animals from interfering with the amenity of suburban landscapes.

It seems to me, therefore, that food production (at least) is better explained with reference to part two of Mullins’ original thesis - the social components in the reproduction of Australian labour power. Mullins attributes the individualistic and privatised nature of suburban Australian society to the focus on the domestic economy:


90 Such regulation of suburban animal-keeping became prominent from the first world war, which challenges the simplicity of Mullins’ chronology of the urban peasantry. Furthermore, although Mullins and Kynaston (p.149) refer to the fact that a tax was imposed on goat owners in Brisbane in 1914-16, the implications of this for the urban peasantry are not discussed.
Life in the urban peasant economy came to be centred around the house and yard. The nuclear family spent its time working this unique non-capitalist domestic economy. In this way the urban peasant community came to be characterised by privatisation and individualism.91 However, this appeal to a pre-existing domestic economy is insufficient, given that its alleged raison d’être - necessity imposed by lack of investment in rental accommodation and residential infrastructure - does not appear to apply, at least in the case of food (and possibly also clothing and other items produced within the domestic economy). Rather, it seems to me that the domestic economy was preceded by the independent disposition, which arose out of a middle-class Victorian ideology imported from Britain and was amplified in the colonial context, where upward mobility was emphasised as an inducement to immigration. The focus on agrarianism in Australia saw the ideology of independence attached to the figure of the yeoman, and the production of food in suburban backyards thus came to represent a symbolic link with the myth of the independent rural yeoman - a possibility to which Mullins alludes at the conclusion of his second article.92 Thus, food was not usually produced out of necessity, but as a result of what I will call the ‘independent disposition’ generated within the Australian urban middle and ‘respectable’ working classes, which in the case of the middle class was also associated with a more general individualism and household ‘self-containment’.

The failure to recognise the ideological basis of much home food production also leads Mullins to overstate the decline of the activity in the period after the Second World War. Mullins claims that:

Suburbanisation ... spelled the demise of Australia’s urban peasantry, for the vegetable garden, the fowl run, the fruit trees and the highly-developed domestic economy was replaced by mass consumption, where food could now be bought more easily and cheaply at supermarkets.93

As will be seen in chapter 2, however, food production was ostensibly still carried out by a substantial proportion of the suburban population throughout the latter half of the twentieth century, albeit perhaps on a smaller scale as the time and land available to many households decreased. This continuity is unsurprising given the activity’s ideological basis: as Mullins points out, ‘the suburban community, like the urban peasant community, is characterised by individualism and privatisation’.94 Mullins also sees the transition from production to consumption as irreversible, because ‘the dominant consumption process of corporate urbanisation contradicts a return to the self-sufficiency of an urban peasantry’.95

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92 ibid., p.41. In suggesting a possible link to a rural ideology, however, Mullins makes no conclusions as to causality. Furthermore, Mullins retains the terminology of ‘peasantry’, rather than ‘yeomanry’. The distinction is significant: as will be seen in chapter 5, John Forrest was rebuked in 1886 for desiring a ‘bold peasantry’ on the land, rather than ‘stout British yeomen’.
95 Mullins, ‘Theoretical Perspectives on Australian Urbanisation: I. Material Components’, p.73.
The unspoken idea behind this interpretation is the ‘territorial advance’ of capitalism.

Drawing on the work of Lutz, Habermas and others, Claus Offe and Rolf Heinze have explored the mechanics of capitalist expansion in relation to the household during the ‘long boom’ transition to suburban consumerism in Germany. Their analysis is broadly based on a central tenet of Rosa Luxemburg’s theory of imperialism:

that capitalism, by no means in its early phase, but as a whole, bears the imprint of a logic of ‘territorial advance’, that is to say, continual expansion into a non-capitalist environment.96

This ‘territorial advance’ is characterised by ‘external colonisation’, or the drive toward dependent modernisation of the developing world and other non-capitalist regions, as well as making inroads within capitalist societies via colonisation of the lifeworld or ‘traditional sector’, which includes elements of intensive household production.97 Following this line of reasoning, the two decades of postwar prosperity are ascribed to capital’s advance into the ‘traditional sector’, whereby women were taken into the paid employment market on a larger scale than before, and the goods and services normally produced in the traditional sector were replaced by industrial and professional products.98 In the Australian context, Jill Julius Matthews has characterised the process of market penetration by which the goods and services produced within the society became commodities to be bought and sold, and its effect on the nature of both production and consumption, as the most significant of changes in the economic order as it relates to the making of modern Australian femininity.99 Elizabeth Harman and Rosemary Pringle are two other Australian feminists who have considered the notion of ‘territorial advance’, arguing that it transformed women’s household work from productive work to the labour of consumption.100

Looking to the future, Offe and Heinze agree with Mullins that exits in the form of ‘traditional’ economic life have been blocked off, because ‘the territory “occupied” during the process of modernization under market economy industrialism during the postwar boom has become so structurally changed and disorganized’.101 In support of this point, Offe and Heinze suggest that items obtained outside of the market are now regarded with suspicion, or as second-rate.102 Pringle has echoed this notion in the Australian context, as have Mullins and Kynaston in their statement that nowadays, ‘The consumption of culturally-

97 ibid.
99 This is because, according to Matthews, the local economy allowed women to easily combine household and other work, whereas the concrete and conceptual separation of the spheres meant that, particularly in the postwar period of suburban spatial expansion, women often struggled to perform ‘dual roles’.
101 Offe and Heinze, Beyond Employment, p.41.
102 ibid. pp.41-42.
desirable goods and services ... can only be satisfied with cash'.¹⁰³ On the other hand, British sociologist R.E. Pahl has pointed to an increase in the importance of productive household activities since the 1970s, as part of what he identifies as a more general expansion of the informal economy based on household capital and labour.¹⁰⁴

This thesis bears relevance to the notion of territorial expansion, by taking a closer look at the possibility for territorial advance into the sphere of suburban food production. It is argued that where food is produced by a household, it is often produced not as ‘food’, but as ‘home-grown food’, a distinctive category of produce. This distinction has been particularly marked in Australia, where it has come to express a variety of class-based ideas relating to status, health, and the body. Capitalist production could only expand into this territory by persuading the majority of home food-growers that the bought item is superior to the home-grown; so far, this has not generally occurred. Capitalism has been more successful, however, at expanding into the field of home gardening via the production and promotion of sprays, fertilisers, gadgets and garden plants, although a substantial proportion of gardening resources are still recycled rather than bought.

Overall, although some aspects of Mullins’ urban peasantry thesis appear congruent with the findings of this study, it seems that the material link between mercantile capitalism and a flourishing domestic economy is weak, and the social characteristics of the urban peasantry appear to have their basis in an imported ideology which flourished in colonial conditions. Furthermore, it appears that the territorial advance of capitalism into the sphere of domestic production, on which Mullins bases his conception of the postwar suburban community, is a more complex and fragmentary phenomena than often assumed (at least with respect to food).

This chapter has mapped out the broad terrain which the thesis will cover, outlining its scope and methodology, and placing it within a broad framework of relevance to questions of sustainability. This relevance is twofold: firstly, the thesis seeks to contribute to the debate over urban consolidation by offering a perspective on the historical importance (or otherwise) of suburban food production for individual and collective identities, household economies, and suburban ecologies. In the conclusion, this knowledge will be translated into some tentative suggestions relating to policy measures directed at improving the sustainability of Australian cities. Secondly, and relatedly, the thesis seeks to offer a general historical perspective on one aspect of everyday interaction between people and environment in Perth and Melbourne, incorporating social, cultural, economic and

ecological ‘dimensions of the human experience’ of food production. In doing so, it enlarges and complicates a range of arguments which hold some explanatory power in relation to Australian suburban life: the ‘two spheres’ ideology which is seen as having gendered city and suburb; ideas about Australian cities as private, individual and independent versus public, communal and interdependent; Patrick Mullins’ urban peasantry hypothesis; and the notion of the ‘territorial advance’ of capitalism. With a more comprehensive understanding of the multitude of forces shaping suburban life, we are better equipped to recognise and address the broad challenges facing us in the pursuit of sustainability.

105 Dovers, ‘On the Contribution of Environmental History’, p.138. Dovers argues that sustainability is ‘fundamentally about integrating ecological, social and economic dimensions of the human experience, and this in turn requires integration of these at any attempt in historical perspective’.
Part I - Prevalence

Chapter 2

A changing harvest:
The scale of suburban food production 1880-2000

Driving through the streets of suburban Perth and Melbourne today, it is hard to imagine that they were once home to an assortment of agricultural enterprises - a dairy here, a market garden there, a piggery down near the river. As rows of more-or-less tidy front yards flash by, punctuated by stern walls and tangled native gardens, it is perhaps even harder to imagine that though the dairies may be long gone, a third to a half of suburban households produce some of their own food. In this chapter, I set out to roughly delineate the changing territory occupied by suburban food production in Perth and Melbourne, examining the available quantitative evidence, as well as some qualitative and impressionistic sources. The understanding gained of the probable extent of food production in each metropolis will then serve as a basis for the discussion in subsequent chapters of the economic, socio-cultural and ecological contours of the activity. In summary, it will be shown that although there has been a general decline in the amount and variety of food produced in Perth and Melbourne over the course of the course of the twentieth century, this decline has been neither smooth nor comprehensive. In particular, the pattern for livestock has been rather different to that for horticultural production. Numbers of large livestock in the two cities suffered a substantial decline from the interwar years, with the proportion of households keeping poultry also declining in Melbourne between the 1930s and 40s. Numbers of both commercial and non-commercial poultry in the suburbs of Perth declined in earnest from the 1960s. The area devoted to commercial food crop cultivation in the suburbs likewise declined - first orchards, then market gardens - from the Second World War in Perth and possibly earlier in Melbourne. In suburban backyards, however, with the exception of a possible lull in the 1960s, the production of fruit and vegetables has remained widespread.

Food production will be considered here as falling into one of two main categories (although they can not always be readily distinguished in the data). They are: commercial (including dairies, piggeries, poultry farms, market gardens and orchards), and private (including home vegetable gardens and fruit trees, poultry, goats and cows). Livestock and cultivation are considered separately within these categories. Patrick Mullins and Chris Kynaston have used poultry as an indicator of broader levels of food production, but the survey of sources carried out in this chapter shows that the prevalence of livestock is

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generally a poor indicator of fruit and vegetable production (for reasons that will be examined at greater length in Part III). For both commercial and private food production there are difficulties in assessing prevalence with a high degree of accuracy. In particular, production carried out on a small scale in the relative invisibility of suburban backyards has usually eluded collectors of official statistical data, and casual observers have tended to assume that few suburban households produce food, simply because that production isn’t usually visible from the street. Commercial and private operations on properties over an acre in area are better represented in statistical collections, and there is some very detailed information on the number and productivity of market gardens, orchards, dairies and poultry farms. For Perth, returns of livestock kept by both householders and commercial operations were collected well into the twentieth century. However, the tendency of those collecting and presenting statistics to regularly alter statistical area boundaries introduces some uncertainty into long-run comparisons of data. Furthermore, even where statistics relating to food production - commercial or otherwise - have been collected, often they are not available for the Metropolitan region or areas within it. This is particularly the case for Victorian statistics. However, for many periods in each of the cities, there are also a range of surveys, ‘educated guesses’, archival traces and anecdotal sources which help to ‘fill in’ the parts of the picture left blank by the official statistical record.

It would require a thesis in itself to uncover and analyse all, or even most, of the anecdotal and ‘circumstantial’ evidence relating to suburban food production found in myriad autobiographies, oral histories, local histories, letters, poundkeepers’ records, fines, summonses, health inspectors’ reports, council minutes, parliamentary debates, magazines, gardening books, and so on. Mullins and Kynaston made a start on some of this material in their recent reassessment of the urban peasantry thesis.2 Here I will introduce more of this material, to back up the statistical picture and to point to probabilities where no statistics are available. In the interests of brevity, only snippets have been drawn out of a very deep pool. Mostly they are included for their representativeness; more will be discussed at greater length in subsequent chapters.

1880-1918: Suburbia emergent

As residential suburbs took shape on the edges of the growing settlements of Perth and Melbourne, much of the perishable food required by residents was produced locally. Some detailed statistics provide a picture of suburbs generously endowed with livestock, including cows and goats, kept for private use and profit. Detail relating to the extent of food crop cultivation is more scarce. It is clear that most fruit and vegetable crops were produced in the vicinity of the metropolitan areas, although there is no quantitative, and fairly sparse qualitative, evidence for domestic fruit and vegetable production on properties under an acre during the period.

2 See chapter 1; Mullins and Kynaston, ‘The Household Production of Subsistence Goode’, pp.147-150.
Assessments of the amount of food production taking place in Perth in the nineteenth and early twentieth century come from a number of sources. Statistical information on livestock and food crop production was collected annually by appointed collectors or police officers, as well as by census collectors in 1881 and 1891. The *Industrial Statistics Act 1897* (WA) required all owners of properties over an acre to provide information relating to crops on their property, and all owners of livestock, on land of any size, to give details about numbers and condition of animals. Ten years later, this Act was superseded by the less specific *Statistics Act 1907* (WA), which relied on regulations to specify what information was to be collected, and from whom. In 1918, the regulations maintained that owners or occupiers of land over one acre, and all owners of livestock and poultry (whether or not on properties over an acre) were required to provide statistical information. All owners of livestock, on land of any size, to give details about numbers and condition of animals. Ten years later, this Act was superseded by the less specific *Statistics Act 1907* (WA), which relied on regulations to specify what information was to be collected, and from whom. In 1918, the regulations maintained that owners or occupiers of land over one acre, and all owners of livestock and poultry (whether or not on properties over an acre) were required to provide statistical information.3 Local and Central Boards of Health also enumerated cattle kept by registered cowkeepers. Unfortunately, changes in the boundaries of the areas by which statistics were collated make long-run comparisons difficult, particularly before 1930 (see Appendix II). I have however compiled a table of official livestock and horticultural production statistics by nearest equivalent area (see Appendix III).

It is clear that food-producing animals were prevalent in the 1880s in Perth. A return of the number of poultry in the Perth and Fremantle Magisterial Districts in the 1881 census showed a total of 19,530 - around 2 birds for each of the Districts' 9,955 recorded persons (Aboriginal people being excluded). Furthermore, for every five colonists there were around two cows, two and a half sheep, and one pig. By 1891, the non-Aboriginal population in the Perth and Fremantle Magisterial Districts had increased to 16,694; numbers of horses, pigs and poultry had also increased, as had crops other than grain. By 1896, numbers of dairy cattle and horses had increased, but other livestock numbers declined. Cultivation of food crops in the area also declined in this year. These decreases may perhaps be accounted for by some cultivators and animal-keepers leaving for the goldfields. Others may have taken advantage of Government policies aimed at establishing a rural yeomanry, such as the free blocks of up to 160 acres made available on conditions of residence and improvement under the *Homesteads Act 1893* (WA).

From the turn of the century, it appears that as the metropolitan population grew rapidly relative to the rest of the state so too did levels of livestock and to a lesser extent cultivation. Although livestock levels were generally depressed in the 1916 returns, most increased again by 1921. Two exceptions to these general trends were sheep and goats. Sheep numbers declined from 1901, and remained relatively low throughout the century, apart from a brief comeback in the 1950s and 60s. This is probably easiest to explain in

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3 'Regulations for the collection of statistics', *Government Gazette of Western Australia*, 1 November 1918, pp.1663-1675.
5 See Appendix III.
terms of the limited utility of sheep to householders, and the fact that few small mixed farming establishments would go in for sheep, as wool and meat markets have long been geared toward large-scale production. Goat numbers were very low in 1901 but increased in 1911, reaching a peak at 541 around 1916 and declining thereafter. The rise in the popularity of goat-keeping may be explained by the increasing number of suburban households with room for a goat and an inclination to stretch the family wage. As will be shown in chapter 5, many goat-keepers were working-class women who kept goats as they felt they could not otherwise afford the quantities of milk which health professionals recommended for children. By 1921, however, goat numbers had fallen to 459, and by 1929, their numbers had dwindled to 174, most likely as a result of the imposition of regulations and fees on the part of local Councils.

In the late nineteenth and early twentieth centuries, dairies were an important part of the suburban fabric, and certainly a major focus of attention for the Central Board of Health and the Local Boards of Health, with whom commercial dairies were required to register. A list of registered dairies operating in and around Perth and Fremantle in 1903 appears in Appendix IV. Most districts were fairly well-endowed with commercial dairies: in an era with limited efficient transport and no refrigeration, it made sense for milk to be produced locally. For example, in 1901 the area supervised by the Fremantle Local Board of Health boasted 15 dairies (176 head). The average number of cattle kept was around 10, although there could be substantial variation in herd size: in Fremantle, one licensed cowkeeper kept only four cows, and one kept 37. In the early years of the twentieth century, suburban dairies appeared to undergo a process of consolidation, with dairy numbers declining and herd sizes decreasing. By 1903, the number of dairies in Fremantle had fallen to 12, and the median herd size increased to 15. This process of consolidation most likely facilitated the eventual movement of suburban dairies into country areas, as larger establishments would have been better placed to absorb the increased transport costs, whilst finding it increasingly difficult to obtain adequate grazing for their herds around the suburbs. Dairy herds were mostly turned out ‘into the bush’ or ‘along the river’ to graze, only being penned for grazing animals, whereas goats browse.

6 Although sheep can provide wool, meat and milk, they have never really been popular with householders on limited land for three main reasons: firstly, it requires a reasonable amount of capital investment in carding and spinning devices to be able to process wool and the money obtained from selling small quantities of unprocessed wool would be minimal; secondly, milking qualities are not as good or convenient as that of goats; and finally, more land is required for sheep than goats as sheep are grazing animals, whereas goats browse.

7 This issue is discussed at greater length in chapters 5 and 7.

8 As witnessed by copious inspection records - see for example State Records Office of Western Australia (hereafter SROWA), AN 120/4, Medical Department, Acc 1003, Unregistered files & Miscellaneous papers 1897-1901, Box 25, Fremantle - Dairy Inspections; Box 26, Leederville; Box 27, North Perth - Dairies; and Box 28, Perth - Dairy Inspections.

9 I have restricted the term ‘dairy’ to those who kept cows on the premises, although ‘cowless’ milk shops also came within the ambit of the regulations, and were also subject to surveillance. These latter were often other milk vendors who received their milk from Guildford or Wugong by train; SROWA, AN 120/4, Medical Dept, Acc 1003, Unregistered files & Misc. papers 1897-1901, Box 25, Fremantle - Dairy Inspections, F.W. Lockwood, Chief Inspector, ‘Synopsis of reports on dairies under the jurisdiction of the Fremantle Local Board of Health, the Fremantle Road Board District Local board of Health, and the East Fremantle Local Board of Health’, 4 September 1901.
milking and overnight. In some cases, the blocks on which the dairies operated were very small for the number of cattle carried - Keane's dairy on Cheriton St in East Perth consisted of only half an acre yet somehow managed to carry 38 head of cattle.

Most house cows should have been recorded in the collection for the Statistical Register, and commercial dairy cows in registered dairies were enumerated by the Local Boards of Health. It should therefore be possible to determine numbers of commercial and non-commercial stock. However, as the boundaries of the Local Board of Health areas differ from those of the districts for which livestock numbers are tabulated, such differentiation will not be exact. As a rough guide, in 1903, Local Health inspectors recorded 1396 cows within registered dairies operating in the area roughly encompassed by the Metropolitan and Suburban electoral provinces and Fremantle plus North, East and South Fremantle electoral districts. In the same year, the Government Statistician found 2446 'milch cows' over a year old in this area. Subtracting the recorded commercial dairy herds, this leaves 1050 house cows in total, or approximately one cow per 12 households (the Census in 1901 having recorded 13,159 dwellings in the area). In all probability the figure would vary a little from this due to the boundary differences. However, it would be reasonable to assume that in 1903, around 7-8% of households in the Perth area kept a house cow - a small but significant proportion.

Another indication of the prevalence of suburban cattle can be obtained from Council records relating to wandering or impounded cattle. For example, in 1911, a resident of East Perth was concerned at the number of cattle wandering daily around the neighbourhood, being particularly nervous about the fate of his ornamental trees. Two years later, the Town Clerk of Fremantle wrote: 'Every day I am getting complaints of cows wandering the streets and on private property in Beaconsfield.' Between 1914 and 1919, the Fremantle Council continually dealt with complaints of wandering cattle, and requests by cowkeepers for pound fees to be waived.

Although perhaps less well captured in official statistical records than livestock, fruit and vegetable production was also significant in the emerging suburbs. By 1881, 97 Anglo-Australian families were engaged in market gardening, several on a large scale. In the Perth and Fremantle Magisterial Districts, there were 360 acres of root crops and 'kitchen

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10 See for example Janet McCalman, Struggletown: Public and Private Life in Richmond 1900-1965, Melbourne University Press, Carlton, 1984, p.13; see also SROWA, AN 120/4, Medical Dept, Acc 1003, Unregistered files & Misc. papers 1897-1901, Box 25, Fremantle - Dairy Inspections and Box 28, Perth - Dairy Inspections.
11 SROWA, AN 120/4, Medical Dept, Acc 1003, Unregistered files & Misc. papers 1897-1901, Box 28, Perth - Dairy Inspections, Inspection of dairies 2 July 1901.
12 see map Appendix II and table of registered dairies Appendix IV.
13 SROWA, AN 20/5, Perth City Council, Acc 3054, Correspondence Files, no.265, 1911, Stock straying in streets.
garden’, 117 acres of vineyard, and 444 acres of grain crops. By 1891, the acreage of grain crops in the two districts had fallen to just over 72, but fruit and vegetable production had increased to 552 acres, with an additional 138.75 acres of vineyard. Five years later, the area devoted to horticulture had decreased, somewhat inexplicably, to 325.75 acres. Unfortunately, subsequent statistical boundary changes between 1896 and 1930, and a lack of useful data for 1916-1926, make it impossible to determine the longevity of this trend.

Suburban horticulture was boosted with the arrival of the Chinese. It is not known when Perth’s first Chinese market garden was established, but in 1888 ten Chinese were growing vegetables on 11 acres of South Perth foreshore land and at the 1891 census, of the 912 Chinese males in the colony 102 were market gardeners - the second largest single occupation. By 1910 the Chinese dominated the industry. Using data provided by the late Dr. Gentilli, Anne Atkinson has mapped the locations of Chinese market gardeners in 1911 in 4 areas: South Perth-Victoria Park (at least 3 garden areas, 6 gardeners and their staff), Bibra Lake (10 blocks leased to Chinese gardeners), Maylands-Bayswater (19 gardeners and staff), and Perth-Leederville (22 gardeners, at least 11 gardens). Chinese market gardens were also located in East Perth and Joondanna swamp, north of Lake Monger, where gardens were run by Charlie Lin and Pon Tak. Anglo-Australian gardeners included Thomas Barnes, who in 1900 worked land in Bassendean, between Palmerston Street and the Perth Road. Sometimes households producing food primarily for their own use would sell a surplus locally, or even further afield: the Wright family of South Perth, for example, produced fruit, vegetables, milk, honey and eggs for their own needs, and sent part of their fruit crop to be sold in Kalgoorlie.

The Wrights appeared in one of many oral histories of Perth, which collectively tell us that in this period several homes - particularly those with larger gardens in middle and outer suburbs - were partially or wholly self-sufficient in fruit, vegetables, eggs, and sometimes also milk. These sketches of particular food-producing households, however, provide little information as to the actual extent of food production. Local historians working closely with such material have used it to form overall impressions of the prevalence of food production in suburbs of Perth. Some of these accounts have mirrored the statistical picture of widespread keeping of livestock. In her history of Bassendean, for example, Jennie Carter concludes that a ‘large proportion’ of West Guildford households supported one or two species of large livestock and ‘just about all homes had a well-stocked poultry run’. Covering territory less well captured by statistical collections, Cathy May writes of early twentieth-century Bayswater:

17 ibid., pp.24-25.
18 ibid., pp.24-25, 27.
23 Carter, Bassendean, p. 233.
With land still so cheap, owners sometimes bought two or more adjoining blocks, some for use as a garden area. Even in the most built up areas, large vegetable gardens with a few fowls or ducks were common.24

In summary, it appears safe to conclude that livestock were commonly kept by households and businesses in the suburbs of Perth prior to the First World War. It is also clear that commercial horticulture was carried out on a substantial scale, although the production of grain appears to have shifted to rural areas at an early stage. The prevalence of home fruit and vegetable gardens, however, is more a matter of conjecture. Although there is no doubt that some households produced large quantities of fruit and vegetables for their own needs, and it is tempting to assume that this practice was widespread, in reality there is now insufficient evidence to be able to pinpoint the prevalence of production with any degree of certainty.

**Melbourne 1880-1918**

The *Statistical Register of Victoria* for the 1880s and 1890s provides a great deal of information, by local government area, on the scale of food production in Melbourne. Statistics were collected under the *Local Government Act 1874* (Vic) and *Local Government Act 1890* (Vic), in accordance with proclamations by the Governor in Council. Although the published reports note that only holdings of one acre or more were included, it appears that as for Perth, the returns for livestock included those kept on all premises, regardless of size.25 The available data is summarised in Appendix V. As in Perth, livestock were prevalent, and indeed must have lived in close quarters with people: in 1881, when the total population of greater Melbourne was 210,405, the more closely-populated areas (including Melbourne, Prahran, Richmond, Collingwood, and Fitzroy) also had large numbers of livestock and poultry. However, as would be expected, the keeping of livestock was more common in lower-density suburbs. In 1886, William Clarson felt obliged to include notes on cultivation of ‘the cow and horse pasture’ in his *Kitchen Garden and Cottager’s Manual* because, as he put it, ‘It frequently happens that suburban and country gardens have attached, or near at hand, a small paddock devoted as grazing ground, or for the culture of rough crops suitable for the cow or horse.’26 In Brunswick, with 2.3 persons per acre, approximately 40% of households owned large livestock, and 63% of households owned poultry; in Melbourne city, with 13 persons per acre, 8% of households owned livestock and

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25 This may be inferred, for example, from the census return for 1891, where Port Melbourne had only 1 lot of over 1 acre, which could not possibly have contained all of the city’s 454 horses, 230 cattle, 402 sheep 32 pigs, 22 goats and poultry!

In both cases, however, these figures are high in comparison with more recent livestock ownership levels. The 1881 figures also suggest that although cow ownership was widespread, dairying was concentrated in the orchard and market garden districts of Heidelberg, Moorabbin and Oakleigh, with milk from the latter two areas probably being brought into the city by train. Between 1881 and 1891 the number of pigs kept in Melbourne declined, presumably as a result of increasingly strict public health regulations. Goat numbers overall remained steady, and total numbers of cows and poultry increased. In some inner-suburban areas, however, livestock were apparently being squeezed out: Prahran and Collingwood showed a reasonably consistent decrease in livestock numbers, and the amount of poultry kept in Collingwood, Fitzroy, Richmond and Melbourne decreased. In contrast, productive animals flourished in the middle and outer suburbs: Brighton, Brunswick, Footscray and Hawthorn, for example, more than doubled their poultry numbers.

In 1901 and subsequent years, the admirable practice of listing livestock statistics by municipality was discontinued and figures were published only by county, making it impossible to determine precise trends in livestock ownership in Melbourne over the first half of the twentieth century. Other official material relating to the prevalence of backyard productive animals in the early twentieth century is scarce, though the snippets that remain point to a continuation of earlier trends, namely, declining numbers of larger livestock in areas subject to increasing (human) densities, and the continuing popularity of poultry. For example, evidence from the minutes of the Malvern Public Health Committee suggests that in the 1910s in Malvern, poultry were far from unusual: in September 1912 the Malvern Assistant Health Inspector served 333 notices relating to fowl yards (and probably many other yards in the area complied with the by-laws). However, increasing pressure was being put on keepers of cows in the area. In 1912, due to a nuisance arising from the keeping of cattle by dairyman H.P. Butler, the Malvern Council decided that it would look into proclaiming an area within which it would be unlawful to keep cattle. In October the following year, in the wake of council pressure, one Mr Ayles agreed to considerably reduce the number of stock on his Railway Avenue property, which the Inspector was also instructed to inspect ‘at frequent intervals’. This pressure, however, clearly did not extend to the mansion grounds of the upper strata of society: in 1917 the Governor, Sir Arthur Stanley, enjoyed milk and eggs fresh from the cattle and poultry maintained at Government

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27 Figures are derived from Statistical Register of Victoria for the Year 1881, Part VIII - Production, Votes and Proceedings of the Legislative Assembly of Victoria (hereafter VPP), 1883, vol.2, no.9, which gives the number of owners of livestock per municipality, and the Victorian Year-Book 1880-81, which gives the number of dwellings per municipality. The calculations assume only one livestock owner per household.

28 The railway line to Brighton Beach was completed in 1861.


30 Ibid., Minutes 3 October 1913.
House in Malvern. Anecdotal evidence also suggests that in spite of increasing pressure from local government bodies, ownership of large livestock, at least in the lower-density middle and outer suburbs, remained by no means uncommon. For example, in 1992 Margery Loos, daughter of the co-founder of Murphy’s Grain Store in Glenferrie Road, Hawthorn, recalled that ‘at the turn of the century many people in Hawthorn still had enough land to keep a cow. Murphy’s made up a special cow feed mix for these customers.’ Market gardens, and to a lesser extent orchards, also featured prominently in the suburban landscape. In 1881, there were 8226 acres cultivated in Greater Melbourne (for a map of which, see Appendix VI). Market gardens were clustered near the Yarra River in Kew and Hawthorn, and in the so-called ‘sandbelt’ localities to the south-east of the city - Malvern, Caulfield, Oakleigh and Brighton. Others were located on the Merri Creek in Brunswick and Coburg. Orchards were often located in the same areas as market gardens, although the return for 1881 shows that Heidelberg and Nunawading sported more orchards than gardens. Ten years later, the cultivated acreage in Greater Melbourne had fallen, although the acreage devoted to market gardens had increased in Brighton, Brunswick, and Coburg. These suburbs all experienced high levels of population growth in the ten years, although population densities remained low - from 0.55 persons per acre in Coburg, to 8.07 persons per acre in Brunswick. Increased market gardening in these four suburbs may be explained as a confluence of factors, including environmental suitability, relatively low population densities, and increased demand for vegetables from a larger population. Decreased cultivation in eastern and southeastern suburbs such as Kew, Hawthorn, Caulfield and Malvern most likely resulted from spiralling property values in these areas during the land boom of the 1880s. By 1901, market gardens had returned to Kew and Hawthorn, and market garden acreage had increased across the metropolitan area as a whole. For the years 1881-1901, the largest increases in commercial cultivation, however, were found outside the Greater Melbourne area: market gardening was increasingly concentrated in Moorabbin and by 1901 Doncaster, Heidelberg and Nunawading almost entirely dominated suburban/peri-urban fruit production. The early removal of orchards from the metropolitan area suggests that the increased intensity of market gardening in the middle suburbs may have been regarded as a potentially short-term land-use only: whereas some forms of market gardening on a small scale - such as those adopted by the Chinese - required little capital investment, the establishment of an orchard required security of tenure, and a

31 PROV, Department of Agriculture, VPRS 10163/P2, Central Admin Correspondence files, Box 76, Poultry - Governor.
33 Greater Melbourne in 1881 consisted of Brighton, Brunswick, Collingwood, Emerald Hill, Essendon & Flemington, Fitzroy, Footscray, Hawthorn, Hotham, Kew, Melbourne, Port Melbourne, Prahran, Richmond, St Kilda, Williamstown, plus shires of Boroondara, Caulfield, Coburg, Jika and Malvern. Shire of Oakleigh is not included in the 1881 figures for Greater Melbourne, and for consistency, the Borough of Oakleigh is excluded from later figures: Statistical Register of Victoria for the Year 1881, Part VIII - Production, VPP, 1883, vol.2, no.9.
35 Victorian Year Book, 1890-91, Government Printer, Melbourne, p.216.
willingness to leave the land in production long enough to repay the capital cost of establishing trees. Inner and middle suburbs, with subdivision looming ever nearer, were clearly less suitable for this sort of undertaking.

In 1911, no figures for cultivation were published for individual municipalities with the exception of Preston, all other Greater Melbourne municipalities being grouped under the head of 'Melbourne and Suburbs'. The figures reveal a slight decrease in cultivation of all crops except hay. The 1916 Victorian Statistical Register only provides figures by county - areas too extensive for the figures to be meaningful to this study. As for Perth, quantitative data relating to the scale of home fruit and vegetable production are unavailable, though again, local histories suggest that it was probably not uncommon.36

Although the statistics for Melbourne are limited, they allow us to see that an apparent decline in commercial food crop cultivation in Greater Melbourne began in the 1890s for orchards, and the 1900s for market gardens. However, the lack of available detailed figures from 1911 means it is impossible to quantify the pace and geographical specificity of any such decline.

1919-1937: Suburbia flourishing

The interwar years saw the expansion of 'Home Gardening' (always capitalised) as an accompaniment to the rise of middle-class, low-density suburbia. Thus Leslie H. Brunning addressed the 1920 edition of the Australian Gardener to the needs of the ever-increasing army of householders who realise the saving of expense, the healthiness of the occupation, and the general satisfaction to be derived from Home Gardening.37

Two years later, Searl & Sons echoed this sentiment in their Key to Australian Gardening: 'Gardendom is ever athirst for knowledge and it is astounding how the popularity of this delightful recreation has increased within recent years.'38 The information needs of the growing ranks of the army of Home Gardeners were also satisfied by a flourishing house-and-garden periodical press, now the source of abundant evidence that Home Gardening often included home vegetable and fruit production. Michael Symons has argued that in the interwar period 'the bourgeois ideal became an ostentatiously ornamental garden, featuring unproductive lawn and a miniscule vegetable plot'.39 However, the idea (at least) of productive gardens was popular amongst the creators and largely middle-class readership of Australian Home Beautiful magazine, and substantial kitchen gardens and poultry pens were

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38 Searl's Key to Australian Gardening, Searl and Sons, Sydney, 1922, p.9.

usually included in the tasteful garden plans appearing in every issue. More narrowly-focused gardening magazines of course contained regular vegetable garden and orchard segments, as well as feature articles on new developments. In 1931, for example, the *Australian Garden Lover* declared that ‘The growing of fruit in home gardens is becoming more popular than ever’, noting that special fruit trees prepared to suit small gardens had become available.40 Quantitative as well as qualitative evidence also points to the enduring popularity of poultry in the interwar period. Total numbers of large livestock, however, began to decline as suburban expansion put pressure on local agriculture, and improvements in transport and refrigeration allowed producers of perishable foodstuffs to move further from centres of consumption.

*Perth 1919-1937*

Published statistics provide a good indication as to the changing levels of livestock in Perth from the 1910s to 1930s, although the figures for cultivation in the 1920s are presented only by areas too large to be meaningful for this study. A boundary change in 1930-31 makes it difficult to assess fluctuation of stock numbers with any precision, but there are some generalisations to be made. For one, the 1930s appear to have been the beginning of the end for large stock in suburban Perth. Dairy cattle reached the 5000 mark in the mid-1920s, and fluctuated around this level until the mid-1930s when they peaked at 6000 and then began an absolute decline; total cattle numbers followed much the same pattern. Cows appear to have come under pressure from a number of different directions. Commercial dairies were subject to economic pressures to achieve economies of scale whilst suburban land was increasing in price, and the availability of refrigeration and (relatively) efficient transport encouraged many to seek greener pastures outside the cities.41 Keepers of house-cows were finding it increasingly difficult to find areas to depasture their cows without fear of impoundment, and in some areas cows were banned altogether, as predominantly middle-class suburban Councils and residents attempted to beautify their surrounds with street trees and gardens.42

In the interwar years, Council records relating to stray and impounded cattle give a fair indication of the animals’ prevalence. The records of Fremantle Municipal Council, for example, provide ample evidence of conflict between cowkeepers, other residents, rangers and the Council, in the 1920s. A letter to Council from The South and Central Progress Association, 12 September 1921, claimed that ‘the last round up by the poundkeeper did some good for a short time but the nuisance is now as bad as ever again’.43 As cattle were

40 'Dwarf fruit trees', *Australian Garden Lover*, May 1931, p.43.
41 S.M. Wadham, 'The Economics of Food Prices in Australia', in F.W. Clements (ed.), *Diet and Nutrition for the Australian People*, Angus and Robertson in conjunction with the Commonwealth Department of Health, Sydney, c.1941, p.89.
42 The nature of this conflict in Perth and Melbourne is discussed at greater length in chapter 5.
43 SROWA, AN 217/8, Fremantle Municipal Council, Acc 1377, no.134, 1920-23, Straying Cattle. The 'nuisance' arose from the tendency of the cattle to 'stray into gardens and destroy the contents, [be] a source of alarm and danger to women and children and at night wander round the footpaths and fences with jangling bells'.
once again impounded in large numbers, the cowkeepers did not stand idly by, but in November 1921 organised a deputation to the Council regarding the ‘Methods and Actions of the newly-appointed Ranger’. Complaints regarding wandering cattle on public roads were also received by the Commissioner of Police, who wrote to the Council in June 1922 to request that action be taken. Later that year, when one Mr Foley wrote requesting that pound fees be waived, he was told that under no circumstances would this be done, as the ‘prevalence of straying cattle in the streets at the present time has been adversely [sic] remarked upon almost every meeting of the Council.’ Two additional men were hired as rangers in late 1922, and between November 29 and December 16, 27 cows were impounded, precipitating a barrage of complaints from stockowners in the Central and South Wards. These struggles continued throughout the 1920s and even well into the 1930s: in 1936, the Chief Health Inspector reported to the Perth City Council that

At this time of the year when new grass is sprouting regular attention has to be given to straying stock and during the past fortnight no fewer than 35 head, mostly cows, have been found trespassing on the roads and impounded.

Although numbers of large livestock may have been in decline in the interwar period, clearly there were still sufficient cowkeepers - including private owners - for wandering stock to be a source of neighbourhood conflict.

The popularity of suburban cattle is also indicated by events surrounding the outbreak of Rinderpest in 1923. The disease, previously unknown in Australia, is an infectious and often fatal virus which affects cud-chewing animals. When a dairy herd in Bassendean tested positive to the disease, all cud-chewing animals in the district were rounded up, shot and burnt, in spite of the efforts of a meeting of 400 residents to attempt to come up with an alternative. Many were distraught at the destruction of their pet house cows and goats, and the dairy industry in Bassendean never fully recovered.

Numbers of pigs (presumably mostly commercial, as health laws strictly controlled the keeping of pigs by householders) increased throughout the 1920s and 30s, remaining fairly stable until the 1960s, when pressure from suburban housing began to oust the outer-suburban piggeries. Numbers of fowls did not keep pace with the population from 1911 to 1921, and actually declined in 1929. This could, however, have represented movement of commercial poultry enterprises to areas outside of the statistical collection area, rather than an absolute decline in poultry numbers: following a statistical boundary change in 1930, poultry numbers were up again. They remained high until at least the early 1960s. There is no way of knowing what proportion of households in the period had a fowl yard, though it is likely that they were reasonably commonplace. Charlie Wilson, who grew up in Maylands in the 1920s, recalled that ‘quite a number of people kept fowls’, and that ‘it was common

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45 ibid.
46 SROWA, AN 20/5, Perth City Council, Acc 3054, Correspondence Files, no.1, 1939, Chief Health Inspector's Reports & Instructions, Report to Health Committee, 1 July 1936.
47 Carter, Bassendean, pp.122-123.
to hear roosters crowing.'

Melbourne 1919-1937

With the exception of a census of poultry taken in 1933, there are no published statistics of livestock and food crop cultivation in Melbourne in the 1920s and 30s. However, one important source for the assessment of the prevalence of home food production in Melbourne in the interwar years is David Potts' PhD thesis, 'The Great Depression Revisited: A Social History of Victoria 1929-1934'. This study revolved around 500 interviews drawn from a pool of over 1200 interviews with people who lived through the depression in Victoria. The interviews were conducted by Potts' undergraduate students at Melbourne University from 1966 to 1969, and at La Trobe University from 1973 to 1976 and 1983 to 1985. Students chose their own interview subjects, usually from among relations, relatives and neighbours. In 1980, Potts selected 500 interviews, categorised the responses within the interviews, and computerised the results. Of these 500, which formed the basis of the thesis, 35% were deemed middle class, 60% working class, and 5% not stated or hard to classify. 40% experienced unemployment at some time. 67% of the interviewees were men, 32% women and 1% were interviewed as couples - a gender imbalance which could well have some bearing on the results. Perhaps even more significant, for the purposes of this study, is the balance between rural and urban: of the first place listed for 1929 by the 500 interviewees, 105 were rural, 74 were town, 12 were unclear or complex, and 309 were Melbourne (157 in northern and western suburbs, 138 in southern and eastern suburbs, 14 other or unclear in Melbourne), giving the sample a distinctly metropolitan bias.

Potts claims that 'Home gardens stand out in the interviews as a significant source of food for those affected by the depression'. Of the 365 interviewees (73% of the sample) who answered a question relating to home food production, 70% claim to have grown some of their own food. Although not providing a specific figure, Potts claims that 'most' of these people grew some food prior to the depression: 'it was common practice whether a person was unemployed or not'. Potts' results should be treated with some caution for a number of reasons: firstly, the sample is relatively small; secondly, data for home food production is not tabulated according to urban or rural residence (or class); and finally, some of the interviewees would have been quite young during the depression, several decades had passed between the depression and the interview, and the extraction of data from its context within the interview removes the possibility of achieving an understanding of the kind of narrative each interviewee was constructing about their experience and how they

52 ibid., p.113.
53 ibid., Appendix C, p.371.
54 ibid., p.113.
were situating food production within it. However, in the context of other evidence pointing in a similar direction, the interview material at the very least lends qualitative support to the notion that home food production was common in suburban Melbourne in the 1930s.

Another source of information about consumption of home-grown food was created in 1936 by the newly-formed Commonwealth Advisory Council on Nutrition. In an attempt to measure average family food intakes in the various states, the Council issued questionnaire booklets to families in which they recorded their eating habits over several days. In Victoria, these booklets were delivered to many families through baby health centres and kindergartens, possibly resulting in a sample biased towards Melbourne, and the more dense inner-city areas in particular.55 Of these families, in 1936 only 5% used fruit and vegetables ‘acquired not-by-purchase’, and 3% used milk, butter and/or eggs not purchased. Potts puts these low figures down to the sample which he claims, by nature of its selection, was ‘unusually deprived or dispirited’.56

Potts’ conclusion here is supported by the 1933 census of poultry in Victoria, conducted in conjunction with the Commonwealth census of that year, which found poultry to be demonstrably more prevalent than the Advisory Council survey would suggest. The census found 38 894 owners of 895 171 fowls in Metropolitan electorates.57 The vast majority of owners - 37 761 - had flocks of less than 100 birds. In addition, 4817 owners had 32 341 ducks, 190 owners 766 geese, and 206 owners 540 turkeys. The original table is accompanied by a note that ‘the collection for 1933 was made at a period of the year when the various kinds of poultry would be at the lowest number during that year.’58

Peter Spearritt estimated in 1994 that ‘as late as the 1930s over one-third of all suburban households in Australia still kept chooks.’59 In the 1933 Melbourne census all flocks of over 100 were presumably full-time commercial enterprises, leaving around 37 761 private (or semi-commercial ‘sideline’) owners of poultry in metropolitan Melbourne. Assuming only one poultry-owner per household, this figure represents 16.5% of households, or one in six.60 This figure may represent a slight underestimate, as some of the 2% of Melbourne households keeping ducks may not have also kept fowls, some householders may not have wanted to record their poultry (particularly where they were being kept contrary to Council regulations), and some households may have disposed of an old flock during the unproductive winter months in anticipation of procuring new birds in spring. In any case however, the actual figure is unlikely to have been above 20% which,

56 Potts, The Great Depression Revisited, p.116.
57 PROV, Department of Agriculture, VPRS 10163/P3, Central Admin Correspondence files, Box 261, Statistics - Poultry 1942-1964.
58 ibid.
60 ‘Chook’ is an Australian term for a fowl (usually a hen).
whilst still a significant proportion of households, is not the 33% of Spearritt's estimate. Household poultry-keeping may well have approached Spearritt's estimate in spacious Perth, however.

1938-1954: Suburbia at war
From 1942, farm labour decreased due to enlistment in the services, meat rationing reduced the availability of that important article of the Australian diet, and the influx of servicemen into Australia and New Guinea led to the diversion of civilian food supplies to the military. As shortages threatened to disrupt production, the nation's larders were looking altogether too bare for comfort. Simultaneously, efforts to improve the health and efficiency of the population increased: war required citizens not only fit enough to step up the rate of production, but also, should it come to that, to defend the nation.61 Drawing on the increasingly commonplace language of nutritional science, manufacturers placed advertisements declaring that 'Never in the history of this free land has a well-balanced diet been so vitally important to all of us', and urging people to 'Eat foods that help make Australia strong'.62 Although there had been sporadic, informal efforts at encouraging home food production as early as 1941, by 1943 the position was looking sufficiently serious for the Commonwealth Department of Commerce and Agriculture (working with state Departments of Agriculture) to run a large-scale 'Grow Your Own' campaign, launched in Canberra by W.J. Scully, Commonwealth Minister for Commerce and Agriculture, on the 24th August 1943. The campaign strenuously and frequently encouraged home gardeners to grow their own vegetables as a patriotic duty. Movies, radio broadcasts, public demonstrations, school and local government competitions, posters, newspaper advertisements, brochures and even stickers on correspondence from gas and power companies, were used to get the message across.63 The Second World War also saw the production of one of the first large-scale quantitative sources on suburban food production, which provides a valuable insight into the geographical distribution of the activity in Melbourne in 1941.

Perth 1938-1954
For Perth during and immediately after the Second World War, the statistical registers provide the usual kind of information on cultivation and livestock. In 1942-43, however, a significant change in collection of the statistics took place, with non-commercial holdings carrying livestock or growing crops being excluded from the published tables. As well as

63 National Archives of Australia (hereafter NAA) (Vic), CA 48, Department of Commerce and Agriculture, MP 48/1, FP 217/5/2, Vegetable Production Publicity Education Departments and Public Bodies, 1943-45; and NAA (Vic), CA 48, Department of Commerce and Agriculture, MP 48/1, FP 217/5/1, Vegetable Production Publicity Press and Films and Radio, 1943-45.
racing stables, this ruling excluded ‘Kitchen Gardens, Fruit Trees etc.’.\textsuperscript{64} This change no doubt contributed to the apparent drop in livestock numbers (with the exception of sheep) between 1940-41 and 1945-46. Horses in particular experienced a severe decline in numbers, from 2915 to 713. Into the 1950s, numbers of large livestock continued to decline, as they were pushed out by higher rates and land values, as well as expectations of higher living standards in the expanding postwar suburbs.\textsuperscript{65} The number of dairies in Perth declined from 203 in 1934 to 101 in 1945, before falling dramatically to only 22 in 1957 and 8 in 1968.\textsuperscript{66} Poultry appear to have been not as susceptible to such pressures, and their numbers remained high.

Another notable feature of the statistics is the considerable increase in commercial cultivation of vegetable crops during the early 1940s, a response to the increased demand for food from the services, and predicted increase in civilian demands on implementation of rationing. However, the increase in commercial cultivation was seen as at least potentially insufficient, and so along with the rest of Australia, residents of Perth were urged to ‘grow their own’. There is unfortunately no quantitative record of the impact of the ‘Grow Your Own’ campaign in Perth. The campaign’s detractors pointed to the difficulty of growing vegetables in Perth’s hot and dry summers, particularly when horticultural chemicals and equipment were in short supply as a result of the war.\textsuperscript{67} It is therefore probable that the campaign may have met with more success, at least in terms of vegetable production, in areas more conducive to year-round production (including Melbourne).

The people of Perth may, however, have been more receptive to the idea of keeping poultry, which was already reasonably commonplace: whilst Western Australian parliamentarians were debating the Marketing of Eggs Bill in 1945, Mr. North, MLA for Claremont, claimed that ‘in the metropolitan area there has been for many years a big problem - the rooster nuisance’,\textsuperscript{68} an outburst which plainly speaks to the prevalence of poultry in Perth backyards at the time. It is also interesting to note that North pre-empted by some two decades a renewed effort by Councils and the Health Department to control poultry in the suburbs of Perth. The popularity of backyard poultry in Perth may also account for the relatively high consumption of eggs among Perth households in 1944 which, at an average of 8.8 eggs per adult male per week, was higher than the average in WA country areas, and all other metropolitan areas.\textsuperscript{69} The perception of prevalent poultry

\textsuperscript{64} recorded in a note in subsequent Statistical Registers.
\textsuperscript{65} This issue is discussed in more detail in chapter 5, particularly with reference to conflict over Delamere’s dairy in Wembley.
\textsuperscript{66} W.S. Cooper, ‘Drainage and irrigation’, in J. Gentilli (ed.), \textit{Western Landscapes}, University of Western Australia Press for the Education Committee of the 150th Anniversary Celebrations, Nedlands, 1979, p.252.
\textsuperscript{67} See for example ‘Council Opposes Home Garden Drive’, \textit{Daily News}, 28 September 1943, p.5. This issue is discussed further in Chapter 8.
\textsuperscript{68} \textit{Western Australian Parliamentary Debates} (hereafter \textit{WAPD}), 5 December 1945, p.2469. This observation arose during extensive debate over the Marketing of Eggs Bill.
was echoed more recently by Jim Graham, who recalled that while he was growing up in suburban Cottesloe in the 1930s and 40s, the local shops kept poultry feed ingredients and he would hear roosters crowing in the morning. His own family's poultry yard was extensive, producing eggs and cockrels for sale and for their table. Although the presence of suburban poultry was given away by cock crows, Jim didn't definitely know of any chook yard other than his family's - a point worth remembering when assessing more recent claims that poultry have disappeared from our suburbs.

**Melbourne 1938-1954**

One of the best historical sources relating to suburban food production in Australia was produced in 1941 by Wilfred Prest and his band of interviewers, who spoke to the occupants of 6435 Melbourne dwellings for the Melbourne University Social Survey. This undertaking followed in the tradition of British welfare-oriented social surveys conducted by the Webbs, Seebohm Rowntree and Charles Booth. The interviewers, who were mostly female graduates or senior undergraduates of the University of Melbourne, visited 1 in 35.8 dwellings in the central, western, northern and southern suburbs and 1 in 68.5 in the eastern and southeastern suburbs. They asked questions relating to employment and income, family, tenure, travel between home and work, number of rooms, domestic cooking, washing and storage facilities, and garden layout and usage. The forms on which responses were recorded included the questions 'Is there any yard or uncultivated space?', 'Is there any cultivated garden?', 'Approx. weekly value of fruit and vegetables grown?', 'Approx. weekly value of fruit and vegetables sold?', and 'Indicate any other commercial activities conducted on premises'. Information was taken from completed forms and coded numerically, then punched onto Hollerith machine cards for processing. A few papers were published out of the survey data, but military service and teaching and administrative pressures at the end of the war precluded more substantial timely analysis of the survey data.

In 1980-81, the forms were re-coded and punched onto cards by a team led by Graeme Davison and John Lack at the University of Melbourne. In total, 4259 households, or 66% of the original survey, were encoded. Answers to the above questions were reflected in three variables, which recorded the characteristics of the garden, whether fruit, vegetables and/or eggs were produced, and whether commercial activities (including the keeping of livestock) were conducted on the premises. After John Lack kindly supplied me with a codebook and flat files encoded separately as housing and personal data, I imported these into a Filemaker Pro relational database. This enabled analysis in terms of both household data (such as geographic location, dwelling type, tenure etc.) and personal data (such as employment, occupational status, military service etc.)

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70 Jim Graham, letter to the author, 21 September 1999, and email to the author, 29 September 1999.
A search conducted in Filemaker Pro to determine the number of households producing food, returned 2054 dwellings, or 48% of all sampled households. All figures have been rounded to whole percentages to reflect the level of uncertainty in the data; even so, the sample size and possibility of errors of encoding or interpretation means that the figures should be regarded as broadly indicative rather than precise. The following list shows the percentage of households in the sample recorded as producing some or all of their own food, in each municipality:

<table>
<thead>
<tr>
<th>Municipality</th>
<th>% of dwellings producing food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box Hill:</td>
<td>83</td>
</tr>
<tr>
<td>Braybrook:</td>
<td>48</td>
</tr>
<tr>
<td>Brighton:</td>
<td>72</td>
</tr>
<tr>
<td>Brunswick:</td>
<td>47</td>
</tr>
<tr>
<td>Camberwell:</td>
<td>88</td>
</tr>
<tr>
<td>Caulfield:</td>
<td>80</td>
</tr>
<tr>
<td>Chelsea:</td>
<td>14</td>
</tr>
<tr>
<td>Coburg:</td>
<td>64</td>
</tr>
<tr>
<td>Collingwood:</td>
<td>14</td>
</tr>
<tr>
<td>Essendon:</td>
<td>59</td>
</tr>
<tr>
<td>Fitzroy:</td>
<td>16</td>
</tr>
<tr>
<td>Footscray:</td>
<td>36</td>
</tr>
<tr>
<td>Hawthorn:</td>
<td>62</td>
</tr>
<tr>
<td>Heidelberg:</td>
<td>78</td>
</tr>
<tr>
<td>Kew:</td>
<td>74</td>
</tr>
<tr>
<td>Malvern:</td>
<td>66</td>
</tr>
<tr>
<td>Melbourne:</td>
<td>12</td>
</tr>
<tr>
<td>Moorabbin:</td>
<td>61</td>
</tr>
<tr>
<td>Mordialloc:</td>
<td>9</td>
</tr>
<tr>
<td>Northcote:</td>
<td>61</td>
</tr>
<tr>
<td>Oakleigh:</td>
<td>88</td>
</tr>
<tr>
<td>Port Melbourne:</td>
<td>9</td>
</tr>
<tr>
<td>Prahran:</td>
<td>16</td>
</tr>
<tr>
<td>Preston:</td>
<td>79</td>
</tr>
<tr>
<td>Richmond:</td>
<td>10</td>
</tr>
<tr>
<td>St Kilda:</td>
<td>26</td>
</tr>
<tr>
<td>Sandringham:</td>
<td>58</td>
</tr>
<tr>
<td>South Melbourne:</td>
<td>6</td>
</tr>
<tr>
<td>Williamstown:</td>
<td>42</td>
</tr>
</tbody>
</table>

The terms for this search were: GARDTYPE = 4 or 6 or 7 or 8 OR PRODUCE ≠1 or9 OR ACTIVITY = 2. That is, dwellings were recorded as having a vegetable/fruit garden, and/or producing vegetables and/or fruit and/or eggs, and/or keeping 'goats, pigs, horses, fowls, sheep'. To check whether the samples had been correctly weighted, the proportion of food-producing households found in the Social Survey sample was applied to the total number of occupied dwellings in each Municipality (as estimated in the Victorian Year-Book 1941-42). The sum of the productive dwellings in each Municipality came to 48.8% of the total occupied dwellings in Greater Melbourne, indicating that the Social Survey samples were correctly weighted.
It is evident that home food production was most prevalent in a band of middle suburbs from the north to southeast. Camberwell and Oakleigh topped the list, with 88% of all sampled houses in these areas producing some kind of food. Unsurprisingly, production was restricted, although by no means absent, in higher-density inner areas such as Port Melbourne and South Melbourne. More surprising was the fall in the percentage of productive households in outer areas such as Sandringham, Chelsea and, more dramatically, Mordialloc. This could, however, be a factor of the small sample size in these areas. The survey was carried out before the commencement of the ‘Grow Your Own’ campaign in 1943, so the proportion of households growing their own food is unlikely to have been significantly influenced by wartime propaganda.

The data also reveals that most of these households produced only fruit and/or vegetables: the number of households producing eggs (whether or not in combination with fruit/vegetables) was 256, or 6% of all sampled households. There are two possible reasons for this low figure. Firstly, it could accurately reflect a significant decline in poultry-keeping from 1933. Secondly, it could have been created by some confusion in filling out the interview form. The form only provides a space to record production of fruit and/or vegetables. A survey of several original forms revealed that where poultry were kept, this was sometimes recorded next to ‘commercial activities’. However, in other cases, the only reference to poultry appeared in comments on the back of the form. It is unclear whether these comments were in all cases included in the encoding of data in the 1980s. Furthermore, where a householder stated that eggs were not sold, and the interviewer made no comment on the back of the form, the presence of poultry may well in several cases have been left unrecorded on the original form.

The encoded results have even less utility when it comes to assessing the scale of food production in individual backyards. Many of the interviewers indicated this on the interview forms, but the information was lost in the encoding. A manual survey of the original forms for six suburbs revealed the rather unsurprising probability that in suburbs characterised by large block sizes, the productive potential was higher and more households produced more of their own requirements. Of course, these results are to be taken with some caution, as it is uncertain to what extent the notes on the survey form reflect the willingness of householders to estimate their production (and how accurately this was done), or the consistency with which this information was recorded, as opposed to the actual scale of production.
<table>
<thead>
<tr>
<th>Area</th>
<th>% productive h/holds producing most/all of their fruit/vegetables</th>
<th>% productive h/holds producing some of their fruit/vegetables*</th>
<th>% productive h/holds producing negligible or ‘very few’ of their fruit/vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brighton</td>
<td>37</td>
<td>59</td>
<td>4</td>
</tr>
<tr>
<td>Malvern</td>
<td>18</td>
<td>79</td>
<td>3</td>
</tr>
<tr>
<td>Essendon</td>
<td>13</td>
<td>68</td>
<td>19</td>
</tr>
<tr>
<td>Brunswick</td>
<td>13</td>
<td>81</td>
<td>6</td>
</tr>
<tr>
<td>Northcote</td>
<td>6</td>
<td>87</td>
<td>7</td>
</tr>
<tr>
<td>Prahran</td>
<td>2</td>
<td>62</td>
<td>36</td>
</tr>
<tr>
<td>Melbourne</td>
<td>0</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

* i.e. quantity not specified, or given as ‘some’. Not including most/all or negligible/very few.

Although the social survey figures should be treated with some caution, they broadly indicate some high levels of home food production, particularly in the lower-density, middle-class areas. Large livestock were rare, and poultry were apparently becoming less significant. In certain areas, however, poultry remained commonplace. For example, Tim and Tot White, who have always lived in Northcote and Fairfield, claim that around 1950:

Tim: Everyone had chooks.

Tot: Everyone had chooks. This lady here, and we did, and where Jeff lived had them, and the people next-door had them... A lot along there, Nearly everyone, in those days, had chooks.

Tim: Everyone had chooks.74

Tim and Tot were similarly impressed by the extent of backyard vegetable-growing, particularly prior to the war. Another qualitative indication that the keeping of poultry remained at least a popular idea in the war and immediate post-war period was that poultry yards continued to grace the garden designs in *Australian Home Beautiful*. In the mid-1950s, poultry-keeping also held a prominent position in magazines such as *Your Garden*, which featured monthly ‘poultry notes’ by Charles W. Smith.

**National 1938-1954**

A better indication of the overall levels of production may perhaps be gained from two reports published in the 1940s. On 1 November 1943, a ‘Civilian Requirements Board’ was directed by the Prime Minister to ‘prepare a comprehensive review of civilian food consumption levels in Australia with special reference to nutritional standards and comparative levels in other countries, including the United States of America.’75 This

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74 Tim and Tot White, interviewed by the author, 20 July 1999, tape in author’s possession.
75 NAA (Vic), CA 264, Rationing Commission, MP 5/64, Report for Production Executive on Civilian Food Consumption Standards, 1944, Report by the Civilian Requirements Board, p.1. The Board was comprised of E.R. Walker from the Department of War Organization of Industry, C.E. Critchley from the Department of Commerce and Agriculture, F. W. Clements from the Department of Health, A.C. Coombs from the Department of Post War Reconstruction and J.B. Cumming from the Rationing Commission.
The report was to be prepared with reference to nutritional needs as advised by the Commonwealth Department of Health. The Production Executive further requested that within this, ‘essential civilian needs’ were to be determined.

The review proceeded in three stages, starting with an examination of civilian consumption levels for all the main foodstuffs for the three years preceding the war and for 1943. Secondly, food was reduced to its nutritional component and international comparisons made. Thirdly, recommendations were made with regard to minimum levels of consumption. One of the general conclusions to emerge from the review was that much of the data which had to be used in the formulation of conclusions is essentially of an approximate, or in some cases uncertain nature, owing to the lack of definite statistics in some fields of consumption. Important items such as liquid milk, eggs, vegetables and fat (both as an item and a nutrient) are subject to these qualifications.76

The Board’s estimate of home food production levels appears in Appendix VII, under the head of ‘Estimated max. production by self-suppliers 1943’. It seems, however, that rather than being based on actual survey data, the ‘self-supplier’ figure was created to fill a gap between perceived consumption as reflected in commercial production, and ideal consumption levels. For example, the figures for vegetables were presented in the report as: those estimated by the Statistician as civilian requirements for the Production Goals Committee, on the basis of data collected by the Commonwealth Nutrition Advisory Council in the course of their survey. In arriving at the estimates, some adjustments were made so that the figures involve a number of arbitrary assumptions. However, acreages which it is estimated have been sown for commercial production during the current season indicate production adequate to more than cover the second group of these figures in respect of most varieties of vegetables.77

The ‘second group of figures’ in the original tables gave estimated consumption excluding vegetables grown in home gardens. This column of figures produced a total consumption figure of 106.5 lbs per head per annum, whereas the column including the home garden production came to a total consumption figure of 128.0 lbs per head per annum - the same figure provided by the board in its third stage of the review as a minimum level of consumption for health. It thus appears that these figures represent a projection whereby home gardeners ‘take up the slack’, bringing the total weight of vegetables available for consumption up to the recommended level. Of course, this is a fiction - it is more likely that people ate fewer vegetables than the recommendation. It is also probable, as stated above, that commercial production would exceed the estimate. Still, if we assume that householders would not produce many more vegetables than would create a general condition of oversupply, the figures for 1943 may be taken as an estimated rough maximum for home garden production.

76 ibid., p.2
77 ibid., note to table XI.
The first official Commonwealth 'Report of Food Production and the Consumption of Foodstuffs and Nutrients in Australia' was produced for the year 1946-47, based on reports compiled by Commonwealth Food Control during the preceding years. This report estimated that 41.1% of all eggs, 8.5% of all fish, 5.1% of all vegetables, and 3.4% of all fruit consumed were self-supplied: the first three in particular representing significant amounts. Ronald Wilson, the Commonwealth Statistician, acknowledged that one of the deficiencies of the report was the lack of information available as to the quantities of food which householders produce for their own needs. However, in order to fill this gap, 'careful estimates' were compiled for the report from 'the best available data'. According to a 1992 Australian Bureau of Statistics publication, this 'data' included a 'Food Consumption Survey' carried out in 1944 - presumably the National Health and Medical Research Council survey of 2730 families. This survey, however, was not unbiased. For one, it contained disproportionately small samples from the metropolitan areas - only 142 households in Melbourne and 80 households in Perth. Secondly, 'housewives' to be invited to participate in the survey were chosen from a list of the recipients of child endowment from the Commonwealth Government, which restricted the survey sample to households with two or more children, and which applied for child endowment. It is difficult to know how these biases may have affected the results, though by excluding older couples with grown-up families, they may well have contributed to underestimation of the extent of home food production. The survey results should therefore be treated with some caution. The estimates derived from the 1944 survey and other investigations conducted by government departments during the 1939-45 war were used from 1947 to calculate the home production component in the annual publication *Apparent Consumption of Foodstuffs and Nutrients, Australia (4306.0)*. How the estimates were updated each year is unclear - the next Australia-wide home food production survey was only carried out in 1992.

Although the *Apparent Consumption of Foodstuffs* series does not distinguish between urban and rural home food production, it should be assumed that self-suppliers in rural areas would be responsible for approximately half to two-thirds of the total estimated self-supplied food. Although this proportion may seem low, it is likely that city-dwellers have tended to overestimate the amount of food produced by farmers for their own consumption.

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78 These amounts are, however, significantly less than those in the 1943 report - unsurprising given the probable basic of the estimates.
83 This estimate of the division between rural and urban home food production is based on 1991-1992 figures from Australian Bureau of Statistics, *Home Production of Selected Foodstuffs, Australia, Year Ended April 1992*. 
For example, in 1937, only around 25% of farmers in the Victorian Mallee grew vegetables for at least part of the year (though all had fowls).84 A survey of country towns in the early years of the war also uncovered some grumblings, presumably from older farmers, about the general lack of self-sufficiency among contemporary Victorian farmers: ‘None of them grow any vegetables, some of them don’t even bother to keep fowls’.85 Just as improvements in transport and refrigeration made it possible for perishable foods to be grown further away from urban centres of consumption, by bringing towns within easy reach they also reduced the incentive for farmers to produce their own food.

1955-1972: Suburbia triumphant?
When wartime restrictions eased and building materials and labour became more widely available, construction of new housing proceeded apace. As the hungry suburbs gobbled up agricultural land within their boundaries and at their periphery, numbers of large livestock and cultivated area dwindled to an all-time low. Within suburban subdivisions, some households with a backyard of their own maintained poultry, vegetables and fruit trees. Others went in for the showpiece lawn out the front, and high-maintenance pool surrounded by easy-care slabs out the back. The absence of reliable records on home food production, however, makes it difficult to know what proportion of households fell into each category, or in between.

Perth 1955-1972
From the 1950s, only livestock and production on properties of one acre and over classified ‘rural’ (‘used for the production of agricultural products ... or the raising of livestock’) were included in the annual statistical collections. The number of such holdings declined from 938 in 1950-51 to only 297 in 1971.86 The decline of large livestock, begun before the war, accelerated in its wake. From a high of over 2500 acres of 1945-46, the extent of market gardens in Perth declined to around the 2000 acre mark between 1950 and 1960, and by 1970-71 had fallen to 969 acres. The area under commercial orchards dwindled to only 25 acres by 1971 (see Appendix III). As subdivision proceeded, commercial food production in urban areas declined.

More detailed information on commercial food-producing enterprises may be obtained from replies to circular 485 sent by the Health Department to all municipalities and Road Boards in the Perth Metropolitan Region in early May 1959, to ascertain the number of potential fly-breeding sites.87 The circular apparently requested that Councils provide details of all market gardens, poultry farms, stables and any other perceived fly breeding areas. The

87 SROWA, AN 120/4, Health Department, Acc 1003, no.604, 1959, Replies to Circular 485 - Eradication of Flies and Fly Breeding in Metropolitan Area.
responses, which appear in Appendix VIII, reveal that 620 market gardens were concentrated in relatively few areas at the northern and southern fringes of the city, in Perth and Cockburn Road Board districts, with another 70 or so scattered throughout the city. The 222 poultry farms were slightly more evenly dispersed, with substantial numbers located in Darling Range, Cockburn, Canning, Bayswater, Belmont Park and Perth Road Board districts. Only 10 suburban dairies were recorded.

The fly survey also provided fleeting glimpses of suburban backyards, viewed through a public health lens. Several municipalities noted that the prevalence of flies could partly be attributed to the compost heaps, heavily manured gardens, manure containers and burial of food scraps in ‘the average householder’s yard’. Though these are all activities likely to be carried out in conjunction with vegetable gardens or fowl runs, they provide no definite indication as to the prevalence of same. Correspondence from Guildford gave more detail on food production, noting that:

Numerous back yard poultry yards [are] maintained, with a large number situated less than 20 feet from any dwelling. A survey is under way of the whole area with [a] view to having all poultry yards removed to the required distance.

Five years later, in 1963, the WA Health Department was also seeking to increase control of poultry, with the introduction of new Model By-Laws. At the time, the Department estimated that between one in four and one in six Perth households kept poultry. It is quite likely that the Department’s estimate may well have been close to the mark. Gladys Heedes recalled that from the 1940s to early 1960s, chooks were a common topic of conversation, and in the early 1960s, most of the people she knew had chooks. Similarly, Steve Post’s impression of 1950s Scarborough was that ‘everyone had chooks!’ Linda Brown, Nancy Fitzpatrick and their mother Theresa Blakers recalled that chooks were very common in Nedlands in the 1950s and 1960s. From around the 1960s and 70s, however, the proportion of poultry-keeping households appeared to decline, partially as a result of the introduction of strict Council by-laws.

Melbourne 1955-1972

In 1958, statistics were published giving numbers of rural holdings, horses, cattle, pigs and sheep by local government area in Victoria. Within the Greater Melbourne area (as defined in 1891), there were 52 rural holdings, 19 of which were in Preston, with only 70 horses, 315 dairy cattle, 398 other cattle, 2798 sheep and 322 pigs between them. Clearly commercial production of food within this area was becoming insignificant. Some suburban

88 The municipalities commenting thus were Mosman Park, East Fremantle, Perth, Bayswater and Cottesloe. The quotation is drawn from Cottesloe Municipality’s letter to the Health Department.
89 Registration for Poultry, Pigeons’, West Australian: West Suburban Section, 21 February 1963, p.1.
90 Gladys Heedes, interviewed by the author, 2 November 1998, tape in author’s possession.
91 Steve Post, interviewed by the author, 9 November 1998, tape in author’s possession.
92 Linda Brown, Nancy Fitzpatrick and Theresa Blakers, interviewed by the author, 14 January 1999, tape in author’s possession.
93 Gay McNamara, ‘Chooks Scratch their Way Back’, West Australian, 30 November 1998, p.5. See chapter 6 for a more extensive discussion of this decline.
farmers no doubt welcomed the opportunity to gain a sizable lump sum for retirement by subdividing and selling their land. Others were pushed out by the rapidly increasing land taxes and rates which accompanied suburbanisation: in postwar Nunawading, for example, one orchardist’s land taxes jumped from £249 to £6250 over a twelve-month period. The published figures give no indication as to the extent of private household livestock-keeping or productive gardening in this period. Oral history sources indicate that it may well have remained reasonably prevalent in certain areas into the 1960s and 70s, although as for Perth, there is a sense of a decline at the end of the period. Other informants recalled cornucopian Italian and Greek gardens in the inner suburbs of Carlton, Northcote and Brunswick from the 1970s. These gardens were as highly visible as they were productive - factors which have seen them identified in popular thought as the last (if imported) repositories of a long Australian tradition of suburban self-sufficiency. However, this is a misconception: as revealed in a 1992 Australian Bureau of Statistics survey (see below), the visibility and distinctiveness of some migrant gardens leads to a higher profile than is statistically warranted.

1973-2000: Surprises in suburbia
To many Australians at the end of the twentieth century, the productive backyard, with its chooks and vegies, formed part of a bygone era, the same golden age of suburbia when children were free to roam the neighbourhood, and home security was unknown. Academics have often made similar assumptions. It therefore comes as a surprise to realise that home food production in the 1990s was more common than it seemed, with the proportion of householders engaging in the activity apparently similar to the proportion doing so during the Second World War (although probably somewhat less than during the Depression). Furthermore, the estimated proportion of the total Australian fruit and vegetable crop produced by self-suppliers increased (albeit by a small margin) between 1946-47 and 1991-92 (see Appendix VII). Hidden away in suburban backyards, in the late twentieth century food production remained more or less invisible to all but the occupants. It was also predominantly confined to fruit and vegetables, and the scarcity of crowing cocks and bleating goats made it even less evident to the casual observer.

96 See chapter 6 for a more extensive discussion of this decline.
97 Paolo Ricci, interviewed by the author, 11 February 1999, tape in author’s possession; Betty France, interviewed by the author, 14 July 1999, tape in author’s possession; Stuart McQuire, interviewed by the author, 10 July 1999, tape in author’s possession.
99 See the introduction to Part III for a more extensive discussion of academic assumptions of a decline in the proportion of food-producing backyards.
From the 1970s, the idea of suburban self-sufficiency received a boost in popularity with the rise of the environment movement and the subsequent development of Permaculture and revival of organic gardening. Through to the 1990s, environmental ideas combined with the impact of rolling recessions to produce an apparent ‘renaissance’ of productive gardening and backyard animal-keeping. Without adequate sources relating to the extent of home food production in the 1960s, it is impossible to say whether the apparent increase in prevalence of the activity from the 1970s was a revival, or a more high-profile continuation of earlier levels of prevalence. It appears, however, that the former is more likely. In the early 1980s, vegetable seedling nurseries and seed merchants responded to an apparent increase in demand, almost trebling their output of 1976. The trend was apparently not a short-lived one: in Western Australia in 1998, enquiries made to Agriculture WA’s Garden Advisory Centre indicated that there was still a high level of interest in backyard vegetable growing. Backyard poultry also appeared to make a limited comeback. In 1997, Gardening Australia TV personality Jane Edmanson declared that ‘The days of suburban chooks disappeared for a time but they are now back, riding a new wave of popularity’. In 1998, Altona Hatchery in Perth reported a 5% increase in the previous five years in the number of people buying chickens. Throughout the late 1990s the popular ‘Burke’s Backyard’ TV series and magazine featured regular segments on breeds of poultry, including an appraisal of their suitability for backyards. The 1990s also saw a proliferation of books advocating the keeping of poultry and/or livestock for suburban self-sufficiency.

There are two major quantitative sources dealing with the prevalence of suburban food production from 1973, which confirm the picture of revived (or sustained) home fruit and vegetable production, and to a lesser extent, keeping of poultry. The first is a study carried out in Adelaide in 1973 by Ian Halkett, which involved both the taking of aerial photographs and administration of a questionnaire on garden use. In total, 430 households were interviewed and photographed throughout the Adelaide metropolitan area. Characteristics of sampled households closely matched those of the overall population as recorded in census data from 1971, except insofar as households without gardens were

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102 Vegetable book update’, *Manjimup-Bridgetown Times*, 21 October 1998, p.7. In this same article, Primary Industry Minister Monty House noted that ‘there seems to be a swing back to home vegetable growing’.

103 They did not, however, achieve the same levels of prevalence as in the interwar period.


excluded from the survey, which meant that the sample was biased towards traditional nuclear families.\textsuperscript{107} Although not relating to Perth and Melbourne, the paucity of such surveys has led to the inclusion of this study here as a rough guide to trends across the country.

Halkett found that 8\% of households kept chickens\textsuperscript{108} - a figure distinctly lower than the 1963 WA Health Department estimate of between 17\% and 25\% for Perth.\textsuperscript{109} It remains likely that levels of poultry-keeping differed between Perth, Melbourne and Adelaide; if 1992 figures are anything to go by, the proportion of poultry-keepers would be likely to be smaller in Melbourne than Adelaide, though similar in Perth. Halkett’s survey found that an additional 13\% kept ‘small pets’ such as rabbits, although there is no indication as to how many of these were kept for food. Only 2 households kept ‘large animals’ such as horses.\textsuperscript{110}

Halkett also found that 78\% of households produced more than 1\% of their own fruit and/or vegetables, with the proportion of a household’s requirements being supplied by home production as indicated in the table below:

‘The Percentages of Household Fruit and Vegetable Requirements Obtained from Gardens’\textsuperscript{111}

<table>
<thead>
<tr>
<th>Percentage of household requirements</th>
<th>Number of households</th>
<th>Percentage of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>96</td>
<td>22</td>
</tr>
<tr>
<td>Less than 1%</td>
<td>72</td>
<td>17</td>
</tr>
<tr>
<td>1-5%</td>
<td>126</td>
<td>29</td>
</tr>
<tr>
<td>6-25%</td>
<td>91</td>
<td>21</td>
</tr>
<tr>
<td>26-50%</td>
<td>25</td>
<td>6</td>
</tr>
<tr>
<td>51-75%</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>76-100%</td>
<td>12</td>
<td>3</td>
</tr>
</tbody>
</table>

The majority of households produced very little or nothing of their own requirements, with 68\% of households producing from 0 to 5\%. However, a significant number - 11\% - produced over a quarter of their requirements. Furthermore, 44\% of households grew vegetables, so even in many cases where only small amounts of food were being grown, active involvement in production was taking place, rather than just the harvesting of crops from established trees.

Much of the vegetable production was carried out by people who owned or were buying their own home - only 30\% of people renting grew vegetables, whereas 58\% of

\textsuperscript{107} I.P.B. Halkett, \textit{The Quarter-Acre Block: The Use of Suburban Gardens}, Australian Institute of Urban Studies, Canberra, 1976, pp.45-46.
\textsuperscript{108} ibid., p.107.
\textsuperscript{109} ‘Registration for Poultry, Pigeons’, p.1.
\textsuperscript{110} Halkett, \textit{The Quarter-Acre Block}, p.108.
\textsuperscript{111} ibid., p.100, table 5.12. There is an error in this table in the original publication - the percentage of households producing 76-100\% of requirements is given as 5\%, when in fact 12 households out of 430 is 3\%. 
homeowners, and 36% of home-buyers did so. Immigrants from Southern Europe were likely to produce more food than their Australian-born counterparts: whereas 30% of households with an Australian-born head grew more than 5% of their own fruit and vegetable requirements, for households with a head born in Italy and Greece the figures were 56% and 62% respectively. All households with a head born in Greece grew some of their own vegetables. Furthermore, whereas only 7% of households with an Australian-born head kept chickens, they were kept by 34% of households with an Italian-born head. It must be remembered, however, that households with a head born in Italy or Greece constituted only 10% of Halkett’s sample, and only 7% of the Adelaide population at Census in 1971. Thus for the 11 households with Australian-born heads that grew more than three-quarters of their fruit and vegetable requirements, only one household with a head born in Italy or Greece did so.

Average interest in home food production also differed with age and occupation. Cultivation of vegetables increased with age, reaching a maximum among the households with a head 50-59 years of age (i.e. born between 1912 and 1921), 55% of whom grew vegetables. In the 60 and over age group this decreased to 50%. The cultivation of vegetables was most common among households with a head in administrative or service employment, or not working. The keeping of poultry, on the other hand, was dominated by households with a head in service or manual occupations, or not working. These results suggest a division along class lines in the type of foods produced at home, with working-class households well-represented among poultry-keepers, and middle-class households dominating vegetable-growing.

Compared with figures from the 1941 Melbourne University Social Survey, which found that 48% of all sampled households grew their own food, and even Potts’ survey of Depression households, of which 70% reported growing some of their own food, Halkett’s figure of 78% seems high. There are three likely explanations for this. Firstly, Halkett’s study did not include households without garden space. The Melbourne University study did include such households, although flats only accounted for 1.4% of households included on the computer database derived from the survey results. Secondly, it is possible that the overall lower density of 1970s Adelaide relative to 1940s Melbourne partially accounts for the higher proportion of households with productive gardens in the latter. The third possibility is that productive gardening increased across suburban Australia in the 1970s as the proportion of households of southern European origin increased, and ‘ecological

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112 ibid., p.173.
113 ibid., p.170.
114 ibid., p.45.
115 ibid., p.170.
116 ibid., pp.158-159.
117 This tendency will be discussed further in parts III and IV of this thesis.
118 The average population density in Melbourne in 1942 was 9.1 persons per acre; in Adelaide in 1971 it was 7.9 persons per acre: Victorian Year Book, 1941-42, Government Printer, Melbourne, p.278; South Australian Year Book, 1973, p.114.
lifestyles’ began to achieve a degree of popularity. In all likelihood, each of these factors contributed to Halkett’s finding.

The next extensive survey of home food production was carried out by the Australian Bureau of Statistics in April 1992. The most pertinent results are presented in the table below.

