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Opportunities to advance food gardening in Melbourne

Findings from the 2020 National
Pandemic Gardening Survey

Report prepared for Sustain
April 2021

Authored by:
C. Phillips, O.Dun, I. Aguirre-
Bielschowsky, A. Hearn, and C. Williams

Suggested reference:

Phillips, C., Dun, O., Aguirre-Bielschowsky, I., Hearn, A., & Williams, C. (2021) Opportunities to advance food gardening in Melbourne: Findings from the 2020 National Pandemic Gardening Survey. Melbourne: Sustain.

Acknowledgement of Country: All Australian cities are located on Indigenous land where sovereignty was never ceded. We acknowledge the traditional custodians of lands across Australia, their Elders, Ancestors, cultures and heritage. In particular we acknowledge and pay our respects to the Wurundjeri people of the of the Kulin nation on whose lands Melbourne (and the University of Melbourne) are situated.

Executive Summary

The pandemic has highlighted the urgent need to transition food systems to more sustainable and just models around the world and at multiple scales (Clapp & Moseley 2020). It also has demonstrated the import of cities in enabling (or restricting) crisis mitigation measures, whether those crises are social or environmental (FAO 2020).

This report points to key opportunities for Melbourne councils to enhance food security, increase the well-being of people and ecologies, and develop deeper ties to and within constituent communities through measures that encourage food gardening in the city. The recommendations of the report are founded on an analysis of the 2020 National Pandemic Gardening Survey. The survey was conducted by Sustain (a national food network) and received over 9,000 responses from food growers around Australia. The suggestions of this report complement the action agenda that has been laid out by Sustain, including a call for a \$500 million national fund to support edible gardening (see Donati & Rose 2020).

The overall survey results clearly show that food gardening made a significant difference in people's lives during the pandemic. Over 80% of all survey respondents indicated their food growing was vital during the pandemic, citing results like increased food security, heightened wellbeing, and improved social connections. These impacts illustrate why food gardening is so important in Melbourne, as it has been in other cities around the world (FAO 2014, Thornton 2020)

Intensification and extension of urban development in addition to ongoing environmental change present key challenges for future urban food security and growing activities. In this context, food gardeners in urban, suburban, and peri-urban contexts within Greater Melbourne who responded to the survey expressed awareness and concern about the existing food system, especially in terms of equity and sustainability. Suggested changes ranged from the micro-level (e.g., self-sufficiency) to the macro-level (e.g., a paradigm shift toward a food system that supports environmental and social well-being). Respondents also pointed to the potential of food gardening to provide multiple benefits while mitigating the impacts of future social and environmental crises.

Based on respondents' identification of the benefits and challenges involved in their food gardening during the pandemic, we highlight three key opportunities for councils, each with practical measures for implementation. The three recommendations work together to maximise the benefits of food gardening while addressing the challenges articulated by Melbourne residents.



Figure 1: The Shop and Food Gardens at CERES, City of Moreland

Box 1: Three key recommendations and associated measures

Recommendation 1:

Foster and target community outreach to enable successful food gardening

- Create and support Community Food Hubs with plant nurseries, tool libraries, community seed saving, and food gardening programs
- Develop community education opportunities and develop/distribute communication materials about food gardening
- Work with existing community gardens and food networks to develop a city-wide mentoring program for new gardeners
- Work with Indigenous groups and culturally and linguistically diverse (CALD) communities to identify and support opportunities for relevant food gardening projects and programming

Recommendation 2:

Implement policy measures to support food gardening at the local government level

- Implement policies and activities to support food gardening and food forests in public spaces
- Establish a network of council-managed community composting facilities
- Implement projects that help reduce financial barriers and incentivise food gardening on residential properties
- Establish a Food Policy Council and peer-to-peer learning forums across Greater Melbourne councils
- Integrate food growing with urban greening, biodiversity, climate change mitigation, and emergency preparedness programs

Recommendation 3:

Undertake research to identify and expand food gardening sites and extension services

- Map public areas available for food gardening, including solar access, soil types and quality, and access to mains water
- Produce sunlight and water access maps for private areas in council regions
- Conduct research to identify different models and examples of providing food gardening extension services for city residents
- Investigate feasibility of developing partnerships with Universities for ongoing research about urban food gardening

Background: Food gardening and Melbourne

Approximately 1 in 2 Australians grow some of their own food (Wise 2014), and gardening in Australia has historically ranked in the top five leisure activities undertaken by citizens within their households (Lawrence, 1997). In addition to its direct benefit of providing food, urban agriculture is recognised as having the capacity to help provide natural cooling for buildings and streets, reduce air pollution and flood risk, and improve diets and health of practitioners (Artmann & Sartison 2018; Kingsley et al. 2021). Gardens also serve as key places of biodiversity in cities, providing niches and corridors for multiple species (Lin, Philpott & Jha 2015).

