

**Submission  
No 5**

## **FOOD PRODUCTION AND SUPPLY IN NSW**

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13 December 2021

Mr Alex Greenwich, MP  
Chair  
Parliamentary Inquiry into  
Food Production and Supply in NSW

Dear Mr Greenwich,

Re: Submission to NSW Parliamentary Inquiry into Food Production and Supply in  
NSW

I am an [Associate Professor at UNSW Law and Justice](#), where I have been teaching and researching land law since 1994. My research and teaching focus on two areas: strata title and food. I teach the compulsory *Land Law* course in the Faculty, as well as an elective *People, Land and Community*, which covers a range of issues related to land, including industrial, regenerative and urban agriculture. I convene and co-teach the Faculty's *Food Law* course, which explores law relating to food, including intellectual property (plant patents etc), trade, the sharing economy, food in international law, food labelling, and urban and rural agriculture.

I initiated and am the Team Lead of [UNSW Urban Growers](#), a cross-faculty group that creates food growing spaces on UNSW campuses for teaching and research. I have maintained vegetable gardens in the Law Faculty courtyards, on the Law Library roof, for a number of years, and I use the gardens to teach both of my electives.

This submission relates to urban agriculture and the first three terms of reference for the Committee, namely:

1. Improving food security and equitable access to food.
2. Reducing food waste and destruction.
3. Developing technologies to bring food production into cities.

### *Urban agriculture*

Unfortunately, it is not uncommon to hear unrealistic claims about the potential of urban agriculture (UA) to supply a city with food. The reality is that cities can never be self-sufficient or even come close to being self-sufficient. This is because most food, in particular staple foods like grain crops, requires large amounts of land to

grow. Cities do not have that space. In fact, a city could be defined as an area in which people live at sufficiently high densities to not have the land necessary to meet their own food needs.

However, this does not mean that UA cannot play a significant role in increasing food security and equitable access to food, as well as reducing food waste and destruction. While UA cannot make a city self-sufficient, some food, in particular fruit and vegetables, can be grown in cities, constituting an important, even life-saving supplementary source of food.

UA has long been part of the fabric of European and British cities. City dwellers have always produced some of their own food, but the Enclosure Movement and Industrial Revolution, which saw millions of rural citizens sometimes voluntarily, often forcibly relocated from rural to urban areas, increased pressure to provide working people with urban land on which to grow food. Throughout the 19<sup>th</sup> century, working people were given ‘allotments’ by churches and large landowners, and in 1887 the first *Allotment Act* was passed, compelling local authorities to provide land to meet citizen demand. Food grown on allotments was a vital supplement to often meagre industrial wages. Similar initiatives existed in Europe, including *jardins familiaux* in France and *kleingarten* or *Schrebergarten* in Germany.

Allotments and other urban gardens came into their own during WWI and WWII when supply lines were cut by military threats at sea. Massive government campaigns in the United Kingdom and United States, and to a lesser extent Australia, were launched to encourage citizens to grow their own food wherever they could – in their backyards, central garden squares, beside railway lines and in their allotments. In 1916, local authorities in Britain were given powers under the *Defence of the Realm Act* to acquire as much land as possible for the provision of allotments. In 1913 there were approximately 600,000 allotments in Britain and by 1918 that figure had almost doubled to 1.5 million. Urban allotments were more productive than rural allotments, (Departmental Committee of Inquiry into Allotments, House of Commons, UK, 1969, pp 36-37). Allotment numbers reduced in the inter-war years, although demand for growing space remained high, particularly from returned soldiers and during the Depression.

At the outbreak of WWII, the UK government immediately put in train measures to again increase citizen production of food. The Minister for Agriculture made the *Cultivation of Lands (Allotments) Order 1939* which authorised local authorities to take unoccupied land, including parks and playing fields, for allotments. After Dunkirk, the imperative to grow food became more intense and the government initiated the Dig for Victory campaign, which included authorisations for allotment holders to keep pigs, chickens and rabbits on their land.

