Case study 9

Local food and dietary diversity: farmers markets and community gardens in Melbourne, Australia

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Background

Recent policy initiatives in Australia at the metropolitan and national level have attempted to engage with ideas of food security in recognition of the threats that climate change and petrochemical dependency pose to food production as well as the barriers that socio-economic disadvantage present to accessing fresh and nutritious food. In the last five years, these threats have become more acute as agricultural production in the state of Victoria especially has been severely affected by natural disasters such as droughts, bushfires and floods. These natural disasters increase the cost of food for low-income households in Melbourne and regional areas alike (Carey et al., 2011). While the state and federal government have dedicated resources to supporting the economic sustainability of the agricultural sector and developing preventative health initiatives to encourage the consumption of fresh fruit and vegetables, Carey et al. (2011) highlight the absence of 'policy approaches that link fruit and vegetable consumption to production, either in Victoria or internationally'. This case study will focus on research carried out to explore farmers markets and community gardens as localized food systems that offer potential for improving dietary diversity and nutrition, supporting biological diversity and linking production to consumption. Data were collected using a GIS-based description of land use in Melbourne, as well as interviews carried out between 2009 and 2010 with local producers at farmers markets.

In Australia, the federal government is in the process of developing a national food plan that is likely to draw on economic measures and regulatory approaches to maintain the integrity of the country's food supply. The City of Melbourne has taken a more localized approach. Recognizing that food security is dependent on the viability of farms that surround the city, the city council is developing a food policy that addresses health and sustainability issues in Melbourne's food system. Food security is defined in this context as a stable supply of food that is available in sufficient quality and quantity, economically accessible, safe and nutritious; it also acknowledges the importance of a population that has the capacity and capability to cook and eat the food available (City of Melbourne, 2011). In 2008, the City of Melbourne endorsed the *Future Melbourne Plan*, a community

visioning document that explicitly links production and consumption by setting out the ambitious target of 30 per cent of food to be either grown within the city or sourced from within 50 km of the city by 2020. This goal is to be achieved by enabling 'local residents to cultivate food for their own consumption' but also depends upon a thriving agricultural community around the city fringe (City of Melbourne, 2008). However, agricultural and urban planning policies are effectively at odds with each other in Victoria. Despite over half of the state's vegetables and approximately 17 per cent of its fruit being currently produced around Melbourne's borders (Carey et al., 2011), the council's vision for the future is challenged by state government policy that has earmarked more peri-urban agricultural land for residential development (Budge and Slade, 2009; Carey et al., 2011; Buxton et al., 2011).

Melbourne's current land allocation is shown in Figure C9.1a and Table C9.1. The map identifies large areas as public parks for conservation and as reserves (Green Wedges). The (peri-urban) area identified as farmland is relatively small (Figure C9.1b). However, in the inner city there is obviously active food production within household lots and in community gardens, and opportunities for intensification and diversification of production along transport corridors and in in-fill allotments. Further from the centre, opportunities exist for more productive land use in areas designated as low-density residential, rural conservation, and Green Wedges (the wedges being largely held as speculation for development rather than for production or conservation of, e.g., unique grasslands).

Farmers markets

Victoria's first farmers market was established in 1998 in Yarra Glen, 50 km outside of Melbourne. In 2002, a group of farmers market managers and stallholders joined to form the Victorian Farmers' Markets Association, which recently received US$2 million in state government funding to support the establishment and accreditation of more farmers markets across the state. There are now 50 accredited farmers markets in Victoria supplied by around 2,000 farmers. Twelve markets that are certified as selling locally-grown food are located within Melbourne's suburbs, eight within 125 km of the city and the rest in rural and regional areas. These are shown as white circles in Figure C9.1a.