Australia has one of the highest rates of urbanisation in the world, with more than 75 percent of the population living in five cities: Sydney, Melbourne, Brisbane, Perth and Adelaide. Melbourne is projected to overtake Sydney as Australia's most populous city by 2028, with overseas migration and university student enrolments expected to underpin population growth from five million in 2019 to eight million in 2050 (Longbottom & Knight 2018, Urban 2018).

Greater Melbourne's development is expanding outward, incorporating seventeen new suburbs in 2018. A recent Australian study correlates time spent driving with cardio-metabolic health problems related to blood pressure, obesity, and diabetes, further noting that 78% of adults use a car as their main form of transport to and from work (Sugiyama et al. 2016). Further, approximately a quarter of Australia's food production is grown in peri-urban areas, including Melbourne's greenbelt (Butt & Buxton 2020). At the same time as development is spreading, an inward contraction is compounding the city's liveability challenges. Current urban consolidation policies and planning regulations are shrinking green space and compromising quality of life (Hall 2010), exacerbating already existing inequalities across the region. Climate change will intensify these challenges, with disproportionate affects for vulnerable populations.

Melbourne's food bowl can meet approximately 40% of the city's needs but that capacity is projected to fall to 18 per cent by 2050 owing to declining availability of land and the Agriculture Victoria Strategy's focus on exporting to Asia (Carey et al. 2018:67, DEDJTR 2017). As pressures mount on the traditional market garden sector to meet demand, community-based urban agriculture or community gardening has grown rapidly since 2005, especially in the inner and middle ring suburbs of metropolitan Melbourne. There has been an estimated three-fold increase of area cultivated, resulting in around 55 hectares of land in 2019 devoted to community gardening (Williams and Rayner 2016; City of Yarra 2019). Increased production in nurseries of vegetable seedlings and fruit trees suggests that food gardening on private residential land has also increased. This increase can be attributed to a combination of grassroots pressure on local government to provide more land and of public health strategy of municipalities seeking to benefit from linking food growing with increased physical activity and mental health.

Cities are vital to developing resilient and sustainable communities in the context of compounding public health, economic, food security, development, and environmental challenges. Cities and food growing can act together as agents of socio-ecological transformation. Melbourne in particular is the home to long standing and new approaches to urban agriculture led by diverse non-governmental organisations such as CERES, Cultivating Community, FareShare, 3000 Acres and the Collingwood Children's Farm. Demand for community gardens from residents led, for instance, to the City of Yarra to appoint Australia's first urban agriculture facilitator in 2012. As another innovative example, Moving Feast is a partnership of many of not-for-profits (among others) seeking to maximise charitable food production in a range of locations across the metropolitan area.

There are challenges to making the most of the benefits offered by food gardens: not everyone can grow their own food in the city; historic use and regulation means not all places are suitable for food growing given limits access to sun, water, and uncontaminated soil; and policy and programming does not always recognise the multiple benefits of food gardening, and so do not create new agendas or support its integration into existing programming. Keeping this in mind, this report points to several ways in which food gardening can be advanced in Greater Melbourne.

Data and analysis

The 2020 National Pandemic Gardening Survey was conducted through June and July by Sustain on behalf of the members of the Steering Committee for the 3rd National Urban Agriculture Forum. The survey was created in Survey Monkey. To recruit respondents, the survey link was distributed and promoted through social media (Twitter, Facebook, Instagram), Community Gardens Australia, and Gardening Australia presenter Costa Georgiadis during livestreams on Facebook and Instagram. 9,140 food gardeners around Australia responded to questions about their gardening practices and experiences during the pandemic, the value they placed on food gardening, and basic demographic questions.

A summary report based on high-level quantitative analysis was published by Sustain in 2020 (Donati & Rose 2020). The report details high-level quantitative results of the survey. It also provides an action agenda for national and local level measures based on the results and Sustain's long-standing involvement in food system transformation.

To enhance that analysis and agenda, a research project was initiated to perform a preliminary qualitative analysis of a subset of the responses. Qualitative analysis allows exploration of the meanings, experiences, values, and emotions that shape our everyday lives, and efforts at governance. The survey included multiple open-ended responses, and the qualitative analysis focused on developing an account of those responses that would deepen the already completed high-level quantitative analysis. To facilitate the research, seed funding (\$5,000) was obtained from the University of Melbourne's pandemic-focused Advancement and Deputy Vice-Chancellor Research fund.

