

Northwest University

Access to Gardening Education for the Urban Setting

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Introduction

Ever since I was a child, I have been interested in gardening. Colorful memories fill my mind of corn stalks growing taller than me, sunflowers drooping with the heaviness of their seeds, and the joy and excitement that I shared with my family when we harvested the gigantic zucchini I raised with dedication. When I was two, my family moved from an apartment in Sunnyvale, California, to a single-family home in Campbell that had a large backyard sufficient for not only our swing set, but also space for my grandma to garden and me to experiment alongside her. My elementary school also built garden beds, one for each class, so that we could learn about gardening and taking care of our environment. Teachers and parent volunteers devoted effort to ensure that the gardening program was both educational and fun. Looking back, I am grateful for the space and the time that was given to me to get my hands in the dirt and grow as a young gardener.

Now, as an adult, I find gardening to be more challenging because I need to figure out everything on my own. Recent challenges that I face include finding space to garden in the duplex that I rent. Do I garden in containers, or can I uproot some of the existing shrubs that the landlord had planted? Trees cover the small yard space with shade, so I need to find the optimal space for my plants to have sufficient sunlight. Prioritizing daily living costs means that I cannot splurge on organic gardening materials or seedlings that I can plant directly in the ground. Growing vegetables from seed is more efficient in terms of cost, but ineffective in terms of time. Although in the end I can find joy in the fruits of my labor, I am now more aware of the barriers of gardening in an urban environment and how others may experience the same challenges.

Urban gardening has often been seen as an integral part of social justice in targeting issues of food access, spatial equity, and environmental sustainability. Food deserts, where the

access to food is scarce, are often prevalent in urban low-income neighborhoods. In relating food to development, Willis writes that “just because sufficient food is produced to feed a population does not mean that everyone has access to food” (165). To supplement the deficiencies in the food system, both community gardening in a collective space as well home gardening in individual residencies make up the urban food forest, providing food sources adjacent to highways, hanging over neighborhood fences, and in schools and parks. Urban gardening addresses societal issues by existing as a contrast to the disparities that are perpetuated by the urban environment. While urban development follows the patterns of the industrial economy, gardening as an activity and as a movement abides by Earth’s natural patterns (Berry). Mark Wallace writes that sustainable agriculture “provides an alternative model of healthy food consumption and just relations with our human and animal neighbors” (Wallace). Thus, not only do urban gardening initiatives seek to address food insecurity, but also sustainability on a larger scale.

The impact of urban gardens is felt not only by the gardeners and participants, but by the surrounding communities. One study found a correlation between community gardening activities and low BMI not only in the gardening participants, but also in the neighboring residents and families of participants, suggesting that “community gardening may have numerous positive spillover effects for the family members and neighbors of gardeners” (Zick et al.). With regards to developing civic engagement in citizens, community gardens “have the potential to produce developmental, public sphere, and institutional effects that shape the civic values of their members” (Glover et al.). Community gardens are often perceived as a space for physical activity and positive community connections as well as a nutritious food source, especially in areas with limited food choices (Landry et al.). While there are tangible effects of

urban gardening in addressing issues of food insecurity, spatial inequality, and environmental sustainability, there are also societal effects that shape the power dynamics and values of the city. Thus, it is imperative that stakeholders in social justice matters seek to amplify the effects of urban gardening.

The need to support urban gardening initiatives is more prevalent in recent years. At the start of the COVID-19 pandemic, there was a surge in gardening activity across the United States. Jennifer Atkinson writes that in addition to fighting food insecurity, gardening became a destressing activity for people to spend time outside, reconnect with the earth, and center their minds in the midst of a lot of uncertainty (Atkinson). However, there are several challenges that households face when gardening in urban environments including cost and space, specifically for low-income households and those living in high-density housing. These challenges raise the question of how community organizations can provide resources that meet the gardening challenges and assets of their constituents.

Urban gardening challenges

One of the challenges that urban home gardeners face is a lack of space. In areas such as San Jose, California where apartment buildings continue to rise and townhomes are built only several feet from each other, the density of housing presents a challenge to residents in finding adequate space for gardening. Similarly, researchers discovered that in Czechia, there is a large concentration of garden plots in urban areas, but gardeners face space insecurity due to the desire of cities to develop the land for commercial use (Spilková and Vágner). Horst et al. encourage urban planners to consider food justice in their work, addressing the importance of policy and planning changes to sustain food justice movements (Horst et al.). In fact, planners play a vital role in increasing land access and distributing power equitably to residents to take ownership

over their food through home gardening. Although housing density is presented as a challenge here for home gardening, it should not be perceived as a negative challenge. In San Jose, the push for increased housing density is part of the process to provide greater opportunities for affordable housing (Wipf). Stakeholders including urban planners, city governments, and community organizations ought to advocate for more affordable housing initiatives with a vision of incorporating green spaces for gardening and outdoor activities. One of the staff members at La Mesa Verde, a San Jose gardening organization, shared that spatial justice is a significant aspect of their work in developing garden cohorts (Francisco-Catimbang). There is a need to address the kind of access that marginalized groups and even residents across the Bay Area have to preserve green space in their homes and in the community.

Another challenge is the cost of gardening supplies such as soil, fertilizer, containers, and the plants themselves. In addition to water usage and time required to tend to a garden, the cost of gardening could make buying produce at the grocery store seem much easier. However, various online bloggers have shown that gardening costs vary depending on the size of the garden. There are many ways to save on gardening or splurge for higher quality materials (Amygwh, O'Neill, Veronica). In light of the existing interest of people to learn how to garden and the need to address issues of food insecurity, how can organizations support the gardening activities of their participants who are limited in cost and space?

Context: San Jose, California

In areas such as San Jose, food insecurity is a prevalent issue that both the government and nonprofit sector have worked endlessly to address. The need for proper food distribution has increased since the COVID-19 pandemic as households face the difficulty of balancing their needs. One of the nonprofit executives share that “we reside in an area of such tremendous

abundance, but we also live in an area where there is tremendous poverty just under the surface” (Gabbert). The inequality gap is apparent not only in food security, but also housing. While the tech industry provides opportunities for some populations to increase their wealth and buy homes, other populations are left out. Households with lower income or that are not able to compete with the wealth of the upper class are often forced to move further away or live in dense housing accommodations (Foster-Frau). The average income to rent a two-bedroom apartment in 2019 was \$108,920 and the percentage of income spent on rent was 34%, 6% greater than the national average (*City of San José*). The compounding influence of income inequality on food and housing security highlights the need for sustainable solutions. What kind of role does urban gardening play and how can alternative food sources like community gardens mitigate social disparities?

In San Jose, there are a significant number of organizations that seek to support the urban food forest through providing education, resources, and the space for gardening. A common mission for these gardening community organizations is to transform the food system to include equitable access to healthy produce. Food banks such as Second Harvest Food Bank and Sacred Heart Community Services distribute food to low-income households throughout Santa Clara County and the greater Bay Area on a regular basis. In addition to food banks, gardening organizations provide access to food grown in communal spaces and equip participants with the resources and knowledge to garden at home. Organizations such as Village Harvest seek to reduce food waste by harvesting excess fruit in the neighborhoods to distribute to the food banks. Community gardening organizations like Garden to Table Silicon Valley, Veggielution, and Valley Verde address food insecurity through gardening programs that provide resources, education, and access to locally grown produce. In terms of the target population, these

organizations serve a wide variety of demographics, often welcoming everyone to participate or setting guidelines for who qualifies for subsidies. As evident in the types of existing organizations, there are many ways to address food justice.

Oftentimes, gardening organizations provide demonstrations on large plots of land. Both Veggielution and Garden to Table Silicon Valley manage farms on unused plots under highway overpasses. Gardening on a few acres is vastly different from a small yard or even a patio. Volunteers learn about gardening in beds or even directly in rows in the ground. However, garden beds may be considered a luxury as having one installed at a home requires both cost and space. Starting plants from seed, managing pests, and procuring organic soil are all tasks that can more easily be done on a large-scale community garden, but may be difficult to replicate at home, especially in urban cities.

In order to support the gardening interests of the community, food justice organizations need to prioritize free access to contextualized education on gardening and environmental stewardship in order to equip communities with the skills and resources needed to transform their food system. An education focused organization encourages people to participate with an open mind, which can further encourage participants to experiment, try new things, and be open to making mistakes along the way. Prioritizing education means prioritizing the participants rather than the food that is produced. A contextualized gardening education then becomes the avenue to work closely with the vulnerable groups to understand and elevate their experiences and needs, which then highlights “building the adaptative capacity of vulnerable people so that they have assets, resources and capacities” (Pasteur). People-centered food organizations compared to food distribution organizations are better able to build long-lasting impacts on the community’s food system and public health physically, mentally, and socially. Particularly, in order to equip low-

income communities with the skills to garden at home, gardening education needs to include cost-efficient and space saving methods to meet the context of those who reside in high-density housing areas. In order to address the need for contextualized educational resources, my thesis project, “A Guide to Urban Gardening”, is a handbook on urban gardening and included is a resource guide to community organizations on how to utilize the handbook for their programs.

Fieldwork Research

At the beginning of my research, I sought to address the question of how community is built and sustained through community gardening. Only as I was going through my fieldwork did I discover new insights that led me to further explore the need for urban gardening resources for home gardening. To address my questions of community engagement in gardening practices, I conducted fieldwork research at Garden to Table, Silicon Valley, a nonprofit organization in San Jose that runs a one-acre education farm for participants to learn about gardening and have access to locally grown produce (Garden to Table Silicon Valley). Although there are other similar organizations in San Jose, Garden to Table Silicon Valley captures the natural process of education through intentional demonstrations and lessons in the volunteering experience. Additionally, the organization’s pure purpose is to give back to the community, so all produce grown is shared with volunteers, other program participants, and partner organizations. This basic community gardening organization is the ideal place for understanding how community is organically sustained in urban gardening practices.

In order to gain a thorough understanding of community gardens, I conducted fieldwork research using observational data and interview data in addition to gathering knowledge from existing research. This qualitative research method allowed me to have a better understanding of the context and day to day operations of a community garden and the background of participants

that one can learn through organic social interactions. Merriam and Tisdell write that qualitative research allows researchers to “[understand] the meaning people have constructed; that is, how people make sense of their world and the experiences they have in the world” (15). Conducting observational research gave me the opportunity to understand how people relate to community gardening, not just in words, but in actions and emotions. My role as an observer was a complete participant, “a member of the group being studied and conceals his or her observer role from the group so as not to disrupt the natural activity of the group” (Merriam and Tisdell 144). As a volunteer participant, I helped lead gardening activities and built friendships with other volunteers, integrating myself into the community while taking notes of my observations after the volunteer days. Now, as a community member of Garden to Table, I not only have the insight from observing and talking to others, but also my own experience to integrate into my analysis.