A 1969 UK Parliamentary Inquiry into allotments concluded that,

It would be difficult to overestimate the contribution which the produce of allotments made to the nation’s food supply during the war years. On 15<sup>th</sup> March 1944, the Government estimated that food grown on allotments, private gardens and plots of land cultivated by service personnel, totalled 10 per cent of all food produced in this country....the Ministry of Agriculture assessed the total annual

production from allotments alone at over 1,300,000 tons and the total produced during the war by the newcomers to the allotment movement must have exceeded 3 million tons', (Departmental Committee of Inquiry into Allotments, 1969, p 39).

In a recent BBC *The Food Chain* podcast, [How rationing changed me](#), octogenarian, Ingeborg Schreib-Wywiorski and nonagenarian, Beryl Kingston, can be heard discussing the importance of allotments to their families' survival in the immediate post-War years in Berlin and London, respectively.

In the past 50 years, most citizens of the West, particularly in Australia, have had no experience of food shortages, and as a result, it is hard for people to even imagine that supermarkets might not have a never-ending supply of food. However, hopefully some understanding of history, in combination with the recent pandemic, might alert people to the idea that food shortages are a real possibility. For Australia, a net food producing nation, the greatest threat to our food security relates to fuel. Without secure fuel supplies, we can neither harvest nor transport food to cities.<sup>1</sup> Over 90% of Australia's fuel is imported and the [National Farmers Federation](#) believes that Australia has inadequate supplies of liquid fuel. Recent global shortages of urea, a key ingredient of AdBlue, have highlighted our vulnerability to global supply chains. Fuel security is outside my area of expertise, and so I make no recommendations in that regard.

In the event of a fuel or other supply line crisis, UA could not feed cities entirely, but it could be an important supplementary source of food, as it was for British and European cities during the war years, or as it became for Cuba, when its fuel and fertiliser supply lines were cut by the fall of the Soviet bloc and the continuing US blockade (that is why Cuba is often viewed as the poster child for UA). However, for UA to assist, people must have access to land and the necessary skills to grow and process food. Those key factors need to be in place prior to any supply line crisis; they cannot be implemented in a matter of weeks or months.

#### *Access to land*

While Australian cities have not traditionally had allotments analogous to those in Europe, we have always effectively had allotments - our backyards. Cities in the UK and Europe developed prior to the invention of rail, tram and car transport, and as a result had to be high density so that people could travel from home to work on foot. Food growing space then needed to be provided on the edges of cities or along railway lines or other unused land. In contrast, Australian cities grew after the invention of rail and tram transport and so it was possible for cities to spread out, providing people with significant individual housing sites: the traditional quarter (or almost quarter) acre block. One of the drivers for quarter acre blocks (along with disease control) was food production. Andrea Gaynor's book *Harvest of the Suburbs*:

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<sup>1</sup> The Federal Department of Agriculture, Water and the Environment produced a report in 2020 claiming that concerns about food security were 'misplaced'. Somewhat surprisingly, the report did not mention fuel: *Analysis of Australian food security and the COVID-19 pandemic*, 17 April 2020.

*An environmental history of growing food in Australian cities* (UWA Press, 2006) documents the long history of food production in Australian suburbs, where millions of people, whether spurred on by the Protestant work ethic or skills brought from China, Italy, Greece and Vietnam, routinely grew fruit and vegetables and raised chickens in their backyards. Some level of self-sufficiency was commonplace in Australian cities throughout the 20th century. However, with the onset of urban consolidation policies, increasing numbers of Australians have limited or no access to land. Over one million Sydneysiders now live in strata title schemes, and as a result may have access to nothing more than a balcony.

We need to find ways to incorporate food growing space into our high-density cities. This can be a challenge, not simply because of lack of space per se, but also because of a lack of sunlight from building shade, excessive radiant heat from hard surfaces, and pollution. High-density cities are not easy places to grow any plants, let alone edible plants. However, with the right will, and appropriate skills, it can be done.