<table>
<thead>
<tr>
<th>For each state, year ended April 1992:</th>
<th>Victoria</th>
<th>Western Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of all households in metropolitan area, 1991 census</td>
<td>71.2%</td>
<td>72.0%</td>
</tr>
<tr>
<td>% of all households producing vegetables</td>
<td>41.4%</td>
<td>34.2%</td>
</tr>
<tr>
<td>Likely % of metropolitan households producing veg. (see below)</td>
<td>30%-40%</td>
<td>23%-33%</td>
</tr>
<tr>
<td>Quantity of home-grown vegetables produced - whole of state</td>
<td>43 819.7 tonnes</td>
<td>11 831.6 tonnes</td>
</tr>
<tr>
<td>Quantity of home-grown vegetables produced - capital city only</td>
<td>18 720.7 tonnes</td>
<td>5299.9 tonnes</td>
</tr>
<tr>
<td>% of total home-grown vegetables produced in capital city</td>
<td>42.7%</td>
<td>44.8%</td>
</tr>
<tr>
<td>% of all vegetables (including commercial) produced by capital city households</td>
<td>2.4%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Likely % of metropolitan households producing fruit (see below)</td>
<td>30%-40%</td>
<td>30%-38%</td>
</tr>
<tr>
<td>Quantity of home-grown fruit produced - whole of state</td>
<td>26 377 tonnes</td>
<td>9881.9 tonnes</td>
</tr>
<tr>
<td>Quantity of home-grown fruit produced - capital city only</td>
<td>12 468.2 tonnes</td>
<td>4932.2 tonnes</td>
</tr>
<tr>
<td>% of total home-grown fruit produced in capital city</td>
<td>47.3%</td>
<td>50.9%</td>
</tr>
<tr>
<td>% of all fruit (including commercial) produced by capital city households</td>
<td>1.4%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Likely % of metropolitan households producing eggs (see below)</td>
<td>2.5%-4.5%</td>
<td>4.5%-6%</td>
</tr>
<tr>
<td>% of all households producing eggs</td>
<td>6.1%</td>
<td>8.3%</td>
</tr>
<tr>
<td>Quantity of home-produced eggs - whole of state</td>
<td>5 491 800 doz</td>
<td>3 440 300 doz</td>
</tr>
<tr>
<td>Quantity of home-produced eggs - capital city only</td>
<td>1 596 900 doz</td>
<td>1 176 600 doz</td>
</tr>
<tr>
<td>% of total home-produced eggs produced in capital city</td>
<td>29.1%</td>
<td>34.2%</td>
</tr>
<tr>
<td>% of all eggs (including commercial) produced by capital city households</td>
<td>3.1%</td>
<td>n.a.</td>
</tr>
<tr>
<td>% of all households producing poultry (meat)</td>
<td>0.9%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Quantity of home-produced poultry - whole of state</td>
<td>461.1 tonnes</td>
<td>322.7 tonnes</td>
</tr>
<tr>
<td>Quantity of home-produced poultry - capital city only</td>
<td>13.4 tonnes</td>
<td>53 tonnes</td>
</tr>
<tr>
<td>% of total home-produced poultry produced in capital city</td>
<td>2.9%</td>
<td>16.4%</td>
</tr>
<tr>
<td>% of all poultry (including commercial) produced by capital city households</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>% of all households producing nuts</td>
<td>2.8%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Quantity of home-grown nuts produced - whole of state</td>
<td>309.4 tonnes</td>
<td>128.6 tonnes</td>
</tr>
<tr>
<td>Quantity of home-grown nuts produced - capital city only</td>
<td>133.4 tonnes</td>
<td>64.7 tonnes</td>
</tr>
<tr>
<td>% of total home-grown nuts produced in capital city</td>
<td>43.1%</td>
<td>49.2%</td>
</tr>
<tr>
<td>% of all nuts (including commercial) produced by capital city households</td>
<td>2.4%</td>
<td>38.7%</td>
</tr>
</tbody>
</table>

Unfortunately, figures for percentages of metropolitan households growing their own food are unavailable, so I devised a formula to produce models of the percentages of productive households in urban and country areas according to different ratios of average amounts produced per household. As most rural households had more room to grow fruit and

119 See chapter 6 for a more extensive discussion of ‘ecological lifestyles’.
121 The formula is as follows:

\[
\begin{align*}
x &= \text{actual non-metropolitan kg or dozen produced per 1 metropolitan kg or doz (from ABS cat. 7110.0, table 7).} \\
a &= \text{total % of households (metropolitan and non-metropolitan) producing food (from ABS cat. 7110.0, table 1).} \\
b &= \text{percentage of total households that are both non-metropolitan and produce a type of food} \\
n &= \text{hypothetical non-metropolitan production per kg metropolitan production (i.e. 1:n)} \\
x/a(n+x) &= b \\
\text{then} \\
b/n &= \% \text{of all households that are non-metropolitan} = \% \text{of non-metropolitan households producing food.}
\end{align*}
\]
vegetables and keep poultry, it is probable that output per rural household was greater than per metropolitan household. The table below gives four possible models for relative metropolitan and non-metropolitan home vegetable production in Victoria and Western Australia for the year ending April 1992:

<table>
<thead>
<tr>
<th>Ratio production per food-producing metropolitan household : production per food-producing non-metropolitan household</th>
<th>% metropolitan households producing vegetables</th>
<th>% non-metropolitan households producing vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria 1kg : 1.2kg</td>
<td>28.1%</td>
<td>74.3%</td>
</tr>
<tr>
<td>Victoria 1kg : 2.0kg</td>
<td>35.1%</td>
<td>56.9%</td>
</tr>
<tr>
<td>Victoria 1kg : 3.0kg</td>
<td>40.2%</td>
<td>44.4%</td>
</tr>
<tr>
<td>Victoria 1kg : 3.5kg</td>
<td>42.0%</td>
<td>39.8%</td>
</tr>
<tr>
<td>Western Australia 1kg : 1.2kg</td>
<td>23.4%</td>
<td>61.9%</td>
</tr>
<tr>
<td>Western Australia 1kg : 2.0kg</td>
<td>29.4%</td>
<td>46.6%</td>
</tr>
<tr>
<td>Western Australia 1kg : 3.0kg</td>
<td>33.6%</td>
<td>35.6%</td>
</tr>
</tbody>
</table>

Assuming that non-metropolitan households were, on average, more productive than metropolitan households, and that proportionately more non-metropolitan than metropolitan households were productive, it appears that the percentage of Melbourne homes producing vegetables was likely to have been between 30% and 40%, and for Perth the figure was likely to have been between 23% and 33%. In comparison with the 44% of households which Halkett found growing vegetables in Adelaide in 1973, we see that the percentage of vegetable-growing households in Melbourne in 1991-92 was probably a little lower (although given that Halkett’s study excluded homes without gardens, the figures may be somewhat closer than they appear), and the Perth proportion lower by over 10%. Although there is no way of determining the level of variation in the quantity of food produced by urban households, the quantity of vegetables grown remained at fairly substantial levels, with the average Australian vegetable-growing backyard producing 70.4kg in the year ending April 1992. It is likely that households in Perth and Melbourne were, however, less productive: if 28% of Perth households were growing vegetables, their annual production per household would have averaged 47kg; similarly, if 35% of Melbourne households were growing vegetables, their annual production per household would have averaged 51kg. These amounts represent around one-third of the average per capita vegetable consumption in 1994-95 and may therefore be characterised as significant but not copious.

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123 Australian Bureau of Statistics, *Apparent Consumption of Foodstuffs, Australia, 1996/97*, cat. no.4306.0, ABS, Canberra, 1997, p.6. The actual average per capita vegetable consumption in 1994/95 was just over 145kg. The proportion of productive households chosen for each city is the mid-point of the estimated range produced by the modelling. For the purpose of the calculations, the total number of households is taken to be the number of private occupied dwellings in Perth and Melbourne at the 1991 Census (403,335 and 1,049,047 respectively).
A similar modelling exercise as for vegetables was carried out for the data relating to fruit production:

<table>
<thead>
<tr>
<th>ratio production per food-producing metropolitan household : production per food-producing non-metropolitan household</th>
<th>% metropolitan households producing fruit</th>
<th>% non-metropolitan households producing fruit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria 1kg : 1.2kg</td>
<td>30.5%</td>
<td>70.2%</td>
</tr>
<tr>
<td>Victoria 1kg : 2.0kg</td>
<td>37.8%</td>
<td>52.1%</td>
</tr>
<tr>
<td>Victoria 1kg : 2.8kg</td>
<td>42.1%</td>
<td>41.4%</td>
</tr>
<tr>
<td>Western Australia 1kg : 1.2kg</td>
<td>29.6%</td>
<td>61.3%</td>
</tr>
<tr>
<td>Western Australia 1kg : 2.0kg</td>
<td>36.0%</td>
<td>44.7%</td>
</tr>
</tbody>
</table>

Again, it appears likely that the actual proportion of households producing fruit was likely to be somewhere between 30% and 40% for Melbourne, and between 30% and 38% for Perth. Unfortunately, no comparison can be made with 1973 Adelaide survey, which does not state the percentage of fruit-producing households. As with vegetables, the amount of fruit produced by the average Australian fruit-bearing backyard remained significant at 48.9 kg in the year ending April 1992, although production levels in Perth and Melbourne are again likely to have been lower: if 34% of Perth households were growing fruit, their annual production per household would have averaged 36kg; if 35% of Melbourne households were growing fruit, their annual production per household would have averaged 34kg.\(^\text{124}\) Compared with a per-capita consumption of around 123kg in the 1995-96 year, these amounts are, again, significant but not massive.\(^\text{125}\)

In 1992, 9.9% of South Australian households were keeping poultry, with slightly fewer in WA (8.3%), and fewer still in Victoria (6.1%). The low proportion of total eggs that were produced in metropolitan areas suggests that egg-producing households are more heavily concentrated in rural areas. This is particularly likely given that the Australia-wide weekly egg production from poultry-keeping households was fairly low at 1.2 dozen, representing the output of 3-5 chickens (depending on age, breed etc), kept for the full year, and few households would have kept less than this number. The table below gives data for two different models for each of Victoria and Western Australia, with relative proportions of metropolitan and non-metropolitan households producing eggs under two different average flock size/productivity scenarios:

\(^{125}\) Again, the proportion of productive households chosen for each city is the mid-point of the estimated range produced by the modelling. The estimated output per fruit-growing household in each city represents the crop from around two dwarf peach trees, or a large lemon and an average-sized fig tree, though obviously yields can vary widely: Robert Kourik, *Designing and Maintaining your Edible Landscape Naturally*, Metamorphic Press, Santa Rosa, 1986, p.53.
<table>
<thead>
<tr>
<th>Metropolitan Household</th>
<th>% Metropolitan Households Producing Eggs</th>
<th>% Non-Metropolitan Households Producing Eggs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria 1 doz : 1.2 doz</td>
<td>2.8%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Victoria 1 doz : 2.0 doz</td>
<td>3.9%</td>
<td>11.6%</td>
</tr>
<tr>
<td>Western Australia 1 doz : 1.2 doz</td>
<td>4.4%</td>
<td>18.3%</td>
</tr>
<tr>
<td>Western Australia 1 doz : 2.0 doz</td>
<td>5.9%</td>
<td>14.5%</td>
</tr>
<tr>
<td>South Australia 1 doz : 1.2 doz</td>
<td>4.4%</td>
<td>24.7%</td>
</tr>
</tbody>
</table>

It would therefore be reasonable to assume that the actual percentage of Melbourne households keeping poultry would have been between 2.5% and 4%, and for Perth the figure would have been somewhere between 4.5% and 6%. If the 1963 WA Health Department estimate of 17%-25% of households keeping poultry is accurate, then the decline in poultry-keeping in Perth over the intervening 36 years was substantial. The proportion of poultry slaughtered for meat by capital-city households was lower still, particularly in Victoria.

Unfortunately, there is no way of determining from the ABS data the overall percentage of metropolitan households producing some of their own food, as it is not known what proportion of households produced either fruit or vegetables, or other types of food, or various combinations of same. However, for Melbourne, if my approximations are correct, the proportion producing fruit and/or vegetables should be between 30% and 80%. Given that in Halkett's Adelaide study, 34% of households had fruit trees but no vegetables, it is likely that the figure lies in the upper end of the range, probably around the 50-60% mark and possibly, as in Adelaide in 1973, even higher. For Perth, the possible range of production is 30% to 71% of households, and the actual proportion is likely to be in the vicinity of 40-50%.

Comparing the 1992 ABS figures with Australia-wide home food production estimates for 1946-47 and 1970-71 (see Appendix VII), the estimated proportion of the total Australian fruit and vegetable crop produced by self-suppliers increased. The proportion of self-supplied eggs, however, fell: in 1946-47 it was estimated that 41.1% of all domestic production was produced by self-suppliers. In 1970-71 this estimate had fallen to 29.8%, and the 1992 ABS survey placed it around 16.2% - though still a significant contribution, clearly it supports other evidence that household poultry-keeping experienced a large decline after the Second World War.

The ABS survey also provides useful information about the characteristics of productive households. I have used figures relating to the production of vegetables to examine these characteristics in more detail, as vegetables indicate an active involvement in the activity. The pie charts below illustrate the proportions of vegetable-growing households with a reference person in various age brackets, and the percentage of the total home-grown vegetable crop produced by households with a reference person in various age brackets.

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126 as opposed to the production of fruit, which in some situations can occur with little or no human intervention.
It is clear that households with a reference person over 55 were overrepresented amongst productive households, and were, as a group, the most productive. The 55-69 age group was particularly productive - although comprising 25.4% of all vegetable-growing households, they were responsible for the production of 29% of all home-grown vegetables. The 45-54 age group also produced more than their fair share of vegetables, with all age groups below 45 years producing less than would be expected. Unfortunately, a collation of census data by age group of household reference person in 1991 is unavailable. It is therefore impossible to determine with any degree of accuracy the actual proportion of Australian households in 1992 with a reference person in any given age bracket, to use as a basis for comparison with the vegetable-growing households. However, given that only 31% of the population was aged over 45 in 1992, yet households with a reference person over 45 accounted for 57.9% of productive households (and 63.9% of home vegetable production), it would seem that people in these age brackets were substantially overrepresented among vegetable-growers. As the proportion of retired people in Australian society continues to grow, it thus appears likely that home food production may well also increase, provided sufficient land is available. It is perhaps pertinent to point out that the desire among older people to grow food appears not to be particular to one cohort. In Halkett’s survey, the largest percentage of vegetable-growing households by age was 55% for households with a head 50-59 years of age (i.e. born between 1912 and 1921). In 1992, we see that vegetable-growing is dominated by those born between 1923 and 1937: as the older cohort die or become more frail and less able to take care of a garden, the activity is taken up by those with sufficient time and energy.

Household vegetable production in 1991-92 also showed some discernable variation associated with ethnicity. The below pie charts show the proportion of vegetable-growing households with a reference person born in various countries, and the percentage of the home vegetable crop grown by each group of households. For comparison, I have also included a chart of country of birth of the population as a whole, although this may only be

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127 The ‘reference person’ is defined by the ABS as ‘a person over 15 years of age ... [who] owns, or is responsible for the rent of, the household accommodation’. Data taken from ABS, *Home Production of Selected Foodstuffs, Australia, Year Ended April 1992*, p.8.
taken to be a rough guide as to the birthplace of household reference persons for Australia as a whole (these figures being unavailable).128

From these charts it appears that the Australian-born, whilst constituting the vast majority of vegetable-growing households, are slightly underrepresented in proportion to the total population (comprising 70.8% of vegetable-growing households as opposed to 77.1% of the population in 1991). Those of Italian, Greek and U.K./Irish origin are overrepresented among the vegetable-growers, as are the foreign-born from countries other than Viet Nam. However, productive households with an Australian-born reference person grew a greater proportion of the total home-grown vegetable crop than expected, producing 74.0% of all vegetables. Households with an Italian-born reference person grew slightly more (4.1% of vegetable-growing households producing 4.8% of vegetables), and all other households grew slightly less than expected. This is perhaps a reflection of the geography of ethnicity, as migrants are more likely to be located in capital cities, where there is generally less available room for vegetable-growing.129 The charts also give the lie to the notion that southern European migrants were predominantly responsible for suburban food production at the end of the twentieth century: although they were overrepresented among the food-producers, in 1992 they still only constituted 6.1% of vegetable-producing households, producing 6.2% of all home-grown vegetables.

128 Data from Census 1991 and ABS, Home Production of Selected Foodstuffs, Australia, Year Ended April 1992, pp.9-10.
Conclusion

Although hard statistical data relating to suburban food production is somewhat patchy, combined with impressions gleaned from a variety of official and other sources there is sufficient information to be able to piece together a fairly clear picture of the extent of suburban food production in Perth and Melbourne since the late nineteenth century. The overall picture with regard to livestock is one of decline. In Perth, goat numbers began to fall after the First World War, and cattle numbers followed their lead from the 1930s. Less data is available for Melbourne, though non-statistical sources suggest that a similar pattern prevailed there; certainly by 1958, when statistics were again published, few suburban cattle remained. The picture for poultry is less clear, with commercial and non-commercial flocks often not differentiated. In Perth, the number of suburban poultry farms appears to have declined from the 1960s; statistics for Melbourne are unavailable. Backyard poultry appear to have declined sooner and to lower levels in Melbourne than in Perth, where an estimated 17%-25% of households still kept poultry in 1963. In 1992, backyard poultry-keepers were a distinct minority in both cities, though still present in not insignificant numbers.

As with livestock, commercial food crop cultivation has declined in the suburbs of both cities, particularly since the Second World War. However, it appears that the production of fruit and vegetables has remained popular among suburban households. Although it is likely that fewer households produced any of their own food in the late twentieth century than during the Depression, home food production appeared to enjoy similar levels of popularity in Melbourne in 1941 and 1992. Furthermore, the average amount of fruit and vegetables going from a food-producing household’s backyard to its kitchen in 1992 was not insignificant.

In 1974, following his study of the use of gardens in Adelaide, Halkett concluded that:

Aggregated over a city or a society, home food production on this scale represents a substantial percentage of consumption of some commodities and the success of some home producers in meeting their households’ needs suggests a potential for greatly increased home production.130

Given that home food production has, at least in recent decades, been most popular among older households, it is likely that as the Australian population ages, the activity may well become more popular. This, however, depends to some extent on the availability of suitable land and other resources, or how the activity fits in with the physical infrastructure and processes of the city, as well as the lifestyles and ideals of its residents. Having shown in this chapter that suburban food production has been - and remains - a significant suburban activity, in the next chapter I will begin to explore the question of why it has been so.

130 Halkett, The Quarter-Acre Block, p.100.
Part II - Economy

Chapter 3

'A profitable asset to every home'?
Economic aspects of suburban food production 1880-1937

It is currently a fairly common perception that in the years prior to the Second World War, household food production was carried out primarily for reasons of economic necessity. For example, Timothy Yates, of the famous garden enterprise family, told the Sydney Morning Herald in 1979 that 'Vegetable growing had changed from being a necessity to being a hobby'.2 This sentiment was echoed by one of my interviewees who declared, in relation to her Grandfather's generation, 'I believe that backyard gardens came out of economic necessity, people had to'.2 Adelaide-based planner Susan Parham has also suggested that post-war generations might have wanted to distance themselves from productive gardens because they were seen as denoting a 'necessity born of poverty'.3 On a more theoretical level, as noted in the introduction, Patrick Mullins, considered that Australian cities developed a form based on ownership of a single-family house in a garden setting because under the dominant system of mercantile capitalism, workers were in a position of 'forced self-sufficiency', without sufficient resources to otherwise carry on the reproduction of labour power.4 In revisiting the urban peasantry thesis in 2000, Mullins and Chris Kynaston again aligned prewar home food production with need, ascribing a perceived postwar decline in the activity to higher wages and lower food prices removing it from the realm of necessity.5 George Seddon is more circumspect, offering a wider range of reasons for the apparent prevalence of prewar home food production, though stressing the role of 'recurrent poverty and shortage' in times of depression and war.6

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2 Sarah [pseud.], interviewed by the author, 5 November 1998, tape in author's possession.
Researchers looking at less-developed countries in recent years have found that urban agriculture, although playing an important part in providing subsistence for many of the urban poor, is also used by the wealthy to consolidate their position.7 For example, in Dar es Salaam in 1987-88, 65% of all livestock kept in the city were found in a low-density, ‘elite’ area.8 In a survey carried out in the city in the early 1990s, urban farmers were found to be distributed evenly across educational levels, and 86% of people interviewed agreed that most urban agriculture was being carried out by high-income earners.9 Perth and Melbourne are quite different cities, in many ways, to Dar es Salaam. However, it appears that as far as suburban food production patterns go, they may share some common ground.

In this part of the thesis I seek to trouble the notion that prior to the Second World War, food production was carried out by suburban householders mainly for reasons of economic necessity, and conversely, that economic factors were of little relevance in the postwar period. Instead, I will demonstrate that home food production has been economically important to a significant proportion of Australian households, both before and after the war, but that the prevalence of home food production cannot be entirely - or perhaps even principally - explained by economic motivations. It is helpful, at this point, to distinguish economic necessity from more general forms of economic motivation: in the case of the former, it is essential that a household produce as much of their own food as possible, as they could otherwise not afford an adequate diet, or in order to buy food would have to forego other items essential to a decent standard of living. Only households living in (or near) poverty would fall into this category. The rather larger proportion of households which could afford to buy rather than produce their own food and still maintain a decent standard of living, might opt for home food production in order to free up more income for discretionary purposes: these are the households that grow their own to ‘save money’. As we shall see, the stronghold of home food production in the suburbs of Perth and Melbourne has been the middle class, and many more households have grown their own food in the context of economic motivation, or ‘thrift’, than in a context of necessity.

There are several problems with the ‘economic necessity’ argument. Firstly, the socio-spatial dimensions of poverty suggest a likelihood that many of the lowest income households, for whom a degree of food self-sufficiency would have had potential to ameliorate poverty, would have found home food production impossible because of sickness, old age, disability, a lack of space, or a propensity to move often to find work or accommodation. Most obviously, homeless people have rarely been in a position to grow

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their own food. Secondly, the evidence suggests that it is doubtful whether many types of food could be produced cheaper in the home than they could be bought, both before and after the Second World War. Thirdly, working-class diets, particularly prior to the Second World War, have tended to include more bread and meat - items difficult to produce from scratch in most suburban situations - and less fruit, vegetables and milk. Where incomes were stretched, for example with a large family on the basic wage, evidence suggests that a common strategy among the working class was to substitute bread for the more expensive items. Although a significant amount of money could still be saved in a context where food comprised a large proportion of overall expenditure, in order to achieve really substantial economic benefits from home food production, many households at the lower end of the income scale would therefore have had to change their diet to include more of the items able to be produced in backyards. As we shall see, dietary preferences among the working class were influenced by a variety of factors, and although change would have been possible, it would be unwise to presume that such change was necessarily seen as desirable. Fourthly, fruit and vegetable production in particular appear to have been most popular among the middle class who, whilst not always particularly well-off, generally had sufficient income to afford fruit and vegetables (whilst also usually having access to the space, stability and other resources required for production of crops). Finally, there is substantial evidence suggesting that although economic motivations - whether thrift or necessity - have been important for some households, they are but one of many common reasons for home food production. The explanation for the prevalence of home food production is more complex than has often been assumed, and may be more accurately seen as the result of a confluence of the socio-cultural and ecological-spatial factors to be discussed in Parts III and IV, and the economic factors to be discussed here in Part II.

In this part of the thesis I will focus on the relationships between suburban food production and household and broader economies. Commercial enterprises are by definition carried out primarily for economic gain, so the discussion will concentrate on home (and community garden) food production, where the importance of economic motivators is less clear-cut. Beginning with a brief overview of the prevalence of poverty in Australia (as background to my argument concerning economic necessity), I will then move on to assess the various sources relating to the economic importance of suburban food production before the Second World War (this chapter), and after it (chapter 4).

**The economic importance of home food production for the urban poor.**

Poverty has been associated historically with unemployment or underemployment, old age, sickness, single parenthood, Aboriginality, and large working-class families.10 Women are, and have been, overrepresented amongst the poor due to their statistical longevity and

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10 Commission of Inquiry into Poverty, *Poverty in Australia: First Main Report*, vol.1, Australian Government Publishing Service, Canberra, 1975. The ‘poverty line’ was set by the Commission according to the minimum expenditure deemed necessary for ‘scientific requirements for good nutrition and health’ as well as ‘social standards’ revealed by surveys of actual consumption (p.13).
historically lower earning capacity. Although social reformers sought to bring attention to the conditions of the urban poor in Australia from the 19th century, the myth of Australia as the ‘workingman’s paradise’, with high wages and a generally high standard of living, prevailed. The report of the 1972-73 Commission of Inquiry into Poverty in Australia (chaired by Ronald Henderson), showed that even in the prevailing favourable economic climate, 10.2% of Australian households lived below an austere poverty line, with a further 7.7% hovering close to it. Subsequently, social and economic historians began to look a little closer at the ‘workingman’s paradise’, and found that even in the boom conditions of 1860-1891, the fruits of economic growth did not always trickle down through the working class. In 1975, Jill Roe estimated that throughout the nineteenth century, approximately 10% of the Australian population was living in poverty. Eleven years later, Jenny Lee and Charles Fahey looked at the origins and effects of various forms of underemployment throughout the mid-late 19th century boom decades. They concluded that the brunt of seasonal fluctuations and cyclical downturns in trade - both significant in a colonial economy based on trade of primary produce - was borne by substantial sections of the working class in the form of unemployment and underemployment, creating poverty in the midst of ‘plenty’. The unskilled were particularly vulnerable to these fluctuations, though even members of the skilled ‘aristocracy of labour’ - breadwinners for a quarter of all households in Melbourne’s working-class suburbs - were not always immune. Thus, whilst it is clear that many Australians enjoyed a high standard of living in relation to world standards (at least until the 1890s depression), the apparent prosperity was by no means shared by all.

In summary, it can be said that in the nineteenth and twentieth centuries there has always been a proportion of the Australian population living in poverty. This proportion has altered according to a variety of factors including the economic effects of business cycles (of both increasing/decreasing growth, and classical boom/depression), international depressions, wars and droughts, as well as changes in average family size, rates of single parenthood, increases in prices over wage increases, and welfare policy and payments. In

11 ibid. For another discussion of women and poverty see Patricia Harris, ‘Penny-pinching Activities: Managing Poverty Under the Eye of Welfare’, in Kay Saunders and Raymond Evans (eds), Gender Relations in Australia: Domination and Negotiation, Harcourt Brace, Marrickville, 1994, pp.287-301.
14 See Max Kelly, ‘Urban History Goes Social: Some Recent Work in Australia’, Sydney Gazette, vol.7, March 1985, pp.29-43 for a discussion of some of these studies. Tony Dingle and David Merrett also demonstrated that levels of tenancy in Melbourne in 1891 were higher than Noel Butlin had earlier proposed: A.E. Dingle and D.T. Merrett, Home Owners and Tenants in Melbourne 1891-1911, Australian Economic History Review, vol.12, 1972, pp.21-35.
relation to the ‘economic necessity’ argument for suburban food production, the question is, then, whether or to what extent those living in poverty were the ones growing their own food, or whether those people growing their own food might otherwise have been living in poverty. This question will be tackled in several different ways. Analysis of typical diets and budgets will be used to provide insights into the level of potential savings achieved through growing one’s own. The question of whether it was in fact cheaper to grow your own food than buy it will also be considered, using contemporary opinions and costings. Indicators of the extent and geographical distribution of poverty in Melbourne in 1941 will be compared with the extent and distribution of metropolitan food production, in order to assess the correlation by suburb between poverty and food production, and the minimum amount of food production unrelated to poverty. Finally, qualitative sources, including oral histories, magazines and books, will be examined for evidence as to the financial status of households growing their own food, and used to ‘flesh out’ contemporary discursive constructions of food production as it related to household economy.

1880-1918

The period from 1891 to 1940 has been characterised overall as one of economic stagnation.18 Population increased at the expense of living standards as demand for Australia’s primary produce slackened, whilst the scale of the Australian economy was not sufficiently large to generate self-sustained growth in the metropolitan centres.19 Even Ian McLean and Jonathan Pincus, who have attempted to argue against the ‘stagnation’ thesis, admit the possibility that between the 1890s and late 1930s ‘real income and real consumption per capita grew little or not at all’.20

The 1890s depression clearly increased levels of poverty, as the rate of increase of real GDP per head of population fell from an average of 0.9 for 1881-1890, to -1.3 for 1891-1900.21 Unemployment ran into double figures for 10 out of 14 years, from 1891 to 1904.22 For those lucky enough to remain employed, remuneration was often poor: the minimum weekly wage of male adults stagnated, and average annual earnings in manufacturing fell.23 Recovery from the depression was delayed by the ‘federation drought’ from 1895-1903 - the most severe in terms of stock losses in post-invasion history - in

19 ibid.
which sheep numbers were halved and more than 40% of the nation’s cattle died. In Matthew Butlin’s estimates, unemployment peaked again at 9.4% in 1904, with lesser peaks of 5.04% in 1913 and 5.92% in 1915. In contrast to the Second World War, the First World War did not boost production or employment, as physical distance from the war limited Australia’s industrial participation, and the enlistment of 15% of the labour force caused no small amount of disruption.

At the same time, however, there were significant changes in some of the factors relating to poverty. For one, average family size decreased from the 1880s, with the 2-3 child family normalised in the period following the First World War (though of course a proportion of families, particularly among the working class, remained large). In the 19th century, welfare was mainly dispensed by voluntary charitable organizations, and state-run institutions such as asylums and orphanages. In the twentieth century, the state began to provide some limited welfare: the first old age pension scheme was introduced in NSW in 1900, and Victoria followed suit soon after. Not long after federation, the federal government took some limited responsibility for welfare provision, with old age and invalid pensions introduced in 1908, maternity allowance in 1912, and pensions for war widows in 1914. Whilst these measures may have diminished the number of those in desperate need, pensions were not overly generous, and of course there were those who did not qualify, or who did not apply.

A lack of suitable sources makes it difficult to ascertain with much accuracy the economic importance of home food production prior to the First World War. In Melbourne, at least, it appears that rich and poor alike engaged in the activity. When the mansion ‘Crediton House’ in Merri St (James St East) Northcote was sold in 1894, its outbuildings included a fowl yard. Similarly, an article written in 1902 recorded that the orchard and kitchen garden plots of Sir Frederick Sargood’s mansion, that ‘Stately Melbourne Home: “Rippon Lea”’, were ‘among the best in the colony ... At Rippon Lea, vegetables, fruit and herbs, more than sufficient for that extensive establishment, are grown of the best.’ No less than 20 gardeners were employed to keep the grounds of Rippon Lea in top aesthetic and productive condition. From 1907, prominent Melbourne solicitor Arthur Johnson and his family (with the help of a gardener) grew vegetables and kept poultry and a cow at ‘Fairholme’, their home in Camberwell. Department of Agriculture Archives also record that the Governor kept both cows and poultry at government house in

26 Boehm, Twentieth Century Economic Development in Australia, p.25.
27 Andrew Lemon, The Northcote Side of the River, Hargreen Publishing for the City of Northcote, North Melbourne, 1983, p.120.
29 Geraldine McFarlane (ed.), Voices of Camberwell: Alamein to North Balwyn, City of Boroondara, Camberwell, 1999, pp.16-17.
Malvern. With reference to the other end of the social scale, in 1906 Northcote Councillor Edwards complained that ‘Places have been put up for human habitation that we would not put our fowls in’. In one such house, at the eastern end of Clarke Street, the living portion was only 7 feet square and the galvanized iron roof 6'6' high. Attached to the shack was a fowl shed.

Authors of gardening books published around the turn of the century generally made some mention of the economic aspect of domestic food production, though always in conjunction with some glowing praise of the other benefits of growing one’s own - from the ‘interest and pleasure’ derived from the activity, to the health benefits of abundant fresh produce. However E.W. Cole, of *Funny Picture Book* fame, was careful to point out that production of one’s own vegetables was not always economic:

> though in some places vegetables may cost less to purchase than to grow at home, it is nevertheless desirable that certain things should be grown; not only that they may be at hand when wanted, but because those grown at home are better relished, and are generally in better condition, than those offered for sale; especially salading, which should be fresh.

An enthusiasm for fruit and vegetables among the British (and a few of their colonial counterparts) was a relatively recent invention. From the 1870s in England there was a fairly dramatic change in taste, related to the spread of the ‘Anglo-French manner of cooking’. Middle class households in particular were becoming accustomed to eating greater quantities of fruit and vegetables, as food that was fashionable, light and affordable. Working-class people tended to eat much of their fruit as jam. It is also improbable that ‘salading’ would have been a feature of many working-class diets in particular: for those who could afford it, appetites were satisfied with meat. In 1897, for example, prominent physician Philip Muskett reported that Australians ate 276 lb of meat per head per year - twice as much as the English, three times as much as Canadians, four times as much as Germans and ten times as much as Italians. In 1901, T.A. Coghlan estimated that meat consumption in New South Wales was even greater, at 297 lb per person, per year.

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30 PROV, Department of Agriculture, VPRS 10163/P2, Central Admin Correspondence Files, Box 76, Poultry-Governor.
33 Cole, *Cole's Australasian Gardening*, p.299. In *The Happifying Gardening Hobby*, E.W. Cole Book Arcade, Melbourne, 1918, p.403, Cole quotes one W.D. Drury, who, in ‘Open Air Gardening’ wrote ‘Even if fruit and vegetables cannot be grown by all for profit, they can at least be grown for pleasure and health.’
35 ibid.
In 1913, after examining 49 household budgets, Justice Heydon of the New South Wales Court of Industrial Arbitration found a similar high level of meat consumption, with some working-class families in particular giving a high priority to meat in their expenditure.\(^{38}\) In working class households, meat would typically form the basis of lunch and dinner meals, with boiled vegetables such as potatoes, carrot and pumpkin appearing only as an accompaniment to dinner, and fruit being eaten at lunch or as an afternoon snack.\(^{39}\) In some households where a breadwinning male had a job involving strenuous physical labour, he also commonly had meat - chops, sausages or steak - for breakfast.\(^{40}\)

Muskett and his few dietary reformer contemporaries urged Australians to switch to a more varied diet which incorporated less meat and more fruit and vegetables. However, the reformers were fighting a losing battle. Historian of food and diet Barbara Santich argues that the continuing high level of meat consumption in Australia into the twentieth century resulted from a variety of factors, namely, common wisdom which stressed the importance of protein (vitamins were only discovered in 1906), the high status of meat, its relative cheapness, and the lesser accessibility of fruit and vegetables, as well as a reluctance on the part of the working class to be 'reformed', and a suspicion - or even outright rejection - of Chinese-grown vegetables (often the only sort available) in a climate of racial hostility.\(^{41}\) Santich acknowledges, however, that the evidence in relation to cost and availability of fruit and vegetables is contradictory, with some contemporary sources pointing to their cheapness and availability, and others painting a picture of expense and scarcity. Rather than contradiction, however, such evidence probably indicates a situation of unreliable supply, of gluts alternating with shortages, and uneven distribution.\(^{42}\) Whereas some suburbs may have been well-served by local Chinese or other market gardens, others may have had to rely on external, more costly supplies. It nevertheless appears likely that upper and middle class people were more likely than the workers, and certainly the poor, to include more fruit and vegetables in their diet, as they were better-educated, possessed a more European orientation, and, as pointed out above, often had their own extensive vegetable

\(^{38}\) ibid., p.86.


\(^{40}\) Walker and Roberts, From Scarcity to Surfeit, p.85.


\(^{42}\) The Royal Commission on Fruit, Vegetables and Jam found that the distribution of vegetables was generally fair in Melbourne in 1913, though distribution of fruit left a little to be desired: Report from the Royal Commission on Fruit, Vegetables and Jam, VPP, 1916, vol.2, no.40. Six years later, the Inter-State Commission on High Prices found that high fruit and vegetable prices were largely due to seasonal fluctuation, rather than suffering from some form of structural inflation: Report no.1 from the State Royal Commission on High Prices, 'The Reports of the Inter-State Commission', VPP, 1919, vol.2, no.13, p.5.
gardens in the grounds of their estates.43

This picture is confirmed to some extent by household expenditure studies conducted in the early decades of the twentieth century. These studies also highlighted the generally high average proportion of the household budget devoted to expenditure on food, and the tendency of the proportion of expenditure for subsistence to decrease with increasing income.44 A Commonwealth household budget inquiry undertaken by Commonwealth Statistician G.H. Knibbs in 1910-11 was not met with resounding support from the public - only 222 of 1500 'budget booklets' were returned, and of those, 10 were usable.45 Knibbs asked that the survey results be treated with some caution, because of the small sample size, and because those most likely to voluntarily keep a detailed budget for a whole year were probably already included towards thrift. The sample also appears to have been biased towards higher income earners, with the average of all family incomes being £4 13s 1d.46 The average proportion of total expenditure devoted to food for all households was 29.3%.47 The average proportion of income spent on food was similar, at 25%. However, the proportion of total expenditure on food among those households with more than four family members and incomes under £200 per year was rather more, at 40.1% (36% of income).48 The households were divided up into groups according to whether their income was greater or less than £200 per year, and whether the household consisted of four or fewer people, or more than four. In all groups, meat comprised the item of greatest expenditure; fruit and vegetables together constituted the third largest food expense.49
Expenditure per head on bread, tea and sugar was comparable in all groups, but the households with over four members on an income of less than £200 spent around half as much per head on fruit, vegetables and milk as the highest average income-earning category (households with four or fewer members, and incomes of over £200).50 Data from 1913 confirms a link between larger working-class families and lower per head consumption especially of fruit, but also of vegetables, milk and meat.51 Rather than turning to home food production, it appears that most large working-class families simply replaced the more expensive food items with bread.

A subsequent examination of 392 household budgets, carried out by Knibbs in November 1913, found that on average 41.2% of household expenditure was devoted to

44 This trend is known as 'Engel's law', after Dr Engel, Chief of the Royal Bureau of Statistics of Prussia at the time it was popularised.
45 G.H. Knibbs, Inquiry Into the Cost of Living in Australia 1910-11, Commonwealth Bureau of Census and Statistics, Melbourne, 1911, p.3.
46 Ibid., p.11.
47 Ibid., p.12.
48 Ibid.
49 After meat and the miscellaneous 'other food' category.
50 Knibbs, Inquiry Into the Cost of Living, p.17.
food. A Western Australian inquiry, carried out across only 65 households in 1917-18, found an even higher average expenditure on food, at 43.2% of total expenditure (and on average, 45% of total income). Households with a weekly income of under £3 per week on average devoted a startling 56.8% of their total expenditure to food, whilst at the other end of the income scale, households with an income of over £5 per week saw 37.1% of expenditure devoted to food. Unfortunately, expenditure was not tabulated by food type.

For working people and the poor, food constituted the largest single regular item of expenditure, and home food production could therefore potentially present a substantial opportunity for saving. However, it is clear that meat tended to dominate the food expenditure, and although there is no doubt that people raised the odd goat or lamb in their backyards for slaughter, in general it was - and is - impractical to produce substantial quantities of meat (other than poultry) in most suburban backyard situations. In Knibbs' 1910-11 inquiry into the cost of living, the larger, lower-income families on average would have spent 4.4% of their income on fruit and vegetables, and 4.2% on milk. For the smaller, higher-income families, the figures were 2.5% and 2.1% respectively. Expenditure on eggs was not separately tabulated. It thus seems likely that around 1910, households that were self-sufficient in milk, eggs, fruit and vegetables, would be able to free up something in the order of 5-10% of their income - a small but not inconsequential amount - to save or spend on other items. In the WA 1917-18 survey, where an increased proportion of expenditure was devoted to food, households on an income of under £3 per year would have devoted up to 13% of their income on fruit, vegetables and milk. The proportion of expenditure able to be saved through self-supply would increase with decreasing income, and where households were inclined to change to a diet including less meat. It would decrease where households were only able to produce part of their requirements, or where startup costs were incurred (see below).

The self-sufficiency option was, however, not available to all, for two main reasons. The first is that food production requires reasonably secure access to sufficient land on which to keep animals or grow plants. The second is that running a garden and keeping livestock requires resources, namely, money and knowledge. In relation to the first point, it is clear that many of the urban poor, particularly in the inner suburbs of Melbourne, lived in houses with small shady, paved, or poorly-drained backyards, in which food production on a

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54 Ibid., p.66.
55 Although the W.A. survey results did not include a breakdown of expenditure on different food types, this was estimated on the basis of the proportional expenditure patterns of the large lower-income families in the 1910-11 survey.
significant scale would have been impossible. However, many also lived in the middle and outer suburbs, on blocks ideal for small-scale food production incorporating fruit trees, a vegetable garden, poultry and possibly a cow or goat. The Melbourne University Social Survey, discussed in chapter 4, allows a more detailed analysis of the spatial dimensions of both poverty and food production in Melbourne in the 1940s. Graeme Davison has pointed out that in late nineteenth-century Melbourne, a high rate of labour turnover in many industries was accompanied by a correspondingly high level of residential mobility, particularly among tenants. Unskilled labourers were most prominent among the suburban 'nomads': 67% of them would have moved house between 1884 and 1889 - some several times. Moving house frequently would have militated against food production: using contemporary trenching and cultivation methods, it would have taken two months or more to bring a vegetable bed into a good productive condition, and then from one to over six months for crops (depending on type) to reach maturity. Fruit trees, of course, might take years to reach bearing age. Animals are more mobile, though the inconvenience of having to construct new housing for them at each new address probably discouraged some.

In relation to the second point, the costs involved in productive gardening can be estimated from the advertisements appearing in gardening magazines. Ongoing costs were fairly minimal. On the most basic level, plant material, in the form of seeds or seedlings, would be required. In 1915, Brunnings in Melbourne sold packets of seeds for 6d. Seedlings were apparently more uncommon, though in 1917, Ewell Nursery in Camberwell advertised seedling plants including a 'Kitchen Garden' collection, consisting of cabbage, lettuce, onion and silver beet for Is 6d per 100. Tomato plants were rather more expensive, ranging from Is to 2s 6d per dozen. Manure could often be had for free from local dairies or stables, or gathered from the street after the milkman and various other suppliers had made their deliveries. Poultry manure could be obtained as a by-product of backyard egg production, and the 'waste-heap' was a way of recycling nutrients for free. The cost of spraying a

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56 For the inner-Melbourne suburb of Richmond, the prevalence of poorly-drained yards is evident from records generated by the City Inspector around the turn of the century: PROV, VA 2494, City of Richmond, VPRS 9983/P2, City Inspector - Letter Book, Unit 18, Letter Book 26/8/1897 - 02/4/1906. Abundant examples of housing with no yards, '3 foot yards', and damp and shady outdoor areas in other inner-Melbourne suburbs may be found in the Minutes of Evidence attached to the Progress Report from the Joint Select Committee upon the Housing of the People in the Metropolis, VPP, 1913-14, vol.1, no.D4. See especially the evidence of Constables G. Scott (Melbourne), M. Kelly (South Melbourne), R. Brown (Port Melbourne), J. Burke (Port Melbourne), E.W. Sharpe (Carlton), and B. Mafferzoni (Fitzroy).


58 ibid.

59 From advertisements in the Home and Garden Beautiful, 1915.


61 Stories of fierce competition between neighbours for manure from delivery cart horses were told by Linda Brown, in relation to her Father's childhood in the Perth suburb of Como during the 1930s, and by Tim and Tot White, in relation to Northcote in the years immediately before, during and after the Second World War: Linda Brown, interviewed by the author, 14 January 1999, tape in author's possession; Tim and Tot White, interviewed by the author, 20 July 1999, tape in author's possession.
backyard orchard would not have amounted to much more than 1s 6d per year, although in 1913 the ‘Success’ spray pump would have required the more substantial outlay of 19s 6d. Other startup costs could add up to a substantial amount, if items such as basic tools were bought new. In 1915 spades were priced from 4s 6d, forks from 4s, with hoes and rakes rather cheaper at 1s 3d and 1s 6d respectively. Wheelbarrows and garden hoses would be regarded by many as luxuries, with barrows from 18s 6d, and hose from 9d per foot. Gardening also required knowledge. For those without gardening friends or neighbours, and no gardening background, Herbert Rumsey’s *ABC of Australian Vegetable Growing* could be bought from Cole’s Book Arcade for 1s, plus a penny for postage if necessary.

At a time when average adult male weekly wages ranged from 48s 7d in the hospitality industry, to 66s 7d in mining, the costs associated with gardening do not appear prohibitive. However, where a single male wage had to provide for a large family, a family of any size was living on the wages of a female household head (27s 4d per week on average in 1915), or earnings were diminished through intermittent work or reduced hours, the startup cost of gardening could well have been a significant disincentive. In the case of goat-keeping (detailed below), some households could not (or would not) find 5s for an annual goat registration fee. Although it would be possible to garden successfully with second-hand, improvised or borrowed tools, and using, for instance, buckets instead of hoses, it cannot be assumed that all, or even most, low-income families were able to access resources in this way.

Livestock and poultry also involved costs, although they appear to have had more potential to produce a ‘sideline’ cash income than fruit and vegetables. This factor, along with their greater mobility (relative to fruit trees), may explain why even though livestock and poultry were kept by the middle and upper classes, they appear to have been most popular among working-class households. Poultry could be purchased fairly cheaply when young - in October 1900 a pair of chickens (the contemporary term for young fowls) sold in Perth for 3s to 4s per pair, ducklings for 3s 9d to 4s per pair. Once a flock was established, birds past the age of economic production were despatched for the table, and replacements hatched out under a broody hen (from the flock’s own eggs if a rooster was kept, or from settings of fertile eggs purchased from breeders). In February 1889 William Farrell, a West Melbourne man engaged in casual labouring work on cable tram lines, wrote in his diary that he ‘Set the little hen in the coope [sic] today put 9 eggs under her. I wonder how she will get on’. Three weeks later, ‘The little hen had 8 living chickens’.

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64 Commonwealth Year Book, 1915, p.1059. The averages refer to weighted average nominal weekly rates of wages payable to adult male workers for a full week’s work at 31st December 1915.
65 ‘Market Report’, *Journal of the Department of Agriculture of Western Australia*, October 1900, p.296.
66 State Library of Victoria, LaTrobe Manuscripts Collection, Diary of William Farrell, 15 February 1889.
67 Ibid., 8 March 1889.
Startup costs for poultry could be minimised if the birds were left to roost in the lemon tree, or if rudimentary housing was cobbled together - as often it was - from scrap wood and metal. Kerosene and meat tins could find new life as food and drink containers for poultry (see Fig. 3.1).

![The Kerosene Tin in the Poultry Yard.](image)

**Fig 3.1.** From G. Bradshaw, *Farmers’ Fowls*, Department of Agriculture, Sydney, 1907, p.149.

Although a small outlay might be required for bran, pollard and meat meal for mash, as well as grain to scatter, feeding costs were reduced where poultry were also fed (as was common) table scraps and greens grown on-site. However, as a body of regulation relating to the housing of poultry was established, those keeping poultry on the cheap could risk substantial fines. In 1901, for example, one Mrs Stewart of Pier Street in Perth was fined £2 0s 3d - in a case that was ‘practically undefended’ - for creating a nuisance by keeping poultry without the ‘proper conveniences’.

Cows, and to a lesser extent goats, required a more substantial initial outlay: in the early years of the century, good milking cows commonly sold for £10 to £12 each, with top quality stock fetching up to £20. It is unclear how working-class people were able to find the capital to buy a cow, although it is clear that some did. It is also clear that the capital cost of a cow could be recovered quickly - two to three milking months. Provision of basic, unpaved housing, and use of bushland and reserves for grazing kept housing and

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68 G. Bradshaw, *Farmers’ Fowls*, Department of Agriculture, Sydney, 1907, p.142.

69 SROWA, AN 120/4, Medical Department, Acc 1003, Unregistered Files & Miscellaneous Papers 1897-1901, Box 28, Subiaco Local Boards of Health, Dairy Inspection Report, Const. H. Hattie, 17 May 1901.

70 SROWA, AN 120/4, Medical Department, Acc 1003, Unregistered Files & Miscellaneous Papers 1897-1901, Box 28, Perth - General Matters.


72 See for example the case of Williamstown cowkeeper Tom Murphy (n.105, below), also SROWA, AN 217/3, Fremantle Municipal Council, Acc 1377, no.134, 1917-19, Stray animals etc.

73 calculated from the case of Michael Horrigan, below.
feeding costs to a minimum.74 There are also indications that some people were sufficiently motivated by the chance of converting surplus milk from suburban house cows into cash, without the extra costs of dairy registration, to play a cat-and-mouse game with council inspectors. In most cases, to register as a dairyman or cowkeeper would require a substantial outlay on paving and the construction of drainage, manure receptacles and a special milk room, as well as payment of a fee. In Malvern in early 1890 the fee was £1 per annum, but in July the Council reduced the fee to 10s.75 In Perth the annual registration fee was £1 in 1903, as it was also in Fremantle in 1904.76 In order to avoid the fees and costs associated with higher housing standards required by dairy inspectors, householders sold their milk on the sly.77 A case study from Perth provides an indication as to how much the sale of milk could contribute to household income. In 1905 one Michael Horrigan of Lake Street in Perth was investigated for allegedly having sold a pint of milk daily to a neighbour for 5d.78 Horrigan’s cow was said to have produced an average of 4 quarts (4.6 litres) of milk per day - 3s 4d worth at 5d per pint. Given that the householders found selling milk in Fremantle in 1901 each sold their milk to either 6 or 12 customers,79 unless Horrigan had a very large family or was engaged in making butter or cheese, it is likely that other neighbours also bought his milk. If his cows could be fed substantially for free on nearby bush or vacant land, this then would amount to a valuable addition to the family income - probably between 2s 6d and 2s 8d per day by the time family requirements were taken out, at a time when labourers were commonly paid 7s a day (or less), and daily earnings for women doing wage work were commonly in the order of 4s.80

However, cows could also prove to be a liability if, for example, they were impounded. In an application made in 1914 to the Fremantle Council for a refund of 15s worth of pound fees, one J. Foley of Beaconsfield constructed his decision to keep a cow in terms of both economy and a desire for pure food: ‘I feel sure it is not your desire to penalise a man for trying to provide pure food for a family of 7 depending solely on his earnings.’81

74 See for example SROWA, AN 20/5, Perth City Council, Acc 3054, Correspondence Files, no.73, 1915, Cattle - keeping of, 17 Mary St.; SROWA, AN 120/4, Medical Department, Acc 1003, Unregistered Files & Miscellaneous Papers 1897-1901, Box 28, Perth - Dairies - Inspections; SROWA, AN 217/3, Fremantle Municipal Council, Acc 1377, no.134, 1917-19, Stray animals etc.
75 PROV, VA 1507, City of Malvern, VPRS 1715, Public Health Committee Minute Books, Item 1 4/3/1890 - 14/3/1900, Minutes 1 July 1890.
76 By-laws of the Perth Local Board of Health, Government Gazette of Western Australia, 27 March 1903, p.732; By-laws of the Fremantle Local Board of Health, Government Gazette of Western Australia, 18 November 1904, p.2909.
77 See for example SROWA, AN 20/5, Perth City Council, Acc 3054, Correspondence Files, no.5, 1908, Dairies - selling milk without license; SROWA, AN 120/4, Medical Department, Acc 1003, 1905, no.138, Dairies generally and dairy by-laws; SROWA, AN 120/4, Medical Department, Acc 1003, Unregistered Files & Miscellaneous Papers 1897-1901, Box 25, Fremantle - Dairy Inspections.
78 SROWA, AN 120/4, Medical Department, Acc 1003, no.138, 1905, Dairies generally and dairy by-laws.
79 SROWA, AN 120/4, Medical Department, Acc 1003, Unregistered Files & Miscellaneous Papers 1897-1901, Box 25, Fremantle - Dairy Inspections, W.J. Stevens, ‘Report unlicensed dairymen under the jurisdiction of the Fremantle Board of Health’.
80 See Statistical Register of Western Australia 1901, part IV, no.33.
81 SROWA, AN 217/3, Fremantle Municipal Council, Acc 2790, no.20, 1913, Stray animals etc, Letter from J Foley of Beaconsfield to ‘the Mayor and Councillors [sic] Fremantle’ 16 November 1914.
Similarly, in 1918, when the Perth City Council imposed a yearly fee for goat registration of 5s, they were inundated with letters of protest from goat-keepers pointing to the health benefits of goat's milk, and the fact that in many cases they would not be able to afford an adequate substitute. For example, in a petition from the goatkeepers of Victoria Park, then a working-class outer suburb of Perth, Mrs J Phillips pointed out that:

You will readily see that the proposed tax of 5/- per annum for each goat would constitute a fresh burden on the already struggling poor in these outlying parts, and as it is felt that the extreme effort to make ends meet by those who are placed in unfortunate circumstances financially is not realised to its fullest extent, I appeal to you to use your kind influence to prevent such a tax being enforced as it would certainly be the means of creating further hardships.82

In the preamble to the petition, Mrs Phillips claimed that large families would be disproportionately affected by the tax, and pointed out that in Victoria Park, a regular supply of cow's milk could not be depended on, and in any case it was impossible to keep during summer. The Council did not relent, and many women wrote to them requesting additional time to pay fees, or indicating that they had disposed of their animals:

With reference to Notice I received Last Tuesday afternoon to pay 5/- registration for a Goat Kid. I wasn't aware that young Kids had to be registered. I cannot afford [sic] to pay the 5/- as my Husband has been unable to Work for Over 12 Months on account of illness - so We have disposed of the Kid.83

Clearly goats were of considerable economic importance to some working-class Perth households. However, households unable to pay the 5s fee were forced to dispose of their goats and instead purchase what milk they could afford.

As will be discussed in chapter 7, fruit trees were another area of home food production which became subject to a fee in Perth. It is likely that only the very poor would have been unable to afford the 2s 6d registration fee. Unfortunately, as all card records have been destroyed, and no relevant archival material could be found, it is impossible to say how many people chose to fell their trees rather than pay up. The Victorian Vegetation Diseases Act and Vine Diseases Act, consolidated in the 1915 Vegetation and Vine Diseases Act did not contain registration provisions.

As well as being disproportionately affected by the imposition of livestock fees, the many poor households in inner-city areas were often the first affected by regulations which banned livestock altogether. Large livestock were the first to be regulated, with cattle restricted and pigs and goats prohibited in certain areas of Melbourne as early as 1850.84 Much later, poultry attracted similar attention from local government. For example, in December 1925 the City of Perth banned the keeping of poultry in the inner city, with the

82 SROWA, AN 20/5, Perth City Council, Acc 3054, Correspondence Files, no.123, 1918, Goats - licensing of, Petition to H.W. Bevilaqua from Mrs J. Phillips.
83 ibid., Letter from Mrs E Trussell 5 July 1918 to Mr Bold (capitalisation as in original).
84 E.G. FitzGibbon, By-laws, Regulations &c. of the Corporation of the City of Melbourne, Mason, Firth & McCutcheon, Melbourne,1870.
City of Fremantle following their example a few months later.\textsuperscript{85} Poultry-keepers in the higher-density, lower-income areas of Prahran in the 1920s were similarly directed to restrict their poultry-keeping, or in some cases discontinue it altogether.\textsuperscript{86}

In summary, it appears that up to and throughout the years of the First World War, home food production usually had the potential to free up somewhere in the order of 5\%-12\% of household expenditure, where a household was self-sufficient in fruit, eggs, milk and vegetables.\textsuperscript{87} It is probable that the keeping of livestock in particular, and food production more generally, contributed to an improved standard of living in some working-class households. However, several factors suggest that home food production in Perth and Melbourne was taken up most actively by the upper and middle classes. Firstly, there was the tendency for working-class people to prefer a diet heavily weighted in favour of meat where they could afford it and bread where they could not. Upper and middle class tastes, on the other hand, were geared towards greater consumption of fruit, vegetables and milk. Secondly, the upper and middle classes, in their estates and fledgling suburbs, generally had better access to land suitable for food production. Finally, the startup costs and ongoing costs (including fees) of food production were in many cases a substantial disincentive to low-income earners taking up, or trying to maintain, food production. As we shall see, this was to set a pattern which would remain fairly consistent throughout the twentieth century.

1919-1937

In 1919, the Commonwealth Government appointed a Royal Commission into the Basic Wage, which found that the actual cost of living, for the ‘average employee’ with a family consisting of a husband and wife, a boy of 10.5 years, a girl of 7 years and a boy of 3.5 years, was 116s 6d per week in Melbourne and 113s 11d per week in Perth.\textsuperscript{88} At the same time, the basic wage awarded by the Arbitration Commission was 93s in Melbourne and 80s 6d in Perth.\textsuperscript{89} Although family size varied, clearly many families were having to do without some of the items included by the Commissioners, of which few could be considered luxuries. Complaints over the high cost of living were sufficiently ubiquitous and loud for the Victorian Government to instigate two Royal Commissions into the high cost of living - one in 1919, and another in 1923.\textsuperscript{90} The high prices also motivated the formation in 1920 of the West Australian Housewives’ League (later Housewives’ Association), which

\textsuperscript{85} Government Gazette of Western Australia, 24 December 1925, p.3101; 9 April 1926, p.755.
\textsuperscript{86} PROV, VA 976, City of Prahran, VPRS 837/P1, Health Committee, Unit 8, Draft Minute Books 13/10/1919-25/5/1925.
\textsuperscript{87} Smaller, higher-income families would generally achieve savings at the lower end of the scale, with low-income large families able to save a higher proportion of their regular expenditure.
\textsuperscript{88} Supplementary Report of the Royal Commission on the Basic Wage, CPP, 1920-21, vol.4, no.94, Table C, p.103.
\textsuperscript{90} Reports of the State Royal Commission on High Prices, VPP, 1919, vol.2, no.13, 15, 22, 32 and 34; Reports of the Royal Commission on the High Cost of Living, VPP, 1923-24, vol.2, no.38 and 1924, vol.1, no.3, 5, and 6.
sought to try ‘by combined effort on the part of all housewives, to reduce by constitutional means, the high cost of living.’91 Elsie Morgan, one of the principal founders of the Association, later recalled that ‘Women refused to pay the high prices demanded for foodstuffs’.92 One of the Association’s first actions was to set up growers’ markets in the city, where fresh produce was made available at lower prices. The Victorian Housewives’ Association - founded in 1915 - was similarly active in combating high prices.93 In such a context, home food production may also have seemed an attractive option for many.

Some published local histories dealing with the interwar period provide valuable insights into the economic conditions under which suburban food production was undertaken, particularly where oral history interviewees are quoted directly. Information received from my own informants has also been invaluable. The overall picture, again, is one of variety. Some families were making the most of the available land to stretch an adequate income further. Winifred Jelly remembered growing up on a productive suburban lot in the eastern Perth suburb of Bassendean:

My father had quite a good income from the Shire but we were very supporting within ourselves. We had an acre of land with fruit trees all around the house. We also had a cow and dad’s friend had a bull.94

Isabel Nilsson, who wrote to me in 1998, also detailed a case of extensive production carried out by those who apparently had little economic need to do so. Isabel’s father was an engineer, and her mother was born in the Western District of Victoria. The family (Isabel, her parents and usually a cousin or border from the country) lived in east Malvern from the 1930s. They were virtually self-sufficient in fruit and vegetables, honey for a time, and probably also eggs and poultry (fowls and ducks). Most of the food-production work was done by Isabel’s mother. They paid for some goods and services (storage of large cuts of meat, cleaning, cream, fish) with fresh produce and ‘the person who did [their] cleaning and ironing obviously was encouraged with a basket of fruit or vegs. to do a good job.’95 Isabel’s family also gave produce away - to family, neighbours and the church. Isabel was also sent around the neighbourhood to sell toffee apples, made from home-grown apples, to raise money for the Children’s Hospital or some other charity. Recalling her years at Malvern, Isabel doubted the significance of economics to her mother’s productive endeavours: ‘I doubt that very much money was saved growing vegetables etc. (perhaps it was), but I do think my mother and for that matter our family had an innate dislike of commercially produced produce.’96

92 ibid., p.1.
95 Isabel Nilsson, letter to the author 24 November 1998, letter in author’s possession, p.3.
96 ibid.
Other families relied on the income from food production to make ends meet: Amy Miller, also of Bassendean, recalled:

My father used to do odd jobs around the place, he was never well enough to do anything else and he didn’t have a trade, so we girls went into service pretty young.

My mother had the poultry and worked at that. She used to make money selling the eggs and dressed birds.97

This reliance on money received from the sale of eggs and poultry was apparently not unusual in the area, particularly during the early 1920s and the Depression.98 In my own oral history interviews, Frances Warren confirmed that food production in the interwar years was a matter of ‘have-to’ for some.99 Frances’ parents moved to Vermont, on the outskirts of Melbourne, in 1922. Her father was on a basic wage at the Australian Tessellated Tile Company, with four children (one of whom died in childhood) and his wife’s father to support. On their large block, the family had fruit trees, berries, passionfruit, vegetables, poultry, bees and a cow. However, although there was some economic motivation behind their extensive production, they also produced sufficient vegetables to give some away, and enough milk to share with Frances’ aunt, who lived nearby and whose husband was out of work: it was part of the family’s involvement in community life. Furthermore, there is also a sense that the production was carried out because it was enjoyable: ‘My Mother did the chooks, she loved her chooks and she’d go down and cackle with them ... So that was a great joy for her.’100

Food production was also important to some at the very margins of society, such as the old single men who occupied tents and humpies on land next to the railway line in suburban Bayswater (Perth) from the early 1920s until the Second World War. Around 1930 there were 67 men in the camp. Ron Headley, who played around the camp as a boy, recalled that many of the men established gardens, which included exotic species like peanuts.101

In Melbourne, Janet McCalman notes that Lilian Campbell’s family were better-off than most in Richmond, as their large block enabled them to run poultry and keep a pony and jinker.102 However, even where low-income families had the space for food production, their attempts could still be thwarted by Council regulations and fees. In the mid-1920s, some goat-keepers in Perth - mostly pensioners or unemployed - were still experiencing difficulty paying the registration fees required by the Council.103 One letter-writer pointed out that it was necessary to have several goats in order to ensure a ‘sufficient and

97 Carter, Bassendean, p.233.
98 ibid., p.135
99 Frances Warren, interviewed by the author 12 July 1999, tape in author’s possession.
100 ibid.
103 See for example SROWA, AN 20/5, Perth City Council, Acc 3054, no.123, 1918, Goats - licensing of, Letter from Mrs Thomas of Mt Hawthom to Town Clerk Bold , 21 February 1926.
continuous' supply for her children:

I have a milking goat which I keep for milk for my four children. I should very much like to keep at least another goat in milk and two or more dry goats which would come in when the goats at present milking go dry, as it is almost impossible to get goats that are in milk when one wants them. However I find I cannot afford to pay the license fee of 5/- each which would be required of me, and would like to you consider if you could make a reduction in the license fee for goats which are kept solely for the use of one's household ...With wages at their present level and the cost of living as high as it is at present, the struggle to rear and educate a family is a severe one, and anything that would tend to cheapen the cost of such a essential as milk is worthy of your earnest, and, I trust, favourable consideration.104

Given the Council's intransigence with regard to such requests on other occasions, it is unlikely that any concession was forthcoming. Council regulations also reduced the possibility for food production in some areas. Early in 1937, Tom Murphy was informed by the Williamstown City Council that the keeping of cows in the area had been prohibited under the Dairy Supervision Act, and he was therefore obliged to get rid of his stock. In a last-ditch bit to retain the right to keep his cows, he wrote to the Department of Agriculture:

I wish to make an appeal to you that I be granted an exemption from the enforcement of such Orders in Council for the following reason. I am a married man with a wife and seven children dependent on me, and since the Depression and even at the present time I am, and only have had casual employment, amounting in all to about four months in a year. ... I use the milk for making butter etc. for my own household use, and can give you a guarantee that on no account is any of the produce sold or otherwise disposed of.105

There is, unfortunately, no record of whether Tom's appeal met with success. If not, it is probable that the diet of his large family may have suffered as a result.106

The gardening literature also contains some references to economic motivations in food production, though these are almost invariably accompanied by allusions to the other benefits of vegetable gardening. For example, in 1920 the 19th edition of that ever-popular standard, The Australian Gardener, proclaimed that:

A Vegetable Garden whether small or large, according to the space available, is always a profitable asset to every home, quite apart from its value as a hobby, for there is no comparison between the bought article and the fresh home-grown vegetables. A Vegetable garden lessens the cost of living, for home-grown vegetables are cheaper,

104 SROWA, AN 20/5, Perth City Council, Acc 3054, no.123, 1918, Goats - licensing of, Letter from Mrs M Herbert of Victoria Park to Town Clerk Bold, 21 August 1925.
105 PROV, Department of Agriculture, VPRS 10163/P3, Central Admin Correspondence Files, Box 101, Dairy Products, Letter from Tom Murphy of Newport to the Secretary of the Victorian Department of Agriculture, 19 March 1937.
106 See chapter 5 for a more extensive discussion of regulations and their impact on (often working-class) livestock-keepers
cleaner and fresher. The Vegetable Garden provides greater variety of food, and the
satisfaction of using vegetables of one’s own growing, and the fact that in many cases
‘if we don’t grow them, we do without them’ should be a great incentive towards
planting a Vegetable Garden.107

Here, the combined emphasis on cost and quality factors suggests that, at least for those
who would not have to ‘do without’ vegetables if they didn’t grow them, the utility of a
vegetable garden lay not so much in reducing the cost of living, but reducing the cost of
living well. The emphasis on economic aspects of vegetable production in magazines
increased when shortages and high prices were predicted, as for example during a long dry
spell around Melbourne in autumn 1926 which led to restrictions on the use of sprinklers,
even for commercial growers.108

The actual cost of food, and the proportion of the average wage which was spent on it,
was a central concern of the Royal Commission appointed in December 1919 to look into
the question of the basic wage.109 The Commissioners’ Report, which appeared in 1920,
included an examination of an adequate diet, according to both contemporary scientific
assessments of energy needs, and ‘the normal eating habits of the people, as far as it has
been possible to ascertain them’.110 One way in which the Commission sought to ascertain
these ‘normal eating habits’ was the distribution of 9000 household budget forms. About
400 of these forms were returned. It appears that the householders submitting forms to the
Commission were well aware that their evidence might ultimately affect the level of the
basic wage, as it was noted in the Report that: ‘the budgets show that the average families
were expending during the budget month considerably more than their income’.111
However, insofar as food was concerned, this was seen to be a good thing, as it rendered ‘the
budgets exceptionally reliable as an indication of the classes of food that are purchased
when the people are purchasing what they like to have.’112 The table below contains the
‘Indicator List’ of foods which the Commission found typical of that consumed weekly by a
family of five, consisting of a ‘Man, wife, boy 10.5, girl 7 and boy 3.5’. The cost of the
diet in Perth and Melbourne in October 1919 has been calculated, along with the
proportion of the basic wage, and of the amount deemed necessary by the Commissioners
for ‘reasonable comfort’, spent on each type of food:

109 More specifically, the Commissioners were to determine the actual cost of living in the current year and
over the past 5 years, and assess how the basic wage might automatically be adjusted to
compensate for the rise and fall in the cost of living.
110 Report of the Royal Commission on the Basic Wage, CPP, 1920-21, vol.4, no.80, p.44.
111 ibid.
112 ibid.
According to the figures produced by the Commission, for households on a wage providing for 'reasonable standards of comfort' food would still constitute the greatest single expenditure category, accounting for 39.6% of total household expenditure in Melbourne in 1920, and 39.4% in Perth in the same year - a little lower than the 1913 Commonwealth and 1917-18 Western Australian figures of 41.1% and 43.5%, respectively. Of the food

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113 Supplementary Report of the Royal Commission into the Basic Wage, p.102.
expenditure, the largest single category was still meat. Fruit, vegetables and eggs, the items most likely to be produced by suburban households, comprised only 7% of the total expenditure required for reasonable comfort in both Perth and Melbourne. If families also produced milk, the expenditure required for reasonable comfort would be reduced by 11%. Where home food production was carried out to its fullest possible extent, in a fashion which incurred few costs, it could make a minor, though significant, contribution to the household budget.

It must be remembered, however, that the Commission set out to examine what the Basic Wage should be. As mentioned at the beginning of this section, the actual basic wage was somewhat lower, being only 80% of the Commission’s ‘reasonable comfort’ level in Melbourne, and even less, at 71%, in Perth. Thus the average weekly amount spent on food - bearing in mind the Commissioners’ warning that the types and amounts of food probably reflected what people ‘like to have’ - was 50% of the basic wage in Melbourne, and 56% of the basic wage in Perth. The items able to be produced in a suburban situation (fruit, vegetables, milk and eggs) comprised 13% of the basic wage in Melbourne, and 17% of it in Perth. The potential for food production to contribute to an adequate standard of living in such situations is clear. However, many low-income households did not, or could not, produce their own food. As noted above, it was realised as early as 1913 that families with a low income per head tended to exclude the more expensive ‘protective’ foods, in particular milk and fruit/vegetables. Janet McCalman has confirmed that the appetites of the poor in 1920s Richmond were satiated with ‘refined carbohydrate stodge’, and sweet food for comfort: diets of bread, potatoes and jam were embellished with mutton flaps and purloined fruit. Similar observations about the diets of the poor were made in the 1940s. It is therefore likely that rather than growing their own, families needing to stretch the household budget in the 1920s would have eaten cheaper food. Some more well-off working-class families, however, and in particular those who were taking advantage of home ownership schemes offered by the Worker’s Homes Board in Western Australia and the Credit Foncier Department of the State Bank of Victoria, were moving into situations where they had good access to secure suburban land suitable for food production, and it is probable that many utilised their backyard for food production which was motivated, at least in part, by a desire to achieve greater financial security.

By the mid-1920s, gardening retailers were beginning to recognise that there was a growing market of suburban gardeners who grew vegetables for reasons including economy. In 1926, for example, James Railton, with a nursery in Preston and main store in Melbourne’s Swanston St, offered a collection of seed packets embracing ‘sixteen Standard Favourites of the leading family garden vegetables, put up in packets for those who have

114 McCalman, Struggletown, pp.56-7.
115 Santich, What the Doctors Ordered, p.112.
only a small plot for a vegetable garden. Each packet was priced at 3d, or offered as a collection for 2s 6d. Seedlings were also available - onions, cabbage and lettuce at 1s per 100 - less than in 1917 - plus silver and red beet and cauliflower at 6d for 25. Tomato seedlings were available for 1s per dozen, as in 1917, and passionfruit vines sold for 1s each. As the home garden market expanded, the necessities of gardening appear to have become more affordable, though costs may still have been a deterrent to some low income households and eaten into the profits of others.

As the 1920s drew to a close, backyard production for many households was about to become more significant than before. Little needs to be said about the economic circumstances of the 1930s Depression, which was clearly a time of poverty for many Australians. Estimates of unemployment vary between 19.74% (Butlin), 29.0% (trade union) and 35% (Forster) of all wage earners in 1932. In the years 1928/29-1931/32, the average annual rate of increase of real GDP per capita fell to an all-time low of -4.0. Pension payments and wages were reduced, the minimum weekly wage of male adults stagnated, and average annual earnings in manufacturing fell. Some of those who were fortunate enough to remain in constant employment without wage cuts enjoyed higher real wages, as prices dropped. However, for single women supporting families on their low wages alone, and those forced to survive on the meagre dole, every addition to the household’s resources made a big difference. Historians have not reached a consensus on the extent of actual hunger during the Depression: Michael Cannon claims that ‘half the population went hungry half the time’, and Wendy Lowenstein contends that ‘very many Australians must have died untimely deaths from illness accentuated by malnutrition’. Hunger has also featured in other oral histories of the period.

David Potts, whose PhD thesis was discussed in Chapter 2, attempts to refute the notion that hunger was widespread during the Depression, arguing that self-provisioning,

116 Advertisement, Garden Lover, October 1925, p.22. The mixture was comprised of beans, beet, cabbage, carrot, cucumber, lettuce, melon, onion, parsnip, peas, radish, spinach, tomato, pumpkin, vegetable marrow and turnip.
117 Butlin and trade union figures presented in Australians: Historical Statistics, Table LAB 86-97, p.152; C. Forster, 'Unemployment and the Australian Economic Recovery of the 1930s', Working Papers in Economic History, no.45, Department of Economic History, Australian National University, Canberra, 1985, Table 1.
118 Boehm, Twentieth Century Economic Development in Australia, p.22.
shrewd shopping and sustenance filled the gap.\textsuperscript{123} However, of the 500 interviews entered into Potts’ database, 16% recalled ‘slight problems’ relating to food, and a further 18% claimed they encountered difficulties obtaining food and experienced occasional cutbacks, but generally had enough. An additional 4% recalled or implied hunger.\textsuperscript{124} Of those interviewees who were unemployed during the Depression, less than half experienced no new problems with their food supply.\textsuperscript{125} Among those surveyed about their memories of the Depression in a 1972 Melbourne University research project, 7% of participants recalled ‘drastic’ changes to the quantity of food they ate, whilst a further 19% recalled ‘slight’ changes.\textsuperscript{126} Those relying solely on sustenance would probably not have been eating very many vegetables, if indeed they had eaten them before the Depression. In Melbourne in 1930, ration parcels distributed to the unemployed contained no fruit, or vegetables other than potatoes.\textsuperscript{127} There was little improvement after a system of orders on tradespeople was introduced, as they were limited to specified butchers, bakers and grocers - and only the latter carried a limited range of vegetables.\textsuperscript{128} Those in Perth may have had more luck obtaining a balanced diet without resorting to self-provisioning: in 1930, 2s of the 7s dole (for a single man) was paid in cash.\textsuperscript{129}

There is some evidence that home food production increased during the Depression, as a response to the diminution of budgets, and corresponding expansion of free time, associated with unemployment and underemployment. The report of an health inspector in the inner suburbs of Melbourne, for example, contained the observation:

\begin{quote}
Manure (the best breeding ground for flies) is seldom allowed to accumulate now, being very much in demand by the many unemployed who now grow their own vegetables. Back yards and vacant allotments have in numerous instances been cleared of noxious plants and in their stead a nice vegetable or flower garden has been laid out and maintained.\textsuperscript{130}
\end{quote}

A statistical boundary change between 1929 and 1930 makes it difficult to assess whether livestock and cultivation levels increased in Perth during the onset of the Depression, though numbers of cows and poultry both increased - the latter by a substantial number - from 1930-31 to 1932-33.\textsuperscript{131} Cultivation of vegetables and fruit (with the exception of grapes) declined on plots over an acre, presumably reflecting growers’ decisions to decrease

\textsuperscript{124} ibid., pp.109, p.369 (Appendix C, value 20).
\textsuperscript{125} ibid, pp.109, p.111.
\textsuperscript{126} Weston Bate and Margot Beaver, ‘History 2G and 3G: Australian Depression Survey 1972: Selected Tables’, School of History, University of Melbourne, n.d., p.10, cited in Potts, The Great Depression Revisited, p.120.
\textsuperscript{127} Barber, Community in Crisis, Appendix D, p.1. The State Relief Committee, however, did distribute fruit and vegetables, as well as groceries, to the unemployed in Richmond and other particularly depressed suburbs.
\textsuperscript{128} Barber, Community in Crisis, Appendix D; Cannon, The Human Face of the Great Depression, p.285.
\textsuperscript{129} Cannon, The Human Face of the Great Depression, p.94.
\textsuperscript{130} Humphrey McQueen, Social Sketches of Australia 1888-1975, Penguin, Ringwood, 1978, p.130.
\textsuperscript{131} For detail of statistical boundary changes, see maps Appendix II.
production in the light of uncertain prices.

David Potts provides some more detailed information about home food production during the Depression. Of interviewees who were unemployed during the Depression, 40% created new gardens or expanded their existing ones, whereas for fully-employed people, the equivalent rate was only 4%. However, overall only 48% of interviewees who were unemployed during the Depression ‘ran gardens’ - a significantly smaller proportion than the 70% of the general population who did so. Only 3% of interviewees mentioned that they would have liked to grow food but could not because they had too little land or moved too often. However, given that proportionately fewer unemployed people reported having productive gardens than employed people, it is likely that many of the unemployed lacked one or more of the necessary resources for food production, such as time, space, security of tenure, knowledge, or money for gardening supplies. Potts found within his sample that although some interviewees were producing food in the high-density inner suburbs, most depended on the space available in the middle and outer suburbs for extensive production. ‘Favoured suburbs for the poor with substantial gardens’ included Preston, Northcote, Fairfield, and Essendon.

For some interviewees who were able to establish or extend vegetable patches, and who already had access to fruit trees, gardening was the main use of their enforced spare time. Many interviewees attributed great importance to growing vegetables, tending fruit trees, keeping fowls, and keeping cows, and several claimed that home production was the main reason that they were able to eat well. Similarly, in Brunswick during the Depression, those with enough land, knowledge and other resources to achieve some degree of self-sufficiency managed to avoid the inadequate or boring diets that were the lot of the unemployed without access to such resources. Some produce was given away to neighbours or family, or bartered for other needs: one man from a family of five in the Melbourne suburb of Bayswater remembered that ‘[v]isitors ... would cry to see our well-stocked garden ... As we grew vegetables and produce these were always in demand ... We bartered eggs, milk, fruit and vegetables for the things we needed.’

However, as Potts’ data suggest, by no means all suburban food production during the Depression was associated with poverty. For example, the Australian Home Beautiful included a kitchen or vegetable garden in its fashionable house and garden plans almost as a matter of course. Many middle-class people continued to grow their own. One of my oral history informants, Neil Durston, who was 8 years old in 1929-30, recalled that he was ‘brought up in hard times, depression years and so on’. However, Neil’s father was a Perth

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132 Potts, The Great Depression Revisited, p.114.
133 ibid., p.116.
134 ibid., Appendix C, p.371. One suspects that this figure would have been greater had Potts' sample not been biased in favour of middle-class families.
135 ibid., p.116.
137 ibid., p.114-115.
138 Arnot, Working Class Women in Brunswick During the Great Depression', p.57.
139 Potts, The Great Depression Revisited, p.115.
businessman who was owner of 6 rental houses in West Perth, suggesting that the Durstans' vegetable garden and poultry were carried on for reasons other than economic necessity.140

Some of those who were not in a position to produce their own food nevertheless benefited from the production carried out by those with the resources to do so. Some were the recipients of gifts; others resorted to theft from productive middle-class backyards: Athol Thomas, who grew up in the relatively affluent Shire of Peppermint Grove in metropolitan Perth, recalls the night his Mum, who ‘needed the eggs’, scared off a chicken thief.141 At a meeting in the suburb soon after, the theft of ‘several full-blown cabbages ... and - in one particularly bad case - six pullets on the point of lay’ was reported.142 In Victoria, Vin Greaves, who grew up on the ‘other’ side of Glenferrie Road in Hawthorn, recalled stealing fruit ‘for fun, as well as food’ during the Depression.143 The houses of the well-to-do residents of Hawthorn Grove and Kinkora all had fruit trees at the back, providing their middle-class owners with fresh fruit, and unemployed Vin and his brothers with a welcome change from sustenance bread, butter, potatoes and meat. Even in 1935, when things were looking up, the National Utility Poultry Breeders’ Association of Victoria wrote to tell the Minister of Agriculture that ‘Poultry stealing is very rife, and many valuable birds are stolen.’144

Another form of ‘resource theft’ occurring in the 1930s (and no doubt long before, and after) was the deliberate grazing of cattle on prohibited land. For one cowkeeper in Perth in 1936, the succulent pasture on the Esplanade - the grassed area between the city and the river - represented just so much excellent cow feed. The temptation was irresistible. In April 1936, the Town Clerk of Perth wrote a memo to the Chief Health Inspector:

Last night, and on several previous occasions, cows have been depastured on the Esplanade recreation ground. In addition to causing damage to shrubs, there is the nuisance committed by them on the ground. Will you please have a constant watch kept on the ground and endeavour to impound the cows so that we can take proceedings against the offenders.145

The following day, another memo followed:

Re my memo, of yesterday, the cows were again depastured on the Esplanade last night. Something will have to be done promptly. The Gardener thinks they are placed on the reserve in the early hours of the morning and removed before daylight.

There is no record of whether the phantom cowkeeper was ever caught, but somewhere, someone in Perth enjoyed milk made on the Esplanade.

140 Neil Durstan, interviewed by the author, 28 September 1998, tape in author’s possession.
142 ibid., p.55.
144 PROV, Department of Agriculture, VPRS 10163/P2, Central Admin Correspondence Files, Box 197, Poultry Industry Part 2 1934-1953, Letter from National Utility Poultry Breeders’ Association of Vic to the Minister of Agriculture, 1 November 1935.
145 SROWA, AN 20/5, Perth City Council, Acc 3054, Correspondence Files, no.1, 1939, Chief Health Inspector’s Reports & Instructions, memo from Town Clerk to Chief Health Inspector 3 April 1936.
The interwar period is clearly one in which home food production was economically important to many people, and particularly those who fell on hard times during the Depression. For some, it meant the difference between milk on the table and water. For others, however, it was more to do with preferring firm, fresh green beans to their jaded and rubbery relatives at the local greengrocer. The picture - one of variety - extends to the whole of the period between the 1880s and the Second World War. There is a continuum, with households engaged in food production purely for survival at one end, and the wealthy Home Gardener looking for quality salading, exercise, and other satisfactions, at the other. Evidence suggests that there were few households at the subsistence end of the scale, as the poorest households often lacked the space, knowledge, money and other resources necessary to carry on food production on a significant scale. For food production was by no means free of costs, and was not always guaranteed to produce items cheaper than the commercial article. It could also be restricted by fees or strict regulations applied to the keeping of stock. Self-provisioning among the poor was also limited by an apparent working-class dietary preference for meat when it could be afforded, or the substitution of bread for more expensive items as a strategic response to poverty. However, in an era where food expenditure accounted for a substantial proportion of the household budget for those on or near the basic wage, there were some households for whom home food production was an essential part of making ends meet, normally releasing up to 12% - or in some cases more - of what would have been essential expenditure, for other purposes. More common, even during the Depression, were households for whom food production was an activity with a variety of advantages, one of which was that it could, at least potentially, save money. For these households, home food production may have represented a saving, but it was by no means a necessity. Conversely, even among those households for whom food production was a necessity, there were more subtle satisfactions to be gained from the activity: the love of poultry or pulling carrots serves to further complicate the narrative of necessity.
Chapter 4

Prudence and preference: 
Economic aspects of suburban food production 1938-2000

In the shadow of war, vegetable patches were still cultivated, fruit trees nurtured, poultry tended. And as the band of ‘lady vistors’ collected information for the Melbourne University social survey, a more clear picture of the socio-economic locations of home food production was created. Whilst home food production was extensive, by and large it was not a product of economic necessity. There is no doubt, however, that food production during and after the war was employed of necessity by some households in poverty, and as a prudent choice with some economic basis for the growing ranks of working-class households who were able to leave the cramped and sunless yards of their inner-city rental accommodation for a mortgaged quarter-acreage on the fringes of the swelling cities. The potential for saving money through self-supply rose and fell with prices and dietary trends, though rising real wages saw a fall in the average proportion of total expenditure on food, thus diminishing the overall potential for self-supplied food to contribute to the household budget. Nevertheless, even in the late twentieth century some gardeners were concerned to save money by growing their own food and in fact managed to do so; others - as in earlier decades - found it difficult or impossible to grow food more cheaply than it could be bought. Overall, in the second half of the twentieth century, as in the first, the picture is one of varied motivations for food production, with economics playing one part.

