

Weed It and Reap: Home Gardening Motivations in the Greater Meadville Area



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**WEED IT AND REAP: HOME GARDENING MOTIVATIONS IN THE GREATER
MEADVILLE AREA**

A Senior Comprehensive Project

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The food system in the United States has changed significantly over time as industrialization and globalization have changed the landscape of the economy. Though its significance has fluctuated, home gardening has remained an important part of the home economy. The motivations for gardening have evolved over time as historical contexts shifted. A few events that popularized gardening in the United States were the World Wars, particularly World War II, and recently the COVID-19 pandemic. This study seeks to understand broad motivators to home gardening in the 21st century, when fresh food is more accessible than ever through grocery stores and farmers markets. Why do people garden? Additionally, the research seeks to identify how these motivations may have been influenced by the COVID-19 pandemic. In person, semi-structured interviews were conducted with participants from the Meadville area who maintain home gardens. Questions were directed but open-ended and focused on participants' gardening activities, history, and results. Transcriptions of the interviews were used to categorize and quantify responses that identify patterns in motivations and draw conclusions. The results are significant since it is not well understood how home gardening motivations have been influenced by the coronavirus pandemic.

Introduction

Food insecurity is a major problem around the world. In particular, the COVID-19 pandemic exacerbated food insecurity globally as economies were put on pause and quarantine mandates were carried out. Even in countries where food insecurity is less critically widespread such as in the United States, COVID-19 revealed significant instability of the food system during times of crisis (Kim-Mozeleski et al., 2023). Simultaneously, in the United States there was a significant increase in the number of people who took up food-related activities. Some were trying these activities for the first time, while others had been provisioning food in these ways long before the pandemic hit. For gardening, it is difficult to understand the impact of home gardens, since community and school gardens are more thoroughly researched (Taylor & Lovell, 2014). In this project, I theorized that for some experienced gardeners and COVID-19 gardeners, they created or changed their garden plans specifically to supplement their food stores to protect themselves against food shortages caused by the pandemic. To investigate this hypothesis, I conducted a number of semi-structured with home gardeners in the greater Meadville area. The discussion focused on the participants' reasons for gardening, what they do with the produce, and whether the pandemic affected their garden plans or how they view the function of their gardens. In Chapter 1, I provide background context regarding COVID-19 and the food system, the pandemic gardening movement, and local food structures in Meadville. In Chapter 2, I present, compare, and analyze the contents of the interviews. Specifically, I identify the motivations to home garden that were recorded in the interviews and explain how various participants connected with each motivation. Chapter 3 addresses how, if at all, the pandemic affected the participants' views of their gardens and other pertinent information that surfaced during the interviews.

Food Insecurity

More than 850 million people worldwide lack adequate nutrition, and the number of annual food related emergencies has doubled from the 1980's to the 2000's (FAO, 2006). To illustrate the way that the pandemic has created lasting effects on food insecurity in the United States, consider these statistics. USDA data shows that in 2019, approximately 10.5% of U.S. households, more than 35 million people, experienced food insecurity (Silva, 2020). In 2020,

researchers at Northwestern University collected data through a Census Household Pulse Survey which shows that the prevalence of U.S. household food insecurity more than doubled to 23% (Schanzenbach & Pitts, 2020). These numbers remain higher than pre-COVID-19 statistics. Feeding America reported that in 2022, 44 million people in the United States are food insecure, with 49 million seeking help through food banks or programs. There is food insecurity in every single county of the United States (Feeding America). Local food accessibility, production, and supply were crucially impacted by the fallout of the pandemic (FAO, 2020). In Chapter 1, I will further delineate the ways in which the pandemic and subsequent restrictions both exacerbated existing food insecurity and created new cases in the United States.

Food System Vulnerability

The food system in the United States is part of a complex, global system. In order to understand the ways that the pandemic affected the food system, an overall understanding of the U.S. food system must be established. In the simplest terms, the U.S. food system refers to a food supply chain that produces food items from raw materials (Committee on a Framework for Assessing the Health, Environmental, and Social Effects of the Food System et al., 2015). The food supply chain encompasses “food production, processing, distribution, marketing, and consumption activities,” (44). Raw materials production is primarily done through the agricultural industry which provides livestock and crops. Some farm outputs can be bought outright by consumers, but most farm outputs are processed further. Edible crops are typically sold by farmers to refining sectors or smaller processors who handle packaging and shipping to larger wholesalers. Aggregated and refined food items may be sold into the manufacturing sector to places such as bakeries, meat packers, and other food processing plants. From there, food items are sold to stores, restaurants, and other retail outlets. Over time, mechanization at every step has greatly increased the efficiency of food production and the amount of food available.

Along with mechanization, globalization has rapidly influenced the U.S. food supply chain. In the 1980’s, agricultural imports and exports in the United States were each valued at \$30 billion (Committee on a Framework..., 2015). Almost three decades later, those values jumped to \$105 billion for imports and \$135 billion for exports. These increases have had significant ramifications on the United States’ place within the global food system:

The boundaries of the U.S. food system are highly permeable to the rest of the world's food system. People migrate, agricultural inputs and food products are traded, and policies and markets create price and behavioral repercussions elsewhere. Changes in global environmental conditions also affect food system dynamics across national boundaries. Some of these interactions are episodic, but many have become deeply embedded interdependencies (44-45).

Considering the timespan of the United States food system, this global integration happened incredibly quickly. As a result, the U.S. food system is highly subject to global market fluctuations. This can have both positive and negative effects. Most recently, the pandemic shed light on this global dynamic. In Chapter 1, I elaborate on the ways that the pandemic affected the food supply chain both globally and in the United States, resulting in widespread food insecurity.

Home Gardening Knowledge Gap

Gardening has taken many forms in various locations and contexts. Gardening can be urban or rural, private or public, group or individual. Research typically qualifies gardens by location (urban, rural, or suburban) and function (home, school, or community garden). Though the definition of a home garden varies within the research that does exist, a home garden may be simply defined as a food production space that is located in close proximity to the household that manages it, and may be on land that is owned, borrowed, or rented (Taylor & Lovell, 2014). While there is a significant body of literature about gardening, publications about home gardens constitute a very small portion (Taylor & Lovell, 2014; Schupp & Sharp, 2012; Gray et al., 2013). Specifically, “home food gardens... have been overlooked, understudied, and unsupported by government agencies, non-governmental organizations, and academics” (Taylor & Lovell, 2014). In other words, researchers have historically viewed home gardens as being less useful for academic study compared to other types of gardens. Consider that between 1985 and 2011, only 5 peer-reviewed articles were published about urban home gardens, while 46 were published about urban community gardens (Taylor & Lovell, 2014).

The literature gap can be partially attributed to barriers that make studying home gardening spaces more difficult compared to school or community gardens. Practically, there are two main reasons that cause the lack of home garden research. First, it is more difficult to

conduct research on home gardens since they are usually relatively invisible, private and informal enterprises (Gray et al., 2013). Second, community gardens have been perceived to have greater potential for urban development and increasing local food access than home gardens; as a result, community gardens have been more extensively researched (Taylor & Lovell, 2014).

However, scholars and professionals in community development have begun to see the value of home gardens as urbanization and subsequent increases in property value are making suitable growing land more difficult to access and retain in cities (Gray et al., 2013). Land access issues are not the only factor that have increased home garden research, though. As the disastrous effects of climate change and industrial agriculture intensify, home garden research has increased as scholars learn more about home gardens' utility with regard to local food production, sustainable development, ecosystem services, and biodiversity (Santos et al., 2022).