Reflexivity

I have been involved in the urban gardening community for the last five years in various capacities. I started my Americorps program at Garden to Table, but I joined the team when the organization was going through a turbulent time. So, I was transferred to Veggielution, where I was previously an education intern, helping to lead children’s gardening activities. As an Americorps member, I fulfilled the role of a program coordinator for a fruit gleaning program where I worked with volunteers, local homeowners, and nonprofit partnerships to reduce food waste through fruit tree harvests. As I started my fieldwork research at Garden to Table, I found that I went into this process with a variety of personal experiences and feelings towards community gardening that impacted my role as a researcher. For example, I worked with gardening volunteers in the past and know that my own experience working with them as an organizer impacted how I interacted or viewed the volunteers at Garden to Table. Stepping into

the role as an observer allowed for me to experience community gardening from a different angle and perhaps analyze and critique my own personal approach. I came out of my Americorps experience with resentment towards gardening initiatives and complacency regarding the effectiveness of community gardens in achieving social justice. Julie Clawson writes that justice is achieved in our everyday actions both individually through our personal transformation and in community supporting one another to live for others (185-188). I found that my fieldwork experience was an opportunity for transformation, to receive healing and a restored understanding of how community gardens can effectively engage the community as well as promote a sustainable food system.

Research Process

During the volunteer days, I focused my observations on a variety of aspects of the farm. On some days I paid attention to the sounds such as the crunch as people walked along the mulched pathways, the scurrying of chickens, or the constant humming of traffic noise above us on the highway. Other days, I focused more on conversations that people shared, such as small talk to get to know each other, the sharing of gardening experiences, or even topics on sustainability and environmental protection. As I narrowed my research focus on home gardening resources, I regularly asked volunteers if they gardened at home and naturally the conversation led to topics of finding resources, spatial challenges, and application of gardening techniques in the home. For example, a family shared with me that they decided to install a garden bed, but they have yet to plant any vegetables because they were in the process of buying soil to fill the bed. They expressed their surprise of learning how expensive it would be to buy enough soil for the bed. Sometimes we would talk about how to decide which plants to grow

with limited space. Overall, in addition to sensory observational data, I gathered insight through everyday conversations with the program participants.

Interviews

For the interview portion of my fieldwork, I developed a list of questions as a guideline for the conversations with both volunteers and staff.

Volunteer questions:

- How did you get involved with Garden to Table? How long have you been participating?
- What are your reasons for volunteering?
- What are a few aspects of the farm that you enjoy the most and which aspects do you think can be improved on?
- Do you garden at home? How would you describe the experience of gardening at home versus at the farm?
- What do you think is most impactful about Garden to Table?
- How would you describe the community at the farm? How important is community to you?
- What are some common values that people share?

Staff questions (in addition to the questions listed above):

- What motivates you to stay committed to Garden to Table?
- What are some challenges that you face with running the programs at Garden to Table?
- How do you balance ensuring the quality of work at the farm versus giving opportunities for people to experiment and learn?
- What does sustainability look like for Garden to Table?

While I used the questions as a reference, I intended for the interviews to be semi-structured, in which “the interview is guided by a list of questions or issues to be explored...[allowing] the researcher to respond to the situation at hand, to the emerging worldview of the respondent, and to new ideas on the topic” (Merriam and Tisdell 111-112). There are times when I followed the list of questions consecutively and other times when the interviewee shared extensively and answered the questions without my prompting.

I found two of the questions to be most helpful in guiding the direction of my research. The questions were “what do you think is most impactful about Garden to Table?” and “what are some common values that people share?”. Both questions provided insight into how the interviewee perceived their experiences at Garden to Table as well as the values that they shared with the community at the farm. In addition to the tangibles of gardening education and resources, the responses to these questions brought light to the relational, mental, and emotional impact that participants experienced. Their responses fueled the main insights from my fieldwork research that I will touch on below.

Although I had a general focus on community building, I found that my research topic could still be considered open ended, which allowed me to explore other aspects of the organization and gardening experience. As a researcher, I could dive into many different topics through community gardening, but I narrowed my focus to urban gardening resources for the home to meet the context and needs of the community. At the same time, I found that community and home gardening are complementary to each other and the values that people share collectively can permeate the success of home gardening.

Fieldwork Insights

Through both observational research and interviews with staff and volunteers, I gained several insights about how the community develops in gardening settings. The majority of the data I collected was qualitative data and to derive analytical insights through my research I reviewed my notes on a regular basis, adding additional self-reflections or insights from more recent observations and interviews. Sunstein and Chiseri-Strater write that “in reviewing your fieldnotes, you will begin to find recurring themes, images, and metaphors that will form patterns” (87). In reflecting on the patterns in my fieldwork, discussing my thoughts with research participants, I was able to home in on the significant themes that I could elevate through my thesis project. The three main points that I will touch on are as follows—free access to gardening education, openness to sharing knowledge, and gardening practices catered to participants. I will elaborate on these lessons to provide a foundation for the purpose and vision for my thesis project, “A Guide to Urban Gardening”.

One of the most significant aspects of Garden to Table that truly makes an impact on society is the free access to gardening education. Anyone can come volunteer to learn more about gardening. According to one of the volunteer staff, Trinity, about 90% of the volunteers come with zero gardening experience, hoping to gain more knowledge (Tomsic). One of the volunteers shared that at other gardening organizations that she volunteered at, most of the time was spent weeding or doing only one task without much understanding of its purpose (Mary). At Garden to Table, the staff takes the time to explain each task and engage the volunteers in a lesson about gardening. Additionally, volunteers usually have the opportunity to accomplish at least two gardening tasks at the farm so that there is a variety of exposure that volunteers have to gardening. Aditi, another regular volunteer, emphasized that the free access to education is the

most significant impact that Garden to Table makes (Aditi). Not only does Garden to Table provide access to gardening knowledge and experience, but they also share in resources. The farm grows a variety of perennial vegetables that can be easily propagated to produce more individual plants. In addition to propagation lessons, the volunteers have the opportunity to take plant cuttings to grow at home. Volunteers can also apply what they learn through the vegetables they take home. Garden to Table regularly encourages volunteers to try new plants or recipes, promoting the nutritional value of the plants. Education often comes at a cost whether it be time or resources. Garden to Table is a counterexample of how to provide free access to gardening knowledge as a way to equip the community to gardening collectively and individually.

A second insight from my fieldwork is the value of sharing knowledge. Although the staff at Garden to Table are leading the activities and have a wealth of knowledge, they often look to the volunteers to share their gardening experiences to add more context or depth to the gardening lesson. Because the staff welcome the volunteers to share their own knowledge whether it be about gardening, cooking, or nutrition, the volunteers freely share their experiences and are open to other volunteers sharing as well. Particularly during the harvest time when volunteers can harvest the produce grown on the farm, a lot of the conversations amongst volunteers are filled with the nutritional benefits of a plant, how they enjoy cooking a certain vegetable, or answering questions that others may have. In talking with one of the interns, she shared that the willingness of volunteers to share their knowledge and gardening experience encouraged her to continue volunteering and excited her interest to learn (Corinna). The culture of sharing is evident throughout the farm and supports Boukharaeva's argument for informal approaches for sharing gardening knowledge. Rather than professional urban agricultural movements, informal approaches provide the benefits of human and social development in

communities, integrating values such as caring for the environment (Boukharaeva). This builds on Charles Vogl's principle of stories for building community. For volunteers to understand the values at Garden to Table, "stories must be shared so that members can understand the community's authentic values and identity" (Vogl 58). The value of sharing knowledge that participants at Garden to Table readily embrace can build a stronger community that is sustained not just by the physical results, but also through the relationships that are created overtime.

The third insight I gained through my fieldwork research is the importance of catering gardening education to fit the needs and assets of the participants. This is evident in the ABC's of Farming program, a children's outdoor education program, that Garden to Table organizes on an annual basis. Not only did they provide online lessons during the pandemic, but whether it be online or in person, the staff are intentional about creating lessons that are interactive and engaging for children of all ages. Moreover, Garden to Table is intentional about growing a variety of vegetables that are nutritious and cost-effective. One of the factors that the farm pays attention to is perennial vegetables, those that only need to be planted once and can grow for multiple seasons. Most vegetables are annuals and must be planted every year, which then costs money and time. For new gardeners, figuring out how to follow the planting schedule and the different steps to bring a plant from seed to fruit can be a daunting task. Perennial vegetables are often ones that can be easily propagated from existing plants. For example, purple tree collard is a perennial vegetable that Garden to Table regularly propagates to share with volunteers to grow at home. The vegetable is easy to grow as well as nutritious and produces abundantly. In addition to perennial vegetables, factors that Garden to Table emphasizes are nutrition and high-yielding vegetables. If the goal is to equip the community to eat healthy and garden effectively, then these

factors need to be highlighted to educate people about the possibilities that are out there when it comes to gardening.

In addition to my fieldwork research at Garden to Table, I also took the time to talk with members of La Mesa Verde (LMV), another gardening organization in San Jose that seeks to equip low-income households with the practical resources to garden as well as to provide a community for members to grow as gardeners and advocates for their well-being (La Mesa Verde). The Kids Club Committee at La Mesa Verde came to volunteer at Garden to Table several times, which is how I became connected with them. In a few of my interviews with the mothers of the committee, they shared their own interest in gardening as well as passion for their children to understand and take care of their environment. In addition to gardening education, the committee seeks to advocate for green space, to ensure that their children have spaces to garden and be in their natural environment (Carla). While the Kids Club parents primarily focus on providing gardening education opportunities for their children, I also talked with the mothers about their own interests and experiences with gardening. I found one of the interviews most insightful as I was deciding on my thesis project focus.

I had briefly met Emily at Garden to Table and observed her enthusiasm for all the plants that we were harvesting. One of the LMV staff shared about the nutritional benefits of Egyptian spinach and offered to share seed pods that he had collected on his own. Emily immediately responded with gratefulness and excitement to try growing this vegetable on her own. After participating in the Kids Club Committee meeting, I scheduled a phone call with Emily. During our conversation, she shared openly about her own experiences with gardening and how joining LMV changed her life. Prior to becoming a member, Emily was experiencing many health complications and the difficulty of her physical health journey also impacted her mental health.

A friend recommended her to join LMV and although she was hesitant at first, she is now so grateful to have joined. Not only did her physical health improve, but also her mental health. Emily now proactively advocates for people to participate in community gardening activities. She loves that her garden is in her front yard so that she can spark up conversations with neighbors walking by. When I asked her about the challenges that LMV members face in regard to home gardening, she shared that both lack of space and resources is a prominent issue. She also shared that although the community gardens, at LMV's site, Sacred Heart Community Services, or at local school gardens, provide space for people who cannot garden at home, we ought to still push for people to have access at garden at home. This topic of spatial justice is a regular conversation at LMV that sparks ideas. Right now, the organization is talking about the kind of resources that they can provide low-income families including gardening education to help them kickstart their home garden (Emily). My interview with Emily contributed significantly to the development of my thesis project. By connecting with members at LMV, I now had data from two community gardening organizations in San Jose to integrate into my project and affirm my thesis that an increase in free access to gardening education for both community and home contexts is needed to support the growing community at large.

Food justice

Through my research findings, there are several points I want to address in regard to community gardening and food justice. Burdine and Taylor write that “food justice and food sovereignty discourses combine interest in sustainability and consumption of healthy foods with concerns about social justice, equitable access to healthy foods, and control over the production and distribution of said food” (Burdine and Taylor). There is ongoing discussion about the effectiveness of urban gardening as an alternative food source in addressing issues of food

access, spatial equity, and environmental sustainability. Evers and Hodgsons points out that there is disagreement on the term “alternative” because of the exclusivity and localism that arises without consumers diving deeper into the issues of the industrial food system (Evers and Hodgsons). Is urban gardening simply an alternative practice to supplement heavier advocacy or can gardening play an essential role in truly addressing these social issues? Can community gardens transform the food systems or is there an element of policymaking and advocacy that is missing? What is needed to increase the impact of urban gardening on food justice?