A subset of 10% of survey responses from the Greater Melbourne area was prioritised for analysis. A total of 2599 residents from all 31 local government areas that comprise Greater Melbourne responded to the survey. Survey responses from residents in six local government areas were included in this analysis (n=280). These included: Boroondara (n=38 of 116), Maribyrnong (n=61), Melbourne (n=47), Moreland (n=26 of 164), Stonnington (n=41) and Yarra (n=67).¹

To begin, Sustain provided the data for analysis in anonymised form to University of Melbourne researchers. After conversations among the research partners about potential areas of interest in the data, Dr. Aguirre-Bielschowsky, Dr. Dun, and Dr. Phillips examined a selection of responses and developed a refined list of categories considered feasible to explore. Then, in discussion and using NVivo qualitative data analysis software, a large list of descriptive codes was narrowed into four key categories to focus the preliminary analysis. After consultation with the broader research team, the data was test coded along these lines. Importantly, the selection of categories did not preclude other aspects to be noted as worthy of further attention. Dr. Aguirre-Bielschowsky proceeded with coding a total of 280 responses guided by regular discussions with Dr. Dun and Dr. Phillips.

This report focuses on two key categories of analysis: benefits and challenges of food gardening as identified by survey participants. This analysis has been used to develop recommendations for councils to advance food gardening and its successful implementation. When indicator words are used in the following discussion, 'few' refers to less than five respondents, some (6-10), several (11-29), and many (>30).

¹ Shared postcodes were included in only one council. Analysis of responses from Boroondara and Moreland remain incomplete pending further funding.

Benefits of food growing

All respondents viewed the ability to grow their own food as positive. The importance of food growing is suggested by the fact that almost all respondents had increased their food production since the onset of the COVID-19 pandemic. Three interrelated benefits of food gardening were repeatedly identified by respondents across the six Melbourne council areas examined. These echo the broader national Pandemic Gardening Survey results. The three benefits are outlined below and illustrated by respondents' own words in Box 1.

Improved food security and self-sufficiency

The biggest benefit for residents was having food available to consume and preserve. In the overall survey, those households growing the most of their own food were more likely to be lower income, with the percentage of highly productive households decreasing with income (Donati & Rose 2020). In the subset of data analysed for this report, the economic benefit of cutting household costs featured less frequently. There were also some contrasting comments. A few respondents found the economic benefit essential; however, others cited the expense of inputs and tools as limitations, with one comment that "very few of the vegetables end up being cheaper than in the shops". Rather than emphasise cost, several responses from the sub-set of councils examined for this report appreciated growing their own food as improving food security because it strengthened their sense of self-sufficiency and self-reliance, and increased access to fresh (sometimes organic) food.

Improved mental and physical wellbeing

Several respondents mentioned food gardening gives them great enjoyment, purpose, and a sense of pride, achievement, and accomplishment. They spoke about how growing their own food is '*rewarding and nurturing*', gives them '*enormous pleasure*', '*allays anxiety*' and '*feels productive*'. Given the anxiety and pressure experienced during the pandemic, this is a significant finding. Another common benefit mentioned by respondents was in connection with their physical health, especially in terms of improving one's diet through fresh and organic produce, the physical exercise involved in gardening, and avoiding COVID-19 infection by reducing the need to leave the house.

Many respondents also expressed how being in their garden fostered strong feelings of connection to nature. Interacting and observing was an important part of their food gardening, especially in relation to plants, insects, birds, animals (dogs, rabbits, chickens), and land more broadly. Being in the garden, and nature taking a bigger role in their life, was considered a key benefit by many. For these respondents, the level of focus required on something other than oneself tended to be understood as a distraction from daily problems and worries (particularly during the pandemic), as well as providing a sense of continuity, belonging, and control. Some respondents expressed a general hope that increased gardening will help people to reconnect with nature.

Increased social connectedness

Growing food strengthened social connections for many respondents. People shared their produce, seeds, land and compost. In doing so, they got satisfaction from creating social connections and collaborations with family, friends, co-workers, neighbours, housemates, and organisation volunteers. Feeling socially connected through food gardening also related to being able to help the community and vulnerable populations during the pandemic (e.g. volunteering in community gardens, running school gardening programmes, donating food). Further, with mobility restrictions in place, several respondents noticed that their front garden attracted attention from passers-by and prompted conversations. These interactions were always seen as very positive, and often discussed as something that should be fostered. Some respondents regarded connections as an extra or unintended benefit of food gardening, while others saw it as a core benefit, particularly in relation to mental health.