Agricultural biodiversity

Animal genetic diversity is not recognized as a national priority in fostering food security in the National Food Plan, nor is there government support for monitoring or protecting rare breeds in Australia (Chambers, 2004). Rare breeds sold at farmers markets around Melbourne include critical, endangered or vulnerable pig breeds such as the Wessex Saddleback, Large Black and Tamworth as well as 'at risk' cattle breeds such as the Belted Galloway. Figures from the Rare Breed Trust of Australia indicate that the number of registered Tamworth and Large Black

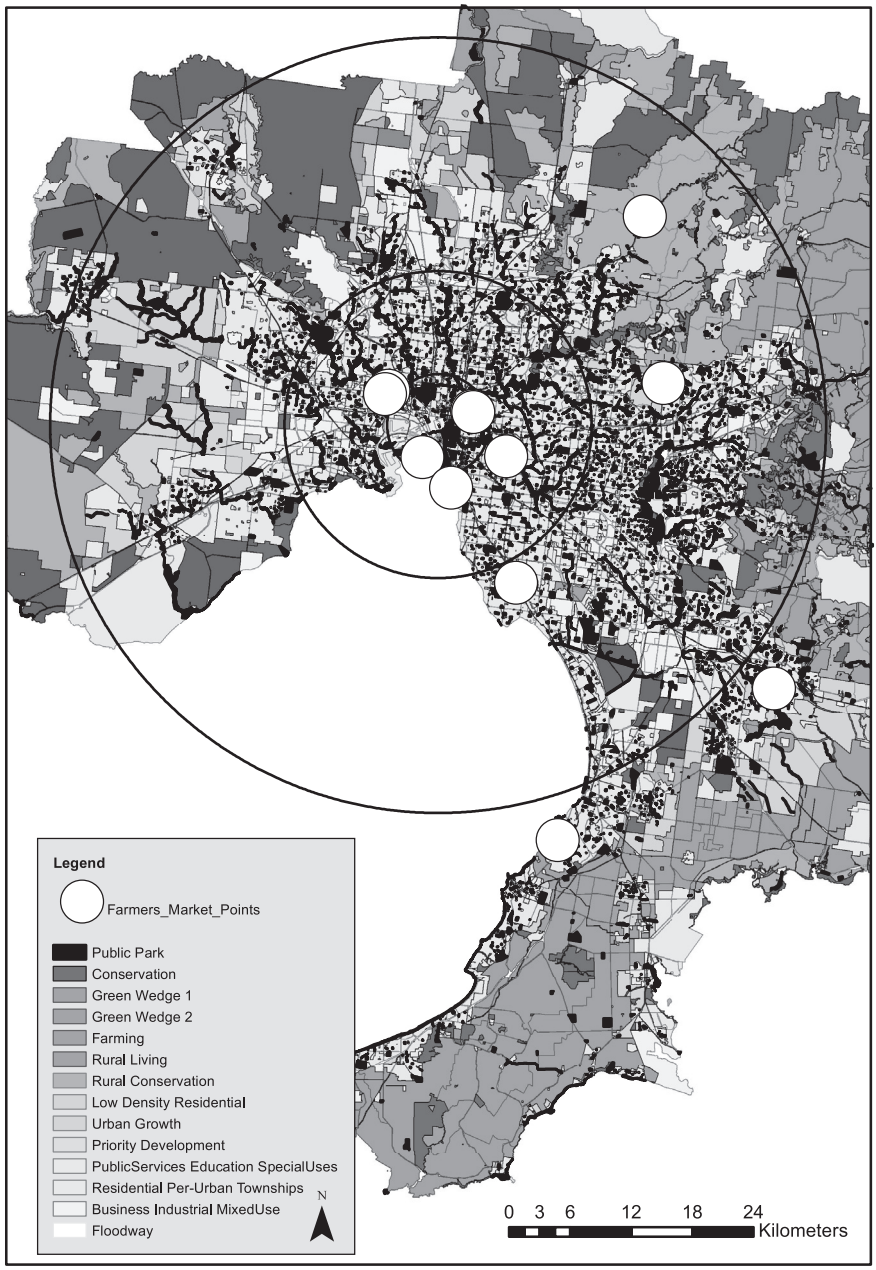

Figure C9.1a Melbourne's current land allocation by use

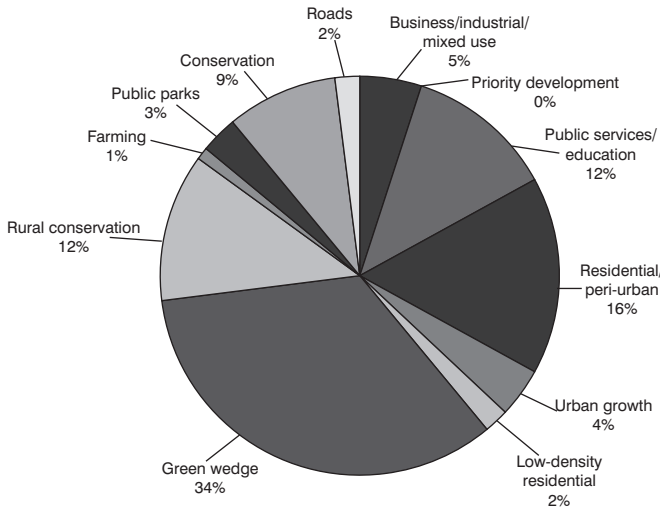

Figure C9.1b Melbourne's current land allocation by use

Table C9.1 Areas (hectares) of various Melbourne land types

Land type	*0–5km*	*5–15km*	*15–40km*	*Total*
Residential/peri-urban	2,518	31,348	66,369	123,514
Urban growth	0	0	24,245	34,414
Low density residential	0	3	8,459	16,598
Green wedge	0	0	66,054	258,711
Rural conservation	0	112	38,191	95,176
Farming	0	0	4,558	6,541
Public park	1,380	4,785	10,717	23,208
Conservation	0	719	12,941	66,061
Roads	554	2,673	7,854	16,650

pigs have more than doubled and Wessex Saddleback pig numbers have increased four-fold between 1998 and 2011 (RBTA, pers. comm., 11 December 2011). Fiona Chambers (RBTA Managing Director and Wessex Saddleback producer) believes that farmers markets provide a valuable conduit for rare breed sales to occur in small volumes and have partly contributed to the increased numbers.