There is a continuous balancing act of supporting grassroots activities to increase food security while also devoting effort to transform the larger industrial agricultural sector. Beyond the two-sided coin of alternative versus industrial food sources is the topic of building resilience through food justice. Scholars introduce the concept of applying a resilience framework to food justice to broaden its scope. The International Federation of Red Cross and Red Crescent Societies defines resilience as “building the capacity of communities” and a resilient community as knowledgeable, healthy, and organized with the ability to provide services, infrastructure, economic opportunities (IFRC). Barthel et al. suggest that a resilience framework creates an intersectional movement to food justice that overlaps social, ecological, and political agendas (Barthel et al.). Krasny and Tidball argue that a resilience framework shifts the focus of food justice from individual food security to sustainability at the systems level (Krasny and Tidball). These scholars highlight that the food justice movement can influence social and ecological justice at a greater level.

Moreover, the level of impact that urban gardening can have on societal issues is dependent on each urban landscape rather than there being a standard solution across the board. Several factors of the urban landscape include the environment, climate for gardening, and the

particular issues of socioeconomic injustice present in each city. However, in analyzing the impact of urban gardening, it is necessary to address the point that urban environments often house a diversity of disparities that negatively impact marginalized communities due to the increased housing density, cost of living, and gentrification. I argue that community resources to promote urban gardening can address issues of disparity and more. As touched on earlier, alternative food movements are often criticized for having little impact on the greater food system. However, Chiara Tornaghi argues that we ought to push for a larger impact rather than abandoning these movements. She asserts that humans have the right to grow food and the right to land as a common good (Tornaghi). To add on, gardening as an alternative food source directly upholds the principles of ecological sustainability and economic equity. Ecological sustainability refers to “human economies situated within Earth’s economy”, abiding by the principles and practices of nature (Moe-Lobeda 2015). Gardening is a practice that for the most part requires gardeners to follow the nature of biology and the environment. As community gardening and food justice related organizations consider their impact, I think it is necessary to address how these movements stand for these principles and more in the face of the larger food industry and environmental sustainability.

Additionally, urban gardening provides benefits beyond addressing practical social issues extending to the communal values that are built through collective gardening efforts. As relayed in my fieldwork findings, community gardens provide a natural setting for residents to gather and share their gardening knowledge, encouraging the practice of gardening at home. Both community gardening and home gardening contribute in different ways to addressing social justice issues. One of the main contributing factors is the value and protection of green space. Community gardens, especially in urban settings, are in tune with the natural hazards that affect

a community and can provide responses to baseline assessments. For example, in the Earthkeepers podcast, Tahmina Martelly shares that the land where she started a community garden in Kent, Washington is on a hill and prior to cultivating the land, the space was a parking lot. The asphalt meant that during rainy seasons, there was a potential for flooding. Not only did Martelly offer a space for refugees to grow their own produce, but also mitigated the risk of flooding by restoring the land (Urban Community). In a study on gardening education in schools, the research affirmed that gardening allows children to build ownership and responsibility, broaden their senses, and build creative and critical thinking skills, especially in relation to nature and environmental topics (Ausherman et al.). This process of instilling values of caring for the environment is evident at Garden to Table as well where people of all ages learn to appreciate the natural seasons of vegetables and apply organic and environmentally friendly practices.

The efforts of community and home gardening are sustained through communities, groups of people gathering to share their knowledge and resources, while creating an open space for learning. By sharing knowledge and experiences, communities of gardeners can develop effective and sustainable practices through consensus, where people look to the actions of others before deciding themselves (Cialdini). Alaimo et al. found that social capital is sustained in communities when there is sufficient individual participation, suggesting that both individual and communal activities have a ripple effect on their households and neighbors (Alaimo et al). Additionally, community gardening fosters resilience building through self-esteem, optimism, and openness (Koay and Dillon).

This value for community comes full circle in my research as I will advocate for practical gardening resources catered to the urban environment to meet the needs of low-income

households and those living in high-density housing. The practices that I will share will be enhanced through the partnership of community organizations. Through my fieldwork insights, I learned how vital of a role that community organizations play in promoting a healthy food system. By disseminating gardening knowledge freely through community programs, food justice organizations can collaborate with participating groups to garden effectively. Only in gardening together as a community can there be a substantial change to the way people view the food system, the existing disparities, and discover the empowerment to make change.

Urban Gardening Handbook Development

The purpose of “A Guide to Urban Gardening” is to provide educational gardening resources catered to the urban context to address issues of food insecurity, spatial injustice, and socioeconomic disparities. The theory of change for this project is that free access to contextualized gardening resources will lead to an increase in gardening activity individually and collectively to transform urban spaces and the well-being of urban communities (Funnell and Rogers 13). Although the handbook can be treated as a standalone resource for individual users, the vision of this project is for communities to utilize the resource as a medium for collective learning. The development of this project is founded on the values and insights gained through my fieldwork research. In addition to being contextualized for urban gardeners, the handbook and user resource encourages communities to openly share their knowledge and promote free access to resources. There are several aspects of gardening that this handbook addresses including an introduction to gardening, material on identifying garden spaces, and gardening methods, all of which are cost-efficient and space-saving. Additionally, the handbook proposes a framework for identifying vegetables suitable for the urban environment based on multiple factors—perennial, plants with high-yield, plants with high nutritional value, and container plans.

The content is catered to the climate in San Jose, California. However, in alignment with the project's values, the user resource provides guidance on how communities can modify the framework and gardening content to fit their specific urban contexts.

Overall, the handbook takes the asset-based approach of having gardeners assess their available resources, their assets, as well as their limitations before deciding how they would like to garden at home. An asset-based community development approach focuses on how to mobilize the strengths and resources within the community to address a problem, demonstrating that there are plenty of ways that development initiatives can be addressed within the community before outside support is needed (*What is Asset Based Community Development*). This approach in gardening is supported by a study that suggests that food-related interventions require collaborative community effort that encourages the asset-based community development approach (Moak et al.). Rather than instructing gardeners on what they need to obtain to garden, the handbook provides options that are relevant to their current assets. In advocating for food security, there needs to be a shift in approach to elevate and empower the community to recognize and apply their existing assets.

Basic Gardening Skills

The guide starts off with a basic introduction to gardening so as to not reflect an assumption that readers already have gardening experience. The staff members at Garden to Table share in their orientation to new volunteers that the majority of volunteers first join without any prior gardening knowledge, indicating to the new volunteers that they can also come to learn. The rise in gardening activity during the COVID-19 pandemic suggests that households seek to garden as a food source or as a leisure activity. In a study conducted in Canada, survey results from gardeners showed that 17% of them started gardening during the pandemic (Mullins

et al.). Similarly, a study in Vermont found that food insecure households were more likely to have a significant increase in gardening activity during the pandemic (Niles et al.). In San Jose, many of the volunteers I worked with shared similar sentiments of taking on gardening during the pandemic and found Taylor St. Farm because they wanted to learn more. Thus, the guide provides a basic introduction to gardening. At the same time, there is a plethora of information that is not included. Users are encouraged to search for additional gardening information online where there are ample resources for people to tap into. The handbook serves as a complete package of elements to consider and further explore for urban gardening.

Space

As discussed previously, space is one of the major limitations that gardeners face. Spilková and Vágner's spatial study in Czechia highlighted that although there was a larger concentration of garden plots in more urban developed areas, the gardeners and organizations faced the issue of space insecurity due to the desire of cities to develop the land for commercial use (Spilková and Vágner). Living in San Jose, I regularly see new luxury apartments or townhomes being built with no priority for outdoor space. Oftentimes, urban housing does not have open ground for residents to garden directly in. Rather, the ground is covered with concrete, so gardeners need to garden in containers instead. To address the predicament of gardening in small spaces, the handbook addresses several methods for selecting an appropriate garden space in one's patio or balcony. The first task is to understand how sunlight plays a factor in the success of a garden. Sunlight is a key component for plants to grow and produce fruit and gardeners need to assess the number of hours of sunlight that their garden space receives in order to decide on what kind of plants to grow in that area. For example, people often grow tomatoes as their first vegetable plant, but tomatoes require at least 8 hours of sun a day. At Garden to

Table, I observed that the tomatoes that sat closest to the edge of the garden where an overpass casted shade did not grow as well as the tomatoes in full sun. Although the shaded plants grew just as tall and large as the sunny plants, they did not produce as much fruit. In order to conserve resources, the guide encourages gardeners to grow plants that meet their area's allotment of sun.

The guide also provides information on how to select an appropriate container for the plants. Factors like container size, plant size, and water drainage are all important for gardeners to consider in order to grow a plant successfully. Gardeners may have a tendency to underestimate the amount of space that plants require to grow. Other components of garden space that the guide includes are vertical gardening and gardening indoors. Both are alternatives that require gardeners to consider the kinds of plants that fit these contexts. All in all, when gardeners have a small space for gardening, there are a lot of factors to consider including the assets and the limitations that the different kinds of spaces may present. Although gardeners may wish that all plants grow well in small spaces, we cannot help but abide by the biological needs of plants in order for us to have successful harvests.

Framework for Plants

To guide gardeners to consider how to garden effectively in urban spaces, I applied a framework for selecting plants to grow in an urban setting based on four factors—perennial plants, plants with high yield, plants with high nutritional value, and container plants. In the guide, each factor is assigned an icon with a description on one page. The following section in the guide then includes a plant description per page with each plants' benefits indicated with the icons at the bottom of the page. Readers can then assess which plants will best meet their needs and interests. The selection of these four factors is based on what I observed at Garden to Table as well as the goal to highlight cost-effective and space saving plants and methods.

1. Perennial plants do not need to be replanted annually. Rather, they can be planted once and will continue to grow through the seasons allowing gardeners to save on cost and resources. Depending on the climate, gardeners can grow perennial vegetables to save on resources. Once a gardener transfers a perennial plant into the ground, they simply need to care for the plant and will be able to harvest produce throughout the seasons.
 - a. Examples: Okinawa spinach, green onions, kale
2. Plants with high yield are plants that produce substantial food per plant. Vegetables that can be harvested on a regular basis throughout its growing season are ideal for gardeners looking to minimize cost and time. Additionally, another way to discern vegetables with high yield is to consider how many components of the plant, fruit, roots, leaves, and flowers, can be consumed. I integrated methods that focused on maximizing the growing season.
 - a. Examples: sweet potatoes, turnips
3. Plants with high nutritional value are highlighted to provide gardeners with plant options that are more saturated with nutritional benefits.
 - a. Examples: purple tree collard, red cabbage
4. Container plants are plants that grow well in containers in order to address spatial limitations that gardeners may face in their urban homes.
 - a. Examples: beans, Okinawa spinach, dwarf varieties

As mentioned in my fieldwork insights, Garden to Table regularly highlights to the volunteers the plants that meet these four factors to promote the mindset of maximizing food production. I applied what I learned at the farm by highlighting a variety of plant that we have at

the farm including Okinawa spinach and New Zealand spinach as well as kale and collard plants. I became more aware of the ratio of food production to plant resources as Garden to Table highlighted to volunteers the value of perennial vegetables and gardening methods that produced a high yield. The reason that the guide emphasizes these factors is to spark creativity and awareness on the efficiency of plants.