1938-1954

Although economic growth was slowing in 1938-39, the onset of the Second World War saw an economic revival based on manufacturing of munitions and other military equipment. Increased demand for industrial labour, along with enlistment and the actions of the Directorate of Manpower, saw unemployment levels fall dramatically. The magic wand of economic growth brought a greater degree of prosperity to some households; others, however, were passed by. Researchers at Melbourne University established an Australian equivalent to Rowntree’s ‘human needs standard’, and used survey data to assess the proportion of households in Greater Melbourne with incomes falling short of that standard.


2 Details of cost-of-living calculation are given in University of Melbourne Archives (hereafter UMA), Melbourne University Social Survey, ‘Subsistence needs’ box, various loose sheets and ‘Incomes and Occupants’ box, ‘Income and Poverty in Melbourne, 1941-42’, typescript, n.d.
Their results are replicated in the table below:

<table>
<thead>
<tr>
<th>Area</th>
<th>number of households</th>
<th>number in poverty</th>
<th>% in poverty</th>
<th>% producing some food</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Melbourne (central)</td>
<td>351</td>
<td>36</td>
<td>10.3%</td>
<td>12%</td>
</tr>
<tr>
<td>2. Port Melbourne and South Melbourne</td>
<td>245</td>
<td>33</td>
<td>9.0%</td>
<td>7%</td>
</tr>
<tr>
<td>3. Collingwood, Richmond, Fitzroy</td>
<td>508</td>
<td>43</td>
<td>8.5%</td>
<td>13%</td>
</tr>
<tr>
<td>4. Footscray, Williamstown, Braybrook</td>
<td>467</td>
<td>15</td>
<td>3.2%</td>
<td>42%</td>
</tr>
<tr>
<td>5. Essendon</td>
<td>211</td>
<td>11</td>
<td>5.2%</td>
<td>59%</td>
</tr>
<tr>
<td>6. Coburg, Brunswick</td>
<td>546</td>
<td>41</td>
<td>7.5%</td>
<td>54%</td>
</tr>
<tr>
<td>7. Northcote, Preston</td>
<td>522</td>
<td>31</td>
<td>5.9%</td>
<td>67%</td>
</tr>
<tr>
<td>8. St Kilda, Prahran</td>
<td>489</td>
<td>35</td>
<td>7.2%</td>
<td>21%</td>
</tr>
<tr>
<td>9. Caulfield, Malvern, Oakleigh</td>
<td>346</td>
<td>11</td>
<td>3.2%</td>
<td>76%</td>
</tr>
<tr>
<td>10. Brighton, Sandringham, Mordialloc, Moorabbin</td>
<td>575</td>
<td>35</td>
<td>6.1%</td>
<td>58%</td>
</tr>
<tr>
<td>11. Camberwell, Kew, Hawthorn, Box Hill, Heidelberg</td>
<td>525</td>
<td>13</td>
<td>2.5%</td>
<td>79%</td>
</tr>
</tbody>
</table>

* surveyed and for which income information was available (i.e. excluding those households who had no knowledge of, or refused to provide, income details).

Unsurprisingly, poverty was concentrated in the inner urban area, although some of the northern and southeastern suburbs also had fairly high rates of households living in poverty. In several suburbs, there was an apparent inverse relationship between poverty levels and food production. The graph below plots the percentage of households in poverty (multiplied by a factor of 10 to achieve an appropriate scale) against proportions of food-producing households.

An inverse relationship between poverty and food production is particularly apparent in the high-density, predominantly working-class areas 1, 2, 3 and 8, and the low-density

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3 UMA, Melbourne University Social Survey, 'Subsistence needs' box, table, 'Proportion of Family Incomes Insufficient to Provide a Minimum Needs Standard at 1941-2 Prices', n.d.
predominantly middle-class areas 9 and 11. In the mixed or middle-density, but still predominantly working-class and lower middle-class areas 4, 5, 6 and 7, food production bears more of a direct relationship to poverty levels. These are the areas where low-income households could take advantage of the ready availability of suitable land for food production, primarily in order to improve their financial position. It is probable that the majority of households in these areas, however, were drawn from the ‘respectable’ working class and lower middle class, whose food production may have been motivated at least in part by economic factors, but is likely to have also been substantially influenced by considerations similar to those which led such a high proportion of the middle-class households in areas 9 and 11 to produce food.

Of course, simple correlations do not tell us about causality, although at least two important conclusions may be drawn from the data presented above: firstly, in all areas bar Port Melbourne and South Melbourne, the proportion of households producing their own food was greater, and usually much greater, than the proportion of households in poverty. Although it is possible, perhaps probable, that some of the households growing their own food would otherwise have been in poverty, clearly a large proportion of households were producing their own food not out of economic necessity, but for other reasons. This conclusion is supported by the large proportion of food-producing households found in distinctly middle-class areas.

Secondly, the data shows that food production was not an effective, or perhaps even available, poverty amelioration strategy for a substantial proportion of households in high-density areas. This is in spite of the fact that as in the prewar period, food accounted for a large proportion of total expenditure in low-income households: in the minimum needs standard used in the survey, it was approximately 44%. Where food formed such a large proportion of expenditure, the ability to free up income that would otherwise be devoted to food could have made a significant impact on a household’s ability to pay for other minimum subsistence needs. Indeed, this fact was recognised in the social survey ‘Instructions to Investigators’, which directed that interviewers should ‘Try and obtain from the occupier an approximate weekly value of the fruit and vegetables grown, whether or not they are sold, as this may have an important bearing on the adequacy of his [sic] wages.’ Although the proportion of households in poverty identified by the survey may well have been higher without any access to the ability to produce food, and the standard of living of some households in poverty may have been improved through such access, the fact remains that a relatively high proportion of households remained in poverty in the higher-density areas.

4 See the table above for a listing of suburbs included within each area number.
5 In a preliminary estimate of subsistence needs, in 1942 prices, the minimum cost of food for a husband and wife was set at 21s 2 1/2d, where the total minimum for subsistence (including rent) was valued at 48s 8 1/2d: UMA, Melbourne University Social Survey, ‘Subsistence needs’ box, ‘Preliminary estimate of subsistence needs’, c.1942
The Social Survey data re-encoded by University of Melbourne researchers in the 1980s also included an item - ‘Occgroup’ - relating to the occupational status of household members. The middle class is represented by ‘Occgroup’ categories 1 through to 6, encompassing professionals such as lawyers and doctors, as well as managers, clerks, and workers in science, religion and education. The fraction of the working class in ‘skilled’, probably stable, employment is represented largely by ‘Occgroup’ 12, which includes bakers, tailors, blacksmiths, lathe operators and fitters and turners. The ‘unskilled’ working class, more likely to be on basic wages and subject to intermittent employment, are represented by ‘Occgroup’ 14, including cleaners, packers, process workers, boot examiners, charwomen and wharf labourers. Of all households with an identifiable breadwinner whose occupation was recorded and could be classified, the following proportion of households in each ‘Occgroup’ category produced their own food:

<table>
<thead>
<tr>
<th>Occgroup of breadwinner</th>
<th>% of households producing own food</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-6 (middle class)</td>
<td>65%</td>
</tr>
<tr>
<td>12 ('skilled' working class)</td>
<td>55%</td>
</tr>
<tr>
<td>14 ('unskilled' working class)</td>
<td>38%</td>
</tr>
</tbody>
</table>

The ‘Occgroup’ with the highest proportion of households producing their own food was ‘Occgroup’ 4, incorporating brewery managers, bank managers, company directors and sales managers, within which 69% of households produced their own food. Food production was also, unsurprisingly, closely correlated with tenure status: 71% of purchasing owners and 62% of outright owners grew some of their own food, as opposed to only 35% of tenants.

Overall, the image produced by the survey results is one of a city in which the middle class, and to a lesser extent the ‘skilled’ working class, had the best access to the land and other resources (including knowledge resources) necessary for the production of food - an advantage which was utilised to a large extent when it was not essential to the household economy. On the other hand, the poor who were crowded in the inner city and other rental accommodation were often denied access to the necessary resources, such as space and stability, when such access might have enabled them to improve their financial position. This picture is supported by a closer look at the original survey forms, which yield abundant examples of food production among the middle class. For example, there was the Malvern doctor with a weekly income of over £10, who lived with his wife and two children in a ‘Prosperous home on corner of streets ... Tennis court at side, grass and flowers in front, vegetables at the back.’ The family was ‘self-supporting’ in vegetables. Or the Brighton accountant - also on over £10 per week - and his wife, who kept ‘A very comfortable home - gardens and lawns. Extensive vegetable garden & fruit trees - enough to supply

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7 The ‘occgroup’ categories 1-6 plus 12 and 14 together accounted for just over 70% of all households.

8 UMA, Melbourne University Social Survey form, Box 11, Municipality 14 (Malvern). Comments were made by the interviewer on the back of the form.
neighbours.'9 One of the few food-producing households in Richmond was owned by a bank clerk. With a son on military service and a daughter in sales (at Myer), the family earned over £10 per week. There was 'cultivation where possible' around their 'superior modern home - for this locality'.10 The skilled trades were also well-represented among the producers. For example, a Brunswick carpenter's family were almost self-sufficient in vegetables, and besides had two fruit trees, loganberries, and 18 fowls.11

On the other end of the scale, and apparently less numerous, were the households clearly in poverty. Mostly elderly or with a female head, these households tended to have fewer vegetables and more poultry. A 56 year old woman who ran a haberdashery and confectionery store in Essendon had seen her takings decline since Coles opened a branch nearby, five years previously. She and her sister lived on only 45s a week, but grew all of their own vegetables and ate eggs from their four bantam hens.12 However, not all of the poor were in a position to produce food. A retired couple in Richmond told the interviewer that they had tried to grow vegetables, but could not on account of their 'sunless yard'.13 The wife of a slaughterman in Essendon assured the interviewer that she intended to plant vegetables in the front garden when she had time, though with eight children at home and another on the way, it is doubtful that this might ever have happened.14 The social survey found that of the households in poverty, 45% were elderly people living on pensions, superannuation or savings.15 Some of these people would have been too frail to produce their own food. Sickness and temporary unemployment accounted for 4% of households in poverty; households where sickness was the main cause of poverty might also have been unable to produce their own food.

In assessing the ability of households to produce their own food, there is also a regulatory context to be considered: one wonders whether Williamstown (ex-)cow-keeper Tom Murphy appears in the survey data, and where. As noted in the previous chapter, it appears that livestock may have been more popular with working-class than middle-class households. The increasing regulation of animals in suburban areas (to be discussed in more detail in part III), is therefore likely to have had a disproportionate impact on the working class. This hypothesis is supported to some extent by the social survey results, which confirm that overall, working class households, and particularly those with an 'unskilled' breadwinner, were more likely than middle-class households to keep poultry.16

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9 UMA, Melbourne University Social Survey form, Box 1, Municipality 01 (Brighton).
10 UMA, Melbourne University Social Survey form, Box 18, Municipality 23 (Richmond).
11 UMA, Melbourne University Social Survey form, Box 2, Municipality 02 (Brunswick).
12 UMA, Melbourne University Social Survey form, Box 7, Municipality 08 (Essendon).
13 UMA, Melbourne University Social Survey form, Box 18, Municipality 23 (Richmond).
14 UMA, Melbourne University Social Survey form, Box 7, Municipality 08 (Essendon).
16 'Occgroup 14', the unskilled working class, was most likely to keep poultry (16% of all productive households), with the skilled working class less likely (at 12% of all productive households), and the middle class less likely again (9% of productive households).
In addition to new and existing regulations controlling the keeping of particular types of livestock in certain areas, the war also saw the introduction of much greater control over certain primary industries, including the poultry industry. In Victoria, an Egg Board was established in 1938. The implementation of control required all poultry-keepers with flocks of greater than 20 fowls to sell their eggs to Egg Board agents at a centrally-determined rate. The Board would also deduct a percentage from the payment, to support its work in the orderly marketing of the eggs. This increased the price of formally-marketed eggs, and during the egg shortage which in the first half of 1945 led to the implementation of an ‘Egg Priority’ rationing scheme, ‘backyarders’ - believed to be mostly ‘pensioners and workers’ - were able to take advantage of high black market egg prices. However, even under these conditions there were those who argued that the backyarders were doing well to profit from a poultry sideline: in debate over the Western Australian Marketing of Eggs Bill in 1945, Mr J. Mann (Member for Beverley) suggested that eggs obtained by the owner of the ordinary backyard property which has only 20 fowls cost about 6d each to produce, because those people are not experts at egg production. Some farmers who run a number of barnyard fowls are in the same position. The birds are not fed in the proper way, so that eggs are not obtained for more than about 6 months of the year.

The dubious profitability of small-scale poultry operations is reflected in some of the Melbourne University social survey forms. One household in Northcote spent 5s per week on fowl feed to produce 5s worth of eggs. Another Northcote household had a small poultry farm which, with 24 laying fowls, was generating more expenses than income. Other small poultry farmers struggled to make a profit under Egg Board control. One woman living in a ‘terrible galvanized iron shack’ in Braybrook told the interviewer that her husband (since enlisted) used to be a poultry farmer, ‘But we couldn’t make a go of it. The Egg Board finished him.’ Most of the remaining ‘backyarders and side-liners’ were forced out of the industry in the late 1950s, as diminishing profit margins required greater economies of scale.

Towards the end of the war, there was also much discussion about the potential for organised marketing of vegetables. At a 1945 meeting of all state representatives, a variety of issues including marketing, grower registration, industry protection and planning were considered. One basic problem to be overcome was that the production which had been

17 WAPD, 5 December 1945, pp.2465-2466.
18 ibid.
19 ibid.
20 Prest Social Survey form, Box 14, Municipality 18 (Northcote).
21 Prest Social Survey form, Box 14, Municipality 18 (Northcote).
22 Prest Social Survey form, Box 21, Municipality 28 (Braybrook).
23 PROV, Department of Agriculture, VPRS 10163/P3, Central Admin Correspondence files, Box 197, Poultry - Industry Part 3 1956-1964. In the late 1950s, British subsidisation of their poultry industry led to the loss of that market for Australian producers, and a subsequent crisis of overproduction. More money was spent by egg boards on grading and marketing of eggs, and their deductions increased accordingly, which is why greater economies of scale were required.
stepped up to cover demands from the Services was going to have to be scaled back, or new markets found. The South Australian representative was optimistic, stressing the potential for increased local vegetable consumption after the war:

during the war years, as other speakers have pointed out, a lot of people have started eating vegetables, and our Australian post-war domestic markets can be a lot better than they were before the war.\(^\text{24}\)

Although statistics were not collected in relation to consumption of most vegetables before the war, it appears that the prediction of an increased consumption of vegetables, at least in the short term, was correct. Whereas the average apparent yearly consumption per capita of potatoes and tomatoes from 1935/6-1938/9 was 47.1kg and 7.1 kg respectively, by 1945/6-1948/9 these figures had increased to 56.3kg and 11.5kg.\(^\text{25}\) The average consumption of all types of vegetables was reported as being 129.7kg per capita in 1945/6-1948/9, though by 1955/6-1958/9 this figure had fallen to 117.1, and it would be the 1970s before consumption of vegetables consistently surpassed the late 1940s level.\(^\text{26}\)

The reasons for the increased wartime consumption of vegetables include shortage and rationing of other foods, including meat, as well as the ubiquity of wartime propaganda which stressed the health benefits of vegetables, and encouraged vegetable production as a highly patriotic act. The potential for saving money does not appear to have been a major factor, at least in the promotion of home food production. The ‘Grow Your Own’ campaign, for example, placed emphasis on the national, rather than individual household, economy. As they had done prior to the war, magazine articles sometimes included household savings as a reason for growing one’s own, though often as subordinate to motivations including patriotism, health, scarcity of vegetables, quality of those on offer and less material factors such as enjoyment. As early as 1941, *The Home Gardener* surmised that ‘The increasing scarcity of vegetables, combined with the poor quality of those offered for sale, probably makes many householders consider the advisability of turning a portion of the backyard into a vegetable garden.’\(^\text{27}\) The war-time edition of Brunning’s *Australian Gardener*, on the other hand, stressed the leisure value of the activity, promoting Home Gardening as a way for people to occupy themselves ‘in a manner useful to the community while promoting good health and enjoyment’, at a time when ‘Pre-war pastimes such as pleasure motoring, week-ending, etc. are now deferred until the war has been won.’\(^\text{28}\)

The *Women’s Weekly*, with a circulation of over 500 000 copies per week in 1942, was one of the few publications to emphasise economy as well as health - both of which were

\(^{24}\) NAA (Vic), CA 48, Department of Commerce and Agriculture, MP 48/1, 217/1/21, Vegetable Production General Post-war Proposals, 1944-46, Conference re. post-war production of vegetables held in Melbourne on 22 October 1945, pp.6-7.


\(^{26}\) ibid., p.11.


linked to women’s roles as mothers and housekeepers. In 1942, for example, the *Weekly’s* garden column reminded readers that ‘Every scrap of food produced in the home garden in the coming winter will help to reduce household expenses - and maintain the family’s health.’29 Similarly, in an ABC radio ‘In and Around the Home’ segment on ‘Keeping a Milking Goat’, Nan Rosenfeld pronounced goats to be ‘a very sound investment for any home where health is of the first importance’, adding that ‘it is not for nothing that the Child Welfare Authorities in Canberra have urged every home with a baby in it to keep a goat.’30 After a discussion of the advantages of goat-keeping, and how to care for and feed a goat, Rosenfeld reassured listeners that ‘It will not cost you much, for the goat is still “the poor man’s cow” in Australia.’31 In 1941, the Nutrition Committee of the National Health and Medical Research Council of Australia also stressed the economy of goat-keeping, estimating that ‘sufficient goat’s milk for a family of five for 9 months would cost $2.50 a day as compared with $1.60 a day for the equivalent quantity of cow’s milk.’32

Popular garden literature gave much more attention to the high cost of vegetables in the immediate post-war period. The *Home Gardener*, in particular, stressed the value of a home vegetable garden as insurance against high market prices, with a staff writer observing in 1947 that:

> For some time past vegetables have been bringing exceptionally high prices, and, in view of the increased demand usually about holiday time, these prices are likely to continue. It seems appropriate then to suggest that you should make an endeavour to use any vacant land which may be suitable for the purpose of producing quick crops.33

The economic importance of home vegetable production was increasingly stressed in several articles,34 until the point in 1948, and again in 1950, when it was declared an economic necessity: ‘Home vegetable growing has become such an important economic necessity that all available time should be put into the job.’35 The *Australian Garden Lover* in the early 1950s also mobilised the terminology of necessity - in conjunction with ‘quality’ - in discussing the advantages of home-grown produce:

> Sheer necessity demands that people get on with that vegetable garden they have planned in the back-yard. High prices changed mean that we get only a handful of greens for the 10/- or 12/- we have to pay; also the quality of the battered produce is

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30 NAA (NSW Office), Australian Broadcasting Commission, SP 300/1, ABC Talks Scripts - General, Nan Rosenfeld, Keeping a Milking Goat, broadcast as part of ‘In and Around the Home’ segment, 12 October 1943, pp.1-2.
31 ibid., p.3.
32 Nutrition Committee of the National Health and Medical Research Council of Australia, *Diet and Nutrition for the Australian People*, Angus and Robertson in conjunction with the Commonwealth Department of Health, Sydney, 1941, p.57.
just terrible compared with the fresh and tempting vegetables we can raise at negligible cost right on the spot.36

Coming only 10 years after the Melbourne University social survey revealed that food production was most prevalent among middle-class households, these references to necessity should be interpreted for the most part as hyperbolic, rather than literal. Readers may have resented having to pay such high prices for poor-quality produce, but one suspects that most are unlikely to have found themselves on the brink or starvation without a vegetable garden: certainly, if the letters to the magazine and the remainder of its contents are anything to go by, vegetable gardening was not pursued at the expense of its ornamental counterpart. Even T.A. Browne, writing for an Australian Home Beautiful audience that could generally have afforded to pay the high prices, urged readers to take advantage of the substantial savings to be had from home vegetable-growing:

The price of vegetables during the past few months presents the strongest possible case for the kitchen garden, which under existing conditions should be kept in full operation even during the winter months. ... When one recalls recent prices paid in Melbourne for vegetables, such as 7/6 for cauliflowers, 2/- a bunch for silverbeet and 2/- and 2/6 a pound peas and beans, the incentive should be present to produce one’s own vegetables if at all possible.37

Browne went on to speculate that the reasons for the ‘extraordinary prices’ included a dry summer and autumn, scarcity of labour, and the ‘disappearance of most of the inner circle of market gardens that for many years flourished in the outlying suburbs.’ Indeed, it seems that the postwar overproduction crisis envisaged in 1945 did not materialise, at least in Melbourne.

Many of those who owned market gardening land quickly came to see houses as a more valuable crop than vegetables. In 1945, it was estimated that the nation faced a shortage of approximately 300 000 houses.38 In spite of a scarcity of both labour and building materials, the annual number of new homes constructed increased almost fourfold, from 15 400 in 1946 to 57 000 in 1950.39 Many of these homes were built on ex-horticultural land on the fringe of metropolitan areas (see chapter 2). Another threat to market-gardening land was announced in 1946, in the form of plans for the construction of a new airport at Moorabin. The Truth was scandalised (as usual), claiming that the new airport would ‘cost 3941 tons of vegetables every year’.40 From a high of 66 471 acres devoted to cultivation of vegetables (other than potatoes and onions) in Victoria in 1943-44, the cultivated area fell to 35 361 acres in 1949-50, and again to 30 243 acres in 1953-54 - less

36 ‘Grow Your Own Vegetables’, Australian Garden Lover, November 1951, p.17.
39 ibid., p.36.
than half of the 1943-44 area. With less ground devoted to vegetable production, particularly in the immediate vicinity of the city, it is no surprise that both quality and affordability of vegetables suffered.

The stories of people who produced food during the war and immediate post-war years confirm a continuation of mixed motivations for food production. In the 1940s and 50s, both Professors of Dentistry at Melbourne University, and the family of their live-in housekeeper, all grew their own food. The Professors, in particular, presumably did not garden for reasons of economic necessity. Other oral history interviews also revealed cases of food production in the context of fairly comfortable economic circumstances. One family for whom the profit motive was perhaps more critical, but for whom quality was still an important factor, were the Grahams, who lived in the coastal Perth suburb of Cottesloe. In 1998, Jim Graham recalled:

The chooks were started by my older brother when Dad died in 1939 as a result of injuries received during WW1. I took over a few years later. We were fully responsible for looking after them, and for all expenses. We were not paid for the eggs or poultry we used ourselves, and tended to make do with old hens (boilers) past their efficient laying age. The paying customers got the young roosters. ... We bought about 1 or 2 dozen chicks twice a year, 7-8 months before Christmas and Easter. The vegie garden was a joint responsibility, and was an attempt to save money as well as to provide very fresh produce. From 1939, Mum was on a Repatriation War Widow's Pension, and we had to make every post a winner.

Jim Graham was clearly in a position where food production could make a valuable - possibly essential - economic contribution to the household. Other households would have been producing food under similar circumstances.

However, there is also a sense during this period of a developing narrative of generalised economic necessity in relation to food production, in the absence of evidence that most home food production was strictly economically necessary. As noted above, from the late 1940s magazines began to stress the economic dimensions of the activity, and even speak of it literally in terms of necessity. A similar trend can be identified in oral histories, where food production when spoken of generally is linked with necessity, though interviewees’ own, particular experience of food production is not framed in such terms. An example of this occurred in an interview with Tim and Tot White, who moved to their house in the inner Melbourne suburb of Fairfield when they were first married in the early 1940s. Tim worked in textiles, first in engineering and then managing a factory in Braybrook. He started growing vegetables because he likes to garden. He didn’t think it

42 Ross Bishop, interviewed by the author, 14 July 1999, tape in author's possession. Ross' mother was the live-in housekeeper until 1953.
saved much money, but did it because ‘it’s nice to see it growing’.45 Tim and Tot bought chooks when they were first married, and after a short hiatus, they kept 10-15 chooks for around the same number of years. Tim took on the chooks as a hobby, because he ‘just liked them’. However, Tim and Tot were also anxious to stress the general economic context of food production in the war and immediate post-war period:

Tim: Many a chicken I killed and plucked!

Tot: People didn’t have the money, didn’t have much money. Like you had your chooks, well you had your eggs, and you’d kill your chook and have a chicken: chicken is so cheap now, but chicken was a delicacy, you were lucky to have a chicken. It was a big thing for Christmas or a birthday. ... But now it’s cheaper to buy a chicken than it is other meat.

Tim: Things are pretty tough now, but they’ll never be as tough as what they were years ago. ... People had vegetables ... we were pretty right, I was in a job all the time, but it still was a nice era.46

Another narrative of generalised necessity, also qualified for his own case, was presented by Robert Still, an ex-Group settler who moved to his Nedlands home in 1950. When asked why he started growing his own food, Robert replied: ‘it’s a thing to help out with your family allowance and that sort of thing, but not that I really needed to ... I was on a fairly good wage, but I like doing that sort of thing’.47

Evidence from the war and immediate postwar period suggests that as usual, households grew their own food for a variety of reasons. Narratives which portray food production as generally motivated by economic necessity appear to have emerged in relation to the period, but although disposable incomes have increased on average since the 1940s, such narratives - which rarely extended to the teller’s own circumstances - would appear to be coloured by the relative plenty of today. The Melbourne University social survey reveals that at the beginning of the war, the dense inner-city areas of greatest poverty also had the lowest levels of home food production, whilst middle-class suburbs with the highest levels of food production also tended to have the lowest levels of poverty. Fruit and vegetable production was most prevalent, and carried to its fullest extent, among the middle class, though it was also popular among those members of the ‘respectable’ working class in skilled and probably relatively stable employment. It was also carried out to a lesser extent among the remainder of the working class and the poor.

From the 1940s, some poverty would have been mitigated by the introduction of child endowment (introduced prior to the social survey, in 1941), civilian widows’ pensions (1942), and benefits for sickness and unemployment (1944). However, these measures by no means banished poverty from Australian cities. What potential, then, remained for the

45 Tim and Tot White, interviewed by the author, 20 July 1999, tape in author’s possession.
46 ibid.
47 Robert Still, interviewed by the author, 7 October 1998, tape in author’s possession.
poor to improve their situation through suburban food production? Sickness, old age and lack of appropriate space continued to limit food production in some cases. Compulsory participation of flocks of poultry over 20 adult birds in centralised marketing schemes would have diminished the viability of that enterprise for many. On the other hand, in the context of a wartime diet which had shifted towards inclusion of more vegetables, the amount of money potentially saved by growing one’s own vegetables would have increased. High prices for vegetables in the late 1940s and early 1950s would have provided a further incentive for those with the necessary resources to grow their own, and as the post-war housing boom got underway, more and more people were gaining access to those resources.

1955-1972

In the mid-1950s, gardening magazines continued to emphasise the high cost of shop-bought produce, and the cheapness with which food could be produced in one’s backyard. Charles W. Smith, poultry writer for *Your Garden*, was particularly enthusiastic, penning several articles which stressed the cost-effectiveness of poultry-keeping in times of high commodity prices. In May 1956 he proclaimed that ‘Properly managed, the back garden can be a self-contained food factory’. ‘Backyarders’, he suggested, should start with early hatched chicks, keeping them for one laying season only, by which time ‘the hens will have paid for themselves with the eggs they have produced and you can figure on getting your annual profit by cashing them for meat.’ With egg consumption in the 1950s still above 200 eggs per capita per annum, it is probable that some households would have regarded the potential for saving money through egg production as sufficient incentive to ‘go in for poultry’.

In another *Your Garden* article published in 1956, first of a series on ‘The Kitchen Garden’, Reuben T. Patton, former senior lecturer in Botany at Melbourne University, launched into a rather lengthy discourse on the high cost of living, particularly for many of those with a newly-acquired responsibility for a home. Patton portrayed the land around the home as capital which families could employ in order to afford to eat the amount of vegetables required for good health:

> In other days and in other lands the quantity of vegetables, excluding potatoes, considered necessary per person per day was about one pound but now it is impossible for the housewife to buy that amount for the family and at the same time meet all the commitments of the house, including rates, taxes and upkeep. ... To meet the present high costs, at least in part, the land around the house must be regarded as an asset and put to use in the raising of vegetables and fruit.

Patton’s article is directed at the swelling ranks of largely working-class home-buyers who


escaped their shared accommodation and inner-city rentals for detached suburban houses of their own. With mortgages to pay, houses to furnish, and a wealth of goods - from cars to lawnmowers - to purchase for full participation in postwar suburban life, it is somewhat ironic that food production was called upon to support a culture of consumerism. Gardening magazines, of course, were not innocent of these trends, but performed a critical role in linking mass production with mass consumption.51 Full-page advertisements for 'Bug-geta' and the Hortico range of fertilisers and pesticides appeared alongside articles on 'starting a home orchard', and monthly vegetable guides. Articles on keeping poultry were accompanied by advertisements for the 'Greenburn home garden unit' - a kind of backyard battery cage.52 Readers were informed that the expanding range of gardening consumables and accoutrements were essential for efficient gardening, which saved time, and saved money. In such a climate, home food production was often less an economic necessity than a novel way of spending money which could, if successful, reap economic rewards. Where food production was carried out prudently, using more labour and waste materials and fewer gadgets and chemicals, it could at least potentially help to stretch budgets straining under the weight of various repayments, and perhaps it also acted as a kind of safety blanket, allowing a people used to the threat of unemployment to put a little more aside for a rainy day. Its ability to assist the very poor, however, was as constrained as ever.

In the 1960s, the references to the economic side of orchards, vegie patches and chook coops all but vanished from gardening magazines. Food prices were generally stable and the new prosperity was, it seemed, thoroughly entrenched. Although Your Garden still had 'kitchen garden' and 'home orchard' sections, the emphasis was on 'how to' rather than 'why', and no mention was made of perceived economic advantages of home production. Your Garden's senior rival, Australian Garden Lover, sometimes maintained the economic motivation for food production when introducing its vegetable gardening sections, though not always as a priority. In 1961, for example, an article on 'The Vegetable Garden' acknowledged that 'Generally, the desire to supply the home with the freshest greens is of paramount importance, but there is also the desire to minimise the domestic budget, particularly when so many have to watch expenditure in every possible way.'53 The background murmurings on the economic aspects of home food production became more prominent when food prices rose. In 1971, for example, those with little land at their disposal (more likely to be those on lower incomes) were said to be attempting to beat high vegetable prices:

51 Greig, The Stuff Dreams are Made of, p.25. Greig describes this link in terms of its importance to the Fordist regime of accumulation, characterised by mass production technologies, a mass consumption culture, and Keynesian welfare policies.
52 See for example Your Garden, January 1956, pp.15-16, 60-61; March 1956, pp.4-7; May 1956, p.62; September 1956, p.68; October 1956, p.70; November 1956, p.68; December 1956, p.62. Of course, advertising was not new to such magazines, though in the 1950s it reached unprecedented levels: a wider range of products was advertised more aggressively.
With prices of vegetables soaring higher and higher, until they vie with those of precious stones, there’s little to wonder at when we hear of people who have only pocket-handkerchief sized allotments of ground, trying to grow as much vegetable food as possible under the conditions they have to endure. Even people living in flats are pressing into service window boxes, flower pots, boxes and cases in the back yard, and lots of other means thought at one time to be almost impossible for the purpose in view.54

This suggests that some sectors of the audience were still presumed to have an interest in the potential economic benefits of the activity.

Oral evidence fleshes out a picture of people producing their own food for a variety of reasons, including broadly economic ones. Jefferey Contessa, for example, started growing his own vegetables in 1968 when he was unemployed. He had access to a big block, which made it easier to provide worthwhile quantities of vegetables, and he grew crops like silverbeet, which ‘were easy to maintain because you didn’t have to spend money to renew them, because they kept renewing themselves.’55 Ross Bishop, living in Preston with a young family to support, established a vegetable garden ‘to give the kids some fresh food, and we enjoyed it ... [it was] a way of saving a bit of money, and getting good food into the bargain.’56 The late Larry Blakers, who was for many years Professor of Mathematics at the University of Western Australia, started growing his own vegetables when he arrived in Australia with his wife Theresa in 1952. Larry, who could well afford to buy vegetables for the family, looked upon his gardening mainly as ‘a challenging hobby’, though he also gardened for ‘the enjoyment of eating, of having lovely fresh produce, and things that you couldn’t buy.’57

There is a perception that home food production diminished rapidly during the postwar economic boom. However, as discussed in Chapter 2, it appears that although livestock numbers decreased during the immediate postwar decades, and fruit and vegetable production may have experienced a lull, by the early 1970s, fruit and vegetable production was a reasonably popular activity: in 1973 for example, just before the end of the boom, 44% of the Adelaide households surveyed by Ian Halkett were cultivating vegetables. What proportion of this production is likely to have been motivated by economic necessity? Economic motivations for food production would perhaps be unexpected in the context of a postwar boom which brought prosperity to many Australians, as the growth rate of GDP averaged 3.9% p.a. and the unemployment rate exceeded 3% only twice between 1940 and 1970.58 However, it must be remembered that in the mid-1960s, John Stubbs found an

55 Jefferey Contessa, interviewed by the author, 15 July 1999, tape in author’s possession.
56 Ross Bishop, interviewed by the author, 14 July 1999, tape in author’s possession.
estimated 500,000 Australians living in poverty, and as noted in chapter 3, the Commission of Inquiry into Poverty in Australia found 10.2% of Australian households living below the poverty line in 1973, with a further 7.7% just above it. That same year, Halkett found that 48% of his sample households with a head who was 'not working' (i.e. unemployed or retired), grew vegetables - a slightly higher-than-average proportion. In all probability, some of these households were, or may otherwise have been, in poverty. But once again, there were many households not in poverty who were also growing their own food. As suburban expansion proceeded apace, some households in the mortgage belts of Perth and Melbourne turned to home food production to save money for house repayments and a growing array of consumer products. High vegetable prices for some parts of the period, and the persistence of high levels (in today's terms) of egg consumption would have enabled some self-suppliers to achieve significant savings. However quality, and various other satisfactions to be had from growing fruit and vegetables and keeping poultry, continued to be important to many.

1973-2000

One of the few sources relating to economic motivations for food-growing at the end of the 1970s is Paddy Percival's study of plotholders at the Nunawading Community Garden. Established in 1977, the Nunawading Community Garden was the first such garden in Melbourne. Nunawading is a predominantly middle-class area: a 1967 study which ranked 133 Melbourne suburbs by socioeconomic status (1 being the highest) placed the suburbs comprising the City of Nunawading at 31st, 42nd, 43rd and 54th. At the time of the study, as Percival remarked, there was still no community garden in a predominantly working-class area. This is perhaps unsurprising given that the demand for garden plots came largely from middle-class people: the Nunawading plotholders, for example, were located even more firmly in the middle class than the general population of the suburb. Percival's study of 90 plotholders was carried out in 1979-80. At that time, 54% of plotholders had tertiary qualifications of some description (33% of women and 63% of men). By contrast, only 9% of the adult population of Nunawading at the time were tertiary-qualified. The majority of male plotholders were engaged in professional or para-professional occupations; most women were engaged in full-time or part-time household duties, with those in paid

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63 Ibid., p.114.
64 Ibid., p.29.
employment working in para-professional or clerical occupations. Perhaps surprisingly, only 10% of respondents were retired. The majority of respondents also grew vegetables at home, suggesting that for most, community gardening was an extension of an existing interest.

Of all respondents, 4.5% were self-sufficient in vegetables, 31% avoided buying vegetables most of the time, 58% still bought a fair amount, and 6.5% were new and thus uncertain. When asked to give their reasons for becoming plotholders (more than one reason could be given), 16% of respondents mentioned a desire to save money. Only four plotholders gave economy as a primary reason in the free question regarding motivations, and many members insisted that they were not interested in saving money. When asked whether they had, in fact, saved any money by growing vegetables during the previous year, 63% indicated that they had, 27% said they had not and the remainder were unsure, or had not been plotholders for sufficient time to be able to answer the question. For the 63% who indicated that they had saved money, the estimated saving over the year appears below:

<table>
<thead>
<tr>
<th>Estimated $ saved:</th>
<th>Under $100</th>
<th>$100-250</th>
<th>$250-400</th>
<th>unwilling to estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>57 plotholders:</td>
<td>60%</td>
<td>26%</td>
<td>3.5%</td>
<td>10.5%</td>
</tr>
</tbody>
</table>

Percival points out that:

The money saved by working even the most productive plots is a small percentage of the annual income of most Nunawading plotholders, even of their disposable income.
The economic role of community gardening as an alternative to more expensive forms of recreation, such as a drive in the car, may be more significant.

For most plotholders, however, any economic benefits (whether direct or indirect) were incidental, with much more emphasis placed on the non-economic aspects of growing food.

Drawing on the work of geographer H. Thorpe, Percival pointed to the the revival of community gardening in Britain between 1965, when 20% of all allotments were unused, and 1976, when demand for allotments was 20% greater than the number of tenants, and suggested that a similar phenomenon might be experienced in Australia. A resurgence of interest in food gardening also occurred in the USA following the oil shocks of the 1970s.

65 ibid., pp.30-1. 76% of male plotholders had an occupational status from 2 to 4 (out of 7, with 1 being the highest) on Congalton's scale of occupational status; of the female gardeners 45% were engaged full-time in household duties, and a further 26% worked part-time as teachers, secretaries, social workers etc.
66 ibid., p.32.
67 ibid., p.44. The proportion of plotholders growing vegetables at home was 64%.
68 ibid., p.76.
69 ibid., p.43.
70 ibid., p.77.
71 adapted from Table 41, ibid., p.77.
72 ibid., p.79.
The results of a Gallup survey of gardening in America were published in the ‘Gardens for All’ News in 1979, where it was reported that:

This is the second time since 1971 that tough times in the nation have helped to rekindle public interest in food gardening.

In 1975 - in the wake of a winter fuel shortage and sky-rocketing inflation - the proportion of vegetable gardening households rose to a record 49 per cent ...

But as energy and inflation problems lessened somewhat after 1975, participation in food gardening also declined ... to 41 per cent last year. Now we see tough times, and another increase in gardening.74

A graph appearing in the same publication, which plotted food prices, real gross national product, percentage of households gardening and real gross weekly earnings, showed what appeared to be a fairly direct relationship between the number of households gardening and increased food prices (where these were not offset by rises in real wages).75 Unfortunately, no such detailed ‘hard data’ is available for Australia, though given the frequent exhortations from magazine-writers, it is likely that Australian gardening followed a similar pattern to some extent. In October 1974, for example, Your Garden suggested that Australians were following the international example and growing their own vegetables for economy:

Around the world, just like in war time, people have gone back to growing vegetables to fight high food prices. In Britain, sales of vegetable seeds have increased by 300 per cent. The magazine ‘Horticulture’ reports that half of all British gardens now contain vegetables and says that 40 000 community allotments are also being used for vegetable growing. It is the same in Germany, Holland, Belgium and France. In the U.S., almost half the words written on horticulture today are on home-growing of vegetables and fruit. Here in Australia, more and more people are looking for a sunny spot to grow their own to help beat astronomical prices.76

The headline of the following article suggested that ‘Home fruit, too, can be a saver’. In the context of high food prices, the attention of the thrifty turned once more to food production.

In the light of the American data, and writing in the wake of the 1979-80 oil crisis, Percival understandably concluded his study of the Nunawading community gardeners by predicting a greater shift toward economically-motivated gardening.77 However, he acknowledged that it was also possible to see the Nunawading Community Gardens

74 ibid., p.118.
75 ibid., p.119. Percival draws the American information and quote from ‘Gardens for All News’, Autumn 1979.
77 Percival, Community of Interest, p.120. A similar prediction was made at the same time by Arthur Edwards, who, writing in the U.K., said ‘the combination of low incomes and expensive petrol could well lead us to occupy ourselves in growing lettuces rather than in cruising around the country-side in the family car. it is at least possible that the garden will become, as the early 1940s an important source of food.’ The Design of Suburbia: A Critical Study in Environmental History, Pembridge Press, London, 1981, p.243.
Co-operative as:

an additional option for people’s spare time; or a rehearsal for some personal dreams of self-sufficiency; or an essay in the enhancement of community attitudes; or just as a vegetable-grower's association. From my own favourite perspective, the Community Gardens are a cautious exercise in the alternative lifestyle.78

The alternative lifestyle and environment movements will be discussed further in chapter 8 and below, where the Permaculture Association of Western Australia is demonstrated to have a primarily middle-class membership base. However, I will turn now to Percival’s 1981 prediction that ‘economic’ gardening, and in particular, demand for allotments from low-income earners and the unemployed would rise.

By 1983, there were at least seven community gardens in Melbourne, and two urban farms (which also included community gardens).79 The gardens were in Balwyn, Essendon, Fitzroy, Hawthorn, North Richmond, Nunawading and St Kilda. The farms were the Collingwood Children’s Farm, and C.E.R.E.S. in Brunswick. Of these, four of the gardens, and both of the farms, could be said to service low-income areas. The North Richmond garden was in the grounds of a high-rise public housing estate, being initiated and run by estate residents. In 1983, the garden was valued for a variety of reasons: because migrant people from small rural communities could thereby maintain links with the land, because it provided a means of social and economic adjustment to unfamiliar surroundings, because it provided the potential for growing vegetables and herbs not available locally, and also because it provided a way of potentially reducing food expenses.80 Similarly, in 1986, members of the Greek and Turkish communities living in high-rise public housing took up allotments at the Collingwood Children’s Farm, at least partly for economic reasons.81

More recently, community gardens have been established on public housing estates at Collingwood and Fitzroy, and the North Richmond gardens have been revamped. However, it is probably too easy to assume that because these gardens are on public housing estates, the primary motivations of the gardeners are economic. One Fitzroy community gardener, who arrived in Australia from Turkey in 1990, gave distinctly non-economic reasons for his participation when interviewed in 1999:

Living in a small flat is not easy with children but now we have this space to get out and grow vegies. I had a car accident two years ago and had to stop work. The garden gives me a focus, it’s another kind of therapy. It gives you a great feeling to grow fresh produce from your own garden and learn from different cultures.82

In Western Australia, community gardens have tended to take the form of cooperatively

78 Percival, ‘Community of Interest’, p.127.
80 ibid., p.54.
managed gardens, rather than collections of individual plots. In these gardens, the \textit{act} of gardening is seen to be of primary importance, and often ad hoc distribution of produce ensures that involvement in the enterprise carries little, if any, economic motivation.

The branches of the environment movement with which much home food production in Perth and Melbourne has been associated in recent decades have a predominantly middle-class membership base, and probably relatively few adherents motivated by economic necessity. A survey of 215 Permaculture Association of Western Australia members carried out in late August 1993 revealed that most had some kind of tertiary qualification (a Bachelor’s Degree being the most common), with occupations clustered in the managerial, para-professional and professional categories (the latter containing 3 times as many people as the next nearest category). Substantial proportions of the membership were also tradespeople, or engaged in home duties. Complementing the occupation profile, the income profile showed a ‘spike’ at $50,000 - $60,000 per annum. Although there may have been some economic motivation along the lines of thrift, the membership income distribution makes it unlikely that economic necessity would have been the motivation for many.

Turning to representations of, and instructions in relation to, productive gardening, we find that publishers continued to offer a mix of economic and non-economic discourse. In his 1973 book \textit{Better Vegetable Growing for Australian Gardens}, Norman de Vaus, ‘Kitchen Garden’ writer for \textit{Your Garden}, asked ‘Are vegetables worth growing?’ The answer was ‘an emphatic “Yes”’, though any dominance the economic might have held is being challenged by the ‘environmental’:

The first [reason], but not always the most important, is that home-grown vegetables can help to stretch the family budget. A really productive garden can easily save an average family several dollars a week throughout most of the year. But there is much more than the saving of cold cash. In these days when pollution of the environment, including the food we eat, is being so freely discussed it is comforting to know that by growing our own vegetables and knowing what chemicals are used and how and when they are applied, it is possible to be certain that our vegetables will be free of toxic residues that can possibly effect [sic] the health of the whole family.

Eight years later, economics was very much at the forefront of the mind of \textit{Your Garden} Editor Allan Balhorn, who, like Percival, saw the potential for gardening as an enjoyable, low-cost alternative to a drive in the country, as well as a ‘necessity’ for some:

all the signs point to us doing more in the garden in 1981 than ever before. Two good reasons are clear: Petrol’s become such a luxury that many of us just cannot afford to go tripping about at the weekends, and home owners suffering from inflation and unemployment of necessity are ‘growing more of their own’. And what’s more,

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83 Two exceptions being the Karawara community garden and APACE in North Fremantle.
Ten years later, Kevin Heinze once again asked that perennial question, ‘Is it Really Worth Growing Your Own?’ After analysing the costs of inputs (excluding the capital cost of equipment) and outputs, Heinze concluded that a lettuce which would retail for 80-90c would cost at least 42c to grow at home. It would therefore be difficult to save much money by growing your own. Heinze was convinced, however, that the ‘real value’ in home-grown produce was the superior quality, freshness, taste, and potential for producing insecticide-free food. This argument was reiterated, with added ‘gourmet’ emphasis, by Gardening Australia’s Malcom Campbell in 1998.

However, in spite of Heinze’s ‘half-price lettuce’ demonstration, and the tendency in the 1990s for garden writers to focus more on the gourmet aspects of productive gardening, economic gardening was by no means dead. Writing in 1993, Jackie French recalled:

For a while my son and I were almost completely self-sufficient in food and a few staples. This was from necessity, not from choice. My income paid for petrol and preschool, but not much else. We lived and ate quite well. But I was glad when it was over.

Later in the same book, under the heading ‘Why grow your own?’, French listed first the experience of food-growing, with global environmental reasons second, and food security third, including the idea that growing your own food means you never have to worry about the cost of fruit and vegetables ... Our standard of living is far higher than anyone on our sort of income could normally expect, because we produce things that we would otherwise have to buy, and because many of the joys in our lives - like being surrounded by flowers and watching birds splutter in the fountain - are things we don’t have to pay for.

Economy, to French, was important, but not the most important. Four years later, however, French published a book on Making Money from your Garden, which outlined basic self-sufficiency techniques - including chooks and vegies - which, it was claimed, ‘should save you at least $5,000 a year and that is $100 a week.’ French also clearly saw great potential for home-grown food in alleviating poverty: ‘If every person in Australia planted at least one lemon, three apples, two avocado, one plum and four nut trees in their lives, we’d have a very different idea of social security.’

But what potential was really there for free food to alleviate poverty, or even supplement household incomes, in the 1980s and 90s? In 1984, food and non-alcoholic

89 This issue is discussed in further detail in chapter 6.
91 ibid., pp.4-5.
93 ibid., p.9.
beverages remained the largest single broad expenditure category, accounting for 19.6% of total expenditure on average.\(^94\) Detail for the year 1993-94 is provided in the table below. As figures for total household expenditure were not all-inclusive, expenditure on food as a proportion of income is also provided:

<table>
<thead>
<tr>
<th>Average in 1993/94 (per week):</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total household income</td>
<td>$723</td>
</tr>
<tr>
<td>Total household expenditure**</td>
<td>$593</td>
</tr>
<tr>
<td>Expenditure on food and beverages*</td>
<td>$111</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>food expenditure as % of average income</th>
<th>food expenditure as % of total expenditure**</th>
</tr>
</thead>
<tbody>
<tr>
<td>* all households</td>
<td>15.3%</td>
<td>18.7%</td>
</tr>
<tr>
<td>* lowest 20% incomes</td>
<td>40.0%</td>
<td>19.8%</td>
</tr>
<tr>
<td>* second quintile incomes</td>
<td>24.5%</td>
<td>20.5%</td>
</tr>
<tr>
<td>* third quintile incomes</td>
<td>18.3%</td>
<td>19.1%</td>
</tr>
<tr>
<td>* fourth quintile incomes</td>
<td>14.2%</td>
<td>18.6%</td>
</tr>
<tr>
<td>* highest 20% incomes</td>
<td>10.6%</td>
<td>17.4%</td>
</tr>
<tr>
<td>* Households with an overseas-born reference person</td>
<td>15.7%</td>
<td>19.1%</td>
</tr>
<tr>
<td>* Households with unemployment/sickness benefits as main income</td>
<td>27.2%</td>
<td>21.5%</td>
</tr>
<tr>
<td>* H/holds with age/disability/carers/wives pension as main income</td>
<td>25.8%</td>
<td>24.6%</td>
</tr>
</tbody>
</table>

* non-alcoholic.

** Total commodity and service expenditure. Excludes payments such as income tax, mortgage payments - principal (selected dwelling), other capital housing costs, superannuation and life insurance.


The figure for food expenditure as a percentage of the lowest quintile incomes, at 40%, was probably unduly influenced by the failure of the ABS to include non-regular income such as gifts, lump sum payments, and windfalls such as lotteries. With such cases excluded, it is likely that the lowest decile expenditure on food would be similar to that for households on government benefits and pensions. Bearing this in mind, it is apparent that from the beginning of the twentieth century to its end, the average proportion of household expenditure devoted to food - even among the low-income categories - fell. The difference was not as great, however, as we might imagine: in Knibbs' 1910-11 survey, an average of 25% of income was devoted to expenditure on food - a figure similar to the second quintile income households in 1993-94. The 1917-18 Western Australian survey, however, found a substantially higher average proportion of income - 45% - devoted to food. In 1993-94, as always, the poor stood to benefit proportionately more from free food than the rich. For example, households with sickness or unemployment benefits as their principal source of income were spending on average around 12% more of their income on food than the average, and almost 17% more than the richest 20% of households.

Although the overall proportion of household expenditure devoted to food declined over the twentieth century, the proportion of the average diet which it was possible (legally or otherwise) to produce in a suburban backyard increased. After decades of being harangued by doctors, nutritionists, school teachers and others, the Australian population as a whole finally started to eat more fruit, vegetables and dairy products, and less meat. Per capita consumption of dairy products increased from the late 1930s, then hovered around the 21-25kg mark from the late 1940s. Fruit consumption after 1938-39 reached a low point in the late 1950s, though by 1994-95 had almost doubled. Consumption of vegetables similarly increased from a low in the late 1950s, although the increase only became rapid from the late 1970s: in the three years to 1978-79, Australians each ate an average of 122.5kg of vegetables; in 1995-96, a record high of 166.1kg per capita was recorded. Egg intake, however, declined. Regarded in the late twentieth century as a cholesterol hazard rather than a ‘protective food’, annual consumption fell from an estimated 255 eggs per capita in the late 1940s, to 132 per capita in 1996-97. Meat consumption similarly declined, from an average of almost 120kg per capita in the three years to 1938-39, to just over 70kg per capita in 1995-96. This switch from a meat-rich diet to one rich in fruit and vegetables resulted in a greater potential for people to supply more of their food needs from their backyards.

In 1993-94, the potential for saving money through self-supply of foods able to be produced on an average suburban block was proportionately greater for those on low incomes, as the table below shows:

<table>
<thead>
<tr>
<th>Income quintiles, 1993-94</th>
<th>lowest 20%</th>
<th>2nd quintile</th>
<th>3rd quintile</th>
<th>4th quintile</th>
<th>highest 20%</th>
<th>all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average weekly household income:</td>
<td>$151.66</td>
<td>$353.91</td>
<td>$592.88</td>
<td>$909.22</td>
<td>$1068.77</td>
<td>$732.26</td>
</tr>
<tr>
<td>Average weekly total food expenditure per household:</td>
<td>$60.18</td>
<td>$86.44</td>
<td>$108.47</td>
<td>$129.05</td>
<td>$170.91</td>
<td>$111.00</td>
</tr>
<tr>
<td>Average number of people per household:</td>
<td>1.57</td>
<td>2.37</td>
<td>2.9</td>
<td>3.09</td>
<td>3.22</td>
<td>2.63</td>
</tr>
<tr>
<td>Average weekly household expenditure on:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fruit (fresh)</td>
<td>$3.35</td>
<td>$4.65</td>
<td>$4.62</td>
<td>$5.83</td>
<td>$6.86</td>
<td>$5.06</td>
</tr>
<tr>
<td>vegetables (fresh)</td>
<td>$3.72</td>
<td>$4.97</td>
<td>$5.44</td>
<td>$5.96</td>
<td>$7.29</td>
<td>$5.48</td>
</tr>
<tr>
<td>eggs</td>
<td>$0.56</td>
<td>$0.73</td>
<td>$0.82</td>
<td>$0.81</td>
<td>$0.84</td>
<td>$0.75</td>
</tr>
<tr>
<td>milk/cream (fresh)</td>
<td>$3.27</td>
<td>$4.77</td>
<td>$5.74</td>
<td>$5.87</td>
<td>$6.03</td>
<td>$5.14</td>
</tr>
<tr>
<td>bread</td>
<td>$3.13</td>
<td>$4.35</td>
<td>$4.76</td>
<td>$5.44</td>
<td>$5.99</td>
<td>$4.73</td>
</tr>
<tr>
<td>meat/poultry/seafood</td>
<td>$11.35</td>
<td>$16.50</td>
<td>$18.21</td>
<td>$19.46</td>
<td>$24.04</td>
<td>$17.91</td>
</tr>
</tbody>
</table>


Overall, however, the weekly cost of fresh produce, and more particularly those items that may be easily produced in suburban backyard situations, was small in relation to other

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expenditure, being 5% for the lowest income quintile, and 3% for the second. If vegetables and fruit were grown cheaply, low-income households could thereby stretch their incomes a little further, although not as far as households in a similar position earlier in the century.

At the same time as the proportion of income devoted to food was falling, the cost of gardening, for many, was rising. Unless a gardener kept goats or poultry, or had access to stables (near urban racecourses, for example), some form of fertiliser or manure had to be bought from one of the growing number of nurseries and garden supply outlets. Charges for water could be substantial, especially in those parts of Perth and Melbourne built on free-draining sand (most of the former, and the southeastern suburbs of the latter). In my oral history interviews, there were conflicting opinions as to whether it was possible to save money by ‘growing your own’. Paul Healey, when asked whether he saved money on eggs and vegies by growing his own, identified a trade-off between time, scale of operations, and labour-intensiveness: ‘No, no, not a hope. I could do it to save money, on the size block that we’ve got, if I extended the vegie patch a bit, had more time on my hands to actually be involved with it, I could save money.’96 Kathy Blakers identified the costs involved in productive gardening as a barrier to the production of more food:

Every week I say, ‘right, this is the week I’m going to go and buy those worms’, but it’s about $15 for a small box and $25 for a big box and I just can’t justify it. It has to wait. I’ve got so many ideas for the garden, but they just have to wait because I don’t have enough money.97

Similarly, Alison and Ken Chapman identified the cost of manure as one of the greatest difficulties in producing their own food.98 Although they could afford the manure, having to buy it undermined their attempts to produce fresh vegetables very cheaply. The opportunity cost of one’s own labour was also identified in some interviews as contributing to the uneconomic nature of home food production, as was the low price that fresh vegetables sold for in season. Brian Pell saw more potential for economic home food production. When asked why he grew his own food, replied ‘Because we like growing plants, and we’re keen on growing vegetables. Just the cheapness of growing vegetables and the enjoyment of it.’99 Economic necessity was not a factor in the Pells’ decision to grow food, though there was, apparently, some satisfaction gained from thrift. Similarly, Andrew Catfird, although able to buy vegetables, preferred to grow his own, *inter alia* because ‘over the last x number of years, food’s got expensive, but the quality hasn’t increased with the price.’100 Overall, of all interviewees who were still growing some of their own food, around a quarter mentioned the economic aspect of food gardening, generally in passing.

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96 Paul Healey, interviewed by the author, 25 September 1998, tape in author’s possession.
97 Kathy Blakers, interviewed by the author, 22 September 1998, tape in author’s possession.
98 Alison and Ken Chapman, interviewed by the author, 12 July 1999, tape in author’s possession.
99 Brian Pell, interviewed by the author, 13 July 1999, tape in author’s possession.
100 Andrew Catfird, interviewed by the author, 17 July 1999, tape in author’s possession.
From the recession which began in July 1974, unemployment began to rise, reaching the highest rate the country had seen since the Second World War, at 5.4%, in 1975.\textsuperscript{101} Unemployment then remained fairly stable at around 6% until mid-1983, when it reached a new postwar peak of 10.3%. In the early to mid 1980s, social security payments failed to keep up with inflation.\textsuperscript{102} Falling back to around 6% in the late 1980s and early 1990s, the unemployment rate rose again to 11.1% in 1992.\textsuperscript{103} The average duration of unemployment also rose, from 9.7 weeks in 1973, to 50.0 weeks in 1996.\textsuperscript{104} The increase in unemployment had a substantial impact on the face of poverty in Australia. Whereas in 1973, unemployment accounted for only 3.4% of after-housing poverty, the proportion in 1996 was 25.2%.\textsuperscript{105} Furthermore, the overall level of ‘income units’ (so described) living below the poverty line increased from 10.2% in 1972-73 to 16.7% in March 1996.\textsuperscript{106} Single mothers received government income support in 1973, single fathers 4 years later.\textsuperscript{107} In spite of this development, female-headed households in the mid-1980s were two to three times more likely to live below the poverty line than male-headed households, and over half of all sole parents (most of whom were women) were living in severe poverty.\textsuperscript{108}

In this context of increasing poverty, was there an increasing turn towards home food production on economic grounds? The answer to this question must necessarily be tentative, although the evidence suggests that as previously, food production was carried out by people from a variety of socioeconomic backgrounds, for a variety of different reasons. Some low-income earners maintained that they were not saving money, others saw substantial savings. Jackie French wrote a book on ‘making money from your garden’, whilst Kevin Heinze did the sums and arrived at a home-grown lettuce only half the price of one from the shops. The ABS figures show that in 1993-94, low-income households growing their own fruit and vegetables were potentially able to save in the order of 3%-5% of their income. The scope for saving money was therefore not large, though in situations where every dollar counted - and unfortunately there were (and are) plenty - food production still had the potential to make a difference.

\begin{itemize}
\item \textsuperscript{101} Boehm, \textit{Twentieth Century Economic Development in Australia}, p.33.
\item \textsuperscript{103} E.A. Boehm, \textit{Twentieth Century Economic Development in Australia}, p.33.
\item \textsuperscript{106} Ibid. Rates are before housing. After-housing poverty rates were 6.7% in 1972-73 and 11.5% in March 1995, reflecting in particular the drop in the number of aged homeowners with low incomes but very low housing costs.
\item \textsuperscript{107} Patricia Harris, ‘Penny-pinching Activities: Managing Poverty Under the Eye of Welfare’, in Kay Saunders and Raymond Evans (eds), \textit{Gender Relations in Australia: Domination and Negotiation}, Harcourt Brace, Marrickville, 1994, p.295.
\item \textsuperscript{108} Ibid., p.287.
\end{itemize}
Conclusion

Home food production has always had potential to mitigate poverty to some degree. This potential has been determined by two factors, namely, the proportion of overall expenditure devoted to the purchase of food, and the proportion of the usual diet that can be produced in a suburban backyard situation. The former has decreased over the course of the century, whilst the latter has increased, but overall, the potential for food production to make a substantial contribution to the financial status of a household has declined. There have always been barriers to the participation of the poor in food production - from access to land, to costs and fees, to regulation and knowledge. As more working-class people were able to afford a suburban home in the postwar era, economy may in fact have become a more important factor in suburban food production as a whole - certainly popular gardening magazines saw their readership as at least potentially more concerned with economic factors in the relatively affluent postwar period than in earlier, economically-stagnant decades. Throughout the century, the question of whether it is in fact possible for most people to produce their own food cheaper than they can buy it has remained topical. In the course of this inquiry, examples of both economic and uneconomic food production have been uncovered: goat-keeping was presumably economic for the goat owners of Victoria Park in 1917, though for many it became uneconomic when the registration fee was introduced in 1918. Many households ate well out of their backyards during the Depression, and believe they could not otherwise have afforded to do so. Poultry-keepers in Melbourne during the war struggled to make the activity a money-saver rather than a drain on household resources. In 1998, Paul Healey says that there’s ‘not a hope’ that his backyard vegetable patch and chook coop are saving him money.

Overall, although economic motivations for food production were likely to have been more prevalent in the first half of the century than subsequently, there is little evidence for the hypothesis that home food production was a child of economic necessity before the Second World War, and a mere leisure activity thereafter. To assume this to be the case is to unreasonably ‘other’ the past, peopling it with two-dimensional characters whose circumstances and motivations are simple, in comparison to the diversity and complexity of the present. Of course, some level of generalisation is always necessary when trying to make sense of the past. However, it appears that in this particular case, there has been a tendency to over-generalise. Questions of economy are clearly influential with regard to people’s interactions with the environment, but extrapolating from general economic circumstances to individual household actions, with little regard for environmental, legal and cultural contexts, is apt to produce a distorted picture.

In discussing the likely motivations for the food production of his Italian neighbours in Carlton in the 1970s, Paolo pointed to the distinction made throughout this chapter, between economic necessity and thrift:

I suppose there is a component of economic necessity too, or economic desire. It probably isn’t a necessity in the truest sense of necessity, but it’s something which sort of is between a hobby and a mechanism that helps you stretch your dollar.\textsuperscript{110}

Certainly the evidence seems to support the conclusion that throughout the twentieth century, much home food production in Perth and Melbourne has been motivated by a mixture of thrift and satisfactions tied to the various meanings with which the activity of food production, and the food produced, have been inscribed. The content of these meanings, especially among the middle and ‘skilled’ working classes, will be considered more closely in the next part of the thesis.

\textsuperscript{110} Paolo Ricci, interviewed by the author, 11 February 1999, tape in author’s possession.
Part III - Society and culture

Chapter 5

His own vine and fig tree:
Socio-cultural aspects of suburban food production 1880-1937

Australia... a home of peace and independence for the industrious - an El Dorado and an Arcadia combined... where every striving man who rears a race of industrious children may sit under the shadow of his own vine and his own fig tree - not without work, but with little care - living on his own land.2

Samuel Sidney, 1852

The best people in the world are... those who by thrift and self-sacrifice establish homes and bring up families and add to the national pool of savings and hope one day to sit down under their own vine and fig tree, owing nothing to anybody.3

Robert Menzies, 1949

Having discounted the idea that home food production has chiefly been a product of economic necessity, it remains to account for why so many households in the suburbs of Perth and Melbourne have bothered with vegetable patches and fruit trees, fowl pens and goat yards. This part of the thesis will examine some prominent ideas which, in influencing the forms, types and prevalence of home food production, have contributed to the shaping of both identities and landscapes in Perth and Melbourne.

Most of those who have ventured to write about Australian backyards in the twentieth century describe a transition - usually portrayed as more-or-less complete - from pre-Second World War 'production' or 'utility', to various postwar uses described in terms of...
'recreation', 'display' or more broadly, 'consumption'. Kim Dovey declares that 'the backyard has been transformed from a place of production to one of consumption. The vegetable garden and solar clothes dryer are displaced by swimming pools, electric clothes dryers and designer landscapes. Deborah Malor talks of 'the move from no-frills function to manicured leisure centre'. Even George Seddon - probably the most-quoted of writers on Australian backyards - asserts that 'The function of the back yard changed from production and service to recreation, and in the more up-market homes, to display', though Seddon also acknowledges that the changes have not been universal. As we have seen in chapter 2, however, the portrayal of a simple transition from production to consumption, from vegetable patch to swimming pool, is somewhat specious, as a substantial proportion of households in Perth and Melbourne continue to produce some of their own food. The containment of (prewar) backyard spaces and activities within the terminology of 'utility' or 'no-frills function' is also inaccurate, as it implies that these spaces were purely instrumental - useful, but not meaningful.

Several authors have noted that for much of the twentieth century, the design and maintenance of most front gardens has revolved around predominantly middle-class concerns with order, decency and respectability. John Fiske, Bob Hodge and Graeme Turner, in *Myths of Oz*, go even further, claiming that where the style of the front garden was 'determined by canons of middle-class decency and taste' the backyard, with its vegetable garden and fowl pen, seemed to effortlessly disregard those middle-class canons 'in the name of practicality'. They further claim that the 'neglect of imposed standards of taste' supposedly found in Australian backyards is evidence of 'a particular discourse of Australianness which constructed the family and the nation in its own specific ways'. This discourse is later identified - along 'Australian Legend' lines - as 'working-class and rural', and opposed to a new 'middle-class interest in vegetarianism, whole foods and “health” as a lifestyle' which is seen as responsible for the 'return' of the vegetable garden to Australian

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6 Deborah Malor, 'The Australian Backyard', *Australian Garden History*, vol.8, no.4, 1997, p.16.


10 Ibid., p.49.
backyards, and which, with its ‘materialist middle-class values’ somehow threatens the
‘Australianness’ of the backyard.11 Whilst it seems clear that the features and practices of
Australian backyards were (and remain) constructed within broader discourses of nation and
family (among others), and that the meanings of productive backyard spaces were indeed
associated with ‘the rural’, there is little evidence that they were predominantly associated
with ‘working-class values’. Rather, throughout the twentieth century, home food
production in Perth and Melbourne has carried various positive meanings generated by the
habituses of both the middle class and the skilled workers in steady employment who
formed the backbone of the settled, ‘respectable’ working class. Along with material factors
- ecological and economic - the meanings attributed to food production by various groups
have played an important part in determining the forms and prevalence of the activity. In
this part of the thesis, a focus will be maintained on the middle class, as the class with the
greatest proportion of food producers, and (in general) with the least economic motivation
for self-supply.

The habitus
In 1979, Pierre Bourdieu published an extended elaboration of his theory which sought to
explain the different ‘lifestyles’ - including tastes and practices - of the different classes and
different fractions within those classes.12 The three concepts central to the theory are
capital, field and habitus. Capital - of which there are four basic species - is ‘the set of
actually usable resources and powers’ possessed by a person.13 Economic capital may be
defined as money or goods with some exchange or market value. Social capital accrues by
virtue of being part of a network of social relations. It includes ‘connections’ as well as
more general benefits derived from particular group membership (including the value this
may add to other capital). Cultural capital exists in three forms: embodied skills or
knowledges, cultural artefacts such as paintings, and certification or qualification (as in a
university degree). A fourth form, symbolic capital, consists in the kudos gained through
apparently benevolent uses of other capital (such as the funding of an annual public lecture
or university chair).14 The different forms of capital may be exchanged for each other in
socially-agreed ways, and exist at the centre of struggles between groups to accumulate
them. These struggles are carried out within multiple and related social fields, within which
actors occupy different positions according to the quantity and type of capital they possess
and are able to mobilise.

The social space (determined by volume and composition of capital and social

11 ibid., pp.50, 52. The identification of Australian national identity with the rural working class was most
famously carried out by Russel Ward, The Australian Legend, Oxford University Press, Melbourne,
1958.
13 ibid., p.114.
14 Loïc J.D. Wacquant, ‘Symbolic Violence and the Making of the French Agriculturalist: An Enquiry into
Pierre Bourdieu’s Sociology’, Australian and New Zealand Journal of Sociology, vol.23, no.1, 1987,
p.69.
trajectory, or directional movement within various fields) within which one is brought up forms the influential basis of the integrated social experiences which produce one’s habitus, the ‘disposition that generates meaningful practices and meaning-giving perceptions’. The habitus, which can be identified at varying levels of generality, is both the producer of practices, and the means by which others’ practices are categorised and interpreted. It is a durable and integrated system of generative schemes,

a general, transposable disposition which carries out a systematic, universal application - beyond the conditions of what has been directly learnt - of the necessity inherent in the learning conditions. That is why an agent’s whole set of practices (or those of a whole set of agents produced by similar conditions) are both systematic, inasmuch as they are the product of the application of identical (or interchangeable) schemes, and systematically different from the practices constituting another life-style.

Habitus guides everyday social activity, and is the means by which sense is made of the everyday world. The theory of habitus is one which avoids the determinism of some structural approaches, and is ‘historically-aware’. As Bourdieu and Wacquant put it:

Habitus is not the fate that some people read into it. Being the product of history, it is an open system of dispositions that is constantly subjected to experience, and therefore constantly affected by them in a way that either reinforces or modifies its structure: it is durable but not eternal.

There thus exists a capacity for change in the habitus between, and to a lesser extent among, generations, although it is important to recognise that the durability of the habitus means that at any given time, in a particular place, different lifestyles are being lived and decisions made on the basis of values formulated in an earlier era.

The notion of habitus is useful in investigating everyday practices, as it allows these practices to be situated within broader systems of meaning held in common by groups of people sharing similar experiences. As identity derives from a positioning of self or other in a system of meaning-relations and in a network of material practices, habitus participates in the construction of identity by recognising categories of social identity, attaching descriptions to those categories, and producing the practices which are interpreted (by self or other) in identity terms. Social identity is articulated through difference, and thus in Bourdieu’s schema, ‘Social class is not defined solely by a position in the relations of production, but by the class habitus which is “normally” (i.e. with a high statistical probability) associated with that position.’ It is in this sense, to denote groups with common objective material interests (that is, control over various kinds of capital), and broadly common subjective identities rooted in common experience, that the terminology of ‘class’ will be employed in this part of the thesis.

15 Bourdieu, Distinction, p.170.
16 ibid., p.175.
18 Bourdieu, Distinction, p.372.

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In this chapter and the next, suburban food production will be located primarily within the habituses of the middle class and that fraction of the working class with the highest levels of economic, social and cultural capital which - particularly from the 1880s to 1930s - thought of itself as as 'respectable'. Within the habituses of these two class groups, independence (variously conceived) was both a goal and a concept central to identity formation. In particular, class and gender identities were constructed around an independence/dependence dichotomy which, as we shall see, also shaped attitudes towards nature. The preoccupation with independence both elevated the significance and desirability of home ownership, and made vegetable gardening and animal husbandry an obvious practice in the context of the low-density suburbs of Perth and Melbourne throughout the late nineteenth and twentieth centuries. Many gardeners identified - more or less consciously - with the figure of the yeoman, in which the virtues of independence were bundled up with those of rurality in a form highly congruent with dominant constructions of ideal masculinity. Although a belief in the virtues of independence was shared by the 'respectable' working class and the middle class, the latter added layers of meaning relating to food and bodies, which were linked to the structuring notion of independence, and served to provide the middle class with a means of distinction from 'the masses'.

Food production was not always able to be practiced without some degree of ideological tension, as I will show for the case of gender. The dominant construction of the activity in gendered terms was as part of the sphere of productive manly independence, opposed to feminine dependence. In the invisible spaces of countless backyards, however, women were also involved in food production. Where this involvement became public, as it did during the conflict over goat-keeping in the working-class Perth suburb of Victoria Park, an alternate discourse emerged, in which food production was an activity linked to women's role as wives and mothers. The masculine discourse, however, remained dominant until the 1970s, when gender began to be unshackled from the independence/dependence dichotomy which still informed ideas about food production. The dominance of the masculine discourse of suburban food production both explains the substantial levels of male involvement in an area of work within what is often seen as the 'feminine' sphere of the garden suburbs, and challenges the assumed coherence and hegemony of 'separate spheres' ideology in terms of urban structure.

Some tensions also arose as the keeping of livestock was challenged by a new technical, rational orientation, which had its foundation in the technical and managerial careers forged by the middle class from early in the twentieth century, and which was mobilised by middle-class reformers in the attempt to create a better society.19 The same forces of reform grounded in environmental determinism which, as we shall see, played a part in steering gardeners towards adoption of chemical pesticides and artificial fertilisers, also saw them taking steps to exclude productive animals (starting with the largest) from suburban areas.

The ideal of 

rus in urbe

remained, but the ‘rus’ was to be carefully shaped according to middle-class standards of cleanliness and self-containment. Thus the greater political power of the middle class was mobilised in an attempt to ensure that it was middle-class desires and expectations, rather than working-class goats and cows, that shaped the suburban landscape (which in turn, it was believed, shaped its residents).

From the 1930s, the centrality of the figure of the yeoman (if not the independence he represented), was challenged by the rise of the ‘modern outlook’, a cultural accompaniment to economic development which was urban and cosmopolitan, and which ultimately encouraged increased consumption through its emphasis on the new and ‘up-to-date’. The ‘modern outlook’ had various impacts on the practice and extent of suburban food production. However, an ongoing ambivalence in relation to ‘the modern’ is discernable within the middle class: it was both progress and regress; it brought benefits, but was also threatening. This tension saw food production constituted as one refuge of traditional values as ‘the modern’ increasingly pervaded all spheres of life. In the second half of the twentieth century, older class distinctions relating to health and the body increased in significance, and were added to by a new dominant habitus - born of the prosperity of the late 1950s and 1960s - oriented toward consumption and display, wherein food became even more significant as a marker of class distinction. The same prosperity led to the production of ‘postmaterialist’ orientations, which valued a broadly-defined ‘quality of life’ over more direct, material concerns. Within this new disposition, the attraction of independence remained, and older enthusiasms for rurality and ‘the Art of Living’ were revived. However, it also sought greater interdependence, which, in the context of a persistent desire for independence, sometimes led to tension. Throughout the twentieth century there was little discursive space for food production as a practice reinforcing and reflecting values of interdependence, although there are signs that it did at times act in this way, whether in terms of a community of people, or a wider ecological community. In spite of these shifts and tensions, the core ideal of independence has remained an important part of the meaning of suburban food production to this day.

Contexts - charting the genealogy and anatomy of ‘independence’

The history of the disposition toward independence might be traced back at least as far as the Reformation, to the so-called ‘Protestant ethic’ which Weber identified as the rationalistic and accumulation-oriented ‘spirit of capitalism’ in Western Europe.20 By the Victorian era, the virtue of industriousness had taken on a particularly individualistic, independence-oriented significance, as part of a cluster of largely bourgeois virtues, including self-help, respectability and thrift, associated with the ‘gospel of work’. One of the chief exponents of these virtues was Samuel Smiles. Born into a Scottish merchant

family in 1812, Smiles graduated as a physician, though lack of success in medical practice and an interest in parliamentary reform saw him take up the editorship of the Leeds Times in 1838. By the 1850s, however, Smiles had abandoned his interest in parliamentary reform, believing rather that the remedy to society’s ills lay in individual reform. In 1859 he published his best-seller Self Help, which was based on a series of lectures given to young men in Leeds. By the end of the century, it had been reprinted many times, translated into several different languages, and sold around 250,000 copies. Before he died in 1904, Smiles had also published several biographies of men who had arrived at success through hard work, and three companion volumes to Self-Help: Character (1871), Thrift (1875) and Duty (1880).

Smiles’ works held appeal for middle-class and working-class people. R.J. Morris has described Self-Help as ‘a charter by which the lower middle and prosperous working classes might restore their self-respect after the defeats of the 1840s’;21 in a slightly different vein, Asa Briggs has proposed that although intended mainly for the working class, the values and ideals contained in Smiles’ writings were predominantly middle-class ones.22 In the era of Gladstonian liberalism, the values and ideals represented in Smiles’ work flourished in Britain among working and middle-class people.23 They were also carried to the antipodean colonies by emigrants anxious to improve their life chances. There too, I will argue, they flourished and endured.

In the introduction to Thrift, Smiles emphasised the importance of the ideal of independence:

Every man is bound to do what he can to elevate his social state, and to secure his independence. For this purpose he must spare from his means in order to be independent in his condition. Industry enables men to earn their living; it should also enable them to learn to live. Independence can only be established by the exercise of forethought, prudence, frugality and self-denial.24

This ideology was a means by which the British middle class and the more well-off fraction of the working class could, and did, differentiate themselves from the ‘dependent’ poor. Furthermore, the ideology absolved the better-off from guilt about the suffering of the poor, who were usually seen as responsible for their own plight:

24 Samuel Smiles, Thrift, John Murray, London, 1875, p.vi. Economic independence for working people was also important to working-class reformers such as Chartist William Lovett, who wrote of ‘devising means by which the working and middle classes may have Comfortable Homes, and be gradually enabled to become Manufacturers, Trader, or Farmers, on their own capital’. Lovett also shared some ground with Smiles in seeking ‘the Promotion of Temperance, Sobriety, Cleanliness and Health amongst all classes’: William Lovett, Life and Struggles of William Lovett in Pursuit of Bread, Knowledge, and Freedom, vol.2, Bell, London, 1920, pp.332-333.

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We often hear the cry raised ‘will nobody help us?’ It is a spiritless, hopeless cry. It is sometimes a cry of revolting meanness, especially when it issues from those who with a little self-denial, sobriety and thrift, might easily help themselves.\(^{25}\)

The emphasis on independence could be detrimental to an orientation towards interdependence, as a man who turned to others was destined for a life of dependence: ‘The man who looks to others for help, instead of relying on himself, will fail.’\(^{26}\) This privileging of independence over interdependence would be maintained to a large extent by the urban middle class in Australia. For the working class, however, interdependence was often more of a necessity.

The ‘independent disposition’, as manifested among the middle class in particular, also incorporated a dislike for extravagance and ostentation - an ascetism born of both religion and necessity. Nonconformist protestants were taught that money was not to be spent on comfort or enjoyment. Furthermore, most members of the British - and later Australian - middle classes had few opportunities to achieve real wealth or greatness yet were still bent on achieving an ‘independence’. Together these factors produced an enduring ascetism reflected in a predilection for order and plainness in all things - a set of tastes described by Smiles (himself a lapsed Calvinist)\(^{27}\) as ‘the Art of Living’.

The ‘Art of Living’ was thus a means by which some degree of ‘independence’ could be achieved, even without the accumulation of wealth which was still often regarded, in religious terms, as sinful, and which in any case was beyond the reach of most middle-class households. It focused on quality, rather than quantity, and served as a durable form of class distinction:

> The art of living extends to all the economies of the household. It selects wholesome food, and serves it with taste. There is not profusion; the fare may be very humble, but it has a savour about it.\(^{28}\)

Middle-class fare was thus distinguished from the ‘rough’ fare of the poor, and the extravagant dainties of the rich. The ‘Art of Living’ also set a high value on order and cleanliness. Smiles wrote approvingly of Edwin Chadwick’s ‘Sanitary Idea’, and portrayed cleanliness as a means by which to avoid moral degeneration; not only was it ‘the best exponent of the spirit of thrift’, but it also influenced ‘the moral condition of the entire household’.\(^{29}\) The body was also conceived of in a particularly middle-class way, not as instrumental for labour (which Smiles regarded as ‘not only a necessity, but ... also a pleasure’)\(^{30}\) but as a natural (and free) means to enjoyment of God’s creation:

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\(^{25}\) Smiles, *Thrift*, p.25.

\(^{26}\) ibid., p.95.

\(^{27}\) Timothy Travers, ‘Samuel Smiles and the Pursuit of Success in Victorian Britain’, *Canadian Historical Association Papers*, 1971, p.157. Travers demonstrates that Smiles’ Calvinist background is apparent in his writings, in which avarice was admonished and wealth never equated with moral virtue.

\(^{28}\) Smiles, *Thrift*, p.356.

\(^{29}\) ibid., p.342.

\(^{30}\) ibid., p.4.
The human system has been so framed as to render enjoyment one of the principal ends of physical life. The whole arrangement, structure and functions of the human system are beautifully adapted for that purpose ... What can be more pleasurable ... than the feeling of entire health, - health, which is the sum-total of the functions of life, duly performed?31

The maintenance of the body in ‘entire health’, as well as the avoidance ‘of bodily ailments, which always accompany sedentary occupations’ was seen to require relaxation and exercise, intake of ‘wholesome food’, and restraint with regard to alcohol.32 The connection between physical and moral health was seen to be a close one, and thus as well as avoiding the path of ill-health, bodily discipline could also prevent a fall into moral degeneracy, and dependence.