Since home gardens weren't taken seriously in the academic world until recently, the body of research on home gardening is relatively young (Taylor & Lovell, 2014). In 1985, "serious field study of home gardens" was "in its infancy" (Niñez, 1985). Since then, the body of research on home gardens has expanded somewhat. Much of the literature that does exist about home gardens pertains to their studied and potential effects on local food systems. Researchers have stressed the importance of studying home gardens both as the world population increases (Galhena et al., 2013) and as a higher proportion of the population moves to urban areas (Santos et al., 2022).

In my search for resources for this project, I have found that the majority of research on home gardening and food insecurity is focused in majority world countries where home gardening is critical for household nutrition (e.g. "Studying home gardens as if people mattered: Why don't food-insecure households in rural Myanmar cultivate home gardens?" by Pritchard et al., and "Can home gardening significantly reduce food insecurity in South Africa during times of economic distress?" by Carstens et al.). Although, there are a number of publications that focus the research in the United States, some of which I use for this project (Schupp & Sharp, 2013; Gray et al., 2013; Smith & Harrington, 2014; Taylor & Lovell, 2014).

The role of home gardens in increasing both community and household level food security is a prevalent theme within the research (Galhena et al., 2013; Taylor & Lovell, 2014). Schupp and Sharp investigated how demographic factors such as socioeconomic status and rural

or urban residence influence home-gardening in Ohio (2012). Beyond food, the literature has also expanded to consider the ways that home gardening can affect other areas of life such as community development, the reproduction and preservation of culture, self-determination, biodiversity, resilience, and health and financial benefits (Taylor & Lovell, 2014; Gray et al., 2013). Santos et al. wrote an article which details the ways that home gardens can even contribute to Sustainable Design Goals (2022).

A Brief United States Gardening History

Gardening is a popular pastime for many Americans, and has been part of American history since the very beginning. There are a few events in United States history that saw a particular shift in gardening practices. Two such times within the past century include World War II and the COVID-19 pandemic. The contexts for each situation differ, but both provide insight into the various internal and external factors that can influence gardening activities on a large scale. Before discussing 20th century gardening in the United States, I will offer a brief history of gardening and food provisioning from the beginning of U.S. history, starting around colonial times.

As time has progressed, gardening strategies and people's reasons for participating have evolved and shifted. In America's early and bare beginnings, people relied on various types of self-provisioning for survival: foraging, hunting, and gardening (Bidwell & Falconer, 1941; Becker, 1984; Schupp & Sharp, 2012). The earliest colonial gardens were typically kitchen gardens, where vegetables and medicinal herbs were grown in very close proximity to the home for family use (Becker, 1984). Crops were primarily of European origin, mixed with native pumpkins and the "three sisters" corn, squash, and beans. Gardens of the mid-late 18th century were still mainly focused on food production for most people (Horsfall, 1969). Crops were chosen for their capacities to be stored over winter or made into goods that would last on the shelf.

Through the 18th century, the population became more economically varied. As the need for subsistence growing decreased due to job specialization and higher access to resources, the purposes for gardening shifted (Schupp & Sharp, 2012). While some gardens retained their provisioning purposes, many gardens became a source for leisure, recreation, and as a symbol of socioeconomic status (Horsfall, 1969). It was around this time during the 18th century that

gardens as a status symbol became a trend within the upper class. Oftentimes these gardens belonged to wealthy men, who had both estates and hired enslaved laborers to facilitate such lavish gardens. This period created a divide between high class individuals who had gardens for fun, and lower class individuals who continued to garden for subsistence (Horsfall, 1969).

Other factors during this time that affected the significance of home gardens were the migrations from rural to urban locations during industrialization, and the advances in farming technology that allowed fewer farmers to produce more food (Schupp & Sharp, 2012). This urbanization and technological innovation became the defining factors of gardening and agriculture during the 19th century, and it was during this period that commercial vegetable growing emerged as an industry (Becker, 1984).

World War II

Both World War I and World War II burgeoned expansive home gardening movements in the United States in the name of self-sufficiency and patriotic duty. During World War I, these gardens were referred to as “war gardens”; upon the war’s end and the Allies’ victory, the gardens became known as “victory gardens” (Miller, 2003). While both wars saw an increase in gardening, World War II gardens are more commonly associated with the victory garden movement. The main idea behind victory gardens was to account for disruptions to the food supply, particularly since a large portion was being shipped to troops overseas. World War II home gardens accounted for about 40% of all the produce consumed in the United States in 1943 (Steinhauer, 2020). The gardening of World War II was heavily influenced by government propaganda and corporate campaigning.

During wartimes, the civilian food supply can be disrupted for a number of reasons (Maltz, 2015). Aside from diverting food for military rations, the food supply is indirectly affected by the redirection of raw materials to wartime production that are normally used for fertilizers, pesticides, and agricultural equipment. There can also be decreases in farming activity when farmers are drafted or enlist in the military. International food transportation is oftentimes targeted by opposing military groups as a strategy to weaken their enemy.

Leading up to World War II, the United States food system was still restabilizing following World War I. At the same time, the Great Depression and the Dust Bowl had significantly consequential effects on agricultural production and the economy (Maltz, 2015).

Among the countries involved in World War II, The United States was in a unique position because none of the military action took place on U.S. soil. Hence, U.S. citizens did not experience the same threats to the food supply that European citizens did, especially because millions of American farmers were spared from the draft to keep the agricultural sector strong. Yet when the United States formally joined war efforts after the bombing at Pearl Harbor, World War I era food production programs like victory gardens were restarted. Since the stability of the national food supply wasn't critically threatened due to the war, and because victory gardens were heavily encouraged by government propaganda, many agree that the victory gardens of World War II were more about solidarity and patriotism during wartime than about local food production (Steinhauer, 2020).

The gardening movement of World War II differs from pandemic-era gardening, which was not heavily influenced by campaigning. In Chapter 1, I trace the gardening boom during the pandemic and highlight some of the main reasons that so many people took to their outdoor spaces to grow food.

Food Preservation: Canning

A very valuable skill set complimentary to gardening is food preservation. Historically through the rise of industrialization, ways of preserving food became large-scale mechanized processes; this is particularly true for canned foods (Zeide, 2019). In fact, the canning industry was one of the first to undergo significant mechanization. Commercially canned foods had been in existence in the U.S. since before the Civil War, but they were not part of a regular citizens' diet. Home canning was trusted significantly more than commercialized canning. It took time for consumers to build trust in commercially canned food; this process was helped along when Civil War soldiers returned home having spent the war relying on canned food for nutrition. From 1870 to 1900, the number of canneries in the United States increased from less than one hundred to almost eighteen hundred (Zeide, 2019). At the same time, home canning materials such as Mason jars and pressure cookers made home canning more feasible (Schmidt, 2016).

Canning is just one food-related industry that became commercialized. As a result of industrialization, food production and preservation activities moved outside of the home and into large farms and factories (Huebbe & Rimbach, 2020; Conkin, 2008). Author of "Eating for Victory: Food Rationing and the Politics of Domesticity" Amy Bentley was quoted in the *New*

York Times, saying “The golden age of food processing created a plethora of products, and consumers were enamored by them... Fresh-tasting produce becomes less important than convenience, shelf stability, price and storage capacity” (Steinhauer, 2020). Convenience foods gained a particular popularity following World War II as food abundance and consumerism were sought after (Maltz, 2015).

Grocery Stores Today: Lacking Biodiversity, Pesticide Contamination

Grocery stores today are usually stocked with an almost overwhelming variety of goods, including fresh produce, canned goods, bakery items, meats and dairy products to name a few. Despite the pleasing aesthetic of organized shelf displays and flashy packaging, the selection of foods available in grocery stores is causing issues in the food system. A few problems in particular are lack of biodiversity in agriculture, subsequent negative impacts on the environment, genetic modification of crops, and the future of our food supply as we know it.