These four plant factors—perennial, high-yield, high in nutrition, and container—help gardeners to consider how to garden efficiently as a way to conserve resources. Although people may consider other factors when gardening, if the goal is to promote food security, then it is vital to include cost-effective methods. At the same time, these factors are not all comprehensive, rather the intention is that the content in the guide can ignite inspiration and conversations amongst gardeners on creative and innovative methods. For example, at Garden to Table, we grew sweet potatoes in the summer. First, we regularly harvested the leaves for several months. I enjoyed this green because it is often found in Chinese dishes so I could easily incorporate what I harvested into my meals. In the fall, we harvested the sweet potatoes, yielding about 100 pounds. It was only then that I learned that the staff had gone to an Asian grocery store to buy the leaves for about 2 dollars. They had rooted the leaves and then transplanted them into the ground. I was so surprised at how creative the staff were to experiment with vegetables with the goal of maximizing food. Creativity sparks innovation and oftentimes “creativity seldom follows the path of least resistance. You need to deliberately choose creativity” (Kelley and Kelley 76). I hope that through reading the handbook, gardeners can begin to think of and share even more innovative ways to garden.

In addition to cost-saving methods, the purpose of the four factors is to also highlight the nutritional value of plants. At Garden to Table, we regularly point out to volunteers the fact that

vegetables with a red or purple color are more nutritious than their green counterparts. The farm intentionally grows red varieties so that volunteers have options to choose from. Another plant with high nutritional value is purple tree collard, which is also a perennial and produces ample greens. Highlighting the nutritional value of plants can be particularly useful for individuals with health needs. Participants of Garden to Table's Harvest Box program, where on a weekly basis they receive fresh vegetables grown on the farm, shared that since participating in the program their health has improved (Tomsic). Similarly, in my interview with Emily at LMV, she shared that after joining the program, her health improved significantly, and she found happiness being in community (Emily). One of the interns shared that she has been eating the healthiest she has ever eaten since joining Garden to Table. An aspect of the farm that she appreciates is how in-depth the staff share their knowledge about the health benefits of the vegetables they grow and harvest (Kyleigh). These insights from program participants ought to encourage food justice organizations to consider how to better integrate nutrition with gardening education.

Community Application

The resource document associated with the handbook is available for organizations to refer to when distributing the handbook to their constituents. In addition to distributing the resource freely online or through programs, the resource encourages organizations to facilitate conversations around the challenges and assets of gardening in an urban context. Below are the suggested questions that are offered to help program coordinators get started.

- What home gardening challenges do you face and are they addressed in this handbook?
- What is missing from this handbook and what ideas do you have for addressing the challenges you face?

- What are collaborative activities that we can do to address these home gardening challenges?
- Share the gardening methods, supplies, and plants that have worked well for you in your garden space.
- What gardening resources do you refer to? What can be added to the handbook?

In this process of utilizing the handbook to promote gardening through organizational programming, the goal is not only to encourage people to garden, but also to promote engagement and build community. Moreover, the handbook promotes the value of contextualization and thus this value ought to be adopted in its distribution. What works for one community may not work for others. A study on community gardens in Pheonix, Arizona found that the organization's initiatives did not necessarily align with the interests of the community, suggesting that these organizations need to do a better job of understanding the people of the context they work in (Bleasdale et al.). Leaving the handbook malleable, allows organizations to "connect with ourselves, one another, and a larger context" (Keunkel 86). The applicational suggestions in the resources is founded on the fieldwork insights that I mentioned earlier of free access to education, open sharing of knowledge, and contextualized gardening resources. Simply by opening up the space for people to share about their gardening experiences and discuss the challenges of the greater urban context, organizations can promote practices that not only advocate for food justice, to reduce food insecurity, but also to strengthen the community.

Currently, my goal for this project is to make it useful for the San Jose gardening community. I have distributed the handbook to both Garden to Table and the Kids Club at LMV. While the handbook is readily available to be adapted to other regions, my focus is to ensure that the handbook is successful in San Jose. If there are areas that can be improved, I can then work

on them within the initial region so that I can add lessons learned in the handbook resource. Kevin Lynch and Julius Walls promote the approach of “[becoming] very, very good at our core business, constantly improving both how we serve the market and how we create social benefit through the business” (145). While the project is not a social enterprise, I would like to adopt the same mindset of creating a successful contextualized gardening handbook for San Jose. In this implementation phase, I will follow up with the gardeners in each organization to assess the effectiveness and gather feedback to make adjustments as necessary (Project DPro 145).

As I continue to learn, I offer the handbook and resource as an opportunity for organizations and individual gardeners to be innovative in thinking about how to fight food insecurity and advocate for food and spatial justice. My recommendation to organizations seeking to increase their impact is to apply action research methods where the community takes part in a democratic and participatory approach. Stringer encourages community development practitioners and other stakeholders to share “their diverse knowledge and experience—expert, professional, and lay” so that “stakeholders can create solutions to their problems and, in process, improve the quality of their community life” (15). Organizations can apply the action research routine of “look, think, and act” to modify the template for the handbook to fit their community’s interests, climate, and culture (Stringer 9). Continuous evaluation and opportunities for participants to provide feedback is necessary so that the communities can collectively “implement the results” and “take responsibility for the outcome” (Easterly). I want to emphasize that the handbook I created is not meant to be permanent, but rather a medium for innovation and to foster a value for contextualization in gardening education. To me, the resource is successful when it has been adapted and gone through multiple iterations as topics of climate change, diversity in gardening, and more are incorporated into the gardening practices.

Conclusion

In the face of the increasing rise in urban development, it becomes apparent that the impact of development and technology exponentially grows. At the same time, communities “have the power to do good at a speed and scope we’ve never seen before” (Friedman 93). In reflecting on the term urban gardening, I find that the two words put together form a contradiction. The imagery of an urban landscape contrasted by the natural scene of gardens forms a contradiction that some may see as pointless. However, Parker Palmer writes that “by living the contradictions we will be brought through to hope, and only through hope will we be empowered to live life’s contradictions” (43). Hope is evident in gardening as gardeners hope for the harvest to come as a result of hard work. As a community, hope lies in the relationships that are gained by gardening together. Through this synergy of hope can gardeners, community organizations, and stakeholders continually advocate for change to the food system, urban development, and more.

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Appendix A: “A Guide to Urban Gardening” Handbook Resource

INTRODUCTION

Welcome to the resource guide for “A Guide to Urban Gardening” handbook. This document serves as a user guidance for community organizations and stakeholders in Bay Area’s food justice movement and urban agriculture sector. Part I provides an overview of the handbook’s purpose, vision, objectives, development, and description. Part II includes suggestions for community organizations on how to employ the handbook to support their constituents in home gardening activities.

PART I: PROJECT OVERVIEW

Background

Gardening is an activity that has both individual and collective benefits. One benefit is the positive impact on food security. Food insecurity is one of the many health disparities that low-income households face in San Jose, California. There are several ways in which the public sector and community organizations work together to increase food security including food distribution sites and gardening education. Gardening is an activity that can directly lead to an increase in local food resources. Community organizations that provide opportunities for their constituents to learn about gardening can empower the participants to garden at home and increase their awareness about the food system. Another benefit of gardening is resilience. Whether individually or collectively, gardening can be a way to build resilience, especially in marginalized communities both socially and environmentally. Kransy and Tidball introduce the concept of applying a social-ecological systems resilience framework to environmental education, encouraging communities to participate in movements of food justice that are sustainable and build resiliency (Kransy and Tidball). Koay and Dillon found that gardening is

associated with a significantly higher sense of well-being, thus reducing stress and building self-esteem and optimism (Koay and Dillon). These studies implore food justice organizations to support their participants in community gardening as a form of resilience.

The Community's Needs

Although community gardening organizations often seek to help participants understand where their food comes from and equip them with skills to grow their own produce, at times they may lack the contextualization needed for the educational material to be applicable. In addition to the gardening knowledge, participants need to have sufficient resources to garden. A study on gardening activity during the COVID-19 pandemic affirmed that to support the increase in households looking into gardening practices, there needs to be an expansion in resources, knowledge, and access for people to sustainably rely on home gardening as a food source (Niles et al.). One of the challenges that people face in the Bay Area is a lack of space in high density housing areas as well as the cost of gardening. Those who live in apartments with a patio or balcony may lack the proper sunlight to grow vegetables. Having a proper garden bed requires additional costs and space that people may not have.

Solution, Objectives, and Vision

In considering how to increase food security and build resiliency, “A Guide to Urban Gardening” contains practical lessons for cost-effective and space saving gardening practices to address the challenges that low-income and urban households may face. The objective of the handbook is to provide gardeners with knowledge that is catered to their assets as well as the challenges that they may face so that they can more effectively garden at home. The handbook follows the theory of change that by increasing one’s gardening activity and thus food production, households can increase their food security and health. Overtime, the collective

increase in gardening activity in urban homes can transform the food system and the ways households rely on the larger food system. The handbook is meant to be communal whether through community relations or organizations so that the efforts are shared collectively as a way to build resiliency.

The handbook will consist of the following sections. The first section will be on addressing the challenges of gardening in small spaces like patios, balconies, and kitchens. The second section will include a list of plants that grow well in urban spaces and are cost-efficient, high producing, and nutritious. The final section of the handbook will provide cost-effective gardening methods and supplies.

As touched on earlier, the objective of the handbook is to equip low-income and urban households with the knowledge needed to garden at home. The goal of this project is to increase successful home gardening activity in a sustainable manner. A second goal is for organizations to increase their support for constituents in gardening at home by sharing the handbook or the educational material that the handbook provides. Overall, the vision of this project is for households to experience an increase in food security, a sense of ownership in achieving food justice, and a resilient gardening lifestyle.

Handbook Development - Fieldwork Insights

The development of the handbook is based on fieldwork research that I conducted at Garden to Table Silicon Valley, a community nonprofit based in San Jose, California. Garden to Table runs Taylor St. Farm, a one-acre plot of land where volunteers and program participants have the opportunity to learn about gardening with hands-on experience. The mission of Garden to Table is to increase the health and wellness of the surrounding community through gardening

education, providing access to fresh produce, and facilitating a space for people to come and build community (*Garden to Table*).

Initially, I focused my fieldwork research on understanding how community is sustained in community gardens. Although the project is designed for gardening at home, I want to touch on two themes of community that I learned through my time at Garden to Table. I believe these aspects of community building are necessary components to sustain the relevancy of the handbook. The first theme is access to gardening education and the second is an openness to sharing knowledge.

Access to gardening education

One of the greatest assets of Garden to Table is the emphasis on gardening education and thus open access to knowledge. People join because they want to learn how to garden, and the organization does an excellent job of educating everyone to the point where regular participants are equipped to share the same knowledge with others. One volunteer shared with me in an interview that she tried to grow plants in containers, but she did not know if she was doing it right, if she needed to add more fertilizer, or prepare the plant differently. She said the most significant aspect of Garden to Table is the access to free gardening education so that even low-income households can join and learn how to garden for free (Aditi). I learned that free access to education on gardening and environmental stewardship can equip communities with the skills and resources needed to transform their food system. A study by Evers and Hodgson cements the idea that community gardening not only helps to increase food security but provides indirect contribution through education and empowerment (Evers and Hodgson). An education focused organization encourages people to participate with an open mind to learn, which can further encourage participants to experiment, try new things, and be opened to making mistakes along

the way. Prioritizing education means prioritizing the participants rather than the food that is produced. People-centered food organizations compared to food distribution organizations are better able to build long-lasting impacts on the community's food system and public health physically, mentally, and socially.