Below are photos of the UNSW Teaching and Research Garden. The first is the initial space allocated by the University: a slab of concrete inside a metal cage, beside a car park. A quintessential bleak, disused urban space.



*'The Cage', Barker St Car Park, August 2019*

The second photo is the same space six months later, after being retrofitted with raised beds, filled with herb and vegetable growing mix, and planted by staff and students. The garden beds are growing corn, beans, tomatoes, eggplant, strawberries,

lemon balm, galangal, chilies, lemongrass, pomegranate, citrus, basil, rosemary, oregano and sage.



*UNSW Teaching and Research Garden December 2019*

There are a range of spaces in Sydney that could be used to cultivate food. The first consideration must be the immutable needs of plants. Leafy greens can be grown with limited sunlight, but flowering/fruited edibles need 6-8 hours of sunlight a day. As a result, a shady footpath or backyard in Chippendale is never going to support most edible plants. Unrealistic claims about the capacity of certain land to grow food do the movement to produce food in cities more harm than good.

Viable sites for growing food will include both public and private spaces. Public spaces include footpaths and parks; private spaces include residential and commercial land. This submission will focus on privately owned land because it accounts for the vast majority of land in cities, and because it is the subject of my teaching and research.

*Peri-urban land*

Sydney has been busy building over our best arable land for the past two decades. This land is in the North West and South West growth sectors. They were open space precisely because they are prime agricultural land. They are the areas that were first invaded by the British for food production, once they realised that sandy harbourside soil could not grow European food (Karskens, *The Colony: A history of early Sydney*, 2009; Karskens, *People of the River*, 2020; Henson, '[Remarks on the Hawkesbury-Nepean Alluvial Deposits and Irrigation](#)', 1889). Both growth sectors are on alluvial plains with good agricultural soil. It can take up to 1000 years for a centimetre of soil to form, and Australia has some of the oldest, most depleted soils on earth. This calls into question the wisdom of building housing over the limited and best agricultural land next to Australia's biggest city. In the event of a fuel crisis, food produced on Sydney's doorstep may become crucial, but it will no longer be possible to produce that food if all of our peri-urban agricultural land has been covered in housing. The [University of Western Sydney](#) is conducting valuable research in this area, but there is an urgent need for governments to identify and protect high quality soil around Sydney, and not to capitulate the demands of developers.

If housing is built on the urban fringe, developers should be encouraged to consider 'agrihoods'. An agrihood is a housing development built in conjunction with food growing space or a farm, rather than a golf course or swimming pool. Agrihoods typically use a community title legal structure, so that people can purchase individual homes, but automatically become co-owners of common property, managed by a governing body corporate (community title is simply flattened out strata title: *Community Land Development Act 1989*, soon to be 2021, and the *Community Land Management Act 1989/2021*). Alternatively, farms can be separate commercial ventures adjacent to the housing development, and to which residents have prioritised access. Agrihoods are growing in popularity in the United States, and examples include [Serenbe](#), Georgia, as well as America's oldest agrihood, [Village Homes](#), Davis, California.

#### *Low to medium density suburbs*

In low or medium density areas, consideration should be given to the importance of garden space for food production. This would necessitate a change in the dominant view of urban consolidation. It may be that larger housing lots are warranted or that changes to floor space ratios are needed to ensure adequate garden space is left on each lot. Backyards were not, and need not be, large swathes of grass; they can be extremely productive spaces for food. By way of example, Diggers Seeds has created a '[mini plot](#)' garden to demonstrate the potential of a 40 sq m space to produce enough food for a family of four.

#### *High density development*

In high density areas, the lowest value land, often put to no use, is roof space. This could be used for food gardens in two ways

1. by residents to produce their own food;

2. by commercial or community organisations licencing or leasing the roof space. For example, [Brooklyn Grange](#) has 5.6 acres of rooftop farm space on buildings in NYC, producing leafy greens for restaurants.