The focus on exercise, cleanliness and moderation in food was also driven by the desire for a particular body type, with neither the corpulence traditionally associated with the rich, nor the coarse and dirty thinness associated with the poor. The middle-class body was to be a public display of the discipline and self-denial of its owner. As Bourdieu claims:

Taste, a class culture turned into nature, that is, embodied, helps to shape the class body. ... It follows that the body is the most indisputable materialization of class taste, which it manifests in several ways. It does this first in the seeming most natural features of the body, the dimensions (volume, height, weight) and shapes (round or square, stiff or supple, straight or curved) of its visible forms, which express in countless ways a whole relation to the body, i.e. a way of treating it, caring for it, feeding it, maintaining it, which reveals the deepest dispositions of the habitus. It is in fact through preferences with regard to food which may be perpetuated beyond their social conditions of production (as, in other areas, an accent, a walk etc.), and also, of course, through the uses of the body in work and leisure which are bound up with them, that the class distribution of bodily properties is determined.33

For women, the anxiety over maintaining a controlled body also manifested in the use of corsetry, and proprietary ‘slimming’ medications.34

Probably the most important basis of independence, however, was one shared by the middle and working classes: independence from the landlord via the acquisition of land, or at least one’s own home. Graeme Davison has outlined the four main forms of independence home-ownership offered to Englishmen in the mid-nineteenth century: security in old age, rights to political participation, social status, and moral virtue in the form of thrift.35 Smiles wrote approvingly of homeownership and Land and Building Societies, which he saw as ‘chiefly supported by the minor middle-class men, but also to a considerable extent by

31 ibid., p.315.
32 ibid., chapters 15 and 16.
33 Bourdieu, Distinction, p.190.
34 ‘Medications’ under trade names such as ‘Fatcure’, were advertised in the the Australian Home Journal in the early decades of the twentieth century.
the skilled and thrifty working-class men’.36 Many from the English middle and working classes who were seeking ‘domestic independence’ but frustrated at home, found their way to the colonies.37 In 1856 Michael Horgan, writing from his South Melbourne cottage, informed his brother ‘This is the place where a man makes all for himself independent of any master for at once you purchase land here you have it forever without taxes or any other Cess’.38

Independence was a powerful motivator in the colonial context. In and around Perth in the 1840s, the gentry were generally assured of their economic independence, but dismayed at the ease with which the ‘labouring classes’ were able to secure their own.39 From the 1850s in Victoria and 1880s in Western Australia, gold rushes attracted men in search of independence of lifestyle and means; later, as surface showings became scarce, many settled in Perth and Melbourne. In his 1871 guide to ‘Victoria as field for emigration’, Homes and Homesteads in the Land of Plenty, the Rev. James Ballantyne repeatedly stressed the potential for upward mobility and ultimately independence (or its synonym, ‘competence’) in the colony. Ballantyne bemoaned the fate of ‘young men of spirit and manliness’ in the ‘old country’, where ‘the avenues to promotion are all choked up by thousands just as eager to get a little forward as themselves’. But, he declared

let such young men set foot in a colony like Victoria, with the determination to accommodate themselves to its circumstances, and to reach in process of time a position of independence; let them, moreover, be sober, frugal, industrious and perservering - and there is nothing to hinder them gaining their end.40

Ballantyne was at pains to point out that in the colonies, independence was even within reach of working men.41

Janet McCalman sees ‘respectability’ as one of the most important items of cultural baggage brought to Australia by working people seeking ‘dignity and prosperity in a new land’.42 ‘Respectability’ was a bundle of ideals and prescriptions for behaviour, which included thrift, cleanliness, sobriety, self-reliance, and manly independence.43 Working-class ‘respectability’ thus clearly shared some territory with the predominantly middle class ideals espoused by Smiles. Terry Irving has argued that a distinct ‘respectable’ working class formed in Australia around ‘small-scale production and services in the second half of the

36 Smiles, Thrift, p.107.
41 ibid., p.114.
43 ibid.
nineteenth century, when dreams of economic independence were still cherished'. 44 Its institutions included the union of skilled workers and the School of Arts. 45 Although McCalman discerns a widespread working class identification with 'respectability', and the boundaries of the distinct group who identified as part of the 'respectable' working class are yet to be mapped out in detail, in this thesis I use the term 'respectable working class' to denote mainly that group of skilled tradesmen and their families, with stable jobs, relatively high incomes, and at least the prospect of homeownership, that formed its core. 46

The enduring popularity of home food production suggests that the 'respectable' working class cherished the idea of some form of independence - if not necessarily economic - for longer than Irving seems inclined to admit. They did not, however, appear to take independence to the same length as the middle class. For example, the individualistic aversion to interdependence general among the middle class never entirely penetrated the urban working class in Australia, among whom neighbourhood relations were often close, and workplaces organised. 47 However, even as they organised collectively, some degree of independence (from the fear of destitution, from the landlord, or even from the boss) remained a goal - or a dream - for many working-class people. 48 Thus Lionel Frost and Tony Dingle have noted that from early in the twentieth century, some Labor people saw homeownership as providing workers with an independent and secure base from which to collectively pursue their industrial interests. 49 In her history of the eastern Perth suburb of Bassendean, Jennie Carter similarly recognised this coexistence of orientations toward independence and interdependence among the suburb's working-class residents:

Dedicated as were most of the residents to the advancement of the 'workingman' and to the principles of the Labor Party, and despite lip service to the socialist cause, Bassendean was a very settled, respectable, even traditionalist suburb. What could best be described as a 'yeomanry' outlook permeated the district, exemplified by an ambition to own the family home and enough land around it for gardens and to support a small amount of livestock as a means of ensuring at least partial self-sufficiency. 50

45 ibid.
46 K. Theodore Hoppen reaches a similar conclusion with regard to working-class 'respectability' in mid-Victorian England, writing that 'though [the haunts of respectability]-friendly societies devoted to thrift, co-operative stores, trade unions--were not confined to the top of the working-class tree, they were far from being open to all': The Mid-Victorian Generation, 1846-1886, Clarendon Press, Oxford, 1998, p.65.
47 This is particularly so for the period of working-class mobilisation from the end of the nineteenth century to the middle of the twentieth: R.W. Connell and T.H. Irving, Class Structure in Australian History: Poverty and Progress, Longman Cheshire, Melbourne, 1992.
48 Irving, 'Society and the Language of Class', p.64.
As Ballantyne suggested, the fraction of the working class with the most capital were often able to achieve some limited independence. Thus in 1932 liberal politician and intellectual Frederic Eggleston claimed that the ‘standard of comfort in Australia is so high that the worker is really taken out of the class of proletarian into the class of suburban bourgeoisie with a “position to maintain”’.\textsuperscript{51} Eggleston clearly exaggerates the case; as we saw in chapter 3, interwar Australia was by no means been a ‘workingman’s paradise’ for all. However, many working-class people recognised, for example, the value of a private school education\textsuperscript{52} and sought, though hard work and thrift, to buy a family home. The ideal of independence thus formed part of the ‘respectable’ working-class disposition, as well as that of the middle class, and is implicated in the inclination for home food production in both.

In the colonies, the popularity of environmental determinist beliefs associated with the concern over the development of colonial ‘types’ in relation to the parent ‘stock’, found expression in a focus on the ability of colonial people to escape the degenerative influence of the city, and avail themselves of the reforming, healthful influence of rurality, if only in suburban backyards. Several authors have pointed to the somewhat ‘rural’ nature of suburban Australian backyards, even into the twentieth century.\textsuperscript{53} Few, however, have unpacked this perceived rurality, to ask, as Raymond Williams has done, ‘what kinds of experience do the ideas [of city and country] appear to interpret, and why do certain forms occur or recur at this period or at that’?\textsuperscript{54} From the late nineteenth century, the idea of ‘country’ found in suburban backyards is inextricably bound up with the figure of the yeoman. Graeme Davison, in \textit{The Rise and Fall of Marvellous Melbourne}, asked ‘[w]as the yeoman dream of five acres and a cow realized in a quarter-acre block and a pen of chooks’?\textsuperscript{55} The answer, as I will argue, is a clear ‘yes’ - at least for the late nineteenth and much of the twentieth centuries.

Robert Freestone and Jenny Gregory have also suggested that the yeoman ideal was a significant factor in the shaping of Australian middle-class suburbia.\textsuperscript{56} By the seventeenth century, Gregory argues, the yeomen were a rural English middle class, between the gentry and the peasantry, and their values - ambition, thrift, industry - and ownership of land were remarkably consistent with those of the urban middle classes of the Victorian era.\textsuperscript{57} Although there is no way of showing how many yeomen arrived in Australia in the nineteenth century, it is clear that the yeoman ideal was a popular one in the colonial

\textsuperscript{57} Ibid., p.10
context. Marilyn Lake has given a clear synopsis of the foundations of yeoman ideology in Australia, showing how it underpinned free selection, closer settlement and later soldier settler schemes.\(^{58}\) Thus in 1879, for example, the Victorian Crown Lands Commissioners declared that the state’s intent was ‘to people the land with yeomen and producers of food.’\(^{59}\) In Western Australia in 1886, John Forrest spoke in parliament of his vision of a ‘bold peasantry’\(^{60}\). He was later rebuked for this view in the *West Australian*, on the grounds that such a peasantry would have to be imported, ‘ready made’, from France, Germany and Italy, and that what the state really required were ‘stout British Yeomen’.\(^{61}\) Given, however, the consistent, overwhelming failure of schemes to settle families on relatively small acreages in Australia, the yeoman was less a real figure than a convenient package for a bundle of virtues tied to the social and economic circumstances of the colonies, and enacted ‘in miniature’ in food-producing backyards: imperial economic relations meant that the production of food and other raw materials was applauded as a national good; rural work and lifestyle - or at least an idealised version of these - was widely seen as the answer to the spectre of urban degeneration; finally, the yeoman was his own boss, independent of the relations of capitalism (in the ideal, at least), and largely self-sufficient. He therefore personified the ideal of ‘manly independence’ in a colonial context.

The figure of the yeoman also served to reinforce the prevailing gender order, in which men claimed ‘independence’ for themselves, and women were relegated to ‘dependence’. Although based in reality on a model of family production, the yeoman *ideal* was clearly one of *masculine* production, with men taking the role of independent producers and providers, and dependent women responsible for the transformation, indoors, of raw produce into finished product. Daphne Spain has observed that ‘femininity and masculinity are constructed in particular places’.\(^{62}\) As sites where the yeoman ideal was practiced in miniature, the productive places within Australian suburban backyards were - in spite of the ‘separate spheres’ ideology - clearly important sites for the construction of masculinity. Thus the element of hard physical labour (long central to constructions of men’s work) involved in such ‘yeomanesque’ activities as double-digging a vegetable bed, was particularly attractive to white-collar employees whose regular work was not so identifiably ‘masculine’. Had food production been seen predominantly as women’s work, it is unlikely that as many men would have been involved in it. However, women were also frequently engaged in the work of food production, although their contribution to this ‘masculine’ domain, carried


\(^{59}\) Lake, *Limits of Hope*, p.16.

\(^{60}\) Charlie Fox, ‘Introduction’ to Don Munday, *The Dog, Damper and Dust: A Shearer’s Life*, University of Western Australia Press, Nedlands, 1991, p.xii. Fox places yeoman ideology within the context of developmentalism in Western Australia in the late nineteenth and twentieth centuries (pp.xi-xv).


out in the relative ‘invisibility’ of the backyard, generally went unseen and unacknowledged. Instead, contemporary ‘house and garden’ literature consistently aligned femininity with consumption, ornament and passivity.

Jill Matthews has shown how from the end of the nineteenth century until well into the twentieth century, the meaning of woman in Australia revolved around marriage and family and the only truly feminine work was house work. Matthews further asserts that ideals of femininity have always been riddled with contradictions, which make such ideals ultimately unattainable. Inquiry into the representation and practice of suburban food production supports this notion by highlighting contradictions between women’s practices and constructions of ideal femininity - a contrast to the unity of masculine representation and practice. It also demonstrates the importance of space, time and visibility in gender power relations: due to the ‘invisibility’ of the physical work of backyard food production - generally carried out by men on weekends and women during ‘business hours’, when suburbs were largely feminised - the contradictions passed without comment, or at most provoked attempts to further sequester the working space, and masculine claims to the work went largely unchallenged. This then allowed preservation of the appearance - in popular representation at least - of a strict sexual division of backyard labour along masculine ‘status’ lines - men tending the vegetables and the animals, women hanging out washing, picking flowers and occasionally even cultivating them - when in fact any such division was vague and weak.

Perceptions of the work as masculine were so ingrained that when suburban food production as women's work spilled out into the visible, public sphere during the two world wars, women and men constructed women's involvement in terms of the feminine ideal of the 'good mother'. Even so, this did not lead to a reconfiguration in the public perception of the work as a masculine enterprise, which may be seen as evidence of both the strength of masculine investment in the meanings of suburban food production, and its power in contrast to a femininity which, outside of its limited territory of mother and homemaker, could at most have a contingent and shifting existence. In fact, despite suburban food production being an activity nominally within the 'private sphere', representation of it only began to shift towards gender-neutrality in the wake of feminist interventions in the 'public sphere' during the 1970s; as well as claiming equal pay, women could begin to

63 Of course, backyard spaces are not 'invisible' to those (predominantly women) working within them, but the everyday work carried out in backyard spaces were largely invisible to those - mostly male - who controlled the discussion and representations of backyard spaces, in the public sphere.

64 Ann Game and Rosemary Pringle have also noted more generally that women's unpaid work within the house has never achieved a high status, being discursively constructed as private and non-productive - a 'natural' female activity rather than work - within a set of dichotomies in which production and consumption, public and private, work and non-work are opposed and the former, aligned with 'independence', privileged over the latter, aligned with 'dependence': Ann Game and Rosemary Pringle, 'Production and Consumption: Public versus Private', in Dorothy H. Broom (ed.), Unfinished Business: Social Justice for Women in Australia, George Allen & Unwin, Sydney, 1984, p.66.

publicly claim an equal stake in backyard food production and the symbolic, if rarely 'actual', independence associated with it.

1891-1918

The depression of the early 1890s reinforced the virtue of thrift, and the subsequent decades of economic stagnation saw it retained as a functional virtue for the middle and 'respectable' working classes. The 'Art of Living', as outlined by Smiles, regained its popularity as a shaken middle class sought to retain its distinction and its dignity. The depression also strengthened the orientation toward independence, as to be independent from the system was to be resilient when it failed. By the 1930s, this disposition towards individual independence in Australian suburbs would be encapsulated by Frederic Eggleston in the figure of the 'self-contained man'. One of the most basic expressions of the independent disposition was the production of one's own food: many of those with a plot of sufficiently open ground around their home decided to cultivate it or keep livestock on it, not only for reasons of thrift, or because it was a way of spending leisure time engaged in an activity associated with both the agrarian ideal and virtuous hard work, or even because it was a means - often the only means - of acquiring produce that was of sufficient quality and freshness to be deemed 'healthy'. Food production signified an independent orientation, and was thus one of the markers by which one could reaffirm one's class status, seeing oneself as respectable rather than rough, industrious rather than idle, and perhaps even, to some minds, Elect rather than damned. It was social capital which also increased economic capital, at a time when the former was of overwhelming importance, and the latter relatively scarce.

Food production also reflected and reinforced gender power relations. From the early twentieth century, the yeoman ideal was joined by the newly-institutionalised ideal of the breadwinner as a yardstick of masculinity. The concept of the family wage, enshrined in Justice Higgins' 'Harvester' judgement of 1907, reinforced female dependence, thus cementing the relative independence even of men who were unable to escape dependence on wage labour, or the landlord. In this context, suburban food production became even more integral to the everyday enactment of masculine identity, as a continuing statement of self-sufficiency and thus symbolic act of independence from the wage labour system, and as an extension of the masculine imperative, as breadwinner, to provide for his family.

68 Eggleston, State Socialism In Victoria, p.331.
Much of the literature on suburban food production from the late nineteenth and early twentieth century is ostensibly devoted to providing a ‘practical guide’, and the bulk of it in fact provides sober advice on digging, manuring, sowing times and pest control. However, advice was generally offered to the ‘householder’ making provision for ‘his family’s needs’, and made it clear that the assumed subject was the male head of the household. For example, Adamson’s Australian Gardener advised in 1896 that ‘The future management of the garden, the kind of vegetables grown, and the quantities of each sort, must always depend upon the requirements of the family and the preference of the proprietor for particular kinds’ — a formulation which prevailed in this popular text well into the twentieth century. In feminist magazines such as the Woman Voter and Western Women, women were encouraged to gain some independence for themselves by going onto ‘the land’ and taking up the ‘lighter’ branches of farming; nothing, however, was said of suburban ‘yeowomen’. In less radical circles, there was even a reluctance to acknowledge women’s involvement in rural farming work, suggesting the extent to which food production was seen as a properly male occupation.

Discourse on the home production of fruit and vegetables also occasionally deployed ‘independence’ in racial, as well as gendered terms. In 1902 for instance, just one year after the new Commonwealth parliament enshrined the white Australia policy in its Immigration Restriction Act, the Garden Gazette announced in its inaugural issue that:

Floriculture, fruit and vegetable growing, if based on sound principles, cannot fail to be both pleasant and profitable. It will be the aim of the GAZETTE to give that information in a simple, practical and useful form, so that the average citizen will not be so much dependent, at least for vegetables and fruit, on the Chinese grower as he has hitherto been.

Food production was also shaped along class lines, both discursively and physically. The property qualification and system of plural voting in local government elections meant that municipal councils in Perth and Melbourne were in most cases, and until quite recently,

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71 See for example ‘Women’s Rural Industries Co.’, Woman Voter, 21 March 1916, p.2; ‘Farming for Women’, Western Women, October 1914, pp.12-13. The Country Women’s Association of Western Australia also acknowledged women’s involvement in domestic food production, including a brief section on home garden management at the back of their Cookery Book and Household Hints (1st ed., comp. Agnes K.B. Barnes and Assisting Committee, Country Women’s Association of Western Australia, Perth, 1936.)

72 This is evidenced by the decision of the designers of the 1891 Victorian Census to class women living on farms as engaged in ‘Domestic Duties’ rather than agricultural pursuits (‘except those respecting whom words were entered expressing that they were so occupied’): Census of Victoria 1891, VPP, 1893, vol.3, no.9, p.192, quoted in Charles Fox and Marilyn Lake (eds), Australians at Work, McPhee Gribble, Ringwood, 1990, p.151; see also Lake, ‘Helpmeet, Slave, Housewife’, pp.177-185.

predominantly middle-class bodies concerned with protecting middle-class interests.\(^{74}\) Councils exercised their power to shape local communities in a variety of ways, not least of which was the proclamation of by-laws. In the early years of the twentieth century, there was a general tolerance of productive animals in the suburban landscape, and local councils appear to have been most concerned to protect residents' rights to keep livestock.\(^{75}\) The few by-laws pertaining to animals applied mainly to commercial enterprises, and stipulated allowable distances between living areas and decomposing matter which was thought to generate 'miasmata' - smells or gases believed to cause disease. However, from the years immediately preceeding the First World War, and extending well into the twentieth century, local governments in their by-laws gradually sought to define rights to the enjoyment of private property in terms of amenity, or a pleasant environment, and began to privilege the individual enjoyment of neighbourhood amenity over the potential for food production involving livestock.\(^{76}\)

The concern with the quality of an environment was a central tenet of much contemporary discourse on urban planning and development, which in turn formed part of a broader middle-class environmentalist reform effort aimed at decreasing crime and delinquency, as well as improving the Australian 'type', through the application of technical rationality in order to improve the moral, social and physical contexts in which people lived. The reformers, working within local governments or associations, tackled a range of urban issues from playgrounds to pollution. Although often addressing problems with a direct impact on health, such as sanitation, much of the reform effort was also directed at producing a pleasant environment through the provision of parks and playgrounds, and removal of all that was 'unsightly'. The rise of the germ theory at the end of the nineteenth century meant that productive animals were no longer generally viewed as potential contributors to dangerous miasmata, though they were occasionally linked to the 'fly menace' and thus viewed as a potential threat to the health of residents.\(^{77}\) More

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\(^{76}\) Ibid.

\(^{77}\) As opposed to the potential threat that insanitary dairies posed to the health of consumers, which was monitored by central and/or local inspectors. The argument that regulation of productive animals was not solely on health grounds is supported by the differential treatment of productive animals and, for example, dogs, which presented a recognised health risk as potential carriers of hydatids and other parasites.
often, however, they were characterised as a threat to amenity. ‘Pleasant’ environments devoid of dusty dairies and ruinous goats also protected property values, which interested Councilors as both landowners and rate-collectors.

Large animals, and even poultry, were thus regulated along middle-class ideological lines by councils who were both influenced by environmental determinism and concerned to protect property values. *Rus in urbe* and self-help was all very well, but the individualism of the middle-class independent disposition meant that a pleasant (and thus healthy) household environment was regarded as more important than others’ attempts at self-help, particularly where those attempts were carried out on premises seen as as too small, or in a manner which lacked the requisite cleanliness and order specified within the middle-class habitus. Where animals, or their sounds and smells, crossed property boundaries, the middle-class ‘rule’ of self-containment was breached. Large animals, which required more room and were more liable to escape and damage the surroundings thus became problematic, as did poultry-keeping in the higher-density areas. The animal-keepers most affected by this middle-class regulation were often the poorer members of the working class: as noted in chapter 3 (and below), productive animals such as goats could be of considerable economic importance to low-income households. Furthermore, it was on smaller blocks that specifications relating to distances between animals or poultry and living quarters were hardest to satisfy. Thus, in its focus on transformation of people’s surroundings, not only did the middle-class environmentalist reform effort fail to address the causes of poverty, but in some cases it actively militated against working-class attempts at self-help.

The environmentalist reform efforts were also a result of increasing concern over the falling birthrate in Australia, as average family size decreased from 7 children in 1881 to 4 children in 1911. Initially, efforts were directed primarily at increasing the crude birth rate but by World War I, attention was turning more to the quality, rather than quantity, of the population. As well as the burgeoning town planning or ‘garden city’ movement, with their ‘beautification’ brand of environmental determinism, this notion found expression in the

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78 This is reflected for example in the case of the Victoria Park goat-keepers, and dairies in Wembley and Camberwell (below); see also the terminology of complaints and responses to them in PROV, VA 1507, City of Malvern, VPRS 1715, Public Health Committee Minute Books, Item 2 28/3/1900 - 10/12/1913, and SROWA, AN 20/5, Perth City Council, Acc 3054, Correspondence Files, no.32, 1953, Poultry - complaints re. keeping of 1926-1946.

79 Increasingly stringent model by-laws relating to poultry were approved for Perth Councils in 1914 and 1927. Melbourne Councils also adopted more stringent regulations in this period: see for example PROV, VA 1507, City of Malvern, VPRS 1715, Public Health Committee Minute Books, Item 2 28/3/1900 - 10/12/1913; PROV, VA 976, City of Prahran, VPRS 837/P1, Health Committee, Unit 8, Draft Minute Books 13/10/1919-25/5/1925. Inner-city Councils were also the first to apply complete bans on poultry-keeping, at least in Perth. As noted in chapter 3, the City of Perth banned the keeping of poultry in the inner city in 1925, with the City of Fremantle following their example a few months later: *Government Gazette of Western Australia*, 24 December 1925, p.3101; 9 April 1926, p.755.

reform of the family along scientific, rational lines.81 Tension between the latter, with its emphasis on nutrition and hygiene, and the former, focusing on improved moral and physical health through a general improvement in surroundings, became quite obvious as women struggled with Perth Councils over the keeping of goats in the years of the First World War. As Councils attempted to 'beautify' their suburbs by attempting to exclude goats from suburban areas, working class women found themselves in some cases unable to live up to the expectations of the 'experts' who recommended goats' milk for infant and child health. Men whose livestock-keeping was challenged often responded by mobilising yeoman discourse in defence of their animal-keeping.82 In the course of the struggle over goats, however, women overtly and unequivocally linked their work in suburban food production to their feminine responsibilities as mothers, in a futile attempt to have the necessity of their goat-keeping recognised by those at Town Hall.

In the war years, complaints relating to goats became reasonably common, with the main problem being their tendency to damage street trees and get into neighbours' gardens, which they would promptly defoliate.83 Almost all of the complaints about goats in and around Perth involved a female goat-keeper, and as it is unlikely that men were better at restraining their goats than women, this suggests that women were largely responsible for caring for milking goats in suburban areas. Complaints about goats were taken very seriously in both Perth and Melbourne. In 1905, for example, the Oakleigh ranger was instructed to shoot geese and goats at large in the town; a memo from the Fremantle Town Clerk to the Health Inspector in 1916 issued similar instructions.84 Later correspondence however reveals that in practice the Inspector in Fremantle issued warnings instead, as it was 'difficult to get anyone to shoot goats', and complainants were told that maintaining their own fences would be their best defence.85

As noted in chapter 3, the Perth City Council took a different approach to the control of goats, attempting in 1918 to reduce their number by charging a license fee of 5s each. This impacted very unfavourably on poor families, such as those headed by widows or an unemployed breadwinner, within which women kept goats in order to provide fresh and

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81 Kerreen M. Reiger, *The Disenchantment of the Home: Modernizing the Australian Family, 1880-1940*, Oxford University Press, Melbourne, 1985. Reiger characterises the 'domestic reformers' as 'a dominant group in terms of immediate bourgeois class interests' (p.33), but notes that they were neither homogenous nor always unified. In the late nineteenth century, the group was dominated by philanthropic and moral reformers, who were often Nonconformist protesters. By the early twentieth century, however, a new professional urban middle class concerned with science, rationality and efficiency was becoming more significant (pp.22, 34).

82 Gaynor, 'Regulation, Resistance and the Residential Area', pp.10-11. See also for example, SROWA, AN 217/3, Fremantle Municipal Council, Acc 2790, no.20, 1913, Stray animals etc., Letter from J Foley to the Mayor and Councillors [sic] Fremantle, 16 November 1914; SROWA, AN 217/3, Fremantle Municipal Council, Acc 1377, no.134, 1920-23, Straying Cattle, letter from Mr Foley, to the Mayor & Councillors Fremantle, 6 November 1922.

83 SROWA, AN 217/3, Fremantle Municipal Council, Acc 1377, no.60, 1908, Goats.

84 May Keely, *One Hundred Good Years: A Story of Oakleigh Council*, Oakleigh & District Historical Publication Series, Oakleigh, c.1991, p.56; SROWA, AN 217/3, Fremantle Municipal Council, Acc 2790, no.20, 1913, Stray animals etc.

milk for their children, in line with ‘expert’ recommendations. The Council thus received many letters from women requesting an additional amount of time to pay their fees, or an exemption. In East Victoria Park - then an outer, predominantly working-class suburb - the residents, led by one Mrs Phillips, even raised a petition, begging their Councillor to prevent the 5s tax from being enforced, on the grounds that:

Apart from the manifest injustice this would be to infant life, seeing that most people would have to dispose of their goats because of their inability to pay the fee, it would certainly be a means of increasing the death rate among those of tender years, in verification of which statement there is ample medical testimony.86

The preamble continued:

it may be mentioned that the maternity bonus was granted by the Federal Government for the purpose of encouraging the birth rate, but it seems to your petitioners that the proposed tax would not only defeat that object but would render a considerable disservice.

Despite the petition containing 35 signatures, and an assurance that ‘the goats are, in every case, either in enclosures or are tethered, and therefore no charge can be laid that they are destroying property’, the Council replied that it was unable to comply with the petitioners’ request. Although not specifically giving grounds on this occasion, in reply to other requests for an amnesty with respect to the fees, the Council declined on the grounds that goats had been a considerable nuisance to residents and caused damage to street trees. The Council must surely have recognised that their approach would impact more heavily on the poor than those able to afford milk for their children, but considered this part of many women’s work, and responsibility as women, to constitute an unacceptable interference with the ‘public sphere’ and the plans of those who would ‘beautify’ it.

The appearance of animal-keepers who were female or poor (or more likely, both), troubled the dichotomy whereby suburban food production was associated with middle-class and ‘respectable’ working-class masculine independence and opposed to the dependence of women and the poor. As a practice generated by the middle-class habitus in particular, food production was to be contained in an individual backyard, where it was carried out in an orderly fashion, by independent breadwinning men, as a virtuous form of leisure (or an enjoyable form of household work). This dichotomy between acceptable middle-class ‘gardening’ and the food production activities of the ‘slum-dwelling’ dependent poor was also represented in the literature. For example, in a discussion on minimum allotment size appearing in the Home and Garden Beautiful in 1912, an anonymous contributor argued:

A man who makes his 30 feet backyard a repository for jam tins and a gambolling ground for dogs, cats, and goats, will not suddenly become a gardener because he is forced to live on a 50 feet allotment. The mission of those who desire to see the slum mode of living abolished is first to educate the people up to a standard of decent living

86 SROWA, AN 20/5, Perth City Council, Acc 3054, Correspondence Files, no.123, 1918, Goats - licensing of, Petition from Mrs J Phillips, on behalf of East Victoria Park residents to H.W. Bevilaqua, Esq, No. 8 Ward, City Council Chambers, Perth.
To the middle class, 'gardeners' were those who understood, and practiced, the 'Art of Living'. As Elliot Cole remarked: 'A love of gardening is almost invariably connected with neatness, cleanliness, and good order.' The vegetable garden in particular was an ideal venue for display of these virtues, and the literature directed that it was 'essential to have perfectly straight rows'. Where, on the other hand, food production took on the form of a chaotic subsistence activity, it bespoke poverty, and poverty bespoke dependence.

The 'independent disposition' also influenced middle-class ideas about food, health and bodies. Even for the early twentieth century in Australia, it is possible to see that gardening in general, and productive gardening in particular, was an activity bound up with the discipline of bodies. The discourse is clearly a middle-class one, with exercise being seen as a counter to the increasingly sedentary character of many middle-class occupations:

nothing can be more healthful, interesting, inspiring, and refreshing for a man engaged in some sedentary work or business, confined to a stool nearly all day, than to have a garden and to commence work upon it when he returns home in the evening.

It was furthermore seen as 'an exercise which proves highly beneficial to persons engaged in literary pursuits.' W.D. Campbell, the NSW Director of Agriculture similarly believed that the labour involved in making a garden 'should bring health', even if the (male) gardener's 'hands become somewhat sore and hard at first.' This work was all the more healthy and satisfying in the context of the yeoman mythos, and the related belief that 'gardening is farming in miniature; all cannot be farmers, but every one possessed even of a rood of land may have a garden.'

The products of backyard vegetable gardens and orchards comprised a tasteful addition to the suburban Australian middle classes' 'Art of Living', as food that was wholesome, plain, and, in theory at least, of high quality. The fact that it was produced outside of the usual large-scale commercial systems gave it an inherent value, as a distinction by which it could be marked off from the food of 'the masses'. This was well understood within the class, and home-grown produce thus became an important item of exchange; if produce was economic capital within the household, it became a type of symbolic capital outside it, a gift of distinction which also signified the independent orientation of the giver: 'flowers and fruits grown by ourselves are delicate and welcome presents which can generally be given without offending the most sensitive or independent friend or stranger'. Home-grown food was also made valuable by virtue of its purity:

91 ibid., p.46.
94 ibid., p.48.
I think it will be admitted by all that fruit picked direct from the tree is infinitely superior to that purchased from the retailer. It is so much crisper than bought fruit, and one has the satisfaction of knowing how it was produced, and by whom it has been handled.95

Food produced in one’s own backyard would be fresh, healthy and free from contamination by the hands of the casual ‘dirty’ poor or Chinese.

In a context of anxiety over maintaining a healthy, disciplined body, purity and freshness were particularly important. They were even more important for those who followed the prescriptions of the new ‘health food’ movement. This was a diverse collection of theories about food and health, from O.L Abramowski’s fruitariansim, to the Seventh-Day Adventist venture which began manufacturing wholegrain products under the ‘Sanitarium’ label in Melbourne in 1898. Even Elliot Cole included a section on ‘Health Plants’ in his Happifying Gardening Hobby. Beginning with ‘Medicinal Vegetables’, Cole advised, for example, that ‘celery acts upon the nervous system and is a cure for rheumatism and neuralgia’. 96 The concept of a backyard medicine chest was also highly congruent with the notion of independence; families who were ‘growing their own medicine, doctoring their temporarily sick ones, and thereby keeping them healthier and happier’ exemplified the middle-class virtues of prudence and self-reliance.97 The reference to ‘temporarily sick ones’ is particularly interesting, as it suggests a concern on Cole’s part not to conjure up the spectre of protracted or permanent sickness, which was often the means by which middle-class people could fall into dependence.

The multifaceted nature of the connection between home food production and the ideal of independence are well-captured in the debate over the Western Australian Plant Diseases Act in 1913-14. The primary intent of the Act (to control Mediterranean Fruit Fly) was thwarted by a lack of concerted voluntary action among householders.98 At one point during the debate, J.F. Cullen, MLC for South-East Province, connected health and the role of the state in declaring that ‘the healthiest home is the home that grows fruit for itself. Therefore, Parliament must encourage home gardens’.99 He also deployed the ‘vine and fig tree’ metaphor in a literal sense: ‘as a citizen of the State I say it is a good thing for everybody who has a bit of land to have his own vine and fig tree, to have a few fruit trees’.100 It cannot be known for certain that Cullen knew of the origin of the vine and fig tree metaphor, in Micah’s Old Testament prophecy.101 There is little doubt, however, that Cullen would have been fully aware that the phrase referred to the ideal of every man owning property and, as head of a sovereign household, being free to enjoy the fruits of his

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96 Cole, The Happifying Gardening Hobby, p.413.
97 Ibid., p.63.
98 This issue is discussed at greater length in chapter 7.
99 WAPD, 3 September 1914, p.1025.
100 WAPD, 18 December 1913, p.4058.
101 from whence also comes ‘swords into ploughshares’ and ‘spears into pruning hooks’, though for some reason the latter never achieved such popularity.
labour without fear of theft or persecution. The metaphor is perfectly congruent with the contours of the dominant habitus of the Australian middle classes: with its patriarchal construction, touch of productive rurality and focus on independence, it is little surprise that the ‘vine and fig tree’ should have appeared in the mid-19th century, when both the Australian urban ‘middling classes’ and ‘respectable’ working class were coming into their own. Later, in the 1940s, it would also form part of the rhetoric of that champion of the middle classes, Robert Menzies.

1919-1937

The end of the First World War gave way to a period of relative prosperity for the middle classes, and suburban homes and gardens sprang up in their thousands as the suburbs of Perth and Melbourne spread outward along tram, train and omnibus routes. The operation of the Workers’ Homes Board scheme in Perth, and the Credit Foncier department of the State Bank of Victoria also allowed more working-class families to purchase their own homes in garden suburbs. Gardening and home magazines flourished. Bearing titles like *The Garden and Home Maker of Australia*, and *Garden Gossip and Home Lover of Australia*, they proliferated throughout the interwar period. Gardening books also appeared in greater numbers. These publications, intended for a predominantly middle-class audience of homeowners, reflected and reinforced the independent disposition of the dominant middle-class habitus in a variety of ways.

For one, they participated in the construction of food production as an activity which reinforced and reflected particular gendered identities, with illustrations and advertisements representing men in the independent, active, productive roles and women as the observers and consumers, dependent on the fruits of the independent male’s labour. The illustrations in the 19th edition of Brunning’s popular *Australian Gardener* (1920, the first edition written exclusively for ‘the Home Gardener’) map out the parameters of this ideal division of labour with exceptional clarity (see fig. 5.1). In almost all of the images, men are actively engaged in the work of production, whilst ‘authorised’ roles for women in the garden are limited to consumption, or at most the rather dull task of watering the lawn.

However in reality, for many male breadwinners, there were few daylight hours in which to carry out the tasks of gardening and animal husbandry, so it was often left to the ‘dependent’ wife and children to do the everyday work, with the men resuming their place

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in the backyard yeomanry only on summer evenings and weekends. Whilst scattered
evidence points to women’s substantial involvement in backyard vegetable gardening and
fruit production prior to the Second World War, public discussion and representation of
this involvement are scarce and oblique. One such oblique reference appeared in a 1932
West Australian Gardener article on ‘the Art of Camouflage’, which sought to tackle the
problem of backyard conflict between the husband’s dreams of flower-show victory, and the
wife’s need to use the space for ‘utility purposes’. The ‘solution’ proposed in the article
was to construct an area, segregated from the rest with trellis or growth, which should contain the kitchen garden, fowl run, clothes line and other ‘utility’ items:

The path leading to [the utility area] should be direct from the kitchen door and within
convenient distance, trellised both sides and roof ... This forms a handy place for our
womenfolk - cool and sun-proof in the summer, and sheltered from the rain and wind in
the winter, and at the same time connecting their necessary portion with the house, as
you might say, practically under one roof.

In other words, women could do their essential work - with the fowls, in the kitchen garden, with the clothesline - without really having to leave their ideal place (inside the home), and without interfering with their husbands’ gardening projects. Although rarely analysed in gendered terms, this arrangement and others like it - with the ‘drying ground’ and ‘kitchen garden’ sharing a sequestered portion of the backyard - made a regular appearance as designs in the Australian Home Beautiful magazine throughout the 1920s and 30s. Some less-sequestered designs which combined the drying area and kitchen garden were in fact created by women, no doubt reflecting the practicality of the arrangement.

The public ambivalence towards women’s backyard food-production work in the

105 In interviews conducted by the author, older men stressed this lack of available daylight hours during
the working week. See for example Charlie Wilson, interviewed by the author, 22 September 1998,
tape in author’s possession; Tim and Tot White, interviewed by the author, 20 July 1999, tape in
author’s possession. In the latter interview, Tot mentioned that she looked after the poultry when
Tim’s work hours got longer after he ‘got busy at work’.

106 Examples of such women may be found in the work of Michal Bosworth, Beverley Kingston, and Jennie
Carter: Michel Bosworth, ‘Conversations of a Culinary Kind’, in Richard Bosworth and Margot Mella
(eds), Aspects of Ethnicity, Centre for Western Australian History, Nedlands, 1991, p.98; Beverley
Kingston, ‘When did we Teach our Girls to Cook’, Australian Cultural History, no.15, 1996, p.90;
Carter, Bassendean. Of my own oral history interviewees, Tim and Tot White mentioned a number of
women in Northcote and Fairfield who grew vegetables and kept poultry, before and after the second
world war: Tim and Tot White, interviewed by the author, 20 July 1999, tape in author’s possession.
Several interviewees born before 1965 also remembered their mothers, and in some cases
grandmothers, growing vegetables or keeping poultry in suburban areas: Lyn Gorham, interviewed by
the author, 23 September 1998, tape in author’s possession; Gladys Heedes, interviewed by the
author, 2 November 1998, tape in author’s possession; Maureen McCrae, interviewed by the author,
23 October 1998, tape in author’s possession; Frances Warren, interviewed by the author, 12 July
1999, tape in author’s possession.


108 ibid., p.11.

Muriel Pornett, ‘The Importance of the Suburban Garden’, Australian Home Beautiful, April 1931, p.47;
Olive Mellor, ‘Layout for an Average Suburban Allotment in a Temperate Region’, in Leslie H. Bruning,
Australian Home Gardener A Complete and Practical Guide Dealing with the Growing of Fruit, Flowers
interwar period was also expressed in the gardening column of the Australian Women's Weekly. Recognising that women often worked in backyard kitchen gardens, the Weekly felt obliged to provide its overwhelmingly female readership with a gardening column which included instruction in vegetable growing. The problem was, how to do this and not challenge the feminine ideal promoted by the magazine? The answer was found in the second issue of the magazine, in the form of gardening articles narrated by 'The Old Gardener' - the significantly male purveyor of gardening knowledge - who teaches 'Miss' about gardening, as well as taking on some of the tasks himself. In the first article, 'The Old Gardener' tells 'Miss' when to sow seeds and how to use weed-killer, prune roses, care for sweet peas and so on. 'Miss' is portrayed as incompetent and ignorant - treading on seedlings, placing garden beds badly, killing worms. Furthermore, she is limited in her ability to spend time outdoors. The article continues,

What's that, Miss? ... You've got to be going in to do a bit of housework. All right then, just have a quick look at this vegetable plot before you go and I'll tell you what to do; then I'll get on and do a bit myself.

Readers never get to see 'Miss' working in the vegetable garden - but there is plenty of practical information passed on. Although aware that vegetable gardening was often carried out by women, the Women's Weekly writers were not willing to overtly challenge the traditional participation of gardening literature in the discursive construction of a dependent femininity aligned with consumption (or the production of ornament, rather than necessities), within which 'ladies' undertook flower gardening or arranging flowers indoors, not work in the kitchen garden. The Victorian Housewives' Association was even less inclined to deal with the subject of women's home food production in their journal, The Housewife; although it was acknowledged once that many of the Association's members 'grow their own vegetables on small plots', even the gardening section was almost exclusively devoted to ornamentals throughout the 1930s.

Turning to suburban livestock-keeping (or animal husbandry), we find that representations of it assume the same divisions and connection with notions of

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110 'The Old Gardener' was revealed in 1936 to be Leslie H. Butler, head gardener at 'Goodwood' in Wahroonga, with the column 'ghosted' by a male staff writer, F.W.L. Esch: Denis O'Brien, The Weekly, Penguin, Ringwood, 1982, pp.21-22. It is probably significant that 'Miss' rather than 'Mrs' was out in the garden. Whilst the proper domain of 'wife and mother' was indoors, single women apparently had more freedom in relation to outdoor activities. Indeed some, such as Edna Walling, even embarked on more-or-less respectable careers in horticulture and landscape design after Melbourne's Burnley Horticultural College opened its doors to women in 1903 (a move which was, however, not without controversy): A.P. Winzenried, Green Grows our Garden: A Centenary History of Horticultural Education at Burnley, Hyland House, South Yarra, 1991.


112 'June in the Garden ... Busy days ahead", Housewife, 1 June 1938, p.18. Issues of The Housewife between September 1929 and December 1938 (excluding April 1930 to December 1932, which were unavailable) were examined for references to food production. In general, it appears that the Housewives' Associations were more concerned with decreasing the retail cost of food through establishment of growers' markets and buyers' cooperatives than they were with home food production.
independence as those of vegetable gardening. In a 1926 article on ‘A Labor-Saving Poultry House’, for example, *Australian Home Beautiful*’s perennial handyman Alex Smith challenged the opinion of American author and ‘independent woman’ Gene Stratton-Porter that ‘men will spend to the limit in saving labour for themselves, but are not nearly so generous where the work of their wives is concerned’. Giving the example of the ‘poultry department’, Smith declared:

Leaving aside those who run their pens definitely for profit, the majority of men who keep a few fowls for household purposes are working with low-roofed sheds, open, sloppy runs, inconvenient storage, and time-wasting food and nest arrangements.113

Smith then outlined a plan for a more tidy and efficient arrangement, put together after much ‘examination of good methods used by other men’. The middle-class concern with order and neatness in domestic animal-keeping were thus combined with reinforcement of the masculine claim on productive terrain.

Although the public representations of animal husbandry portrayed it as a strictly masculine activity, there are a few indicators, however, which suggest that no rigid division of labour prevailed in practice. In the early years of the century, for example, dairying was only marginally male-dominated in Perth, with 2 of the 5 central city dairies licensed to (married) women.114 We have also seen that goat-keepers in Victoria Park around 1918 were predominantly female. This apparent lack of a strict division of labour is confirmed in oral history interviews about life in the suburbs of Perth before the Second World War. For example, in Jennie Carter’s history of the working-class suburb of Bassendean, interviewees recalled small-scale dairying and poultry-keeping as most often the domain of women and children.115 In relevant Western Australian Health Department and suburban Council files for the first half of the twentieth century, most references to backyard poultry refer to women as the keepers, with some men also mentioned. Most women kept only a few fowls to provide eggs for the household with perhaps a little surplus to sell to neighbours or the local grocer, though some were also engaged in larger enterprises.116 However, in spite of the overwhelming evidence that the suburban ‘hen-wife’ was by no means a thing of the past, the common representations of it as men’s work - such as those given by Alex Smith - endured.

Representations of food production also referred to independence in terms which, whilst not overtly gendered, served to reinforce the close alignment of the dichotomies of independence/dependence and production/consumption (extrapolated elsewhere to male/female). A 1931 *Australian Home Beautiful* article on ‘How to Start a Poultry Farm’

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114 SROWA, AN 120/4, Medical Department, Acc 1003, Unregistered files & Miscellaneous papers 1897-1901, Box 26, Perth - Dairy Inspections.
116 For examples of selling to neighbours or the local grocer, see Catherine Taft, interviewed by Kath Smith, October 1987, Battye Library, Perth, OH 2395/23, where Mrs Taft recalls her mother selling eggs to the local grocer in the ‘railway’ suburb of Subiaco, in the early years of the twentieth century. For an example of larger enterprise, see SROWA, AN 20/5, Perth City Council, Acc 3054, Correspondence Files, no.32, 1953, Poultry - complaints re. keeping of 1926-1946.
considered important enough to warrant the cover picture - enlarged on the reasons for
the attraction of 'going in for fowls', even in a small way:

Poultry farming gains more recruits than any other rural industry from the ranks of city
workers of all grades. This is because it can be begun in a suburban back yard, and
from the outset yield valuable sustenance for the home in the shape of eggs and table
poultry ... One man who might be regarded as having attained a degree of independence
which would appeal to thousands of city workers ... said that he had been making five
or six pounds a week over his living expenses without any excessive effort.\textsuperscript{117}
The author goes on to give numerous other examples of men who had found their
independence in a small backyard flock, including the resident of 'a seaside suburb near
Melbourne', whose success was such that he was able to take the step from backyard to
fully-fledged farm. This story was followed with the epilogue '[h]e is happy to have freed
himself from the uncertainties of city employment.'\textsuperscript{118} Another article, from the \textit{Garden
and Home Maker of Australia} urged suburban men living on large blocks to 'cease being a
consumer: become a producer', the latter being a much more independent, thus desirable,
state of affairs than the former: 'the wage earner, with little capital, should not take it for
granted that he must remain a consumer all the time. To a great extent he must, but he can
improve his position tremendously by becoming a producer too.'\textsuperscript{119}

Animal-keepers also continued to conceive of their animal-keeping in terms of self-
reliance and thrift. For example, in his short story 'Dad I've Lost the Cow!', T.A.G.
Hungerford recalls his father proclaiming (in 1930s South Perth) that he was 'not going to
pay any damn milkman enormous sums of money, which he didn't have anyway, just to
deliver to the front door what we might easily produce ourselves at the back.'\textsuperscript{120} The
independence/dependence dichotomy was also mobilised by cowkeepers in the 1920s and
30s, when house cows were coming under increasing pressure from suburban Councils. In
Melbourne, when the Oakleigh City Council declared that it intended to prohibit cows in
most of the city from 1938, Mr J. Creed, President of the Oakleigh State Electoral Council
of the Australian Labor Party, objected to the state of double dependence, at least in
relation to milk, that this change would precipitate: 'There are 50 cow owners in Oakleigh.
That means if the Council brought in a by-law prohibiting cows, it would mean 250 people
would be thrown on to the dairyman, who in turn is at the mercy of the Milk board.'\textsuperscript{121}
Individually and groups do not necessarily act in intellectual consistent ways, and Oakleigh
cowkeepers determined to protect their 'independence' resorted to collective action. On

\begin{itemize}
\item \textsuperscript{117} 'R.J.M.', 'How to Start a Poultry Farm: II.—The Experiences of People Who Have Tried it and
\item \textsuperscript{118} ibid., p.14.
\item \textsuperscript{119} 'The Suburban Farmer: Cease Being a Consumer: Become a Producer', \textit{Garden and Home Maker of
Australia}, April 1930, pp 274-275. Many thanks to John McKinley for bringing this article to my
attention.
\item \textsuperscript{120} T.A.G. Hungerford, \textit{Wong Chu and the Queen's Letterbox: The First Collection of Stories}, Fremantle
\item \textsuperscript{121} quoted in Keely, \textit{One Hundred Good Years}, pp.103-4. Further information on the Oakleigh cow crisis
appears in chapter 2.
\end{itemize}
the 8th July, a large crowd of cowkeepers attended the Council chambers to protest the by-law prohibiting cows. The motion was defeated on that occasion, but was raised again at subsequent Council meetings, which again attracted crowds of cowkeepers, along with police to keep order.122 By 1938, cows were prohibited in only a small part of the City, and it would be 1952 before they were prohibited entirely. Cowkeepers in Perth in the 1920s similarly took action to protect themselves from Council harassment.123

The independent disposition, as manifested in the middle and ‘respectable’ working classes of Perth and Melbourne in the interwar years, was captured by Frederic Eggleston in his portrait of the ‘self-contained man’. Eggleston, a Caulfield City councillor from 1911 to 1920 and a pioneer supporter of town planning, was well-placed to recognise self-containment. In his 1932 *State Socialism in Victoria*, he expounded his belief that although state socialism was a ‘rational system’, the citizenship of the average Australian was ‘not quite good enough for it’, tending rather to individualism and civic apathy.124 Eggleston saw Australian society as comprised of ‘self-contained men’ who had ‘stepped up from the inarticulate mass’ of workers, but who were imperfectly individualised, narrow and self-contained.125 This ‘self-containment’ was reinforced where a man had property, a surplus to spend, and a position to maintain, and was aligned by Eggleston with the need for security:

As the standard of life advances, the need for security is all the more important, and is fought for with all the more tenacity. Is there any class in a modern community in which the ‘self-contained mind’ is not in the ascendant?126

Politically, ‘self-contained’ men would only ‘form a loose, amorphous grouping capable of common action on occasions, but normally apathetic’,127 rather than exhibiting the level of cooperation required for successful socialism. The development of the ‘self-contained man’, furthermore, was encouraged in a particular setting:

The home of the ‘self-contained man’ is in the suburbs; and in the highly developed suburbs of an Australian city, with good accommodation, a nice garden, a back yard, vegetables in his plot and fowls in the shed, a fence against intrusion, he has probably reached a higher pitch of development than anywhere else.128

For Eggleston, then, the vegetable garden and fowl run represented the triumph of independence over interdependence, individual (family) over community. Although Eggleston saw the strengths of the self-contained man in ‘self-reliance and independent thought’, he also despised his ‘selfishness, ignorance and arrogance’.129

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122 ibid., p.107.
123 examples of this action are detailed in Chapter 2 of this thesis.
124 ibid., p.ix.
125 ibid., p.331.
126 ibid. p.332.
127 ibid., p.341.
128 ibid., p.331.
129 ibid., pp.342, 346.
In *Self-Help*, Samuel Smiles quoted William Wordsworth as saying ‘these two things, contradictory though they may seem, must go together - manly dependence and manly independence, manly reliance and manly self-reliance.’\(^{130}\) In both Smiles’ text, and suburban Australia, the value of dependence and reliance were often quickly forgotten. This is not to say that there was no actual community interdependence in middle-class suburbs: Janet McCalman writes that in the middle-class suburbs of interwar Melbourne, ‘Neighbours mattered and were cultivated and cared for’.\(^{131}\) Neighbourhood networks were even more important in working-class suburbs.\(^{132}\) As well as the local community being a source of surveillance and social control, it could also provide support - both moral and material. Although food production was predominantly associated with independence, where a surplus was produced it was often given away to friends, family or neighbours (more so for fruit and vegetables than livestock products). Where the recipients were not in a position to reciprocate, such gifts of food may be seen in terms of symbolic capital - prestige accrued through apparent philanthropy. Where, however, produce was exchanged in reciprocal relationships, networks of interdependence were strengthened as social capital was increased by each exchange. Thus Isabel Nilsson’s parents in interwar Malvern exchanged home-produced goods ‘for good relationships with neighbours’.\(^{133}\) Horticultural societies, insofar as they acted as ‘communities of interest’, may also have been foci for the development of interdependent approaches to food production. In general, however, it appears that interdependence was not valued as highly as independence, and indeed there was little discursive space for it in the independence/dependence dichotomy around which the middle-class habitus revolved.

Just as middle-class families sought to contain their private lives within suburban homes, so too they sought to ensure that their suburban homes were contained in residential suburbs from which other activities - commercial and industrial - were excluded. The protection of residential amenity through control or exclusion of uses identified by residents as ‘conflicting’ was one of the few bases for concerted community action in many middle-class suburbs. Progress Associations, for example, formed where the boundaries of self-containment were extended to the boundaries of the neighbourhood. The tenacity with which residents could, on occasion, fight to exclude productive enterprises is amply demonstrated in the conflict over a dairy in the Perth suburb of Wembley, which extended from 1921 until at least 1947.\(^{134}\) The dairy, belonging to one Mr Delamere, was established in 1905. Gradually, suburban settlement extended to the vicinity of the dairy. In the late 1920s and early 1930s, B. Caporn, Secretary of the Wembley Park Progress Association, wrote to the Council on behalf of the Association, requesting that Delamere’s license not be


\(^{133}\) Isabel Nilsson, letter to the author, 24 November 1998, letter in author’s possession.

\(^{134}\) The prodigious correspondence generated during this conflict is preserved at SROWA, AN 20/5, Perth City Council, Acc 3054, Correspondence Files, no.300, 1953, Dairies - complaints re. 1925-1947.
renewed as the ‘dust nuisance’ caused by Delamere’s herd led to ‘the discomfort of the household and the wife in particular’, and more generally retarded the district’s progress. It was also said that residents could no longer bear ‘the eyesore in their midst forever and a day’. On each occasion, Caporn was frustrated by Chief Inspector Higgs, who gave Delamere’s dairy a clean bill of health, and pointed out that there was no way the Council could legally require Delamere to go.

When Higgs reported that the Council could not ban the dairy as the authority to conduct a dairy was given by the Health Act, the Town Clerk pushed for an amendment to the Act which would give Councils the right to order the removal of any dairy where they deemed it advisable to do so. This amendment was introduced into the Legislative Council in 1932. Following vigorous debate, in which diaries were characterised variously as a ‘menace to health’, ‘a pest’ (or menace to amenity), and an impediment to the development of ‘progressive’ residential districts where property values are preserved and rates are paid, the amendment was defeated by one vote, primarily as the question of compensation could not be resolved. When this obstacle was encountered, Chief Inspector Higgs was asked to comment. He concluded that

So far as I have been able to discover the only reason why the people of Wembley desire the closing of this dairy is that the buildings etc are not in keeping with the more modern houses erected in the vicinity of same.135

In 1934, the president of the Wembley Park Progress Association again complained about the dairy. Inspector Higgs again investigated, and again found nothing to object to. By this time, licensing had been taken out of the hands of the Council and placed in that of the Milk Board. Over the next 11 years, there followed seven complaints (including one each from the Wembley-Floreat Park branch of the ALP and the Leederville-Wembley RSL), mainly related to dust and garden damage, although also on the grounds that the ‘delapidated and neglected’ appearance of the dairy detracted from ‘the pleasing appearance of the surrounding structures with their nicely kept lawns and gardens’. The complaints included a petition with the signatures of 38 residents. The petition’s preamble situated the conflict in terms of amenity, as well as a portrayal of the dairy as an impediment to the development of an orderly modern suburb:

Your petitioners ... would furthermore invite your Council’s attention to the fact that this Dairy is in the centre of a very large and progressive suburb; it is surrounded by villa residences, whilst its retention is seriously militating against the advancement of the district.136

The Council explored every option with an aim to removing the dairy: in 1937 the potential of evicting the dairy under new zoning by-laws was investigated, but pre-existing non-conforming uses were allowed under the by-law. Ten years later, Delamere was still there. Council had asked the Milk Board to deny the license, but they refused on the

135 ibid., memo from Chief Health Inspector, 13 October 1932.
136 ibid., petition to Council of ‘Ratepayers who are also householders’, 12 April 1937.
grounds that so long as the by-laws were not breached, the Board had no right to deny the license. The land had been valued with a view to resumption, but the Council couldn’t afford to buy the land, let alone compensate Delamere for loss of business. Delamere moved on in his own good time, and orderly houses with tidy gardens replaced the stalls and stables of his dairy. This situation was replicated around the same time in other parts of Perth and Melbourne. For example, in 1924, the City of Camberwell made a request to the Municipal Association that a sub-clause be added to the Dairy Supervision Act in order to allow councils ‘to close any dairy premises that is badly conducted, or is insanitary, or is situated in an unsuitable place.’\(^\text{137}\) In Camberwell, too, there had been conflict between the Council and officers from the Department of Agriculture, where the Council had wanted a large area of the City proclaimed an area within which the keeping of cows would be prohibited. However, as they were unable to substantiate the claim that the cows were a menace to health, the Council’s proposal was rejected by the Department.\(^\text{138}\)

Whereas the idea of food production was attractive, and the ‘yeoman dream’ - contained in a suburban backyard - could provide a great deal of satisfaction and no small amount of various kinds of capital, the presence of a real independent man, and his snorting, stamping, bellowing herd, was unsettling in more ways than one. Suburban dairy herds were congruent with ideas about independence and the virtues of rural life and labour, but they came into conflict with urban middle-class values on three main fronts: firstly, in the context of the continuing popularity of environmentalist ideology, they disrupted attempts at beautification of the environment, and in doing so represented a potential threat to both health and morality. Dairies were also seen, on at least one occasion, as a direct threat to morality: in 1925 one M. J. Kirk complained of a North Perth dairy ‘There is a bull kept, and children from the school which is close by can see him with the cows which is disgraceful’.\(^\text{139}\) (The less delicate Chief Inspector considered the complaint to be ‘without foundation’). Secondly, they were an affront to acceptable standards of cleanliness and order: as well as distributing dust and dirt, dairies threatened the broader attempts to impose order through the creation of homogenous communities via instruments such as zoning.\(^\text{140}\) Finally, as commercial operations, dairies disrupted the attempt to create suburbs which were homogeneously private, if not completely feminised, ‘havens’ from the world of work.\(^\text{141}\)

At this time, the middle classes were, if anything, more concerned that ever to show

\(^{137}\) PROV, Department of Agriculture, VPRS 10163/P2, Central Admin Correspondence files, Box 119, Miscellaneous, Municipal Association 1920-1925, 1924 report.

\(^{138}\) ibid., memo from Chief Veterinary Inspector, 31 January 1925.

\(^{139}\) SROWA, AN 20/5, Perth City Council, Acc 3054, Correspondence Files, no.300, 1953, Dairies - complaints re. 1925-1947.


\(^{141}\) Of course, this was a masculine myth, as much work - paid and unpaid - was done by women in the home.
that the virtuous recreations of vegetable gardening and poultry keeping were just that - leisure - rather than a (purely) economic activity, or 'real work'. For example, in 1926, that arbiter of middle-class taste in things domestic, the *Australian Home Beautiful*, was equivocal on the subject of whether backyard poultry were a paying proposition:

Does it pay to keep your own fowls? This is a question that nearly every young home builder asks, and the answer is Yes. That is if you take other things than mere money into account - such things, for instance, as the joy of hearing the hens cawking about what they are going to do and then cackling about what they have done; the pleasure of lifting the new-laid eggs from the nest, and the satisfaction of knowing that the eggs on the table are absolutely above suspicion - to say nothing of the pride of remarking to your neighbour, 'I'm getting nine a day now and I've only got twelve birds'. But even from the financial point of view the small poultry run can be made to support itself if one likes to be methodical, take trouble and follow the rules: GOOD BUYING, GOOD HOUSING AND GOOD FEEDING.  

Wishing also to dispel for their middle-class readership the whiff of 'subsistence' or 'poverty' which might have clung to self-provisioning activities (especially those involving animals), the editors ensured that discussion of food production appeared in the context of middle-class concerns with healthy eating and excellent, rather than merely adequate, quality of produce, as well as distinctly non-economic 'intangibles' such as cawking hens, and triumph over 'the Joneses'. However, given the persistence of the virtue of thrift, it was made clear that through the discipline of methodical management and 'taking trouble', the enterprise could still be made to pay its way.

In 1933, the newly-established middle-class *Women's Weekly* was likewise ill-inclined to link food production with subsistence work, only once making the connection between Depression conditions and backyard food production: 'Rhubarb culture is receiving more attention nowadays. Perhaps the parlous condition of many family exchequers is responsible for the greater interest in this easily-grown and palatable vegetable, which lends itself to many attractive recipes.' Several other gardening articles in the magazine focussed on vegetable and herb growing, but none mentioned economic aspects of the activity. Possibly as a result of an increased connection between food production and poverty during the Depression, some gardening magazines appeared to pay less attention to fruit and vegetable production: the *Home Gardener*, for example, typically included only one or two pages on the subject at the very back. Even in the height of the Depression, the *Australian Home Beautiful* still dissociated home food production from subsistence - perhaps even more so than in 1926:

The question of whether growing your own mushrooms pays - or whether mushrooms may be made a profitable home occupation - may be answered in the same way as those other perennials: Does poultry farming pay? Is it an economy to grow your own mushrooms?

143 'Don't Forget the Rhubarb', *Australian Women's Weekly*, 10 June 1933, p.38.
vegetables? One person will make these things pay where ten will fail. The important point is that payment may be made in other ways than by cash received or saved. There is the satisfaction of gathering the fruits of one’s own industry and the pleasure of eating what has been grown on the spot - fresh and clean and hygienic. And provided one can secure plenty of stable manure free and arrange for the quick disposal of crops when they come along, then there may even be a good margin of profit made out of mushrooms.144

In both excerpts, the earlier concern with the purity of home production - eggs ‘above suspicion’, ‘hygienic’ mushrooms - is discernable.

Much of the contemporary gardening literature is concerned to some extent with diet, and in particular a diet incorporating plenty of fresh fruit and vegetables. The price of meat, and several other types of food, had increased greatly as a result of labour shortages occasioned by the First World War, as well as a drought which lasted from 1911-1916 and cost the lives of 19 million sheep and two million cattle.145 At the same time, the importance of ‘vitamines’ was starting to be recognised. Although Frederick Hopkins, Professor of Physiologic Chemistry at Cambridge, discovered what he termed ‘accessory factors’ in 1906, it was 1912 before he published a complete exposition on the subject. In the same year, a paper by Polish chemist Casimir Funk, resulting from his independent research, introduced the term ‘vitamine’.146 As we have seen, the process of technocratic intervention in the private sphere which gathered momentum from the First World War saw an increasing number of middle-class health professionals urging the population to consume more milk, as well as more fruit, vegetables and eggs.147 In the 1920s, the concept of vitamins was employed to strengthen these calls.

One of the first Australian discussions of vitamins appeared in a 1923 article by Phyllis Cilento, on ‘The question of diet in the tropics’.148 The new language of nutrition was taken up enthusiastically by middle-class gardening magazines. In 1925, for example, the Australian Garden Lover published a series of articles on ‘Vegetables and Vitamines’, beginning with the declaration that:

It is impossible to over-estimate the value of a properly regulated diet ... The vital importance of vegetables is well known in a general sort of way, but it is infinitely better to know precisely the particular virtues stored up in each particular vegetable.149

It was soon realised, furthermore, that storage and processing tended to destroy the vitamin

146 Barbara Santich, What the Doctors Ordered: 150 Years of Dietary Advice in Australia, Hyland House, South Melbourne, 1995, p.68.
147 ibid., pp.68-70 and chapter 4.
content of foods. The middle-class preference for freshness, for vegetables cut in the
evening and eaten at night, now also had a sound nutritional basis.

Richard White has argued that from the 1930s, as the pace of industrial development
accelerated, manufacturers encouraged both a culture of consumption and a national
outlook within which commercial and industrial progress were linked with cultural maturity
and urban sophistication. A ‘modern outlook’ comprising an urban, cosmopolitan,
modish set of tastes thus arose as the cultural accompaniment to economic development.

In valuing the ‘up-to-date’ and ‘modern’, the ‘modern outlook’ intrinsically encouraged
higher levels of consumption. It also appears to have influenced those groups seeking to
exclude large productive animals from the suburbs, as evidenced by the terminology
employed in the conflict over Delamere’s Wembley dairy in the 1930s. The ‘modern
outlook’ was not incompatible with all types of food production, however - Fig 5.2 shows a
late 1930s design for an ultra-modern house and garden which incorporates a vegetable plot
and poultry run. In the 1950s, the ‘modern outlook’ would become even more important as
a force shaping both the ways in which food production was carried out, and ideas about
which types of suburban food production were acceptable.

However, some also associated ‘the modern’ with degeneration of individual bodies and
the social body. The artifice of food manufacturers and the sedentary nature of much
employment were seen variously as threatening the productivity and efficiency of the
Australian community, and the future of the Australian ‘race’. As early as 1925, the
Garden Lover declared that ‘The march of civilization is leading us farther and farther away
from the foods our Creator intended us to eat’, going on to predict that ‘humanity, sick and
miserable with the affliction of a multitude of mysterious diseases, will at last turn for cure
and the establishment of a disease-resistant vitality to the vegetable garden.’

This theme was echoed in 1936 when Raphael Cilento, then Director-General of Health and Medical
Services in Queensland, bemoaned the proliferation of ‘materials fractionated for the sake
of taste, appearance or convenience, treated by destructive methods, and preserved too
long before consumption’, and the inability of the modern palate to choose appropriately

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150 Richard White, *Inventing Australia: Images and Identity* 1688-1980, George Allen & Unwin, Sydney, 1981, pp.148-151. Speaking generally of Western nations, Don Slater has similarly remarked that ‘From the 1920s, the world was to be modernized partly through consumption; consumer culture itself was dominated by the idea that everyday life could and should be modern, and that to a great extent it already was.’ Don Slater, *Consumer Culture and Modernity*, Polity Press, Cambridge, 1997, p.12.

151 Connell and Irving, *Class Structure in Australian History*, p.200. I use the terminology of ‘modern outlook’ here to distinguish what may be seen as a form of more-or-less popular modernism from the various other uses of the term. It was an outlook which included forms of modernism in design, including architectural and interior design, but was not limited (and indeed did not always extend to) those spheres, being found also in changing tastes in clothing, appliances, leisure and food, as well as changing ideas about acceptable activities in the proper ‘modern’ suburb.

152 This is because the ‘up-to-date’ readily becomes ‘out-of-date’ and is thus discarded in favour of the purchase of a more ‘modern’ item.

153 ‘Vegetables and Vitamins (no.2)’, *Australian Garden Lover*, June 1925, p.76.
‘healthy’ food. The following year, Billy Hughes, then Minister for Health in the Lyons government, reported to parliament that Australia faced a future of degeneration:

We inherit the appetites of our ancestors, but our lives are ordered to a very different pattern. They lived a life in the open-air and earned their living literally by the sweat of their brows; their skins were active, ridding the body of its waste products. Now things have changed ... we, the descendents of one of the most vigorous, active and adventurous races, lead sedentary lives, take little corrective exercise and live on devitalized food.

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Independence from the commercial food system could, however, ensure that the perils of 'devitalized' food were avoided. A home vegetable garden provided good, honest exercise, and both it and backyard fruit trees provided wholesome 'vital' food. With this combination, the middle classes could avoid bodily degeneration, and its associated fall into dependence. In the face of an increasingly-pervasive and occasionally threatening turn to 'the modern', the productive spaces of middle-class backyards were beginning to provide refuges for traditional 'yeoman' values.

At the outbreak of the Second World War, as in the previous five decades, vegetable gardening, fruit culture and animal-keeping were by no means merely instrumental activities, carried out for economic reasons and devoid of meaning. Rather, they reinforced, reflected, and in a sense 'performed' a rich array of meanings relating to class status, gender, food, health and bodies. Generated by the habituses of the urban middle and 'respectable' working classes, these meanings were durable, yet also subject to change as common conditions, and conditionings, altered. The environmental determinism of the middle-class reformers, and to a lesser extent the 'modern outlook' associated with economic development, challenged the centrality of the yeoman figure, resulting in changes in the acceptable - and accepted - forms and types of suburban food production. These changes impacted on household economies, and on the suburban landscape itself.
Chapter 6

Green thumbs and the busy man’s bird:
Socio-cultural aspects of suburban food production 1938-2000

In the war and postwar years, a desire for some form of independence remained an important aspect of the dispositions produced by the middle-class and stable, settled working-class habituses. The war increased the range of legitimate public meanings associated with food production, and it was taken up as both a national service and as acceptable work for women in their role as wives and mothers. After the war, the strong ties between independence and food production were challenged by an increasing reorientation of the habitus towards a consumerist ‘modern outlook’. The limited independence offered by homeownership was available to more people than before, yet productive animals were increasingly regulated in line with middle-class notions of modern suburban lifestyles, whilst an increasingly accessible and prolific variety of consumer goods competed with food production as expressions of independence. The relative prosperity of the ‘boom’ years, however, ultimately saw postmaterial values flourish. The habitus of the rising middle-class generation in particular oriented them towards a new environmentalism, which sought to reposition humanity in a more interdependent relationship with nature. Some also sought increased interdependence among people. The new habitus, however, also saw some features of the older ‘independent disposition’ reaffirmed, and the ideal of the ‘new yeoman’ joined by the ‘new yeowoman’. As meanings ebbed and flowed, residents of Perth and Melbourne took up food production, revised approaches to it, maintained it or abandoned it, changing the suburban and wider environments as they did so.

1938-1954

During the Second World War, the construction of food production as a display of household self-reliance was reinforced in the context of rationing and decreased availability of vegetables in particular, as well as broader fears of invasion. However, as we have seen, a new discourse also arose, in which home food production was a national duty, a way in which households could assist the war effort. As well as promoting the new patriotic aspects of the activity, the ‘Grow Your Own’ campaign material contained images of vegetable gardening and fruit production which still predominantly reflected and reinforced the notion of ‘manly independence’. The idea that food production should be carried out by the independent breadwinning male was clearly conveyed, for example, in a billboard advertisement depicting a man offering up freshly-harvested vegetables to his grateful wife while his son looks on, shovel in hand, awaiting his turn to be the provider (see Fig. 6.1).
This construction also appeared in non-official material produced at the time. For example, in Murray Tonkin’s novel *Mr Dimblebury Digs for Victory* - a practical guide to ‘Victory Gardening’ and patriotic wartime romance all rolled into one - the middle-aged, middle-class Mr Dimblebury decides to do his patriotic duty and plant a Victory Garden. Mrs Dimblebury observes her husband ‘digging ... so manfully at his new project’ and Mr Dimblebury, apart from providing the household with fresh vegetables, gains the respect of his office colleagues as the ‘Victory Garden’ expert.¹

The exigencies of war, however, also served to broaden the range of ‘legitimate’ meanings of food production. For example, interdependent approaches to the activity were more widely acknowledged. Mr Dimblebury is given detailed advice by his war hero neighbour, and a ‘Grow Your Own’ advertisement declared: ‘Help your neighbour to get the best out of his garden. If you are an experienced vegetable gardener, help the fellow who is just starting out’ (see Fig. 6.2).

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"Call on me anytime, George, I'll be glad to help you!"

"This is my first crack at it—I'll need your help."

Help your neighbour to get the best out of his garden

If you are an experienced home vegetable gardener, help the fellow who is just starting out. Remember! Those hints of yours will be more than welcome and may well make the difference between the success or failure of his vegetable garden. In times like these, it amounts to National Duty to help each other. And what better way is there than to help your neighbour help himself and his country, by showing him the way to become a successful "grow your own" vegetable gardener!

WHY YOU SHOULD "GROW YOUR OWN"

To win this war much will depend on the strength and vigour of our forces. To keep this standard, large quantities of fresh vegetables are given to our own fighting men and our Allies. Because of this, adequate supplies of vegetables are not always available for civilians. Supplement your own needs by growing your own. Vegetables direct from your garden are full of health-giving vitamins. It PAYS, too, to grow your own!

Issued by the Dept. of Commerce & Agriculture.

Fig. 6.2 'Help your neighbour'

PROV, Department of Agriculture, VPRS 10163/P2, Box 98, Vegetables wartime supply (publicity) 1943-1946.
The dominant association of the activity with masculine independence was also challenged by an increasing acknowledgement of women's involvement. The Australian Women's Land Army recruited 'girls' to carry out rural agricultural labour, though not without some disruption to the 'fabric of “femininity”'. In the suburbs women remained actively involved in home food production, and their ranks probably swelled as more went to work on the 'garden front'. In both Perth and Melbourne, the YWCA established a 'Garden Army' of women who established and worked 'community gardens' on land set aside by private householders, as part of the war effort. Vegetables were provided to military hospitals and service hostels and sold to civilians, with profits donated to the Red Cross and Australian Comforts Fund. The involvement of other women in productive gardening during the war was invariably linked with women's role as wives and mothers. In 1942, 'Our Home Gardener' (who had replaced 'The Old Gardener' as a rather less intrusive and patronising garden column narrator) announced in bold to Women's Weekly readers that 'Every woman who owns a garden plot and can use a spade or wield a hoe should cultivate a vegetable patch for the sake of her family.' The pictorial accompaniment to the Weekly article depicted (presumably without intentional incongruity) a woman whose conventional femininity was unthreatened by vegetable gardening - wearing a pretty dress and heeled shoes, bending only slightly as she gently cultivates between neat rows of lettuce and spinach. The article continued: 'There are still many people who refuse to take vegetable-growing seriously, notwithstanding the fact that the day may come when every cook may have to become a gardener or let her family go without vegetables.' Similarly, in the ABC's 'Women Talking' radio series, the women broadcasting a segment entitled 'Make your Garden do War Work' continually linked vegetable gardening with their primary responsibility as mothers: one presenter, for example, explained that she grew vegetables because 'Prices are prohibitive, and yet I must have some fresh vegetables to give my young baby. He is just weaned and the clinic says he must have three kinds of vegetables every day.' Vegetable gardening was thus seen as tolerably acceptable work for women in a

3 The Melbourne University Social Survey data shows that for single male and single female households, levels of involvement in food production were very similar, with 28.6% of all single female households, and 30.4% of all single male households, producing food. Furthermore, 60.5% of households with husband (and son/s) on military service produced some food - an above-average proportion which gives a clear indication of married women's willingness to continue the work of food production in the absence of a husband. Oral history interviews also support the hypothesis that many women were responsible for home food production. For example, Tim White remarked of food production during the war and immediate postwar period in Fairfield: 'Women done a lot of it in those days': Tim and Tot White, interviewed by the author, 20 July 1999, tape in author's possession.
4 W.A. Somerset, 'The Garden Army Marches On - Also', Australian Home Beautiful, May 1943, pp.12-13. Many thanks to John McKinley for bringing this article to my attention.
5 ibid., p.13.
6 'Our Home Gardener', 'It's up to you to Grow Them!', Australian Women's Weekly, 18 April 1942, p. 28. My emphasis.
7 NAA (NSW), CA 251, Australian Broadcasting Commission, SP 300/1, B Scripts 1942, Women Talking: Make your Garden do War Work, p.1.
patriotic context when portrayed as either a national service, or an extension of the work of cooking and a commendable duty to family. Even during the war, however, the linkage of food production with ‘the feminine sphere’ remained a marginal discourse, by no means competing on even terms with the public masculine claim to the activity as ‘independent’ and productive.

In a general climate of wartime austerity, suburban food production retained its association with the virtue of thrift. Even for those in good jobs, it was satisfying to save a little money. For example, in an interview in 1998, Norma Clarke claimed that her uncle in Nedlands kept poultry and had a vegetable garden ‘for economical reasons although he was manager of the AMP’. The gardening literature, which was still directed mainly at the suburban middle classes, also continued its focus on freshness and health, which were often combined with a dose of patriotism:

The growing of vegetables in the home garden at the present time is a job of national importance. Where good supplies of home-grown vegetables are available, the consumption of this important section of our diet is considerably greater than when vegetables have to be purchased.

There was also more of a focus on the actual methods used in food production, and especially the growing of vegetables. In 1941, the *Australian Garden Lover* directed that ‘The regular use of complete fertilizer will result in vegetables that are tender and crisp, of good flavor, and rich in health-giving and very necessary vitamins.’ Six years later, the *Home Gardener* was confident that the term ‘vitamin’ had ‘entered into the vocabulary of the-man-in-the-street,’ who knows that these vitamins have important functions in the growth and well-being of himself and of his children. However, the same article suggested that simply applying a ‘complete’ chemical fertiliser would not result in vegetables of the highest quality, particularly with regard to vitamin content. The key, rather, was the provision of humus via copious quantities of compost. Advocates of ‘organic’ approaches (discussed in chapter 8) thus put forward the idea that home-grown fruit and vegetables produced using conventional methods were in fact no better than the commercially-produced variety. For true purity and distinction from ‘the masses’, ‘organics’ therefore became an attractive option for some middle-class gardeners: it is no coincidence that the Compost Society of Victoria, active in the early 1950s, was based in middle-class Caulfield. However, the appeal of ‘organic’ philosophies was limited because they challenged the dominant faith in science, as well as stressing the necessity of achieving a more balanced interdependence, at least with the non-human world. As will be demonstrated in Part IV, independence from nature remained the prevalent ideal, finding an outlet in a growing array of garden sprays, dusts and fertilisers which promised flourishing gardens free from insects of virtually all descriptions, and without the need for either animal manures or compost. It

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8 Norma Clarke, interviewed by the author, 28 September 1998, tape in author’s possession.
10 ‘The Vegetable Garden in N.S.W.’, *Australian Garden Lover*, July 1941, p.15.
11 ‘What is Humus and What is its Function?’, *Home Gardener*, November 1947, p.15.
would be the 1970s before the wisdom of this approach to nature would begin to be questioned on a wide scale in Australia.

In the war and postwar years, produce continued to be exchanged among family and neighbours, although the satisfactions of this concession to interdependence did not topple the ideal of independence from its dominant position. Gifts of home-grown produce were made of a genuine willingness to share, although it is difficult to say for sure to what extent they also acted as symbolic capital, particularly where the recipients were not in a position to reciprocate. For example, growing up in Port Melbourne during the war, Barbara Gardiner clearly held in high esteem her Uncle Phil and Aunt Myrt, who would come down to Port Melbourne from Box Hill 'laden up with beans and tomatoes of course, the beautiful tomatoes'. Some exchange was also motivated by abhorrence of waste combined with a lack of refrigeration. Tot White, for example, remarked that: 'You couldn’t keep the vegies, so what you had you shared around'. In the Whites’ case, at least, these interdependent exchange networks appear to have been limited to next-door neighbours and family.

When materials became available after the war, construction of housing proceeded apace, as many of those who had been sharing accommodation or renting sought space, privacy, and a limited independence in their own suburban homes. Construction labour, however, was scarce, whilst incomes were relatively high, building blocks fairly cheap, and building regulations not difficult to satisfy. As a result, many couples built their own homes. Although a substantial amount of finance for owner-built housing was raised by co-operative building societies, and there were a few formal co-operative building ventures (as well as widespread informal cooperation between friends, family and neighbours), the building of a home was seen largely as the triumph of the (usually male) household head. The ubiquity of this experience can only served to have reinforce the high esteem in which the ideal of masculine self-reliance was held.

In the immediate postwar period, the links between vegetable gardening and the male role of independent provider, in opposition to women’s dependence, were reasserted. Statements such as ‘the man of to-day, with the ordinary allotment of land, can easily provide his family with vegetables of first quality through the greater part of the year’, were common fare in popular gardening magazines. The vegetable garden thus remained

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12 Barbara Gardiner, interviewed by the author, 12 July 1999, tape in author’s possession.
13 Tim and Tot White, interviewed by the author, 20 July 1999, tape in author’s possession. Tot was quite clear about the role of storage technology in the exchange of produce: ‘when you had the vegetables, you couldn’t keep them. Now you can freeze them or whatever.’
14 The home has been recognised as a symbol of independence in this period by Graeme Davison and Tony Dingle, ‘Introduction: The View from the Ming Wing’, in Graeme Davison, Tony Dingle and Seamus O’Hanlon (eds), *The Cream Brick Frontier: Historis of Australian Suburbaia*, Monash Publications in History no.19, Monash University, Melbourne, 1995, p.5.
16 ibid., pp.71-2.
17 ‘Vegetable Growing for Home Use’, *Home Gardener*, June 1, 1951, p.16.
an important site for the exercise of independent masculinity, particularly in the form of
‘manly’ physical exercise:

There is nothing for the gardener to do but to don his bowyangs, sharpen up his heavy
gardening tools, take a short course of Swedish drill if his muscles are soft and not
inured to hard labour, and then get right down to earth.18

Returned soldiers - those most ‘masculine’ of men - were, and were seen as, engaging
particularly enthusiastically with backyard food production.19

In a context of rising incomes and falling unemployment rates, many working-class
tenants who had never quite abandoned their dreams of independence moved out to join
‘middle Australia’ in the spreading suburbs, where the separate identity of the ‘respectable’
working class was subsumed in a culture of suburban consumerism.20 For many, however, the
promise of independent home-ownership came at the price of economic dependence. As we
saw in chapter 4, in a context of high food prices and budgets devoured by mortgage and
other repayments, home food production appears to have held a wide appeal on economic
grounds, as well as remaining a symbolic enactment of independence: amidst a sea of
consumption, production continued (though it was a form of production which, somewhat
paradoxically, increasingly relied on consumption). The more populist tone of gardening
magazines in the 1950s probably reflects a broadening of the readership base, to include
many of those working-class families recently arrived from the inner suburbs and interested
in making stable and comfortable suburban homes.21 This was the beginning of the Menzies
era of middle-class hegemony.

In her book Robert Menzies’ Forgotten People, Judith Brett argues that the appeal of
Menzies and his rhetoric lay in those features of the dominant middle-class habitus which
we have seen were important in assuring the popularity of home food production. Brett
recognises the centrality of the idea of independence - long dear to both the middle and
‘respectable’ working classes - claiming that in Menzies’ famous ‘Forgotten People’
speech, ‘the main psychological issue is the opposition between independence and
dependence and the emotions embraced and excluded by the choice of one rather than the
other.’22 John Murphy has further proposed that Menzies’ “independent virtues” of thrift,
self-provision and independence from the state’ appealed precisely because these were the
values perceived to be vulnerable in the face of mass society: the enthusiasm for ‘modern’
homes and appliances in the 1950s was accompanied by a deep unease with the anomie and

18 R.G. Edwards, The Australian Garden Book: With Practical Hints on the Culture of all the Principal
19 See for example Olive Mellor, ‘Practical Garden for a Soldier’ Australian Home Beautiful, March 1946,
Transmission and the Making of Australia, Heinemann Educational, Port Melbourne, 1989, p.64.
21 Alastair Greig has shown how in the 1950s, Australian home magazines appeared to target a wider
audience of home-buyers, beyond the middle class: Alastair Greig, Home Magazines and Modernist
Dreams: Designing the 1950s House, Urban Research Program, Research School of Social Sciences,
Australian National University, Canberra, 1995, pp.16-18.
'depersonalised rationalisation' of postwar modernity. As 'the modern' permeated everyday life and occasionally presented an uncomfortable vision of society, home vegetable gardens and orchards - even more so than in the 1930s - became a sanctuary for rurality as the site of traditional values. Even in the 1950s, Brett argues, the 'dream of an independent yeoman farmer underlay many an Australian suburban home.'