Openness to sharing knowledge

Secondly, I consistently observed volunteers sharing their experiences with gardening and food, whether it was a successful recipe or a plant that died. By having opportunities to share their personal experiences and knowledge, participants were able to build their sense of ownership in the community context. The more individuals shared with the group, the stronger they became connected to the community, which allows for deeper and more meaningful connections across the group. Kelley and Kelley suggest that when leaders invest in the success of their members and encourage ownership, they can multiply the impact of their organization while also improving morale and the community spirit (Kelley and Kelley 202). The volunteer staff at Garden to Table do so by fostering a welcoming space for participants to become leaders and voice their experiences and knowledge.

When I asked one of the interns about the community values at the farm, she shared that everyone is welcoming to each other and non-judgmental. Everyone has varying levels of gardening experience and it is great to tap into their knowledge. By having people share their experiences and others be receptive, Garden to Table is able to create opportunities for community connection (Corinna). Although community may not be a top priority for participants, it is the strength of the community that sustains the movement. In the context of food justice organizations, participants should be able to share about their personal connection to food both from an experiential standpoint and as an asset sharing standpoint. This is most

important for those who may suffer from the current food system and are seeking ways to take ownership over their connection to the food system.

Both an equal access to education and a collective value of sharing experiences are essential building blocks to sustaining a community movement whether it be food justice oriented or another social issue. That being said, although the handbook is created for gardeners to use at home, the contents of the handbook ought to be shared and discussed in community to allow room for people to share knowledge that is not included in the handbook or offer alternatives if the resources in the handbook are not sufficient. Gardening at home by no means replaces the value of community gardening, but rather enhances the knowledge that can be shared collectively.

Home gardening challenges

In addition to the two insights on community gardening, I observed that there are several shared challenges that people face when gardening at home. The majority of volunteers at Garden to Table are interested in learning more about gardening with the hopes of applying what they learn to their own garden. However, people often shared that they do not garden at home because they do not have the space in their apartment nor sufficient sunlight because of high density housing. Nevertheless, the eagerness to learn is palpable in the volunteers' excitement to try new gardening activities at the farm or the way they ask questions and express interest in a particular topic.

In addition to my observational research at Garden to Table, I spent some time talking with La Mesa Verde's Kids Club Committee. La Mesa Verde is another community gardening organization that seeks to equip households with the tools and knowledge needed to garden at home (*La Mesa Verde*). In a conversation with a Kids Club Committee member, she shared that

many families do not have the space to grow their own vegetables even though they wanted to (Emily). In addition to the space, the cost of gardening is also a limiting factor. In order to support households in building food security and resiliency, we ought to provide resources that are catered to their needs.

How then can an organization support participants to grow in a cost-efficient way in the urban landscape of high-density apartments and expensive housing? At Garden to Table, I observed what it looks like to provide practical tools and encouragement for people to grow at home. Taylor St. Farm produces a variety of vegetables that are uniquely suited to meet the challenges of gardening in San Jose and the greater Bay Area. Trinity Tomsic, one of the volunteer staff, shared her enthusiasm and the value added in continuously finding vegetables that are easily adaptable and well-suited for the needs of urban gardeners and low-income households (Tomsic). Whether it be sharing knowledge about a perennial spinach, encouraging participants to take home extra seeds, or explaining how to eat all the parts of a kohlrabi plant, the staff devote their effort to finding new ways to make gardening easier for the community. The handbook is a representation of the lessons that I learned through my fieldwork research as well as additional resources shared online.

Handbook Overview

The purpose of this section is to provide an overview and justification for the sections in the handbook and how each section contributes to promoting urban gardening. While the information in the handbook may not be novel, the handbook is meant to be a guidance specifically catered to the urban setting with a community development focus on social and ecological justice in relation to the food system.

Container Gardening

This section goes over the challenges of gardening in containers including water drainage and size to help gardeners decide which containers to buy. In conversations with volunteers at Garden to Table, many have shared that they tried gardening in containers either on their balcony or patio. Some shared that they wish they had space for a garden bed. There are many reasons for people to use containers to grow plants including a lack of open dirt space and the limitations of their outdoor space. Containers that can be easily purchased at home goods or gardening stores are cheaper than the cost to build a larger garden bed. In addition to suggestions on what to look for when choosing a container, this section also includes a page on dwarf vegetable varieties that are designed to grow successfully in containers.

Patios and Balconies

This section guides gardeners in deciding how to best utilize the spaces they have to garden. One of the challenges with living in urban areas is having an outdoor space that receives sufficient sunlight for plants to grow. The sun may be blocked by housing complexes, other buildings, high fences, or even trees. It is important for gardeners to understand that the number of hours of sunlight a plant receives affects its growth. For gardeners who may not receive sufficient sunlight in their outdoor space, a second page suggests a variety of plants to grow in partial shade along with the minimum hours of sunlight needed. In addition to setting up the urban garden based on sunlight, the handbook also briefly touches on vertical gardening. If gardeners do not have the capacity to expand their garden on the ground level, they can consider plant baskets or shelves to create a vertical garden.

Indoor Gardening

Indoor gardening may be the only option for some living in places without an outdoor space. Growing herbs, microgreens, and seedlings are all ways in which gardeners can grow

plants in their kitchen. Although there are limitations to indoor gardening, this section acknowledges that some may only have indoor space available to garden and offers options to utilize the space.

Plants

Common plants that first time gardeners grow include summer vegetables such as tomatoes, cucumbers, and squash, but these require a significant amount of water, fertilizer, and space. This plants section provides a list of alternative plant suggestions that are cost-effective based on four factors—perennial vegetables, high yield, high nutrition, and container friendly. Perennial vegetable plants are cost-effective because they only need to be planted once and will continue to produce every season, which helps gardeners to save on cost while also being a reliable food source throughout the year. Vegetables such as cauliflower, leeks, or winter squashes may be exciting to grow, but the return on investment is low. Vegetables with high yield such as purple tree collards or sweet potatoes are a great investment for gardeners looking to save on cost. When the priority is on maximizing space and food production, these types of plants ought to be considered. Similarly, this section includes a few plants with ample nutrition for those looking to improve their health by eating locally grown produce. While all vegetables have varying levels of nutritional value, this section highlights a few that have high nutritional value to help gardeners who want to maximize their space for health benefits. Lastly, container friendly plants are also factored into this list as they fit well in the urban landscape. Each factor is assigned an icon and each plant page has one or multiple icons associated with it to help readers identify the benefits of each plant.

Gardening Methods and Supplies

This section contains gardening methods and suggestions for supplies generated from sustainable methods. The gardening methods addressed can be utilized to maximize the plant's growing season whether it be pruning the flowers off or harvesting continuously. Water-saving methods and pest management are included as well. In California, water-saving methods are necessary to combat the drought. A tendency for home gardeners is to overwater their plants. Checking the soil for moisture is a simple practice to water the plants only when necessary. Home gardeners may think that they need to use pesticides to keep the pests away, but the handbook provides alternative options that do not require gardeners to spend money on pesticides and thus produce organically grown vegetables. Gardening supplies are addressed through methods such as seed saving or using scraps from the grocery store. These are ways for gardeners to save on cost and participate in sustainable gardening practices.

Additional Resources

The final section in the handbook includes a list of additional resources for readers to tap into as well as local organizations in San Jose that they can connect with. As mentioned in the handbook, the information is not all encompassing, but rather is meant to be a conversation starter and introduction for gardeners to collaborate as a community to develop urban friendly gardening practices.

PART II: PROJECT IMPLEMENTATION GUIDANCE

Guidance for Food Justice Organizations

The purpose of the handbook is to complement the work that community organizations are devoting to reduce food insecurity and other food justice related goals. Especially for urban agriculture organizations that focus on teaching participants how to grow their own food, this handbook can be a supplemental resource for participants to refer to when gardening at home.

The handbook is by no means meant to replace the educational opportunities that can occur in collective settings, but rather can be used as a reference for those involved in community gardening and food justice programs. This section provides suggestions on how to utilize the handbook to support your organization's programs and constituents.

Handbook Modification

That being said, the first version of the handbook is contextualized for San Jose, California. In order for organizations outside of San Jose to share gardening information that fits your climate and context, you will need to make a few changes to the document. The handbook is created on a free online software, Canva, and can be shared for organizations to edit and modify for your own purposes. If you would like to adapt the handbook to fit the context of your constituents, you can access a template version using the link below. You will need to first create a Canva account before opening the template. In the notes section of the template, you will find recommendations on how to adapt the handbook to fit your context. Be sure to stay consistent with the overall framework of the handbook to provide cost-efficient and space saving gardening methods for the urban context. The software is user friendly and offers plenty of free text and graphic options. In the modification process, involve your constituents through conversations and brainstorming sessions to include plants and gardening methods that fit their culture and interests. Refer to the Standard Operating Procedure document for more details on utilizing the template.

[Template Link](#)

Handbook Distribution

Online distribution

If your organization has an online platform or website with a section on resources, you can include the PDF version of the handbook along with other resources that you share with your constituents. The handbook then can also be accessible to anyone who visits the website and is simply looking for more resources on urban home gardening.

Distribution through programming

Depending on the programs that your organization offers, there may be opportunities to share the handbook with program participants. For example, you can distribute copies of this handbook for volunteers at a community farm who are looking to learn more about gardening for their home application. For programs where participants sign up to be members of a gardening cohort, this handbook not only can be a resource that is shared, but one that is used to facilitate conversations about the challenges of urban gardening and gardening methods that participants have developed through their own experience. Please keep in mind that the guidance in the handbook can be more effectively utilized during the garden planning phase. Community gardening organizations can then teach participants about the detailed process of planting, propagation, plant maintenance, etc. Organizations that distribute food can share the handbook to encourage participants who are interested in taking more ownership over the selection of vegetables that they eat, especially for those who are looking for more nutritious options.

Discussion Facilitation in Group Settings

Although the handbook seeks to fulfill a need to support urban gardeners, it is also valuable to recognize that the community has a wealth of knowledge to share. One of the staff at La Mesa Verde shared with me that their community operates with an asset mindset, raising up leaders within the community and tapping into their plethora of skillsets (Francisco-Catimbang). An asset-based community development approach that focuses on “the assets that are already

found in the community” can be applied to the handbook as well through facilitating discussions about your program participants’ own gardening experiences (“What Is Asset Based Community Development”). Not only will the participants gain practical gardening lessons, but their connection to the community will grow. Below are suggested questions for facilitating discussion on urban home gardening with your participants.

- What home gardening challenges do you face and are they addressed in this handbook?
- What is missing from this handbook and what ideas do you have for addressing the challenges you face?
- What are collaborative activities that we can do to address these home gardening challenges?
- Share the gardening methods, supplies, and plants that have worked well for you in your garden space.
- What gardening resources do you refer to? What can be added to the handbook?

Promoting diversity, equity, and inclusion

While gardening at home is a great way for households to have direct access to food, it is also an opportunity for people to share about their culture and invite others into their story.

Barthel et al. found that especially for minority groups, home gardens allow households to grow vegetables that cater to their cuisine, culture, and values (Barthel et al.). Guthman writes that alternative food movements often reflect the dominant culture and encourages organizations to bring to light the history that communities of color have with agriculture to promote diversity, equity, and inclusion in community and home gardening activities (Guthman).