Farmers markets in Victoria have a far greater diversity of plant varieties and animal breeds than is found in mainstream supply chains (see Table C9.2). The fragility of many heirloom vegetables means they are unsuited to long transport. Retail and wholesale markets also impose aesthetic and dimensional specifications which require a degree of crop uniformity that is not expected by patrons at

Table C9.2 Fruit and vegetable diversity

	Farmers Markets	*Community Gardens*
Aloe Vera		1
Apples	multiple (5+)★	
Amaranth		1+
Asian greens	multiple (4+)	multiple (4+)
Apricots	multiple	
Artichokes	2	1+
Asparagus	2	
Avocado	4	
Beans	multiple (7+)★	multiple (4+) ★
Beetroot	multiple (6+)★	multiple ★
Blueberries	multiple ★	
Bottle gourd		1+
Broccoli	multiple (2+)	multiple (2+)
Brussels sprouts	1+	1+
Cabbage	multiple (2+)	multiple (4+)★
Capsicum	multiple (4+)	multiple
Cauliflower	multiple (3+)	multiple (3+)
Carrots	multiple (5+)	multiple
Celeriac		
Celery	1+	Celery & Chinese celery
Cherries	1+	
Chilli	multiple (4+)	multiple
Cime di rapa	1+	
Citrus (lemons and oranges)	1+	1+
Corn/maize	multiple	multiple ★
Cucumbers	multiple (3+)	
Eggplant	multiple ★	multiple
Fennel	1+	1+
Feijoa	1+	
Garlic	multiple (3+)	1+
Grapes	1+	1+
Herbs[a]	1+	1+
Jerusalem artichokes	1+	1+
Kale (Russian, Tuscan)	1+	1+
Kohlrabi	1+	
Leeks, onions and shallots	1+	1+
Salad lettuces and greens[b]	1+	1+ (plus stem lettuce)
Melons	multiple (2+)★	multiple (3+)
Mushrooms	1+	
Nectarines	multiple	