Diversity in grocery store selection is only an illusion — in actuality, the FAO found that 75% of the food eaten in the world is sourced from twelve plant species and five animal pieces (FAO, 2004). Rice, wheat and maize products account for 60% of plant derived calories. Further, approximately 75% of plant genetic diversity has been lost since the beginning of the 20th century. This evolution has caused an extreme constriction of our food system, which makes it more vulnerable to shocks such as disease and climate change (FAO, 2019).

Along with the obvious loss of biodiversity in crop varieties, there is also significant environmental biodiversity loss as a result of industrial agriculture and monoculture systems. Biodiversity across scales — from ecosystems to soil microbiota — has been harmed because of land use changes and genetic uniformity that makes crops susceptible to disease and pests. Biodiversity loss is related to many factors, including agricultural industrialization, market globalization, overharvesting, climate change, and genetic modification (FAO, 2019).

As a result of the homogenization of crop varieties and genetic uniformity, demand for agricultural inputs such as fertilizers and pesticides continue to rise as farmers see declines in soil fertility and crop resistance to diseases and pests (FAO, 2019). However, the use of these chemical inputs brings a new set of problems which have been researched in recent decades. Pesticides are associated with a litany of troubling health effects which are influenced by the type, method and duration of chemical exposure (Nicolopoulou et al., 2016). Consumers are

becoming increasingly concerned about pesticide exposure through residues on grocery store produce, especially since washing does not necessarily remove the residue. The widely known herbicide Glyphosate, which is a main ingredient in RoundUp, is one such pesticide that has gained public attention due to its widespread use in the industry. Research has found possible connections between Glyphosate, genetically modified crops, and a number of health dangers such as endocrine disruption, cancer, cardiovascular diseases, strokes, autism, diabetes, and diseases such as Parkinson's and Alzheimer's (Nicolopoulou et al., 2016).

Meadville Garden Research: Approach and Methods

To begin the study, a participant pool of seven individuals was collected. Posters were hung in stores and small businesses to advertise the study to potential participants. The poster had a QR code that when scanned, opened a Google Form containing the Informed Consent form and some preliminary questions to help evaluate if the person was a good fit for the study. The individual understood the purpose of the research, methods, risks, and benefits to the research upon filling out the form. The form asked the user to verify that they were over the age of 18, provide a working email address, and briefly describe their garden. After an individual filled out the form, they received an email that thanked them for their interest and asked them to provide availability for an interview.

The seven interview appointments took place in public locations and were scheduled for approximately 45 minutes. This allowed for time spent parking, introducing ourselves, and light conversation before beginning the interview. The interviews were semi-structured, conducted in person, and recorded with the Voice Memos app on my Apple iPhone. At the beginning of each recording, I asked if the participants gave permission for me to record the interview in order to have auditory confirmation. Participants expected an interview time of thirty minutes, but they could continue the interview to forty five minutes if they had additional comments to share. I offered time checks throughout the interview to keep participants aware of the time. At the end of each interview, I asked the participant to ask their friends and family if they would also be interested in participating in the research.

There was an interview script, however not every question was directly answered in every interview. The purpose of the script was to guide conversation in an organic way, while keeping it centered on the research topic. As I hoped, most of the interviews prompted unscripted

questions based on participants' answers to the script questions. Opportunities for participants to answer questions more specific to their experience bolstered the data that was collected and provided better context to situate their perspectives. The questions on the script are:

1. When did you start gardening and why?
2. Was there an influential mentor or role model who helped you to get started? How did this person influence you?
3. Has your reason for gardening changed/evolved over time? If so, why do you continue to garden?
4. What do you do with the crops/produce you harvest? Are there any food preservation strategies you have learned because of your garden?
5. In what ways, if any, did the pandemic affect your garden plans or habits?
6. Did the pandemic change the way you view your garden? The way you plan your garden?
7. What is your favorite thing about gardening?

After the interviews were conducted, I transcribed the audio files to text documents on Google Drive. Once all the interviews were converted to text, I sorted through the responses to identify certain ideas, observations, and stated motivations for home gardening. To organize the data, I created a Google Sheets file compiling interview quotes that indicated adherence to those ideas, observations, and stated motivations for each of the participants. These identifications informed the eight categories that I developed through the data analysis process. The categories I identified are explained in Chapter 2. The types of responses that were collected were shaped by the individuals who participated in the research. Some responses were shared across participants, and other responses were unique to just a couple individuals. Using the identified categories and responses, I then drew conclusions about the motivations for home gardening for these participants, and discussed the ways in which they were influenced or remained unchanged by the coronavirus pandemic. Throughout this project, the data and research was continually evaluated in quality regarding completeness and accuracy of information, relevance to the research, and reliability of sources.

Chapter 1

COVID-19: A Case Study on National Food Insecurity and Pandemic Related Shortages

A review of academic sources and government reports show evidence that the coronavirus pandemic significantly affected food security worldwide. Food security is defined by the Food and Agriculture Organization (FAO) of the United Nations as “the right of all persons to have adequate physical, economical and safe access to meet their nutritional needs at all times, as well as to choose their food preferences for an active and healthy life” (FAO, 2006).

Researchers who studied food crises because of the pandemic found that in the United States specifically, “household food insecurity increased from 11% in 2018 to 38% in March 2020. In April 2020, 35% of households with children aged 18 years old and under were food insecure.” (Kakaei et al., 2022).

Another study found that “more than one in ten households experienced food insecurity in 2020” (Kim-Mozeleski et al., 2023). The same study found that more than one third of the participating households were experiencing food insecurity at any point during the study, which was conducted from April 2020 to March 2021. In other words, one third of households were food insecure for the duration of the study. This is a significant finding, since food insecurity is typically an intermittent or discontinuous experience rather than chronic. School cancellations, job losses, economic shut-downs, and transportation restrictions all played into the rise of food insecurity during the pandemic (Kim-Mozeleski et al., 2023).

The FAO has also identified four dimensions of food security, which are food availability, food access, utilization, and stability (2006). COVID-19 most strongly affected food availability, food access, and stability. Food availability refers to an adequate food supply to meet demand. Food access refers to a person’s ability to acquire nutritious food. Stability refers to having food availability and food access consistently. Panic-buying, stockpiling, and supply chain problems created conditions that led to a greater demand for food than supply, so food availability was compromised (Kakaei et al., 2022; Kim-Mozeleski et al., 2023).

Food access was affected by income loss, food price instability, restaurant closures, shut downs of school cafeterias, social distancing requirements, transportation restrictions, and reductions in farming operations (Kakaei et al., 2022; FAO, 2020). Less than 2 months into the pandemic, 30 million Americans had applied for unemployment, and the Supplemental Nutrition

Assistance Program (SNAP) and food banks nationwide were overwhelmed with new recipients (Zhou, 2020). Altogether these statistics demonstrate that the pandemic affected the food security status of millions of United States citizens, most negatively affecting children, people of color, and households in poverty (Kim-Mozeleski et al., 2023). As a result, government assistance programs and local institutions like food banks experienced a significant surge in participation.

Media Review: Gardening and Food Provisioning During the Pandemic

While television news stations kept a tally of coronavirus cases, newspapers and other publications traced the pop-culture trends that were co-evolving with quarantine mandates and empty schedules. One such trend was home gardening. Major publications and media outlets published articles throughout spring and summer about the home-gardening movement. Some articles focused on the food production aspect, with headlines such as “DIY: Plant a victory garden now and grow your own groceries” (Marantos, 2020) and “Food Supply Anxiety Brings Back Victory Gardens” (Rao, 2020). Others focused on the wellness aspect of gardening, with headlines like “Peas and Quiet? In Times of Turbulence, Americans Turn to Gardening” (White, 2020) and “Feed the Soul: In Chaotic Times, Gardening Becomes Therapy” (Raby, 2020).