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Box 2: Survey respondent quotes illustrating multiple, interrelated benefits of food gardening

“Even though I don't have a lot of space it means I get a little break from the stress of life. I forget about the lockdown for a little time and it feels darn good!” - resident in Yarra City Council area

“Growing your own fresh, healthy, delicious tasting and poison free food is the only way for the future. As a bonus you save huge \$\$\$” - resident in Stonnington City Council area

“Gardening is my therapy, it gives me joy, physical exercise, fresh air, sense of satisfaction & pleasure. I think gardening is very good for mental health issues, provides a sense of purpose, company at times & at the end of the day the rewards of your work. I think more community gardens would be fantastic for lifting the anxiety & frustrations of our current situation. It may assist the feelings of helplessness about the devastating changes we are seeing & help lonely people to get together & support each other in a healthy outdoor environment.” - resident in Boroondara City Council area

“This pandemic has shown the importance of localised food systems. It has also demonstrated the vulnerability of many in our community with food insecurity increasing significantly during this time. Access to healthy, nutritious food is a human right and is one that needs to be prioritised by governments.” - resident in Boroondara City Council area

“It's a great comfort to know I can provide my household with fresh greens & brassica and fruit or berries, for virtually all the year. Gardening is a peaceful, therapeutic activity. Sharing a love of gardening with immediate and extended family, friends and passers by who stop to chat is source of joy and brings a sense of belonging to a community of gardeners. Passing on this love and appreciation of growing vegetables, fruit and flowers to grandchildren and others feels like a worthwhile thing to do.” - resident in Boroondara City Council area

“Working in the garden, especially the front beds, have been the catalyst for many conversations with people walking by. Neighbours and other people walking by have stopped and talked. I have met people in the community that I previously had not known.” - resident in Moreland City Council area

“Growing things we can eat gives me enormous pleasure. As well, I know where the food comes from. It is fresh and there is the satisfaction of growing it myself. Sometimes it's not always easy. I've been learning about seed saving from my produce and also, have had a 3 bay compost system built and am perfecting that process! Being able to garden during the covid times has been a life saver. I am never bored. There is always something to do outside. I feel for people who have an apartment and a balcony only. That is not the way to live for me. A garden full of a variety of plants is essential for exercise and mental health wellbeing.” - resident in Stonnington City Council area

“my community garden - working on my plot, friends made there, and working on the communal areas - kept my mental health.” - resident in Yarra City Council area

“Having fruit trees (lemons, figs, peaches) and berry vines (raspberry canes) has also been important for mental health. It has been very helpful to have things to nurture and watch changing as expected during the shift in seasons, restoring some sense of natural balance and consistency at a time when so much else has been topsy-turvy in our own lives and those of our broader communities... It is truly restorative to feel productive and in touch with nature whilst not having to leave the house. At a time when social distancing and lockdowns have meant really serious constraints on movement around the community, the garden and gardening has provided fundamentally important respite... people reconnect with fundamental things around food security and their natural environment and discover that it can be both sustainable and life-affirming. If some of this interest and focus can endure beyond the pandemic, we will be in much better shape as a society.” - resident in Maribyrnong City Council area

“Practical, creative, rewarding and educational. Gardening as an act of creativity is hugely valuable. An edible garden has always been the ideal. Putting ideas into practice and watching and hoping and learning. I am very grateful to be able to do this under restrictions. It's been just the right thing in which to invest time and effort after being stood down from work.” - resident in Yarra City Council area

“I think that the bushfires of 2019/20 and the Covid-19 pandemic have both highlighted our lack of resilience with providing our own food. We cannot just expect food to be on the supermarket shelves - we are too reliant on interstate food supply, as well as too limited a variety of produce. My children attend [redacted] and have the beautiful kitchen garden program there, for which I am endlessly grateful. What a way to teach these important lessons from the outset.” - resident in Yarra City Council area

Challenges for food gardening, opportunities for Melbourne

A wide range of challenges were identified by respondents as impacting their food gardening (and, in some cases, that of others). Boxes 2, 3, and 4 include illustrative quotes indicating such barriers. To address these challenges and enhance the benefits already discussed, we make three recommendations. Each recommendation is accompanied by a series of implementation measures and explanatory text.