	Farmers Markets	*Community Gardens*
Non-commercial edible plants or fruit	Mountain paw paw, nettle	multiple[c]
Nuts	almonds, pistachios (5), walnuts, chestnuts, hazelnuts	
Olives	1+	
Parsnip	1+	1+
Passionfruit	1+	1+
Peaches	multiple	
Pear	multiple (7+)★	
Peas	multiple	multiple
Pumpkin	multiple	multiple
Pepino		1+
Plums	multiple	
Potatoes	multiple (10+)★	multiple
Radish	multiple (4+)★	multiple (2+)★
Rhubarb	multiple ★	1+
Quince	1+	
Silverbeet	1+	
Strawberries	1+	1+
Sweet Potatoes	1+	1+
Tamarillo	1+	1+
Taro		1+
Tomatoes	multiple (20+)★	multiple ★
Turnip	1+	1+
Water chestnuts		1+
Watercress	1+	1+
Wild-sourced foods	Cardoons, wild watercress, mushrooms (3)	
Zucchini and squash	multiple (5+)★	multiple

★ denotes heirloom or heritage varieties
1+ denotes at least one variety identified
'Multiple' indicates unknown variety names and/or numbers

a Includes multiple basil varieties, chervil, coriander, dill, garlic chives, lemon balm, lemongrass, lemon verbena, multiple mint varieties, margoram, parsley, oregano, perilla, sage, tarragon, Vietnamese balm and Vietnamese mint.

b Includes chicory★, iceberg, watercress, butter, cos, rocket, oak, mizuna, endive, radicchio, spinach and sorrel.

c Includes arrowhead, black nightshade, canna, Chinese boxthorn, epazote, five-seasons herb, garland chrysanthemum, gotu kola (Indian pennywort), greater celandine, horehound, long-leaf coriander, mallow, luffa fruit, malabar spinach, molokhia, mugwort, orach, nettle, plantain, purple rice plant, purslane, rue, wormwood, water celery

farmers markets. In 2010, over 18 heirloom tomato varieties, ten types of potatoes and a selection of wild foods such as nettles, mushrooms, cress and cardoons were identified at the inner-city Slow Food Melbourne and Collingwood Children's farmer markets. One stallholder located 160 km from Melbourne has the largest selection of blueberry varieties in Australia and supplies the market with fresh and frozen organic blueberries year round. Another stallholder sells five types of pistachios, including a variety that the Commonwealth Scientific and Industrial Research Organisation (CSIRO) deemed unviable as a commercial crop and subsequently destroyed. An award-winning wine and olive oil producer farms a six-acre suburban property 15 km from the centre of Melbourne and, in addition to ten grape varieties, grows an astonishing array of fruits and vegetables including unusual crops such as Calabrian varieties of beans.

Dietary diversity and nutrition

Farmers markets predominantly cater and contribute to the dietary diversity of a relatively comfortable socio-economic demographic. However, they also contribute to the dietary diversity of the stallholders themselves, many of whom live in small towns in regional and rural Victoria which have been found to have limited access to fresh fruit and vegetables (Burns et al., 2004). At the end of each market, they regularly buy from or swap their remaining produce with other stallholders.

Plant variety is also likely to result in nutritional variety, although there are few data on intra-specific differences in quality among vegetables (Frison et al., 2004). However, research on Spanish greenhouse tomatoes that are bred for shelf life and uniform shape has shown that they have 'poor organoleptic and reduced nutritional qualities'. Rodríguez-Burruezo et al. (2005) who studied the internal and external qualities of North American varieties of heirloom tomatoes found that many varieties had superior nutritional and taste qualities to modern varieties sold in supermarkets.

Community gardens

Farmers markets cater largely to middle-class consumers while community gardens have stronger potential to improve access to fresh fruit and vegetables for low-income households. Melbourne has a long history of producing urban food. In 1941, almost half the population was producing its own food, more so in more affluent neighbourhoods and less so in disadvantaged areas where open land was scarce (Gaynor, 2006). Figure C9.1a illustrates opportunities for intensification of urban food production within allotments and transport corridors in the inner city and within preserved green space beyond 15 km (Table C9.1). While in Melbourne there is a resurgence of backyard and guerilla gardening – i.e. gardening on land that gardeners do not have legal right to use, often an abandoned site or area not cared for by anyone – many low-income households access land through community gardens, particularly in public housing estates.