It is interesting that the COVID-19 gardens were referred to as victory gardens (Marantos, 2020; Rao, 2020). Though the global context was different during World War II compared to the pandemic, both situations shared the reality that people were concerned about the stability of the food supply (Rao, 2020). As a result, people who had never gardened before wanted to learn. Demand suddenly increased for plant starts, potting soil, and seeds. Growing food in one’s own backyard almost became a survival strategy, as shopping for groceries became “fraught with fears of coronavirus exposure” and consumers faced the troubling reality “that industrial agriculture could fail them during a pandemic” (Rao, 2020).

As homeowners took to their backyards to grow food, community garden organizers tried to keep up with demand. *The New York Times* published an article titled “‘If All the Stores Close, We Need Food’: Community Gardens Adapt to the Pandemic” (Wharton, 2020), which discussed how community gardens across the country adjusted their practices to safely remain open in the midst of social distancing requirements and stay at home orders. For many of these gardens, it was critical to continue providing nutritious food for their communities. Sprout Nola, a non-profit in New Orleans, opted to deliver boxes of produce to their patrons who were

homebound (Wharton, 2020). Rather than providing produce directly, Denver Urban Gardens distributed boxes of garden start-up materials to one thousand new growers. Executive Director Violeta García explained, “This is not just for fun, this is because it’s essential for people’s lives,” (Wharton, 2020).

The sudden boom in gardening was strongly reflected in the market. *The Washington Post* published an article titled “An Onslaught of Orders Engulfs Seed Companies Amid Coronavirus Fears” (Higgins, 2020). Numerous seed companies located across the country sold out of certain seeds, delayed orders, and even temporarily closed their websites to catch up with the volume of business. Kale, spinach, and bean seeds were some of the most purchased varieties. A California seed company called Renee’s Garden, which usually sold 350 orders a day at the beginning of the growing season, received as many as 2,000 orders a day during spring 2020 (Higgins, 2020).

If some people started gardens to supplement their pantries at the early stages of the pandemic, perhaps it was the mental health benefits that kept them gardening through the summer (White, 2020; Raby, 2020). One Kansas City resident was quoted in the Iowa newspaper *The Telegraph Herald*, saying “Right now, more than anything, my garden gives me hope, gives me purpose and provides a sense of connection to something bigger than myself” (Raby, 2020). For immuno-compromised individuals, gardening was a way for them to lift their spirits and engage with a new hobby in the midst of prolonged isolation (White, 2020). Other people were finally able to finally try gardening for the first time, or more deeply engage with the gardening they were already doing. A West Virginia resident said, “I usually go buy the plants and stick them in the dirt. But this year we’re going to try to do the seeds” (Raby, 2020). As people had more free time than they knew what to do with, and a need to calm restless minds and bodies, gardening became one of the most prevalent pandemic-era hobbies.

Local Food Movement in Meadville

There is already a substantial focus on local food production and distribution in Meadville. There are a number of small farms in the area that sell their goods on-site, including meat, raw milk, eggs, and other fresh items. In addition to the farms, the Meadville Market House is the location that sells a rotating selection of locally sourced foods to the community (“Meadville Market House”). The Meadville Market House also hosts a weekly farmers market

every Saturday from May to October. There are also a number of food focused organizations that provide services to the community, such as the Meadville Community Soup Kitchen, the Allegheny College chapter of the Food Recovery Network, and multiple food pantries. Through the Meadville Area Recreation Complex (MARC) Community Garden, people have the opportunity to gain gardening skills and access fresh, locally sourced food (“MARC Community Garden”). MARC Community Garden has varying levels of membership that allow individuals to participate to their preference and availability. One can volunteer in the collective growing space in exchange for a share of the produce, or can rent their own individual plot in exchange for a donation.

The Meadville Market House, as stated on the website, “supports and promotes local, sustainable agriculture, connecting the public with local farmers and other producers in an economically viable Marketplace” (“Meadville Market House”). A volunteer board is in charge of the store’s management. A significant note about the Market House is that it accepts SNAP and Electronic Benefit Transfer (EBT) payments. The merchandise, which changes seasonally, includes vegetables, fruits, mushrooms, eggs, meats, dairy products, maple syrup, baked goods, preserves, honey, and other items. Customers can read the list of participating vendors to know which farms are providing their products to the Market House. Customers can also meet those farmers face-to-face at the Saturday farmers market, which is an extremely popular and well-attended event. Second Saturdays are a unique iteration of the farmers market that garners even more traffic, since there is live music and more activities.

The importance of local agriculture to food security, especially during times of strife, is not lost on community members. The Crawford County Commissioner’s Office released a brief in April 2020 that emphasized the importance and protection of agriculture during the pandemic. The document states:

Times like these remind us all of the importance of ensuring our county, state, and nation’s food security, and we want to assure residents that agriculture remains on call 24/7. We are reminded of and grateful for the tireless hours farmers, shippers, and grocery store workers put in all year long to supply healthy, affordable food to be processed and packaged so stores can restock shelves, produce bins, and meat and dairy cases.

The publication of this press release shows that access to local food is a primary concern for the Meadville community. Since the pandemic has slowed and the economy has returned to a normal pace, consumer participation in Meadville's local food system has bounced back.

Why Meadville Garden Research?

Clearly, there is a demand for local food and willingness to support agriculture in Meadville. Through farm sales, the Meadville Market House, the farmers market, and the MARC gardens, there are multiple avenues to access locally sourced produce and support farmers. Beyond consumer participation, there is also evidence for individual involvement in growing food in Meadville. A recent Meadville based study on home gardening found that 53% of all respondents maintained some type of fruit or vegetable garden (Darby et al., 2020). One of the things this research project sought to understand is whether or not the desire for locally produced food, particularly after the food access and supply chain issues during the pandemic, is one of the factors that motivates home-gardening in Meadville.

Using data from the U.S. Census Bureau and the Bureau of Labor Statistics, Feeding America determined that 12.4% of Crawford County residents were food insecure during 2020. Within this group, 63% were eligible for SNAP benefits. The aforementioned Meadville study found that 46% of the lower-income respondents maintained gardens, with 33% of those agreeing on the motivation that growing their own food was cheaper than purchasing it (Darby et al., 2020). Having established these statistics, one can postulate the idea that Meadville area gardeners may have used their gardens to supplement food supplies during the pandemic to account for food access barriers that were exacerbated by the pandemic;

There is already evidence to support the idea that home gardens are a useful strategy to assist increasing household food security, wellbeing, and nutritional status (Galhena et al., 2013; Santos et al., 2022). A study that was conducted through a global open-ended survey from May to August 2020 found that many gardeners shifted their focus towards food production because of the pandemic (Kingsley et al., 2022). Therefore, it is possible that Meadville area gardeners adjusted their garden plans towards a more food-focused direction for the same reasons. To explore this, this research investigated how home gardening in Meadville supplemented household food supplies during the pandemic, if at all. Further, it will ascertain if food

provisioning was a primary motivation before the pandemic, and if it remains a motivation even after the pandemic.

Aside from investigating food-production related motivations during and after the pandemic, this project also explored the ways that COVID-19 era gardening affected wellness and mental health related motivations for some participants.