Recommendation 1:

Foster and target community outreach to enable successful food gardening

- Create and support Community Food Hubs with plant nurseries, tool libraries, community seed saving, and food gardening programs

Food hubs are often understood as efforts to coordinate the marketing and distribution of local fresh produce. However, these places also offer a place to centre other activities relating to food such as skills training, provision of community gardening plots, demonstration sites, and services such as tool and seed libraries and/or community nurseries. Some areas in Melbourne already have a Food Hub (e.g., the Melbourne Food Hub), while other councils have conducted feasibility studies into developing one or have initiatives that might be made part of one (e.g., Northcote library's seed lending program). This survey provides further justification for a shared place that brings together key food-related activities. Respondents indicated that information and skills-building should be increased through education, workshops, direct mentoring, and networking. In addition to offering learning opportunities, these hubs would provide locations to deal with some of the material limitations mentioned by survey respondents, including not having the right tools, access to key services (shared composting, soil testing, etc.) for food gardening. It would also enhance the ability to foster social connections through shared space and opportunities to share products (seeds, compost, plants, produce) and skills with other food growers.

- Develop community education opportunities and develop/distribute communication materials about food gardening, and,
- Work with existing community gardens and food networks to develop a city-wide mentoring program for new gardeners

Many survey respondents expressed acute awareness of their limited skills and knowledge. A wide range of needs were identified in this area, leading us to recommend councils to develop – and/or more effectively distribute – food gardening educational materials (website resources, council newsletter features, and/or specific letter box drops). The 'My Smart Garden' program might provide inspiration for this kind of effort. These materials should be accompanied by workshops for hand-on-learning. This reflects many indications that, in addition to using online and hardcopy resources, survey respondents learned by doing, taking courses, and talking to more experienced gardeners. Respondents noted needs for information and/or skills in:

Seed saving	Composting and mulching	Monitoring pests and diseases
Plant propagation	Water recycling and scheduling	Greenhouse gardening
Companion planting	Soil testing and preparation	Sourcing good quality inputs
Permaculture	Attracting beneficial insects	Seasonal planning and crop rotation

Rather than reproducing what is already available, opportunities to draw together and support the expertise of those already working in this space would be of value – as examples, existing community and school gardens, food groups, farmers' markets, botanical gardens, libraries, etc. Many respondents also suggested that edible gardening skills should be integrated into school curricula to ensure people learned these skills early and well. In addition to enhancing the capacities of residents for food gardening, it will be vital to ensure these programs are integrated across different council departments (environment, waste management, community development, etc.) and that council workers are aware of, and committed to, programs fostering food gardening in public spaces.

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- Work with Indigenous groups and culturally and linguistically diverse (CALD) communities to identify and support opportunities for relevant food gardening projects and programming

This recommendation does not reflect particular comments from respondents. Instead, it reflects some of the silences we observed in the responses and the socio-demographics of respondents. Though several respondents articulated interest in and care for Indigenous or native plants, survey participants did not emphasise Indigenous communities or CALD communities in their comments. Further, although there were Indigenous and CALD respondents, these groups were underrepresented. This is not uncommon, as has been noted in cultural environmental literature (Head et al. 2019). Further, other Victorian-focused studies have shown new arrivals to Australia often lack access to local, culturally appropriate foods, especially fresh produce, that they are familiar with from their countries of origin (VicHealth 2008; Dun et al. 2018). Working with the Wurundjeri Land Council and initiatives such as Cultivating Communities will facilitate this measure, as will looking for inspiration from examples such as the Mildura-based Food Next Door Cooperative.

Box 3: Example quotes from survey respondents relevant to Recommendation 1

“councils ought to establish or help community and neighbourhood groups to establish food banks, food / garden produce swap meetings; tool libraries” - resident in Melbourne City Council area

“whilst we have tried to up the amount of edibles we're growing during the lockdown, it has been a very, very slow, and very hit and miss process whilst we discover what can survive in the conditions we have during winter (it will be the same in summer when we work out what can last the all day sun / if we can set up shade for our vegie patch).” - resident in Stonnington City Council area

“I am just starting out and have to source information about insurance, food safety, irrigation, finances, retail, setting up an online shop - it would be much easier if there was a guiding group to help.” - resident in Yarra City Council area

“More information is needed on creating effective composting: it's more than just piling scraps into a plastic container.” - resident in Melbourne City Council area

“I struggle to plant seeds at the correct time, and I am often late in planting seedlings into the garden. I would like to see better planting guides for different localities for the general public to see. For example, early this year I created a spreadsheet for every month of the year, showing what seeds I can plant. This will assist me to forward plan and order seeds in a timely manner. I would love it if someone with good garden local knowledge could look at this and be able to edit and create similar ones for other areas.” - resident in Boroondara City Council area