Menzies’ view of the ideal citizen was deeply appealing to the many thousands of families who were absorbed in self-contained suburban domestic life:

The best people in the world are ... those who by thrift and self-sacrifice establish homes and bring up families and add to the national pool of savings and hope one day to sit down under their own vine and fig tree, owing nothing to anybody.

Although Menzies’ ‘vine and fig tree’ reference was biblical, in many Australian minds - and backyards - they appeared as ‘passionfruit vine and lemon tree’, the local symbols of productive self-reliance. Once again, freedom was primarily sought in self-containment, rather than in terms of Labor Prime Minister Ben Chifley’s ‘light on the hill’:

the duty and responsibility of the community and particularly those more fortunately placed to see that our less fortunate fellow citizens are protected from those shafts of fate which leave them helpless and without hope.

In their celebration of individualism, Menzies’ virtues neglect the ‘compassion, sympathy, generosity, trust, gratitude’ involved in the acknowledgement and appreciation of human interdependence. As we will see in Part IV, the pursuit of independence with regard to nature, at the expense of interdependence, also damaged human relationships with the environment.

1955-1972

During the postwar ‘boom’ period, food production continued to be shaped by a confluence of forces, not least of which were consumerism and an increasingly pervasive ‘modern outlook’. The 1950s and 60s saw the expansion of consumer culture, whereby the mass media successfully promoted a wide array of consumer goods as means by which aspects of one’s identity, including ‘independence’, could be expressed. Material simplicity - the 'Art of Living' - lost some of its attraction for an increasingly wealthy middle class, and the importance of practising self-help through thrift was diminished. People could - and did -

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27 Brett, *Robert Menzies' Forgotten People*, p.72. Again, this is not to suggest that the 'virtues of interdependence' were altogether neglected, but that they were generally subordinated to those of independence.
buy more, with private consumption expenditure rising by approximately 4.9% per year throughout the 1960s.\textsuperscript{28} One important consumer item which took time and interest away from home-centred pursuits, including food production, was the car. In 1945, only about one in 11 Melburnians had a car. By 1968, more than one in three were so equipped.\textsuperscript{29} Since early in the twentieth century, the automobile had been a powerful symbol of independence.\textsuperscript{30} As car ownership became more widespread, cars (along with homeownership) became the most important symbols of independence for many suburban residents of Perth and Melbourne. Cars also extended the range of possibilities for leisure. Backyard food production was thrown into competition with the freedom to go. As Tot White put it:

\begin{quote}
when you got a car you didn't stay home and do your gardening, you went to the beach or the country, or somewhere ... that was your recreation - instead of pottering around doing the garden, you went for a drive ... And I think that was another reason why we gave the chooks and the vegie garden away, because we didn't have the time, we spent it driving around.\textsuperscript{31}
\end{quote}

The expansion of leisure opportunities was reflected in the gardening literature, where gardening was promoted as a modern leisure activity which was satisfying, yet not too time-consuming. Attention was thus devoted to the 'modern' garden. As Nerine Chisholm put it in 1956: 'Modern garden planning means labor-saving [sic] ideas, leaving time to enjoy the beauty you create'.\textsuperscript{32} However, Chisholm's 'modern' garden still contained vegetable beds and a composting area, albeit on a smaller scale than many prewar designs. Other plans for 'low-maintenance' gardens published during the 1950s also included fruit trees and vegetable gardens.\textsuperscript{33} As will be discussed in chapter 8, the 'low-maintenance' nature of the 'modern' fruit and vegetable garden relied on an increasing range of gardening gadgets and consumables.

As detailed in chapters 2 and 7, attempts were made in the 1930s and 40s to remove large animals from suburban areas. In the 1950s and 60s, those attempts intensified, with the rhetoric of 'modernity' often enlisted to aid the cause. Thus in 1959, the Perth Road Board member for Scarborough, A.C. Hepworth, attempted to amend the Board's by-laws to prohibit the keeping of horses within 100ft of a dwelling, instead of the 20ft allowed at that time. He told the meeting that 'keeping horses ought to be discouraged in a modern community', and that 'If we stop people from stabling a horse 100ft away from a house, we

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\textsuperscript{29} Davison and Dingle, 'Introduction: The View from the Ming Wing', p.14. \\
\textsuperscript{31} Tim and Tot White, interviewed by the author, 20 July 1999, tape in author's possession. \\
\textsuperscript{32} Nerine Chisholm, 'Landscape Gardening', \textit{Your Garden}, February 1956, p.9. \\
\textsuperscript{33} See for example Olive Mellor, 'Garden Off the Square', \textit{Australian Home Beautiful}, January 1951, pp.66-67. (for Mr Whitelaw of Mt Waverley); Olive Mellor, 'Planned to Lessen Garden Upkeep', \textit{Australian Home Beautiful}, April 1951, pp.66-67, 69.
\end{flushright}
may stop them from keeping them altogether. 34 Hepworth’s motion lapsed but the issue was considered serious enough to refer to the Health Department, which ultimately affirmed Hepworth’s idea of the mutual exclusivity of horses and modern communities via a 1962 by-law amendment which greatly increased allowable distances between large animals and dwellings. In the same amendment, the regulations relating to the keeping of poultry were also significantly altered, including provision for the registration of all poultry-keepers (at a cost of 5s). These changes were seen as contentious enough to make the front page of the ‘West Suburban Section’ of the West Australian newspaper in February 1963, where the Commissioner of Public Health, W.S. Davidson, was quoted as saying:

It is thought that the expense of making poultry pens comply with the new by-laws will discourage people from keeping poultry in their backyards... A second reason is the noise nuisance. Local authorities may want to specify areas where poultry may not be kept so there will be no disturbance. 35

The model by-laws were clearly produced with the intent of reducing the number of suburban poultry-keepers: rather than attempting to regulate the risk posed by poultry to health or amenity, the Health Department attempted to impose a non-productive conformity - at least with respect to animals - on the residential suburbs. Similarly, in Melbourne, new model poultry-keeping regulations were drafted under the Health Act in 1969. Although allowing for the keeping of 25 poultry with no fee, the regulations were very strict when it came to housing, stipulating that all poultry were to be kept in ‘rat-proof’ poultry houses complete with guttering and spouting leading to storm water drains. Such houses were to be 40 feet from any dwelling, and only two turkeys, ducks or geese were permitted on any premises in a residential zone. 36 Where these or similar regulations were adopted by Councils in the 1960s and 70s, the higher uniform standard of poultry management they required restricted the ability, or at least inclination, of many to keep poultry.

As Andrew Brown-May has suggested, it thus appears that in the 1960s in Perth and Melbourne ‘the increasing restriction on the keeping of productive animals was based as much on the abandonment of a perceived outdated rural era in favour of a progressive urban

34 'Prohibition of Horses Advocated', West Australian, 22 July 1959, p.2.
35 ‘Registration for Poultry, Pigeons’, West Australian: West Suburban Section, 21 February 1963, p.1
36 PROV, VA 573, City of Brighton, VPRS 10430, Registered Correspondence Files 1945-1980, Unit 58, no.3324, Poultry Keeping.
ideology’ as it was on concerns for health and the obviation of nuisances. This ‘urban ideology’ - part of the ‘modern outlook’ - included an element which lauded consumption and disparaged at least some types of production. Although, as Margo Huxley has suggested, the ‘by-laws can be seen to support consumerist trends in domestic life by regulating the amount of (non-horticultural) food production which can be undertaken on suburban blocks’, they can also be seen as participating in the creation of those trends. In other words, the exclusion of productive animals from residential areas was one way in which various state instrumentalities - generally operated by middle-class technocrats - sought to produce clean, modern communities peopled with cosmopolitan commuters and consumers. Although vegetable gardening and fruit production remained acceptable suburban pastimes, in the ideal modern suburb, the whine of the Victa would no longer have to compete with clucking and cackling, bleating and stamping. This period has since been cemented in the public consciousness as the time when ‘the council got strict about keeping farm animals in suburbia’ (though as we have seen, large animals had been heavily regulated in many suburbs for decades).

According to Tot White, the new approach had a substantial impact on residents’ ability to keep poultry:

Everyone seemed to have chooks, but I think they all got to that [elderly] stage, and then I think the Council put a stopper on it, because they said you could only have so many chooks, and you had to have better pens and all that for them, so I think that stopped a lot of it too.

Charlie Wilson, then living in Wembley, got rid of his fowls in the mid-1960s, when the

37 Andrew Brown-May, ‘Good Fences Make Good Neighbours?: Ordering Landscape and the Tractable Paraphernalia of Suburbia’, Urban History Planning History Conference Urban Research Program Presentation Copy Vol.1, Urban Research Program, Research School of Social Sciences, Australian National University, Canberra, 1995, pp.1-24. Although there was a public health focus on reducing the ‘fly menace’ during the 1950s and 60s, the literature did not call for the banning of poultry, or even demand particular kinds of housing, but counseled improved cleanliness of poultry sheds and runs: PROV, Health Department, VPRS 6345, Central Admin Correspondence Files, Unit 91, no.1206, Fly Pamphlets, Letters - November 1952 - August 1959; ‘Students to Join Battle Against Flies’, West Australian, 1 December 1960, p.2; Health Education Committee, Personal and Community Cleanliness, Perth, Government Printer, 1960, p.32. Other factors which suggest that regulation of poultry was not only linked to health or nuisance concerns are the fact that regulations still relied heavily on specifying distances between fowl housing and fences, dwellings and roads long after the miasma theory of disease had been abandoned, and the fact that other sources of noise and odour, such as dogs and lawnmowers, were not subject to such stringent regulations.

38 In my previously published article, ‘Regulation, Resistance and the Residential Area: The Keeping of Productive Animals in Twentieth-Century Perth, Western Australia’, Urban Policy and Research, vol.17, No. 1, 1999, pp.7-16, I argued that middle-class technocrats sought to impose a non-productive conformity on suburbia. In doing so, I failed to distinguish between animals and gardening: as we have seen, livestock and poultry, as a form of home food production favoured more by the working class than the middle class, have been restricted to a much greater extent than horticultural food production.


41 Tim and Tot White, interviewed by the author, 20 July 1999, tape in author’s possession.
new Council requirements meant that he would have had to put 'an enclosure in the middle of the yard'.42 This kind of response would appear to have been widespread: in 1999, Linda Brown, Nancy Fitzpatrick and their mother Theresa Blakers recalled that the number of households keeping chooks in the middle-class suburb of Nedlands appeared to decline after the 1960s.43 Similarly, in 1998 the chairman of Perth's Altona Hatchery, Mr Bell, claimed that domestic poultry-keeping started to decline noticeably in the 1970s - a trend which he attributed to a combination of council restrictions and shrinking block sizes.44 The 'ideal suburb' of conformity in consumption has never come into being, although it appears that throughout the 1960s and 1970s, the number of productive animals in the suburbs fell quite dramatically.

Where productive animals were kept, the literature was concerned to show that they could be kept in modern ways which were congruent with a more consumption-oriented lifestyle (and which themselves often involved greater consumption). In the mid-1950s, poultry-keeping still held a prominent position in magazines such as *Your Garden*, which featured monthly 'poultry notes' by Charles W. Smith. These articles often carried an emphasis on convenience and leisure in a busy modern world:

There's pleasure and profit in Muscovy ducks. Muscovies are the busy man's bird. They are intelligent, handsome to look at, and make delightful pets ... The Muscovy is easy to breed, easy to keep, and as tough as an ostrich ... One of the nicest things about Muscovies - when you have a lot of things to do around the house - is that they will practically take care of themselves ... When a gardener hasn't time to attend to ordinary fowls, or raise chickens, he can keep and rear Muscovies and get a lot of pleasure from them.45

Readers were further advised that 'Poultry experts tell us there is a common belief now that to be successful with fowls - to keep them in the modern way - you must have an ultra-modern fowlhouse'.46 Small-scale backyard battery cages were billed as one of the two types of 'ultra-modern fowlhouse', being 'not only a machine in which to keep fowls, but ... a machine which practically takes care of them. With cages constant daily attention is unnecessary'.47 A similar article announced that these 'home garden units' would allow keepers to have 'every bird under control'.48 Furthermore, as prosperity began to return to (some of) the suburbs and holidays became more common, backyard battery cages solved 'the problem of what to do with the fowls when you go away for a weekend - or how to

42 Charlie Wilson, interviewed by the author, 22 September 1998, tape in author's possession.
43 Linda Brown, Nancy Fitzpatrick and Theresa Blakers, interviewed by the author, 14 January 1999, tape in author's possession.
45 Charles W. Smith, 'There's Pleasure and Profit in Muscovy Ducks', *Your Garden*, October 1956, p.70.
47 ibid.
48 Charles W. Smith, 'Laying Cages will Simplify Backyard Poultry Keeping', *Your Garden*, September 1956, p.68.
take care of them when you go to work in the city.' As suburban life became oriented more towards consumption, and the demands of a boom economy meant that more of people’s time was spend in the paid workplace, the forms and meanings of food production also had to change.

Unlike productive animals, vegetable gardening and fruit trees did not usually constitute a challenge to suburban order, except where they were planted in front gardens by immigrants from southern Europe. In Carlton in the early 1970s, most Anglo-Australians ‘didn’t approve, some would voice their displeasure’ at the productive front gardens which appeared in the suburb with the postwar European migrants. Italian migration to Australia began in earnest following the Second World War. In 1947 there were 33,632 Italian-born people in Australia; by 1971 there were 289,476. Most of the migrants were from small towns and villages in rural areas of southern regions - Sicily, Calabria, the Abruzzi and Campania. Many had thus grown up in situations where domestic food production was a practice produced by the contadini (peasant farmer) habitus, as both a strategy designed to increase (or at least maintain) economic capital and a set of tastes held in common with other contadini.

Emma Ciccotosto, who was born in the Abruzzi in 1926, migrated with her family to Western Australia when she was 13. Emma’s father was lucky in that he owned their small piece of land, but realising that he had ‘too little land to make a decent living’, he sought a better life overseas. Although she arrived in Australia before the postwar wave of migration which peaked in the early 1950s, Emma’s description of her life at home in Casalbordino provides an insight into the background shared by many postwar Italian migrants:

We used everything we grew. Our diet would have been poor but for the vegetable garden, for we never had a lot of meat. My mother grew tomatoes, eggplant, zucchini, peas and beans, spinach, chillies, garlic, parsley and celery. She preserved as much as she could for the winter months by drying or pickling them. We grew so hungry for meat then that we built little traps for wild birds ... My mother would cook them for us but they only gave us a mouthful of meat apiece. Once we had a sheep that died and I though this would be a chance to have a big feed of meat, but alas, it was not to be. Farm animals were registered and a tax had to be paid whenever one was eaten. We could not afford to pay the tax and so my mother had to bury the dead animal, because that was what the law demanded.

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49 ibid.
50 Paolo Ricci, interviewed by the author, 11 February 1999, tape in author’s possession.
52 ibid., pp.42-43.
54 ibid., pp.24-25.
Most of the postwar migrants settled in metropolitan areas, in suburbs such as North Perth and Fremantle in Perth, and Carlton and Brunswick in Melbourne, where work was accessible, housing cheap, and compatriots already established.\(^{55}\)

Although they were often able to eat more meat in Australia, many migrants continued to produce food, planting olive trees and grape vines, but also plums, apples, pears, lemons, figs and apricots, as well as fennel, peppers, basil, eggplants, beans on conspicuous poles and above all, tomatoes.\(^{56}\) In Fremantle in the 1950s, Emma’s father-in-law (who hailed from a town not far from Casalbordino) planted herbs and vegetables and kept six chooks at the house he shared with Emma and his son.\(^{57}\) Further evidence for a connection between postwar migrant food production and an Italian *contadini* habitus comes from two interviews carried out in 1999. Paolo Ricci grew up in Carlton in the 1970s. His parents both grew up, or at least lived for most of the time before coming to Australia, in Rome. When they came to Australia they had little inclination to grow much food - just some tomatoes, herbs, peach trees and, perhaps significantly, a couple of fig trees. Most of their neighbours, however, ‘were not city people, they were from rural backgrounds, and they just knew how to produce products and foodstuffs and that’s what they had grown up with.’\(^{58}\) They had very productive vegetable gardens - including cultivation of the front yard - and usually poultry as well. Similarly, Antoinette Celotti’s mother grew up in rural Italy, and when she came to Australia, she continued to grow her own food on a substantial scale. Antoinette felt that her own passion for productive gardening was inherently related to her family’s rural Italian heritage, though clearly not all second-generation Italian-Australians share her enthusiasm.\(^{59}\)

Many Italian migrants were thus experienced at producing food and accustomed to a diet rich in fresh vegetables, which on the whole they wished to retain.\(^{60}\) That vegetables remained a particularly significant part of the diet is evident in the importance attributed to obtaining traditional varieties. The migrants brought their seeds with them and saved them each season.\(^{61}\) In Perth and Melbourne in the 1950s and 60s, Italian herbs and bitter salad greens were not otherwise available, nor were regional varieties of more common

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55 Castles, *Italian Migration and Settlement Since 1945*, p.49.
59 Antoinette Celotti, interviewed by the author, 13 July 1999, tape in author's possession. Betty France recalled in 1999 how her second-generation Italian-Australian neighbours had recently levelled a stonefruit orchard in the front yard of their Northcote home and a citrus orchard and almond tree at the back. Meanwhile, across the road from Betty, a second-generation Italian-Australian man was building a house on a block which used to belong to his parents; most of the fruit trees were destroyed, but the father was adamant that the apple tree must stay: Betty France, interviewed by the author, 14 July 1999, tape in author's possession.
vegetables. Vicki Swinbank has also argued that food production, and consumption of home-grown food, played an important part in 'reinforcing a strong sense of cultural identity and a sense of belonging', thus enabling migrants to feel more secure, if not actually at home, in the context of a different and sometimes hostile new environment. For the wives of Molfetese fishers living in Fremantle, the garden was a comforting place to pass the lonely hours in a ‘foreigner’s town’ while their husbands were at sea. Some employed food production in an attempt to generate or reinforce a sense of community, perhaps similar to that which they had known in villages in Italy. Thus vegetables and fruit trees were planted in front yards not only to save space, but also to ‘excite curiosity and conversation from passers-by’. This strategy may well have been successful in neighbourhoods with significant Italian populations, though as noted above, the Anglo-Australian attitude to this kind of food production was often less than neighbourly.

However, there is another side to Italian migrant food production. In rural southern Italy, owning land was highly desirable - if not always within reach - as landless contadini were ‘at the mercy of the baroni’. In Australia, the migrants thus strove to buy their own homes. Many succeeded: in 1986, 70% of households with a head born in Italy owned their own homes, while a further 19% were still paying off their housing loan. Such high rates of owner-occupation among migrants may be indicative of a broader disposition towards independence, produced by the contadini habitus. Charles Price, and later Jock Collins, have also recognised the strength of the ‘dream of independence’ among Italian migrants, tracing it to their contadini background and showing how it was pursued through small business development in Australia. In a culture where non-British migrants were often denied access to well-paid work, ownership of a home and/or small business was rarely achieved without sacrifice. The potential savings achieved through production of fruit, vegetables and eggs, for low-income migrant households with vegetable-rich diets and horticultural knowledge, are likely to have influenced decisions in relation to food

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64 Richard Bosworth and Michal Bosworth, Fremantle’s Italy, Gruppo Editoriale Internazionale, Rome, c1993, p.78.


66 Castles, 'Italian Migration and Settlement Since 1945', p.49.

67 ibid., p.


69 Castles, ‘Italian Migration and Settlement Since 1945’, p.49; This may also be inferred from the high level of poverty or near-poverty among migrants in the early 1970s: Commission of Inquiry into Poverty, Poverty in Australia: First Main Report, vol.1, Australian Government Publishing Service, Canberra, 1975, chapter 16.
production.

It is possible therefore to characterise Italian migrant food production as a practice generated by the *contadini* migrant habitus both as a learned set of tastes which were cherished as the familiar in unfamiliar surroundings, and a strategy which economically supported the goal of independence (pursued principally through homeownership or small business proprietorship or both). Food production may also have been a symbolic performance of independence, as with Anglo-Australians, though evidence is lacking. A more thorough understanding of the meanings of migrant food production would require a deeper examination of Southern European migrant habituses - something beyond the scope of this thesis. However, it is clear that in time, migrant food habits made their way into middle-class Anglo-Australian tastes, as a predilection for the 'gourmet' re-configured productive migrant gardens as arcadian, and to be emulated rather than scorned.70

The tendency for rural people to maintain productive gardens once settled in urban areas is also strong amongst the Australian-born. Whilst the yeoman formed part of the urban middle-class imaginary, many suburban food-producers had in fact lived on or around farms before coming to the city. Of the 50 people I interviewed about their food production, 12 grew up (or lived for some time) on farms or large blocks in country towns in Victoria and Western Australia.71 Others had ex-rural relatives who also grew their own food.72 Although Australia does not have a tradition of 'peasant' agriculture, for much of the century it was distinctly convenient for rural people to grow their own vegetables, as space and manure were readily available, and an alternate supply of fruit and vegetables could be several miles away (and then often of dubious quality). It comes as no surprise then to find that ex-rural people have often been disposed towards food production once settled in suburban areas.

Among suburban Anglo-Australians in the postwar era, vegetable gardening and fruit trees remained fairly popular as an expression of self-reliance. For example, Peter Watson and his wife moved to a house in Sandringham, Melbourne, in February 1961, from their rooms in a mansion in Elwood. From a wealthy family, Peter turned his back on family expectations and became a fireman.73 The main reason he chose to move to Sandringham was because he wanted a big block - space which he ultimately filled with squabbing pigeons, rabbits, ducks, chooks, fruit and vegetables. He was almost self-sufficient, which 'had always been an ambition' in his life: 'I think [the ambition to be self-supporting] was just born in me. On either side of the family there were people who were good at handling money, and I

70 As pointed out in chapter 2, the visibility of migrant food production has also led people to commonly associate suburban food production predominantly with migrants, in spite of the fact that although some migrants' gardens may produce more food than Anglo-Australian gardens, they remain a minority among productive gardeners.

71 These interviewees were Ken Chapman, Jefferye Contessa, Mrs M Ward, Norma Clarke, Andrea Vis, Maria Lewis, Sam MacAdam, Jeff Hilder, Lyn Gorham, Robert Still, Brian Pell, Donelle Toussaint.

72 Barbara Gardiner's uncle, Tot White's father; Toni Mason's mother.

73 Peter Watson, interviewed by Tony Dingle and Seamus O'Hanlon, 8 August 1994, p.3. Transcript courtesy of Tony Dingle, Monash University.

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think I inherited some of that.' The virtue of this thrifty, prudent orientation - part of the durable middle-class independent disposition - was also reflected in the literature. For example, in September 1961, the *Australian Garden Lover* counseled that:

> Apart from the monetary gain, there is something to be said in favour of people who are careful and who endeavour to put everything about them to the best possible use. In the latter case we find gardeners, businessmen, farmers, and many others who realise the advantages derived from having a portion of the home garden set aside for the production of fresh vegetables.

In the 1950s and 60s, the accepted association of food production with 'manly independence' was protected in the realm of representation, with articles and advertisements consistently depicting independent men with the vegetables, and dependent women passively 'consuming' the surroundings, or at most working with flowers. At the same time, however, an increasing number of married women were entering paid employment, with the female workforce rising from 22.8% of the total workforce in 1954 to 36.0% in 1976, and the proportion of the female workforce who were married rising from 30.8% to 64.0% over the same period. Women who were working in both the home and the paid workplace had less time for the daily maintenance of food production, for which many had previously been responsible. Along with increasing regulation, this was probably a factor in the diminution of the number of households with productive animals, which generally require more daily maintenance than fruit trees and (to a lesser extent) vegetable gardens. In some cases, vegetable gardens may well have been scaled back, if not abandoned altogether, when a wife went out to work.

Earlier concerns with freshness and quality of food also remained evident in the literature. In the mid-1950s, poor nutrition was sometimes still described in terms of the potential for racial deterioration, though more often, detailed information was provided about the vitamin content of vegetables, and householders invited to grow food in order to

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74 ibid., p.9.
78 This was identified as a factor in a perceived decline in productive gardening in recent decades by interviewee Norma Clarke, who remarked that 'so many people working, so many couples working, they don't like to give time to their fruit garden'; Norma Clarke, interviewed by the author, 28 September 1998, tape in author's possession. Similarly, John Moore commented: 'I'd like to have a vegie garden again, I suppose that the reason that we don't have one at the moment is also the time factor thing, because my wife and I both work, and have kids.' John Moore, interviewed by the author, 16 September 1998, tape in author's possession.
obtain good health for themselves and their families.\textsuperscript{80} For some, home-grown fruit and vegetables also remained an item of class distinction which was superior to the mass-produced, mass-consumed item. Reuben Patton, ex-Melbourne University Lecturer and Mayor of the City of Caulfield, bemoaned the decline in the quality of vegetables available in Melbourne in the mid-1950s:

\begin{quote}
food was then produced around Melbourne itself and came fresh into the home. But today it is frequently no longer fresh ... Tomatoes were grown and ripened on the bush but today they are picked green and often sold green or they may be artificially ripened.\textsuperscript{81}
\end{quote}

Similarly, in 1961 the \textit{Australian Garden Lover} explained, in some detail, the advantage that home gardeners had in being able to leave fruit on the tree to ripen properly and develop its full flavour.\textsuperscript{82} However, this distinction had to compete with the convenience and modern novelty represented by new forms of processed food, and new ways of shopping. Conversion to self-service grocery shopping occurred rapidly in the mid-late 1950s in Australia, and the 'new world' of supermarket shopping was highly attractive to many.\textsuperscript{83} Frozen vegetables were introduced to the Australian market in 1953, as the result of cooperation between the US-based Bird's Eye corporation and Australian Edgell Company.\textsuperscript{84} By the early 1960s, the range of frozen food available to shoppers included fish fingers and 'T.V. dinners', whose attraction was magnified by increasingly intensive advertising: in 1949-50 advertising expenditure was in the order of £30 million, but by 1960-61 this had risen to £123 million.\textsuperscript{85}

By the end of this period, environmentalism in its more recent form was beginning to appear in the gardening literature, translating the conservation focus of the Australian environment movement into a concern with pollution of local environments, and bodies:

\begin{quote}
Contaminating smog affects our lungs, eyes and capacities. Poisoned water not only kills our seafood but affects our health as well. We turn to plants as our purifier for help. Grow our own vegetables if space permits.\textsuperscript{86}
\end{quote}

It was still believed, however, that 'pure' plants could be grown with the aid of insecticides, if the directions were carefully followed. But at the same time, a rather different view was becoming discernable - one which invited readers to focus on the existence of ecological interdependence, rather than the illusion of independence offered by insecticides such as DDT. One article - reprinted from the \textit{Australian Medical Journal} - suggested that even

\begin{itemize}
\item \textsuperscript{80} See for example Arthur Yates & Co., \textit{Yates Garden Guide}, revised edition, William Collins, Sydney, 1971; Western Australian Department of Agriculture, \textit{Vegetable Growing in Western Australia}, the Department, South Perth, 1970. The latter especially contains a great deal of information on 'the place of vegetables in the diet', with emphasis on the vitamin content of the various species.
\item \textsuperscript{81} Reuben J. Patton 'The Kitchen Garden', \textit{Your Garden}, October 1956, p.13.
\item \textsuperscript{82} 'Home Orchard in Summer', \textit{Australian Garden Lover}, November 1961, p.53.
\item \textsuperscript{83} Kim Humphery, \textit{Shelf Life: Supermarkets and the Changing Cultures of Consumption}, Cambridge University Press, Melbourne, 1998, pp.80-81.
\item \textsuperscript{84} ibid. p.83.
\item \textsuperscript{85} ibid., p.83.
\item \textsuperscript{86} 'Gardening vs. Pollution', \textit{Australian Garden Lover}, January 1971, p.49.
\end{itemize}
though the toxicity of DDT for humans is very low, ‘this does not mean [they] can pollute [their] environment with impunity.’ It also posed the broader question of to what extent humanity should sacrifice short-term gains for long-term benefits. The solution - perhaps unsurprising in a piece originally written for middle-class doctors - was believed to lie in the old middle-class virtue of frugality:

> Comfort may perhaps be found in the consideration that, mankind being by nature, prodigal, careful scrutiny may often reveal that a great deal of pollution is due to wasteful and unnecessary use of harmful substances.

From the mid-1970s, the new environmentalism was to have a significant influence on suburban food production practices.

1973-2000

In the 1980s, the Australian Broadcasting Corporation (ABC) screened ‘The Good Life’, a BBC comedy series about an English suburban middle-class couple - Tom and Barbara Good - who opt out of conventional consumer existence in favour of a life of suburban self-sufficiency. The series enjoyed a fair degree of popularity in Australia, running over several seasons. The motivations behind Tom and Barbara’s lifestyle choice were familiar to many Australians. As will be discussed in chapter 8, Rachel Carson’s 1962 publication *Silent Spring* precipitated the development of ecology as a popular science. At the same time, as Ronald Inglehart has argued, among the rising generation in the industrialised nations there was a general shift towards new ‘postmaterialist’ values, emphasising self-expression, belonging and intellectual satisfaction. The rise of these ‘new values’ is ascribed to the fact that postwar generations were raised in a period of relative affluence, and were thus less likely to emphasise material values than their parents, who had experienced deprivation in war and depression. These changes may thus be characterised as a shift in the habitus of the rising middle-class generation in particular. As relationships between self and ‘other’ were re-thought, the ‘postmaterialists’ took up a variety of issues: the first ‘big’ one was peace; the second, environmentalism. The new environmentalism began to take hold in the United States in the late 1960s, with Earth Day 1970 attracting the involvement of an estimated 20 million Americans. Subsequently, a growing number of people started to

88 ibid., p.45.
89 ibid., p.45.
90 It was also repeated in the later 1990s, an occurrence which is likely to have had more to do with the plight of the ABC than anything else.
pursue what Samuel Hays has described as ‘ecological life-styles’. Revolving around concerns of food, health and shelter, ecological life-styles sought an authenticity of experience seen to be lacking in the midst of modern consumer society, and reaffirmed the value of taking responsibility for oneself. The extent to which they were adopted varied widely, from owner-building and total self-sufficiency in a rural context on the one hand, to producing one’s own mung bean sprouts in a city apartment on the other. Whilst having some basis in the postmaterialist re-thinking of relationships between self and nature, it is likely that ecological life-styles also reflected material concerns: the series of classical recessions in 1974-75, 1981-83 and the early 1990s, along with the rapid rises in the price of oil and fears over security of future supplies occasioned by the ‘oil shocks’ of 1973-74 and 1979-80, signalled the possibility of the return of scarcity. In such a context, self-sufficiency took on a new layer of old meanings.

In Australia, the turn toward ecological life-styles associated with the new environmentalism was reflected in the launch of magazines such as *Earth Garden* and *Grass Roots*. The editors of the latter declared in its first issue, of January 1973:

> Today everyone is looking for an alternative to the life that big business forces on us. More people are concerned about the chemicals they consume with their food and the pollution all around them. You don’t have to bow to the dragging monotony of set hours, set jobs, set transport and set wages. Throw your clocks away - the time for change has come.95

At the same time, Bill Mollison and David Holmgren were busy in Tasmania developing the concept of Permaculture, a variation on the basic ecological life-style theme. The concept was devised in 1974 and *Permaculture 1: A Perennial Agricultural System for Human Settlements*, which appeared in 1978, was its first published elaboration. Influenced by a wide range of sources, from Kropotkin to Odum to Goldsmith, as well as the burgeoning counterculture and the 1973-74 oil crisis, Permaculture included a critique of the food system in both industrialised and developing countries: the former was deemed unsustainable due to its high fossil fuel and chemical inputs, and the latter condemned for its human drudgery. Instead, Permaculture offered a vision of an agricultural system in which the

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95 David Miller and Megg Miller, ‘Reading Between the Lines...’, *Grass Roots*, no.1, 1973, p.2. *Grass Roots* was targeted both at the exponents of rural ecological lifestylers - the ‘back to the land’ movement - and their urban equivalents. In the first issue, editors David and Megg Miller were careful to point out that ‘If you’re in the city you don’t have to shift house to break free, you can achieve that now.’ (p.2) The first page of early issues announced that the magazine was ‘produced for those who wish to regain control over their lifestyle by exploring the alternatives to modern mass consumption’. These alternatives could be rural or urban (and didn’t necessarily rely on participants abandoning their jobs!). Some articles in each of the early (and later) issues were targeted at rural dwellers, though others relating to crafts, vegetable-growing and poultry-keeping were equally applicable in rural or urban settings. The focus of *Grass Roots* and similar publications has remained relatively unchanged since the 1970s; one significant development was the inclusion, throughout the 1980s and 90s, of articles on Permaculture.

primary source of energy was neither human nor fossil fuel, but the sun. Productivity was maintained not through high energy inputs, but through the careful choice and placement of system elements such that each had several functions and supported the functions of others. Permaculture thus produced 'an integrated, evolving system of perennial or self-perpetuating plant and animal species useful to man [sic]'\(^{97}\). Pests were not only controlled, but converted into useful products, via pigs, poultry and other means.\(^{98}\) In 1978, Permaculture was aimed at alternative communities living on marginal rural land, although its potential for urban use was also recognised.\(^{99}\) By 1989, it had developed into a complete social and environmental philosophy, based around the ethical principles of care of the earth, care of people and setting limits to population and consumption.\(^{100}\) For many people, however, Permaculture was primarily a set of techniques which could be employed to achieve some degree of 'green' urban self-sufficiency.

Several authors have identified the support base for the new environmentalism in Australia among the well-educated, the reasonably affluent, and the young.\(^{101}\) These factors are themselves correlated, as both the middle class in general, and younger members of the middle class in particular, have had better access to higher education than older cohorts and the working class. Elim Papadakis, after reviewing survey data, concludes that age and postmaterialist values are the best predictors of environmentalism.\(^{102}\) However, Papadakis' account is synchronic, and fails to distinguish adequately between types of environmentalism. Jan Pakulski and Stephen Crook offer a more historical account, arguing that in Australia, environmentalism was transformed from a middle-class 'niche' cause to a broader social concern by media coverage of global environmental issues, which intensified dramatically in the late 1980s.\(^{103}\) They also note that 'environmental activism has been more clearly anchored in the social structure than increasingly amorphous and widespread environmental concerns.'\(^{104}\) Thus, although environmentalism had become a household word by the early 1990s, it began as a movement associated with a particular middle-class generation.

With its abhorrence of waste and focus on self-sufficiency, the ecological lifestyles associated with the new environmentalism may be seen as sharing some core values with the older dominant middle-class habitus. Although the 'modern outlook' partly displaced the

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98 Mollison and Holmgren, *Permaculture 1*, p.35.
99 ibid., pp.1-2.
102 ibid., pp.153-172.
104 Pakulski and Crook, 'Introduction', p.4.
yeoman within the middle-class habitus for a time, in the 1970s and 80s, when the extent of the ecological damage wrought by industrial capitalism was becoming clear, at a time when people were increasingly emphasising ‘quality of life’ over more narrow material security concerns, the middle-class habitus came full circle in a sense, with a renewed focus on traditional values, linked once again to rurality. Middle-class people near the beginning and the end of the twentieth century thus shared a propensity for self-help, material simplicity and minimum consumption, as well as a belief in the healthy influence of rural land and work. It is therefore unsurprising that they also shared an inclination towards home food production, as a practice produced by the habitus. The similarity of the two dispositions is clearly reflected in publications such as Bill Connor’s 1980 Toward Self-Sufficiency: Country Skills for City Dwellers, which is anti-modern, dedicated to a lifestyle displaying an ‘Art of Living’ similar to that expounded by Samuel Smiles, and featuring a clear independence/dependence dichotomy. All that is missing is the distinct moral tone of earlier works, and a direct reference to the yeoman, who hovers outside the text as the independent rural counterpoint to the dependent city dweller:

The urban dweller is perhaps the most vulnerable member of our society. Essentially a wage and salary earner, he tends to live from pay day to pay day. He is ever dependent upon the supermarket, the corner shop, the milkman and the other service groups to supply his weekly needs. Coupled with an ever increasing dependence on the ready availability of essential commodities is the increasing trend to build into the urban lifestyle a dependence upon ‘fast food’ organisations. ... The urban dweller must learn to do as much as possible for himself. He must move toward a simpler lifestyle; one more compatible with the environment ... Moving toward a simpler lifestyle means putting aside the unnecessary things that clutter our lives and cause waste.

To a limited extent, however, the new middle class habitus also contained a tendency to consider broader ecological and social pictures in terms of a dichotomy not of independence/dependence, but independence/interdependence. As postmaterialists sought a sense of ‘belonging’, and some experimented with more communal forms of living, tensions between the pursuit of independence and interdependence surfaced. Whilst interdependence was demonstrated in the establishment of communities and, for example, the ‘Feedback-Linkup’ section of Grass Roots, the central themes of autonomy and self-help which characterised ecological life-styles were retained by many of those who joined the alternative communities which arose in Australia from about 1971.

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105 Evidence for food production as a middle-class phenomenon is examined in chapter 4, including case studies of the Permaculture Association of Western Australia and the Nunawading Community Garden.


between 1973 and 1981, for example, revealed that 33% of key words or phrases - the largest single category - related to self-reliance. Peter Cock has shown how in many rural alternative communities, this tension between interdependence and independence was resolved in the direction of the latter, with a creeping materialism degrading both the shared vision of the community, and the land itself.

In urban areas, similar tensions have surfaced within the Permaculture movement. As we saw in chapter 4, the Permaculture Association of Western Australia (PAWA) membership in the mid-1990s was dominated by well-educated middle-class managers, professionals and para-professionals. Respondents to the PAWA survey explained their enthusiasm for productive gardening largely in terms of sustainability, economy, and in some cases spirituality. Postmaterial values were reflected in the popularity of the belief that one experiences 'a meaningful link with the universe through working with the soil.' Some degree of orientation towards interdependence was indicated by the 21% of survey respondents who indicated that their main reason for joining PAWA was that they wanted to 'share with others the goal of a sustainable life.' For many 'permies', however, the practice of Permaculture was less revolutionary, being focused primarily on home gardening techniques and 'useful' species: after joining PAWA, over half of the 210 people who responded to the survey had established systems (predominantly in a suburban context) including efficient water use, fruit trees, compost, worms, mulched vegetables and herbs. Around 38% had poultry, and 33% had a pond. Significantly fewer - around 21% - were members of a LETS (Local Exchange Trading System) network, and only around 7% were involved in community gardens. The relative lack of interest in the community development aspects indicates that for many, Permaculture was no more than a specialised variant of organic gardening.

As with other forms of organic gardening, Permaculture contains elements of older middle-class concerns with simplicity, thrift and pure food, as well as a clearly discernable orientation towards independence. One of my interviewees remarked that she was attracted to Permaculture because it represented 'a way out of that total dependence ... I hate being dependent on anyone.' A discernable tension between independence and interdependence, which may have been partly inter-generational, thus developed within the movement. Permaculturalists were by no means oblivious to this tension. Gayle Russell, for

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108 ibid., p.40.
111 ibid., p.11.
112 ibid., p.14.
113 ibid., p.13.
115 Sarah (pseud.), interview by the author, 5 November 1998.
example, remarked in a letter to the editor of the Permaculture International Journal in 2000:

I agree with Martin Oliver (Letters, PLJ 74) on the 'pioneering hangover which values self-reliance over interdependence' as being a focus of the permaculture movement.

I believe that the more prominent message for our communities is that of interdependence - and not just for the alternative people.\(^{116}\)

From the other side of the fence, a disgruntled PAWA member wrote to the Permaculture West newsletter in May 1998 to complain that too much space was being devoted to 'the 'people care' ethic'. R.P. Griffin continued: 'I have been an enthusiastic member of the Permaculture ethic, the maintenance of sustainable agriculture, not pandering to the community, which invariable [sic] means the haves wet nursing the have nots'.\(^{117}\) Although the pursuit of ecological interdependence was reflected in some different approaches to food production (such as use of organic techniques), clearly there was no necessary link between viewpoints favouring ecological interdependence and those favouring a similar approach to questions of social organisation. The independence/interdependence tension may well have damaged the movement itself. By 2000, Permaculture projects and enthusiasts could be found the world over. But interest generally appeared to be waning: 22 years from its beginnings as a photocopied ‘national journal’, the last issue of the Permaculture International Journal was published in June 2000.

At the end of the twentieth century, within environmental organizations which encouraged food production but also outside of them, there was an increasing focus on quality and choice of food - concerns echoing those long held by the middle class. Three major types of late twentieth-century concerns over food motivated home food production: firstly, a concern with with the environmental consequences of pollution arising from conventional agriculture; secondly, anxiety over the possible effects of conventionally-produced food on health and bodily appearance; and finally, a concern with food as a primary marker of class taste. The first of these was held (usually in conjunction with one or more of the others) by those pursuing some form of 'ecological lifestyle'. It reflected an interdependent orientation, at least on an ecological level. The latter two were, as we have seen, continuations of older middle-class concerns, although it seems that they became more widespread and prominent from the 1980s.\(^{118}\)

Interest in 'natural' or 'organic' diets was concentrated in the middle class, being particularly favoured by para-professionals.\(^{119}\) As in the 1930s, the language used to describe these diets often carried distinctly anti-modern overtones, with 'natural' food being

\(^{116}\) Gayle Russell, 'LETS Talk About Interdependence' [letter to the editor], Permaculture International Journal, no.75, June-September 2000, p.44.


\(^{118}\) The extended history of these concerns appears to have bypassed some commentators, including Raphael Samuel, who remarked in 1982 that 'Food, in particular, a postwar bourgois passion ... has emerged as a critical marker of class': 'The SDP and the New Political Class', New Society, vol.60, no.1014, 1982, p.125.

constructed in terms of a ‘nostalgic discourse around the healthiness and wholesomeness of rural life’. ‘Natural’ diets were often employed as people sought to mould their bodies according to particular class conceptions of its functions and ideal form. Older concerns with maintaining a body form which reflected the self-discipline of the owner remained, however from the 1980s, they were joined by orientations within which the body was increasingly commodified, and strict regimes of bodily care linked to the production of a body which could itself have a high capital value. As Alex Callinicos puts it, the body became ‘less as an object of desire than - when disciplined by diet and exercise into a certain shape - as an index of youth, health, energy, mobility.’ This commodification generated a huge cosmetics and body care industry, but also gave rise to an interest in ‘natural’ or ‘pure’ food, via the popular belief that internal health is reflected in outward appearance: ‘you are what you eat’. The concern with ‘pure’ food also entered middle-class gourmet discourses, which valued the ‘authenticity’ of fresh ingredients free from the petrochemical taint of ‘civilisation’. In this context, the products of home vegetable gardens and fruit trees remained distinct from their commercial counterparts, often being regarded as the only type of food whose freshness and ‘purity’ were above suspicion.

Pakulski and Crook have pointed to the emergence of a broad cross-class concern with so-called ‘brown’ environmental issues of pollution and waste-disposal, particularly since the late 1980s. By 1990, a health-based concern with ‘pure’ food was apparent across all classes. In a survey of 276 customers at a western Sydney shopping centre in that year, 73% of all those surveyed, and 82% of women surveyed, thought that there may be risks associated with consuming vegetables treated with pesticides and herbicides. As issues of ‘purity’ became ‘routinised’, and combined with a cross-class concern for health, the middle-class ‘gourmet’ had to seek distinction elsewhere. Two trends became apparent in the literature in the 1980s and 90s. The first was an interest in ‘gourmet gardening’, featuring unusual and exotic edibles. Readers of *Gardening Australia* were introduced to the wonders of Argentinean garlic, ‘Black Gnome’ eggplants, Thai basil, jujubes, strawberry guavas and more. The second was a revived concern with quality. Gardening magazines featured species which were liable to lose most quality in commercial production, storage and distribution processes. Commercial tomatoes were described as ‘cricket balls bred to withstand the supermarket gauntlet’, and contrasted with the ‘real tomatoes’ one could produce for oneself at home. Several of the gardeners I interviewed in 1998-99 compared

122 ibid.
commercial produce with the home-grown article, the latter always coming out on top.\footnote{128}
Paolo Ricci summed up the feelings of many in three words: ‘it tastes better’.\footnote{129}
Environmental and health concerns were not abandoned, however, in the pursuit for
distinction in food. Instead, they were bundled up with gourmet concerns: ‘Conventional
farming systems can produce cheap beans, but by using poisons, drudgery and mined
resources - and they taste like it!’\footnote{130} The pursuit of food plant varieties which were unusual
and superior to supermarket offerings saw attention turning to seed saving clubs and small
seed companies such as Diggers, Eden and Phoenix, which offered unusual ‘heritage’, ‘old’
and non-hybrid varieties. The notion of ‘heritage’ plants was also attractive to the ‘new
traditionalist’ orientation discernable within the dominant middle-class habitus.

As well as producing an article considered superior to the supermarket variety, it
appears that those producing their own fruit, vegetables and eggs gained much satisfaction
from identifying with production, rather than consumption. As part of a study of
supermarkets and the changing culture of consumption in Australia, Kim Humphrey
interviewed several shoppers about their experience of shopping. One interviewee, Sue, was
clear that she wished to be ‘independent of the consumer circle’, ‘to stand outside it’.\footnote{131}
Furthermore, few of the other people interviewed by Humphrey were happy to think of
themselves as ‘consumers’: although they acknowledged that they were involved in
consumption on a daily basis, they generally felt consumption ‘to be inadequate as a means
of self-expression and as an intrinsically valuable terrain of human agency’.\footnote{132} A singular
distaste for involvement in mass consumption was similarly reflected in some of the oral
history interviews I conducted in 1998-99. Interviewees often framed their responses in
terms of independence, echoing the language of Bill Connor’s \textit{Toward Self-Sufficiency}
(above). One spoke of ‘not having to rely on stuff coming from the supermarkets’.\footnote{133}
Another maintained: ‘We just want to know what we’re eating, and not be dependent on
everybody else for what we eat’.\footnote{134} For Pat Keady, the garden was more convenient, and
more enjoyable, than the supermarket:

\begin{quote}
all you’ve got to do at tea-time is run down the garden and pick your vegetables, you
haven’t got to go to the supermarket and think in advance what you want for the week
... I don’t enjoy going around shops, but I really enjoy walking down the garden.\footnote{135}
\end{quote}

For Betty France, on the other hand, satisfaction was gained from looking at produce in
shops, and knowing that she didn’t have to buy it, as she already had it in her backyard: ‘I

\footnote{128}{For example, Klaus said: ‘Basically I guess when you buy tomatoes they never taste really nice, in a
shop. So I grew some tomatoes and from then I always grew things for myself when I have the
opportunity’: Klaus, interviewed by the author, 9 July 1999, tape in author’s possession.}
\footnote{129}{Paolo Ricci, interviewed by the author, 11 February 1999, tape in author’s possession.}
\footnote{131}{Humphery, \textit{Shelf Life}, p.201.}
\footnote{132}{Humphery, \textit{Shelf Life}, p.201.}
\footnote{133}{Sam MacAdam, interviewed by the author, 14 September 1999, tape in author’s possession.}
\footnote{134}{Alison Chapman and Ken Chapman, interviewed by the author, 12 July 1999, tape in author’s
possession.}
\footnote{135}{Pat Keady, interviewed by the author, 23 September 1998, tape in author’s possession.}
love going to the vegetable shop and going “I’ve got that, got that, got that, got that”!’

Although productive home gardens allowed some degree of independence from commercial interests by providing a greater choice of food, the alternative attempt at self-sufficient independence from ‘big business’, as defiantly proclaimed in the first edition of Grass Roots, was undermined by both the limited access to resources for self-sufficiency in urban areas, and commercial appropriation of alternative language and ideals which, ironically, stressed ecological interdependence. Although ‘nature’ had long been employed for advertising purposes, in the 1990s ‘environmental friendliness’ became a marketing tool used to promote ‘green’ corporate images and a wide variety of products, some with few or no environmental benefits whatsoever.

In a 1991 study of nursery industry opportunities, all but 6% of nursery shoppers were concerned about the environment, and 28% of those who had visited a nursery in the last year had changed their gardening behaviour as a result of environmentalism. However, rather than buying fewer items and consuming less, gardeners were switching to ‘organic’ alternatives. Around 1 in 4 households bought plants at least once a month, spending an average of $11-$20 each. Around 1 in 3 ‘active environmentalists’ bought plants at least once a month. Nursery managers appreciated that environmentalism was good for business - as one put it: ‘It’s good for us ... we should make it work to our advantage’. In the early years of the century some degree of food production which did not rely on outside suppliers could be achieved through recycling of locally-available material inputs. In the late twentieth century, however, even as gardeners remained committed to the production of an item of food regarded as distinct from, and superior to, its mass-produced equivalent, they increasingly relied on mass consumption systems in growing that food. The apparent ‘independence’ from consumer capitalism gained via home food production was, as will be argued in chapter 8, largely illusory, as suburban dwellers generally no longer had (or created) access to sufficient recyclable resources to be able to create closed systems in their local areas, and thus came to depend on a nursery industry conducted in a less than sustainable fashion.

Community gardening, which began in Australia in the 1970s, reflects independent and more interdependent orientations among participants, as well as orientations based on ethnic background. Insofar as community gardens are run by cooperatives of gardeners, and involve shared resources (including knowledge) and plots in close proximity (and therefore liable to contamination, or infestation, from neighbouring plots), they are based on some

136 Betty France, interviewed by the author, 14 July 1999, tape in author’s possession.
138 Horticultural Research and Development Corporation, National Consumer and Retailer Study of Nursery Industry Opportunities, the Corporation, Sydney, 1991, p.47.
139 ibid., pp.6-7.
140 ibid., p.34.
141 ibid., p.104.
shared understanding of the importance of interdependence, trust and cooperation. However, most of the community gardens in Melbourne are still individual plots, and may therefore also be seen as transplanted patches of backyard. They are spaces which are more open and thus often more suitable for vegetable production than backyards, and more visible, thus providing more opportunity to display one’s interest and skill, and perhaps even ‘perform’ one’s independence in public. It is therefore no surprise that community gardens have held greatest appeal for middle-class people. In 1985, Nunawading - home of Melbourne’s first community garden - was described as ‘a microcosm of “Middle Australia.”’ The main suburbs are ... middle class in flavour with variations on a theme of bush, chooks and clean air.’142

In Perth, on the other hand, most of the community gardens were established in the 1990s as communal gardens, planted and maintained cooperatively. The Miller Street Community Food Garden in Victoria Park, Florence Park/FINCA Community Garden, Onslow Road Community Garden in Shenton Park, Earthwise Permaculture in Subiaco, and the East Perth City Farm all run, or ‘ran, on a communal basis. This arrangement certainly signifies a more interdependent orientation, but the durability of the disposition towards self-contained independence could be one reason why such gardens have not attracted such consistently high levels of support as has the Nunawading garden: once established, at least the latter three have been maintained by very small groups of committed gardeners, with not a great deal of broader community involvement.143 The Florence Park garden was established as a low-maintenance garden and thus requires minimal ongoing community involvement, though produces only a small amount of food. The pattern of diverging levels of involvement in communal versus allotment gardens is perhaps most clearly observed at the Brunswick community garden and food forest, where in the late 1990s there was substantial demand for plots in the allotment-style community garden, and a reluctance to take responsibility for the unfenced, communally-managed orchard.144

Food production reflecting interdependent orientations was, of course, also found outside of community gardens. For example, two of my interviewees, both of working-class backgrounds, found great satisfaction in giving produce to local people, and receiving produce, or better relationships, in return. Paul Healey, in the eastern Perth suburb of Ashfield, recognised the value of home-grown produce in building up social capital, strengthening relationships in the local community:

Paul: ... corn, it keeps us going all over summer, and ok, I don’t eat corn myself, personally I don’t like the damn stuff, but a few people in the house eat corn,

142 Australian, 10 July 1985, quoted in Dianne Sydenham, Windows on Nunawading, Hargreen Publishing in conjunction with the City of Nunawading, North Melbourne, 1990, p.41.
143 At least, that is, in relation to the gardening side of things. The East Perth City Farm has seen more involvement in the wider range of cultural activities conducted on the site. My knowledge of the City Farm comes from my personal involvement in the project from 1993 to 1999. I also observed activities at Earthwise and Onslow Road Community Garden, and kept in contact with those maintaining the gardens from 1997 to 1999.
144 Stuart McQuire, interviewed by the author, 10 July 1999, tape in author’s possession.
and I get on quite well with the neighbours over the summer, because I’m forever rocking into houses in the area: ‘do you want some, because we’ve got too much’.

Andrea: So you give it away as well?

Paul: Yeah, right at the time when there’s too much of it, I quite often have hit the people next door and the first ones around the corner ... we got to know her, and I drop in on them as well - a dozen eggs, a couple of corn, some cucumbers, lettuce - just take them! Use them! Give them to other people if you don’t use them yourself!

Andrea: And do they give you anything in return? Or do you just...

Paul: No, I don’t ... I just go up and give, like that. I do get some things in return, I get the peaceful lifestyle, I get the opportunity to drop over their fence and just go and get the ball regardless, because I’ve got young kids, and I’m forever jumping fences to go and get balls. I make the kids go and knock on doors and everything and they’ve got the permission. So I’ve got a sense of well-being in my neighbourhood, which comes out of it, and that’s all that I ask for, I don’t ask for anything more, because it’s surplus to me, I’m only going to chuck it out, and I don’t like chucking stuff out if I can get away with it. 145

Similarly, as well as giving vegetables away to his next-door neighbour, ‘a single mum with four kids’, and the residents of the nearby pensioners’ flats, Jefferey Contessa of Reservoir, in northern Melbourne, exchanged produce with ‘an Italian gentleman’ who lived down the road, and was ‘always after fresh garlic’. 146 Exchange networks are not necessarily local, however: Peter Choo’s ties with his Singaporean friends are strengthened by their praise - and requests - for honey from his hives in the inner Perth suburb of Leederville. 147 Although these exchange networks do not actually create interdependence as such, they certainly point in that direction - towards the ‘compassion, sympathy, generosity, trust, gratitude’ that comprise Judith Brett’s ‘virtues of charity’, and away from the tendency of independence towards a narrow self-containment.

Just as other meanings of food production diverged in the late twentieth century, with some moving away from the old dependence/independence dichotomy and some reinforcing it, so too with gendered meanings. In the 1970s, the contemporary women’s movement was flourishing in Australia, with activists demanding equality and justice, and making headway in areas such as equal pay, child care, and women’s services. The notion of the dependent wife began to crumble as more and more women - and especially married women - entered the paid workforce. Simultaneously, and not coincidentally, women’s work in suburban vegetable gardening began to be acknowledged. The independent masculine breadwinner/gardener began to disappear from the pages of the gardening books and

146 Jefferey Contessa, interviewed by the author, 15 July 1999, tape in author’s possession.
147 Peter Choo, interviewed by the author, 23 January 1999, tape in author’s possession. Peter generally gave his (delicious!) honey away, though some was sold.
magazines, to be replaced by the non-gendered individual: 'The person who has an area of 40 feet by 20 feet of land can be almost self-supporting, provided he or she plans the sowings and plantings intelligently.' In 1975, after gardening for 11 years, Esther Deans won the Championship Ribbon for vegetables at the Ku-Ring-Gai Horticultural Society Show, which prompted her to open her garden to the public. Her 'no-dig' gardening technique attracted intense interest, and she gave talks for horticultural societies, Senior Citizens' Clubs and Ladies Auxiliaries, as well as appearing in gardening segments on radio and television, in magazines and newspapers. By 1977, when she published a popular book on the subject, her garden had attracted over 4500 visitors. This approach and its chief exponent - a petite, grey-haired woman prone to waxing lyrical about the wonders of nature - hastened the unravelling of the ties between masculinity and vegetable gardening by showing in a very public way that successful vegetable production did not require hard labour and physical strength. At the same time, popular gardening magazines began to abandon the previously strict distinction made between women's and men's bodies with respect to strength, increasingly showing women pushing mowers and wielding various types of garden machinery.

At the end of the twentieth century, many women were involved, and seen to be involved, in productive gardening - a positive trend that appeared to be resolving the contradiction between women's productive backyard work and a narrow femininity, discursively produced in gardening and other literature. In 1976, Leonore Davidoff, Jean L’Esperance and Howard Newby claimed that the move in England towards self-sufficient organic gardening in the 1970s was based on a long-standing vision of home and rural village which was implicated in the normalisation of gender exploitation - similar to Australian yeoman ideology - and thus amounted only to 'more work for mother' rather than increased independence for women. Whilst this was no doubt true in some instances, in Perth and Melbourne in the 1990s there was little in the way of any 'traditional' sexual division of the labour of suburban food production in the realm of representation, and a fairly equal involvement in practice. Some of my interviewees - mostly women -

150 ibid., p.14.
152 In a 1997 survey of time use in Australia, data compiled from a household questionnaire and a 48-hour diary showed that 16.5% of males participated in gardening for an average of 33 mins each. For females, the participation rate was 19.8%, and the average time spent gardening by participants was 25 minutes: Australian Bureau of Statistics, How Australians Use Their Time 1997, cat. no.4153.0, ABS, Canberra, 1998. Unfortunately, the data was not broken down to reveal the type of gardening. Although more women responded to my call for interviewees, this appears to reflect their willingness to share their experiences with a researcher, rather than their greater involvement in home food production: in discussions with the body of interviewees as a whole, no general pattern of gendered division of the labour of fruit and vegetable gardening emerged.
accounted for their food production in terms of a symbolic or actual independence. The very fact that the independent female became available as a public and private subject position points to the disengagement of gender from the dichotomous relationships, embodied in meanings of suburban food production, between independent/producer/male and dependent/consumer/female (even if the other elements remain relatively intact). Women can now be seen working with the vegetables, without threatening conventional gender identities - a development which has opened up possibilities for increased public involvement by women in suburban food production. In the context of the return to other traditional values associated with food production, as outlined above, the phenomenon suggested by Davidoff et al cannot be entirely discounted, although it appears to be rather marginal. At the end of the twentieth century, women genuinely have - and are finally acknowledged as having - staked out some of this previously masculine terrain of symbolic ‘independence’ for themselves.

Conclusion

Although a wide variety of meanings have been attached to food production, it is possible to trace some dominant meanings which have prevailed with a fair degree of consistency throughout the twentieth century. These meanings were produced, as I have shown, by the habituses of the middle class and part of the working class, within which one of the primary orientations was towards independence, and which included a cluster of other values and inclinations supportive of the independent orientation, such as thrift. The habituses also ordered gender along the lines of independence and dependence, reserving the former for men, the latter for women. The figure of the rural yeoman was, for many years, seen as a symbol of manly independence, although the traditional, rural orientation was progressively challenged by a technical rationality employed for purposes of reform, and later a ‘modern outlook’ aligned with increased consumption. The privileging of production over consumption was also challenged by the increasing prevalence of consumerist orientations in the postwar era. However, it appears that for many, production was never quite toppled from its privileged status.

Independence was traditionally opposed to dependence, although exchange of backyard produce could, on occasion, threaten to break down the dichotomy by reaffirming the advantages of interdependence. Near the end of the twentieth century, this trend became stronger, as a generation oriented towards postmaterial values looked on the threat of environmental deterioration - or indeed collapse - as an incentive for more interdependent attitudes towards people and nature. Nevertheless, at the end of the twentieth century, many still pursued some measure of independence. Thus in an interview conducted in 1998, Andrea Vis contemplated her reasons for growing her own food:

153 Sarah [pseud.], interviewed by the author, 5 November 1998; Andrea Vis, interviewed by the author, 9 November 1998; Alison and Ken Chapman, interviewed by the author, 12 July 1999; Laurel, interviewed by the author, 13 July 1999; Betty France, interviewed by the author, 14 July 1999; Sam MacAdam, interviewed by the author, 14 September 1999. All tapes in the author’s possession.
There’s something … looking down at your meal at night and going ‘yeah, wow, we
saw the salad, and the eggs have comes from here’, it’s a great feeling. I really like
that; it’s an independence that you can’t really explain. I think that adds a big part to
[the attraction of growing food] as well.¹⁵⁴

Suburban food production has been, and remains, a significant component of the suburban
ideological landscape, reflecting and reinforcing a range of meanings. The dispositions of
the habitus are durable, and older meanings have persisted among and between generations,
as new meanings have come into circulation. As food production has been shaped and re­
shaped by its material and ideological context, so has a part of the urban environment, with
impacts which radiate out beyond the sphere of food production itself.

¹⁵⁴ Andrea Vis, interviewed by the author, 9 November 1998, tape in the author’s possession.
Part IV - Ecology

Chapter 7

Of plants, pests and people:
The ecology of suburban food production 1880-1937

The low-density nature of most of suburban Perth and Melbourne from the end of the nineteenth century to the end of the twentieth presented the opportunity for significant levels of food production. This opportunity was taken up by countless suburban householders and farmers, with the prevalence, forms and practice of food production shaped at least in part, as we have seen, by economic and socio-cultural contexts. This part of the thesis sets out to assess the interactions of suburban food production with urban and wider environments throughout the twentieth century, considering changing techniques and technologies in some depth, and attempting to tease out some of the reasons why they were adopted or abandoned.

Ecologists have often turned their hand to the study of ecological phenomena within urban environments.1 Less attention has been devoted to the study of cities as ecosystems - communities of organisms interacting with each other and with the environments in which they live - because this would involve the introduction of a new order of complexity in accounting for the forces shaping human behaviour within the environment.2 However, more ecologists are now beginning to recognise that ‘most aspects of the structure and functioning of Earth’s ecosystems cannot be understood without accounting for the strong, often dominant, influence of humanity’.3 In order to achieve a more comprehensive understanding of the Earth’s ecology, it is increasingly considered necessary to integrate approaches from the humanities, economics and social sciences (which formulate explanations for the multitude of human decisions and activities producing ecological impacts), with ecological approaches (which trace and account for ecosystem patterns and processes, or interactions of organisms with each other and their environment). This is the basis of the new interdisciplinary urban ecology'. As an environmental history, this thesis addresses itself to urban ecology not from the ecological sciences, but from the humanities. It therefore does not make use of specialised ecological techniques, but employs a broadly ecological approach to questions of flows of energy and information and cycling of matter.

which are addressed within an historical narrative.

Ecological impacts of suburban food production varied historically according to the techniques and technologies employed, as well as the prevalence of food production activities, (as discussed in chapter 2). In general, these impacts are not able to be quantified with a great degree of precision, though it is possible to broadly trace the changing place of local food production within the ‘extended urban metabolism’, an urban ecological model in which resource inputs are employed in various ways by the dynamics of settlement, maintaining the conditions for urban life but also producing wastes (see Fig. 7.1).

It is often argued (using a conventional ‘urban metabolism’ model which omits ‘livability’ considerations) that cities traditionally had a more or less circular metabolism, with minimal resource inputs and waste outputs, and much recycling of wastes back into inputs. The metabolism of industrialised cities is seen as being much more linear, with resources quickly funnelled through the city to join a large waste stream. It has been suggested that increasing levels of urban food production can help to produce more sustainable cities, by disrupting linear urban processes which quickly transform large quantities of resources into prodigious amounts of pollution. This part of the thesis will show that urban (including

suburban) food production indeed has the capacity for contributing to a more sustainable urban metabolism. Through its capacity to contribute to household capital of various kinds, and potentially foster physical and mental well-being, it also has the potential to assist in the production of a more livable sustainable city, in terms of the extended metabolism model. However, urban food production has also contributed to pollution of various kinds, and the quality of food produced has sometimes suffered as a result of pollution within the urban environment. The way in which food production is carried out is therefore highly significant when assessing its contribution to the sustainability, and livability, of urban areas. Both commercial and home food production will be considered in this part of the thesis. However, as developments in commercial horticulture have been reasonably well documented, home food production will be given the most detailed attention here. For reasons of space, this part focuses on the production of fruit and vegetables as the most prevalent forms of home food production, with developments in the location and management of livestock and poultry discussed only insofar as they substantially contribute to the broader picture of urban ecology.

Introduction

In this chapter it will be argued that in the 1880s and into the 1890s, food production was generally well-integrated into suburban ecologies. Although it could sometimes cause pollution, or be affected by suburban pollution from other sources, urban agriculture was often a means by which nutrients were locally recycled, and thus made a contribution to what we now think of as urban sustainability. As the nineteenth century drew to a close, artificial fertilisers and pesticides began to take on a higher profile. Although substances such as tobacco and kerosene had been used as pesticides in the nineteenth century, many means of controlling pests for much of the nineteenth century relied upon knowledge of pest life-cycles, and disruption of these by cultural means such as timing of crops or stirring of the soil. The aim was not to eradicate all invertebrate life, but to keep crop damage to tolerable levels. For food producers, nature both provided and penalised, and there was nothing to do but to take the good with the bad. Early in the twentieth century, however, cultural controls and rudimentary pesticides began to be replaced by new sprays, such as Paris green and lead arsenate, which were known to be toxic to people and wildlife, and which persisted in the environment. Commercial growers appreciated the economy, ease and effectiveness of the new sprays. They were also taken up by some home gardeners, though others were not so quick to abandon the old methods. Indeed, throughout the

twentieth century, many home gardeners continued to take what precautions they could against pests without resorting to poisons, and accepted some losses. Many also continued to participate in recycling of nutrients, using waste organic material from a variety of sources.

In the interwar years, the adoption of new artificial pesticides and fertilisers was driven by the predominantly middle-class belief that the condition of humanity would progress through the application of technical rationality in all spheres of life. With the backing of science and couched alternately in metaphors of cleanliness and war, the new products held out to gardeners the promise of independence from ‘nature’: with a sprinkle and a spray, humans and their food crops could stand above and outside of natural nutrient cycles, avoiding a base association with faeces and death, and laughing at the pestilence which had previously reminded humans of their lack of omnipotence. This desire for independence reflected a broader orientation among the middle and ‘respectable’ working classes, as discussed in Part III. Furthermore, in addition to the factors discussed in Part III, the middle-class ambivalence towards - and sometimes outright rejection of - productive animals in suburbia may also have arisen in part from the fact that such animals symbolised human enmeshedness in nature, rather than our independence from it (I have discussed this idea elsewhere, and for reasons of space shall not revisit it here.7) But human independence from nature was, of course, an illusion. We live in the environment, and the pollution caused by disruption of nutrient cycling and introduction of persistent poisons was the price paid for our hubris. In spite of the way in which they were promoted, the new insecticides were also ineffective against some pests. The failure to find a chemical or biological control for the introduced Mediterranean fruit fly, for example, threw Perth gardeners back on to cultural controls. However, the effort required in these controls combined with an inability to police them in a suburban context, where some householders were unable or insufficiently motivated to carry out the controls, led to the long-term establishment of the fly in the Perth area.

1880-1918

When Europeans settled the areas that were to become Perth and Melbourne, they brought their agriculture with them. Although food production techniques were soon adapted to Australian conditions, they would remain recognisably European throughout the nineteenth and twentieth centuries. The newcomers quickly established market gardens, often as a part of small mixed farms also incorporating livestock, orchards and sometimes cereal crops. They were usually located on low-lying land at the edge of wetlands or rivers, where the soil was rich and there was easy access to water for irrigation. Thus in the 1830s, there were market gardens in Perth along the foreshore at the foot of Mt Eliza, as well as on swampy

land to the north of the town.  

Vineyards were established in the Upper Swan region, and orchards in the hills east of Perth, from Kalamunda to Armadale. In Melbourne, market gardens sprang up around Merri Creek and the Yarra, although from the 1840s, English, Scots and Irish families also established gardens in the ‘sandbelt’ localities of Brighton, Moorabbin, Bentleigh and Cheltenham. Orchards were established to the east and southeast of the city, in a swathe running from Heidelberg, through Doncaster, Box Hill and Oakleigh, to Moorabbin.

The rapid population increase which followed hot on the heels of the discovery of gold in both Victoria and Western Australia created a strong demand for vegetables and other foods in the metropolitan centres. From the 1880s, several suburban market gardens were established in both Perth and Melbourne by Chinese men, who were themselves often fresh from the goldfields. The Chinese were soon playing an important part in metropolitan vegetable production, comprising 44% of market gardeners in Victoria in 1905. By 1910 they dominated market gardening in Perth. The high prices often received for fresh foods encouraged the development of market gardens, particularly after the completion of railway links enabled produce to be sent to the goldfields, where prices were even higher.

In Western Australia, for example, a railway link to Southern Cross was completed in 1894 and extended to Coolgardie and Kalgoorlie in 1896. Soon after, almost every wetland close to Perth had been stripped of at least part of its vegetation, often also drained, and was being cultivated to fill local and goldfields demand. In the 1900s, as more land was cleared and gardens established, local hydrological processes were disturbed to the extent that winter flooding became a serious problem for market gardeners.

By contrast, most homeowners were happy to live as far away from ‘swamps’ as possible, as it was felt that the healthiest sites for homes were on high ground (as we shall see, this was not surprising, given the state of many suburban wetlands). Their water came mainly from rooftop tanks and piped supplies. In 1891, 99,634 houses in Melbourne and suburbs were connected to the water supply, and consuming an average of 259 gallons per

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9 N.T. Jarvis (ed.), *Western Australia: An Atlas of Human Endeavour*, Education and Lands Surveys Departments of Western Australia, Perth, 1979, p.78


13 Monk, 'The Diggers in the Trenches', p.4.


16 ibid.

household per year - exceptionally high by international standards.\textsuperscript{18} The high levels of water consumption in Melbourne were explained by the relatively high temperatures, propensity of Melburnians for bathing, and the prevalence of gardens.\textsuperscript{19} Water on tap was also cheap and convenient, which encouraged high levels of use.\textsuperscript{20}

Perth, on the other hand, suffered from the inability of service providers to meet demand. The town was reticulated in 1891 but the system suffered from a lack of water, particularly as much of the available supply was depleted before it reached the Mt Eliza reservoir, being squandered by the rich residents of St George's and Adelaide Terrace.\textsuperscript{21} In the summer of 1896-97, water only flowed to the residents of the inner northern suburb of Highgate twice in three weeks, and then only for one or two hours.\textsuperscript{22} Rainwater tanks were not uncommon, though their ability to provide water for garden purposes was often limited by their size. For those households forced to rely primarily on water carts and wells, from which buckets of water were carried back to the residence, the possibility of summer gardening would have been severely restricted. Throughout Perth, those who wanted water for gardens were required to pay for the installation of a meter and charged for excess water usage, so even where water was available, summer gardening would have been largely restricted to the well-off.\textsuperscript{23}

For those Perth residents with access to sufficient water for gardening in summer, water conservation would have been a high priority in the warmer months, when the paucity of rain combines with free-draining sandy soils to produce pervasively dry conditions. Gardening publications only began to be produced in Perth, for Perth conditions, in the mid-1920s. These guides highlight the significance of the lack of warm-season rain. The 1924 \textit{The Western Australian Gardening Guide} referred several times to the problem of long, ‘practically rainless’ summers, and various means of water conservation were recommended, including tramping the soil after digging, applying a top-dressing of clay, and selecting suitable crop varieties.\textsuperscript{24} It was also suggested that the backyard gardener, who ‘is desirous of producing a limited crop for his home use only, and has not the time at his disposal to raise Summer vegetables’, would be better off raising vegetables only during the period of winter rains.\textsuperscript{25} Another Perth author, James Conarty, suggested that the summer garden would be likely to be only about half the size of the winter garden.\textsuperscript{26} For watering the summer garden, where one could be established, it is probable that many Perth householders

\textsuperscript{20} Dingle and Rasmussen, \textit{Vital Connections}, p.33.
\textsuperscript{22} ibid., p.12.
\textsuperscript{23} ibid., p.7.
\textsuperscript{24} \textit{The Western Australian Gardening Guide: Methods Simplified and Condensed}, Wilson & Johns, Perth, 1924, pp.5-6, 12.
\textsuperscript{25} ibid., pp.115-6.
\textsuperscript{26} James Conarty, \textit{Australian Intense Vegetable Culture}, Albert & Sons, Perth, c.1925, p.8.
would have found it necessary to provide for 'saving every drop of 'waste water' from the house, bath water, washing water, &c'.

W.S. Campbell claimed that 'if this saving be carried out daily there may be enough water for the plants in even a good-sized garden, if, at the same time, a surface mulch be used to prevent evaporation'. The practice of conserving soil moisture by constant cultivation to produce a 'dust mulch' was endorsed in the literature from the mid-1910s, through to at least the 1950s.

The Yates Gardening Guide, however, maintained that it was preferable to employ a surface mulch of short stable or animal manure, grass clippings, or any other material sufficiently open to let water through, yet keep the ground moist and cool. Questions of water and the difficulties of gardening in such a hot, dry climate have probably contributed to the relative popularity of backyard poultry (which have low water requirements) and lesser interest in home vegetable gardening in Perth, compared with rainy Melbourne.

Before the First World War, commercial food producers relied on a variety of locally-available resources in producing and marketing their food. Most energy used on market gardens, orchards and dairies came from (relatively) non-polluting local sources - people and horses. For example, the Chinese carried out much cultivation by hand, using hoes, spades and wooden ploughs. Their gardens were also often watered by hand, using two large watering cans attached to a shoulder yoke. Bill Gooey, late of North Perth, recalled helping to weed his father's market garden along with his brothers and sisters. Deliveries of milk from suburban dairies were often made on foot or by bicycle, with a milk can attached to each handlebar. Some of the larger enterprises also employed a horse and cart. David Muir, who grew up in Osborne Park in the early years of the century, recalled that Chinese gardeners in the Osborne Park region bundled their vegetables with a type of flax, which was grown especially for the purpose.

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27 W.S. Campbell, Australian Home Gardening: Flower and Vegetable, Dymock's, Sydney, 1907, p.4
28 ibid.
29 See for example H.B. Downer, 'The Cultivation of Vegetables', Home and Garden Beautiful, October 1913, p.188; 'Hoeing', Home and Garden Beautiful, August 1915, p.75; Anon, 'Vegetable Garden', Home and Garden Beautiful, December 1915, p.226; Examples from the 1940s and 50s may be found in 'Round the Vegetable Garden', Home Gardener, February 1948, p.13; and 'Pyrus Malus', 'Fruit Trees in the Garden', Home Gardener, October 1951, p.6.
31 Evidence for this divergence is presented in chapter 2.
32 Atkinson, 'Chinese Market Gardening', p.27.
34 Excerpts from an interview with Bill Gooey in Patrick Cornish, Western Australia in the Twentieth Century, Fremantle Arts Centre Press and West Australian Newspapers, Fremantle and Osborne Park, 1999, p.31.
35 Catherine May, Changes They've Seen: The City and People of Bayswater 1827-1997, City of Bayswater, Perth, 1997, p.95.
36 ibid., p.93.
Chinese gardeners in the suburbs around Perth fertilised their gardens with horse manure from livery stables in the city, which was brought back to the gardens in carts on the way home from market. Market gardeners in and around Melbourne likewise availed themselves of the city’s ample horse manure supplies: in 1891, the 2632 horses in the City of Melbourne alone would have produced 13,160 tons of manure. Fortunately for the proprietors of urban stables, vegetable gardens could use quite spectacular amounts of manure. One of Anne Atkinson’s informants claimed that 200 tons of stable manure was ploughed into a six-acre Chinese market garden in Bayswater during the non-growing season. John Sullivan, who grew up in East Perth, recalls how around 1912-14 his father, who kept horses, was ‘inundated with market gardeners, people running gardens: the demand on the horse manure was really terrific.

Cow manure was also available for use on gardens. Many dairies were located, like market gardens, on the fringes of wetlands, and it was apparently common for them to run their own gardens where they grew vegetables and/or fodder for the cattle. This was a convenient, and profitable, way of disposing of the plentiful manure. It was also a practice looked upon favourably by the ever-vigilant health inspectors:

I found the cow sheds and surrounding land scrupulously clean. ... There are about 8 acres of garden attached to the premises all in a high state of cultivation and all manure produced is at once removed to the garden.

Some dairies even had drainage systems which conveyed liquid waste from the cowsheds to the gardens. For example, at Rachel Barron’s dairy in Stirling Street, Perth, an inspector reported:

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40 For a description of Moorabbin market gardeners collecting manure in Melbourne see Cribbin, Moorabbin, p.43. The number of horses in Melbourne is derived from Census of Victoria 1891, Part VII, Land and Live Stock, VPP, 1892-3, vol.3, no.34. The figure of 5 tons of manure produced per horse per annum is derived from Percy G. Wicken, ‘Notes on Manures’, Journal of the Department of Agriculture of Western Australia, May 1900, p.13. Wicken also gave figures for the annual manure ‘output’ of other domestic animals: ox - 9 tons 2 cwt; sheep 0.5 ton; pig 25 cwt.

41 Atkinson, ‘Chinese Market Gardening’, p.29. At 33 tons per acre, this would have constituted a very heavy dressing, probably related to the sandy and generally infertile nature of the soil: the recommended ‘town dung’ dressing in Britain in 1904 was 12.5 tons per acre: ‘Fertilisers for Market Garden Crops’, Journal of Agriculture of Western Australia, vol.10, 1904, pp.202-203.


43 SROWA, AN 120/4, Medical Department, Acc 1003, Unregistered files & Miscellaneous papers 1897-1910, Box 26, Leederville, Report of Inspector Stevens 13 June 1901. Other examples of dairies using manure from their cows on adjoining gardens may be found in the same archival collection, Acc 1003, in the following documents: Box 28, Perth - Dairies - Inspections, Dairy Inspection Report, December 1899 (Mrs Barron’s dairy, Stirling St, Perth) and Dairy Inspection Report May 1900 (Mrs Barron’s again, plus Charles Dhu’s dairy at 100 Harrold Street Highgate Hill); Box 27, North Perth - Dairies, Diary Inspection Report, June 1900, (Jesse Ashby’s dairy in Kadina St, North Perth.)
The floor is planked and blocked, the drains are of wood and conduct the drainage to a distance of about one and a half chains to a garden, where it is utilised. The manure is said to be removed daily to the same garden and then dug in. The shed and surroundings were exceptionally clean.44

Dairies without gardens often gave their manure away to gardeners.45 Some were in the fortunate position of being able to sell it.46 The nutrient cycle was almost completed in some cases when dairy farmers fed their cows on leftover or waste greens from market gardens fertilised with the cows’ manure.47 It is probable, however, that in turning their cows out into bushland to graze and herding them to the edges of lakes to drink, some dairies also contributed to the degradation of urban bush and wetlands.48

In addition to horse and cow manure, market gardeners and orchardists also utilised some of the large quantities of manure produced by that other prevalent urban species - humans. Some human waste was disposed of via centralised sewerage systems. The first houses were connected to Melbourne’s sewerage system in 1897. By the end of 1910, 109,228 houses were connected to the sewer, with the system being practically completed in Port Melbourne, South Melbourne, Melbourne, Richmond, Prahran and Collingwood.49 In Perth, the sewerage system only commenced operation in 1912, and by the 1920s, two-thirds of all houses remained unsewered.50 In unsewered areas in both cities, ‘nightsoil’ was collected from most areas by a contractor, who would take it to the Council depot or, on occasions, deliver it to urban farmers. In the 1880s and 90s, the Health Acts in both Victoria and Western Australia gave a nod and a wink to the practice of using nightsoil on gardens and orchards, as long as it was treated in accordance with regulations.51 Thus in May 1899, the North Perth Progress Association wrote to the Central Board of Health...