Chapter 2

I conducted a total of 7 interviews for this research project. After analyzing the data, I identified eight categories of gardening motivations: flavor/culinary, control/quality, self-sufficiency, food production, cost, recreation, mental rejuvenation, and relationship to land. *Figure 1* shows how many participants identified the various motivations as a percentage of the total number of participants. Four of the seven participants (57%) discussed flavor and culinary purposes; six participants (86%) discussed control and produce quality; five participants (71%) discussed self-sufficiency; all seven participants (100%) discussed food production; two participants (29%) discussed cost; five participants (71%) discussed recreation; three participants (43%) discussed mental rejuvenation; and two participants (29%) discussed relationship to land. *Figure 2* and *Table 1* show which participants identified which motivations. It is important to note that the motivations are not presented in order of importance for each participant. This chapter contains quotes from the interviews, some of which have been edited for clarity.

Figure 1

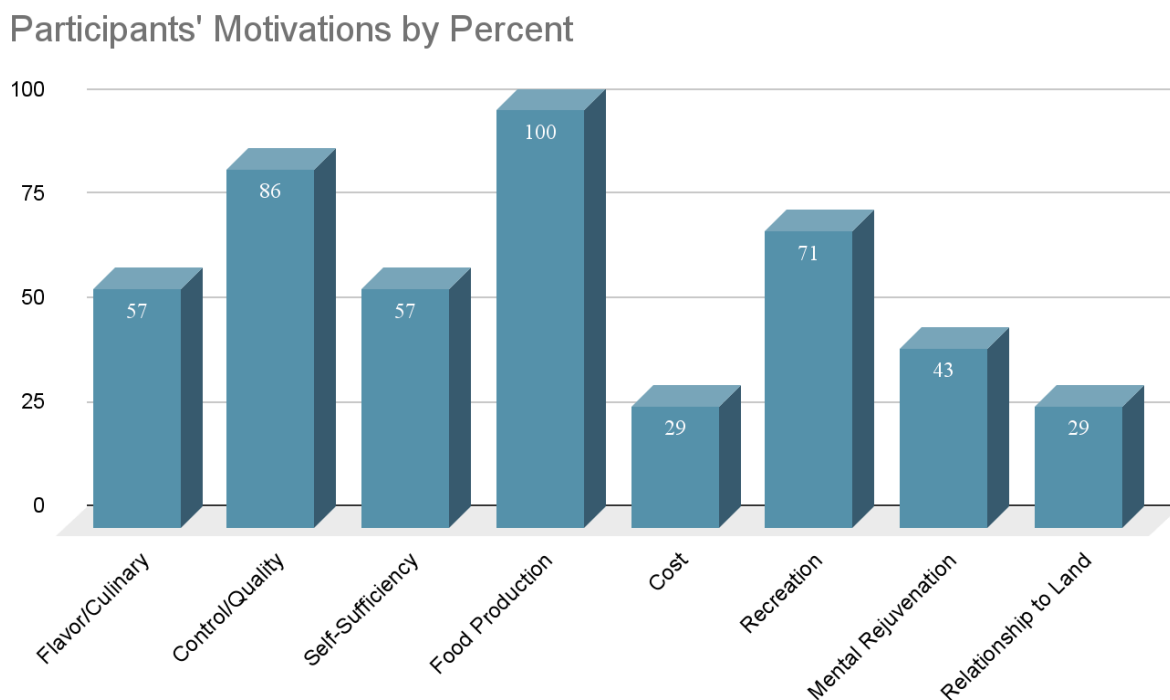


Figure 2

Gardening Motivations By Participant

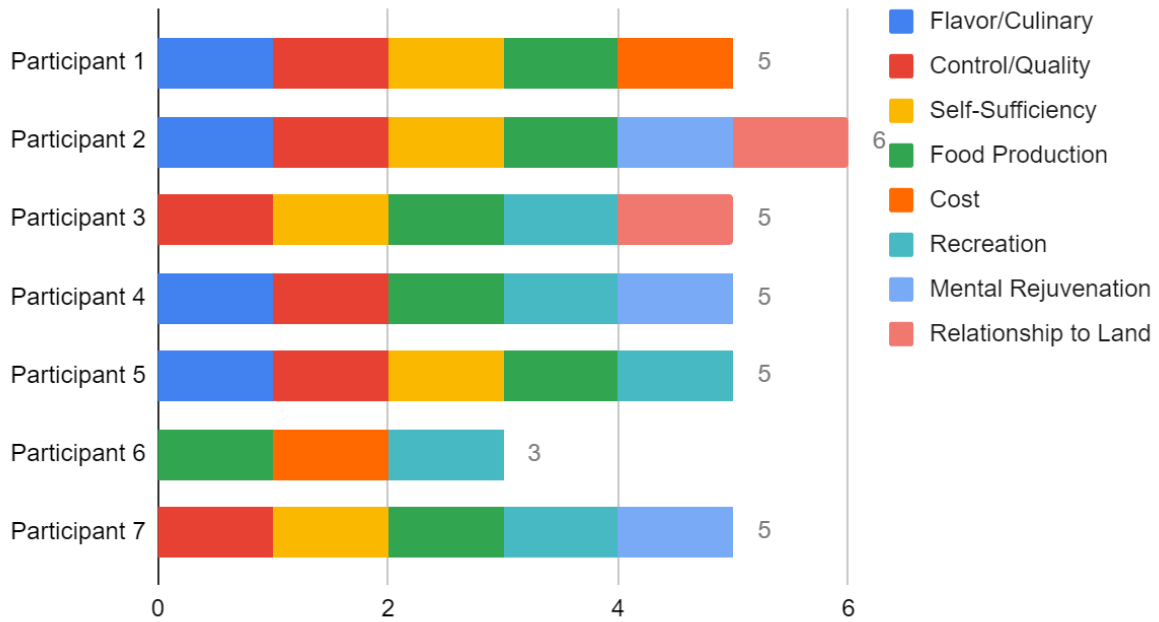


Table 1: Motivations Identified Per Participant

Participant #	Motivations Identified
1	flavor/culinary, control/quality, self-sufficiency, food production, cost
2	flavor/culinary, control/quality, self-sufficiency, food production, mental rejuvenation, relationship to land
3	control/quality, self-sufficiency, food production, recreation, relationship to land
4	flavor/culinary, control/quality, food production, recreation, mental rejuvenation
5	flavor/culinary, control/quality, self-sufficiency, food production, recreation
6	food production, cost, recreation
7	control/quality, self-sufficiency, food production, recreation, mental rejuvenation

Flavor/Culinary

Among the individuals who discussed the importance of flavor and culinary purposes for their motivations to garden, there is a general consensus that homegrown vegetables just taste better. Many of the participants are avid cooks, and their interviews revealed an attachment to the idea that homegrown vegetables elevate the flavor of home-cooked meals and preserved goods in a way that store bought produce can't (Interview 2, 17 Nov. 2023; Interview 4, 4 Dec. 2023). A contributing factor to this idea is the lack of variety within a type of produce at grocery stores. All four of the participants who identified flavor/culinary as a motivation grow varieties of some fruit, vegetable, or herb that are not commonly found at grocery stores.

For example, Participant 1 mostly grows peppers, tomatoes, and herbs (Interview 1, 17 Nov. 2023). He grows a large variety of spicy peppers, with which he makes sauces, salsas, and jams. He noted his interest in pairing his peppers with unexpected flavors such as pineapple and mango. Participant 4 gardens primarily to generate produce for cooking and making preserved ingredients such as tomato sauce (Interview 4, 4 Dec. 2023). To this purpose, he grows a handful of tomato varieties that are difficult to find at a grocery store, as well as peppers and herbs used frequently in Italian style cooking. Different participants reported various levels of interest in canning and fermentation.