“water seems crucial - tips welcome! (can I use recycled water?)” - resident in Stonnington City Council area

“For our family, more kids' resources would be helpful to maintain interest and dedication.” - resident in Stonnington City Council area

“I need help, sick of learning with google. I want a gardener with years of experience to talk to me. Zoom is fine if person to person not allowed... I would be much more motivated if I could learn in the context of a community garden, with regular sessions over a whole season. It is much more fun to learn with other like minded people, you learn better and it is easier to commit if you have signed up for the whole season. I have had a garden for many years, have lost most of my plants to various pests big and small and basically got discouraged and gave up. I just need a nudge and a push/shove from a knowledgeable gardener!” - resident in Stonnington City Council area

“Would like to increase my repertoire. More education about heirloom, indigenous and drought-tolerant plants including range, where to buy, how to grow, how to prepare.” - resident in Melbourne City Council area

“I would like to do a course to understand how I could make better use of the garden beds that I have.” - resident in Moreland City Council area

Recommendation 2:

Implement policy measures to support food gardening at the local government level

- Implement policies and activities to support food gardening and create food forests in public spaces

In general, people struggled to access suitable land for food gardening. This was especially challenging for residents living in places where backyards were uncommon or in apartments, and was complicated by limited access to public or shared land. People also noted growing limitations with only being able to grow food in pots and raised gardens. These limitations were accompanied by wishes for more and more suitable gardening space both on respondents' own properties and in public areas. There was enormous interest in having more community gardens as well as desires to have food growing in verges and nature strips, school gardens, apartment developments (roofs, walls, courtyards, balconies), urban forests, and public edible gardens. As useful examples, we note the Bayswater council (Western Australia) has guidelines for all kinds of verge gardening, including food, the Sunshine Coast Council (QLD) recently developed such guidelines, and Brisbane City Council introduced theirs in 2016. Respondents also suggested that councils could help with delivery of soil, mulch, manure and digging machinery to allow the street to use nature strips. Subsidising insurance for community gardens was also advocated. One additional limit for a select group of respondents was losing access to their gardens due to mobility restrictions during lockdown, leading to reduced access to food growing.

- Establish a network of council-managed community composting facilities

Increased food waste (Rabobank 2020) and gardening (Sustain 2020) during the pandemic seems like it would have led to increased composting. However, during the pandemic respondents struggled to compost due to restricted access to shared composting facilities – whether they were run by councils, non-governmental organisations, or community gardens. This meant putting more food (and garden) waste into regular rubbish. Currently much composting is left to individual residents. Those in apartments face particular challenges not only with establishing composting facilities, and dealing with the pests/smells in communal areas, but with using the compost that is created. Based on the limits of accessing shared composting and of home-based composting, some residents called for greater council-managed community compost facilities and the creation of more readily-accessible compost. The City of Moreland has a pilot food waste program (though it remains a challenge for apartments to engage) and Yarra City Council supports community composting at the Carlton Neighbourhood Learning Centre, which may provide inspiration for developing shared composting facilities throughout Melbourne.

- Implement projects that reduce financial barriers and incentivise food gardening on residential properties

Affordability was a limiting factor at a personal level (e.g., expensive inputs and tools) as well as at a general level (e.g., soil preparation and testing, education programs). Measures to subsidise and incentivise food gardening would counteract this limitation, and provide another opportunity to share information about growing practices. Suggestions from respondents for targeting subsidisation for private food gardening included things like: seeds, plants, and materials; soil testing;; gardening labour for residents who are elderly or in poor physical health; and, guidance for installation of suitable irrigation, water capture and water recycling systems. Tax and rates incentives were also mentioned as possible measures to encourage food gardening. Respondents also suggested financial measures to fund programs for residents committed to: maintaining or expanding food gardening on verges and nature strips, developing and managing community compost facilities, and those developing sustainable urban farming initiatives.