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44 SROWA, AN 120/4, Medical Department, Acc 1003, Unregistered files & Miscellaneous papers 1897-1901, Box 28, Perth - Dairies - Inspections, Dairy Inspection Report, 2 July 1901.
45 ibid., Diary Inspection Report January 1901 (Alexander Barry’s dairy in Raglan Rd, Highgate Hill). Other examples of cow manure from dairies being given away to gardeners may be found in ibid., Dairy Inspection Report December 1899 (Mrs Johanna Kenny’s Dairy Stirling St Perth); Diary Inspection Report January 1901 (Dennis Keane’s dairy in Cheriton St., East Perth).
46 Report on David Murray’s Dairy, Murray Street, 1899, cited in May, Changes They’ve Seen, p.93.
47 ibid., Diary Inspection Report December 1899 (Mrs Johanna Kenny’s Dairy Stirling St Perth); Diary Inspection Report January 1901 (Dennis Keane’s dairy in Cheriton St., East Perth).
48 Of the 76 dairies supplying Perth and Fremantle with milk in 1901, all but one turned their herds out to graze on bush land on a regular basis; 25 watered their cattle at ‘bush swamps’, lakes, creeks or rivers: Report of the Select Committee of the Legislative Assembly Appointed to Inquire into the Best Means of Improving the Food Supply, WAPP, 1901-02, vol.4, no.A9, evidence of Dr. E. Black, President of the Central Board of Health, p.48 and Appendix A.
49 Victorian Year Book, 1910-11, p.212. At that time, considerable parts of Fitzroy, St Kilda, Brighton, Caulfield, Malvern, Camberwell, Kew, Hawthorn, Brunswick, Northcote, Essendon, Footscray and Williamstown were also connected to the sewer.
50 Hunt and Bolton, ‘Cleansing the Dunghill’, p.15.
51 In Victoria, disposal of nightsoil on land or gardens was regulated by the Public Health Act 1888 (Vic) s.15, the Public Health Act 1889 (Vic) s.2, and the Health Act 1890 (Vic) s.255, the latter of which called for the material to be ‘thoroughly deodorized and disinfected to the satisfaction of the health officer of the council within which such land or garden is situated.’ In Western Australia, nothing in the Public Health Act 1888 (WA) prohibited the use of nightsoil as manure (although it empowered Local Boards of Health to make such prohibition). Similarly, the Health Act 1898 (WA) s.175 stipulated that all nightsoil to be used as manure was first to be ‘thoroughly deodorised and disinfected’, and the permission of the Local Board obtained.
requesting permission for their sanitary contractor to trench nightsoil in an orchard and vineyard situated around four miles from the City of Perth, on Wanneroo Road. After conducting an inspection of the premises, Inspector Lockwood considered the arrangement appropriate, provided that trenching operations were completed in the early morning, and at a reasonable distance from the road. In the early twentieth century, Chinese market gardeners in Belmont were using nightsoil on their gardens and in 1908, the Fremantle Council was still selling nightsoil to gardeners along Jandakot Road.

In the eastern Melbourne suburb of Malvern, however, the use of nightsoil was regarded less favourably, with the health inspector being sent in 1896 to report on the alleged burial of nightsoil in the garden of a man living on Dandenong Road. Similarly, in 1895, the Oakleigh Council received a letter from neighbouring Caulfield Council, which was displeased that just over the border, nightsoil was ‘being used in large quantities on gardens’. Council minutes record that

Oakleigh Council said they had policemen out at all hours looking for offenders and they had to carry firearms for protection. The mayor said Caulfield should look at their own place first.

The following year, however, one Mr Stanley spoke at an Oakleigh Council meeting in favour of the use of nightsoil, saying that the soil was poor and the market gardeners were in need of a cheap fertilizer, adding that the needs of the gardeners should be given preference over those of the residents, as the former were employers. In 1898, the Council finally agreed to allow use of nightsoil produced within the municipality. In the same year, the Melbourne City Council was able to sell its locally-produced nightsoil for a grand total of £2298 - almost as much as the £3140 obtained through sale of fertilizer (blood and bone) produced at the City’s abattoirs. However, as public health took on a higher profile in the context of the increasing popularity of environmentalist ideology, and greater understanding was achieved as to the means by which disease was spread, the practice of using nightsoil as manure was discouraged.

Of course, the sewered areas of Melbourne were also contributing to food production, via the Metropolitan Farm at Werribee. Located as it is on a very enclosed bay, Melbourne had no appropriate ocean outfall site for sewage, which was instead disposed of at the

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52 SROWA, AN 120/4, Medical Department, Acc 1003, Unregistered files & Miscellaneous papers 1897-1901, Box 27, North Perth - Dairies.
53 Maxine Laurie, Ever Flowing Forward: The Story of Belmont, City of Belmont, Cloverdale, 1999, p.130; Atkinson, ‘Chinese Market Gardening’, p.29. It appears that the practice of selling nightsoil along Jandakot Road was, however, discontinued that year.
54 PROV, VA 1570, Malvern, VPRS 1715, Public Health Committee Minute Books, Item 1 4/3/1890 - 14/3/1900, Minutes of Meeting 16 April 1896.
55 May Keely, One Hundred Good Years: A Story of Oakleigh Council, Oakleigh & District Historical Publication Series, Oakleigh, c.1991, p.29.
56 ibid.
57 ibid., p.33.
58 ibid., p.37.
59 City of Melbourne: Revenue and Expenditure’, Statistical Register of Victoria 1898, Appendix to Part IV - Municipal Finances, p.10. The City of Melbourne also made £248 from ‘Cleansing streets - sale of manure’. 
Metropolitan Farm. In 1910, 3274 acres of lucerne and prairie grass at the Farm were irrigated by about 26 607 927 gallons of sewage every 24 hours. In the 1909/10 financial year, 32 128 sheep had been grazed on the irrigated pasture and sold for a tidy profit of £8446. Cattle were also being raised on the farm, and cattle and horses grazed for agistment.60 This utilitarian approach to waste disposal was generally admired by the many Melburnians who valued prudence and thrift: in 1938, when Werribee beef was temporarily removed from sale amid fears of parasite contamination, the Housewives' Association described the ban as 'one of the most disastrous national wastes ever perpetuated'.61

Other materials used by growers as fertiliser included fish and waste meat: in 1885 the *West Australian* reported that Chinese gardeners were buying small river fish for £2 per ton.62 In Bayswater in 1909, enterprising Chinese gardeners arranged to take slaughterhouse waste for use as a fertiliser, although the manner in which the waste was stored - an open vat - irked the local health inspector.63 'Bonedust' and 'blood manure' - later sold as 'blood and bone' - were other meat industry by-products commonly sold and used as garden fertilisers in the late nineteenth century.

Artificial fertilisers were by no means unknown in the late nineteenth century: Cuming Smith and Co. had been producing ammonium nitrate and phosphatic fertilisers in Melbourne since the early 1870s.64 In spite of this, most market gardeners appear to have relied on locally-produced natural manures of various kinds. In doing so, they were often putting potential pollutants to good use, and thus improving the urban environment. However, the sheer amount of waste generated, and the fact that waste disposal systems in both Perth and Melbourne were poorly developed around the turn of the century meant that as well as being a potential source of nutrients, urban wastes and the pollution they caused could also pose a hazard to safe food production. Some disease was doubtless transmitted through contamination of food arising from recycling of wastes as fertiliser or
This problem was exacerbated by the unhappy coincidence of urban wetlands being both the preferred site of food production, and a favourite dumping-ground for urban wastes. Council depots, which received the bulk of a district’s nightsoil and other waste, were usually located alongside wetlands. As D.A. Greswell’s ‘Report on the sanitary condition and sanitary administration of Melbourne and suburbs’ noted, in many cases household refuse consisting in chief part of animal and vegetable matters have hitherto been, and are, in the majority of cases, still being, disposed of at the nearest available spots of low-lying land. Owing to the cost of cartage, there is a strong temptation to dispose of refuse-matters as near as possible to the place where they are collected.

Urban rubbish of all kinds - including human excreta - was therefore often deposited alongside food-producing enterprises (or their water supplies). An excellent example of the very unhealthy situation thereby created comes from Smith’s Lake (now Veryard Reserve), in North Perth. In August 1899, Inspector Lockwood of the Central Board of Health made an inspection of the lake. He reported that:

Three quarters of the ground around the margin is used for the cultivation of vegetables, principally reared by Chinamen, and immense quantities of manure are used.

It is the receptacle of the natural drainage from the Perth Sanitary depot, and large deposits of refuse. There are three piggeries [with a total of around 300 pigs] on its banks, draining immediately in to it. ... In the summer time the water is said to be covered with a green scum, and the odour from it is augmented.

Fourteen chains by measurement of the fence skirting the Wanneroo road has been demolished, and this allows the herds of Dairy cattle to approach the lake ... There is another gap of 25 feet in Coombs & Sons fence on the western or Leederville side, and which has been repeatedly repaired, and as often destroyed. Whilst the inspection was

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65 Various bacterial diseases and parasites can be transmitted from animals to humans or humans to humans via reuse of human and animal wastes, in conjunction with inadequate washing and/or cooking of food. In addition to the case of Smith’s Lake, detailed below, where the likelihood of transmission of parasites or disease through contaminated milk or vegetables would have been high (even if no records directly linking illness to the condition of the lake have been found), an inquiry into a typhoid outbreak at Leichhardt in 1886 traced the outbreak to a dairy farm whose creek and well were contaminated with sewage. A typhoid outbreak at Randwick and Waverley four years later was similarly traced to contaminated water at a dairy: Robin Walker and Dave Roberts, From Scarcity to Surfeit: A History of Food and Nutrition in New South Wales, New South Wales University Press, Kensington, 1988, p.47. A similar case of milk contamination occurred in Malvern in 1890, when nightsoil was deposited on land where cows were depastured: PROV, VA 1507, City of Malvern, VPRS 1715, Public Health Committee Minute Books, Item 2 28/3/1900 - 10/12/1913, minutes of meeting 2 September 1890. In the USA, Martin Melosi has noted that in New England in the mid-1890s, the incidence of trichinosis in pigs fed on garbage increased from 3% to 17% over a three year period: Martin Melosi, Garbage in the Cities: Refuse, Reform and the Environment, 1880-1980, Texas A&M University Press, College Station, 1981, p.40. Trichinosis was not believed to be present in Australia at the time, but similar problems (with hyatids, for example) may well have arisen in Perth and Melbourne.

being made a herd of dairy cows was driven down to the edge of the water to drink ...
In traversing the ground another herd was encountered coming through the gap in
Coombs & Sons fence, to the number of 16 ... the person in charge said it was usual
for them to drink from the lake ... There is a considerable amount of refuse deposited
around the lake, and a large quantity of worn out sanitary pans in one place ... In
conclusion I would remind you that only recently W. Coombs and the contractor were
both fined at the Perth Police Court for burying nightsoil close to the edge of the
lake.67

In September 1899, the Government Analyst examined some water from Smith’s Lake, and
found, unsurprisingly, that it was ‘very seriously polluted’ He concluded:
The albuminoid Ammonia, Oxygen absorbed, and the examination of the sediment,
point to extensive contamination of a very serious kind. The water is of course quite
unfit for human consumption. ... I would strongly recommend a bacteriological
examination.68

However, pollution of the lake continued. In June 1900, it was discovered that 40 sides of
bacon had been buried at the edge of the lake. Part of a shipment which arrived from
Sydney in bad condition, it was sold cheaply to small dealers, who on account of its
condition were unable to sell it to the public, and instead dumped it.69 More than a year
after the original Smith’s Lake pollution report was written, cows were still being allowed to
drink from the lake, vegetables were watered from it (and probably washed in it), and no
bacteriological report had been published.

In addition to the Smith’s Lake case, there are plentiful records of manure from dairies
and piggeries draining into wetlands or rivers. For example, around 1900 Stubbs’ piggery was
situated on a rather steep hill bordering Lake Monger, in the northern Perth suburb of
Leederville. The health inspector found that there was ‘no sign of direct drainage to
Monger’s lake, but in the wet season, offensive liquid would no doubt drain direct to it.’70 In
Melbourne’s northern suburbs, Chinese market gardeners kept pigs on the Merri Creek flats,
and dead cattle from the Brunswick pound were thrown over the river embankment and
covered up.71 Greswell’s investigation into the sanitary condition of Melbourne revealed
that much manure from cowsheds and stables, as well as market waste, ended up at the
council depot, where it became a potential aquatic pollutant rather than being recycled for
further food production.72 Depending on the soil type and groundwater depth,
accumulations of manure could also affect the quality of well water. Greswell unearthed

67 SROWA, AN 120/4, Medical Department, Acc 1003, Unregistered files & Miscellaneous papers 1897-
1901, Box 27, North Perth - Dairies, ‘Report on Smith’s Lake Adjoining Perth City Council’s Sanitary
Depot off the Wanneroo Road’ by Inspector Francis D. Lockwood, 23 August 1899.
69 ibid., Report to Central Board of Health, June 1900.
70 SROWA, AN 120/4, Medical Department, Acc 1003, Unregistered files & Miscellaneous papers 1897-
1901, Box 26, Leederville, Report on Piggeries, November 1900, p.5.
71 Andrew Lemon, The Northcote Side of the River, Hargreen Publishing for the City of Northcote, North
frequent cases of manure and liquid waste from backyard cowsheds accumulating in heaps, and being ‘allowed to freely soak into the soil.’\textsuperscript{73} In Perth, where manure from dairies was not used on gardens it was often dumped on vacant or private land, where it stank and posed a potential threat to groundwater. For example, in 1902, one Mr Cooke wrote - not for the first time - to the Subiaco City Council, about

the amount of filth allowed to accumulate in a Dairy situate [sic] in William St Subiaco. The droppings of a mob of cows have been lying there and no attempt made to cart same away, with the exception of about half a dozen carts loads which have been dumped on private ground alongside the Dairy the stench from same being anything but pleasant.\textsuperscript{74}

The case of Smith’s Lake amply demonstrates that around the turn of the century, the safety of suburban food production could be jeopardised by urban wastes. The many examples of pollution of waterways and potential pollution of groundwater with manure also show that food production itself could be a source of pollution. In terms of urban ecology, the interaction between food production and its suburban surroundings clearly was (and remains) both positive and negative.

It is surprising that any manure was allowed to lie around, as home gardeners appear to have sought it as vigorously as commercial growers. Presumably the difficulties of transporting a pile of steaming manure from the block next to the dairy to one’s backyard were, in some cases, insurmountable. The \textit{Yates Gardening Guide} declared in 1895 that ‘It is no use trying to grow fine vegetables without using plenty of manure’, although it was also conceded that where animal manure was not available, artificial fertilisers, in combination with ‘rotten weeds, animal refuse, &c.’, formed a very good substitute.\textsuperscript{75} This was to remain a popular recommendation throughout the twentieth century. A few authors endorsed the use of artificial manures alone, particularly for root crops, and as early as 1917, ‘L. McW’ of Camberwell requested that the \textit{Home Gardener} provide ‘information of various chemical manure suitable for vegetables in lieu of stable manure, which is increasingly hard to obtain in these days of motors’.\textsuperscript{76} Artificial fertilisers including Mount Lyell horticultural manure, nitrate of soda, sulphate of ammonia and superphosphate of

\textsuperscript{73} ibid., p.8.
\textsuperscript{74} SROWA, AN 120/4, Medical Department, Acc 1003, no.308, 1902, Subiaco - nuisances, Letter from Mr Cooke to Central Board of Health. Several other examples of dumped manure creating pollution may be found in the dairy and piggery inspection reports in SROWA, AN 120/4, Medical Department, Acc 1003, Unregistered files & Miscellaneous papers 1897-1901, Box 26, Leederville; Box 27, North Perth - Dairies; and Box 28, Perth - Dairies - Inspections.
\textsuperscript{76} Regarding use of artificial fertilisers on root crops, see for example ‘About Root Vegetables’, \textit{Home and Garden Beautiful}, September 1915, p.113; The request from ‘L. McW’ of Camberwell appears in ‘Answers to Correspondents’, \textit{Home Gardener}, 15 February 1917, p.38.
lime were available from stores such as Brunnings in Melbourne.77 Another alternative to animal manure was ‘green manure’ - the growing of particular crops (especially legumes, which fix atmospheric nitrogen in the soil), to be dug back into the soil. Though appearing in the literature from time to time,78 the paucity of references to it suggests that it was not a very widespread practice. Some authors also claimed that digging itself had manurial value: ‘well cultivating the soil is equal to a load of manure.’79

However, it appears that the various animal manures were still generally regarded as best for vegetable production, and it was frequently suggested that ‘In all vegetable growing there is nothing to supersede farm-yard manure’.80 Various manures were recommended for different purposes. For example, the Garden Gazette in 1902 maintained that hens’ or pigeons’ droppings soaked in water made an indispensable liquid manure, and the Home and Garden Beautiful in 1915 argued that for growing lettuce, ‘No manure is better than that from the cowshed, the drainings from which make a capital stimulant for the crop when the plants are about half grown.’81 The most widely available, however, was horse manure, which could often be obtained from private and commercial urban stables. Harry Simpson remembered that as a teenager in Surrey Hills, he ‘would go to the butcher a couple of times a week to bring home a barrow load of manure. Lovely rich hot steamy stuff, full of straw’.82 Human manure was also recommended for use, although always either composted or buried.83 In 1884, Adamson’s Australian Gardener advised that nightsoil should be added to the manure (i.e. compost) heap.84

Much was made of the benefits of keeping a ‘waste-heap’, on which was thrown all manner of organic household and garden rubbish.85 The 1914 Yates Gardening Guide recommended that the heap

77 F.H. Brunning Pty. Ltd., General Catalogue 1915: Brunning’s Incomparable Seeds, F.H. Brunning, Melbourne, 1915. Superphosphate of lime (mineral phosphates treated with sulphuric acid) was the first artificial fertilizer, being manufactured in Britain from the 1830s. In the early twentieth century in Australia, superphosphate made by treating bone with sulphuric acid was more common (this was almost certainly the chief ingredient of ‘Mt Lyell horticultural manure’), although the Victorian government was offering rewards for the discovery of mineral phosphates: F. Sherwood Taylor, A History of Industrial Chemistry, Heinemann, London, 1957, p.295; Percy G. Wicken, ‘Notes on Manures’, Journal of the Department of Agriculture of Western Australia, May 1900, p.15; Department of Agriculture of Western Australia, ‘Supplementary Report for the Half-Year Ending June 30 1900’, Journal of the Department of Agriculture of Western Australia, September 1900, p.219.


79 Garden Gazette, August 1902, p.4; See also ‘Hoeing’, Home and Garden Beautiful, August 1915, p.75.


83 For example, a pamphlet issued to Western Australian ‘dairymen and cowkeepers’ in 1901 suggested that where no pan service was available, a kitchen garden might be ‘a suitable place’ for burial of nightsoil: SROWA, AN 120/4, Medical Department, Acc 1003, no.153, 1901, Pamphlet Proposed to be Issued to Dairymen & Cowkeepers.


should be kept moist by mixing with urine if possible, and poultry, pig or sheep
manure may be added with benefit ... It takes about two years, more or less, according
to its composition ... to make compost.86

Apart from its value as a garden fertiliser, the making of compost was seen as desirable
because it was a prudent and thrifty practice which turned rubbish into a valuable product.87
Furthermore, it avoided the vice of waste: 'The chief point to remember is that what came
from the ground can enrich the soil for future crops, and that wilful waste is a bad
principle.'88

Each of the three main fertilising materials had different environmental impacts. The
practice of composting was the most environmentally-beneficial of the three as it reduced
urban waste, at the same time producing a stable material which made a useful contribution
to soil fertility and didn’t threaten water quality. However, it was generally recommended
that compost be produced and/or used in conjunction with either artificial fertilisers or
animal manures, as it was often otherwise deficient in nutrients. As mentioned above,
animal manure could end up contaminating waterways and wetlands. Furthermore, the
production of animal manure was not altogether innocent of involvement in broader
environmental degradation: urban animals including horses, cows and poultry, were often
fed at least partly on chaff and grains grown on broadacre farms further inland, where
artificial fertilisers had very early become the mainstay of crop nutrition, and farming
practices often led to soil erosion and salinity in susceptible areas.89 Artificial fertilisers
were mined (as with the base materials for phosphatic fertilisers from 1897)90, or produced
in relatively energy-intensive processes (as with nitrogenous fertilisers, although
ammonium sulphate was commonly produced as a waste product at gasworks). As artificial
fertilisers were usually concentrated and relatively soluble, their use (particularly on sandy
soils) carried an increased risk of leaching of nutrients into waterways through groundwater,
or by direct runoff. Leaching of nitrates into groundwater used for drinking creates a health
risk, whilst phosphates in aquatic systems may lead to eutrophication of wetlands and
estuaries, with consequent algal blooms (which may be toxic), loss of wildlife and general
degradation of aquatic ecosystems.91 In Perth, algal blooms were recorded in the Swan River
as early as the 1870s, and continued to be noted periodically throughout the nineteenth and

89 These aspects of early twentieth-century agriculture are discussed in detail, for an area of Western
Australia, in my honours dissertation: Sands Shaped and Shifting: An Environmental History of the
Formation of the Eastern Wheatbelt of Western Australia, B.A. Hons thesis, University of Western
Australia, 1995.
91 Swan-Avon Integrated Catchment Management Coordinating Group, 'Nutrients and Eutrophication',
(Water and Rivers Commission of Western Australia),
twentieth centuries. It is likely that nutrient input from urban agriculture contributed to the blooms.

Pest control, in both commercial establishments and home gardens, also contributed to suburban pollution as toxic and persistent chemical dusts and sprays often - though by no means always - came to replace older, often non-polluting practices. In 1886, garden and orchard pests in Melbourne included

- red spider, thrip, scale or coccus, aphis, bug, fly, crickets and the larvae of destructive moths and beetles, with snails and wire worm;
- and the various fungoid affections having the general name of 'blight', and known as mildew, spot, rust, canker, smut, cluster caps and the like.

Remedies in the 1880s and early 1890s were often cultural (that is, relating to the methods by which the crops were cultivated). They included utilisation of crop residues and waste, destruction of diseased or infested material, removal of alternate pest hosts (such as certain weeds), crop rotation, cultivation to disrupt soil-based stages of pest breeding cycles, timing of crops, isolation from other crops, and similar strategies which relied on some basic knowledge of the life-cycles of pests and plants. Cultural controls relied on constant vigilance:

- The motto of the gardener in regard to insects and other enemies of vegetation should be—'Watch and worry,' for if a system of persistent attack be maintained on their discovery, they will be kept under, if not eradicated.

Pest control could also involve no small amount of human or animal labour. One British pest-control manual from 1890 recommended that children be employed as a cost-effective way of controlling cabbage moth caterpillars:

- Hand-picking is of use, and may best be done by children, as their small fingers are most suitable for getting between the folds of the Cabbage-leaves, and, under proper inspection, the Cabbages may be well and rapidly cleared at a small expense.

Poultry were also deemed 'to be of service in clearing the ground of chrysalids, as the common barn-door fowls are particularly fond of them', though hand-picking was regarded as 'the surer method'. Planting cabbages in rows amongst other crops was also found to reduce caterpillar infestation. In the orchard, the usefulness of insectivorous birds for controlling apple pests was recognised. In the days before ready availability of reticulated water at good pressure, aphids could be cleared from cabbage by 'thorough drenchings of

97 ibid.
98 ibid., p.286.
water with the garden-engine’. Many gardeners may also have relied on English and other folk knowledges, such as sowing seed generously to allow for seedling losses to pests and diseases:

One for the rook, one for the crow
One to die, one to grow.

Some chemical remedies were also recommended in the late nineteenth century, comprising a variety of patent and everyday substances: soap suds, Gishurst compound, Persian insect powder (pyrethrum), and fumigation (within calico or paper frames) with tobacco, were all suggested for ‘pests of leaf and stem’. ‘Phenile’ (disinfectant phenyle), gasoline and kerosene were suggested for scale on fruit trees, though not recommended for use on vegetables. Sulphur, or a mixture of quicklime and sulphur was recommended for ‘blight’ (fungal infection). The various remedies were, however, not always effective. William Clarson, author of the Kitchen Garden & Cottager’s Manual and early member of the Victorian Institute for the Advancement of Science, was, unsurprisingly, an early believer in applying science to gardening - an approach which would achieve widespread popularity in the interwar period. However, even Clarson acknowledged the difficulty faced by his contemporaries in contending with pests which, in the absence of ‘constant supervision’ or skilful response, were apt to defeat the gardener:

To sit down quietly with folded hands and lament the evil is rather tantalising; and to be perpetually haunted with the idea that one is beaten by a slug, a louse, a beetle or a fungus, is terribly humiliating in the present days of advanced science.

By 1895, Bordeaux mixture and Paris green (copper arsenate) had been added to the gardener’s arsenal. Bordeaux mixture was discovered in 1884 by vigneron in the French district from which the mixture derives its name. The vigneron were plagued by pestiferous children, who were consuming copious quantities of roadside grapes. To deter the pest, the vigneron painted a mixture of white lime and copper sulphate on the vines closest to roads. The year 1884 was particularly bad for mildew, but it was found that the vines nearest the roads, which had been painted with the lime and copper sulphate mixture, were largely unaffected. The mixture was trialled on larger areas, with much success, and the relatively innocuous (if foul-tasting!) Bordeaux mixture was soon being used to combat fungus in vineyards, orchards and market gardens around the world.


100 Maureen and Bridget Boland, Old Wives’ Lore for Gardeners, Farrar, Straus and Giroux, New York, 1977, p.11


104 Barr and Cary, Greening a Brown Land, p.185.
Shortly after the discovery of Bordeaux mixture, European orchardists discovered that various arsenic-based dyes effectively controlled chewing insects. Copper arsenate, or 'Paris green', rapidly became popular in Australia for the control of Codlin moth, which by the end of the century had become a major pest of apples, pears and quinces in the eastern states of Australia. Codlin moth was first found in Tasmania in the 1850s, in Victoria in 1885 and in New South Wales and Queensland shortly thereafter. In Western Australia, it was first discovered at Albany in 1903, where it was eradicated by destruction of infested orchards and associated buildings, a programme of heavy spraying, and stripping of fruit in buffer zones. Three years later, there was an outbreak in West Perth, which was similarly eradicated. Between the 1903 Albany outbreak and the present, Codlin moth infestations have been discovered in Western Australia no less than 19 times, but in each case eradication campaigns have been successful, and the moth has not gained a permanent foothold in the state. Although Perth orchardists generally enjoyed freedom from the moth, their Melbourne counterparts around the turn of the century employed the traditional tactics of orchard hygiene and trunk bandages, as well as the new poison spray.

Although Paris green was fairly effective against garden and orchard pests, it also posed a substantial threat to the health of both humans and wildlife: copper arsenate can enter the body by inhalation and ingestion, and can also be absorbed through the skin. It irritates eyes and the respiratory tract and even at low doses it can result in severe haemorrhaging, collapse and death. Longer-term exposure can result in disorders of the peripheral nervous system, skin, mucous membranes, and liver, as well as cancer. Furthermore, the compound persists in the environment. The commercial and home garden use of Paris green clearly constituted a health and environmental hazard, the consequences of which are

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105 An early reference to the use of Paris Green against Codling moth may be found in A. S. Olliff, 'Paris Green as a Remedy for Codling Moth', New South Wales Agricultural Gazette, vol. 2, 1891, p.158.
109 Trunk bandages trapped the grubs. The bandages had to be removed once a fortnight and any grubs killed before replacing the bandages.
110 International chemical safety card (0648) - Copper arsenate. International chemical safety cards (ICSCs) are authoritative documents emanating from the United Nations Environment Programme (UNEP), the International Labour Office (ILO) and the World Health Organization (WHO), who evaluate hazards posed by chemicals to human health and the environment, and distribute that information in the form of the ICSCs. They contain health and safety information which is 'collected, verified and peer reviewed by internationally recognized experts, taking into account advice from manufacturers and Poison Control Centres'. National Institute for Occupational Safety and Health, 'International Chemical Safety Cards (ICSCs) An International Program on Chemical Safety Project: Descriptive Note', (Centers for Disease Control and Prevention), http://www.cdc.gov/niosh/ipcs/icpscard.html, 29 September 1997. Because of the rigorous standards of proof required in the evaluation process, ICSCs may be seen as a conservative statement of the hazards associated with various chemicals - claims have been made (some with supporting studies) that in many cases, the chemicals carry additional hazards.
111 International chemical safety card (0648) - Copper arsenate, April 1993.
112 ibid.
likely - for humans at least - to have been compounded when the chemical was used in urban areas in general, and urban wetlands in particular.

By the early twentieth century, fumigation of fruit trees in some Australian orchards was being carried out with 'probably the most insidious and deadly of poisons', hydrocyanic gas,\textsuperscript{113} and Paris green was being superseded by a compound which was probably as hazardous, if not more so: lead arsenate. Orchardists preferred lead arsenate to Paris green for control of Codlin moth because it clung to the fruit for longer, and it thus achieved very good control of the pest. They soon came to rely solely on the spray, abandoning the time-consuming trapping of caterpillars in trunk bandages.\textsuperscript{114} In 1902, Victorian Government Entomologist C. French proudly reported that

Experiments, with the view of assisting growers to deal with their insect pests, are constantly being made, the latest being with the codlin moth trouble, and we have proved to the satisfaction, alike of ourselves and the growers, that by following out our advice, which plan is both cheap and effective, growers can save from ninety to ninety-five per cent. of marketable fruit, and as a consequence of this teaching, spraying work may be seen regularly going on in every well-regulated orchard throughout the state.\textsuperscript{115}

Lead arsenate thus provides one of the first major examples in Australian horticulture of non-chemical controls being replaced, rather than supplemented, by chemical sprays.

Like Paris green, lead arsenate posed a significant threat to the health of people and wildlife. As well as irritating the eyes, skin and respiratory tract, short-term exposure may affect the gastrointestinal tract and nervous system. Long-term exposure can increase the seriousness of these effects, as well as damaging the kidneys, liver and blood.\textsuperscript{116} Lead arsenate is now a recognised human carcinogen, and is regarded as a potential reproductive toxicant.\textsuperscript{117} Arsenic and lead are fairly immobile once they are in the soil, so areas treated with lead arsenate can remain contaminated for some time: levels of lead and arsenic residues on old orchard land have been measured at up to 30 times the concentration of 'uncontaminated' agricultural soils.\textsuperscript{118}

Although people around the turn of the century lacked our present detailed understanding of the health and environmental risks of arsenical insecticides, the potential hazard involved in any use of arsenic compounds was by no means unrecognised at the time: arsenic was well-known as a poison employed for purposes of homicide and suicide in the nineteenth century, and in the mid-nineteenth century, most European nations passed laws

\begin{flushright}
113 'Plant Fumigation',\textit{ Journal of the Department of Agriculture of Western Australia}, October 1900, p.266.


115 \textit{Victorian Year-Book} 1902, p.215.

116 International chemical safety card (0911) - Lead Arsenate, October 1997.

117 ibid.

\end{flushright}
restricting the amount of arsenic allowable in various manufactured products. In 1903, a Royal Commission on Arsenical Poisoning was conducted in Britain, and limits for arsenical residues in food were set. However, in spite of a general knowledge of potential chronic and acute risks to human health, from the 1910s synthetic chemical sprays were increasingly recognised, by food producers and entomologists alike, as the first line of defence in the war against insects.

In assessing the extent of suburban pollution caused by the increasingly widespread adoption of chemical methods of pest control in the early twentieth century, it is difficult to know to what extent home gardeners came to rely on the same chemical remedies as their commercial counterparts, who were usually operating on a larger scale. One purpose of gardening guides such as Brunnings’ and Yates’ was to promote the products which they sold, and by the 1910s an increasing range of proprietary insecticides were therefore suggested for insect control. In the 1916 edition of Brunnings’ popular home gardening manual, The Australian Gardener, the section on vegetable pests was prefaced with the comment:

As many new mixtures for spraying have been placed on the market, several experiments have been conducted by the Entomological Branch with the extermination of pests. Some of the mixtures have proved successful, and it is well to know at the beginning of the season what are the best materials to use.

These ‘materials’ included Benzole emulsion, Pestend, Clift’s manurial insecticide and ‘Harbas’ red oil, as well as Paris green, lead arsenate, and various tobacco preparations. Lead arsenate was recommended for home garden use in the control of cabbage moth, cutworm, pumpkin beetle, slugs and snails, as well as Codlin moth, and small tins of lead arsenate for home garden use were available from seedsmen. It is likely that some home gardeners welcomed the opportunity to abandon the time-consuming practice of trunk bandaging, particularly as they were assured that it would ‘not be necessary if the trees are sprayed several times with arsenate of lead’.

Harry Simpson grew up at ‘Rosemont’, a stately home set in one and a quarter acres of garden in the Melbourne suburb of Surrey Hills. The garden consisted mainly of fruit trees and roses, and some 60 years later, Harry recalled that ‘The everlasting spraying seemed to go on endlessly. Arsenate of lead was all that was used as far as I can remember though I think nicotine came in somewhere’.

Tobacco was used as a contact insecticide in various forms: as a dust, an infusion, and in a processed form - nicotine sulphate - in preparations such as Nikoteen, Black leaf 40, and Surpzoll. Botanicals such as quassia chips and hellebore powder were also available, though

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119 Wharton, Before Silent Spring, pp.42, 64.
recommended only occasionally, as were a range of ‘non-poisonous’ patent insecticides (of indeterminate active ingredients).\textsuperscript{125} Several of the patent preparations were offered in forms which were ready to use or required only dilution in water. Whereas these would have been fairly convenient, it is likely that the combination of a large garden and a serious pest infestation would have been necessary before a home gardener would have gone to the effort of making up one of the various home-made washes or emulsions which were also recommended. For example, kerosene emulsion - which by 1916 was recommended for use on vegetables as well as fruit trees - required 2 pounds of ‘Lotus Soap’ to be dissolved in 10 gallons of simmering water, and half a pint of kerosene added whilst hot, ‘the whole being churned until thoroughly emulsified’. The emulsion was then to be applied with a spray pump, in the evening or on cloudy days. While this was done,

Great care must be taken to keep the mixture agitated, and the vessel used to carry the mixture should be throughly emptied each time before refilling, or the kerosene, which never thoroughly mixes, may accumulate and give too strong a dose.\textsuperscript{126}

It is likely that many gardeners, particularly those with small to medium-sized gardens, would have stuck to the remedies on hand - such as soapy water - and the various manual (or animal) controls, which continued to be recommended in some gardening magazines and books to 1918. The prevalence of suburban poultry meant that many suburban gardeners would have been able to follow the \textit{Home Gardener}’s recommendation, in 1917, that

To give the poultry an occasional run in the orchard will be of some benefit to both them and the trees, as fowls eat many of the caterpillars that are found in orchards. In addition, the manure will be of some use to the trees.\textsuperscript{127}

Even as late as 1916, Brunning’s \textit{Australian Gardener} recommended that cabbage aphids could be adequately dealt with by placing a few broods of newly-hatched chickens here and there amongst the crops, in coops so constructed as to allow the chicks free egress and ingress, whilst the mother-hen is confined. The quantity of the aphides devoured by these little ones is quite amazing, and the plan has been attended with the greatest benefit to those who have adopted it.\textsuperscript{128}

Brunning’s similarly suggested that ‘the best method’ of controlling slugs by trapping was via a labour-intensive, non-chemical process involving dipping cabbage leaves in boiling water, then smearing them with suet and leaving them in places likely to be frequented by slugs:

these leaves may be examined several times each evening and also early in the morning, when they will be found covered, and may be dipped in a bucket containing

\textsuperscript{125} For example, Clensel and Niquas. Formal registration of insecticides was not required until 1956 and because most of the ingredients of insecticides were reasonably common, the formulae were jealously guarded.

\textsuperscript{126} Falkner, \textit{The Australian Gardener}, p.374.

\textsuperscript{127} ‘Poultry Among the Fruit Trees’, \textit{Home Gardener}, September 1917, p.213.

\textsuperscript{128} Falkner, \textit{The Australian Gardener}, p.263.
Various other traps and mechanical barriers were also suggested for snail and slug control, as were ducks, although commercial snail-killers such as 'Pestend' and arsenate of lead dust were likewise recommended. Crop rotation continued to be recommended as a preventive measure against pest infestation, as was the use of appropriate plant material. In the early twentieth century, apple scions were commonly grafted onto Northern Spy rootstocks, which were immune to woolly aphis attack, and grape scions grafted onto American rootstocks which were resistant to grape phylloxera. Given that there were fewer insect pests of vegetables in Australia at the end of the nineteenth century, it seems probable that many home gardeners would have tolerated some degree of damage and relied on controls such as soapy water and hand-picking in favour of chemical controls, though the latter were clearly adopted by some.

Failure to find a completely effective spray or biological agent for control of Mediterranean fruit fly saw Western Australians attempt to suppress the pest in the metropolitan area through the coordinated application of cultural controls. The fly was first found in the State in 1895, when specimens from an orchard in the western suburb of Claremont were presented to the local Department of Agriculture. It rapidly gained a foothold in the metropolitan area where it remains to this day, infesting just about every kind of fruit - stonefruit, citrus, pome fruit, passionfruit, even plantains. For much of the twentieth century, control of the fly was particularly challenging as the female fly lays eggs directly into the fruit, and the maggots are therefore beyond the reach of poisons such as lead arsenate, which cling to the surface of the fruit. Furthermore, as it infests a wide range of fruit, at any given time of year a host plant will be fruiting and thus offering the fly an opportunity to reproduce. Early control attempts relied on trapping and baiting of the fly with pollard and borax solutions and Clensel in glass jars and tins. Keeping the ground clear of fallen fruit also served to disrupt the pest's breeding cycle. By 1915, a spray based on lead arsenate was 'found to be beneficial', although by itself it did not offer adequate levels of control. Several potential predators were introduced, though none were effective.

129 ibid., p.299.
130 See for example 'Slugs and Snails', Journal of Agriculture of Western Australia, vol. 15, 1907, p.478.
131 See for example H.B. Downer, 'The Cultivation of Vegetables', Home and Garden Beautiful, October 1913, p.188.
133 C.F.H. Jenkins, Some West Australian Insect Pests, n.p., c.1943, p.25. This volume is a bound collection of articles written for the Western Mail in 1942-43 by Jenkins, who was then Government Entomologist.
134 ibid., p.26. Clensel was a 'non-poisonous' ammonium soap-based insecticide, available since 1898.
135 'Observer', 'Fruit Fly: Havoc it has Wrought', West Australian, 6 February 1915, p.8.
136 ibid., p.8.
Other attempts at eradication were community-based: as there are no native hosts for the pest, it is only necessary to destroy the fruits of introduced fruiting species in order to break the fly's cycle of reproduction. In Guildford in 1913, the Department of Agriculture organised a local campaign involving voluntary stripping of all fruit from trees after June 30 in order to prevent the carry over of the fly into summer fruits. The results of this experiment were 'exceptionally good', even though 'some householders would not assist the department, and ... the adjoining districts did not strip'. Similarly, in 1915, fruitgrowers at Harvey determined to set dates by which all remaining fruit of a certain type had to be stripped from trees, but again, the effectiveness of this approach relied upon the cooperation of all growers.

Attempts to engender or even enforce this cooperation in the suburban context, however, failed. Under the Insect Pests Amendment Act 1898 (WA), which was intended to control the spread of horticultural pests and diseases, all orchards were required to be registered for a fee of 2s 6d for an orchard of less than an acre, and 5s if over an acre. The definition of 'orchard' included one tree, so effectively all householders with any number of fruit trees were compelled to register them. This was supposed to provide the Department of Agriculture with a list of all orchards which could then be inspected for compliance with the Act, which required 'orchard' owners to control fruit fly on their land. However, it appears that the registration requirement was not strictly enforced, and effective regular inspection proved impossible. In 1899, four years after the fly was first reported in the colony, the Department of Agriculture issued a circular directing orchard owners in the infested area around Claremont to strip their trees of fruit by the 15th of August. However, some householders refused to cooperate, and the fly continued to spread. The Plant Diseases Act 1914 (WA), which also required the payment of an annual registration fee and made households with fruit trees liable to inspection, similarly failed to control the fly. In 1939, C.F.H. Jenkins noted that

Community baiting against the fruit fly had been attempted in various districts and good results have followed as far as fly control is concerned, but owing to the difficulty of maintaining cooperative action, the various schemes have lapsed and individual action is now generally the rule.

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139 In debate over the Plant Diseases Bill, introduced as an attempt to revamp the older Act in the face of the growing fruit fly menace, the A. Sanderson (MLC for Metropolitan-Suburban Province) recalled the Insect Pests Amendment Act. Sanderson registered his own orchard, but remarked (without seeing official returns) that he 'should be very much surprised if 20 per cent of the orchardists in this country [sic] ever registered as I did under Mr Lindley Cowan's regime at the Agriculture Department.' WAPD, 3 September 1914, p.1026. The lack of insistence on registration of orchards was confirmed by the Colonial Secretary: WAPD, 3 September 1914, p.1031.
140 Department of Agriculture of Western Australia, 'Report Year Ending 31 December 1899', Journal of the Department of Agriculture of Western Australia, September 1900, pp.179-180.
141 C.F.H. Jenkins, A Review of Economic Entomology in Western Australia, MA thesis, University of Western Australia, 1939, p.85.
In 1915, Fruit Industries Commissioner Mr Moody declared that ‘With the active help and co-operation of all classes of the community in carrying out these regulations, I am satisfied that within two years the fruit fly will be absolutely suppressed.’ Ultimately, however, even the compulsion to register trees, combined with inspection (or at least the potential for same) and dissemination of information on how to control the pest, failed to stop it becoming entrenched in the metropolitan area. The fly has always found suitable conditions for reproduction and it remains a pest in Perth, many years after effective chemical controls for the pest were developed. The case of Mediterranean fruit fly in Perth thus suggests that the dispersed nature of food production in suburban areas renders effective surveillance of household food production virtually impossible, and that concerted voluntary action by all householders is improbable, particularly in a context where independence (which emphasises individual rights) is generally valued more highly than interdependence (which emphasises mutual responsibilities). This combination of factors seriously inhibited - and continues to inhibit - the effectiveness of cultural controls of invertebrate pests, which rely on disruption of breeding cycles.

Allan Pred has described how around the turn of the century, men and women visiting world fairs and exhibitions were confronted with new goods and industrial technology displayed in such a way that there was no mistaking their meaning: here was conclusive proof of the triumph of ‘men’ over nature. Those working in the gardens of Perth and Melbourne, however, understood that such ‘triumph’, though perhaps an attractive idea, was by no means complete. With diligence and hard work, one could make a garden bountiful. But the constant struggle against pests, hot weather, dry soils, floods and frost led Mrs. Arthur Tuckett to declare in 1905:

Gardening is now, and ever shall be a constant warfare against the forces of nature. Should the puny efforts of man falter for ever so short a time, nature, always vigilant, triumphs, and the garden returns to its primeval state of wildness.

As the century progressed, gardeners increasingly came to believe that by adopting a ‘rational’, scientific approach to gardening, the battle might be won. The domination of nature - the winning of the battle - has often been seen by historians as a critical aspect of

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143 Indeed, the only cases of eradication of a pest entrenched in suburban areas (of which I am aware) have involved draconian measures. For example, the Mediterranean Fruit Fly infested Los Angeles in 1975, and reappeared in Los Angeles and the San Jose area in 1980. In 1980-82 the Infestation was spread over seven counties, but was eradicated by aerial spraying of a protein bait spray containing the insecticide malathion over nearly 1500 square miles (3885 square km) of a heavily populated area: California Department of Food and Agriculture, ‘Background on Medfly Problem in California’, (California Department of Food and Agriculture), http://www.cdfa.ca.gov/pests/medfly/background.html, viewed 12 August 2000. This spraying is also said to have killed off a large proportion of the pollinating insects, such as bees, in the area.
145 Mrs. Arthur Tuckett, A Year in My Garden, Melville & Mullen, Melbourne, 1905, pp.4-5.
relationships between humans and nature. However, the perceived end result of any (successful) attempts at domination - an independence from nature’s vagaries - was perhaps equally influential, if not more so, in the shaping of human attitudes and behaviours.

1919-1937

In terms of the ecology of suburban food production, the interwar period saw much continuity with the years leading up to the First World War. Some of the greatest changes were wrought by two not unrelated phenomena - the expansion of residential suburbia, and the rise of the automobile. With a steady demand for suburban housing, many market garden sites were subdivided and sold. In the northern Melbourne suburb of Northcote, for example, the population increased from 27,000 to 40,000 between 1919 and 1927. During this time, almost all of the larger agricultural holdings were subdivided and sold for housing, with the exception of a slice of land between Leinster Grove and the Merri Creek, occupied by Chinese market gardeners and the Croft Bank Dairy, which used its status as a ‘oasis of farmland in the midst of suburbia’ in promoting its milk.147

Many of Perth’s inner-urban gardens were also replaced by housing and parkland, although others were insulated from the pressures of development by their low-lying location. As the Chinese market gardeners retired, their places in the production system were mainly taken over by Southern Europeans, operating principally from the then outer areas of Spearwood, Osborne Park and Wanneroo.148 The changeover coincided with the introduction of butterfly sprinklers and more general acceptance of artificial fertilisers. These developments allowed many gardeners to leave the wetlands and operate on higher sandy ground which was free from both flooding in winter and salt accumulation in summer, though still presented the potential for leaching of nutrients.149 Market gardens were also becoming increasingly mechanised, with trucks appearing on some of the larger establishments in the 1920s, and tractors in the 1930s.150

In spite of increasing mechanisation, horses remained reasonably common on commercial gardens and farms, and at least one nursery in the northern Perth suburb of Bayswater employed other animal labour in the form of bantams for grasshopper control and Black Orpington hens in mobile pens for weed destruction.151 One advantage of this arrangement was, of course, that eggs were produced as a by-product of pest control. The value of horses in comparison with trucks and tractors was also recognised by many: in one of the first gardening books written for Western Australian conditions, the importance of manure was emphasised with the recounting of a lecture delivered in a cauliflower plot, set

147 Lemon, The Northcote Side of the River, p.193. Other examples of subdivision of market gardens in the 1920s may be found in Victoria Peel, Deborah Zion and Jane Yule, A History of Hawthorn, Melbourne University Press and the City of Hawthorn, Carlton, 1993, pp.54, 56.
151 May, Changes They’ve Seen, p.100.
‘around the time motor cars were becoming common’:

A canny old market gardener and his son were manuring the plot. ‘What’ll I do with this, Dad?’ asked the boy, holding up on his fork the delapidated remains of a pair of trousers. ‘Fork it in, Joe, fork it in; it all makes ‘manoor.’ Everything makes ‘manoor’ except glass bottles, but them dam things ain’t no good at all; they only jag a man’s fingers and spike his temper.’ While the makings of ‘manoor’ were being dug in, a car laboured noisily by. The boy asked: ‘Why don’t you buy one of them things, Dad?’ The old man leant on his fork, silently watching the car till it clattered out of sight, then, turning to Joe and jerking his thumb over his shoulder, drawled sarcastically: ‘Buy one of them things! Not me! Them things don’t make manoor, they’d only get a man into debt. Never get into debt, Joe, but if you do get into debt let it be for manoor. When one of them things’ll take a full load of caulis to market by 4 o’clock, and be home before breakfast with a load of good manoor, I’ll buy two, a waggon one to make the money, and a buggy one for mother to bank it. And we’ll keep the horses for useful pets. Gosh!’

The moral of the story? ‘Full supplies of manure are of such paramount importance that the producing of them must be precedent to every other consideration.’

Indeed, in the interwar period, organic manures were sought, in a context of declining availability, with an almost religious zeal. Gil Muling, who moved to Camberwell in 1932, recalled that the rubbish contractor, the milkman and the baker all made deliveries with horses and carts, ‘And, of course, anyone who was garden-conscious was the first one in the street with their little shovel and broom to pick up the manure.’ However, horses were beginning to be replaced by cars and trucks, and developments in refrigeration and extension of rail services, combined with the pressures of urban development, appear to have put an end to many small suburban dairies. Simultaneously, many non-commercial cowkeepers appear to have given in to increasing pressure from municipal councils to get rid of their stock. Brunning’s Home Gardener of 1930 thus recommended that given the scarcity of good manure, home gardeners should take advantage of buying a few loads of it when available. The shortage of manure also saw gardeners seeking other sources of fertiliser. Blood and bone was a readily-available by-product of the meat industry, and many gardeners either crushed bones and dug them into the soil, or saved them for putting in the hole when planting a tree. Wood and coal ashes from household fireplaces were known to be rich in potassium, and were reserved for use on vegetables such as peas, beans and

153 ibid.
potatoes. Brunning’s recommended that residents of coastal districts use seaweed. Other types of manure were also keenly sought. James Conarty was so convinced of the value of poultry manure to vegetable production that he included in his book a section on keeping poultry, including what green feed to grow for them. When fed as recommended by Conarty, or ‘T.T.T.’ - writing for the Australian Home Beautiful - on a morning mash of table scraps, bran and pollard, a midday meal of green feed, and an evening feed of scattered grain, poultry could indeed prove an economical and convenient source of manure, which had the added attraction of producing eggs. Nightsoil remained another source of nutrients produced on-site. Although an increasing number of houses were connected to the growing deep sewer systems in both cities, many areas were still serviced by the night-cart. As a young man, Brian Watson [pseud.] started growing vegetables at his Grandparents’ home in Alphington. In the 1920s, they were in the fortunate position of having a supply of horse manure, as Brian’s Grandfather painted carts, drays and coaches. They also made liquid manures from pig and cow manure, and collected the soot from the chimney to mix with blood and bone. Brian says:

I would also use night soil deodorized by adding sulphate of iron so the neighbourhood couldn’t complain at all. Night carter used to carry our empty pan each time, it was against the law but he never said a word.

As part of the relentless pursuit of ‘manures’, wastage of organic material of any kind was deplored. The catch-word was humus:

Humus or Vegetable mould is formed by decayed vegetable matter, such as leaves, roots, stems, etc. Humus is the most important constituent of all soils for the gardener; it has a great influence on the capacity of soils for retaining moisture, renders their cultivation easier and encourages the activity of soil bacteria.

Humus could not be provided by artificial fertilisers, so the necessity of securing a source of organic matter - manure or compost - was stressed. One Western Australian gardening guide, convinced of the necessity of a plentiful supply of humus for gardening on Perth sands, declared that ‘Everything convertible into manure should be saved. The habit of throwing bones into the rubbish bin, and tossing straw, twigs, leaves, weeds and other refuse over the fence is pernicious.’ Another Western Australian author, James Conarty, saw the increasing replacement of horses with motor vehicles as a ‘grave concern’, and lamented the wastage of paper:

In most homes the wastage in paper, old bags etc. is very great, whilst the loss continually taking place in large cities through the waste paper baskets of offices,

159 Conarty, Australian Intense Vegetable Culture, pp.24-26.
161 Brian Watson (pseud.), letter to the author 1 November 1998, letter in author’s possession.
At this time, approaches to composting were becoming slightly more sophisticated, with the addition of lime and regular turning recommended, to speed up the process.

Although the majority of publications acknowledged that some amount of organic manure or compost was essential for successful vegetable production, it was often asserted that scientifically, the importance of organic matter lay in its contribution to soil structure: ‘Delving further into the Science of Soil, the Physical condition is everything ... and without this, all other additions are so much waste of time and money.’ Several publications thus maintained that once the addition of organic matter had taken care of the soil structure, the three main plant nutrients - phosphorus, nitrogen and potassium - could be supplied in the form of artificial manures such as Thomas’s phosphate or superphosphate, nitrate of soda or sulphate of ammonia and sulphate of potash, muriate of potash or kainit. This ‘scientific’ approach to plant nutrition was increasingly seen as the way to achieve greater efficiency in the vegetable garden and orchard, and to escape the inconvenient and occasionally unpleasant necessity of dealing with ‘natural’ manure.

The turn to science in the home garden may be seen as part of the middle-class reform movement, described in chapter 5, which sought to create a better society through the application of technical rationality to all spheres of life, from the management of children to the zoning of suburbs. In the interwar years, faith in the advantages of the application of modern, rational knowledges blossomed in the home garden context, and organisations such as the Horticultural Council of Western Australia declared their commitment to the pursuit of higher standards through modernisation, and the application of science. In 1932, when the West Australian Gardener was in its eighteenth month of publication, the editor was pleased to announce that ‘It can certainly be declared that the higher scientific standards of Botany and Horticulture are better understood than ever before in this State, and even the amateur is beginning to think, not guess.’ The effect of the increasing orientation toward scientific, rational garden management can be clearly seen in the area of pest control, where the idea of achieving total independence from disease and the depredations of pests became particularly attractive, and furthermore, was seen as attainable.

From the First World War, pest control was increasingly portrayed as a battle which

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164 Conarty, *Australian Intense Vegetable Culture*. These observations were contained in a section on ‘increasing the humus content of soil’ on pp.28-9.


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could be won through the use of various chemicals. In Europe and the USA, metaphoric, technological and institutional links developed between war on people and war on insects, with insecticides/chemical weapons as the common link between the two. In Australia, the technological and institutional links were less concrete, though the freedom with which the rhetoric of warfare was employed in relation to gardening indicates a strong metaphoric connection between the perceived necessity of eradicating national enemies and eradicating insect ones. Thus Western Australian Government entomologist L.J. Newman advised gardeners that ‘Chemicals used in insect warfare are applied as sprays, dusts and fumigants.’ In 1922, Searl’s Key to Australian Gardening claimed that ‘A spray pump of some sort and the necessary material wherewith to spray is as essential to the gardener as the spade’, adding that ‘Every gardener has his own battle to fight against these minute but extremely troublesome marauders, and the enthusiastic and practical tiller recognises the importance of spraying’.

Searl, however, was one of the few guides to recommend the use of botanicals, including white hellebore and pyrethrum. In general, the heavy reliance upon lead arsenate was maintained. In Western Australia, Newman informed home gardeners that lead arsenate had ‘a wider range of usefulness than has any other internal poison now available’, and was ‘safe to use on the foliage of most plants’. Paris green was still recommended as an ingredient in poison baits, and occasionally also as a spray or dust.

Although lead arsenate remained popular, the problems with reliance on it were starting to become apparent. The possibility of insect resistance to insecticides was recognised by 1914 and soon after the First World War, it was found that Codlin moth was in fact becoming increasingly resistant to lead arsenate. Most growers simply sprayed more

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171 Searl’s Key to Australian Gardening, Searl & Sons, Sydney, 1922, p.238.


frequently.\textsuperscript{175} As levels of lead arsenate residue on apples increased, a public outcry over the dangers of arsenic poisoning arose. In 1933, Americans Arthur Kallet and F.J. Schlink published their popular book *100,000,000 Guinea Pigs*, which included a chapter on the hazards of lead arsenate residues on food. A scientific symposium on the ‘spray residue problem’ was organised in the US in 1934.\textsuperscript{176} In Britain, the controversy over arsenic residues was a factor in the rise of the organic farming movement.\textsuperscript{177} Britain also threatened to ban imports of Australian apples if the trend towards increasing residues was not reversed.\textsuperscript{178} The response in Australia was to trial different combinations of pesticide, with some attention also given to timing of sprays.\textsuperscript{179} Home gardeners were simply advised not to use lead arsenate on mature crops, and to wash all vegetables before use.\textsuperscript{180}

Given that an awareness of the risks involved with the use of arsenical compounds had existed at least since mid nineteenth century and were examined at length by the British Royal Commission of 1903, why then were they taken up with such enthusiasm? Thomas Dunlap has explained the rapid uptake of chemical pesticides by farmers in the United States in the first half of the twentieth century with reference to five main factors: firstly, the failure of other methods (including biological control) to meet public demands for insect control without long and costly research programmes, dramatic changes in farming practices or long-term planning; secondly, the fact that the public and farming community valued simple, convenient and immediate solutions; thirdly, the new generation of entomologists who received a technical training in land-grant colleges (rather than a broad-based biological training); fourthly, the popular idea of a ‘battle for survival’ between ‘man’ and insect; and finally, and probably most critically, the fact that ‘Alone among insect


\textsuperscript{177} Barr and Cary, *Greening a Brown Land*, p.195.

\textsuperscript{178} ibid., pp.186-187.

\textsuperscript{179} See for example R.T.M. Pescott, ‘Codling Moth Control: Experiments at Harcourt’, *Journal of Agriculture - Victoria*, November 1931, pp.538-543. Pescott recommended ‘Two sprays of arsenate of lead (5lb of paste lead in 80 gallons of water) as calyx sprays applied at intervals of ten days, followed by three or four sprays of a white oil emulsion (1 to 40) at intervals of approximately one month.’ in spite of the fact that this spraying regime produced apples that were, when analysed, carrying arsenical residues over the 0.01 grain per lb. limit specified by law. Some rudimentary trapping studies were also reported, but the importance of this aspect of the study, which might be seen as a precursor of integrated pest management, was distinctly underplayed in the report.

\textsuperscript{180} see for example, C.French, ‘A Chat about Insect Pests’, *Garden Lover*, April 1925, p.27.
remedies, chemicals lent themselves to quick, large-scale commercial exploitation.181

The factors identified by Dunlap also played a part in Australia. It is clear that in some cases, other methods had failed to meet public demands for insect control, the need for which was increased by an influx of introduced pests, and an increasing tendency towards monocultural production methods which favoured the development of large pest populations.182 In other cases, however, pesticides represented a substitution of capital for labour. The high cost of labour for cultural control of insects, as compared with the relatively low labour and capital cost incurred in spraying, was one reason why farmers valued pesticides as 'simple, convenient and immediate solutions'. This provides one explanation for why the sprays usually replaced, rather than supplementing, earlier non-chemical methods (at least until problems of insect resistance were encountered on a large scale). Symbolic aspects of food production were also important in the abandonment of older methods. As mentioned above, the idea of a battle between 'man' and insects - with chemicals as the weaponry - was influential in Australia, as was the attraction of the perceived rational and scientific nature of chemical pest control measures, in an era where 'progress' and technical rationality - underpinned by science - were discursively inseparable. It will also be shown below that in the Australian context the notion of a 'clean' garden was important, and it was believed by some that the highest degree of garden cleanliness could be achieved through the use of chemical sprays.

The adoption of chemical control of pests was also clearly based on a particular view of the environment, which was instrumental and downplayed complexity. The development of this attitude can be traced in part to the history of Australian economic entomology (being knowledge of the habits and structure of invertebrates applied to the problem of invertebrate crop and livestock pests). One of the reasons why Australian economic entomology, like its American counterpart, tended towards an increasing focus on chemical rather than ecological forms of control, is related to its place in colonial and later national institutional and ideological structures. Libby Robin has shown how in Australia, the nineteenth century saw the 'science of exploration' - including astronomy, geophysics and natural history - replaced by the 'science of settling' - including tropical medicine, agricultural science and applied entomology - which was widely touted as 'science for development'.183 Imperial economic relations and 'bush nationalism' around the time of Federation ensured that agriculture was a main focus of science, and that the generally 'applied' science associated with agricultural development was closely tied to


182 This latter factor is noted in the American context by Wharton, Before Silent Spring, pp.4-5.

As a field falling largely under the broad umbrella of agricultural science and located primarily within state Departments of Agriculture, economic entomology held an instrumental view of nature from its very inception. It sought to apply entomological knowledge to crop protection in a variety of ways, including through biological control. George Compere, Western Australian Government Entomologist from 1900 to 1911, was a biological control enthusiast who, under contract to the governments of both Western Australia and California, spent a great deal of time travelling the world in search of predatory and parasitic species. Compere successfully introduced parasitic wasps into Western Australia in 1904, for the control of black scale, and in 1907, for the control of vine scale and cabbage aphids. Compere also imported a ladybird from Queensland in 1902 to assist in the control of mealy bugs. However, attempts at biological control, at least in Western Australia, appear to have declined after 1907. Furthermore, although there were some spectacular successes, as with the Cactoblastis moth’s eradication of prickly pear in the brigalow in 1926-30, not all introductions were as successful as had been hoped: As Daniel McAlpine, vegetable pathologist with the Victorian Department of Agriculture (and previously lecturer in biology at the University of Melbourne) put it:

> There is no doubt that the method of pitting nature against itself is a most economical one, and that most satisfactory results might be expected from it, but it would appear we have not yet learned how to apply these remedies to best advantage.

Certainly few biological controls had the same visible impact as lead arsenate spray, and as a ‘science for development’, economic entomology was about producing visible impacts.

Furthermore, in the early years of the twentieth century, there was little apart from medical science to counsel caution in the use of toxic sprays, and the issue of residues on fruit was seen as having been dealt with legislatively. Ecology, as a science which viewed nature as a ‘set of intricately connected systems that could only be viewed through quantitative studies of complex interactions among species and with the land’, only coalesced in the late 1920s in the United States. Ecological ideas were by no means

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184 Robin, ‘Ecology - A Science of Empire?’, pp.65-67. C.B. Schedvin has also pointed out that particularly during times of economic decline/stagnation (as from 1890-1939), science in Australia was closely allied to state action: ‘Environment, Economy and Australian Biology, 1890-1939’, Historical Studies, vol.21, no.82, 1984, pp.11-28.

185 Jenkins, A Review of Economic Entomology, p.2. Two short accounts of some of George Compere’s parasite-hunting activities may be found in Journal of Agriculture of Western Australia, vol.15, 1907, pp.478-479.

186 Jenkins, Some West Australian Insect Pests, pp.4, 27, 41.

187 ibid., p.35.

188 ibid., A Review of Economic Entomology, p.142 ff.


190 Thomas R. Dunlap, ‘Ecology and Environmentalism in the Anglo Settler Colonies’, in Tom Griffiths and Libby Robin (eds), Ecology and Empire: Environmental History of Settler Societies, Melbourne University Press, Carlton, 1997, pp.76-77 (quote from p.77). The British Ecological Society was founded by Arthur Tansley (later Sir) and others in 1913. The early British ecologists were beginning to consider patterns and relationships between species, in which sense they may be seen as one of the precursors of ecology in the sense outlined above; Robin, ‘Ecology - A Science of Empire?’, p.64.

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absent in Australia in prior to that time. For example, in an article published in the *Journal of the Department of Agriculture of Western Australia* in 1900, Robert Hall urged ‘yeomen’ to encourage and protect the various insectivorous birds, as part of a natural system of keeping insects in check: ‘So wonderfully arranged and dependent upon each other are bird-life, insect-life and plant-life, that, to disturb the balance of nature to any great extent is inviting personal trouble.’ However, such ideas had not achieved the sophistication, or methodological backing, of a distinct science. Ecology may be characterised as a science of caution because it was imbued with an appreciation of the complexity of natural systems, and drew conclusions about relationships and processes in nature, rather than restricting its focus to yields of meat, milk, wool and produce. It was used instrumentally, for example in Francis Ratcliffe’s work on flying foxes as an orchard pest in eastern Australia. However, its commitment to detailed observation and attention to multiple broader connections within and between species and land inevitably produced a conservatism in relation to to human interference with nature. Ratcliffe, for example, found that rather than the widespread extermination of flying foxes which had been sought by the fruit growers, it was only necessary to control small sub-sections of the population.

In the early years of the twentieth century, ecological science had not yet become a force to be reckoned with. Industrial chemistry, on the other hand, was making good progress, particularly in Britain and Europe. A theory of chemistry able to serve the needs of industry by modifying old processes and creating new ones developed during the eighteenth century. By the mid-nineteenth century, industrial chemists were employing their knowledge of the principles of organic and inorganic chemistry in the creation of an increasing array of chemical products. Carried out largely in the context of research and development programmes of private firms, industrial chemistry aimed to produce new or improved products for manufacture and sale by the company, to produce profit for the company. It may therefore be seen as a science of capitalism. In 1924, all of the major German chemical manufacturers combined to form a massive chemical combine, I.G. Farben. By 1927 I.G. Farben was employing in the order of 1000 research chemists and spending £7.5 million on research and development activities. The combine rapidly became a major exporter of chemicals to Australia. The British responded by forming their own chemical combine - Imperial Chemical Industries (ICI). ICI Australia, founded shortly afterwards, had privileged links with the ICI group overseas, and was thereby able to import not only products, but also technology, from the imperial centre.

With a prevailing instrumental attitude towards nature, the ready availability of

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191 Robert Hall, ‘The Insectivorous Birds of Western Australia’, *Journal of the Department of Agriculture of Western Australia*, vol.2, part 5, November 1900, p.322.
193 ibid.
195 ibid., pp.13-16.
197 ibid., p.672.
chemical pesticides, and ecological science not sufficiently developed to counsel caution, it is therefore unsurprising that in the Australian context, as in the American, the pursuit of effective biological and cultural control strategies was often abandoned in favour of the apparent expediency of chemical solutions, where they could be found. By the time ecological science was in its infancy, chemical methods of pest control had become a first, rather than last, resort. The Commonwealth Prickly Pear Board, for example, was formed in 1920 to investigate biological control only when attempts to eradicate the weed with arsenic pentoxide and arsenious chloride had largely failed.198

Even as spraying became the standard approach, biological control tactics were not abandoned entirely. The green vegetable bug was first recorded in Australia in 1916.199 A parasitic fly was introduced from Florida on two occasions in an attempt to control the bug, but the fly failed to acclimatise. In December 1933, however, an Egyptian wasp was successfully introduced, and by 1943, the numbers of green vegetable bug were said to have 'noticeably decreased'.200 Such attempts at biological control, however, appear to have been less frequent than in the prewar period, and they were rarely mentioned in the gardening literature.201 As contact poisons such as nicotine destroy both pest and predator, it is likely that the emphasis in the literature on spraying rather than biological control, in fact helped to undermine biological control efforts.202

Another introduced pest, the red-legged earth mite, was first discovered in Western Australia in 1917, having arrived in Bunbury as a result of trade with South Africa.203 By 1933, it was proving a serious pest of gardens in Perth, and the list of recommended miticides included nicotine sulphate, phenyle, lysol, Clensel, Katakilla, white spraying oils, a turpentine and soap spray, carbolic soap and kerosene spray, a mixture of carbolic and tobacco dusts, and flaked naphthalene as a repellent.204 These treatments, however, were said to be most effective as part of a complete programme of garden sanitation, including

199 New, Exotic Insects in Australia, p.72.
200 Jenkins, Some West Australian Insect Pests, p.13.
201 The only exceptions I located were a reference to Aphelinus mali, a parasite of woolly aphis, in 'Fruit Tree Notes', Garden and Home Maker of Australia, April 1930, p.275, and a general reference to 'natural parasites' (or rather their absence) in Newman, 'Important Insect Enemies of the Garden', p.10.
202 New, Exotic Insects in Australia, refers to a publication by Waterhouse and Norris, which emphasised that the level of biological control of the green vegetable bug may be reduced where insecticides are used (D.F. Waterhouse and K.R. Norris, Biological Control: Pacific Prospects, Inkata, Melbourne, 1987). A.R. Clarke, however, disputed the claim that the biological control of the bug by the Egyptian wasp had been a success, claiming that other wasps contribute to the control of the bug, and that the main period of the bug's decline coincided with the widespread use of synthetic insecticides in the 1950s-60s (A.R. Clarke, 'The Control of Nezava viridula L. with introduced egg parasitoids in Australia. A review of a "landmark" example of classical biological control', Australian Journal of Agricultural Research, vol.41, 1990, pp.1127-1146). This latter claim seems, however, suspect, given that C.F.H. Jenkins, the W.A. Government entomologist, had noticed a marked decline in the bug's numbers by 1943 (n.200, above).
203 Jenkins, Some West Australian Insect Pests, p.5.
204 Newman, 'Garden Pests', p.31.
the elimination of all ‘dirty areas’.205

The language of dirt and cleanliness was often employed when discussing insect control. ‘Dirty’ gardens encouraged insects: ‘It is no exaggeration to state that half the injuries caused by insect pests in the fruit garden are due to dirty trees and bushes, and an annual spraying in Winter should be regarded as an imperative duty’.206 ‘Clean’ gardens, on the other hand, were insect free. Gardeners were advised, for example, that spraying young cabbages with nicotine sulphate and arsenate of lead would ‘keep them clean and healthy’.207 Lowe’s Benzole emulsion was similarly said to keep roses and fruit trees ‘clean and healthy’.208 To many, the notion of cleanliness translated into the desirability of a garden devoid of invertebrate life: when questioned at a Western Australian Horticultural Society meeting in 1932, a representative of the Department of Agriculture provided advice on how to kill earthworms where they were ‘not appreciated’.209 In advertising their sprays, manufacturers also relied on imagery which suggested the indiscriminate killing – cleansing – nature of the products (see Fig. 7.2). The notion of garden cleanliness was firmly linked to the middle-class habitus of many suburban gardeners, in which cleanliness was bound up with the virtues of thrift and moral propriety. It was also important to the new middle-class technical rationality which encompassed approaches to reform based on environmental determinism. As well as reducing crop yields, insect pests were seen to threaten attempts to create ideal citizens by posing a threat to ‘the development of good, clean, beautiful and healthful surroundings’.210

![Fig. 7.2 The superior cleansing power of Somner’s Reliable Sprays](image)


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205 ibid.
207 ‘With the Vegetables’, *West Australian Gardener*, January 1931, p.11.
As in the preceding decades, many suburban food producers in the interwar years contributed to the recycling of organic wastes, though local sources of animal manure were beginning to decline. The interwar years also saw the rise of an increasingly pervasive orientation towards science, rationality and efficiency in the garden sphere, as well as in agriculture. In the context of a relatively well-developed capitalist science of industrial chemistry, and a poorly-developed ecological ‘science of caution’, in practical terms this orientation (in combination with other factors) translated into a privileging of new chemical approaches to fertilisation and pest control, over the old biological and cultural methods and materials (although these were by no means abandoned altogether, particularly in the home garden context). Discourses of technical rationality in the home garden, particularly, were linked with environmental determinist ideas about the importance of ‘clean’ and beautiful surrounds in the production of fit Australian citizens. In the US, Robert Gottlieb, and in Australia, Drew Hutton and Libby Connors, trace the roots of modern environmentalism in part to those middle-class urban reformers who sought to create clean and healthy environments for themselves and ‘the masses’. However, it seems that the environmental intentions of middle-class horticulturalists were very different from those of today’s environmentalists: with an anthropocentrism untempered by the insights of ecology, they contributed to the invisible, yet very real, pollution of ecosystems for both humans and wildlife.

Discourses of technical rationality were also bound up with ideas about the relationship between humans and their environment: technical rationality in the form of chemical pesticides and fertilisers offered the illusion of independence from the necessity imposed by nature. Although it was still deemed necessary to find or make suitable organic matter, and thus involve oneself to some extent with natural processes of nutrient cycling, it was believed by many that nature’s methods of plant nutrition could be improved upon through the use of artificial fertilisers. Many also believed that natural cycles of pestilence and predation could be ignored, in favour of carrying out warfare against all insects with poisonous sprays. As previously mentioned, what has often been conceptualised in terms of a general desire for domination of nature may, in the context of suburban gardens, be interpreted rather as a longing for independence from her vagaries and requirements. Gardens were regarded as essentially the products of nature, shaped and ordered by human hand. Romantic understandings of the environment were common among gardeners, and nature in her benign guise was revered. The Westrala Gardener, for example, waxed lyrical about ‘Nature, in her cultivated trim’, and the Western Australian Gardening Guide, employing judicious amounts of hyperbole, described the fruits of the gardener’s labour as

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the goods which we in this delectable climate can coax in abundance from Dame Nature, who, in her beneficence, lavishes upon all who make and maintain the slight necessary effort her unlimited treasures of beauty sublime.213

What gardeners desired was the freedom to carry on gardening on their own terms, in their preferred way, and enjoy the 'exquisite beauties of Nature'214 whilst remaining independent of the necessity she was liable to impose. Clearly, this approach to nature was inextricably bound up with the class location, and class habitus of the majority of food-producing home gardeners.

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213 The Western Australian Gardening Guide, p.128.
214 Ibid., p.6.
Chapter 8

‘...without troubling the cow’:
The ecology of suburban food production 1938-2000

The story of the ecology of suburban food production continues in this chapter which, like the last, seeks to trace changes in the ways in which food production interacted with its suburban and broader surroundings, by examining the methods and materials employed by gardeners, and the environmental impacts of gardening. Some of the reasons for the choice of particular food-production strategies are identified in the material contexts of suburban Perth and Melbourne, as well as ideas about science and its role, and constructions of the relationship between people and environment.

In the 1940s, the scale of food production - suburban and otherwise - was increased to meet the demands of a nation at war. Simultaneously, shortages of fuel, fertilisers, pesticides and other items commonly employed in commercial food production underlined the vulnerability of the Australian food system. Home gardeners were called upon to ‘grow their own’, to make up expected shortfalls in production and as a backup in case of food supply failures. As the number of large animals in suburban areas continued to decline, gardeners were forced to seek other sources of fertiliser. Some turned to composting and processed animal manures brought in from rural areas. Others used artificial fertilisers, which were promoted as a clean and efficient improvement on nature. The vision of a garden without manure was complemented by the vision of a garden without insects, which the new range of synthetic pesticides promised to deliver: the idea of human independence from the necessity imposed by nature retained its appeal. However, a select group of gardeners publicly promoted the benefits of composting, and occasionally questioned the use of persistent and toxic pesticides. Challenging the omnipotence of industrial science, they suggested that instead of seeking independence from nature, human relationships with nature should be conceived more in terms of interdependence. As ecological science began to catch up with industrial chemistry, on both a professional and popular level, the high price of privileging convenience over caution, productivity over permanence became apparent. Pesticide contamination was detected - often at high levels - in wildlife and in food, including backyard poultry eggs and human breast milk. Algal blooms in waterways increased, due in part to leaching of nutrients from soluble artificial garden fertilisers. Support for organic approaches gained momentum among home gardeners from the 1970s, though industrial science continued to develop and promote less-toxic pesticides. In commercial horticulture, Integrated Pest Management represented a marriage of ecological and industrial science. Throughout the period, the dialectic between suburban food production as contributor to urban sustainability, and as a detractor from it, continued.
For the first few years of the Second World War, the problem for commercial food producers was not one of shortages, but surplus: the reduction in export markets due to contraction in the amount of available shipping space led primary producers to fear industry collapse. Surplus food was a concern for around two years. However, after Japan entered the war and American food supplies were diverted to Russia, Australia began to change its own food production and consumption patterns in order to supply other countries (primarily the UK) and the increasing number of Allied personnel in the region.1 Commonwealth Food Control was established in May 1943, and given a wide range of powers relating to agricultural production, factory production, acquisition of food for the Services, inspections of foodstuffs and food-related premises, control and direction of exports, and liaison with the British food mission, United States army specialists, and marketing boards.

One of the greatest changes in the Australian food system was the expansion and mechanisation of market gardens, which quite suddenly had to provide supplies not only for the civilian population, but also for newly-established vegetable processing plant producing dehydrated and canned vegetables for consumption by the armed forces. By mid-1944, around 40 canneries and over 30 dehydration plants were operating throughout Australia.2 Established growers were encouraged to increase their areas under cultivation, and efforts were made to interest growers in areas where vegetables had not previously been grown to any great extent. A system of government contracts for vegetables grown specifically for service requirements was probably the main incentive for growers, as it meant that for the first time, they received guaranteed prices.3 The Commonwealth Directorate of Agriculture looked to the United States in seeking to improve the efficiency of Australian vegetable production and as a result, several of ‘the latest types of machines for row-crop cultivation, including tractors and machinery for all vegetable farming operations (soil preparation, planting, cultivating, spraying and dusting, harvesting, etc.)’ were imported from the United States under Lend-Lease.4 When Australia’s demands for machinery could no longer be met in the US, local agricultural machinery firms began to manufacture them. State Departments of Agriculture, with the assistance of Commonwealth and US Army advisers, conducted extension campaigns among farmers to acquaint them with the latest methods.

As a result of the changes, the area in Victoria under vegetables for human consumption (excluding potatoes and onions) more than tripled from 21,059 acres in 1938-39 to 66,471 acres in 1943-44.5 In Western Australia there was a lesser, though still substantial, expansion in the area under vegetables, from 10,064 acres in 1938-39 to

1 Commonwealth Year Book, 1942-43, pp.921-923.
2 NAA (Vic), CA 48, Department of Commerce and Agriculture, MP 48/1, FP217/1/5, Vegetable Production Policy and General, 1943-47, Commonwealth Food Control, 'War-time Organisation of Vegetable Production in Australia' (typescript), 13 July 1944.
3 ibid.
4 ibid.
18,785 acres in 1943-44. The war also stimulated the development of a domestic seed industry in Australia. Prior to the war, most of Australia's vegetable seeds were imported from the UK. When this source of supply was cut off, seed wholesalers turned to the US and New Zealand for supplies. However, it readily became apparent that the best solution would be to aim for national self-sufficiency in seed. Production was stepped up, and Yates' Seed Book of What and When to Sow proudly proclaimed that:

The total acreage under seed crop in Australia for our 1944 supplies of Beet, Cabbage, Carrot, Cauliflower, Cucumber, Lettuce, Melons, Onion, Parsnip, Pumpkin, Squash, Tomato, Swede and Garden Turnips, and many other smaller crops, shows an increase of more than 700 per cent on the corresponding acreage for 1939.

In spite of the increased production, shortages of vegetables were still expected. A table of anticipated shortfalls and surpluses appears in Appendix IX. In Western Australia the anticipated shortfalls were mostly fairly minor, with the exception of onions and blue boiler peas (for processing). In Victoria, more sizable deficiencies were anticipated, and serious shortages were expected in New South Wales, which raised the overall Australian shortfall predictions somewhat. When the demands of allied services, Australian civilians, British civilians (the Australian leadership felt obliged to maintain food exports to Britain 'at the highest possible level'), and some British Service units were taken into account, significant shortfalls were expected for milk (a shortfall of 180 million gallons), meat (150,000 tons, with civilian rationing), eggs (29 million dozen with civilian rationing), and canned fruit (1.22 million cases).

Although it was not generally expected that civilians would be able to make up the shortfall in milk or meat, it was recognised that they could be asked to grow their own vegetables and keep poultry for eggs, and to eat more of these than the foods in greater demand. Civilian production was also seen as insurance against a 'change in the season, onset of pests, unexpected interruptions to transport, manpower difficulties and other interventions'. The problems of a food-supply system which relied on external inputs had become obvious in the context of shortages of fuel and essentials such as rubber. In a film produced as part of the 'Grow Your Own' campaign, viewers were informed of the implications of the non-renewable, often imported, resource requirements of the contemporary food-supply system:

The average citizen imagines that when he grows some vegetables in his back garden it is only a saving in manpower - but it is much more than that.

If a farmer has to produce more foodstuffs it means he has to have more petrol to

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8 NAA (Vic), CA 264, Rationing Commission, MP 5/50, Box 5, 'Secret' - Food Background, 1942-43.
9 NAA (Vic), CA 48, Department of Commerce and Agriculture, MP 48/1, FP217/1/5, Vegetable Production Policy and General, 1943-47, Speech by Food Controller J.F. Murphy, 13 January 1944.
carry the foodstuffs to the railhead or the city, and he is using valuable rubber so
difficult to replace now the Dutch East Indies are in Japanese hands.

More coal has to be consumed in freight trains, more men engaged on servicing
freight engines and trucks, more men to handle the distribution and selling of the
produce, more man and womanpower to retail the produce to the public.10

It was clear to the government that home food production could help conserve scarce
resources, and also that oversupply was preferable to undersupply. Thus, the ‘Grow Your
Own’ campaign constantly reminded civilians that large amounts of commercial produce
were required for the Services, that there could be shortages, and that their health and bank
balance would both benefit from home food production (see for example Fig 8.1).

The difficulties inherent in organising home gardeners to produce their own food were
compounded, however, by the problem of local variation in conditions. Citing the difficulty
that Perth gardeners faced in producing vegetables during the harsh summers, in addition to
shortages of gardening necessaries, Western Australian Minister for Agriculture, F.J.S. Wise
and Under-Secretary for Agriculture G.K. Baron-Hay asked W.J. Scully, Commonwealth
Minister for Commerce and Agriculture, to delay the start of the campaign in Perth until
the following April.11 The Fremantle City Council refused to support the campaign, on
similar grounds.12 In Perth and Melbourne, campaign advertisements offering inappropriate
advice were roundly criticised. A wave of complaints from within the Victorian Department
of Agriculture followed the publication of newspaper advertisements in September 1943
which advised readers to use derris dust and dust guns - both unobtainable at the time - and
gave inappropriate planting times and varieties for Victorian conditions.13 In Perth, Claude
L. Piesse of Bassendean wrote to the Ministry of Agriculture to point out that the sulphate
of ammonia and derris dust recommended in the advertisements were unavailable, and
furthermore, that as ‘the advt. also tells us to use sandy loam in some cases while the
metropolitan area ... is sand - one wonders if the whole thing is a joke’.14 Piesse also
observed that in Perth it was necessary to water artificially for ‘about 8 months’, and asked

10 NAA (Vic), CA 48, Department of Commerce and Agriculture, MP 48/1, FP 217/5/1, Vegetable
Production Publicity Press and Films and Radio, 1943-45, 'The Farmer Comes to Town' [film script],
April 1943, p.4.
11 ‘Home Garden Drive Attacked’, Daily News, 24 September 1943, p.5. Their request was not acceded
to. Other than its timing, Wise and Baron-Hay supported the campaign, considering it particularly
important that Western Australia be self-sufficient in food, given its isolated position: NAA (Vic), CA
48, Department of Commerce and Agriculture, MP 48/1, FP 217/5/1, Vegetable Production Publicity
Press and Films and Radio, 1943-45, radio broadcast by Western Australian Under Secretary for
Agriculture, G.K. Baron-Hay, 14 September 1943, and ‘An Appeal for Home Vegetable Growing’, radio
broadcast by the Hon F.J.S. Wise, Western Australian Minister for Agriculture, 7 September 1943.
13 Several examples of such complaints may be found in PROV, Department of Agriculture, VPRS
10163/P2, Central Admin Correspondence files, Box 98, Vegetables Wartime Supply (Publicity) 1943-
1946; see also NAA (Vic), CA 48, Department of Commerce and Agriculture, MP 48/1, FP 217/5/1,
Vegetable Production Publicity Press and Films and Radio, 1943-45. A letter from J.M. Ward in the
latter suggests that the advertisements were put together for New South Wales conditions.
14 NAA (Vic), CA 48, Department of Commerce and Agriculture, MP 48/1, FP 217/5/1, Vegetable
Production Publicity Press and Films and Radio, 1943-45, Letter from Claude L. Piesse of Moondoo,
Bassendean, to Ministry of Agriculture, 16 September 1943.
Why you should **GROW YOUR OWN VEGETABLES**

The fighting forces... the fighting men, both our own and our Allies, are given the finest food this country can produce, including all the fresh vegetables they need to maintain their high standard of fighting fitness. Their needs must be met first and this means that often vegetable supplies remaining for civilians are short. You can overcome these shortages by turning part of your garden into a vegetable plot. Start growing your own now!

