



Environment & Society Portal



The White Horse Press

Full citation:

Jones, Rebecca. "Soil: A Real and Imagined Environment for Australian Organic Farmers and Gardeners in the 1940s." *Environment and History* 14, no. 2, "Australia Revisited" special issue (May 2008): 205–15.
<http://www.environmentandsociety.org/node/3329>.

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Soil: A Real and Imagined Environment for Australian Organic Farmers and Gardeners in the 1940s

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ABSTRACT

Early organic farmers and gardeners of the 1940s in Australia approached organic practice with a set of ideals about nature, but their experience of cultivating the land, growing plants and raising animals often contradicted this ideal. Here I explore the disparity between real and imagined environments in Australian organic farming and gardening. I will consider a significant period in the development of organic growing, the decade after the end of the Second World War, when Australia's first organic societies were established in south eastern Australia. Organic growers attempted to change their environments to fit their imaginings, and in turn their ideals were adapted to fit Australian environmental realities. Weaving real and imagined environments created a form of farming and gardening that was both a set of practical methods for managing the land and a set of environmental ideals.

KEYWORDS

Soil fertility, composting, organic farming, gardening, environmental ideas

INTRODUCTION

Australian organic farmers and gardeners approached their organic practices with a set of abstract notions of nature that reflected idealised values about the relationship of people to the natural environment. However, the real experience of organic growing in particular Australian environments often challenged these ideals. Michael Cohen, United States environmental historian and eco-critic has commented on 'the disparity between the imagined environment and the actualities and the limits of environmental factors'.¹ In this article I explore the disparity between real and imagined environments amongst Australia's early Australian organic farmers and gardeners of the 1940s and early 1950s, drawing upon newsletters and educational brochures produced by Australia's first three organic growers organisations. These first organic organisations were: the Australian Organic Farming and Gardening Society of NSW founded in 1944, which published *Organic Farming Digest* and *Farm and Garden Digest*; the Victorian Compost Society established in 1945 and which published *Victorian Compost News* as well as occasional pamphlets; and the Living Soil Association of Tasmania, founded in 1946 and which published irregular newsletters and pamphlets. I first examine the ideal soil environment which these organic growers imagined, which revolved around fertile, humus-rich soil. Secondly, I will contrast this with the actual physical environment which these organic growers encountered.

ORGANIC SOILS: THE IMAGINED EARTH

'Living soil': dark, crumbly moist, friable soil, bursting with organic matter, rich in nitrogen, wriggling with earthworms and jumping with microscopic soil creatures. This was what Australia's first organic growers dreamt about. Australian organic growers drew understanding and inspiration from British and North American pioneers of the organic movement, in particular, British agricultural scientist, farmer and advisor to the British Government on agriculture in India in the 1930s, Albert Howard. Howard articulated the importance of humus to soil fertility and developed the Indore system of composting which he described in detail in *An Agricultural Testament*.² 'The Indore Process', named after the north Indian town, involved mixing diverse plant materials, combined with other organic matter such as animal manure, sawdust and waste paper and arranging it in a moist layered heap, leaving it uncovered and regularly turning to ensure mixing and oxidation. Another important influence on Australian organic growers was British farmer and agricultural scientist, Eve Balfour, who founded the first British organic growers' society, the Soil Association, in 1945. She experimented with organic methods on her research farm and adapted the Indore process incorporating air vents and more animal manure into the process. J.I. Rodale, from

the United States, was the most prodigious disseminator of organic farming and gardening information throughout the English-speaking world and his writing was popular with Australian organic growers from the early 1950s.