- Establish a Food Policy Council and peer-to-peer learning forums across Greater Melbourne councils, and,
- Integrate food growing with urban greening, biodiversity, climate change mitigation, and emergency preparedness programming

These measures are intended to draw together a series of concerns and benefits articulated by respondents. Food Policy Councils act as forums to consider food issues and to develop coordinated action at local, regional, and state

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levels. While food policies and programs tend to be spread across multiple governmental and non-governmental agencies, a Food Policy Council provides a means to consider the food system as a whole and bring stakeholders together to address the complex issues involved. Local governments often act as grounds for pilots of creative programs and policies that can become part of national agendas. A Food Policy Council across Greater Melbourne would enable peer-to-peer learning and support among councils, greater citizen involvement in agenda-setting, and more coherent consideration of the food system. This measure would complement the suggested creation of a Youth Food Policy Council (Donati and Rose 2020). According to respondents, regulations should be used to support rather than restrict urban food production. They cite issues with keeping chickens and bees and accessing land as well as desires to see community gardening and school food growing programs expanded. With this in mind, a FPC might review restrictions on access to public and private property for food growing or keeping chickens and bees, as well as develop support and incentive programs to foster increased food gardening activities and benefits. It could also serve to bring together interests in food with programming for climate mediation, biodiversity, urban greening and emergency preparedness to ensure multiple benefits across these areas. FPCs have been run – with varying success – for three decades in North America, so there is much to be learned from international examples.

Box 4: Example quotes from survey respondents relevant to Recommendation 2

“I think for people ‘wanting to get back to basics’ and I have heard this a lot especially across the age group from about 20 to 60 (!) so a lot of people, then gardening and food production will increase. I feel this could be facilitated in the city by councils allowing/encouraging verge gardening (which my council does not encourage) and by providing more easily accessible education and information. Gardening Australia is a fabulous, accessible, understandable, relatable resource and more programs and resources in this vein would be fabulous.” - resident in Boroondara City Council area

“I would love to see more community gardens and food forests (low maintenance gardens based on perennial growing of food) in our local communities” - resident in Boroondara City Council area

“I can't use my Composting group facilities at the moment because of the virus so much is being wasted in our community... My council (Yarra) should expand Composting services” - resident in Yarra City Council area

“It would be good to see councils supporting individuals and communities by providing free plants on an annual basis. Friends [we have] in Perth receive free plants annually from their council.” - resident in Melbourne City Council area

“Councils ought to establish... community composts for each street - someone has to supervise these or the wrong things will be deposited, so council/state govt \$ is needed here.” - resident in Melbourne City Council area

“I would love to see urban compost/worm farm pods in neighbourhoods, similar to the Subpod.” - resident in Yarra City Council area

“I have found being able to afford, and then access materials hard. Seeds have been ok as they are relatively cheap. But getting enough compost, sustainable fertilisers or pest controls, tools etc. has been quite a challenge during the pandemic.” - resident in Stonnington City Council area

“I don't have the space or infrastructure (or money) to grow much more than herbs and very small fruits (like tomatoes or strawberries)” - resident in Yarra City Council area

“I live in the inner suburbs of Melbourne. I have recently had my soil tested and discovered high levels of lead. I have grown food at every sharehouse I have lived in for the last 10 years and never thought to have the soil tested. It is highly likely that the soils that I have grown food in have been contaminated with lead. There is a role for local and state governments to be more proactive around this, providing guidance and support to people to learn to grow food, provide subsidies for supplies to do this, and to learn of common pitfalls and things to look out for (such as soil contamination).” - resident in Moreland City Council area

“Councils and state governments ought to actively assist people to install and maintain rainwater and greywater tanks and garden irrigation systems - most of us have no clue how to do these things, and cannot afford to spend the money hiring consultants.” - resident in Melbourne City Council area

Recommendation 3:

Undertake research to identify and expand urban food gardening sites and extension services

- Map public areas available for food gardening, including solar access, soil types and quality, and access to mains water, and,
- Produce sunlight and water access maps for private areas in council regions

The most frequent challenge identified by respondents related to accessing the essential requirements for growing food: land, sun, water, knowledge, and resources. As already noted, access to land in general was noted as a limitation. This concern was, predictably, common among apartment dwellers but it was also cited by those who had houses with small (or no) gardens and/or poor sunlight. Sunlight was frequently discussed as a challenge, particularly for those in the inner city. Water distribution and availability was cited as a crucial national problem and, less often, as a limitation to personal food growing. Lack of suitable land on which to grow food was not confined to private land. People wished they had more land available on their own properties, but also in public spaces including verges, nature strips, community gardens, housing development gardens, and public food forests and edible gardens. All participants indicated a desire to increase their food gardening, and this was often accompanied by desires to make more suitable space for food growing accessible in Melbourne.

Creating maps of available land, with suitability indicators, not only for public land but also for private land will highlight possibilities of food gardening for current and prospective residents, for whom such opportunities may factor into property purchase and use. It would also give councils the information to direct developers in ensuring suitable food gardening areas as part of new developments.