Dietary diversity and nutrition

Community Gardens: A Celebration of the People, Recipes and Plants (Woodward and Vardy, 2005) is a valuable resource for understanding the enormous diversity of foods grown around Melbourne's public housing estates (Table C9.2) – much of which is not commonly available in retail markets – and how this food is consumed by residents for culinary and medicinal purposes. The recipes and interviews with gardeners demonstrate a clear link between garden produce and home cooking practices. This, combined with research from other urban gardens around the world, suggests that community gardens have potential for improving access to fresh fruit and vegetables by overcoming barriers to food security such as high food costs and increasing access to fresh produce that gardeners enjoy eating (Alaimo et al., 2008).

Biodiversity in community gardens

Seed saving and exchange between gardeners reduces the reliance on purchased seeds and allows them to grow and share plant varieties that are culturally relevant. Given that 75 per cent of the world's plant genetic diversity has been lost in the last century (FAO, 2004), community gardens may have broader implications for preserving agricultural biodiversity on farm and fostering food security by protecting plant varieties that have no commercial value. Galluzzi et al. (2010) describe home gardens 'as neglected hotspots of agro-biodiversity and cultural diversity'. The authors suggest that traditional crops or varieties are often 'maintained in cultivation because of personal affection and commitment of single gardeners, resulting in maintenance of a greater portion of intra-specific diversity than a market exposure permits'. Like many home and community gardens around the world, the crops grown on Melbourne's multi-cultural public housing estates are often cultivated because they have a particular relationship to a family or individual's traditions, cultural practices or culinary preferences (Baker, 2004). While community gardens may improve access to fresh fruit and vegetables, it is important not to privilege functional considerations such as nutrition or biodiversity over more affective factors such as pleasure and preference when considering the influences in production and consumption choices in community gardens.

Beyond functional understandings of farming, food and eating

A review of 16 studies on the influence of farmers markets and community gardens in the United States on dietary intake shows there is some potential for improving 'access to fruits and vegetables, especially in low-income areas that have poor access to affordable, healthful foods' (McCormack et al., 2010). However, most of these studies advocated the distribution of economic incentives, such as food coupons, to promote fruit and vegetable consumption, rather than promoting education campaigns that may ultimately prove more effective in influencing

attitudes and beliefs regarding the purchase, preparation, or consumption of fruits and vegetables obtained from farmers markets or community gardens.

Drewnowski (1997) points out that most public health efforts have focused on encouraging 'consumers to replace palatable energy-dense foods with less palatable, but arguably healthier, starches and grains', with a particular emphasis on decreasing sugar and fat consumption. However, farmers market producers and gardeners alike frequently frame the motivations for their farming, gardening and consumption practices in terms of taste. One stallholder, Andrew Wood of Glenora Heritage Produce, explained that he uses non-hybrid, open pollinated, heirloom seed because, although they are more difficult to grow, he is interested in protecting biodiversity but also producing the best tasting food possible: 'I suppose you could call us gastronomic farmers… When I look at our vegetables in the field, I see the endless variety of finished dishes ready to eat' (Wood, 2010). Wood's commitment to taste is consistent with other farmers market producers who indicated that they grow particular varieties for their taste rather than yield. Similarly, many urban gardeners grow their own food not because it gives them better access to fresh fruit and vegetables, but because they have better flavour. Taste and aroma are a central part of eating and have the potential to influence moods, recall memories, serve as a warning of toxicity and more, yet the social value of the olfactory senses is frequently ignored in public health and agricultural policy and discourse (Santich, 2009).

Delind (2006) makes a case for local food systems that are more visible, convivial and sensual and that exceed the functional values represented in economic and nutritional understandings of food and farming. Focusing on functional elements of food production may overlook the primary motivation of both farmers market producers and urban gardeners. Our research indicates that consideration of the relationship between taste, cooking and eating that emerges from farmers markets and community gardens, rather than functionality, is most likely to encourage biological and dietary diversity.

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