The organic ideal, which these British and American pioneers fostered and which was taken up by Australian organic growers, was that soil must be humus rich which, they believed would ensure it was fertile and full of biological life: 'a thickly populated world'.³ They believed that soil enriched with manure and compost was a living substance, as the name of the Tasmanian society the 'Living Soil Association' emphasised. The president of this society writes 'The Life of the Soil ... without the co-operation of this life, all our efforts to grow either plants or animals would be in vain'.⁴ Creating a humus rich, fertile, living soil was the definition of organic growing for these first Australia organic farmers and gardeners and the basis upon which all three societies were founded. The promotion of 'humus rich, fertile soil' was common to the objectives of all three.⁵

The methods Australian organic farmers and gardeners initially adopted to foster humus rich, biologically active soil were the use of compost and manure, methods promoted by their British role models. As the name of the Victorian society suggests, the promotion of compost was the reason this group was founded and members of the Victorian society identified themselves, and other organic growers, as 'composters'.⁶ The Australian societies published 'how to' composting pamphlets and presented lectures and demonstrations on compost making. Manure was praised both as an ingredient of compost and also for its ability to add organic matter to the soil.⁷



FIGURE 1. Masthead of the *Victorian Compost News* 1950.

The 'soil-scape' envisioned by early Australian organic growers was an Australian version of an idealised European landscape based on the yeoman ideal of the small settler family farm. The yeoman ideal, part of the Australian rural idyll, had inspired closer and soldier settlements in Australia since the mid-nineteenth century and now it was to provide the basis for the ideal organic property. We can see this imagined landscape depicted on the cover of the *Victorian Compost News*, the organic society's newsletter (Figure 1). On the left side of the masthead is a settler scene of gently sloping agricultural land grazed by cows. In the background are neat rows of some generic crop, a house shaded by trees, barn, fences and windmill. The right side of the masthead shows an idealised organic garden: a large garden with generic vegetables, again planted in neat rows, a man trundles a wheelbarrow towards a compost bin and a woman (identifiable by the dress) and child play against the backdrop of a house. The cover of the NSW Society's *Farm and Garden Digest* shows another settler scene (Figure 2), although this image is more iconically Australian and more representative of the grazier affiliations of the NSW organisation: low rolling hills and sheep, and a house with smoke spilling from the chimney signalling comfort and homeliness. In the foreground is a stylised tree with the unmistakable outline of the eucalypt.

In both of these images, the organic ideal is firmly temperate, not surprisingly as this was the climate of Britain and Northern Europe where the organic philosophy originated. It is therefore no coincidence that the first Australian organic organisations were in Tasmania, Victoria and NSW, Australia's three most temperate states. Post-war organic growers' attention was focused on production of temperate food crops, particularly British staples such as potatoes and wheat, apples and stone fruit, as well as farm animals such as dairy and beef cows, chickens and sheep.

The yeoman ideal, as Raymond Williams explains, is an ahistorical arcadia of abundance, prosperity, freedom, independence and innocence, a mythical Garden of Eden. The idealised version depicted on the organic magazine covers, is of neat, ordered, and well-mannered landscapes. As George Seddon remarks of idealised nature, there is no question of who is in control and the neatness speaks of effort and intervention. Rennie Short describes in his discussion of the rural idyll, *Imagined Country*, the small farm yeoman ideal of mixed production, prosperous and productive, intimate and human-scaled. This intimate scale of production required very fertile soil to be productive. Suburbia (depicted on the right side of the *Victorian Compost News* masthead), was also a growing site for the yeoman ideal in post-war Australia with its emphasis on family independence, self-reliance, respectability and prosperity.⁸

But as Paul Carter explains in *The Lie of the Land*, to create an imagined landscape such as this, to cultivate, fence, clear, inhabit is to smooth out, to tame the land, to glide over rather than engage with the actual topography.⁹ It

attempted to control, manage and modify the land for human use rather than respond to the environmental realities.