As a community leader, you can facilitate discussions with participants about the vegetables and fruit they grow at home that they identify with culturally. Collaboratively,

brainstorm ideas for growing these plants in the urban landscape. Collect their ideas and experiences for what has worked well and incorporate these plant suggestions in a modification of the handbook. The handbook will then serve as a medium for the participants to share their experiences and connect with others who share in their cultural cuisine.

CONCLUSION

The plants, methods, and guidance provided in this handbook are not meant to be binding, but rather a conversation starter and vehicle for people to contribute their own urban gardening knowledge and experience. Organizations can utilize this handbook as a means for community engagement, empowering participants as stakeholders in the food system, and maintaining conversations about green space. The hope is that eventually the knowledge in this handbook will be common knowledge and frequently shared to the point where urban development shifts to prioritizing green spaces in residential and community settings.

Appendix B: A Guide to Urban Gardening

A GUIDE TO URBAN GARDENING

COST-EFFICIENT & SPACE SAVING
METHODS

Urban Gardening

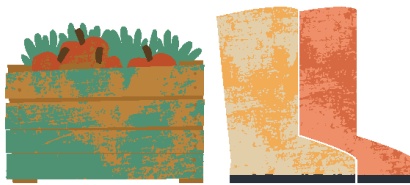
In this guidebook you will find tips on how to set up your urban garden for success. Whether it is on a balcony, patio, or even your kitchen counter, you can have a bountiful garden for you and your family to enjoy.

The information presented in this guidebook is based on the climate and context of San Jose, California.



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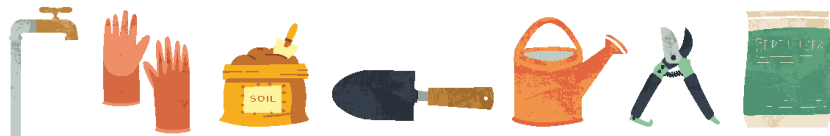
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Gardening Basics

If you are new to gardening, you can find basic information here to help you get a head start to planning your urban garden.

Plants require the following to grow:

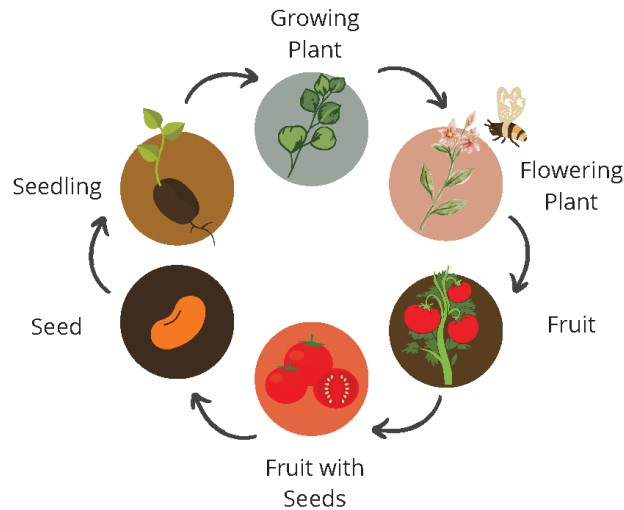
- Food - Plants take in nutrients through their roots. Use compost, fertilizer, and healthy soil to provide nourishment.
- Water - Water your plants consistently.
- Sun - Plants require sunlight at various levels.
- Space - Plants need sufficient space in the ground to grow from a seed to a mature plant.



4

Plant Life Cycle

When gardening, it is helpful to understand the plant life cycle and at what stages food is produced. Some vegetable plants like spinach and onions will produce food for you to eat before it produces flowers. Other vegetables like tomatoes and beans produce food after the plant flowers and is pollinated to produce fruit.



5

Planting Schedule

Your planting schedule will depend on the climate that you live in. Hardiness Zone refers to the location's climate based on the winter temperatures. You can refer to the USDA Plant Hardiness Zone map to determine when to start your seedlings and the length of the season.

San Jose, CA is in Hardiness Zone 9 with 270 days between the last and first frost dates.



Resources for creating your planting schedule:

USDA Plant Hardiness Zone Map

<https://planthardiness.ars.usda.gov/>

UC Master Gardeners Planting Chart for Santa Clara County, CA

<https://mgsantaclara.ucanr.edu/garden-help/vegetables/vegetable-planting-chart/>

6

Let's Get Started

You can start your plants by growing from seeds or you can buy transplants from your local store to plant in the ground. Before you do so, be sure to have completed the following.

1. Designate your gardening space and assess the natural resources (sun, water, soil) that the space receives.
2. Gather your resources and supplies:
 - a. Gardening tools: Trowel, Watering Can, Gloves, Clippers
 - b. Soil
 - c. Compost
 - d. Identify your water source
3. Decide on the plants that you will grow. Learn about the plant's needs and its planting schedule.

Now, let's discuss how to apply these steps in an urban environment.



7

Container Gardening

Container gardening refers to gardening in planters or pots rather than in a garden bed or directly in the ground. Gardening in containers is a great option for those who have limited space or may not have open ground to construct a garden bed or garden directly in the dirt. This option is ideal for those of you with balconies or small patios but can also be utilized as well for those of you with larger yards and would like to optimize your gardening space. Container gardening opens your landscape in a way that can brighten up your home for relaxation.



8

Water Drainage



Plants prefer to take in the necessary amount of water to grow, but do not like being drowned in water so it is important for the containers to have drainage holes. Placing trays underneath the pots can help catch the water and prevent spillage on your concrete patio or from your balcony onto your neighbor's space. Trays are also one way to save water because the plant can intake the excess water overtime.

9

Container Size



Plants need the proper space to grow their roots. Some plants like tomatoes need more container space to produce fruit whereas beans can grow in smaller containers. It is important to pay attention to not only the width of the container, but also the depth. If plants do not have enough space to grow, then they will become root bound and not produce well.

Soil depth is also necessary to retain moisture and nutrients. The smaller the container you have, the more frequent you may have to water and fertilize the plants.



10

Dwarf Varieties



Some vegetable plants, especially summer vegetables, are not as suitable for growing in containers. However, they do have dwarf varieties. Consider buying these smaller types for a successful container garden.

In addition to the limitations mentioned in the previous sections, another challenge with growing regular vegetable varieties in container gardens is that the plant may become top-heavy and you will need additional structures such as cages to support the plant. Dwarf varieties stay small and proportional to the container while also producing substantial fruit.

11

Patios & Balconies



After selecting a container for your plant, you will need to decide where to place it in your space. One of the challenges of living in a city is the housing density where apartment complexes and townhomes limit the amount of outdoor space you may have to garden. Do you have a balcony or a patio? Here are some things to consider to better optimize your space.

12

Sunlight

Plants need sufficient sunlight to grow and produce fruits and vegetables. Here are some things you can do if you find that your outdoor space may not have sufficient lighting for your plants.

1. Track the number of hours that your space gets sunlight.
2. Choose plants that grow well within the sunlight limits that you have. Seed packets provide info on the amount of sun needed.



How to read seed packets:

- Full Sun - 6 hours plus of direct sun
- Part Sun - 3-6 hours of direct sun



13

Shade

If your gardening space receives low hours of sunlight, you can consider growing these plants that do well in shady areas.

PLANT

HOURS OF SUN

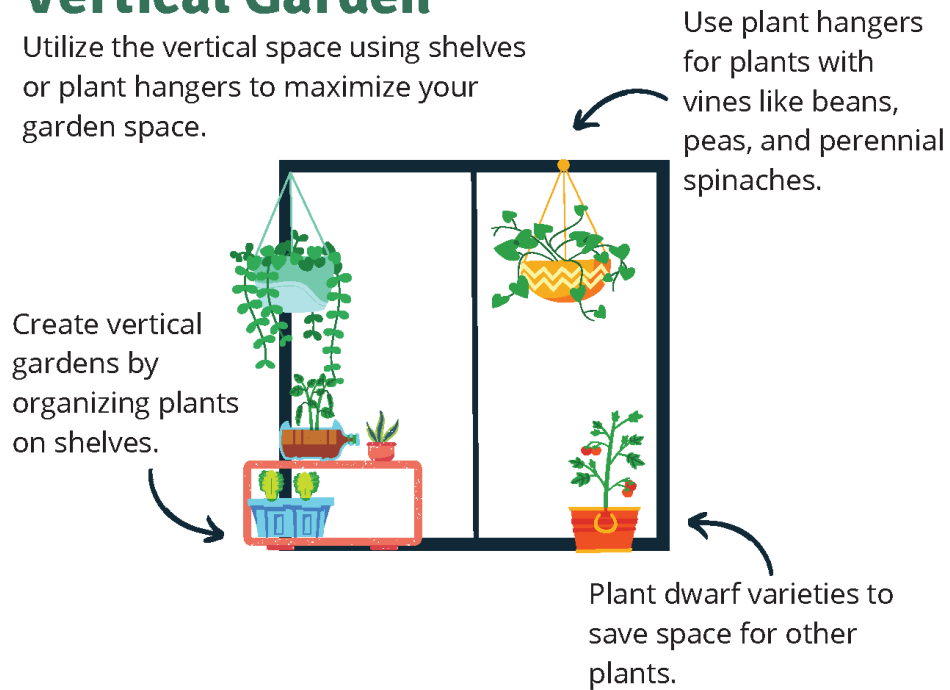
Salad Mixes, Bok Choi, Komatsuna, Tatsoi	2
Herbs: Chives, Cilantro, Mint, Oregano, Parsley	3
Mustard Greens, Arugula, Spinach, Lettuce	3-4
Kale and Chard	4-5



14

Vertical Garden

Utilize the vertical space using shelves or plant hangers to maximize your garden space.



15

Indoor Gardening

If you do not have outdoor space to garden, indoor gardening can also be an option.



What to grow in your home:

- Herbs - Continually harvest to maintain the size and to encourage growth.
- Microgreens - Within 10-15 days upon seeding, you can have nutritious sprouts to add to your dishes.
- Seedlings - Use your home as a greenhouse to plant seeds and grow seedlings.

16

Plants

This section provides a list of plant suggestions for your urban garden. Whether it be a plant that produces abundantly or provides ample nutrition, these plants are great options for a cost-efficient and space saving urban garden.



17

Plant Benefits

Use the icons below as a reference for the benefits of each plant.



Perennial vegetables

See the next page for more info on perennial vegetables.



Plants with high yield

These plants are great options for saving on cost and space while getting a large production of food.



Plants with high nutrition

Consider growing these plants for the most nutritional value.



Container plants

These plants grow well in containers.

18

Perennial Vegetables

A note on perennial vegetables:

A perennial plant means that you only have to plant once and it will continue to grow for multiple seasons. You may be more familiar with perennial flowers such as daisies, tulips, and lavender. Conversely, annual plants are those that you plant every year. Most vegetables are annuals such as tomatoes, squash, and broccoli, but there are perennial plants that you only have to purchase and plant once. Simply care for the plant through each season to provide you with nutritious food for seasons to come.



19

Okinawa Spinach



This container friendly plant is a vibrant perennial spinach with a hearty texture that is rich in vitamin A and C. Okinawa spinach can grow well in partial shade too. Harvest the leaves off the stem to encourage continual growth.

20



New Zealand Spinach



New Zealand spinach is a perennial green that is great in salads as well as in stir fries and soups. You can grow this in a container or directly in the ground. Harvest the leaves off the stem to encourage continual growth.

21



Egyptian Walking Onion

Egyptian walking onion is a unique onion that can walk throughout your garden. They grow bulbs at the top and fall over to root into the ground and produce more greens.