...so that you can supplement your weekly vegetable requirements
And remember! By growing your own, you help your country as well as yourself!

...so you can have plenty of fresh food
Doctors say that vegetables direct from the garden contain an abundance of health-giving vitamins.

...so you can save
Yes, it's sound economy to "grow your own." You save money and benefit in health!

START DIGGING NOW

Issued by the Dept. of Commerce and Agriculture

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Fig 8.1 ‘Grow Your Own’ advertisement.

PROV, Department of Agriculture, VPRS 10163/P2, Central Admin Correspondence files, Box 98, Vegetables Wartime Supply (Publicity) 1943-1946.
how it was going to be possible to replace his hose. In spite of the difficulties, however, many Perth gardeners appear to have successfully grown vegetables and kept poultry during the war.\textsuperscript{15} The Melbourne University Social Survey revealed that many Melbourne gardeners were also growing their own. In spite of the variety of soil types, gardeners were apparently able to produce fruit and vegetables successfully in all Melbourne suburbs, although at least one gardener on the clay at Northcote complained to the interviewers about the poor soil.\textsuperscript{16}

The literature reveals the likelihood that most gardeners had the same concerns, and were using the same techniques, as in the interwar period. Shortages of manure were still keenly felt - even more so as artificial fertilisers also became unavailable. In 1944, R.T. Patton, then senior lecturer in Botany at the University of Melbourne, wrote in his book \textit{Garden Farming}:

\begin{quote}
In the past, the careful tiller of the soil has prevented its impoverishment by adding to it animal manure and to a lesser degree plant compost. We live, however, in a motorised age, a day of mechanical transport, and the supply, therefore, of stable manure is almost non-existent.\textsuperscript{17}
\end{quote}

Competition for animal manure became fierce. Tot White recalled that in the 1940s in Fairfield, the baker came around a little later than the milkman, and several people in the street had ‘a little shovel and a bucket at the ready for when the horse came by’. Her husband, Tim, remembered that ‘People used to be really savage if they’d miss out on the droppings of the horse’\textsuperscript{18} Harold Oakford, who moved to Alamein in 1944, also used to ‘follow horses’, as well as buying manure from the local dairy.\textsuperscript{19}

Local businesses were starting to realise that a huge potential market existed for animal manure. In 1941, the Acme Garden Mulch Company in Burnley Street Richmond was selling pulverised sheep manure for 3s 6d for a 28 lb bag, to 10s for a hundredweight.\textsuperscript{20} Significantly, the advertisement mobilised the terminology of the ‘natural’ in promoting the product:

\begin{quote}
\textit{from the Stone Age .. to the Bomb age}
\textit{Nature has maintained soil fertility in her own inimitable way}
\textit{The ACME way is Nature’s Way}
\end{quote}

This was not, however, nature red in tooth and claw, for the manure was also ‘odourless and clean to handle’. The new processed manures allowed gardeners to experience nature ‘in her cultivated trim’, without getting their boots very dirty.

The usual answer to the problem of manure shortage - reuse of household and garden

\textsuperscript{16} Prest Social Survey form, Box 14, Municipality 18 (Northcote).
\textsuperscript{17} R.T. Patton, \textit{Garden Farming}, Melbourne University Press, Melbourne, 1944, p.37.
\textsuperscript{18} Tim and Tot White, interviewed by the author, 20 July 1999, tape in author’s possession.
\textsuperscript{19} Geraldine McFarlane (ed.), \textit{Voices of Camberwell: Alamein to North Balwyn}, City of Boroondara Library Service, Camberwell, 1999, p.32.
\textsuperscript{20} Advertisement, \textit{Australian Garden Lover}, February 1941, p.22.
waste - was also heavily promoted. The Department of Commerce and Agriculture cancelled a proposed advertisement on fertilisers and manures because of the shortage of artificial fertilisers, but ran an ad which advised gardeners to

**Bury the kitchen rubbish.** Never burn a leaf. Anything that will decay readily will add to the humus content of your average garden soil. The average family sends over a ton of good manure to the garbage tip each year. You should save this by burying it daily.²¹

As in the interwar period, composting was also proposed as a replacement for manure. R.T. Patton recommended a method by which compost could be produced quickly, and without animal manure: garden waste (and any other available organic matter, such as leaves from street trees) was moistened, mixed with a little superphosphate, sulphate of ammonia and wood ash, and turned regularly until, in a few weeks, it became rich, dark compost.²² Proprietary compost accelerators, which claimed to produce, for example, ‘a complete garden manure that is 75 per cent. more valuable than stable manure’, were also becoming available as early as 1941.²³ Fowls - chiefly White Leghorns and Australorps - were still recommended as an on-site manure source.²⁴ Where they were kept in orchards, they also kept down weeds and insect pests, and like compost heaps and waste pits, helped to minimise the amount of organic waste leaving residential properties, thus contributing to the sustainability of the city. Perhaps some gardeners also achieved a degree of on-site nutrient recycling by following the Department of Agriculture’s down-to-earth recommendation that ‘Urine at the rate of 1 pint to the gallon of water is also a good liquid manure’.²⁵

As the war ended, and supplies of artificial fertilisers again became available to home gardeners, they were embraced wholeheartedly by many. In September 1947, the *Home Gardener*’s regular vegetable gardening segment included the observation that ‘Years ago stable manure was considered the most desirable, but of late years it has been substituted with artificial fertilisers such as market garden manure, superphosphate and sulphate of..."
ammonia.' By 1948, it was noted that many gardeners looked upon lawn clippings as a problem, rather than valuable organic matter. Artificial fertilisers such as ‘Gro-plus’ were marketed as ‘complete plant food’, which would restore ‘full productivity to the soil’ and guarantee ‘bigger and better vegetables’. The artificial fertilisers were deemed a scientific improvement on nature; their effectiveness and ease of use cemented their popularity.

However, the new artificial fertilisers also had their detractors, who felt that ‘Too often soil fertility is interpreted in terms of percentages of plant food, and the remedy for the lack of fertility is looked for in the fertiliser bag.’ These writers saw the soil as alive, teeming with worms and microorganisms, rather than an inert mass which merely served to hold nutrients and roots. They disputed the omnipotence of industrial science, scorning ‘man’s’ meddling in nature: ‘Once he comes into the picture, and particularly when he commences to cultivate the land, the beautiful work of Nature in building up the soils suffers from his interference.’ The organic idea had arrived in Australia.

Biodynamics - the application of Rudolph Steiner’s anthroposophy to agriculture - had been practiced on a small scale in England and Europe from the late 1920s. However, it was only in the 1940s that ‘organic’ ideas started to achieve wider circulation in Australia. In 1940, Albert Howard published his Agricultural Testament, an exposition on the agricultural philosophy he developed over the course of 40 years of research in India, the West Indies and Britain. Howard, who remained unconvinced by Biodynamics, stressed the necessity of maintaining a ‘healthy’ soil, using approaches based on observation of ‘Nature’s agriculture’, which centred around the production of humus from organic wastes. He proposed that where a soil was not fertilised, or fertilised with artificial or poorly-prepared organic fertilisers, it became ‘diseased’, which in turn led to disease in animals. Drawing on the work of Robert McCarrison, and the Cheshire Panel Committee of doctors in England (among others), Howard also proposed, along with those researchers, that consumption of produce grown on ‘diseased’ soil could lead to ‘indisposition, inefficiency, and actual disease in people’. In 1946, Howard and McCarrison founded the UK Soil Association, which publicised their organic philosophy. Even before then, however, the

29 ‘What is Humus and What is its Function?’, Home Gardener, November, 1947, p.15.
30 ibid., p.15
33 Howard, An Agricultural Testament, chapter XII. McCarrison’s ideas were presented in the Cantor Lectures 1936, and subsequently published as a brochure and article in the Journal of the Royal Society of Arts. In 1953 they were also published in book form: Robert McCarrison, Nutrition and National Health, Faber and Faber, London, 1953. His ideas were also set out in his ‘Nutrition in Health and Disease’, British Medical Journal, vol.2, 26 September 1936, pp.611-615. The 31 doctors of the Cheshire Panel Committee in England produced a ‘Medical Testament on Nutrition’, published as a supplement to the British Medical Journal, 15 April 1939.
'organic idea' had filtered into Australia. In 1943, for example, one Miss Agnes Stops declared on national radio that 'there is no substitute for absolutely fresh food grown on soil that is, in itself, in perfect health. The soil is a living thing and as such, is subject to sickness'.

Stops derided the willingness of contemporary horticulturalists and agriculturalists to abandon the older methods, which were often congruent with natural processes. This, she claimed, had led to foods being grown on 'unhealthy soil', which in turn was 'the cause of so many of the mysterious diseases of which doctors today know so little and which are increasing at the present time'.

C. Stanton Hicks, a nutritionist and physiologist who had advised the Australian Army Catering Corps during the war, was also a believer in the 'organic idea', declaring in a public lecture in 1945 (later published by the Royal Australasian College of Physicians) that he fully supported:

the contention of McCarrison that health largely depends upon the consumption of whole food grown as part of a natural biological cycle, and of Howard that plant health is a direct result of maintaining intact the biological cycle and that animal health follows naturally from consumption of healthy plants.

In an age of accelerating and often frightening technological development - exemplified by the atomic bomb - the ideas of those who sought to reassert the limits of nature and the wisdom of 'fitting in' rather than trying to conquer nature, had some appeal.

In 1951, Your Garden published a series of four articles by Englishman Mr A. Guest, author of Gardening Without Digging. Guest promoted the use of compost and sawdust in the vegetable garden and orchard, although his directions also included small quantities of artificial fertilisers. His approach relied on earthworms, rather than digging, as the means by which good soil structure and fertility could be maintained. A small controversy soon raged in the pages of the magazine. One Mr Thomas D. Kay of Boronia, Victoria, wrote a series of two articles explaining why he preferred to dig. The Compost Society of Victoria responded with an article in defence of Mr Guest, including a lengthy exposition on the habits and usefulness of the earthworm.

In September, the magazine published the first of a series of two articles by the Compost Society on making compost, although the atypical insertion of a disclaimer at the top of the article suggests that the content was seen, at least by the editorial board, as somewhat controversial. In this article, humus was described as both mysterious - 'its full nature remains as yet unsolved by science' - and essential - 'the key substance to life as a whole'. The key to its production was to 'Observe what Nature

35 NAA (NSW), CA 251, Australian Broadcasting Commission, SP 300/1, ABC Talks Scripts - General, Agnes Stops, Production and Preservation, broadcast on 3AR, 24 December 1943.
36 ibid.
38 Victorian Compost Society, 'Life in Garden Soil is the Basis of Fertility', Your Garden, July 1951, pp.31, 39.
39 Victorian Compost Society, 'Here's How You Can Make A Compost Heap', Your Garden, September 1951, pp.9, 41. The disclaimer read: 'It is the policy of YOUR GARDEN to publish the views of Horticultural organisations whether they agree or not with those held by the editor'.
has been doing for centuries on the forest floor, and then copy her example’, albeit with some modifications to speed up the process.40 In December, Your Garden published - also with disclaimer - an even more challenging article by one F.C. King of Westmoreland, England, described by the editor as ‘a pioneer of the “No Digging” cult’. King discussed the decline of both yields and quality of produce in the Clyde Valley, England, which he ascribed to the use of ‘lethal’ pesticides, ‘scientific breeding’, and chemical fertilisers:

It is not without significance that the Clyde Valley produced a wide variety of fruits of excellent quality for 1,000 years without calling upon this form of scientific aid, but in half a century of scientific manuring, the land, by comparison, is well on the way to sterility.41

The appeal of ‘organic’ philosophies was limited, however, in that they challenged the dominant faith that industrial science possessed complete (or at least adequate) knowledge of garden matters, and was able to provide safe and effective ways of making gardening easier and more productive. Organic advocates also challenged the dominant ideal of independence from the vagaries of nature, by instead stressing the necessity of achieving a more balanced interdependence with the non-human world. For many gardeners, ‘the new idea [was] to mix the chemicals plants need without troubling the cow.’42 Some of those who did keep a compost pit may have tried to keep up the appearance of independence, by following the advice of one 1951 writer: ‘Make a compost pit somewhere, but wait a while before deciding on the site so as to make sure you can hide it from view - even to people having a look over the vegetable plot.’43 Others took advantage of the new ‘manufactured’ organic manures, which were increasingly offered in a similar forms to their artificial counterparts: odourless and ‘dried to powder form ... spread like fertilisers’.44 The increasingly popular artificial and processed organic fertilisers thus offered the illusion of independence from natural nutrient cycles, which involved dealing with smelly, bulky animal faeces, or rotting food and garden waste. Perhaps nowhere, however, was the attraction of the idea of independence from natural constraints more clearly displayed than in the area of pest control.

In 1939, Western Australian Government Entomologist C.F.H. Jenkins observed that ‘The use of chemicals as a means of insect control is practically universal’.45 In the early years of the war, arsenate of lead was still generally accepted as the best way of dealing with chewing insects. In Yates’ gardening book for children, The Garden Year with Mr Bear, published around 1939, the advice for November was as follows:

40 The composting method employed by the Society was the ‘indore’ method developed by Sir Albert Howard, which relies on aerobic bacteria to produce compost in a relatively short time.
42 Diana Mercer, ‘Gardening in Sand’, Australian Home Beautiful, April 1951, p.34
43 ‘Grow Your Own Vegetables’, Australian Garden Lover, November 1951, p.17.
45 C.F.H. Jenkins, A Review of Economic Entomology in Western Australia, MA thesis, University of Western Australia, 1939, p.4.
Happy we should be indeed
If the snails ate only weed,
But they seek expensive fare,
Not like Mr. Koala Bear.

Don’t put salt upon their tails,
Try a spray that never fails.
Arsenate of lead will do,
Yates’ advise and sell it too.\textsuperscript{46}

For sucking insects, nicotine sulphate remained the poison of choice.

By 1942, some insecticides were in short supply, and the extent to which commercial food production in particular relied on them became apparent. Nicotine sulphate posed the greatest problem, as it was deemed ‘absolutely essential in Vegetable Culture as a means of controlling Insects of the Aphis type’ and only small quantities were made in Australia.\textsuperscript{47} N.N. McLean Pty Ltd, who claimed to supply 99% of insecticides used by Victorian growers, wrote to the Controller of Defence Foodstuffs in August 1942 to state the seriousness of the position: ‘our stock of nicotine sulphate is being rapidly depleted and may become exhausted before November’.\textsuperscript{48} Estimates of annual Australian requirements ranged from 90 to 145 tons. However only 70 tons could be imported from the USA in 1942, and only about 25 000 lbs was made in Australia per annum (with a decline in this amount expected due to the high cost of tobacco leaf).\textsuperscript{49} The response to the situation was to supply growers with only around two-thirds of their usual order, while stocks lasted, and to order that nicotine sulphate be packed only in 1 lb tins, so as to put it beyond the reach of backyards producers. In late September 1942, the Controller of Defence Foodstuffs received a telegram which read: ‘vegetable position becoming serious on account of losses due to lack of supplies.’\textsuperscript{50} As the extent of the shortage became fully apparent, the bureaucrats became increasingly agitated. Other sources of supply were sought, but none could be obtained from Canada, the UK or India. In late 1942, some supplies were obtained from the US through lend-lease; these were made into a 3% nicotine sulphate dust and distributed among the states for use by contract growers, market gardeners, and home gardeners, in that order. Supplies remained, however, ‘very unsatisfactory’.\textsuperscript{51}

As well as nicotine sulphate, Metaldehyde (used as a snail bait), paris green, pyrethrum

\textsuperscript{46} The Garden Year with Mr Bear, Arthur Yates & Co., Sydney, c.1939, n.p.
\textsuperscript{47} NAA (Vic), CA 48, Department of Commerce and Agriculture, MP 48/1, FP120/1/6, Spraying Compounds for Vegetables, 1942-43, Letter from Deputy Controller of Defence Foodstuffs to Controller of Defence Foodstuffs, June 11 1942.
\textsuperscript{48} ibid., Letter from N.N. McLean Pty Ltd to the Controller Defence Foodstuffs, August 21 1942.
\textsuperscript{49} ibid., Letter from E.T. Edwards, Deputy Chief, Div of Plant Industries April 17 1942.
\textsuperscript{50} ibid., Telegram to the Controller of Foodstuffs from Director of Agriculture (Victoria), September 26 1942.
\textsuperscript{51} NAA (Vic), CA 48, Department of Commerce and Agriculture, MP 48/1, FP1/3/3, Vegetable Production Plan, 1942-43, Minutes of Special Committee Meeting called by direction of the executive of the Food Council to survey the position of vegetable production throughout Australia, 22 December 1942.
dust and derris dust were in short supply. Furthermore, although arsenate of lead was manufactured in Australia, McLean were having difficulty obtaining their full requirements. As well as the rising demand for lead arsenate due to increased backyard and commercial production, it was also employed in the fight against a new pest. The Cabbage White Butterfly was first found in Melbourne in 1939. Four years later, the first specimen in Perth was caught in a backyard vegetable garden in Bassendean. The damage wrought by the butterfly (in its caterpillar phase) was devastating. Ben Cook, who grew vegetables as a child in Northam and an adult in Nedlands, recalled:

I always used to like growing cabbages until in the last 50 years of course this white cabbage moth has invaded the gardens and you couldn’t stop the cabbage moth getting into the cabbages and cauliflowers so I haven’t grown them for years.

Similarly, in 1940s Northcote, Tim and Tot White didn’t grow a lot of cabbage - ‘you couldn’t. The moth’d get to that in no time’.

As in the prewar period, the imagery of warfare was often deployed in relation to pest control. Gardeners were told that ‘now comes the battle with the insects and diseases which

Fig. 8.2 ‘War against plant pests and diseases’
Arthur Yates & Co., Yates’ Seed Book of What and When to Sow,
like the enemy are waiting for the chance of an easy victory'\textsuperscript{56} (see also Fig. 8.2). With the introduction of the new organochlorine and organophosphate insecticides in the immediate postwar period, it seemed that victory over insects was finally assured. The insecticidal properties of the organochlorine DDT (dichloro-diphenyl-dichloroethylene) were first recognised in 1939 by Dr. Paul Muller, a Swiss entomologist, who was later awarded the Nobel Prize in Medicine for his discovery.\textsuperscript{57} The chemical was tested by the United States Bureau of Entomology and Plant Quarantine against body lice and mosquitoes. Following its use in the dramatic suppression of a typhus outbreak in Naples, and control of malarial mosquitoes in the Pacific, it came to be regarded as a miracle chemical.\textsuperscript{58} DDT manufacture began in Australia in 1947, after the patent rights had expired.\textsuperscript{59} Alexander Boden (later AO), as director of Hardman Chemicals Pty Ltd, established a small DDT factory in Marrickville, Sydney, and by the mid-1950s, DDT was also being manufactured in Australia by Union Carbide and ICI Australia.\textsuperscript{60}

In 1947, large advertisements for products such as Horto-kix, 'supercharged with DDT', began to appear in gardening magazines:

Just dust HORTO-KIX on your growing vegetables and let it work its miracles. HORTO-KIX is deadly to leaf-destroying insects, and the miracle is that one dusting keeps on killing for weeks ... there has never been a garden dust like it.\textsuperscript{61}

The new products worked spectacularly for a time, to keep produce 'nice and clean'.\textsuperscript{62} The vision was one of complete eradication of insect pests: in 1948, egg producers were told to spray 'DDeaTh' on pens and poultry, for the 'eradication and extermination' of parasites.\textsuperscript{63} It became reasonable to suggest that 'The aim of the home gardener should be to control all pests occurring in his garden.'\textsuperscript{64} In one advertisement for Horto-kix DDT spray, which dubbed it 'a real 1950 spray', the ambit was widened to include all insects: 'one spraying keeps right on killing for weeks, giving you definite control over garden insects.'\textsuperscript{65} (see fig. 8.3)

\textsuperscript{56} NAA (NSW), CA 251, Australian Broadcasting Commission, SP 300/1, ABC Talks Scripts - General, A.R. Hilton, Vegetable Growing as a Wartime Project, broadcast on SAN, 14 April 1942.

\textsuperscript{57} George W. Ware, \textit{An Introduction to Insecticides}, 3rd ed., University of Minnesota, http://ipmworld.umn.edu/chapters/ware.htm, 1999. The prize was, of course, awarded because of DDT's usefulness, from a public health point of view, for controlling insect disease vectors such as malaria-carrying mosquitoes.


\textsuperscript{61} Advertisement for Horto-Kix, \textit{Home Gardener}, August 1947, p.18.

\textsuperscript{62} Terminology from a growers' testimonial, appearing in the Horto-kix advertisement above.

\textsuperscript{63} \textit{The Egg Producer}, 28 January 1948, p.17.


\textsuperscript{65} Advertisement, \textit{Home Gardener}, March 1950, p.18.
The new sprays were, for a while, able to achieve close to the '100 per cent insect control' claimed in the advertising.\(^66\) However, this meant that whilst they killed pests, they also killed predators. It was often recommended that spraying should be carried out regularly as a preventative measure, as well as at the first signs of infestation.\(^67\) Such regular regimes left little opportunity for predator species to build up their numbers. Entomologists identified destruction of insect predators as a problem associated with the new organic insecticides as early as 1949.\(^68\) By the late 1960s, populations of two-spotted mite in Australian orchards were annually causing major leaf damage to fruit trees, as spraying of DDT and other broad-spectrum insecticides killed off the predatory *Stethorus* beetle.\(^69\)

Experiments carried out in 1971 found that where no broad-spectrum insecticides were used, the predatory beetle kept the mite population at very low levels.\(^70\) Furthermore, insect pests rapidly built up a resistance to the new sprays: the first instance of insect resistance to DDT was reported in 1946, even before DDT was in common usage in Australia. The world’s first recorded case of Codlin moth resistance to DDT was recorded in South Australia in 1953.\(^71\) Of course, not all gardeners used the new sprays. Tim and Tot White relied on the old nineteenth-century standby of soapy water, and accepted some losses.\(^72\) However, Neil Durstan admitted that he had ‘poisons out there in the garage but they’re probably no good - I haven’t used them for years’.\(^73\) The very fact that the pesticides were commercially-viable for many years also indicates that they were bought - and presumably used - by home gardeners in not insignificant quantities.

Although safer for humans than the arsenical insecticides commonly in use prior to the war, the new insecticides were by no means benign. DDT can be taken into the body by inhalation, ingestion or through the skin. In the short term, it irritates mucous membranes, and in high enough doses may effect the central nervous system, causing convulsions, respiratory failure, and death. Long-term exposure may affect the central nervous system and/or liver.\(^74\) There is much debate over whether DDT is a human carcinogen, and it is

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\(^{67}\) See for example Victorian Department of Agriculture, *Vegetable Growing in the Home Garden*, 4th ed., p.53.


\(^{70}\) ibid. A similar problem occurred with the spraying of DDT for oriental fruit moth: the insecticide killed many of the ladybird and lacewing species that contributed to control of the pest, which then became more difficult to control: Graeme J.T. Frith, ‘The Contribution of Science to Australian Intensive Agriculture 4. Temperate Fruit Research: 1935-85’, *Journal of the Australian Institute of Agricultural Science*, vol.51, no.2, 1985, p.104.


\(^{72}\) Tim and Tot White, interviewed by the author, 20 July 1999, tape in author’s possession.

\(^{73}\) Neil Durstan, interviewed by the author, 29 September 1998, tape in author’s possession.

\(^{74}\) International Chemical Safety Card (0034) - DDT, March 1995.
"Insects won’t get your vegetables if you dust occasionally with KIX GARDEN DUST" — says Mr. Rud Brown, Retail Manager of Watters & Sons Pty. Ltd. (the West End Seedsmen of 217 Queen Street, Melbourne).

Having built a reputation over the years for service and honest trading, Watters are particular to recommend only the best to their customers. That’s why Watters recommend Kix Garden Insecticides to customers seeking 100 per cent control of garden insects.

In the vegetable plot... rely on

KIX Garden Dust
(formerly Horto-Kix)

"One Dusting Keeps on Killing for Weeks"

Write “Finish” to those insects that haunt your vegetable garden by dusting occasionally with Kix Garden Dust. You’ll be amazed at the results. You’ll grow vegetables absolutely free from insect damage—and that’s as good as money in the bank nowadays.

One dusting with Kix Garden Dust gives complete protection for weeks from Green Vegetable Bugs, Caterpillars, Leaf Eating Bugs, Potato Moth, Cabbage Moth and almost every other type of insect.

1 10 packet everywhere

KIX GARDEN DUST
—the miracle DDT dust

For flowers, vines, fruit trees, shrubs, etc.

KIX Garden Spray
(formerly Agro-Kix)

KILLS: Green Aphis, Black Aphis, Apple Leaf Hopper, Caterpillars, Leaf Eating Bugs, Bollworm Bugs, Harlequin Bugs, Thrips, Cabbag Moth, Cutworm, Cabbage Moth and dozens of others.

There is only one easy way to obtain definite control over garden insects, and that is to spray occasionally with KIX GARDEN SPRAY. Kix Garden Spray—super-charged with DDT, is a real 1950 spray and one spraying keeps right on killing for weeks giving you definite control over garden insects. (Does not kill Woolly Aphis or Red Spider—use Kix Nicotine Sulphate.)

1 4 bottle makes 1 ½ gallons spray
2 8 bottle makes 4 ½ gallons spray

PROVED—Australia’s outstanding Garden Spray

KIX Garden Spray

and of course: Double your tomato crop this year with GRO MATO—sensational setting spray
(also sets runner beans)

and Weed out your lawn the 1950 way with KIX WEED KILLER

CLARK, KING & CO. PTY. LTD., 237 Queen Street, Melbourne

MU 9367

Fig 8.3: Advertisement, Home Gardener, March 1950, p.18.
classified by the World Health Organisation and others as ‘possibly carcinogenic to humans’, as well as possibly having toxic effects on human reproduction.\textsuperscript{75} It is known to be highly toxic to several fish species, and causes eggshell thinning in some bird species, especially predators.\textsuperscript{76} Its indiscriminate use in the garden context was therefore not without repercussions.

Another pesticide which was taken up with enthusiasm by at least one gardening writer was the organophosphate pesticide parathion. The insecticidal properties of organophosphates were discovered by I.G. Farben chemist Gerhard Schrader, as part of the Nazi chemical warfare programme.\textsuperscript{77} They were later employed in the formulation of the nerve gases tarbun and sarin.\textsuperscript{78} By 1951, parathion was available to home gardeners as E605 Folidol, recommended for making a ‘clean sweep’ of the garden.\textsuperscript{79} Again, the vision here is one of a garden devoid of insect life, attached to a broader aim of tackling the ‘immense problem’ which insect enemies were felt to pose to humankind (see Fig. 8.4). At 9s for a 2oz bottle, parathion was described as ‘really a cheap form of protection’, and ‘useful against any insect at all times.’\textsuperscript{80} Whereas DDT has a low acute mammalian toxicity, parathion has an extremely high acute toxicity: human fatalities have been caused by inhalation, ingestion, and absorption of the poison through the skin. It is also highly toxic to birds and non-target insects (including honeybees), and moderately toxic to fish.\textsuperscript{81}

\textsuperscript{75} ibid.
\textsuperscript{76} Cooperative Extension Offices of Cornell University, Oregon State University, the University of Idaho, and the University of California at Davis and the Institute for Environmental Toxicology, Michigan State University, ‘Extotoxnet Pesticide Information Profile: DDT’, (Extotoxnet), http://ace.orst.edu/info/extoxnet/pips/ddt.htm, June 1996.
\textsuperscript{77} Russell, ‘Speaking of Annihilation’, p.1519.
\textsuperscript{78} ibid., p.1520.
\textsuperscript{79} ‘Let’s get on with the “Clean-up” Now’, Your Garden, May 1951, p.42. An advertisement for Law Somner, of Elizabeth Street in Melbourne, appears on the page opposite and E605 Folidol appears in the list of products sold (p.43). Barr and Cary, in \textit{Greening a Brown Land} state that parathion ‘was judged to be safe enough for orchard use, but not for use by home gardeners. The less toxic malathion and rogor were released for home and orchard use.’ (p.190). However, it is clear from the advertisements that parathion was released for home garden use in Victoria in the early 1950s.
\textsuperscript{80} ‘Let’s get on with the “Clean-up” Now’, Your Garden, May 1951, p.42.
\textsuperscript{81} Cooperative Extension Offices of Cornell University, Oregon State University, the University of Idaho, and the University of California at Davis and the Institute for Environmental Toxicology, Michigan State University, ‘Extotoxnet Pesticide Information Profile: Parathion’, (Extotoxnet), http://ace.orst.edu/info/extoxnet/pips/parathion.htm, September 1993. The organophosphates are similar in chemical structure to nerve gases such as sarin; Ware, \textit{An Introduction to Insecticides}; Barr and Cary, \textit{Greening a Brown Land}, p.192.
The wisdom of using such toxic sprays as parathion was questioned fairly early by those such as F.C. King, who in 1951 wrote in Your Garden:

> From the days when a simple lime wash was used on the trunks of apple trees, or a mixture of clay, cow dung and soot was plastered on them, we have reached the stage when operators, applying modern spraying fluids, need protective clothing lest skin be seared, scalded or disfigured, and even so, death may claim a victim before the day ends. Only if the results obtained under such systems of management are immeasurably better than they were before the evolution and use of lethal compounds, and if good wholesome fruit can only be produced thus, can modern methods be justified?82

Although organochlorines have a lower acute toxicity than organophosphates such as parathion, they persist for a longer time in the environment. DDT, for example, has a reported half life of between two and 15 years, and is fairly immobile in most soils, particularly those containing much organic matter.83 One of the greatest concerns about DDT and other organochlorines - particularly for a species at the top of the food chain - is the fact that they accumulate in fats, including body fats, milk (including human breast milk) and eggs. In the US, naturalists expressed concern over the potential environmental effects of DDT in 1944, before its general release to the public.84 Ecological and medical research carried out in the United States, Europe, and even Australia between 1944 and

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83 Cooperative Extension Offices of Cornell University, Oregon State University, the University of Idaho, and the University of California at Davis and the Institute for Environmental Toxicology, Michigan State University, 'Extotoxnet Pesticide Information Profile: DDT'.
1961 also identified a wide range of problems with the organochlorines and other pesticides. But it was not until after 1962, when Rachel Carson published her dramatic synthesis of research into the health and ecological effects of the new pesticides in *Silent Spring* that many members of the public seriously began to question the wisdom of using such persistent and toxic chemicals. In the 1950s, the chemicals were widely promoted by the industrial chemical industry - and generally regarded by the public - as a cheap, effective and unproblematic means by which to ‘defeat’ insect pests.

**1955-1972**

Increasingly from the 1950s, vegetable production centres with large, mechanised farms specialising in particular crops were established in non-metropolitan regions, and produce for metropolitan consumption was transported from these areas and interstate. Carnarvon, Manjimup and Albany became the main centres of vegetable production in Western Australia, outside of Perth. In Victoria, vegetable-growing districts were established in the irrigated areas between Shepparton and Rochester, and along the Murray River in the northwest of the state. In the context of the postwar economic ‘boom’, there was an increased demand for out-of-season fruit and vegetables, even if they were a bit more expensive. Developments in refrigeration also made long-distance transportation more cost-effective. Thus in 1964, supplies of tomatoes were transported to Melbourne from far and wide:

During mid-winter supplies are drawn from the Geraldton district in Western Australia. The next source of supply is from Rockhampton and the coastal areas of southern Queensland. Later on Adelaide tomatoes appear, and from November and December supplies come from the middle Murray and the Riverina. The irrigation districts near Shepparton are producing large quantities in January, while later crops (February to April) are grown near Melbourne itself or in areas of good rainfall near the coast.

However, much food production was still concentrated in and around the metropolitan areas. A list of market gardens, poultry farms, stables and other agricultural enterprises identified by Local Governments in Perth in 1959 appears in Appendix VIII. Most of the market gardens were concentrated in the southern suburbs of Spearwood and Coogee South, and the northern suburbs of Osborne Park, Balcatta, and Wanneroo. Some of the last

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remaining Chinese market gardens were located in the inner north, in Melrose Street Leederville, near lake Monger, and on Loftus and Charles Streets in North Perth, near what remained of Smith’s lake.89 Poultry farms were mainly found in the northeastern areas of Belmont Park and Bayswater with a substantial number also in Canning, to the southeast. Although pre-existing uses were allowed under zoning legislation, commercial agricultural enterprises in areas zoned residential could experience harassment from authorities until they moved on.90 In the northern Perth suburb of Bayswater, Gobba’s dairy was fortunate enough to end up in an area zoned industrial, so was able to operate in relative freedom until it was wound up in the early 1970s.91 In Victoria, by the mid-1970s more than half the vegetables grown in the state (by value) were produced within 100km of Melbourne.92 As the metropolis grew, however, so did demand for residential and industrial land. Local Governments such as the City of Moorabbin changed the rating base from nett annual value to unimproved capital value, and increased rates and land taxes meant that for many, subdivision was more profitable than cropping.93 As a result, vegetable production was pushed from its traditional base in the ‘sandbelt’ suburbs to the Dandenong-Cranbourne area further southeast.

The metropolitan farmers who remained were forced to increase profitability. One of the ways this was done was by minimising labour costs and increasing yields via the use of new varieties, irrigation technology and chemicals. In the Perth suburb of Osborne Park, full-time growers worked two to five acres, and part-time growers up to one and a half acres. By the mid-1960s, they were using a variety of fertilisers, including artificial, manure from nearby stockyards or poultry farms, and occasionally sewage sludge.94 The latter was a way of increasing urban sustainability, as waste nutrients were cycled back into food for the populace. However, over-enthusiastic application of the sludge could lead to trace element toxicity.95 Pesticides used on the vegetables included dieldrin for grasshoppers, ‘cabbage pests, ants and other insects’; Meta-systox for sucking insects;
parathion, DDD and malathion for red spider mite and insects. Increasingly, weeds were also controlled by spraying chemical herbicides such as 2,4-D. Most growers used small spray pumps, of about 3-4 gallon capacity, with larger growers using tractor-drawn or mounted spray units. Orchardists in urban areas and elsewhere had also taken up the new sprays, and achieved larger yields as the sprays were less toxic to fruit trees than the old arsenicals. In addition to pesticides, orchardists also took advantage of herbicides and used chemicals such as naphthalene acetic acid (NAA) and dinitro cresol (DNC) to thin crops so that the remaining fruit would reach a marketable size. Some orchardists also employed chemicals to alter the shape and colour characteristics of their fruit.

Home gardeners and poultry-keepers also continued to deploy the increasing range of organochlorine and organophosphate insecticides in the quest for a clean and productive garden. In the context of a booming economy, when many gardeners found themselves with more money and less time for gardening, and a ‘modern’ consumerist outlook hailed the pleasures of the new and up-to-date, the literature sought to portray gardening as a ‘modern’ leisure activity which was rewarding, yet not a source of drudgery. The burgeoning garden products industry supported this modern gardening idea by producing a range of dusts, sprays and gadgets which were advertised as effective, quick, and simple to use:

**BUG GETA.** The only pest killer containing D.D.T., D.D.D. and the amazing new MALATHION. **Now kill every garden pest in one simple spraying with BUG GETA.** The three powerful ingredients quickly and surely kill garden bugs, mites, aphids, beetles, moths, fruit fly, grubs, thrips etc. - even the very difficult hairy and woolly type insects.

Home gardeners could ‘simply mix Bug Geta with water and spray’. They were also absolved of the necessity of learning to identify insects, let alone study their habits and life-cycles: in 1971, *Yates Garden Guide* recommended the use of ‘complete pestkillers’, containing a mixture of chemicals to ‘deal effectively with any species’, as ‘the home gardener, in most cases, would be doubtful of the species’. Charles W. Smith, writing for *Your Garden*, also did away with the old methods of dealing with poultry parasites, which involved painting oil

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96 Skroza, Market Gardens in Osborne Park, p.10. Meta-systox is a trade name for demeton-s-methyl, a systemic organophosphate insecticide which is taken up into plants, making them toxic to insects. It is no longer registered for use in the United States. It is mutagenic and toxic to birds, fish and bees: Cooperative Extension Offices of Cornell University, Oregon State University, the University of Idaho, and the University of California at Davis and the Institute for Environmental Toxicology, Michigan State University, 'Extotoxnet Pesticide Information Profile: Demeton-s-methyl', (Extotoxnet), http://ace.ace.orst.edu/info/extoxnet/pips/demetons.htm, September 1995. DDD is closely related to DDT.

97 Skroza, Market Gardens in Osborne Park, p.10.


100 For example, by using a mixture of benzyl ademine and giberellic acid to achieve the classic elongated red delicious apple shape. Growth-regulating chemicals have also been employed to alter the colour of fruit: Frith, *The Contribution of Science*, p.106.


or smearing vaseline on stickfast fleas and scaly leg mites. Instead, he recommended keeping poultry sheds free from pests by ‘spraying the walls, litter and nesting-boxes’ with a 20% DDT solution, and painting the perches with benzene hexachloride.103 Other preparations on offer in the early 1960s included Dieldrin and Lindane, an ICI UK invention for which the production process was refined by ICI Australia.104

Older preparations, including derris dust, nicotine sulphate, lime sulphur, arsenate of lead, red oil and Bordeaux mixture were still offered, however, it was the new insecticides, herbicides and fungicides that were most often recommended, and most heavily advertised: right up to the early 1970s, the idea of independence from the depredations of insect pests was discursively inseparable from the new insecticides. Although it is probable that some home gardeners still used older remedies such as hand-picking, which were labour-intensive and low-impact but not entirely effective, there was certainly sufficient demand for the new pesticides, for their sale to home gardeners to be commercially viable. The pursuit of ecological independence continued.

The metropolitan pesticide burden - especially in Perth - was substantially added to by Argentine ant eradication programmes. The ant was first discovered in Victoria in 1939, and by 1941 it had spread to Western Australia.105 The ants became an acute household and garden pest, infesting pantries, dining rooms, even refrigerators. They were also known to overrun chicken pens, sometimes killing birds, and in severe cases, bed legs were placed on vaseline-smeared plates or tins of water with a kerosene film, in order to stop the ants climbing onto the beds.106 The ants were particularly troublesome in the dry heat of Perth summers, as they invaded houses in their relentless pursuit of moisture.107 In Victoria, control of the pest was carried out by local authorities on an ‘as-needed’ basis. In Western Australia, however, the response was legislative, with the Health Act being amended in 1949 to include Argentine ant control regulations, and the Argentine Ant Act being passed in 1954.108 The regulations, and then the Act, gave sweeping powers to ‘authorised persons’ to enter and inspect properties, and to spray, or require owners to spray, prescribed chemicals to kill the ant.109 Spraying with DDT was carried out in Perth between 1949 and 1951, and in 1954 a large-scale spraying campaign began under the Argentine Ant

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103 Charles W. Smith, ‘Questions and Answers’, Your Garden, April 1956, p.62
105 Jenkins, Some West Australian Insect Pests, p.36.
107 This aspect of the ant’s behaviour was brought to my attention by M.A. Widmer, Social Insect Research, Agriculture Western Australia, letter to the author, 3 October 2000, letter in author’s possession.
109 See for example Argentine Ants (Health Act) regulations 1950, Government Gazette of Western Australia, 24 March 1950, pp.718-719; Argentine Ant Act 1954 (WA).
Act, with the aim of eradicating the pest within 5 years.\textsuperscript{110} The campaign was based on the use of dieldrin, with chlordane being used in ‘sensitive areas’ such as around fishponds and aviaries. The chemicals were sprayed around the perimeter of an infestation, and in grid lines spread three metres apart within the infested area. Later, when heptachlor replaced dieldrin, it was applied in grid lines spaced one metre apart, and chlorpyriphos was used for ‘sensitive areas’ in place of chlordane.\textsuperscript{111} Details of the spraying campaign, including hectares sprayed and litres of spray laid, appear in Appendix X. From the commencement of the campaign in 1954 until its suspension in 1988, between 234 and 4857 hectares were treated every year. Some areas were treated repeatedly. Most of the spraying was carried out in the inner and middle suburbs of Perth, though the campaign also extended to some country towns. During the campaign, a total of 31 093.4 hectares were sprayed with 35 188 846.5 litres of chemicals, at a cost of $4 963 230. Although its spread was controlled, the ant was not eradicated.\textsuperscript{112}

In Melbourne, there was no campaign directed at eradication of the ant, and spraying was carried out by householders, private pest control operators, or where required, by the council. DDT, chlordane and dieldrin were used until the 1970s, when chlorpyriphos became the insecticide of choice.\textsuperscript{113} One past president of the Pest and Weed Control Association of Victoria was very concerned about the lack of training of council workers: ‘dieldrin could be sprayed by council workers without any training ... In Caulfield, they did not appear to know what they were doing, and sprayed it all over the place.’\textsuperscript{114}

Dieldrin, chlordane and heptachlor are all cyclodiene insecticides, a type of organochlorine compound. Like that other organochlorine, DDT, they are very persistent in the environment, and are subject to biomagnification within food chains. Dieldrin, the most persistent of the cyclodienes, moves extremely slowly in soil, and has a reported half-life range of 2-39 years.\textsuperscript{115} The cyclodienes are toxic to birds, bees and fish, as well as humans.\textsuperscript{116} Some have been shown to cause cancer in mice, and are regarded as potential

\textsuperscript{110} EPA, \textit{Heptachlor Use For the Control of Argentine Ants}, Appendix 1, p.9. This stated aim was taken from the Minister’s second reading speech.

\textsuperscript{111} Ibid., p.11.

\textsuperscript{112} Note that the figure of 31 093.4 hectares overstates the total area that was sprayed, because areas that received multiple treatments were added to the total each time they were sprayed. As a result of the spraying programme, the extent of Argentine Ant infestation in Western Australia was reduced from around 17 000 ha in the late 1950s (mostly in Perth), to 1458 ha in 1988, when the programme ceased. By 1991, the extent of infestation had again increased, to more than 3000 ha. Agriculture WA is not aware of the current extent of the area infested by the ant in the state: M.A. Widmer, Social Insect Research, Agriculture Western Australia, letter to the author, 3 October 2000, letter in author’s possession.

\textsuperscript{113} EPA, \textit{Heptachlor Use For the Control of Argentine Ants}, Appendix 1, p.12

\textsuperscript{114} Yvonne Dolman, \textit{Children, Fools and Pesticides}, Prism Publishing, Mentone, c1990, p.34.


human carcinogens.\textsuperscript{117} They accumulate in human breast milk, and there is little knowledge of their effect on infants.\textsuperscript{118}

The use of organochlorine insecticides in the urban environment, by market gardeners and those attempting to eradicate Argentine ants, as well as by home gardeners and poultry-keepers themselves, had three main impacts on suburban food producers. Firstly, there is evidence pointing to a large decline in the insectivorous bird population in Perth following the 1950s spraying programme.\textsuperscript{119} This decline is likely to have been responsible for increases in other pest insects normally susceptible to predation by birds, and to have thus led to the initiation of a vicious cycle where more garden insecticides were used. A wide range of other wildlife also suffered ill-effects due to pesticide exposure.\textsuperscript{120} Secondly, cyclodienes accumulate in human foodstuffs, including meat and the eggs of fowls and other poultry, where they may pose a threat to the health of consumers. In 1981, it was found that the average level of dieldrin detected in eggs from fowlyards sprayed with aldrin and dieldrin was greater than 5 mg/kg - fifty times the regulation MRL (Maximum Residue Limit) for eggs of 0.1mg/kg.\textsuperscript{121} The persistence of the cyclodienes and other organochlorines in soil also means that they continue to accumulate in eggs long after spraying has ceased. Thus, a Western Australian study of backyard fowl eggs conducted in 1989 detected organochlorine levels that were ten times the relevant MRLs in 5% of samples tested.\textsuperscript{122} In an earlier test of ten egg samples from Perth backyards, seven exceeded the MRL, with one sample containing 80 times the MRL.\textsuperscript{123} Even where residue levels are below the MRL, they can exceed the limits regarded as safe for health, represented in Australia by ADIs, or acceptable daily intakes.\textsuperscript{124} Another example of organochlorine contamination comes from Werribee, where the flesh of cattle fed on pasture irrigated with treated sewage were found to have accumulated high levels of organochlorines.\textsuperscript{125} Organochlorine contamination of sewage sludge remains a barrier to its

\begin{itemize}
\item \textsuperscript{117} EPA, \textit{Heptachlor Use For the Control of Argentine Ants}, p.9.
\item \textsuperscript{118} ibid.
\item \textsuperscript{119} ibid., p.7 and Appendix 1, p.13.
\item \textsuperscript{120} ibid., p.7 and Appendix 1, pp.13-14.
\item \textsuperscript{121} Dingle, The Science, Management and Politics of Heptachlor, p.89.
\item \textsuperscript{123} Dingle, The Science, Management and Politics of Heptachlor, p.89.
\item The Maximum Residue Limit is based on levels of a residue that would be expected to appear in a food produced according to good agricultural practice. They are not direct health measures. In some circumstances, consumption of products with residue levels below the MRL can mean that acceptable daily intake levels, or ADIs, are exceeded. ADIs are set by the Therapeutic Goods Administration of the Commonwealth Department of Health and Family Services according to risks of adverse health effects over a lifetime of consumption. For example, the ADI for dieldrin is 100 ng/kg body weight per day. For a 55kg person, the ADI is 0.0055 mg of dieldrin per day. If that person eats two 50 g backyard eggs contaminated with dieldrin at 0.07 mg/kg (below the MRL of 0.1mg/kg), they are getting 0.007 mg of dieldrin, which is above the ADI for a person of that bodyweight. This exact situation in fact occurred with my own backyard hens, in the inner northern Perth suburb of Highgate, in 1999-2000.
\end{itemize}
increased use for agricultural purposes today.\textsuperscript{126}

The other major impact of organochlorine use relates to suburban food producers of a different kind - lactating women. Organochlorines were first detected in human breast milk in the US in 1951.\textsuperscript{127} A 1973 study of 40 breast milk samples in Queensland found that all were contaminated with DDT, dieldrin and HCB (an organochlorine of which lindane is a purified form) at levels which exceeded the World Health Organization recommendations.\textsuperscript{128} Twenty years later, a Western Australian study detected dieldrin, DDT and HCB in all breast milk samples, and heptachlor in most. The ADI for dieldrin was exceeded in 90\% of the samples.\textsuperscript{129} The impact on infants of such high levels of pesticide consumption remain uncertain.

At the same time, public awareness of the possible impacts of such persistent and harmful chemicals was increasing. From its beginnings in the interwar period as a more or less independent science, ecology had been slowly taking shape. In 1935, British ecologist Arthur Tansley (later Sir) first applied the term 'ecosystem', which he took to mean:

the whole system (in the sense of physics) including not only the organism-complex, but also the whole complex of physical factors forming what we call the environment of the biome - the habitat factors in the widest sense.\textsuperscript{130}

But the word 'ecosystem' only found its way into widespread public usage with the publication of Rachel Carson's \textit{Silent Spring} in 1962.\textsuperscript{131} With her vivid prose and meticulous research, Carson reached a wide audience indeed: \textit{Silent Spring} made the \textit{New York Times} bestseller list for 31 weeks and generated public debate on pesticides throughout the world.\textsuperscript{132} The book thus awakened an environmental consciousness in millions of Americans, and ultimately Australians. Of course, popular ecology did not arise out of a vacuum in Australia. As we have seen, proponents of organic approaches had previously questioned the omnipotence of science and the wisdom of large-scale deployment of the new insecticides.\textsuperscript{133} But as a result of the movement which coalesced in the U.S. in the wake of Carson's work, ecology received a boost as a professional science, as well as a popular

\textsuperscript{126} ibid.
\textsuperscript{127} Kate Short, \textit{Quick Poison, Slow Poison: Pesticide Risk in the Lucky Country}, Kate Short, St Albans, 1994, p.84.
\textsuperscript{133} Organic gardeners, anthroposophists, and those concerned (as Agnes Stops, quoted above) with 'environmental disease', have also been identified by Christopher Sellers in the U.S. context as cultural precedents and resources for the creation of an 'environmentalist imaginary', which was critical to the establishment of the new environmentalism in the 1960s: Christopher Sellers, 'Body, Place and the State: The Makiings of an 'Environmentalist' Imaginary in the Post-World Wat II U.S.', \textit{Radical History Review}, vol.74, 1999, pp.31-64.
one. Many people became more aware, in particular, of the problems associated with organochlorine pesticides. The ‘cautious’ science of ecology was at last catching up with the capitalist science of industrial chemistry.

In 1963, an advertisement for ‘Mortein Plus’, a pyrethrum-based flyspray, attempted to capitalise on these new-found fears:

Mortein is so different from other sprays, most of which contain dangerous ingredients such as lindane, benzene hexachloride or dieldrin - many such sprays are so harmful to humans that they would not be permitted to be sold in the United States of America.\(^{134}\)

Some Perth residents began to have doubts about the wisdom of allowing their properties to be sprayed for Argentine ants, and occasionally police gained entry by force where residents had refused to allow ant control personnel onto their properties. In other cases, residents were restrained by police while their properties were sprayed.\(^{135}\)

Public concern over the use of heptachlor for Argentine ant treatment had reached substantial levels in Western Australia by the mid-1980s. DDT, which had been deregistered in the United States in 1972, was deregistered in Australia in 1987.\(^{136}\) In the same year, the cyclodienes were deregistered for agricultural use in Australia, after a well-publicised incident in which the United States rejected Australian beef containing high levels of organochlorine residues (especially dieldrin).\(^{137}\) In 1988, the residents of Denmark, a town in the southwest of Western Australia, referred the Argentine ant spraying programme to the Environmental Protection Authority (EPA). The programme was consequently suspended and, as a result of the EPA enquiry, it was never resumed. Cyclodienes were still, however, commonly used for termite control on suburban properties and it was only in 1995, after a long campaign by community groups (especially Householders for Safe Pesticide Use), that they were deregistered for all uses in Western Australia. Significantly, protests in the early 1990s calling for a total ban on all uses of organochlorine pesticides played up the risks of contamination of home-grown food. At one such gathering, protesters brought their hens along and presented a basket of contaminated eggs to Health Department officials. Some activists, dressed in chicken costumes, waved placards reading ‘Organochlorine omlettes: No thanks’ and ‘Chickens against chemicals’.\(^{138}\)

The Argentine ant control campaign highlights the way in which the political, economic and cultural contexts of pesticide use in the postwar decades combined to permit

\(^{134}\) Advertisement for ‘Mortein plus’, *West Australian*, 27 February 1963, p.10


\(^{137}\) However, they continued to be used as termite treatments and it was only in 1995, after a long campaign by community groups (namely Perth-based Householders for Safe Pesticide Use), that the cyclodienes were deregistered for use in all states except the Northern Territory, who were given an extra two years to find an alternate way to deal with their large tropical termite, *Mastotermes darwiniensis*: Pam Nichols, ‘Expanding the Scope of Environmental History: Householders Campaigning for Safer Homes’ in Andrea Gaynor, Anna Haebich and Matt Trinca (eds), *Country: Visions of Land and People in Western Australia*, Western Australian Museum and the Centre for Western Australian History, Perth, forthcoming 2001.

the application of persistent and toxic chemicals over large tracts of suburban land in Perth in spite of doubts, from the 1960s, about their long-term safety. Industrial chemists may have believed (in spite of mounting evidence to the contrary) that they were placing the fruits of scientific progress at the service of the public in the interest of creating a better world. But ultimately industrial chemistry, as a servant of capitalism, was more concerned with profit than questions of long-term health or safety, and was operating within a social and regulatory context which permitted this approach. Indeed, at first, this campaign in the war against insects received substantial public support.139 In the absence of a strong voice for ecological science, at a professional or popular level, to counsel caution in the use of pesticides, they were applied over large areas for long periods, with at least potentially harmful effects, and the goal of eradication was still not achieved. The challenges to the chemical paradigm by a popularised ecological science were ultimately successful in ending the campaign, though the legacy of a less cautious age remains in the soil.

In the field of home garden fertilisation, the pattern established in the early 1950s continued more or less unchanged, with gardeners buying an increasing variety of artificial fertilisers, as well as pulverised, bagged animal manures. It seems that many gardeners had been overenthusiastic in their application of the new artificial fertilisers, with undesirable results:

And so with the ever-increasing use of fertilisers, due to diminishing supplies of animal manures, and the proper use and place of such fertilisers not then being so clearly understood, the results of unbalanced feeding became more and more apparent in commercial and home garden crops.140

However, it was said that problems could be avoided with the use of 'complete' fertiliser mixtures such as market gardener’s manure - a blend of blood and bone, the ammonia form of nitrogen and phosphate, and sulphate of potash. In the ‘complete garden pantry’, wrote George Hyam,

About 80-90% of the garden manurial requirements will be met by using the complete fertiliser mixtures, leaving only about 10% of the total weight to be stocked in the form of single element fertilisers for special use.141

Another addition to the available range of manures was ‘Canterbury compost’. An initiative of the Canterbury Municipal Council in Sydney, ‘Canterbury compost’ resulted from the large-scale municipal composting of organic household and trade wastes collected in the area. The City of Canterbury thus used, and exported, nutrients that would otherwise have formed pollution. Unfortunately for urban sustainability, however, the vendors of Canterbury compost were mistaken in their belief that ‘the time cannot be far distant when many of such plants are operating, especially in the densely populated areas where garbage

139 EPA, Heptachlor Use For the Control of Argentine Ants, Appendix 1, p.9.
141 Ibid., p.5
disposal is an urgent problem.'142

The advertisement for Canterbury compost mobilised many of the ideas of the growing organics movement, including the notion that soil fertility relies on the activity of fungi, bacteria, earthworms and other soil organisms; that vegetables grown in compost-enriched soil are both more succulent and more prolific than those grown ‘with the aid of artificial fertilisers’; and that plants become ‘addicted’ to artificial fertilisers:

Inorganic fertilisers are made available to the plant in the form of chemicals which feed them in one stimulating deluge which in any form of life is inevitably followed by a reaction unless greater and more frequent doses are given.143

It was only really in the 1970s, however, that the debate over whether artificial fertilisers were helpful or harmful resurfaced with any vigour. By 1971, it was accepted by at least one author that they were a necessary evil:

only a minority can command sufficient supplies of natural manure to bring and keep their garden up to the desired standard of fertility and, despite all the advocacy of composting the surplus vegetable matter available as being the complete and safe means of maintaining a healthy fertility in the soil, we have not yet discovered a garden which produces enough suitable material for the purpose.

It is likely to be only a small minority who will find it possible, without some sacrifice of results, to abandon the supplementary use of concentrated fertilisers to make up deficiencies in available supplies of natural organic soil foods.144

Nevertheless, there was a substantial, and growing, body of people who claimed that vegetables grown using only compost were nutritionally-superior. This claim was disputed by the staff of Your Garden, who cited a United States Department of Agriculture bulletin asserting that analyses of food grown hydroponically and in compost showed little difference in nutritional value. The advocates of compost were deemed irrational, as they were not convinced by the claims of industrial science: ‘our compost enthusiasts won’t listen to this, although it comes from a true scientific source’.145

It is likely that most home gardeners used a combination of fertilisers: artificial, compost, and animal manure. Some gardeners may have arranged to obtain a supply of horse manure from one of the declining number of urban stables. In 1959, there were 406 stables known to local government authorities in the Perth metropolitan area, with most of these being clustered in the City of Perth, City of Fremantle and the horse-racing district of Belmont Park (see Appendix VIII). In the same survey which located the stables, four municipal councils mentioned backyard compost heaps as potential sources of fly breeding. East Fremantle wrung its hands over ‘Home Gardeners with their numerous compost heaps’, and the City of Perth mentioned that ‘During house to house inspection the potentialities of fly breeding in compost heaps are stressed with householders and advice in respect to

143 ibid.
remedial measures is given.'146 Composting ostensibly continued to be popular among Perth residents, although plenty of artificial fertilisers, including soluble ones, were sold and presumably used.

Although the use of chemicals increased the economic viability of market gardens and orchards, and the appeal of gardening to busy workers, the chemicals are likely to have also had detrimental effects on urban wildlife, environmental quality, and possibly people. As noted earlier, excess nutrients from fertilisers leached through soils - especially sandy soils - and were carried off with stormwater, leading to eutrophication of urban waterways, and contamination of groundwater. The effects of eutrophication in south-west Western Australia and Victoria appear to have increased since the early 1970s.147

Thus, by the 1970s it was becoming increasingly apparent that the human independence from environmental imperatives which horticultural chemicals appeared to deliver was in fact illusory: the approaches to food production devised by industrial science and which appeared convenient, effective and rational had effects which were not predicted, and which in an urban setting could be far-reaching.

1973-2000

By the mid-1970s, it was evident that the use of the new synthetic pesticides was associated with four main problems: firstly, the hazard to horticultural workers, local people, consumers, domestic animals, wildlife and fish arising from pesticide toxicity; secondly, the threat to the health of people, animals and ecosystems arising from the persistence of some pesticides; thirdly, the creation of more pests through reduction in the numbers of non-target predator and parasite species, and finally, the problem of pest resistance to pesticides.148 The possibility of insect resistance to insecticides was recognised in 1914, and experienced in relation to Codlin moth after the First World War.149 By 1976, 203 species of insects and mites had developed resistance to DDT and its relatives, cyclodiene resistance had been recorded in 225 species, organophosphate resistance in 147 species and

146 SROWA, AN 120/4, Health Department, Acc 1003, 1959, no.604, Replies to Circular 485 - Eradication of Flies and Fly Breeding in Metropolitan Area.


carbamate resistance in 36 species.\textsuperscript{150} The chemical companies' response to insecticide resistance was to search for new chemical insecticides. One new development was the pyrethrins, insecticides which were chemically-similar to natural pyrethrum. However, an increasing number of scientists, and horticulturalists, were turning towards a new model for pest control which involved less use of chemicals: integrated pest management (IPM).

In the early to mid-1960s, overseas developments saw the introduction of ecological systems science to pest management and by 1965, the United Nations' Food and Agriculture Organization had established a Panel of Experts on 'Integrated Pest Control'.\textsuperscript{151} By the 1970s, increasing numbers of commercial orchardists and vegetable-growers in Australia started to adopt IPM strategies.\textsuperscript{152} IPM was partly a return to an older approach to the problem of insect pests, in that it sought not to create 'clean' insect-free orchards or gardens, but to keep insect pests and plant diseases down to a reasonable level. However, it also had the explicit aim of maintaining ecosystem integrity. Under a system of IPM, growers rely on selective pesticides (used in combination with a knowledge of pest life-cycles and monitoring of pest numbers), as well as predators (endemic or introduced), cultural methods, and low or zero-pollution methods such as traps and pheremone lures. Spraying is carried out only when the pest infestation reaches a level of economic significance.\textsuperscript{153} Some aspects of IPM, such as use of pheremone lures, require the cooperation of all growers in an area.\textsuperscript{154} As we have seen, some elements of IPM were employed in the late nineteenth and early twentieth centuries, but as effective and affordable chemical insecticides were discovered they often replaced, rather than supplementing, the cultural and biological approaches which relied on some understanding of the life-cycles and interactions of plants, pests and predators.\textsuperscript{155} Other elements of what was to become the new technology of IPM, such as pheremone lures, biocontrol agents such as \textit{Bacillus thuringiensis}, and release of sterile males, had been developed from the 1930s to 50s, but the amount of attention given to their development and release was retarded by the dominance of the chemical control paradigm.\textsuperscript{156}

However, in spite of the increasing adoption of IPM, commercial agriculture remains largely reliant on chemical pesticides. Since the 1970s, expenditure on farm chemicals has


\textsuperscript{153} ibid.


\textsuperscript{155} As noted above, the use of broad-spectrum insecticides also undermined biological control of some species.

\textsuperscript{156} The technique of slowing insect reproduction by release of sterile males was developed in the US from 1937-1959, and ongoing work in the field of insect attractants was crystallised into a sub-discipline when researchers at the Max Planck Institut fur Biochemie coined the term 'pheremone' in 1959. \textit{Bacillus thuringiensis} was identified as a bacterial agent effective against caterpillars in 1951. \textit{Bacillus thuringiensis} was released to the public in the UK for control of various types of caterpillar in 1972. It was the first commercially-available biocontrol agent which utilised bacteria. By the early 1980s, \textit{Bacillus thuringiensis} was available in Australia under the trade name Dipel: Perkins, 'The Quest for Innovation in Agricultural Entomology', pp.32-33.
increased as a proportion of total on-farm cash costs: in 1990-91 it was almost 5% of costs for both fruit and vegetable production.\(^\text{157}\) Where fruit and vegetable production remained within the vicinity of the Perth and Melbourne metropolitan areas, the use of pesticides and herbicides which, although less persistent than organochlorines, were more mobile in soils, could lead to groundwater contamination, particularly when applied on the sandy soils preferred by many market gardeners.\(^\text{158}\) Where part of the metropolitan drinking water supply is drawn from groundwater, as it is in Perth, the long-term effects of such leaching could be potentially serious. In 1996 a plume of the herbicide atrazine was discovered in Perth groundwater; by 1998 it was 300m long and growing. Although it was not in an area from which drinking water supplies were drawn, it caused damage to garden plants watered from bores in the area and raised health concerns.\(^\text{159}\) At the time of writing, attempts at bioremediation were being made using a strain of atrazine-eating bacteria imported from the US.\(^\text{160}\)

Leaching of nitrates and phosphates from fertilisers also continued to present a problem: in the 1960s and 1970s in Perth, poultry manure from outer urban battery farms was cheap, and used by market gardeners in large quantities in addition to substantial dressings of phosphatic fertilisers such as superphosphate, nitrogenous fertilisers such as urea and Agran, and mixed fertilizers such as Nitrophoska Blue.\(^\text{161}\) As a result, crops and waterways alike suffered from an excess of nitrogen and phosphorus. In the 1980s, when the price of poultry manure increased rapidly and the problem of nutrient leaching was widely recognised, research was conducted into the optimum rate of application of poultry manure and other fertilisers, which would not lead to pollution.\(^\text{162}\) However, some growers also used ‘fertigation’ - application of fertilisers with irrigation water - and developed a system of overwatering which produced higher yields, but contributed to the leaching of


\(^{158}\) Little research into leaching of pesticides into groundwater in Australian conditions has been completed, although a study of the potential for pesticide leaching in Bassendean Sand found that up to 40% of the herbicide diquat, 18% of the herbicide simazine and approximately 1% of the OP insecticide fenamiphos and herbicide linuron could potentially reach groundwater. Leaching decreased as soil organic matter rose: Rai Singh Kookana, L.A.G. Aylmore and R.G. Gerritse, ‘Potential Mobility of Four Pesticides to Groundwater through Bassendean Sand’, in M.G. Webb (comp.), *Horticulture and the Environment*, Western Australian Department of Agriculture, South Perth, c.1990, n.p. It has been suggested that in the United States, 50% of groundwater either is, or has the potential to be, contaminated by pesticides, with the most common being aldicarb (an extremely toxic systemic carbamate insecticide) and the herbicides alachlor and atrazine. One concern is that pesticides which degrade fairly rapidly on the surface remain intact in groundwater, which contains few of the microorganisms responsible for degradation of the chemicals: Pratley, Lemerle, Fragar and Kent, ‘Pesticides in Agriculture’, p.193.


\(^{160}\) ibid.


\(^{162}\) ibid.
agricultural chemicals.\textsuperscript{163} Of course, whereas some agricultural operations may have had negative impacts on urban environmental quality for residents, suburban life also affected agriculture. For example, a 1977 study of agriculture in the Melbourne metropolitan region found that near-urban farmers suffered from air pollution generated by urban traffic, vandalism and the dumping of rubbish, petty theft and, perhaps most importantly, packs of marauding dogs from fringe farmlets and suburban streets.\textsuperscript{164}

Furthermore, suburban residents were themselves contributing to the pesticide and herbicide burden of their immediate environment. Although there appears to be little relevant research into the issue of household pesticide use in Australia, a 1972 study for the US Environmental Protection Agency revealed that in Philadelphia, Dallas and Lansing, 92.5\% of the 525 respondents reported using pesticides, and 84\% of respondents had no reservations about pesticide use.\textsuperscript{165} Of all pesticides used, 67\% were insecticides. They were applied at an average rate of between 5.3 and 10.6 lbs of active ingredient per acre - up to five times the average amount applied to commercial midwest cropland.\textsuperscript{166} The study concluded that home pesticide use made ‘a considerable contribution to potential environmental contamination’.\textsuperscript{167} A Californian study of the same era found that 80\% of pesticides purchased by householders were for home garden use.\textsuperscript{168} Furthermore, in spite of fairly extensive publicity in the US over the potential health and environmental hazards associated with pesticide use, one 1983 study carried out in three US cities found that only 17\% of home pesticide users were aware that the pesticides they employed were a source of possible harm.\textsuperscript{169} It is probable that similar attitudes to pesticides, and levels of usage, were found in Australia. In the mid-1970s, 20\% of total consumer expenditure in a major Victorian nursery group was on pesticides, and in the mid-late 1970s it was estimated that home garden use of pesticides accounted for up to 10\% of total pesticide use for all purposes (including agriculture).\textsuperscript{170}

It is unclear, however, what proportion of home garden pesticides were used on vegetable gardens and fruit trees: even if home gardeners were content to follow the advice of the 1971 \textit{Yates Gardening Guide}, and control black beetle in lawn by ‘thoroughly ‘watering’ the affected ares with Dieldrin’,\textsuperscript{171} it is possible that some may have started to have reservations about similarly treating vegetables for human consumption. In the 1972

\textsuperscript{163} ibid.
\textsuperscript{164} Aberdeen, Hogg and Associates, \textit{Metropolitan Farming Study}, p.81-82.
\textsuperscript{165} Ryckman, Edgerley, Tomlinson and Associates, \textit{The Use of Pesticides in Suburban Homes and Gardens and Their Impact on the Aquatic Environment}, Environmental Protection Agency Office of Water Programs, Washington, 1972, p.59A.
\textsuperscript{166} ibid., pp.11, 33B
\textsuperscript{167} ibid. p.35.
\textsuperscript{170} Conacher, \textit{Pests, Predators and Pesticides}, pp.2,5.
study of Philadelphia, Dallas and Lansing, the vast majority of pesticides were used on
lawns, roses, ornamental trees and shrubs: in Philadelphia it was reported that vegetable-
growers encountered no major problems requiring routine pesticide treatment; in Dallas few
householders were said to grow vegetables, and in Lansing carbaryl was used on tomatoes
and beans, and diazinon on radishes and carrots. Although the organochlorines continued
to be recommended for home vegetable garden and orchard use in the early 1970s, the
tide was beginning to turn against the use of the more dangerous pesticides, at least in a
home garden situation. In 1971, the *Australian Garden Lover* pointed out that the
Persistence of DDT had led to its contamination of the environment on a global scale, and
caused a significant decline in numbers of some birds of prey. In the same year, *Your
Garden* vegetable expert Norman de Vaus still endorsed the use of sprays, but only those
which were ‘safe to use and will not pollute the environment like some chemicals’. An
article on ‘Gardening vs. Pollution’ was similarly equivocal about the use of pesticides,
acknowledging that whilst some had contributed to pollution, others were ‘needed to
protect our gardens and crops’ and were being ‘kept under safer control’.

In the 1972 US study, most suburban gardeners regarded organic gardening methods
‘too cumbersome and time-consuming’, requiring more patience and a greater degree of
biological knowledge than they possessed. Although many Australian gardeners were
similarly unwilling to abandon chemical control of insects, as the 1970s wore on they were
beginning to turn from the persistent organochlorines and the most toxic of the
organophosphates to the less persistent (though often still acutely toxic) organophosphates
such as malathion and carbamates such as carbaryl, as well as the older botanical insecticide,
derris dust. It also became more common to think of pesticides as a last, rather than a

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172 Ryckman, Edgerley, Tomlinson and Associates, *The Use of Pesticides in Suburban Homes and
dition of the Western Australian Department of Agriculture’s *Vegetable Growing: A Handbook for
Home Gardeners and Commercial Growers* (the Department, South Perth), also recommended dieldrin
for black beetle in potato crops, DDD for cabbage white butterfly, chlordane for bean root maggot fly
and vegetable weevil. Of course, organochlorines continued to be used for Argentine ant control in
Western Australia to 1988, and in termite control throughout Australia to 1995 (1997 in the Northern
Territory)
176 ‘Gardening vs. Pollution’, *Australian Garden Lover*, January 1971, p.49.
177 Ryckman, Edgerley, Tomlinson and Associates, *The Use of Pesticides in Suburban Homes and
Gardens*, p.41.
178 Reflected in the changing products commonly advertised and recommended in regular columns in *Your
Garden* and *Australian Garden Lover*. See for example also Norman de Vaus, *Better Vegetable
Growing for Australian Gardens*, Lansdowne, Melbourne, 1973. Just as the organophosphates (OPs)
are derivatives of phosphoric acid, so the carbamates are derivatives of carbamic acid. Both OPs and
carbamates operate by inhibiting the enzyme cholinesterase, and both thus have similar effects on
human health: both Carbaryl (a carbamate) and Malathion (an OP) can affect the nervous system,
causing convulsions, respiratory failure and, in the case of Malathion, death. With both substances, a
cumulative effect in humans is possible. International Chemical Safety Card (0172) - Malathion, March
1995; International Chemical Safety Card (0121) - Carbaryl, September 1993. Carbaryl, the first
successful carbamate insecticide (often sold under the trade name ‘Sevin’), was first released in
1956. It controls an exceptionally broad range of insects: Ware, *An Introduction to Insecticides*.
first resort. In 1980, for example, readers of the *Australian Garden Lover* were told that
Mother Nature has her own methods of pest control.

Practically every insect has one or more natural predators which hunt them for
their existence.

Therefore there is no need to panic when a few bugs attack some of your plants,
as it is unlikely that nature will allow these pests to threaten your entire garden.

Admittedly there are times when man or some other factor upsets this natural
balance between pest and predator, or where nature seems too slow to act and needs
a little help.

Even then there are safe insecticides which your garden centre or retail
nurseryman can recommend.179

Some writers went even further, extending the organic philosophy to include a total
rejection of insecticides. Like the ‘no-digging cult’ of the 1950s, these writers generally
spurned artificial fertilisers in favour of compost and manures, but they began to lay more
stress on alternatives to synthetic pesticides. In 1977, readers of *Esther Deans’ Gardening
Book* were assured that ‘Bounteous Nature had provided us with many safe and effective
ways’ to deal with insect and other pests.180 Deans relied on companion planting, native
‘cannibal’ snails, and strategies such as leaving hollowed-out half orange peels out overnight
to trap slugs. An increasing number of Australian organic gardening publications followed
suit, advising gardeners about the ecology of plants, pests, predators and soil fauna,
including earthworms. Gardeners were encouraged to use compost and manures for healthy
soil and plants and to tolerate some pest damage if need be.181 Non-toxic sprays or
botanical insecticides such as derris dust were suggested for use where absolutely necessary.
The catch-phrase was ‘work with nature rather than against it’, suggesting that the aim, at
least in terms of gardening, was no longer to achieve independence from environmental
constraints, but to take a more interdependent approach, which relied on greater
understanding of, and respect for, non-human elements of environmental systems.
Organics, and to a lesser extent IPM, are based on a set of assumptions about the
relationship between people and the environment which are different to those behind
chemical control methods. Organics places people within complex ecosystems, rather than
in an external position of power. In acknowledging human ignorance about environmental
complexity, organics points to the limits of human technologies, counselling caution even
if it should mean that gardeners will sometimes be ‘beaten by a slug, a louse, a beetle or a
fungus’. It seeks to reassert human interdependence with the environment, as a reaction
against the damage wrought by attempts at independence: As Robert van den Bosch, an
American pioneer of IPM, declared in 1978:

179 ‘Nature Does a Good Job’, *Australian Garden Lover*, March 1980, p.72
181 See for example *Commonsense Gardening in Australia: Organic Growing for all Gardeners*, Panorama
Melbourne, 1983.
matters have progressed to the point where we attempt to operate independently of nature, challenging her dominance of the biosphere. This is a game we cannot win, and in trying we have set in train a series of events that have brought increasing chaos to the planet.\(^\text{182}\)

The revived organic approach appears to have been taken up enthusiastically in Australia, at least by some sectors of the gardening community. In Paddy Percival’s 1979-80 study of plotholders at the Nunawading Community Gardens, many mentioned the desire to grow organic vegetables and avoid pesticide residues as a major reason for taking up a plot: ‘grubs better than “Silent Spring”’, declared one.\(^\text{183}\) Concern for nature, the local environment and human health led 86% of plotholders to agree that some controls should be placed on which pesticides were permitted at the gardens.\(^\text{184}\) The varied nature of the crops grown over the whole of the site appeared, at least in Percival’s opinion, to reduce the risk of serious pest attack invited by more monocultural crop production.\(^\text{185}\) The plotholders were also fortunate in that animal manure was made available at the Gardens at a minimal price, along with compost produced on-site. However, 42% of plotholders surveyed still used some artificial fertiliser.\(^\text{186}\)

The attraction of organic gardening was increased further in 1987 when shipments of Australian beef were rejected by the US because they contained higher than permitted levels of organochlorines, especially dieldrin. The publicity attracted by the export rejection, and subsequent quarantine of at least 1500 grazing properties, raised public awareness of the issue of pesticide residues.\(^\text{187}\) As well as increasing demand for organic food, the scandal engendered a generalised anxiety about pesticide residues which translated into an increased interest in home food production. In the late 1990s, the debate over genetically-engineered food had a similar effect.\(^\text{188}\) An Australian Bureau of Statistics survey carried out in March 1998 found that of Australian households growing fruit or vegetables, 71.4% used no pesticides or weedicides.\(^\text{189}\) The reluctance to use pesticides appears to have been directly linked in some cases to concern over residues in food (rather than broader environmental or health concerns): whereas in 1998 only around 26% of fruit or vegetable-growing households in Victoria and Western Australia used pesticides on food plants, a substantially greater proportion of gardeners - 36.9% in Victoria and 42.3% in WA - used them on non-


\(^{183}\) Paddy Percival, *Community of Interest: Plotholding at the Nunawading Community Gardens*, MEnvSc, Monash University, 1981, pp.33, 36. Comments from other plotholders about pesticides included:

‘Alternatives exist, prepared to accept some losses from pests’, ‘Good management should prevent many problems’, ‘Upsets nature’, ‘Unknown consequences’, ‘Sprays harm the environment’, ‘(pesticides) become absorbed in soil and bodies’.

\(^{184}\) ibid., p.36.

\(^{185}\) ibid., p.35.

\(^{186}\) ibid.


\(^{188}\) For example, one of my interviewees gave this as one reason for her decision to grow her own food. Kathy Blakers, interviewed by the author, 22 September 1998, tape in author’s possession.

An emphasis on organic food production was confirmed in interviews carried out by myself in 1998-99: of the 43 interviewees who were still producing their own food at the time of the interview, the most commonly-given reason for doing so was a concern with commercial production methods, particularly in relation to agricultural chemicals. Pat Keady, for example, remarked that 'at least if you grow your own vegetables you know what hasn’t been sprayed on them.' At the community gardens on Melbourne’s inner-city public housing estates, there was also ‘a very strong push to try and have food and produce food that’s not affected in any way by sprays or chemicals’. Interestingly, this desire sometimes found expression in the same terminology of cleanliness as in the interwar period: ‘you’re pretty sure when you’re growing your own food that it’s going to be clean.’ In the late 1990s, however, cleanliness was achieved through a refusal to use sprays, rather than their rigorous employment. Ironically, many people with backyard poultry did not in fact realise that their eggs could be, as detailed above, contaminated with relatively high levels of organochlorine pesticides – ‘cleanliness’ was once again a dream.

Gardeners using organic methods in the late 1990s employed much the same tactics as their counterparts of the 1880s. Most of my interviewees claimed to do nothing about pests, tolerating a bit of damage, or occasionally hand-picking and destroying snails or caterpillars. Greg Milne and Maya Ward were happy to leave the snail control to a resident blue-tongue lizard, and wait for birds to eat insect pests. Margi Jackson’s hens kept her garden largely free from insect pests – including Codlin moth – and the Keadys’ ducks were efficient snail destroyers. Robert Still made calico bags to protect his fruit from fruit fly. Companion planting was another popular strategy, with a couple of gardeners also using garlic sprays or derris dust, and Bordeaux mixture on fruit trees. However, by no means all gardening was organic. Seven of the 50 people interviewed used snail pellets, and four sprayed their trees for fruit fly. One of the latter also used snail pellets and vegetable...
dust, and on discovering that his apricots were infested with fly maggots: 
we went out and bought... malathion, and white oil. And I sprayed the tree quite 
liberally with that and we still got bugs so I went out and sprayed the bloody thing 
again. And we chucked away all the fruit. The next year, I got right up in the 
middle of the tree with it and I’m getting covered by this stuff, y’know, against all 
health regulations, and I’m thinking ‘Jeez, it’s a wonder I don’t grow two heads or 
something’, but I gave it the best dosing I could, and I thought ‘poor chickens, 
they’re getting covered by all this stuff’, and I still got the bug, I still got the fruit 
fly. So this year I might try something stronger, see how I go.199

Clearly the prevailing environmental sensibility is not shared by all and it remains the case 
that some gardeners, who are after all not trained horticulturalists, may not always heed 
application rates or health warnings, and thus fail to act in the best interests of themselves 
or their local environment.

Organic sensibilities were also reflected in choices of fertilising materials. From the 
1970s, gardening magazines such as *Your Garden* featured advertisements for a variety of 
garden mulchers and shredders, and compost tumblers and bins. In the 1990s these were 
joined by various implementations of the ‘worm farm’ concept.200 In 1998-99, seven of 
the gardeners I interviewed had worm farms, and 80% of those who were still gardening 
turned food scraps into fertiliser via poultry, worms, composting or burial, suggesting that 
food-producing households generally may have a higher-than-average rate of kitchen waste 
recycling.201 Most interviewees also used animal manure on their gardens, with bagged sheep 
and poultry manure being the most common.202 A couple of people found reasonably local 
resources of manure: Vern Oliver took a short drive north from his Reservoir home 
and collected horse manure from paddocks;203 Maria Lewis obtained horse manure from a riding 
school a few kilometres away from her home, as did Maureen McCrae.204 Sarah [pseud.] 
obtained horse manure from nearby showgrounds, and seaweed from the beach.205 Donelle 
Toussaint found a local source of guinea-pig manure.206 As always, those with poultry had a 
convenient on-site manure source. At the community gardens in Richmond, Fitzroy and

200 A ‘worm farm’ is a container in which litter-dwelling worms such as red wrigglers or tiger worms process 
food scraps and other organic waste into worm castings, a high-quality organic garden fertiliser.
201 In March 1996, 40.6% of households in Victoria and 36.7% of households in Western Australia 
recycled their kitchen or food scraps. In March 2000 the proportions had increased to 56.3% in 
Victoria and 44.3% in WA: Australian Bureau of Statistics, *Environmental Issues: People’s Views and 
202 In this respect they were similar to food-growing households in Australian generally, of which 78.5% 
used manure or compost on fruit trees or vegetables in March 1998: Australian Bureau of Statistics, 
*Environmental Issues: People’s Views and Practices March 1998*, cat. no.4602.0, ABS, Canberra, 
203 Vern Oliver, interviewed by the author, 20 July 1999, tape in author’s possession. Vern would, of 
course, always ask the farmers first.
204 Maria Lewis, interviewed by the author, 12 July 1999, tape in author’s possession; Maureen McCrae, 
interviewed by the author, 23 October 1998, tape in author’s possession.
205 Sarah [pseud], interviewed by the author, 5 January 1998, tape in author’s possession. Note that 
removal of seaweed from beaches is illegal in many areas without a permit.
206 Donelle Toussaint, interviewed by the author, 16 September 1998, tape in author’s possession.

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Collingwood, Basil Natoli maintained links with a poultry farmer, who supplied the gardens with cheap sheep, chicken or cow manure, or mushroom compost.\(^{207}\) Sometimes farmers who had read about the gardens donated manure, and the Melbourne Zoo had also provided compost. Worm farms and composting enclosures on site enabled residents to turn their kitchen scraps and biodegradable waste into garden fertiliser. Eight interviewees also used artificial fertilisers of some description on their vegetables. Ross Bishop used only organic fertilisers on the vegetable garden, but admitted to using artificial fertiliser on the azaleas, supporting the likelihood (noted above in relation to pesticide use) that the fact that the products will be eaten sometimes motivates a more organic approach to fruit and vegetable than ornamental gardening.