Besides lack of variety, another issue that was mentioned with grocery store produce was general poor quality. Participant 2 said of grocery store produce:

The food that you buy at the grocery store is kind of garbage. Even if you buy the good food at the grocery store. You know, even the organic food. Like one of my friends calls it "organic by neglect." Just because you're not putting fertilizer on it, and pesticides and herbicides, doesn't mean that it's good nutritionally (Interview 2, 17 Nov. 2023).

For Participant 2, the quality of his homegrown produce surpasses that of grocery store produce, even the organically grown selections. He feels a greater trust in the nutrition and quality of his own produce.

As discussed in the Introduction, grocery selections usually lack variety and are strongly directed by the monocultural food system the United States operates within. By growing their own gardens, these participants have greater access to unique foods with a variety of flavors.

Control/Quality

Control/quality was the gardening motivation with the second most participation (86%). The concern for many participants was that it is impossible to know what contaminants – insecticides, herbicides, fungicides – could be present on store bought produce. For the participants who identified this category, five of the six of them emphasized that they do not use chemical sprays on their gardens at all (Interview 1, 17 Nov. 2023; Interview 2, 17 Nov. 2023; Interview 3, 30 Nov. 2023; Interview 4, 4 Dec. 2023; Interview 7, 21 Jan. 2024); the sixth will use organic pesticides, but only when absolutely necessary (Interview 5, 11 Dec. 2023). Control was a motivator that came up frequently in the interview with Participant 3. She said:

Well I always knew that I wanted to grow chemical free food. So no spray... I know exactly what is going into the growing process, and the end result. I have more control over it, and I know what's happening. Because I'm the one doing it. Or not doing it! (Interview 3, 30 Nov. 2023).

The emphasis on knowing exactly what goes into growing their food, particularly control over inputs, was shared among many of the participants. It seemed important to these participants to have the freedom to choose whether or not to use pesticides, whereas with store bought produce there is no choice.

The control/quality motivation was also revealed in the ways that participants explained their preservation methods and reasons for preserving their garden harvests. In general, participants showed concern about food quality. For some, this concern was particularly directed toward unhealthy preservatives in processed foods. For example, Participant 7 began to pay more attention to ingredients lists after she had children:

All of the sudden you get to be very cautious of, "What am I putting into them? What are they eating? How much salt, how many preservatives..." So then you look at the ingredient list on those jars and you're like, "Huh, I can't even pronounce half of these words," (Interview 7, 21 Jan. 2024).

In essence, one of the motivators to garden for Participant 7 is to reduce the amount of mystery ingredients and preservatives in the preserved foods that her family eats. Participant 7 also mentioned concerns about the impact of processed foods on health (Interview 7, 21 Jan. 2024). She specifically mentioned the rise in cancer and other illnesses in recent years, wondering whether processed foods and preservatives could be playing a role in the decline of health in the U.S. population.

In addition to human health concerns, participants were motivated to refrain from using chemicals on their gardens for environmental health. A handful of participants alluded to the harm done by commercial agriculture, and emphasized that their approach to gardening is to make the soil healthier and more fertile. For example, Participant 3 used to plant her garden in tilled land that her partner would plow (Interview 3, 30 Nov. 2023). However, much of the tilled land would remain unplanted and be left to dry in the sun, which allowed important soil nutrients to burn away. This weighed on her conscience, so she switched to planting in raised beds which do not require tilling. In a similar vein, Participant 2 said this on his view of environmental health and its connection to human health:

I love caring for the soil, and feeding the soil. Making sure the soil is as healthy as possible so that those plants are as healthy as possible... So [there's] this idea of like, that human health and the health of the soil are one thing. And so, I care about my health. And so I grow stuff (Interview 2, 17 Nov. 2023).

For Participant 2, human health begins with the health of the soil. If soil is seen as the foundation for human health, naturally it would be imperative to protect and even improve soil vitality. Participant 1 shared the concern for soil health, explaining that he only uses natural fertilizers like bat guano or mushroom compost to restore fertility to his soils without using chemical-based fertilizers (Interview 1, 17 Nov. 2023).

Overall, most participants value knowing precisely what was used to raise their garden produce. It is a point of pride to be able to grow food without dependence on chemical inputs. There is peace of mind knowing that their produce has never come in contact with harmful pesticides. For environmental health, participants demonstrated a commitment to supporting soil

function and health by reducing or eliminating tillage, using natural fertilizers, and refraining from using chemical pesticides.

Self-Sufficiency

Though not every participant was motivated to garden because of self-sufficiency, it was a factor for more than half of the individuals. It must be noted that the self-sufficiency motivation is multi-faceted; it encompasses more than just the ability to supply oneself with food. For some participants the satisfaction comes from the reward of growing a garden successfully, to care for the plants and see them flourish. Interestingly, all of the participants have tried starting plants from seed at least once. Participant 2, recalling how he became interested in gardening as a child said:

And of course there's just like that pride of being able to grow something for yourself. And I remember feeling like — some kind of empowerment, or power even, in being able to do that. Or self-sufficiency (Interview 2, 17 Nov. 2023).

According to Participant 2, there is a particular feeling of accomplishment and satisfaction in successfully growing food. Similarly, Participant 1 emphasized the reward of planting a seed, watching it grow, and being nourished by the food it produces. He said:

So that's like a sense of reward you know, like I started this from seed, all the way to my bowl where I'm eating it. That reward is what is really fun and exciting, I think. And I wish more people would catch that (Interview 1, 17 Nov. 2023).

Participant 1 elaborated on that “sense of reward,” emphasizing the full cycle of planting a seed to sitting down for a meal made with the food that the plant eventually produced.

Beyond raising healthy plants, participants also gain satisfaction in self-sufficiency from being able to supplement their food stores with homegrown produce and preserved food. They have confidence in the quality and safety of their produce and preservations. If they were to need to grow a larger portion of their own food in the future, they have knowledge and experience sufficient to do so. Participant 3 said, “It's a security blanket because I don't have to rely on

chemical food. I don't have to shop at big box stores for produce, and that feels really good to me," (Interview 3, 30 Nov. 2023). In regards to self-sufficiency, Participant 7 spoke mostly about her preserved foods. She chooses many of the crops she wants to grow based on how she can preserve it, usually by canning. She said, "I can open this jar of spaghetti sauce in March and know that okay, I did everything to make this and I'm still surviving," (Interview 7, 21 Jan. 2024).

Still another participant discussed his self-sufficiency in terms of being able to support himself by trading produce and homemade preserves in case of a market crash or other catastrophic event (Interview 1, 17 Nov. 2023). For him, his produce and preservations could be utilized as a type of currency for trading if the need arose. Aside from trade utility, Participant 1 also spoke to the value of showing people that they can still grow food and support themselves in an urban setting. Basically, he wants to show others that they can be self-sufficient too. He owns a store outside of Meadville, where he keeps several plastic containers of various plants for the community members to pick produce from. He said:

But that was kind of the idea, you know, to get people interested in more urban type gardening. You don't need, you know, a big soil plot, you don't need big tillers and tractors and all that stuff. You know, real simple, just simple herbs and peppers and stuff like that is a big sustainability thing that you can do (Interview 1, 17 Nov. 2023).

Participant 1 hopes to show others that it is possible to garden anywhere as long as there's sunlight, soil, and some room to grow. His belief is that if more people in a community started little gardens, it would greatly improve the community's interrelationship and access to fresh produce and herbs.

Self-sufficiency was identified in a few capacities among participants, including the ability to independently grow plants, provide food for their households, and supply ingredients for their food preservation goals. For some participants, gardening is just one aspect of their lifestyle that contributes to their self-sufficiency.