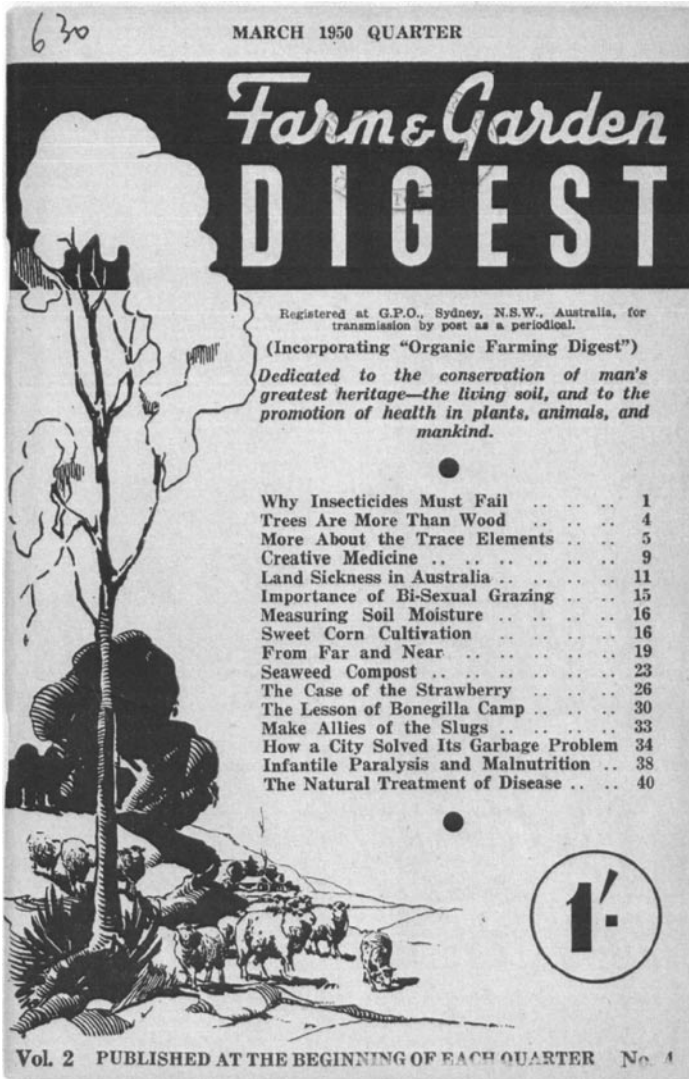


FIGURE 2. Cover of the NSW *Farm and Garden Digest*, 1950.

ORGANIC SOILS: THE REALITY

Virgin Australian soils in fact bear little resemblance to the fertile humus rich organic ideal derived from the Northern hemisphere. The most striking features of southern Australian soils, compared to British, Northern European and North American soils are that they are low in organic matter, have a generally lower level of soil faunal activity and are relatively infertile. Due to sparser vegetation and drier conditions in Australia over the thousands of years during which soil forms, there is a low level of decaying plant matter in Australian soil. Clay and sand structured soils predominate, soil types rare in Europe and North America, requiring farmers and gardeners to incorporate copious quantities of organic matter for soil to be reminiscent of the tilth and structure of northern hemisphere land.¹⁰

Australian soils are often described as infertile. Of course Australian soils are perfectly fertile for indigenous flora but lack many of the nutrients essential for the growth of plants evolved on other continents, such as the food crops desired by people of British and European descent. The most well known mineral 'deficiency' of Australian soil is phosphorus, required by plants for production of new growth including flowers and fruits. With the exception of the Darling Downs in Queensland and parts of Northern NSW, all Australian soils have low levels of phosphorus, with sandy soils, so common in Australia, being particularly deficient. Nitrogen, associated with organic soil content, is also low in most Australian soils. Trace elements are present in different proportions in Australian soils compared to northern hemisphere lands. Sandy soils have lower levels of many minerals including copper and magnesium used by plants to produce chlorophyll. Boron (essential for plant cell structure and division and hormone regulation) is deficient across the length of the Great Dividing Range from north Queensland to southern Victoria as well as Tasmania.¹¹

Most 'virgin' soils of south eastern Australia (except soils of the Wimmera and Mallee) are more acidic than European soil, but most nutrients required by popular European crops and pastures typically thrive in soils that are neutral or only slightly acidic. Strongly acid soils can stunt plant growth and make essential nutrients such as calcium and magnesium unavailable to plants. Strongly acid soils can also have toxic levels of some minerals such as aluminium and there is generally less biological activity in acidic soils. Some growers also observe that animals raised on acidic soils are less healthy than their counterparts on near-neutral soils.¹²

But the soils the first Australian organic growers were cultivating were not 'virgin', untouched by European hands. When the first Australian organic societies were founded in the mid 1940s, many agricultural areas in eastern Australia had already been farmed by European settlers for 70 to 100 years. The surface landscape of settled south eastern Australia had been partially 'Europeanised': planted with deciduous trees, cleared, inhabited, fenced and stocked with cows

and sheep. However, beneath the ground, amongst the soil, European farming techniques had further compounded the differences between Australian and northern hemisphere agricultural soils.