Roof gardens face physical constraints including:

- Weight limits – wet soil is heavy and not all buildings could structurally support gardens
- Exposed sites – most food plants do not naturally grow at that height because of the wind
- Water restrictions – water has to be pumped to the height of gardens, which takes considerable energy.

Roof gardens can also face legal constraints. On commercial buildings these are unlikely to be complex, as buildings often have a single owner who can enter into leasing or licencing agreements with growers and/or existing tenants. More complex arrangements might include contributions from neighbouring buildings that overlook roofs. Harbour views in Sydney are typically marred by ugly rooftops, covered in equipment. It is possible that building owners and/or commercial tenants may see value in contributing to the cost of roof gardens on neighbouring buildings to improve their own views.

Roof gardens in residential strata schemes face more complex legal challenges, because roof space is common property. Along with ground level gardens, courtyards, and even balconies, roofs space is owned by all lot owners as tenants in common in proportion to their unit entitlement. Individual or groups of lot owners cannot build garden beds on common property without the agreement of the owners corporation (all of their fellow owners). However, there are a range of ways that owners can be given that right, including common property (exclusive use) by-laws, leases or licences. Granting those rights to tenants is more difficult, although any right a landlord has to use roof space via a common property by-law will automatically pass to the tenant on the granting of a lease.

No matter what legal solution is used, the real hurdle in a strata scheme is securing the necessary agreement for a special majority vote. Owners corporations will be legitimately concerned with liability and with potential building damage, particularly water ingress. Agreement could be more easily secured if food gardens were included in the definition of ‘sustainability infrastructure’ under s132B of the *Strata Schemes Management Act 2015*, reducing the required majority vote to 50%.

These problems could all be assisted by government templates, incentives or expert advice on how to retrofit roofs and other spaces in strata schemes for food gardens. To date, governments have placed too much faith in the ability of groups of citizens to manage strata schemes, particularly large-scale schemes, entirely on their own. This was most evident during Sydney’s recent lockdown when the *Public Health (COVID-19 Additional Restrictions for Delta Outbreak) Order (No 2) 2021* almost completely failed to account for the risk of COVID-19 transmission on common



property in a strata scheme, leaving the strata sector scrabbling to implement their own health measures. There are some matters of public concern that are sufficiently complex and pressing to need government action and guidance. Pandemic management is an obvious example, but food security and waste could be another. If governments think that food production in cities is important (and history would suggest that it is), it would make sense for governments, ideally local governments, to assist strata schemes in this regard. For example, the City of Sydney has a strong track record of providing guidance to strata schemes through its [Smart Green Apartments](#) program. Instead of every strata scheme reinventing the wheel, the City provides expert guidance on how schemes can implement energy, water and waste saving measures. A similar program could be created for food gardens, addressing the practical and legal aspects of their creation and management.

In addition to retrofitting existing buildings, developers could be provided with incentives or mandates to construct buildings with roof and other gardens for food production.

Good examples of what can be achieved on retrofitted and new roofs can be seen at [38 Westbury St](#), St Kilda, and [Yerrabingin](#), Redfern.

### *Food knowledge*

Growing food can be hard, and most residents of cities, through no fault of their own, have no idea that is the case. One of the most profound effects of urbanisation (the increase in the proportion of a population living in urban, rather than rural areas), is the radical disconnection of people from food production. Throughout human history, and in many countries still today, people have had to understand how food is produced or they would starve. This changes when people move to cities. Most city dwellers – which includes the vast majority of Australians - have limited understanding of the seasonal availability of food, the difficulty of producing food (particularly organically) and the challenges faced by farmers. Although UA will never make a city self-sufficient, it can make city dwellers more informed about the sources of their own food. Carefully tended backyard or balcony vegetables scorched by a 43-degree summer's day or shredded by a subsequent hailstorm may concentrate city dwellers' minds on the precarity of farming and the vulnerability of all of us to climate change.