Food Production

Food production is the only category that all seven participants identified as a motivation. They spoke to the satisfaction of being able to walk out to the garden, harvest some produce, and take it back to the kitchen to make a meal or simply eat fresh (Interview 5, date; Interview 6; date). The participants have grown or currently grow a wide variety of produce, including tomatoes, peppers, zucchinis, cucumbers, potatoes, beets, squashes, eggplant, corn, potatoes, turnips, asparagus, strawberries, onions, garlic, carrots, celery, radishes, cabbage, arugula, spinach, kale, swiss chard, leeks, peas, beans, pumpkins, and an array of herbs. While eating fresh garden produce is a priority for most participants, all of them grow enough food that they have to somehow preserve a portion of their harvests. Table 2 lists the preservation methods that were discussed in the interviews, and labels which participants use which methods. Preservation methods encompass both preservation of the crops as raw goods – such as canning tomatoes or freezing kale – and preservation of value added items such as grape juice or salsa.

Table 2: Participant Utilization of Food Preservation Methods as a Percent

Preservation Methods	Participant Utilization	Percentage
Freezing	Participants 3, 4, 5, 6, 7	71%
Fermenting	Participants 1, 2, 3, 5, 7	71%
Canning	Participants 1, 2, 3, 4, 5, 6, 7	100%
Dehydrating	Participants 1, 3	29%
Air Drying	Participants 1, 3, 4,	43%
Freeze Drying	Participant 1	14%
Vacuum Sealing	Participant 1	14%

Some participants are interested in growing just a few types of basic crops to cover their more frequent needs or favorite ingredients. Consider Participant 4: he frequently cooks with canned tomatoes, tomato puree, pepper flakes, and herbs like basil and rosemary. He grows his

garden so he can make these ingredients homemade, instead of buying them at the store. To supplement these cooking needs, he chooses plant varieties that have characteristics that suit his needs. For example, he grows paste tomatoes such as Romas for making sauce, and cayenne peppers for making pepper flakes that have both spice and flavor. Participant 6 is interested in growing food, but not in maintaining a large growing space. To accommodate this, she has studied and utilized the Square Foot Gardening Method™. This method advertises a low maintenance technique wherein the growing space in raised beds is divided into square foot blocks, each of which contain different plants (Square Foot Gardening Foundation, 2023). Participant 6 enjoys this method because she is able to succession plant her favorite crops without being overwhelmed by intense harvests (Interview 6, 11 Dec. 2023).

Other participants take pride in growing as much produce as they can manage within their ability. Discussing the work it takes to maintain his garden, Participant 5 said, “For the last five years [my wife] has said “why do we need such a big garden?” but we’re always happy to have all the food,” (Interview 5, 11 Dec. 2023). Participant 2 said that in previous years, he has been able to grow about 80% of his day-to-day diet (Interview 2, 17 Nov. 2023). Now, he doesn’t need to grow such a large portion of his own food because he can buy what he doesn’t grow from his neighbor. Participant 7 used to grow a bigger garden, but she has had to minimize it in recent years due to time constraints.

For all of the participants, providing food for the family or sharing produce with friends is a motivation. Many participants are growing food for their family in their household as well as themselves (Interview 2, 17 Nov. 2023; Interview 3, 30 Nov. 2023; Interview 5, 11 Dec. 2023; Interview 6, 11 Dec. 2023; Interview 7, 21 Jan. 2023). For those with children who have grown up and moved out of the house, they still find ways to share their produce and preserves with their children (Interview 2, 17 Nov. 2023; Interview 5, 11 Dec. 2023; Interview 6, 11 Dec. 2023; Interview 7, 21 Jan. 2024). For others, it is pertinent to share their produce with their communities (Interview 1, 30 Nov. 2023; Interview 4, 4 Dec. 2023). Participant 1 is particularly concerned with being able to provide food for those in his community who cannot access a grocery store. He said:

It’s more important now to have this for the community, so that the community can have fresh vegetables or herbs, you know, readily available. We don’t have a grocery store for

that stuff. You have to go to Edinboro, you have to go to Meadville... If they wanna cook up some spaghetti or something they can get some tomatoes or whatever. You know, fresh parsley, oregano... And they don't have to worry about trying to get to Edinborough or Meadville if they don't have transportation (Interview 1, 17 Nov. 2023).

Participant 1 views his garden not only as a provider of his own food, but as a provider to the community as well. In his interview, Participant 1 also explained that he has a network of friends that he likes to share and trade garden goods with.

And for a few of the participants, growing food has the additional benefit of creating a different revenue stream. Participant 3 owns a farm, so she is able to sell leftover home-garden produce when she goes to market for her business (Interview 3, 30 Nov. 2023). After Participant 6 planted a large quantity of tomatoes during the pandemic growing season, she realized that she could sell the leftover tomatoes for additional income (Interview 6, 11 Dec. 2023).

In one way or another, every single participant mentioned simply eating their garden produce. Whether the way of eating is munching on beans during harvest, having fresh tomato slices with a little salt, or enjoying home canned sauerkraut all winter, eating is a primary and perhaps obvious motivator. It is evident that for these participants, oftentimes the function of the home garden is first and foremost to produce delicious food.

Cost

For the two participants who cited cost as a motivation to garden, they reported that it is cheaper for them to grow certain foods rather than buying them at the store. Participant 1 discussed how cheap it is to grow food, saying that one can buy seeds for “pennies on the dollar” compared to market prices for the final product (Interview 1, 17 Nov. 2023). He explained his view on seed costs compared to market costs:

You can buy packs of tomato seeds, pepper seeds, and herb seeds, thousands of them for a couple bucks. It's very inexpensive to do your own gardening, basically, versus going to the store, you know... Eighty cents a pound, ninety cents a pound, and that stuff adds up pretty quick (Interview 1, 17 Nov. 2023).

In the opinion of Participant 1, market prices for produce have increased significantly after the pandemic and he sees growing some of his own food as the economical choice since he has the space to do it. Besides seed costs, he also discussed how he's been able to grow food without expensive materials, machinery, or even land; in fact, he grows much of his produce indoors in plastic containers filled with soil. Participant 6 became interested in growing food when she thought she could save money at the grocery store by growing her own tomatoes (Interview 6, 11 Dec. 2023).

Interestingly, Participant 7 claimed that it is actually more costly for her to grow her own produce and preserve the harvest as opposed to buying the store-bought equivalent. She described her thoughts using tomato sauce as an example:

It used to be cheaper to home can everything. Now I have weighed the cost of, okay is it cheaper to buy all the extra ingredients to make your own spaghetti sauce? Which – by the time you put all that work and effort into it – is like a small jar of gold, you know? Or, is it easier to go and get a two dollar jar of spaghetti sauce from Aldi's? It's like "huh, let's think about this." Yeah, it would be a heck of a lot easier to just get the store bought jar of sauce... (Interview 7, 21 Jan. 2024).

Participant 7 isn't convinced that home-canning is actually cheaper than buying canned goods, but for her there are more factors at play than the price tag. As mentioned in the section on Self-Sufficiency, her desire to feed her family with ingredients she feels she can trust wins out over cost. (Interview 7, 21 Jan. 2024).

Recreation

The recreation motivation refers to the enjoyment of the outdoors. A number of participants discussed feeling energized by their gardening habit in various ways. For some participants, the enjoyment comes from the physicality of keeping a garden. It gives them a recreational hobby that's fun, enjoyable, and rewarding. It also provides an opportunity to work with their hands (Interview 4, 4 Dec. 2023; Interview 5, 11 Dec. 2023). Participant 6 said, "I think it's so healthy to even dig in the dirt. Like even the organisms that get into your body through your fingers and your toes!" (Interview 6, 11 Dec. 2023). Participant 2 mentioned a

similar sentiment about the importance of skin contact with soil, saying scientists have found that handling soil provides positive physiological impacts (Interview 2, 17 Nov. 2023).