Farming and gardening, removing plants and animals 'out the farm and garden gate', depletes minerals, leaving less available for the next crop. This is compounded by the fact that depletion of certain minerals such as calcium can further acidify soils.¹³ Since the late nineteenth century many Australian farmers had attempted to replenish lost nutrients by applying chemical fertilisers such as superphosphate and nitrogenous fertilisers. Artificial fertilisers first became readily available to Australian farmers and gardeners in the 1860s and 1870s.¹⁴ Their use steadily increased during the twentieth century and although the availability of artificial fertilisers was limited during the Second World War, by the late 1940s manufactured fertilisers were an integral part of Australian farming and gardening.¹⁵ Common fertilisers included, for example superphosphate, containing phosphorus, sulphate of ammonia, containing nitrogen, and muriate of potash and sulphate of potash containing potassium. The effect on soil of years of such fertiliser use remains controversial, but many agree it has contributed to soil acidification. Some nitrogenous fertilisers such as sulphate of ammonia and mono-ammonium phosphate can have a strongly acidifying effect on soils. As most of these artificial fertilisers are highly soluble there can be runoff which has contributed to the eutrophication of dams, rivers and lakes.¹⁶

To compound the degradation of already meagre soil fertility, after one hundred years of agriculture many agricultural areas were experiencing significant erosion as stock damaged river and creek banks and wind whipped up the dry, sandy exposed soil. The post-war organic growers were faced with a spectre of their own home grown Dust Bowl as Australian topsoil had blown out to sea. The top 15 to 20 centimetres of soil, the most vulnerable to erosion, is also the most fertile, containing the nutrients upon which plants, particularly shallow rooted vegetables and grasses, need to survive.

Most importantly of all for organic growers, cultivation of the soil accelerates the rate of decomposition and, therefore, depletes organic matter. Soil researchers have estimated that after only 15 to 20 years of cultivation, Australian soils would have lost half of their stored organic matter.¹⁷ In the 1940s the importance of soil organic matter to plant growth was a hotly debated issue among farmers and agricultural scientists, described by Philip Conford in his history of the British organic movement as 'The Great Humus Controversy'.¹⁸ By the 1940s many agricultural scientists, particularly agricultural chemists, in Britain, America and Australia (as well as other western countries) were arguing that organic matter, although useful for improving the structure of heavy clay soils and increasing water retention in sandy soils, was not a source of plant nutrients. The foundation of this idea was the theories of German chemist Justus von Liebig in the mid nineteenth century.¹⁹ It implied that nutrients could be supplied to plants independent of organic matter through mineral inputs, an idea

that was to overturn the basis of centuries of traditional agricultural practice and was to provide the theoretical basis for the establishment of the manufactured fertiliser industry in Britain in the nineteenth century. Soil science became primarily about chemistry rather than biology under the Liebig vision. Detractors from this theory, Albert Howard and the Australian organic growers among them, hotly refuted this diminution of the value of soil organic matter. They argued that organic matter improved soil structure and water retention, and more importantly, organic matter was the principal source of nutrients to plants. They also argued that organic matter stimulated biological activity in the soil. In the 1940s, knowledge of soil fauna was scant but organic growers (among others) argued that certain soil life helped plant roots to synthesise mineral elements and that increased biological activity in the soil increased plant disease resistance. Both sides of the Great Humus Controversy were based, like many scientific debates, partly on research, partly on ideology and far from being detached, they elicited heated and passionate conflict.²⁰ Although the boundaries between the two positions have blurred, they are still active debates within agriculture and soil science today.²¹