- Conduct research to identify different models and examples of food gardening extension services for city residents

Food gardening challenges can be quite site-specific, leading to a need for on-site consultation for some residents. As some survey respondents mentioned, this might be particularly valuable for those residents who are unable to access community gardens for some reason. One survey respondent noted the example of University engagement in providing extension services in the USA, and it may be useful to explore the feasibility of partnerships with educational institutions that would enable such services. Identifying and assessing the lessons of other Australian and international cases would provide useful input for Greater Melbourne councils to advance politics and programs that suit their communities.

- Investigate feasibility of developing partnerships with Universities for ongoing research about urban food gardening

There are an increasing number of initiatives intended to support private and public food gardening, yet not enough is known about their many benefits, limits, successes, and challenges. Research on initiatives across a range of places across Australia is necessary, covering a range of ecological, socio-demographic, urban/suburban/peri-urban, and governance profiles. Developing greater understanding of the breadth and depth of these initiatives will enable them to be better supported, will point to lessons that others might learn from their example, and suggest means (or desirability) of ‘scaling up’ or expanding such initiatives.

Opportunities to advance food gardening in Melbourne

Box 5: Example quotes from survey respondents relevant to Recommendation 3

“My council (Yarra) should...find land in parks for more community gardens” - resident in Yarra City Council area

“I wish I could grow more but am limited by space and conditions (apartment living)” - resident in Boroondara City Council area

“I have a very small space. I would have increased my food growing activities a lot more if I had space.” - resident in Moreland City Council area

“I have created a garden that includes edible food growing outside my own property in a public area. If I was to be challenged, in theory I would have to stop this activity. The garden has provided overwhelming support, interest and pleasure to many people of all ages who walk along the footpath regularly especially since COVID-19.” - resident in Boroondara City Council area

“I would grow more but my backyard is miniscule!” - resident in Yara City Council area

“Limited by space and a shady garden” - resident in Moreland City Council area

“my city townhouse is not suitable for growing vegetables because of (i) possum plague and (ii) overshadowing from neighbours” - resident in Melbourne City Council area

“Currently renting and space is tight. Access to a private plot like in some parts of Europe would be ideal.” - resident in Maribyrnong City Council area

“I’ve had a veggie garden at all my apartments except this one which has no space nor good sunlight. I wish my complex would give us raised beds instead of car parking spots- we have no car.” - resident in Yarra City Council area

“SUN!!! Ok probably not fixable. But unit block allotments are in the dim dark damp dank shadows of the 5-story unit block and barely grows, not even weeds where my plot is. Its nice that it exists at all though. Balcony is also roofed. Have started sneaking snowpeas onto nearby council land/park, and with next to zero care, they grow better than what we can do in our plot!” - resident in Boroondara City Council area

“It would be great to see Australia adopt the equivalent of the USA university extension services to provide free, local and evidence based support for the general public growing food. Community gardens are great for educated or cohesive communities, but those that need it most are often excluded.” - resident in Maribyrnong City Council area

The research partnership

This report has been produced from a research collaboration among University of Melbourne researchers and Sustain leaders.

The University of Melbourne team members include:

- Dr Catherine Phillips (School of Geography) is a human geographer and food studies scholar. She combines qualitative research on everyday practices with social theory to understand agri-food systems, and implications for improving governance.
- Dr Olivia Dun (School of Geography) is a human geographer with a background in environmental science and forced migration studies. She conducts research with small-scale farmers in Australia and the Asia-Pacific focusing on connections between environmental change, agriculture and human migration.
- Dr. Ikerne Aguirre-Bielschowsky (School of Geography) is a human geographer with a research focus on environmental sustainability and food systems governance.
- Professor Adrian Hearn (School of Languages & Linguistics) is an anthropologist who researches the cultural challenges and opportunities for sustainable urban food production and consumption. His research is international, including Latin American, Chinese, and Australian cities.
- Dr Chris Williams (School of Ecosystem & Forest Sciences) is a horticulturalist specialising in urban agriculture. His applied research focuses on novel food species cultivation, migrant communities, and building gardening expertise.

Sustain, the collaborating partner for this project, is a Melbourne-based not-for-profit that works for the transition to a food system that supports flourishing communities, individuals and ecosystems. The team includes its leaders: Dr Nick Rose (Executive Director) and Dr Kelly Donati (Chair).

The University of Melbourne's pandemic-focused Advancement and Deputy Vice-Chancellor Research fund provided seed funding for the research project.

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