Lack of food growing knowledge is a barrier to successful UA. During WWI and WWII, in addition to securing land for citizens to grow food, governments had to facilitate community education. They relied heavily on knowledge within existing allotment associations to assist new gardeners. Today, we have the benefit of media and technology to provide expertise. There could be no better source of food growing information for Australians than the ABC *Gardening Australia* program and website.

Ideally, horticulture and food growing should be a compulsory part of the Australian school curriculum or at least encouraged and supported by Departments of

Education. Whatever avenues we choose, horticultural education is essential to successful food growing and that needs to be cultivated well in advance of any supply line shocks. Horticultural knowledge, like food itself, takes time to grow.

Finally, one of the most powerful things any individual can do to ensure that they are food secure, do not waste food and have access to good food, is learn to cook - from scratch, with basic, whole ingredients. During the first Sydney COVID-19 lockdown in 2020, TV reporters were filing stories on shortages of tinned tomatoes while literally standing in front of tables piled high with fresh tomatoes. Canned beans were limited to two tins per customers, while supermarkets failed to even stock dried beans (exactly the same product, minus the water, salt and considerable energy costs that it takes to manufacture and transport a can). Research done after Cyclone Yasi found that one source of food insecurity was young people not understanding that in the absence of electricity, a barbeque could be used to cook more than meat.

While individuals can acquire cooking skills of their own volition, if we are serious about food security, we need to ensure that cooking skills are a consistent across the community. Schools are the obvious institutions to facilitate this. While food technology is taught in large numbers of New South Wales schools, food education tends to be 'patchy' (Worsley et al, [‘Why we need to take food education more seriously in Australian schools’](#), *The Conversation*, 7 January, 2019). We need to capitalise on the obvious interest in food demonstrated by our enthusiasm for celebrity chefs and cooking programs, and increase food education in schools. It is essential that food education focus primarily on practical cooking skills, not theoretical discussions of food, a temptingly cheap but ultimately suboptimal form of education.

#### *Food waste*

UA can reduce food waste in a number of ways. First, when you have invested hours of time and considerable money in growing your own food, you do not tend to waste it. You are also more likely to have respect for produce grown by farmers that always looks ten times better than your own! Second, fresh food is the food that people are most likely to discard because it has no preservatives. Unlike food in a refrigerator, food still actively growing in a garden does not rot. Herbs are perhaps the best example. Everyone has had the experience of buying fresh herbs for a recipe, wrapped in plastic, only to use one third and throw the rest away two weeks later when it is rotting sludge in the fridge. Almost all herbs are suited to the climate in New South Wales, and can be grown easily on balconies and in gardens. Finally, gardens can be used to recycle all non-animal food waste, paper and cardboard. The easiest method is to use in-ground worm farms. These can be purchased (eg Subpod) or easily made by cutting the bottom out of a plastic container with a firmly fitting lid. The container is half buried in soil and worms and food are added. In-ground worm farms are vermin-proof and easy to maintain. Alternatively, more traditional worm towers can be used. Paper and cardboard can be fed to worms or used as weed suppressing, water-retaining mulch in garden beds.

*Conclusion*

While UA will never provide a complete answer to urban food security, it can make significant contributions. History teaches us that in times of crisis, UA has been a vital, even life-saving supplementary source of food. For UA to play a role in food security, it needs to be put in place well in advance of supply line shocks. Land cannot be allocated to citizens, and necessary horticultural knowledge acquired, in a matter of weeks or months. Outside of supply line shocks, UA is perhaps the best way to educate citizens about food and food waste. It is difficult for most city dwellers to have any realistic understanding of where their food comes from, and the difficulties of producing it. However, tending tomatoes, herbs and fruit trees in your backyard, common property garden or balcony, at least gives urban citizens some taste of the complexities and precarity of growing food.

I wish the Committee the best of luck with this important Inquiry.

Kind regards,



*Dr Cathy Sherry*

*Associate Professor*

*UNSW Law and Justice*

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