The sheer diversity of environmental soil and climatic conditions in Australia also challenged organic growers' ideals. The temperate, humus rich organic ideal was not a reality for many Australian farmers and gardeners and as Australian organic growers applied organic ideals to their own farms and gardens there was a growing realisation that specific environmental conditions require specific responses which did not always mirror organic ideals. 'The application of these [organic] principles must, I believe, be modified to suit Australian conditions', Pantom Hill farmer Eric Butler emphasised, when speaking to the Victorian Compost Society in November 1951.²² Organic growers wrote to the various organic newsletters protesting that the British organic methods advocated were not appropriate to Australian conditions. Eric Butler noticed that American sweet clover, so promiscuous in the limestone soils of Southern England, was poor and straggly on his acid southern Victorian soil. Australia's mild winters meant that farmers did not over-winter cattle and sheep in barns as did many northern European and northern United States farmers. Therefore, Australian farmers did not have access to large supplies of manure in spring for Indore composting. As mechanised transport overtook horse drawn vehicles, urban gardeners had less access to a ready supply of manure.²³

Although the first organic organisations were located in temperate, coastal cities the Melbourne society (the only society to publish membership lists) also had members in the dry interior, for example in Renmark (South Australia), Alice Springs and Katherine in the Northern Territory and in western and tropical Queensland including Cairns and Proserpine.²⁴ These members were on the margins of the organic ideal where the incompatibility of imported organic methods was magnified. Broadacre farmers – sheep, beef and cereal farmers of the arid and semi-arid interior – were particularly active in developing organic production

methods specifically for Australian conditions. Composting for large farms was not feasible and farmers sought other methods of increasing soil organic content such as ploughing in green cover crops of lucerne and alternating animals and crops to benefit from the animal manure. The Butcher family, farming a 24,000 acre sheep station in Western Australia practised organic techniques suitable for their hard clay-pan soils and low rainfall. They broke the surface of the soil with a tractor to maximise water penetration and allowed weeds to proliferate, then ploughed them in to increase organic matter.²⁵

Even composting, the stalwart principle of the early organic movement, was modified by Australian organic growers. At Werribee in Victoria, farmers demonstrated large scale composting methods using mechanised compost turners. L.R. Petrie, farming sheep, wheat and cattle near Roma, in western Queensland writes of the imperative of thoroughly covering compost heaps to prevent evaporation of moisture in the Queensland sun. Some growers found that the ubiquitous sparsely foliated eucalypts did not provide the seasonal deluge of compostable leaves but a sparse drift of leaves which decayed slowly due to high oil content. Therefore, organic farmers recommended using Eucalypt leaves as mulch on the soil surface, rather than as compost, to reduce evaporation and cool the soil.²⁶

Coming face to face with the vagaries of Australian environmental conditions the first Australian organic farmers and gardeners modified their abstract ideas of soil and landscape to suit their particular environmental realities, each one adapting and changing their techniques and with it the ideal. 'It is because we are dealing with such a variety of soils and climates that it is impossible to lay down hard and fast rules', writes *Victorian Compost News* in the late 1940s, 'each individual farmer to a great extent being an explorer'.²⁷

CONCLUSION: WEAVING DREAMS AND REALITIES

Australia's early organic growers of the 1940s looked to the yeoman ideal as their imagined landscape. The fact that Australian organic growers approached farming and gardening with ideals about nature that were based on a European myth is neither surprising nor contemptible. Every person approaches their environment with cultural values and ideals and as Raymond Williams explains, the rural or yeoman ideal is a profoundly influential and enduring myth in British and British descendent culture.²⁸ But in settler societies, such as Australia, where cultural values are imported to a new environment, the disparity between real and imagined landscapes is even greater.

The Australian environment, where organic growers 'painted their dream', was not incompatible with organic farming and gardening, but it provided a significantly different canvas for their work. Organic imagined landscapes as well as the realities of food production demanded modifying and changing

the native environment. Organic farmers and gardeners (like all farmers and gardeners) were engaged in a process of changing the land around them, creating, to use Donald Worster's term, a 'domesticated ecology'.²⁹ These changes were not about 'returning' the land to a condition prior to human intervention, nor even prior to European occupation. Rather they changed it to conform with idealised notions of landscape. But adaptation was not all one way and as I have explained, Australian environmental conditions in turn modified organic practice. By growing organically in particular and diverse Australian environments, the abstract and reality become woven together to produce a new reality for organic growers.

NOTES

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