Other types of onions such as chives and scallions can also be grown year round with continual harvest. Cut the greens about three inches above the ground to allow for the plant to continue growing.



22



Purple Tree Collard



Purple tree collard is a perennial vegetable that produces abundantly. This plant grows continuously to provide you with greens all year round.

You can also easily start new plants by placing cuttings of the established plant in potting soil.

23

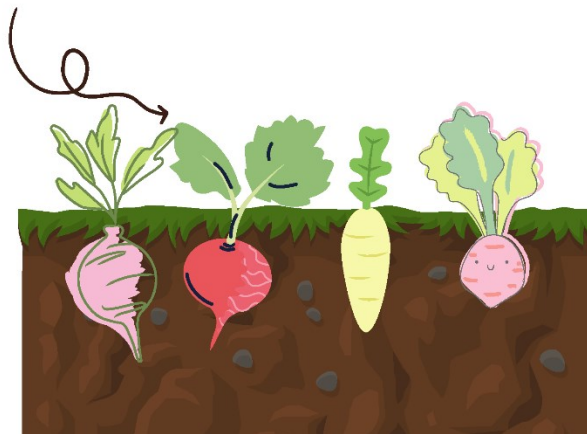


Root Vegetables

While root vegetables grown for the portion grown underground, the leaves above the soil can be eaten as well.

Examples:

- Radishes
- Beets
- Turnips
- Carrots
- Sweet potatoes



24



Kohlrabi

Similar to root vegetables, there are other various vegetables that you can eat the leaves of as well.

For example, you can eat both the kohlrabi bulb and leaves so be sure to try it out rather than discarding the greens!

Additional examples include broccoli and leeks.

Try growing vegetables like these that provide maximum food production.



25



Red Colored Vegetables



When selecting plants with the most nutrition, keep in mind that vegetables with a red or purple color are more nutritious than their green counterparts.

26



Orach



Orach is considered one of the first cultivated spinach varieties with a tender texture and is rich in nutrients including vitamin C, vitamin K, and potassium. There are several types of orach with different colors including red, green, and purple.

In addition to the greens, the seeds are edible. If you leave the plant to dry out, the seeds will fall to the soil and produce on its own twice a year.

27



Egyptian Spinach



This heat loving spinach can be grown in the summer and provides ample nutrients including potassium, calcium, and antioxidants.

Harvest the leaves or cut the tops down to the next growth point to eat with the stems. The plant will produce seed pods that can be pickled or dried to save seeds for planting in the next season.

28



Gardening Methods & Supplies

In addition to understanding your garden space and selecting the appropriate plants, you can maximize the growing season and your resources through the following methods.

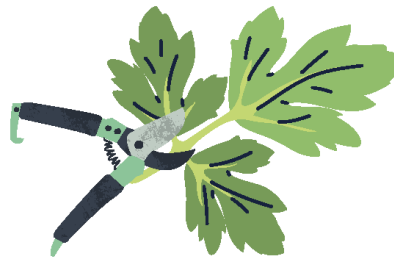


29

Pruning

To encourage the plant to continue producing, prune the plant regularly.

- Cut off yellowing leaves to direct the plant's energy towards producing good fruit.
- For herbs, cut off the flowers and harvest by cutting down to the next pair of leaves.
- Harvest the outer leaves of greens regularly (i.e. kale, swiss chard, lettuce) rather than harvesting the entire plant.



30

Continuous Harvest



For greens such as lettuce, spinach, beet greens, and kale, harvest the outer leaves of the plant rather than the whole plant, such as a head of lettuce, so that the plant can continue to produce leaves. This practice will maximize production for its entire season.



31

Dense Seed Sowing

Salad greens such as lettuce, kale, arugula, and cilantro can be sown abundantly in a desired space to produce a dense carpet of greens for continuous harvest.



32

Water-Saving Methods

Moisture level: To keep the plant healthy and to prevent water waste, check the moisture in the soil before watering. Plants may not need to be watered daily.

Container trays: Use the container tray to catch water that drains out from the pot. Rather than dumping the water out, leave it and allow the plant to soak up the excess moisture as needed.

Mulch: Cover the soil with mulch (wood chips, leaves) to maintain the moisture in the soil longer.



33

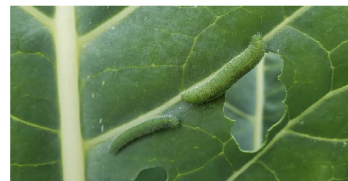
Pest Management

Here are a few ways to keep the pests away from your plants rather than using pesticides.

- Inspect your plants daily for bugs. You can squish or remove bugs from your plants or spray the plants with water to wash them off. While this may take more time than buying pesticides, this is a free method that when done on a daily basis will make pest management easier.
- Place row cover, a porous cloth material found in common garden stores, over young plants to keep the pests away. Uncover when the plants have matured and need pollination.



Aphids



Cabbage Worms

Common bugs found in San Jose, CA

34

Seed Saving

To save on buying seeds, allow the matured plants to produce seeds and dry out. Once the plant is dried, harvest the seeds for the next season's planting.



Examples:

- Cilantro
- Beans
- Orach
- Egyptian spinach

35

Grocery Scraps

To save on cost, some vegetables bought in the grocery store can be replanted for additional harvest. Here are a few examples.

- Green onions: Make a cut about two inches from the root and place in a cup of water to allow the roots to grow. Then place in soil and you will have green onions year round.
- Lettuce heads: Make a cut about two inches from the bottom of the lettuce head and place in water. Leaves will continue to grow for you to enjoy.
- Yam/ Sweet potato leaves: Rather than cooking the leaves, place them in water to establish roots and then transplant into soil. You will have continuous leaves to eat in the summer and yams / sweet potatoes in the fall.

36

Soil, Compost, and Mulch

Below are a few locations where Bay Area residents can obtain locally produced soil, compost, and mulch.

SMART Station - free compost for Sunnyvale, Mountain View, and Palo Alto residents

<https://sunnyvale.ca.gov/property/recycling/getrid/center.htm>

Zanker Recycling

<https://www.zankerlandscapematerials.com/>

U Save Rockery

<https://www.usaverockerymh.com/>

Tip: Reuse yard waste such as leaves to add to the soil as mulch. The leaves will break down overtime and provide nutrients to the soil.



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Additional Resources

The resources in this guidebook are by no means all encompassing, but are simply a few ways to consider how to maximize your urban garden space and your resources. There are plenty of online resources that you can find with a simple web search. Below are a few examples.

"Pot and Container Sizes for Growing Vegetable Crops" by Steve Albert

<https://harvesttotable.com/pot-and-container-sizes-for-growing-vegetable-crops/>

"Have a Small-Space Garden? Try Dwarf Vegetable Varieties" by Chris McLaughlin

<https://www.finegardening.com/article/have-a-small-space-garden-try-dwarf-vegetable-varieties>

"11 Vegetables You Grow That You Didn't Know You Could Eat" by Linda Ly

<https://www.gardenbetty.com/unusual-edible-plants-vegetables/>

38

Organizations in San Jose, CA

There are several community gardening and food justice organizations in San Jose where you can connect with others and share in your gardening experiences as a community.

Taylor St. Farm - Gain hands on gardening experience at this education farm. Here you can find all the plant suggestions in the guidebook.
<https://www.garden2tables.org/>

Veggielution - Learn more about larger scale farming in an urban setting.
<https://veggielution.org/>

La Mesa Verde - Join a community of gardeners to journey together in growing your own food.
<https://lamesaverdeshcs.org/>

Master Gardeners - Learn more about gardening from expert gardeners.
<https://mgsantaclara.ucanr.edu/>

Valley Verde - Participate in a community based food system.
<https://www.valleyverde.org/>

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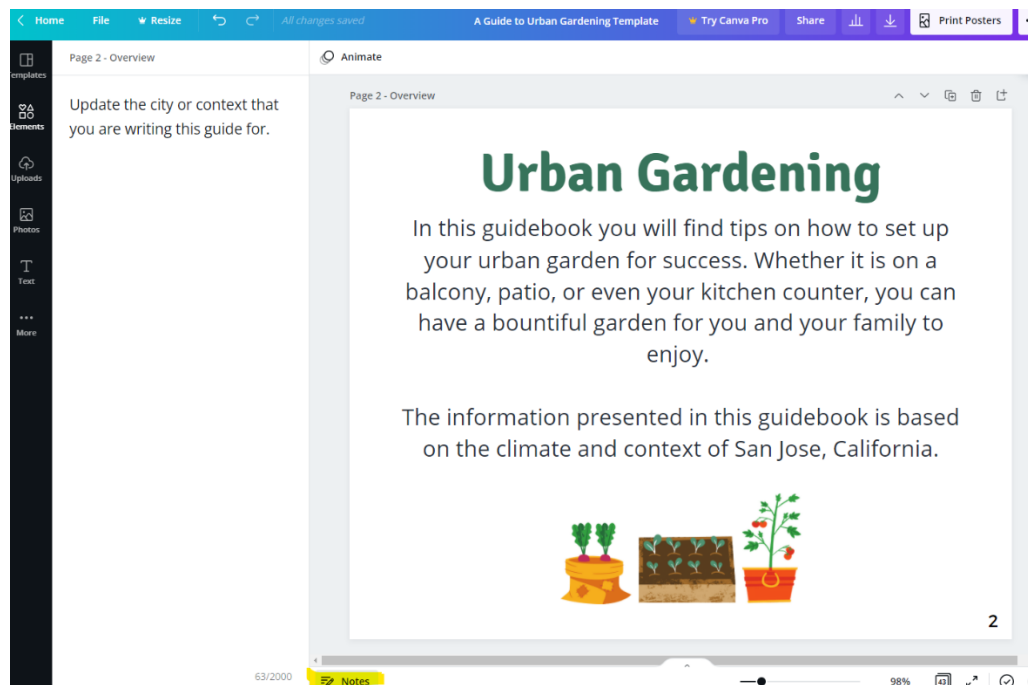
"A Guide to Urban Gardening"
was created in partnership with
Garden to Table and inspired by the
gardening practices at Taylor St. Farm.