Whilst most interviewees adopted approaches that could more or less be described as organic, 13 specifically identified with the Permaculture movement. As noted in chapter 6, Permaculture attempts to encourage an holistic perspective on food production, which considers how resources for food production are produced and transported, and how wastes are disposed of. A few interviewees in fact mentioned this aspect, with Stuart McQuire commenting that in a ‘food heirarchy’ developed according to criteria of environmental sustainability, the backyard was the best place to obtain food, ‘as opposed to on a semi-trailer from Queensland or whatever, or from a greenhouse that’s taken a whole lot of energy in the outskirts of Melbourne’.\(^{208}\) Similarly, Laurel felt that backyard food production was good because ‘you’re contributing to being not quite as dependent on external industries and production processes’.\(^{209}\) Samson MacAdam, however, acknowledged that:

> one of the greatest difficulties from a Permaculture perspective is creating a closed system. ... I’ve recently done a Permaculture design course and an advanced Permaculture design course with David Holmgren, and one of the issues I kept on bringing up was that we’re supposed to be about doing this sustainably, but if we’re having to bring in truckloads of mulch and truckloads of manure and truckloads of this and that from elsewhere, were’re not really doing it sustainably. So from a garden point of view particularly with our sandy soils, that’s a real problem. And if it’s a rental property, you’re not going to have the time or the money to invest in creating so much compost that you can get yourselves from garbage to something decent, so you’ve got to go for organic fertilizers, which isn’t really sustainable. And in terms of the animals, on a suburban block it’s very difficult to supply all of your own needs for feeding your animals, so you’re having to rely on the commercial system, where the food for your animals isn’t being produced sustainably.\(^{210}\)

\(^{207}\) Basil Natoli, interviewed by the author, 22 July 1999, tape in author’s possession. Mushroom compost is a by-product of mushroom production, being the used growing medium.

\(^{208}\) Stuart McQuire, interviewed by the author, 10 July 1999, tape in author’s possession.

\(^{209}\) Laurel, interviewed by the author, 13 July 1999, tape in author’s possession.

\(^{210}\) Samson MacAdam, interviewed by the author, 14 September 1999, tape in author’s possession.
Of course, many organic gardeners and permaculturalists were contributing to urban sustainability in the late twentieth century by using primarily human energy in the actual growing of food crops, recycling their organic waste on site, and using low-pollution or zero-pollution methods of pest control to produce food that would otherwise have been produced and transported using greater fossil fuel and chemical inputs. This effect was magnified where gardeners were recycling other local wastes: some interviewees mentioned that they (or their neighbours) took waste leaves and spoiled vegetables from the local greengrocer, or stale bread from the local bakery, to feed to poultry; others used local waste paper for worm food and mulch.211

However, as Samson pointed out, many inputs also had to be imported (using fossil fuels) from areas where their production was perhaps not sustainable: wheat for feeding chickens, straw for mulch, manures produced by animals reared in high-energy intensive operations or transported long distances to abattoir holding yards. Bagged, pulverised manures also required energy in transport and processing, and petrochemical resources to make the plastic bags which, when the manure was used, added to the urban waste heap.212 Home gardeners also sustained a large nursery industry. Non-organic, and most organic, food producers would have contributed to the $400 million that Australian home gardeners spent on fertilisers, pesticides, seed and lawn care products in 1998.213 Most nursery plants in the 1980s and 90s were grown in situations and using methods which depleted resources in the form of water, fertiliser, plastics for pots and punnets and fossil fuels for transportation and heating, and at least potentially contributed to the pollution of air and groundwater (though use of insecticides, fungicides and fertilisers).214 In the 1990s, research was conducted into potentials for reduced nutrient leaching, water recycling, and IPM in the nursery industry, though much remained to be done.215 Where gardeners grew their own plants from cuttings or seed, the environmental impacts were few. Basil Natoli commented that many of the gardeners at the Richmond, Fitzroy and Collingwood community gardens exchanged seedlings with each other, as they grew plants from seed and ended up with too

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212 The amount of energy required in processing and bagging any product should not be taken lightly. For example, Muriel Watt’s 1974/75 study found that of the total energy required to produce 1kg of frozen beans, 75% was accounted for in packaging the beans in polythene bags: Muriel Watt, An Energy Analysis of the Australian Food System, PhD thesis, Murdoch University, Perth, 1982, pp.A3.vi.


many for their own needs. However, many gardeners found seed-raising difficult and thus bought seedlings in punnets, incurring greater environmental costs in the production and transportation of disposable plastic or polystyrene punnets.

One way of beginning to quantify the environmental place of home food production in suburban areas is to consider it in relation to the energy used in commercial food production. In the late 1970s, Muriel Watt examined four sectors of the food system (agriculture, processing, wholesaling/retailing, and household) and found that overall, the provision of food in Australia in 1974-75 required over 7 times more energy than embodied in the food itself. Using Watt’s figures, the average energy cost of home-grown fruit, vegetables and eggs would represent a saving of around 55% to 65% of the energy required to provide the commercial item However, it should be remembered that in 1974-75, eggs, vegetables and fruit made up only around 10% of the energy value of the average Australian diet. Thus, if everyone produced their own eggs, fruit and vegetables (and clearly they did not), the expected energy saving over the entire food system in 1974-75 would only have been in the order of 5%-6%. Other savings, however, would have been achieved in terms of the externalities of commercial food production and transportation, including pollution due to agricultural chemicals and transport emissions.

Since 1974-75, the stakes have been raised. It has been estimated that between 1967 and 1992, the energy consumed per capita by the Australian food system increased by more than 70%. Furthermore, solid waste generation remained a problem in 1996, with the Australian average of 681kg of solid waste produced per capita per annum comparing unfavourably with the OECD average of 513kg. These factors would have increased the relative environmental benefits of home food production in the suburbs. At the same time, however, the capacity for home food production was decreasing, as average housing block sizes shrank, and average house sizes grew. This trend was recognised within the gardening literature as far back as 1971, when *Your Garden* ran a ‘mini vegetable patch’

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216 Basil Natoli, interviewed by the author, 22 July 1999, tape in author’s possession.

217 Several interviewees chose to buy punnets after experiencing difficulties growing plants from seed: Donelle Toussaint (interview 16 September 1998); Helene Carroll (interview 17 September 1999); Paul Healey (interview 25 September 1998); Klaus (interview 9 July 1999). All tapes in author’s possession.

218 Watt, An Energy Analysis of the Australian Food System. Similar studies in the USA were carried out by David Pimentel and Marcia Pimentel, *Food, Energy and Society*, Edward Arnold, London, 1979.

219 being the household energy requirements (30%-43% of the total), plus any costs involved in producing and bringing seeds, seedlings, water, fertilisers, pesticides, tools etc. onto the property. The comparative efficiency of backyard food production would rise if - as is often the case - wastes are being dealt with on-site, via composting, use as animal fodder, or vermiculture (which would also reduce the need to import nutrients onto the site), particularly if the energy costs of disposing of wastes were included in the calculations (Watt did not include these costs). Where the inputs could be obtained more efficiently, for example, through obtaining supplies in bulk and swapping plant resources among gardeners in a community garden setting, the level of energy required above the ‘household’ energy needs would be minimised.


221 Ibid., p.20.

Suburban gardens are getting smaller. While this is a feature many may regret, it must be faced. *Your Garden*, therefore, decided to grow a mini vegetable patch, small enough to fit into most gardens and yet capable of producing worthwhile results.223

The ‘mini patch’ was 10’ by 20’. In 1943, Western Australian Under-Secretary for Agriculture estimated that an area of ‘approximately 30’ x 45’, can supply the requirements of a normal family in green vegetables throughout the summer months.224 A few years later, in 1951, the Victorian Department of Agriculture claimed that in Victorian conditions, a garden of 30’ by 50’ should provide the vegetable requirements for a family of five;225 in 1956, Reuben Patton claimed that ‘The average area required [to produce all vegetables] for an adult, neglecting sex, is a little over 600sq ft.’226 It is therefore unlikely that a vegetable garden 10’ by 20’ would provide more than half of the vegetables required by one person for a year (this amount being a little more than the average quantity in fact produced by vegetable-growing households in Perth and Melbourne in 1993, as noted in chapter 2). Those growing vegetables in pots and cases would have produced substantially less of their own requirements,227 whilst those with larger gardens would have produced more.

The nursery industry has responded to the trend towards shrinking outdoor space by offering miniature fruit trees and multigrafts, as well as trees such as the ‘ballerina’ apple, bred with a tall, thin habit to save space.228 Still, in 1987, long-time Perth nurseryman Bill Dawson remarked that customers were saying: ‘Our house occupies almost all the ground. We’d love to put a lemon [sic]. We’d love to have an orange. We’d love to try a pomelo. But we haven’t got the room.’229 Apart from simple questions of area available for cultivation, small blocks present other difficulties. For one, they are less likely to present suitable opportunities for vegetable and fruit production, due to shading and competition from neighbours’ (or one’s own) trees.230 Households with a small amount of available outdoor space also have diminished opportunities for composting, as bins or heaps, and storage areas for materials, require space. In some cases, as noted above, compost heaps...
were being replaced in the 1990s with compact worm farms of various descriptions, although these are usually able to produce only enough fertiliser for a tiny patch of gross-feeding vegetables. Finally, in many areas, as noted in earlier chapters, local government regulations precluded the keeping of poultry and animals on smaller blocks, by specifying that poultry must be located a certain distance from fences and dwellings. Thus although food production is possible in many small backyards, the opportunities for producing substantial amounts of food in a sustainable fashion are more limited than in larger areas.

In addition to space constraints, time constraints also become an important factor in food production in the late twentieth century. One important factor in the lack of time for gardening was the rise and rise of the dual-income household: in July 1999, women's workforce participation rate was 55.1%, and the participation rate of married women with dependents was even higher, at 62.9%.

As demonstrated in Part III, women's participation in food production has been important in many households. With many women carrying on the dual role of paid worker and unpaid household worker, and men in full-time employment working 43 hours per week on average, many families are 'time-poor', with no-one free to carry on the daily tending of vegetables and poultry.

Other households - notably retirees and the unemployed - are more 'time-rich'.

Whilst many households have less spare time, the turn away from quick and effective - though often dangerous and polluting - chemicals in home food production points to the probability that where organic methods are used, it now takes more time, per unit area, to grow vegetables and fruit than it did in the 1950s and 60s. Due to the fact that productive gardens are usually either dug or mulched, they are usually poor candidates for the reticulation technology which has been a time-saver in gardens based on lawns and perennial shrubs. Although Choice magazine claimed in 1990 that 'gardening becomes easy when you use nature's principles - a sort of go-with-the-flow approach', the people I spoke to did not always agree.

Eleven of my interviewees mentioned that time, or lack thereof, was one of the greatest difficulties they faced in trying to grow their own food, particularly where they were attempting to do it organically. Laurel, for instance, felt that finding and implementing organic pest-control methods was time consuming, and the ongoing requirements of organic vegetable cultivation meant that 'you do need to put time into the

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231 The development of these regulations was discussed in greater depth in Part III of this thesis. In the 1990s, at least in Perth, these regulations, were routinely ignored: Andrea Gaynor, 'Regulation, Resistance and the Residential Area: The Keeping of Productive Animals in Twentieth-century Perth, Western Australia', Urban Policy and Research, vol.17, no.1, 1999, pp.7-16.


233 The figure of 43 hours per week was for 1999-2000: Australian Bureau of Statistics, 'Labour: Hours and Work Patterns', in Australia Now - A Statistical Profile, (ABS), http://www.abs.gov.au, viewed 29/3/01. The average weekly hours worked by men who had worked one hour or more in the reference week was even higher, at 45.7 hours.

234 'How "Green" is Your Garden?’, Choice, October 1990, p.21.
Conclusion
The practice of suburban food production has been influenced by a variety of factors, including ideals and values (as discussed in Part III), climate and soil type, availability of materials (such as animal manure and chemical pesticides), scientific developments and perceptions of science, as well as constructions of the human-environment relationship (particularly in terms of independence or interdependence). Depending on its prevalence and how it has been carried out, food production has affected the suburban environment as an activity that potentially creates pollution, for example through the use of toxic and persistent pesticides; that ameliorates pollution, for example where waste organic matter is used for fertilising crops; and that is affected by urban pollution, for example where organochlorine residues in suburban backyard soils contaminate the eggs of domestic poultry. The impacts of suburban home food production also reach outside the suburban environment, as gardeners demand artificial fertilisers which are mined or manufactured, or indeed manures which may or may not be produced in a sustainable fashion. However, particularly in the early and late decades of the twentieth century - the former more so than the latter - gardeners have also contributed to a more cyclical, sustainable, urban metabolism. In reducing pressure on the commercial food system - if only by a small percentage - various resources (often non-renewable) used in the production and transportation of food have been conserved.

The dominant approach to home food production is currently organic and often located in a broader context of environmentalism. Most suburban home food production therefore results in environmental benefits for the community as a whole, as food-growers tend to reuse local waste materials, use fewer or no pesticides, and reduce demand on an energy-inefficient and sometimes polluting commercial food system. However, even most ‘organic’ gardeners rely to some extent on gardening materials which have been manufactured (or at least packaged) and transported. Insofar as there is space on private land for any form of gardening, food production is in general a very worthwhile and beneficial form, particularly when compared with lawn, which has a high water, fertiliser, mechanical and chemical or manual upkeep requirement. However, not all home food production is associated with environmental benefits, and it is possible that the current context of environmental awareness could change. Furthermore, some aspects of more sustainable food production, such as IPM require the cooperation of all growers in an area. Whilst food production is spread around individual backyards, this cooperation is, as we have seen for the case of Mediterranean Fruit Fly, unlikely to be achieved. Whilst backyard vegetable patches, orchards and chook runs have some potential to make our cities more livable, that potential, I will argue in the conclusion, is even greater for community gardens.

235 Laurel, interviewed by the author, 13 July 1999, tape in author’s possession. The time-consuming nature of organic gardening was also remarked upon at length by Betty France, interviewed by the author, 14 July 1999, tape in the author’s possession.
Chapter 9

Conclusion:

The past, present and future of suburban food production

In this thesis, food production is seen as being bound up with the cultural ideals shaping the Australian preference for low-density residential suburbia in the first place (rur in urbe and the desire for independence also expressed in the pursuit of homeownership), and alternately, as an opportunistic use of available land, informed by economic, socio-cultural and environmental factors. The structure of the thesis has been determined by the necessity of demonstrating firstly, that suburban food production has been a significant use of non-built suburban land in the late nineteenth and twentieth centuries; secondly, that economic conditions have influenced the prevalence (and forms) of food production, but they have not been the only influential factor; thirdly, that class-based values have been important in shaping the forms and prevalence of food production; and finally, that food production, as a practice shaped by economic, environmental, and socio-cultural factors, has had both positive and negative impacts on the local suburban environment, and environments beyond.

This examination of some of the multitude of stories surrounding the production of fruit, vegetables, milk and eggs in suburban areas has also addressed some broader academic questions. For one, it has proposed that food production, as an activity carried out in the private, 'feminised', suburban sphere, yet strongly aligned in public representation with an independent and productive masculinity, challenges the assumed coherence and hegemony of the 'separate spheres' ideal in the realm of representation. It has also pointed to some difficulties with Patrick Mullins' urban peasantry thesis, and the theory of the territorial advance of capitalism on which it partly depends. Specifically, Mullins overlooks the fact that prior to the war, food was generally available and often affordable, whilst food production was sometimes uneconomic and in the case of animal-keeping, often restricted. Furthermore, class did have an effect on the contours of food production, but it is not the one that Mullins suggests: whereas he locates food production primarily within the working class, it was in fact most prevalent, and carried to its fullest extent, among the middle class, as a thrifty and virtuous activity which produced food valued for its distinction from that of the 'masses'. This distinction persisted into the postwar period, thus troubling the notion that the territorial advance of capitalism is able to extend into all areas of life. 'Home-grown food' remains a category distinct from 'food', which is able to be purchased. Although capitalism has been advancing into the realm of production of items used in growing food at home, particularly in the postwar period, many gardeners still employ resources sourced from outside of the capitalist system.
Another aim of this study was to inform policy decisions which seek to create more sustainable cities, and in particular, to see how an historical examination of suburban food production might inform the debate over urban consolidation. This debate fundamentally revolves around uses of public and private space, and whether sustainability is more likely to be achieved through providing individuals with private space within which to carry out decentralised ‘environmental’ work, or through reducing the private space available to individuals in order to facilitate the provision of effective public transport and minimise the expansion of cities onto horticultural and bush land at their fringes. More radical ‘rural commons’ visions for sustainable settlements propose the establishment of communities in which space is cooperatively managed and low-impact environmental technologies are employed in order to provide food, energy and other resources for the community.

In energy terms, Muriel Watt put forward a number of alternative scenarios for future food production in her study of the Australian food system in 1974-75. These included a ‘decentralised’ system based on small-scale polycultural production within population centres, similar to the ‘rural commons’ vision. Watt estimated that such a system would have reduced the total 1974-75 food system energy requirements by 73%. ¹ Watt also examined a ‘transport efficient’ scenario similar to a vision for urban consolidation, including modal shifts, improved land use, transportation management, and alternatives to transport.² The energy requirements of the food system in a transport efficient scenario would have reduced the 1974-75 food system energy requirements by an estimated 5%.³ As we have seen in chapter 8, if all Australians produced their own fruit, vegetables, and eggs, the expected energy saving across the food system would in 1974-75 have been in the order of 5-6%. As food production was optional, however, this saving would have been negligible: in 1970-71, self-suppliers accounted for an estimated 29.8% of all eggs, 2.2% of fruit, and 5.3% of vegetables produced in Australia.⁴ Thus, the ‘decentralised’ scenario would clearly have produced the most substantial energy savings, with the ‘transport efficient’ scenario producing small savings, and optional backyard food production producing negligible savings. Increases in the per capita energy consumed by the Australian food system between the mid-1970s and the end of the 1990s would have increased the energy saved by home production of food, though not to a very substantial level. Perhaps more significantly, Watt’s calculations did not include the energy costs involved in disposing of food wastes, or other environmental ‘goods’ achieved under each of the scenarios, and they thus underestimate the net benefit of change.

But how likely is it that each of these approaches might be achieved in a workable fashion? To start with, each approach rests on different ideas about the relationship between people. The radical green ‘rural commons’ vision requires a highly cooperative

² ibid., pp.348-353.
³ ibid., p.357.
⁴ See Appendix VII.
society which values interdependence above individual independence. The consolidation approach assumes the existence of an outward-looking public which recognises the virtues of interdependence, at least insofar as a level of cooperation is necessary for the maintenance of public facilities. Privatised environmentalism, on the other hand, implies either that a sufficient sense of interdependence can be cultivated for people to carry out work in the public interest in private surroundings, or that the interests of the individual will coincide with the public interest in environmental work. In this social dimension, the problem of how to best achieve sustainable cities reflects a broader tension. Stephen Dovers and John Handmer have noted that the problem of individual versus collective interests is one of the contradictions at the heart of the concept of sustainability. Ecological problems arise out of a multitude of individual decisions. However, sustainability is ultimately a collective issue, as everyone is affected by, for example, air pollution on a local scale, and the enhanced greenhouse effect on a global scale. As such, many propose that sustainability - in terms of both intergenerational and intragenerational equity - requires solutions which rely on collective and cooperative approaches.

In terms of providing a general historical perspective on the issue of urban sustainability, this study points to the durability of the disposition towards independence. Indeed, the popularity of the residential suburbs has been underpinned by ideals of independence, as expressed in high levels of ownership of detached houses, as well as widespread home food production. Although interdependence has been valued in various contexts, independence has clearly been more highly valued in the residential suburbs of Perth and Melbourne. If sustainability requires more collective approaches, then Hugh Stretton was perhaps overstating the case when he argued that ‘urban houses and gardens are the nursery of most of the best environmental values’.

However, although suburban Australians have valued the apparent independence they have found in the suburbs, actual independence in a suburban setting has, since early in the twentieth century, been more or less mythical: most supposedly ‘self-contained’ suburban homes have been supported by a network of collectively-provided services, including roads, water, waste disposal, power and (most recently) communications. Even food production

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5 That is, in an inclination to patronise and support facilities from parks to movie theatres to libraries, rather than to vandalise, steal from them, or let them run down.


7 ibid., p.219.


has relied to some extent on external inputs. What constitutes ‘independence’ is thus at least partly a matter of interpretation, or at least selective blindness. It is likely that Australians will continue to seek a sense of some independence - a fair aim which should be respected. In looking to the future, however, it is worth considering that not only may attitudes towards independence change, but so may the urban forms in which it is found.

That said, the high esteem in which independence has quite consistently been held militates against the probability that the ‘rural commons’ vision will be successfully implemented in the near future: although interdependence is often valued, it is unlikely that Australians will readily abandon on a grand scale the apparent freedom of independence and autonomy for the more contingent satisfactions of interdependence. Depending on the way in which it is executed, consolidation could provide for the preservation of the appearance of some form of independence, or the production of independence without self-containment, whilst also providing greater opportunities for interdependence. As we have seen, the ideals of independence are at home, though interdependence is not necessarily a stranger, in the low-density suburban setting which approximates Patrick Troy’s vision for sustainable Australian cities.

Even in the relatively independence-oriented suburbs of late twentieth-century Perth and Melbourne, some individuals were in fact inclined to perform environmental work for a greater good on private land, as reflected in their attempts to produce food for broadly environmental reasons (based on notions of ecological - and for some, social - interdependence). However, their ability to produce substantial amounts of food was often limited by their available time, knowledge and access to other resources. This problem is currently exacerbated by an apparent inverse relationship between time and other resources. People with more working time, and higher stable incomes, are likely to have less leisure time; although they may be able to afford houses with larger gardens, they have less time to manage them. On the other hand, time-rich people are more likely to have lower incomes, and thus have less secure access to large plots of land. Homeowning retirees are one exception to this general rule; people working long hours for low pay are another. As low-input gardening which relies on recycling of wastes and organic control of pests requires no small amount of time and effort, the significant mismatch between household time and land resources does not auger well for an increased involvement in sustainable home food production among private households with access to appropriate private land.

Looking beyond these issues, it is clear that by no means all individuals will be inclined to carry out environmental work on their land, for a greater good. Furthermore, in a

11 ibid., p.282.
12 Belinda Probert has also suggested some impacts that the divide between ‘time-rich’ and ‘time-poor’ households may have on gardens, such as out-sourcing of gardening work, and an increase in low-maintenance hard landscaping: ‘How we Shape the Garden’, in Peter Timms (ed.), _The Nature of Gardens_, Allen & Unwin, St Leonards, 1999, pp.87-89. A 1999 report on garden industry growth showed, however, that whilst demand for ‘instant colour’ and ‘do-it-for-me’ (as opposed to DIY) gardening was showing strong growth amongst the ‘cash-rich/time-poor [baby] boomers’, sales volumes in traditional DIY garden products were also increasing: Mark Abernethy, ‘Seeds of Conflict’, _Bulletin_, 4 May 1999, pp.58-60.
'democratic' society it is unlikely that householders would be compelled to grow their own food (or use their private backyard space for any other 'common good') and in any case, given the problematic nature of backyard surveillance, any such compulsion would be unlikely to succeed. Patrick Troy has suggested that with 'appropriate encouragement' more people would grow their own food, with proposed measures including removal of regulatory barriers, 'encouraging or promoting local seed exchanges and the local exchange, marketing or bartering of surplus production', as well as imposing on non-gardeners (whether producing food or not) 'the full costs of their use of water and the drainage problem they impose on the community'. Removal of regulatory barriers to animal-keeping, if appropriately publicised, would most likely see the proportion of households with poultry increase, but it is difficult to see how the other means would be effective in increasing food production, as many gardeners at the end of the twentieth century found it difficult to grow vegetables from seed, and already had informal produce-exchange networks. Fiscal penalties applied to non-gardeners would not necessarily encourage food production rather than ornamental gardening. Finally, none of these measures would ensure that food production was carried out in a sustainable fashion; as we have seen, there are many ways in which home food production can detract from, rather than supporting, urban sustainability. Problems with ensuring that food production is carried out sustainably - or indeed at all - thus lead to the conclusion that the potential for food production is no reason to maintain the low-density residential urban structure of Australian cities, though other arguments may well be more persuasive.

However, this is not to say that food production should be banished altogether from the suburbs of Perth and Melbourne. Food production certainly has a place in promoting urban sustainability: by providing a means for recycling organic wastes into a useful product (even if in a small way), it can help to create a more sustainable urban metabolism. If, as seems to be the case, we are proceeding (albeit incrementally) in the direction of consolidated cities, then this study suggests that the wider provision of allotment gardens, which have successfully operated in Melbourne for many years, would seem to represent a happy medium between provision of private land for food gardening and productive spaces which are worked cooperatively. They would overcome some of the difficulties associated with backyard food production, whilst retaining its advantages. Furthermore, they would not (and in fact do not appear to) present equity problems, at least in terms of gender, now that food production is no longer bound up with masculinity. Allotment-style community gardens can be accessed by time-rich (whether or not money-poor) people without secure land resources, and transferred to other time-rich people as those people become time-poor, or their circumstances otherwise change and interest in gardening declines. They can be located in areas not subject to competition from trees, or shade from buildings. Furthermore, because allotments are assigned to individuals (or families) for their sole

management, they do not overly challenge the symbolic independence which has been a consistent feature of domestic food production since the nineteenth century, and which remains one of productive gardening's chief satisfactions. Indeed, in a consolidating city, food production in allotment gardens could provide an important medium for the expression of independence and self-reliance, where other avenues appeared to be under threat.

Yet at the same time, community allotment gardens offer opportunities for community interaction and involvement, and can perhaps be a step towards a greater recognition of the satisfactions to be gained from interdependence. They offer a convenient means for exchange of knowledge and resources such as surplus seedlings produced by more experienced growers. They also offer community decision-making on issues such as whether pests must be controlled, and by what means. Given the ubiquity of a desire to avoid pesticide residues in food, as well as more general environmental concerns, it is likely that most allotments would be run on a more-or-less organic basis, as they are in Melbourne. Unlike the system of scattered backyard production, community allotment gardens also increase the potential for adoption of IPM strategies which require the cooperation of all growers in an area.

On a more concrete level, community allotment gardens could also help to achieve safe and efficient recycling of organic wastes, from local food/hospitality industries and other sources, by providing a centralised point for collection and composting. Carried out by (or with the guidance of) experienced people, the potential for recycling of organic wastes to give rise to health hazards, as it has at times in the past, would be reduced. The economy of scale would also mean that manure and other inputs could be delivered in bulk rather than bagged, reducing resource use and waste. Some larger sites could also cater for those who wish to keep poultry or perhaps larger animals, thus (re-)introducing a means of locally converting green waste into food and manure. Provision of local allotment gardens would also provide a spare capacity (albeit limited) for food production, which would be useful in a scenario similar to that encountered during the Second World War, where the commercial food system was placed under stress and shortages appeared likely. The cheapness of food currently available relies on a high-energy system of cheap pest control, cheap fuel for transport, and cheap nutrient inputs. Were any of these to become more substantially more expensive (as, for instance, in the inevitable case of fossil fuel scarcity, or as a result of the increasing levels of insect resistance to pesticides), the present system might be unable to provide affordable food to all of the population, and local productive capacity, managed for equity, would be one way of ensuring local availability of lower-cost quality produce. Greater commercial production in suburban areas would seem to be precluded by economics, though could be possibly encouraged by special rating provisions and other incentives. In order to ensure minimal negative impacts in a densely populated suburban environment, such urban agricultural land would have to carry caveats relating to permissible inputs, especially in the form of pesticides and fertilisers.
At present, community gardens are usually developed as a result of ad hoc negotiations between community groups and local councils, although arrangements may be made with other bodies such as hospitals, churches, schools, universities, bodies corporate, and government departments or agencies responsible for public housing or railway reserve land. There is no legislation in Australia as there is in Britain, where the Small Holdings and Allotments Acts of 1907 and 1908 require local governments to provide ‘sufficient’ allotment plots for the local community. The British Allotments Act of 1925 further required that provision of allotment sites be considered in every town planning scheme, and established a class of statutory allotment land, with freehold vested in the local authority. Popularity of allotments in Britain has waxed and waned, though in 1997 there were a total of 296,923 plots in England, of which 43,000 were vacant, and 12,950 people were on waiting lists for plots.

In 1998, the Environment, Transport and Regional Affairs Select Committee conducted a detailed study of allotments in the United Kingdom. They found evidence for an ‘emerging renaissance’ in allotment demand, which was presumed to be a result of shrinking private garden areas and increasing numbers of retirees - trends which are also observable in Australia. Demand for plots was also linked to conditions on the sites: sites with a secure future which are well run, maintained to a high standard, free of vandalism, well publicised and with facilities such as toilets, water and seed shops tend to be fully occupied. Similarly, poorly equipped, managed and maintained sites with an uncertain future and problems of vandalism tend to suffer from higher rates of vacancies which ultimately result in an “abandonment and dereliction cycle.”

The report stressed the important role of local government authorities in determining the fate of allotments, with some successfully pursuing ‘an active approach to maintaining vibrant and fully-occupied allotment sites’, whilst others appeared to be ‘instrumental in encouraging the decline of interest in allotments’.

Ultimately, central government and parliament, local government authorities and their representative organisations, local community organisations and individual gardeners in the UK supported the idea that allotment gardening should be included within the Local Agenda 1

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15 ibid., p.173.
17 ibid., paras 35-36.
18 ibid., para.38.
19 ibid., para.40.
Local Agenda 21 (LA21) was one outcome of the United Nations Conference on Environment and Development in 1992, which recognised the necessity for action towards sustainability at a local level. Participating governments agreed that each local government area should develop and adopt a LA21 as a programme for local sustainability. In Australia, however, LA21 has not been taken up with a great deal of enthusiasm. With no federal requirement for councils to be involved, and very little specific funding available, it is perhaps little wonder that in November 2000, ‘council and community awareness of LA21 remained patchy’. Unless LA21 is revitalised in Australia, it would therefore appear the successful establishment of allotment gardens would best be achieved through a statutory requirement for allotments to be considered in planning schemes or development proposals in suburban areas (perhaps as part of ‘open space’ requirements), and supported by councils in accordance with ‘best practice’ guidelines for provision of facilities and ongoing support (for example in the way of publicity).

In increasing our understanding of the historical interaction of people and their suburban environment, this study has contributed to the body of work constituting Australian environmental historiography. It has identified and commenced analysis of the range of factors involved in shaping the meaning, form and function of food production, whilst still achieving that breadth of temporal and sectoral coverage which W.K. Hancock - one of Australia’s first environmental historians - famously referred to as ‘span’. It has highlighted the importance of diversity - particularly in terms of gender and class - to human-environment interactions in two Australian cities. Class has influenced not only levels of access to land and other resources, but also ideas about ways in which certain kinds of land should be used, and by whom. The relative power held by the middle class over the working class, particularly through the institution of local government, has allowed the middle class to pursue their notions of the ideal suburban community at the expense of alternative approaches. The patriarchal nature of Australian society allowed male appropriation - at least in the realm of representation - of an activity which reinforced their claims to independence and productivity, in opposition to a dependent and non-productive femininity. In private, many women most likely gained much satisfaction from the


25 The details of this requirement would benefit from development with reference to both the British experience, and the environmental and socio-cultural dimensions of the history of productive gardening in Australia, as detailed in this thesis. These would suggest, for example, that allotment gardens would need to be provided with a reliable water source - especially in Perth - and an administrative structure providing for security of tenure, and that provision of allotments in retirement villages may be a priority, as home to members of a generation firmly oriented towards independence and often inclined towards food production.
activity, though it appears that their participation was constructed in terms of their role as wives and mothers, rather than as independent and productive women. Discourses of feminine food production remained marginal until feminist agitation and the increasing involvement of women in paid employment and public life generally in the 1970s made the independent, female suburban food producer an available and legitimate subject position. The changing class and gender-based meanings of the activity help to explain patterns of involvement in suburban food production, as well as the prevalence of particular forms and practices.

The study also has utility as an environmental history in that it traces the environmental consequences of the multitude of small-scale decisions made by countless households in relation to one activity. The aggregate importance of such household decisions in both economic and environmental terms has been more widely acknowledged in recent decades. However, environmental historians have tended to shy away from examination of household consumption (and production) decisions, and their environmental implications. Indeed, this study has demonstrated that there are some difficulties with this approach. The main one relates to the relative paucity of sources, and scattered nature of those that do exist. This problem is common to most areas of inquiry involving household affairs, which are often carried on with few written records. By relying on a variety of sources, however, this study has been able to piece together a picture - albeit somewhat blurred in parts - of some of the factors which have influenced household decisions in relation to food production, and some of the aggregate impacts of those decisions.

Household decisions are informed by a range of historical, material and social factors, and the notion of habitus has proven itself effective in combining these, at a useful level of generalisation, into a ‘disposition’ which can be seen to influence a range of different decisions in a similar way. The identification of some of the main elements in the dominant middle-class suburban habitus in this study means that its findings in relation to significant influences on household decision-making have some wider application. In identifying the specific ways in which the independent disposition has had an impact on suburban food production, some of the factors examined are quite particular to food production (such as the meanings attributed to home-grown food), others would apply more generally to gardening (such as attitudes towards pest control prior to the 1970s), and some are applicable to a range of household decisions (such as the interaction of the independent disposition with the ‘modern outlook’ in the 1950s and 60s). On the most general level, the durability of the disposition towards independence has influenced - and continues to influence - a wide range of household decisions, with far-reaching implications for the forms

and practices of everyday suburban life. It explains why, for example, outside of the immediate family, communal or shared (as opposed to individual or market) solutions for everyday problems of transport, shopping, washing, and so on, are generally regarded as second-rate, and why some amount of household productive capacity - of food or other items - remains important to many.

As always, an enquiry of this nature raises as many questions as it answers, and one is ever hopeful that the opportunity will arise for oneself or another researcher to continue work in the area. In particular, some dominant meanings of and influences on suburban food production have been examined here, but it would be helpful to know more, provided suitable sources could be located, about the meanings of food production for the ‘unskilled’ working class at the margins of ‘respectability’ and the poor, as well as migrants from outside the British Isles. More attention could also be given to the detail of the ‘respectable’ working class habitus, and how it has shaped food production. Another fruitful area for future research would be the role of food production as an instrument of reform within cities - from Yarra Bend Asylum in the nineteenth century, to Tally Ho Boy’s Farm in early twentieth century Nunawading, to programmes for unemployed youth at the East Perth City Farm in the 1990s. Other questions remain as to the relative importance of the various factors influencing the forms, practice and prevalence of food production, but given the nature of the sources, it is doubtful that they could ever be satisfactorily resolved.

The harvest of the suburbs has to date been sometimes divisive, and occasionally bitter. It has not generally made for a more equitable city, has historically contributed to suburban pollution, and on occasion produced polluted food. However, it has also at times contributed to material well-being, satisfying neighbourhood relations, and personal fulfilment, whilst also helping to produce a more livable suburban environment. Australians will probably always seek some degree of independence, and forms of distinction which identify them as holding particular values or group membership. In Australian cities of the future, places used for the private production of food may well continue to play an important part in allowing for the expression of independence and distinction in an environmentally-beneficial (or at least benign) way, and grow in importance as places in which to reap the manifold rewards of interdependence.
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Blakers, Kathleen, 22 September 1998.
Catfird, Andrew, 17 July 1999.
Choo, Peter, 23 January 1999.
Chapman, Alison and Chapman, Ken, 12 July 1999.
Clarke, Norma, 28 September 1998.
Crewther, Helen, 10 July 1999.
Gardiner, Barbara, 12 July 1999.
Heedes, Gladys, 2 November 1998.
Hilder, Jeff, 12 July 1999.
Jackson, Margi, 9 July 1999.
June (pseudonym), 7 October 1998.
Kang, Lucy (with Christine Choo), 23 January 1999.
Klaus (preferred to be referred to by first name only), 9 July 1999.
Laurel (preferred to be referred to by first name only), 13 July 1999.
Lewis, Maria, 12 July 1999.
Mackenzie, Desley, 7 October 1998.
McAdam, Samson, 14 September 1999.
McQuire, Stuart, 10 July 1999.
Moore, John, 16 September 1998.
Oliver, Vern, 20 July 1999.
Pell, Brian, 13 July 1999.
Post, Steve, 9 November 1998.
Ricci, Paolo, 11 February 1999.
Sarah (pseudonym), 5 November 1998.
Still, Robert T., 7 October 1998.
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Ward, Maya, 15 July 1999.
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Appendix I - Summary of oral history interviews

Interviewees were contacted through articles and notices in local papers, *Gardening Australia* magazine, and word of mouth. The sample is not representative of all productive gardeners, having depended on the willingness of food producers to come forward or agree to be interviewed. However, an attempt was made to include interviews with people of various ages and from a range of socio-cultural backgrounds, in order to gain some insight into the variety of experiences of food production.

All interview tapes, transcripts and consent forms remain in the author’s possession.

Melbourne interviewees, with date and place of interview:

1 Ross Bishop - at his work - Esanda in Melbourne, 14 July 1999.
2 Helene Carroll - at her home in South Box Hill, 17 July 1999.
3 Andrew Catfird - at his home in Box Hill South, 17 July 1999.
4 Antoinette Celotti - at CERES Nursery, Brunswick, 13 July 1999.
5 Alison and Ken Chapman - at their home in Macleod, 12 July 1999.
6 Jefferey Contessa - at his home in Reservoir, 15 July 1999.
7 W.R. Cowley - at Alison and Ken's home in Macleod, 12 July 1999.
8 Helen Crewther - at the Food Forest in Brunswick, 10 July 1999.
9 Betty France - at her home in Northcote, 14 July 1999.
10 Barbara Gardiner - at Frances Warren's home in Mitcham, 12 July 1999.
11 Jeff Hilder - at his home in Fairfield, 12 July 1999.
12 Margi Jackson - at her home in Williamstown, 9 July 1999.
14 Klaus (preferred to be referred to by first name only) - in Williamstown, 9 July 1999.
15 Laurel (preferred to be referred to by first name only) - at CERES Nursery, Brunswick, 13 July 1999.
16 Maria Lewis - in Camberwell, 12 July 1999.
17 Stuart McQuire - at the Food Forest in Brunswick, 10 July 1999.
19 Basil Natoli - at the Community Garden in Richmond, 22 July 1999.
20 Vern Oliver - at his home in Reservoir, 20 July 1999.
21 Brian Pell - at his home in Box Hill, 13 July 1999.
22 Paolo Ricci - at CoAsIt, Carlton, 11 February 1999.
23 Frances Warren - at her home in Mitcham, 12 July 1999.
24 Maya Ward - at her home in Abbotsford, 15 July 1999.
25 Tim and Tot White - at their home in Fairfield, 20 July 1999.
Perth Interviewees, with date and place of interview:

26 Kathleen Blakers - at her home in Daglish, 22 September 1998.
27 Linda Brown, Teresa C. Blakers and Nancy Fitzpatrick - at Theresa’s home in Nedlands, 14 January 1999
28 Peter Choo - at his home in Leederville, 23 January 1999.
29 Norma Clarke - at her home in West Leederville, 28 September 1998.
30 E.B. Cook - at his home in Nedlands, 7 October 1998.
33 Lyn Gorham - at her home in Nedlands, 23 September 1998.
34 Paul Healey - at his home in Bassendean, 25 September 1998.
35 Gladys Heedes - at her home in Daglish, 2 November 1998.
36 June (pseudonym) - at Edith Cowan University, 7 October 1998.
37 Lucy Kang (with Christine Choo) - at Christine’s home in Leederville, 23 January 1999.
38 Pat Keady - at her home in Nedlands, 23 September 1998.
39 Desley Mackenzie - at her home in Nedlands, 7 October 1998.
40 Toni Mason - at her home in Floreat, 23 October 1998.
41 Samson McAdam - at UWA, 14 September 1999.
42 Maureen McCrae - at her home in Floreat, 23 October 1998.
44 Steve Post - at my home, 9 November 1998.
45 Sarah (pseudonym) - at her home in Swanbourne, 5 November 1998.
47 Donelle Toussaint - at her home in Nedlands, 16 September 1998.
50 Andrea Vis - at my home, 9 November 1998.
Appendix II - Perth statistical area maps.

Perth and Fremantle 1881-1896

From 'Plan showing the Districts & Sub Districts in South West Portion of Western Australia', Census of Western Australia 1891.

Perth Region, 1901

From 'Map of Western Australia 1901', Statistical Register of the Colony of Western Australia, 1901.
Area 1D (rectangle denoted by broken line to east and north, solid line to south, coast to west)

From 'Map showing statistical areas in the south-west portion of Western Australia: Distribution of Agricultural Statistics 1912-1912', Statistical Register of Western Australia, 1912.

Metropolitan, 1930-1961

From 'Map of Western Australia showing names and boundaries of the Statistical Districts and Divisions as at 30th June 1930', Statistical Register of Western Australia, 1930.
Metropolitan, 1965 on


<table>
<thead>
<tr>
<th>FRUIT, VEGETABLES AND FODDER</th>
<th>Acres</th>
<th>Root crops</th>
<th>Vegetable crops**</th>
<th>Root crops + Vegetable crops</th>
<th>Bearing fruit trees</th>
<th>Vineyard</th>
<th>Grain crops</th>
</tr>
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<tbody>
<tr>
<td>Perth + Fremantle 1881</td>
<td>84`</td>
<td>276</td>
<td>360</td>
<td>n.a.</td>
<td>117</td>
<td>444</td>
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<tr>
<td>Perth + Fremantle 1891</td>
<td>85`</td>
<td>467</td>
<td>552</td>
<td>(included in 'vegetable crops')</td>
<td>138.75</td>
<td>72.25</td>
<td></td>
</tr>
<tr>
<td>Perth + Fremantle* 1896</td>
<td>121.75</td>
<td>86.25</td>
<td>207.5</td>
<td>118.25</td>
<td>93.75</td>
<td>97</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Acres</th>
<th>Root crops</th>
<th>Vegetable crops**</th>
<th>Total root + veg crops</th>
<th>Fruit trees (all)</th>
<th>Bearing Grape vines</th>
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</thead>
<tbody>
<tr>
<td>area ID, 1911</td>
<td>96</td>
<td>1264</td>
<td>1360</td>
<td>828</td>
<td>189</td>
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</tbody>
</table>

[1916-1926 information unavailable]

| Metropolitan 1930-31 | 281 | 947 | 1228 | 137 | 108 |
| Metropolitan 1932-33 | 226 | 807 | 1033 | 135 | 138 |
| Metropolitan 1935-36 | 9   | 897 | 906  | 143 | 127 |
| Metropolitan 1940-41 | 303` | 1156 | 1459 | 208 | 212 |
| Metropolitan 1945-46 | 1065 | 1523 | 2588 | n.a. | 277 |
| Metropolitan 1950-51 | 809 | 1177 | 1986 | 61  | 292 |
| Metropolitan 1955-56 | 753 | 1282 | 2035 | n.a. | 99  |
| Metropolitan 1960-61 | 729 | 1189 | 1918 | 26  | 81  |
| Metropolitan*** 1965-66 | 485 | 1039 | 1524 | 34  | 28  |
| Metropolitan*** 1970-71 | 229 | 740  | 969  | 25  | n.a. |
| Metropolitan*** 1980-81 | n.a. | n.a. | 361  | n.a. | 5   |

` 1881 - Potatoes and onions only; 1891 - potatoes only.
* Excluding Rottnest
** includes 'kitchen gardens' for 1881; all crops other than grain, potatoes, hay, green forage and vines for 1891 (i.e. includes orchards and gardens); 'market gardens' for 1896; 'kitchen gardens' and 'market gardens' for 1911 and 1930-31; kitchen/market gardens and tomatoes for 1940-41; all vegetable categories other than potatoes, onions and 'other root crops' for 1945-46; all vegetables other than potatoes and onions for 1950-51 and 1960-61; and all vegetables other than any root crop from 1965.
*** comprised of City of Sirling, Shire of Bayswater, Town of Bassendean, City of Belmont, City of Perth, City of Subiaco, City of Nedlands, Town of Claremont, Shire of Peppermint Grove, Town of Cottesloe, Town of Mosman Park, City of Fremantle, Town of East Fremantle, City of Melville, City of South Perth, and City of Canning. This area is reasonably equivalent to the metropolitan area from 1930-1 to 1960-1, with the exception of a small (but most probably productive) part of the Shire of Swan south of Guildford.
<table>
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<th></th>
<th>horses</th>
<th>milk cows</th>
<th>total cattle</th>
<th>sheep</th>
<th>pigs</th>
<th>goats</th>
<th>fowls</th>
<th>ducks</th>
<th>geese</th>
<th>turkeys</th>
<th>Eggs obtained (doz)</th>
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<td>Perth + Fremantle 1881</td>
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<td>4233</td>
<td>5062</td>
<td>2190</td>
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<td>2417</td>
<td>1245</td>
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<td>4192</td>
<td>252</td>
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<td>Perth + Fremantle* 1896</td>
<td>4527</td>
<td>1710</td>
<td>3807</td>
<td>2508</td>
<td>1774</td>
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<td>Perth region** 1901</td>
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<td>n.a.</td>
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<td>n.a.</td>
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<td>Area 1D, 1926</td>
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<td>Area 1D, 1929</td>
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<td>n.a.</td>
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<td>1914</td>
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<td>n.a.</td>
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<td>36</td>
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</table>

* Excluding Rottnest
*** comprised of City of Sirling, Shire of Bayswater, Town of Bassendean, City of Belmont, City of Perth, City of Subiaco, City of Nedlands, Town of Claremont, Shire of Peppermint Grove, Town of Cottesloe, Town of Mosman Park, City of Fremantle, Town of East Fremantle, City of Melville, City of South Perth, and City of Canning. This area is reasonably equivalent to the metropolitan area from 1930-1 to 1960-1, though excludes a small (but most probably productive) part of the Shire of Swan south of Guildford.
$£ value poultry products
n.a. = not available

Notes:

1. “Perth + Fremantle” magisterial districts for 1881-1896 encompasses a much larger area than the subsequent districts referred to, and does not include parts of the Guildford district. The figures before and after 1896 are therefore not comparable.

2. Approximate area of 1D = 164 square miles; area of Metropolitan Division from 1930/31 = 191 square miles, with some degree of differential coverage (mostly on margins). The “Perth Region” in 1901 is reasonably equivalent to both Swan Area 1D and Metropolitan region from 1930.

3. From 1942/43, livestock and fruit/vegetable production on non-commercial holdings were excluded from the figures, whereas some were previously included: “Previous to 1942-3 returns were collected for certain non-commercial holdings carrying livestock (i.e. Racing Stables, etc.) or growing crops (i.e. Kitchen Gardens, Fruit Trees etc.) Particulars for such holdings are now excluded from published tables.”

Sources:
In 1903, all dairies in the vicinity of Perth and Fremantle were inspected and provided with copies of the by-laws relating to dairies. The list of those dairies is as follows:

<table>
<thead>
<tr>
<th>Locality</th>
<th>Name</th>
<th>No. of cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perth</td>
<td>P. McCaffery</td>
<td>18</td>
</tr>
<tr>
<td>Perth</td>
<td>D. Keane</td>
<td>35</td>
</tr>
<tr>
<td>Perth</td>
<td>Wm A Wallis</td>
<td>2</td>
</tr>
<tr>
<td>Perth</td>
<td>J.A. Liddelow</td>
<td>48</td>
</tr>
<tr>
<td>Leederville</td>
<td>T Moynahan</td>
<td>35</td>
</tr>
<tr>
<td>Leederville</td>
<td>J.W. Kelly</td>
<td>23</td>
</tr>
<tr>
<td>Leederville</td>
<td>J.W. Mill</td>
<td>24</td>
</tr>
<tr>
<td>Leederville</td>
<td>A.J. Ranford</td>
<td>21</td>
</tr>
<tr>
<td>Canning</td>
<td>Frank Mason</td>
<td>7</td>
</tr>
<tr>
<td>Canning</td>
<td>S. Owen</td>
<td>22</td>
</tr>
<tr>
<td>Canning</td>
<td>Liddelow Jnr.</td>
<td>30</td>
</tr>
<tr>
<td>Canning</td>
<td>A. &amp; J. Gibbs</td>
<td>60</td>
</tr>
<tr>
<td>Canning</td>
<td>Crane &amp; England</td>
<td>32</td>
</tr>
<tr>
<td>Canning</td>
<td>Jnr. Dellar</td>
<td>4</td>
</tr>
<tr>
<td>Canning</td>
<td>Jas. Dellar</td>
<td>13</td>
</tr>
<tr>
<td>Canning</td>
<td>F.M. Merek</td>
<td>38</td>
</tr>
<tr>
<td>Subiaco</td>
<td>Bynane and Moynahan</td>
<td>37</td>
</tr>
<tr>
<td>Subiaco</td>
<td>Frank Smith</td>
<td>50</td>
</tr>
<tr>
<td>Subiaco W.</td>
<td>Patrick Mulcahy</td>
<td>15</td>
</tr>
<tr>
<td>Victoria Park</td>
<td>W.J. Glenn</td>
<td>20</td>
</tr>
<tr>
<td>Victoria Park</td>
<td>Fairbrother</td>
<td>25</td>
</tr>
<tr>
<td>Victoria Park</td>
<td>W.S. Robinson</td>
<td>17</td>
</tr>
<tr>
<td>Bayswater</td>
<td>P. Rychen</td>
<td>24</td>
</tr>
<tr>
<td>Bayswater</td>
<td>R. Meakins</td>
<td>35</td>
</tr>
<tr>
<td>Bayswater</td>
<td>R. Toovey</td>
<td>15</td>
</tr>
<tr>
<td>Bayswater</td>
<td>R. Moore</td>
<td>11</td>
</tr>
<tr>
<td>Bayswater</td>
<td>C.W. Sudlow &amp; Son</td>
<td>43</td>
</tr>
<tr>
<td>Bayswater</td>
<td>A. Donald</td>
<td>15</td>
</tr>
<tr>
<td>South Perth</td>
<td>R.J. Pennington</td>
<td>15</td>
</tr>
<tr>
<td>South Perth</td>
<td>R.A. Bruce</td>
<td>28</td>
</tr>
<tr>
<td>South Perth</td>
<td>J.D. Manning</td>
<td>26</td>
</tr>
<tr>
<td>Claremont</td>
<td>H. Vivian</td>
<td>20</td>
</tr>
<tr>
<td>Claremont</td>
<td>Jnr. Rome</td>
<td>75</td>
</tr>
<tr>
<td>Midland Junction</td>
<td>J. Cardie</td>
<td>9</td>
</tr>
<tr>
<td>Newcastle Road</td>
<td>Jasper Bros.</td>
<td>30</td>
</tr>
<tr>
<td>Helena Vale</td>
<td>R. Thompson</td>
<td>10</td>
</tr>
<tr>
<td>York Greenmount</td>
<td>Collins and Kayes</td>
<td>10</td>
</tr>
<tr>
<td>W. Guildford</td>
<td>W.J. King</td>
<td>34</td>
</tr>
<tr>
<td>Claremont</td>
<td>Sarah J. Innes</td>
<td>20</td>
</tr>
<tr>
<td>Osborne Park</td>
<td>R. Donovan</td>
<td>31</td>
</tr>
<tr>
<td>Osborne Park</td>
<td>J. Flynn</td>
<td>21</td>
</tr>
<tr>
<td>Fremantle</td>
<td>W. Sheppard</td>
<td>23</td>
</tr>
<tr>
<td>Fremantle</td>
<td>W. Kenworthy</td>
<td>18</td>
</tr>
<tr>
<td>Fremantle</td>
<td>Vincent Bros</td>
<td>16</td>
</tr>
<tr>
<td>Fremantle</td>
<td>J.W. Fetridge</td>
<td>18</td>
</tr>
<tr>
<td>Fremantle</td>
<td>M. Healy</td>
<td>25</td>
</tr>
<tr>
<td>Fremantle</td>
<td>W. Simmons</td>
<td>21</td>
</tr>
<tr>
<td>Fremantle</td>
<td>Mrs Stotters</td>
<td>14</td>
</tr>
<tr>
<td>Fremantle</td>
<td>J. Beisley</td>
<td>12</td>
</tr>
<tr>
<td>Location</td>
<td>Name</td>
<td>Amount</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Fremantle</td>
<td>A. Guilfoyle</td>
<td>5</td>
</tr>
<tr>
<td>Fremantle</td>
<td>J. Conway</td>
<td>10</td>
</tr>
<tr>
<td>Fremantle</td>
<td>Mrs Morrison</td>
<td>10</td>
</tr>
<tr>
<td>Fremantle</td>
<td>M. Tyler</td>
<td>4</td>
</tr>
<tr>
<td>Cottesloe Beach</td>
<td>Delamere Bros.</td>
<td>20</td>
</tr>
<tr>
<td>Cottesloe Beach</td>
<td>J. Devine</td>
<td>10</td>
</tr>
<tr>
<td>Cottesloe Beach</td>
<td>Jnr. Doscas</td>
<td>6</td>
</tr>
<tr>
<td>West Guildford</td>
<td>Cole Bros</td>
<td>17</td>
</tr>
<tr>
<td>Buckland Hill</td>
<td>F.A. Wood</td>
<td>22</td>
</tr>
<tr>
<td>Buckland Hill</td>
<td>A. Wetheridge</td>
<td>16</td>
</tr>
<tr>
<td>Buckland Hill</td>
<td>S. Wolfe</td>
<td>5</td>
</tr>
<tr>
<td>Near Guildford</td>
<td>Wellman Marish</td>
<td>17</td>
</tr>
<tr>
<td>Near Guildford</td>
<td>Norris Jones</td>
<td>22</td>
</tr>
<tr>
<td>Near Guildford</td>
<td>Jas. Walberg Morrison</td>
<td>12</td>
</tr>
<tr>
<td>Fremantle district RB LBH</td>
<td>S. Discori</td>
<td>10</td>
</tr>
<tr>
<td>North Fremantle</td>
<td>Fitzgerald</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: SROWA, AN 120/4, Medical Department, Acc 1003, no.938, 1903, Summary of dairies.
### Appendix V: Summary tables - cultivation, livestock and poultry, Melbourne 1881-1958.

CULTIVATION (NB. Collectors not called upon to visit lots of less than 1 acre).

<table>
<thead>
<tr>
<th></th>
<th>cultivated</th>
<th>grain crops</th>
<th>hay</th>
<th>root crops</th>
<th>market gardens</th>
<th>root + market gdn crops</th>
<th>vines</th>
<th>“orchards”</th>
<th>fallow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Melbourne 1881</td>
<td>8226</td>
<td>353</td>
<td>2940</td>
<td>542</td>
<td>1558*</td>
<td>2100</td>
<td>50</td>
<td>755</td>
<td>143</td>
</tr>
<tr>
<td>Greater Melbourne 1891</td>
<td>3746</td>
<td>13</td>
<td>1027</td>
<td>276</td>
<td>1172</td>
<td>1448</td>
<td>20</td>
<td>653**</td>
<td>126</td>
</tr>
<tr>
<td>Greater Melbourne 1900</td>
<td>5525</td>
<td>303</td>
<td>1893</td>
<td>718</td>
<td>1588</td>
<td>2276</td>
<td>3</td>
<td>225</td>
<td>181</td>
</tr>
<tr>
<td>Greater Melbourne 1911</td>
<td>5364</td>
<td>31</td>
<td>2446</td>
<td>453</td>
<td>1283</td>
<td>1696</td>
<td>0</td>
<td>201</td>
<td>104</td>
</tr>
</tbody>
</table>

* “gardens”, so described.
** “orchards and gardens”, so described.

LIVE STOCK AND POULTRY (enumerated only by county 1901-1957)

<table>
<thead>
<tr>
<th></th>
<th>horses</th>
<th>milk cows</th>
<th>other cattle</th>
<th>sheep</th>
<th>pigs</th>
<th>goats</th>
<th>fowls</th>
<th>ducks</th>
<th>geese</th>
<th>turkeys</th>
<th>guinea/pea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Melbourne 1881</td>
<td>15 356</td>
<td>10 287</td>
<td>4815</td>
<td>12 912</td>
<td>7641</td>
<td>3219</td>
<td>311 811</td>
<td>48 152</td>
<td>7147</td>
<td>5768</td>
<td>144</td>
</tr>
<tr>
<td>Greater Melbourne 1891</td>
<td>25 757</td>
<td>10 786</td>
<td>7108</td>
<td>9236</td>
<td>4097</td>
<td>3146</td>
<td>492 401</td>
<td>58 715</td>
<td>7423</td>
<td>5726</td>
<td>534</td>
</tr>
<tr>
<td>Metropolitan electorates 1933</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greater Melbourne 1958</td>
<td>70</td>
<td>315</td>
<td>398</td>
<td>2798</td>
<td>322</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1. Greater Melbourne in 1881 = Brighton, Brunswick, Collingwood, Emerald Hill, Essendon & Flemington, Fitzroy, Footscray, Hawthorn, Hotham, Kew, Melbourne, Port Melbourne, Prahran, Richmond, St Kilda, Williamstown, plus shires of Boroondara, Caulfield, Coburg, Jika and Malvern. Shire of Oakleigh is not included in the 1881 figures for Greater Melbourne, and for consistency, the Borough of Oakleigh is excluded from later figures.

2. Greater Melbourne in 1891 = Same area as above: Brighton, Brunswick, Collingwood, Essendon, Kensington & Flemington, Fitzroy, Footscray, Hawthorn, Kew, Melbourne, Northcote, Port Melbourne, Prahran, Richmond, South Melbourne, St Kilda, Williamstown + shires of Boroondara, Caulfield, Coburg, Malvern and Preston. In 1891 there were 179 cultivated holdings in Greater Melbourne.
3. Greater Melbourne in 1900 = Same as 1891. In 1900 there were 258 cultivated holdings in Greater Melbourne.


**Sources:**

**RETURN OF POULTRY IN VICTORIA** ('Collection made in conjunction with the Census of Population &c., at 30th June, 1933')

<table>
<thead>
<tr>
<th>Flock size</th>
<th>Under 100</th>
<th>100-299</th>
<th>300-499</th>
<th>500-749</th>
<th>750-1000</th>
<th>above 1000</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owners/birds</td>
<td>owners</td>
<td>birds</td>
<td>owners</td>
<td>birds</td>
<td>owners</td>
<td>birds</td>
<td>owners</td>
</tr>
<tr>
<td>Metropolitan* fowls</td>
<td>37 761</td>
<td>578 273</td>
<td>866</td>
<td>132 059</td>
<td>147</td>
<td>53 759</td>
<td>64</td>
</tr>
<tr>
<td>Under 50</td>
<td>4817</td>
<td>32 341</td>
<td>51</td>
<td>5312</td>
<td>4868</td>
<td>37 653</td>
<td></td>
</tr>
<tr>
<td>50 and over</td>
<td>190</td>
<td>766</td>
<td>190</td>
<td>766</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>206</td>
<td>540</td>
<td>206</td>
<td>540</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* = Metropolitan electorates

**Note:** The original table is accompanied by the following observation: ‘The collection for 1933 was made at a period of the year when the various kinds of poultry would be at the lowest number during that year’.

**Source:** PROV, Department of Agriculture, VPRS 10163/P3, Central Admin Correspondence files, Box 261, Statistics - Poultry 1942-1964.
Appendix VI - Map of Greater Melbourne, 1901.

Adapted from: Melbourne University Archives, Melbourne University Social Survey.
### Appendix VII - Estimated home food production of various commodities and percentage of total production produced by private households, Australia, 1943-1992.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheese</td>
<td>270</td>
<td>0.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1953</td>
<td>0.4% (a)</td>
</tr>
<tr>
<td>Poultry (dressed)</td>
<td>n.s.</td>
<td>n.a.</td>
<td>2873</td>
<td>1.9%</td>
<td>23 152</td>
<td>12.3%</td>
<td>26 138</td>
<td>16.2% (c)</td>
</tr>
<tr>
<td>Fish - fresh</td>
<td>3000</td>
<td>8.5%</td>
<td></td>
<td></td>
<td>5072</td>
<td>4.7%</td>
<td>89831.4</td>
<td></td>
</tr>
<tr>
<td>Butter</td>
<td>4904</td>
<td>3.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>27 842.6</td>
<td></td>
</tr>
<tr>
<td>Eggs (shell)</td>
<td>5848 - 44 643* 18.1% - 150.3%</td>
<td></td>
<td>50 098</td>
<td>41.1%</td>
<td>57 625</td>
<td>29.8%</td>
<td>31 191.7</td>
<td></td>
</tr>
<tr>
<td>Potatoes (white)</td>
<td>20 577</td>
<td>4.0%</td>
<td></td>
<td></td>
<td>25 000</td>
<td>3.4%</td>
<td>15 000</td>
<td>1.3%</td>
</tr>
<tr>
<td>Tomatoes - fresh</td>
<td>6100</td>
<td>4.7%</td>
<td></td>
<td></td>
<td>18 902</td>
<td>4.8%</td>
<td>15 767.5</td>
<td></td>
</tr>
<tr>
<td>Fresh citrus fruit</td>
<td>8929</td>
<td>17.1%</td>
<td></td>
<td></td>
<td>17 347</td>
<td>9.1%</td>
<td>78 191.7</td>
<td></td>
</tr>
<tr>
<td>Fresh fruit (not citrus)</td>
<td>15 000</td>
<td>3.0%</td>
<td></td>
<td></td>
<td>15 000</td>
<td>1.3%</td>
<td>78 767.5</td>
<td></td>
</tr>
<tr>
<td>Jam</td>
<td>1143</td>
<td>1.6%</td>
<td></td>
<td></td>
<td>1000</td>
<td>2.6%</td>
<td>78 767.5</td>
<td></td>
</tr>
<tr>
<td>Canned fruit</td>
<td>600</td>
<td>0.9%</td>
<td></td>
<td></td>
<td>500</td>
<td>0.2%</td>
<td>78 767.5</td>
<td></td>
</tr>
<tr>
<td>Nuts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78 767.5</td>
<td></td>
</tr>
<tr>
<td>Cabbages and greens</td>
<td>15 536</td>
<td>20.7%</td>
<td></td>
<td></td>
<td>3685</td>
<td>4.8%</td>
<td>21 366.4</td>
<td></td>
</tr>
<tr>
<td>Lettuce</td>
<td>5312</td>
<td>23.1%</td>
<td></td>
<td></td>
<td>2570</td>
<td>9.1%</td>
<td>15 861.8</td>
<td></td>
</tr>
<tr>
<td>Carrots</td>
<td>1384</td>
<td>4.4%</td>
<td></td>
<td></td>
<td>4170</td>
<td>4.8%</td>
<td>5320.4</td>
<td></td>
</tr>
<tr>
<td>Fresh legumes</td>
<td>15 134</td>
<td>21.3%</td>
<td></td>
<td></td>
<td>17 002</td>
<td>13.0%</td>
<td>15 588.1</td>
<td></td>
</tr>
<tr>
<td>Pumpkins</td>
<td>7634</td>
<td>20.1%</td>
<td></td>
<td></td>
<td>4 599</td>
<td>4.8%</td>
<td>27 304.1</td>
<td></td>
</tr>
<tr>
<td>Swede turnips</td>
<td>2411</td>
<td>12.0%</td>
<td></td>
<td></td>
<td>440</td>
<td>2.9%</td>
<td>527.2</td>
<td></td>
</tr>
<tr>
<td>White turnips</td>
<td>1161</td>
<td>19.4%</td>
<td></td>
<td></td>
<td>incl. in swede turnips</td>
<td></td>
<td>78 767.5</td>
<td></td>
</tr>
<tr>
<td>Beetroot</td>
<td>2500</td>
<td>20.0%</td>
<td></td>
<td></td>
<td>incl. in swede turnips</td>
<td></td>
<td>78 767.5</td>
<td></td>
</tr>
<tr>
<td>Onions</td>
<td>5100</td>
<td>5.7%</td>
<td></td>
<td></td>
<td>4572</td>
<td>4.8%</td>
<td>3655.8</td>
<td></td>
</tr>
<tr>
<td>Parsnips</td>
<td>714</td>
<td>4.3%</td>
<td></td>
<td></td>
<td>562</td>
<td>4.8%</td>
<td>610.5</td>
<td></td>
</tr>
<tr>
<td>Cauliflowers</td>
<td>7009</td>
<td>20.6%</td>
<td></td>
<td></td>
<td>3878</td>
<td>4.8%</td>
<td>4349.1</td>
<td></td>
</tr>
<tr>
<td>Cucumbers</td>
<td>268</td>
<td>7.1%</td>
<td></td>
<td></td>
<td>542</td>
<td>4.8%</td>
<td>3910.9</td>
<td></td>
</tr>
<tr>
<td>Marrows and squashes</td>
<td>1161</td>
<td>23.2%</td>
<td></td>
<td></td>
<td>412</td>
<td>4.8%</td>
<td>3568.6</td>
<td></td>
</tr>
<tr>
<td>Sweet corn</td>
<td>120</td>
<td>4.7%</td>
<td></td>
<td></td>
<td>623</td>
<td>4.8%</td>
<td>3458.2</td>
<td></td>
</tr>
<tr>
<td>Other vegetables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9430.7</td>
<td></td>
</tr>
<tr>
<td>Total fresh fruit</td>
<td>n.a.</td>
<td></td>
<td>33 902</td>
<td>2.2%</td>
<td>109 959.2</td>
<td>4.9%</td>
<td>9430.7</td>
<td></td>
</tr>
<tr>
<td>Total vegetables</td>
<td>62 233</td>
<td>16.8%</td>
<td>86 355</td>
<td>4.8%</td>
<td>152 684.8</td>
<td>5.6%</td>
<td>9430.7</td>
<td></td>
</tr>
</tbody>
</table>
* 1 ton = 2 240 lb = 1.02 metric tonnes.
* The lower estimate is from the Controller of Egg Supplies, the higher is from the Government Statistician.
** These figures represent an estimate of the maximum household food production, based on figures for consumption - see discussion above.

(a) Excluding commercial produce of Tasmania, N.T. and A.C.T.
(b) Whereas tonnage is provided for fresh fish only, percentage is contribution of privately-caught seafood of all descriptions to total commercial seafood produced within Australian fisheries, including Commonwealth fisheries under federal jurisdiction.
(c) Excluding commercial production of Queensland and Western Australia, both of which are unavailable.
(d) Includes broccoli, cabbage, celery, spinach and 'other' green vegetables.
Appendix VIII - Market gardens, poultry farms, and stables in the Perth Metropolitan Area, 1959.

<table>
<thead>
<tr>
<th>LGA</th>
<th>Market Gardens</th>
<th>Poultry Farms</th>
<th>Stables</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayswater RB</td>
<td>2</td>
<td>39</td>
<td>6</td>
<td>See below</td>
</tr>
<tr>
<td>Bassendean RB</td>
<td>1 (not in use)</td>
<td>1</td>
<td>6</td>
<td>nil</td>
</tr>
<tr>
<td>Belmont Park RB</td>
<td>24</td>
<td>45</td>
<td>126</td>
<td>3 dairies, 8 piggeries</td>
</tr>
<tr>
<td>Canning RB</td>
<td>4</td>
<td>44</td>
<td>28</td>
<td>5 dairies, 2 piggeries</td>
</tr>
<tr>
<td>Claremont Mun.</td>
<td>nil</td>
<td>nil</td>
<td>1</td>
<td>see below</td>
</tr>
<tr>
<td>Cottesloe Mun.</td>
<td>nil</td>
<td>nil</td>
<td>3</td>
<td>nil</td>
</tr>
<tr>
<td>Cockburn RB</td>
<td>224</td>
<td>23</td>
<td>13</td>
<td>see below</td>
</tr>
<tr>
<td>Darling Range RB</td>
<td>17 (see below)</td>
<td>27</td>
<td>10</td>
<td>2 dairy farms</td>
</tr>
<tr>
<td>East Fremantle Mun.</td>
<td>nil</td>
<td>nil</td>
<td>12</td>
<td>nil</td>
</tr>
<tr>
<td>City of Fremantle</td>
<td>11 (gardens/poultry)</td>
<td>see below</td>
<td>60</td>
<td>see below</td>
</tr>
<tr>
<td>Guildford Mun.</td>
<td>nil</td>
<td>1 hatchery</td>
<td>2</td>
<td>nil</td>
</tr>
<tr>
<td>Kwinana RB</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>nil</td>
</tr>
<tr>
<td>Melville RB</td>
<td>nil</td>
<td>9</td>
<td>14</td>
<td>5 piggeries</td>
</tr>
<tr>
<td>Midland Junction Mun.</td>
<td>nil</td>
<td>nil</td>
<td>4</td>
<td>2 abattoirs</td>
</tr>
<tr>
<td>Mosman Park RB</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
</tr>
<tr>
<td>Mundaring RB</td>
<td>nil</td>
<td>5</td>
<td>nil</td>
<td>none</td>
</tr>
<tr>
<td>Nedlands Mun</td>
<td>nil</td>
<td>nil</td>
<td>1</td>
<td>1 piggery</td>
</tr>
<tr>
<td>North Fremantle Mun.</td>
<td>1</td>
<td>nil</td>
<td>1</td>
<td>none</td>
</tr>
<tr>
<td>Peppermint Grove RB</td>
<td>nil</td>
<td>nil</td>
<td>1</td>
<td>nil</td>
</tr>
<tr>
<td>City of Perth</td>
<td>6</td>
<td>1</td>
<td>67</td>
<td>nil</td>
</tr>
<tr>
<td>Perth RB</td>
<td>396</td>
<td>27</td>
<td>38</td>
<td>see below</td>
</tr>
<tr>
<td>South Perth Mun.</td>
<td>1</td>
<td>nil</td>
<td>9</td>
<td>1 mixed farm</td>
</tr>
<tr>
<td>City of Subiaco</td>
<td>nil</td>
<td>nil</td>
<td>2</td>
<td>none</td>
</tr>
<tr>
<td>Swan RB</td>
<td>see below</td>
<td>see below</td>
<td>see below</td>
<td>see below</td>
</tr>
</tbody>
</table>

Source: SROWA, AN 120/4, Health Department, Acc 1003, no.604, 1959, Replies to Circular 485 - Eradication of Flies and Fly Breeding in Metropolitan Area.

Notes:

• No copy of the circular appears in the file, but it is evident that it requested details of 1. all Market Gardens; 2. all Poultry Farms; 3. all Stables; and 4. any other perceived fly breeding areas within each Metropolitan Local Government Area. It was sent in early May 1959.

• Claremont claimed no other fly breeding areas, however someone at the Health Dept. added a note to 'check Mental Hospital re. Dairy'.

• Darling Range RB had no separate category for Market Garden, all being listed as 'Nursery & Market Garden'. Furthermore, 'The outlying areas - Bickley, Carmel, Walliston and Pickering Brook, comprising chiefly of orchards, market gardens and poultry farms, [were not] included.'

• Cockburn RB cites as other possible sites ‘the many and varied offensive trades carried on in this area’, including ‘Watson’s Foods Pty Ltd at Spearwood from which pig manure etc., is carted to the market gardens.’ Most of the market gardens were in Spearwood and South Coogee, with a few in Hamilton Hill.

• Fremantle City had a category for ‘Gardens - Poultry’, indicating that the two were usually kept in conjunction, or the council was not inclined to differentiate between them. Two livestock yards also listed.

• Bayswater RB did not list any other agricultural enterprises, although it is clear from Catherine May’s history that at least one dairy was in operation in the area until the 1970s.

• Perth RB list is interim. One duck farm, 2 piggeries, and 1 dairy were also listed.

• Swan RB had no idea of the number of agricultural premises, and gave a list of health licenses 1959/9 - all noxious trades (including 42 piggeries). The accompanying letter stated that ‘the majority of the district is agricultural and stock are both grazed and probably sold from the individual properties’.
Appendix IX - estimated wartime vegetable shortfalls and surpluses, Western Australia, Victoria, and Australia, 1943.

**Western Australia**

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Deficiency</th>
<th>Surplus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tons</td>
<td>Acres</td>
</tr>
<tr>
<td>Potatoes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Beans, French</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Beans, Navy</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Beetroot</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cabbages</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cauliflowers</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Carrots</td>
<td>780</td>
<td>78</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>308</td>
<td>205</td>
</tr>
<tr>
<td>Lettuces</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Marrows &amp; Squashes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Onions</td>
<td>1550</td>
<td>221</td>
</tr>
<tr>
<td>Parsnips</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Peas, blue boiler</td>
<td>1242</td>
<td>3271</td>
</tr>
<tr>
<td>Peas, green</td>
<td>180</td>
<td>90</td>
</tr>
<tr>
<td>Spinach &amp; Silver beet</td>
<td>260</td>
<td>26</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Subtotal - veg for human food</strong></td>
<td><strong>4320</strong></td>
<td><strong>3891</strong></td>
</tr>
</tbody>
</table>

Other vegetables grown partly for stock fodder:

<table>
<thead>
<tr>
<th></th>
<th>Tons</th>
<th>Acres</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potatoes, sweet</td>
<td>-</td>
<td>-</td>
<td>266</td>
</tr>
<tr>
<td>Pumpkins</td>
<td>-</td>
<td>-</td>
<td>4830</td>
</tr>
<tr>
<td>Turnips, swede</td>
<td>-</td>
<td>-</td>
<td>200</td>
</tr>
<tr>
<td>Turnips, white</td>
<td>-</td>
<td>-</td>
<td>190</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4320</strong></td>
<td><strong>3891</strong></td>
<td><strong>18 193</strong></td>
</tr>
</tbody>
</table>

**Victoria**

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Deficiency</th>
<th>Surplus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tons</td>
<td>Acres</td>
</tr>
<tr>
<td>Potatoes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Beans, French</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Beans, Navy</td>
<td>562</td>
<td>1956</td>
</tr>
<tr>
<td>Beetroot</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cabbages</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cauliflowers</td>
<td>4224</td>
<td>704</td>
</tr>
<tr>
<td>Carrots</td>
<td>280</td>
<td>187</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>280</td>
<td>187</td>
</tr>
<tr>
<td>Lettuces</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Marrows &amp; Squashes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Onions</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Parsnips</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Peas, blue boiler</td>
<td>1572</td>
<td>4491</td>
</tr>
<tr>
<td>Peas, green</td>
<td>3849</td>
<td>3849</td>
</tr>
<tr>
<td>Spinach &amp; Silver beet</td>
<td>2342</td>
<td>390</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>10 270</td>
<td>1027</td>
</tr>
<tr>
<td><strong>Subtotal - veg for human food</strong></td>
<td><strong>23 099</strong></td>
<td><strong>12 604</strong></td>
</tr>
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</table>

Other vegetables grown partly for stock fodder:

<table>
<thead>
<tr>
<th></th>
<th>Tons</th>
<th>Acres</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potatoes, sweet</td>
<td>-</td>
<td>-</td>
<td>316</td>
</tr>
<tr>
<td>Pumpkins</td>
<td>-</td>
<td>-</td>
<td>21 740</td>
</tr>
<tr>
<td>Turnips, swede</td>
<td>-</td>
<td>-</td>
<td>8643</td>
</tr>
<tr>
<td>Turnips, white</td>
<td>-</td>
<td>-</td>
<td>1030</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>23 099</strong></td>
<td><strong>12 604</strong></td>
<td><strong>138 755</strong></td>
</tr>
</tbody>
</table>
## Australia

<table>
<thead>
<tr>
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<th>Deficiency</th>
<th></th>
<th>Surplus</th>
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</thead>
<tbody>
<tr>
<td>Potatoes</td>
<td>60 800</td>
<td>23 800</td>
<td></td>
</tr>
<tr>
<td>Beans, French</td>
<td>-</td>
<td>-</td>
<td>2107</td>
</tr>
<tr>
<td>Beans, Navy</td>
<td>1865</td>
<td>5500</td>
<td>-</td>
</tr>
<tr>
<td>Beetroot</td>
<td>-</td>
<td>-</td>
<td>5515</td>
</tr>
<tr>
<td>Cabbages</td>
<td>-</td>
<td>-</td>
<td>906</td>
</tr>
<tr>
<td>Cauliflowers</td>
<td>4794</td>
<td>780</td>
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</tr>
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<td>-</td>
<td>-</td>
<td>2790</td>
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<td>Cucumbers</td>
<td>360</td>
<td>144</td>
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<tr>
<td>Marrows &amp; Squashes</td>
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<td>-</td>
<td>7268</td>
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<tr>
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<td>1862</td>
<td>5380</td>
<td>-</td>
</tr>
<tr>
<td>Peas, green</td>
<td>11 186</td>
<td>12 712</td>
<td>-</td>
</tr>
<tr>
<td>Spinach &amp; Silver beet</td>
<td>10 244</td>
<td>1623</td>
<td>-</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>15 800</td>
<td>2430</td>
<td>-</td>
</tr>
<tr>
<td><strong>Subtotal - veg for human food</strong></td>
<td><strong>113 408</strong></td>
<td><strong>53 557</strong></td>
<td><strong>26 597</strong></td>
</tr>
</tbody>
</table>

Other vegetables grown partly for stock fodder:

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Tons</th>
<th>Acres</th>
<th>Tons</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potatoes, sweet</td>
<td>-</td>
<td>-</td>
<td>13 956</td>
<td></td>
</tr>
<tr>
<td>Pumpkins</td>
<td>-</td>
<td>-</td>
<td>144 288</td>
<td></td>
</tr>
<tr>
<td>Turnips, swede</td>
<td>-</td>
<td>-</td>
<td>49 483</td>
<td></td>
</tr>
<tr>
<td>Turnips, white</td>
<td>-</td>
<td>-</td>
<td>7890</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>113 408</strong></td>
<td><strong>53 557</strong></td>
<td><strong>242 214</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Sources:

NAA (Vic), CA 48, Department of Commerce and Agriculture, MP 48/1, FP217/1/5, Vegetable Production Policy and General, 1943-47, ‘Western Australia - Estimated vegetable production 1942/43 season and the total estimated requirements for 1943’, ‘Victoria - Estimated vegetable production 1942/43 season and the total estimated requirements for 1943’, and ‘Australia - Estimated vegetable production 1942/43 season and the total estimated requirements for 1943’.
<table>
<thead>
<tr>
<th>Year</th>
<th>Hectares sprayed</th>
<th>Hours worked</th>
<th>Spray laid litres</th>
<th>Cost (est) per hectare $</th>
<th>Spray Laid litres per hectare</th>
<th>Hours worked per hectare</th>
<th>Expenditure S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954-55</td>
<td>2898.6</td>
<td>78 351</td>
<td>2 168 496</td>
<td>55.00</td>
<td>748.12</td>
<td>27.03</td>
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<td>112 512</td>
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<td>50.00</td>
<td>689.28</td>
<td>23.16</td>
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</tr>
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<td>3502.0</td>
<td>80 504</td>
<td>2 565 238.5</td>
<td>55.00</td>
<td>732.51</td>
<td>22.99</td>
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<tr>
<td>1957-58</td>
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<td>75.00</td>
<td>1126.91</td>
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<td>89 951</td>
<td>2 747 655</td>
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<td>1589.85</td>
<td>52.05</td>
<td>188 054</td>
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<td>1959-60</td>
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<td>2 642 670</td>
<td>103.75</td>
<td>1603.80</td>
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<tr>
<td>1960-61</td>
<td>474.8</td>
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<td>677 160</td>
<td>115.00</td>
<td>1426.20</td>
<td>28.71</td>
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<tr>
<td>1961-62</td>
<td>683.3</td>
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<td>107.50</td>
<td>1557.25</td>
<td>29.83</td>
<td>73 666</td>
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<tr>
<td>1962-63</td>
<td>522.6</td>
<td>14 407</td>
<td>841 347</td>
<td>115.00</td>
<td>1609.92</td>
<td>27.57</td>
<td>60 228</td>
</tr>
<tr>
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<td>726 655.5</td>
<td>121.25</td>
<td>1646.62</td>
<td>28.96</td>
<td>55 284</td>
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<tr>
<td>1964-65</td>
<td>464.7</td>
<td>11 594</td>
<td>642 240</td>
<td>118.75</td>
<td>1382.05</td>
<td>24.95</td>
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<td>1965-66</td>
<td>439.7</td>
<td>12 185</td>
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<td>125.62</td>
<td>1589.89</td>
<td>27.71</td>
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<tr>
<td>1966-67</td>
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<td>1967-68</td>
<td>457.8</td>
<td>9483</td>
<td>685 395</td>
<td>116.72</td>
<td>1497.15</td>
<td>20.71</td>
<td>53 977</td>
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<tr>
<td>1968-69</td>
<td>548.3</td>
<td>8742</td>
<td>725 130</td>
<td>105.10</td>
<td>1322.15</td>
<td>15.94</td>
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<tr>
<td>1969-70</td>
<td>465.1</td>
<td>8134</td>
<td>531 706.5</td>
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<td>1143.21</td>
<td>15.82</td>
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<tr>
<td>1970-71</td>
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<td>7180</td>
<td>592 807.5</td>
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<td>1306.32</td>
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<td>521 730</td>
<td>138.72</td>
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