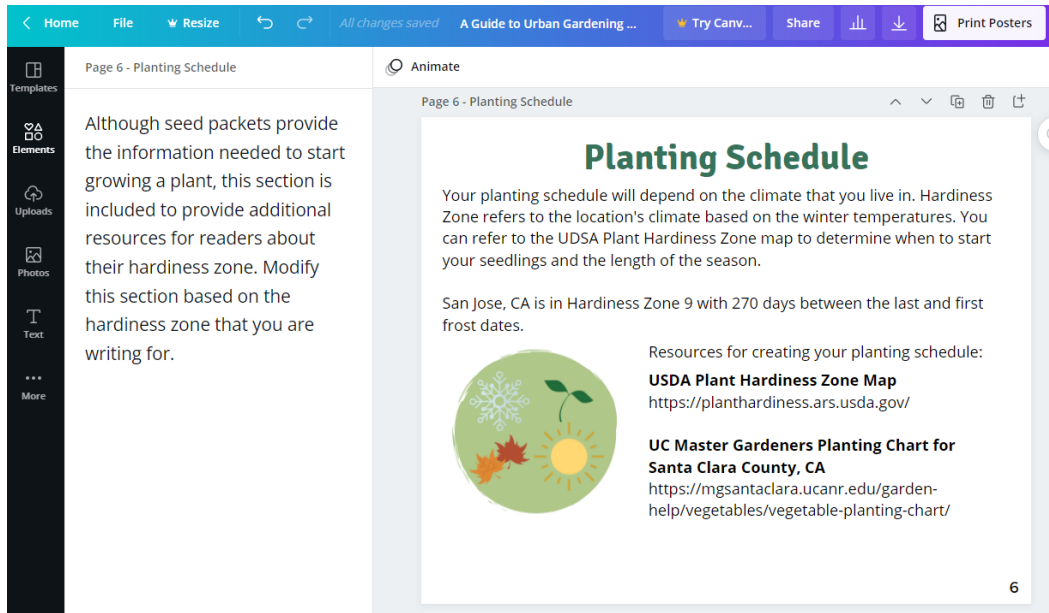


Adding Updates to “A Guide to Urban Gardening” SOP

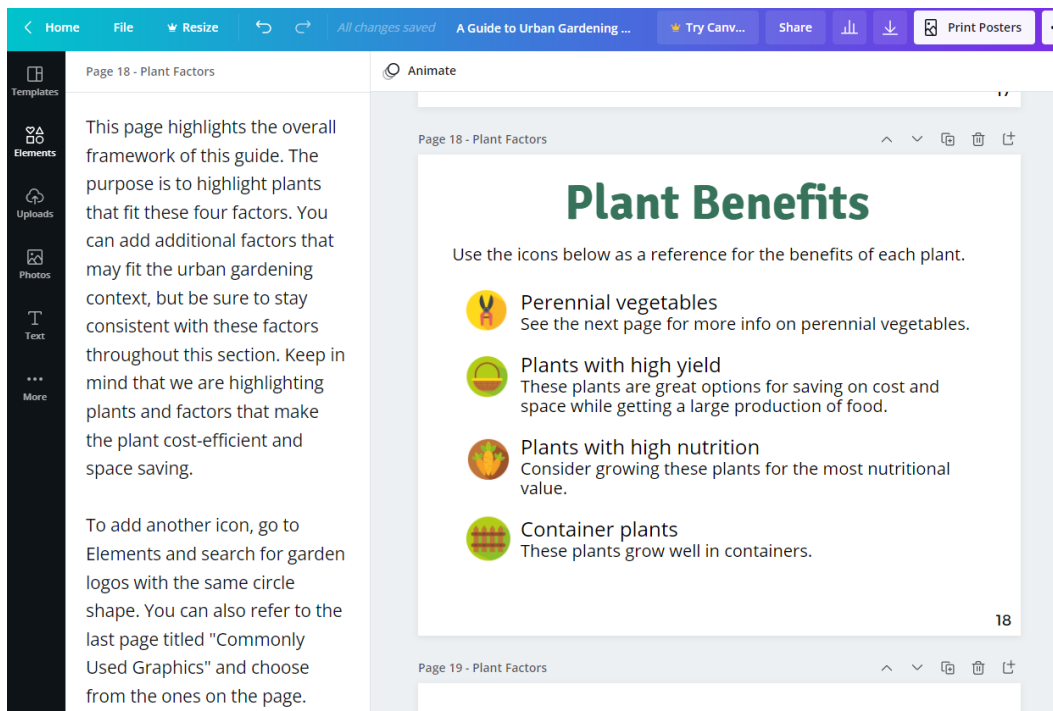
1. Click on the template link below.
 - a. [Template Link](#)
2. Create a Canva account if you do not yet have one or login to your account.
3. When you open the template, you should see the handbook available for you to edit.

Utilize all of Canva’s capabilities to edit the document to fit your organization’s needs.
4. Click on “Notes” at the bottom of the screen to open notes that are associated with each slide. The notes include suggestions for what to add or indications of when to update the location that you are writing for.

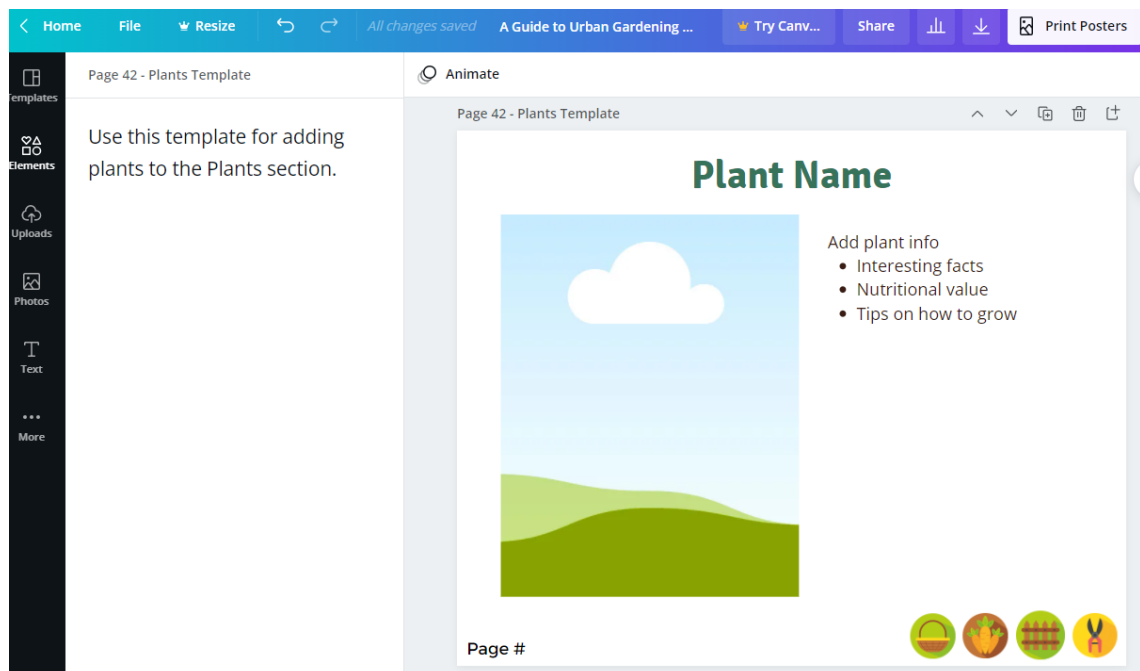
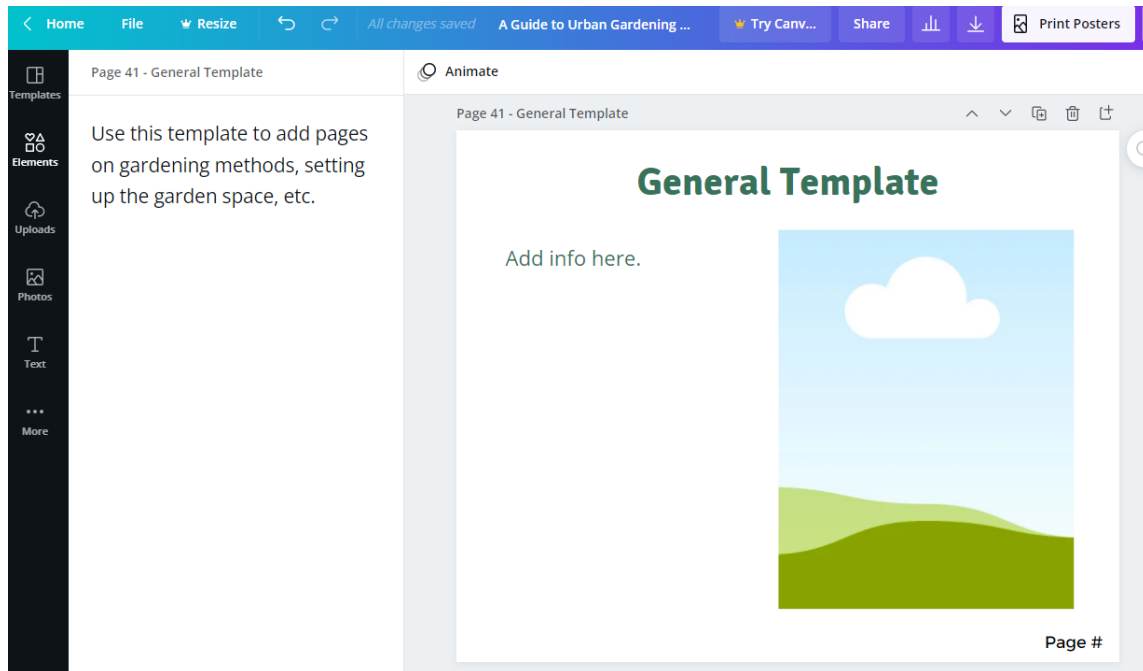




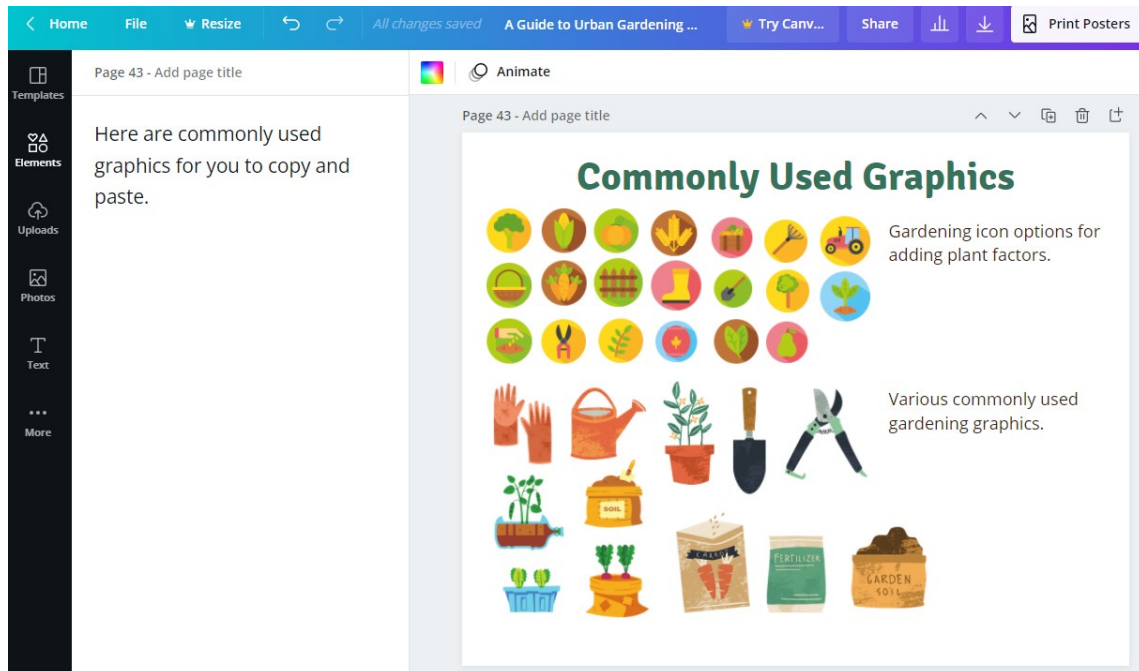
- When adding plants to the document, follow the framework provided on the Plant Benefits page.



6. Utilize the templates at the end of the document when adding pages to stay consistent with format of the document. Be sure to delete the template pages once you are finished with your updates.



7. A page of common graphics is included on the last page for you to use to stay consistent with the graphics used throughout the document. Feel free to use others and be sure to delete this page once you are finished with your updates.



8. Remember to update the table of contents page with the correct page numbers for each section.
9. Download the document for distribution.

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