For some participants, there are additional factors besides the act of gardening that contribute to the recreation motivation. These individuals conveyed delight at the opportunity to spend time outside and be in the sunshine (Interview 3, 30 Nov. 2023; Interview 6, 11 Dec. 2023; Interview 7, 21 Jan. 2024). Take for example Participant 3, who said she feels uplifted by the tangible energy of the sun and soil (Interview 3, 30 Nov. 2023). Two participants specifically discussed spending quality time with their family members because of their garden, especially during the pandemic quarantines (Interview 6, 11 Dec. 2023; Interview 7, 21 Jan. 2024). Participant 3 has a child, so she makes an effort to conduct the garden as an educational space for her child. This past growing season, Participant 3 had her child create a growing plan for one of the garden beds – this included selecting the crops, planning crop spacing, starting seeds, and transplanting the seedlings (Interview 3, 30 Nov. 2023). The quality time element doesn't stop in the garden either; it continues into the kitchen. Participant 7, whose children have grown up, said her children are more interested than ever in learning how to can and preserve the produce.

The interviews show that for these participants, there are a number of ways to enjoy a garden space. Recreation encompasses several gardening activities, such as caring for the plants, being in the sunshine, collecting the produce, and spending quality time with family members either in the garden or processing the harvest.

Mental Rejuvenation

These individuals consider time in the garden as a break from the busyness of life, and use it as time to quiet their minds and attend to their inner life. For some, it is even a spiritual practice. This category is separate from Recreation, as there is a more conscious intentionality and approach for these participants. Gardening for mental rejuvenation can be as simple as taking a mindful break from technology, or it can take on a prayerful or meditative practice. Participant 2 shared a story that captures one aspect of mental rejuvenation. He said:

I would come home at the end of the day at the office and I'd walk straight out to the garden, and I would look at my plants. And [my wife] would be like, "Don't you want to come in and say hi to me and the kids before you go out to the garden...?" I didn't realize

what I was doing then. But I was doing some kind of nature immersion thing where I was decompressing, so that I could reground myself in my experience and enter into my family life feeling kind of balanced (Interview 2, 17 Nov. 2023).

Here, Participant 2 used his garden as a calming and grounding space that bridged the gap between work life and home life. Participant 4 also spoke about gardening as a way to manage work stress and promote a healthy approach to life:

I found out the gardening helps maintain a kind of mindful posture towards life... I've moved a little bit more towards...exploring the contemplative dimension of it. And using it as kind of a way to feed prayer, get away from the busyness, focus on something with my hands (Interview 4, 4 Dec. 2023).

Participant 4 even attributed a “contemplative dimension” to the act of gardening, using it as a way to reflect on life and moral quandaries. In a similar way, Participant 7 explained gardening as a rest from the day-to-day and as a spiritual practice in her life. She elaborated:

I love spending the time outdoors in the sun, away from technology or whatever it is. It just seems to me very simple, you know? And there's a lot of life lessons to be learned. When you're pulling up a weed, you're really trying to get down to the roots of the weed, you make analogies, you know? Like, “Okay where in my spiritual life are the weeds? What needs to be pulled up, what needs to be gotten down to the roots?” So it doesn't grow back again (Interview 7, 21 Jan. 2024).

Participant 7 takes time in the garden to reflect on her own spiritual life and practice, considering areas she may want to improve. For her, the garden space creates a quiet, natural environment for these thoughts to surface and develop.

For these three participants, gardening serves more than a functional or recreational purpose; it provides them space to decompress from daily responsibilities, to attend to their dispositions toward life, and to give time for contemplative reflection that they may not otherwise have time for in their schedules.

Relationship to Land

Just two participants showed a motivation to garden as a way of observing and creating a relationship to the land. For them, having a relationship to the land means striving for its protection and cooperating with its cycles, rather than forcing unnatural patterns upon it (Interview 2, 17 Nov. 2023; Interview 3, 30 Nov. 2023). This relationship can be acknowledged for its own sake, or it can be viewed in the context of a larger critique. Consider this quote from Participant 3 — when asked how she would describe her relationship to the land, this was her response:

I hope I'm respecting it, and honoring it the best that I can. I feel very grateful to be doing what I'm doing. And I think part of it is because I see the interconnectedness of all the living things that are existing in that space. You know, the way the bees will come and gather water from the leek stems in the morning dew. And then they'll do their little dance, they'll see where they're at, and then they'll buzz off to the hive... I'm just in awe at the way things work. And I want to leave things alone, so they can do their thing and I can do me! (Interview 3, 30 Nov. 2023).

Some of the ways that Participant 3 experiences her relationship with the land is through observation, coexistence, and cooperation. She observes natural rhythms and seeks to minimize her interference with them. This is especially evident through her decision to build raised beds after concluding that tilling the soil was damaging the land. She said:

My partner would till up a large area, and only a fraction of it would be planted. And I really struggled with that. So not long after that, the shift happened to raised beds because I felt that was a way that I could kind of control better how much earth disturbance there was... Because it was hard for me, the earth upturned, and then it would just be left there to bake. Then all of those nutrients and all of that energy is just going away. And then things weren't growing well (Interview 3, 30 Nov. 2023).

Participant 2 realized that the process she and her partner were implementing to plant the garden was excessively damaging to the soil and not optimal for plant growth. After this revelation,

Participant 2 switched her garden from in ground beds to raised beds to better align with her goals to honor and appreciate the land.

Oh his relationship with the land, Participant 3 discussed similar points as Participant 2. Participant 3 emphasized proper care for earth, considering the health of the soil and the surrounding environment. But for him, gardening also is an act of critique and resistance. He said:

I had a critical perspective on commercial agriculture, and saw it as a form of violence. And so for me, to live in what I would call right relationship – or a nonviolent relationship – with the earth, I saw my own participation in growing of my food as an important thing. And I would say... I have that still, that kind of idealism within me as I garden (Interview 3, 17 Nov. 2023).

Gardening gives Participant 3 an escape from depending on a commercialized agriculture system that he sees as violent and destructive. Instead, by growing his own food he can ensure that his practices actually improve soil health, beautify his property, and provide nutritious food.

This category of relationship to land was not one that I had anticipated to find, but this is something that is important for these participants to live out. For them, it is crucial to minimize human disturbance as much as possible and let ecosystems operate naturally. Weeds might be left to grow, and volunteer crops from the season before are welcomed. There are many ways that the participants live out an intentional relationship with the land, and gardening is just one of them.

Participant engagement varies drastically both across the eight gardening motivation categories and within each category. Though some motivations were shared among individuals, the reasons and explanations behind the motivations are unique to each person. Though the data allows me to draw motivation similarities and differences within this group of participants, ultimately they each have their own distinctive set of reasons for why they garden.

Chapter 3

With this research project, one of the main insights I sought to understand was how the coronavirus pandemic affected home gardeners' approach to gardening, if at all. The change may be literal, such as choosing to grow a higher number of crops or more varieties; however, it can also include shifts in the views, attitudes, and beliefs people have about their gardens. Because I was interested in how the pandemic impacted food system instability, I was particularly curious about whether or not participants grew more food because of COVID-19. For some participants, the pandemic did impact their approach to gardening, and for others it made no difference.

Figure 3 illustrates the total responses, with 3 participants (43%) agreeing that the pandemic did affect their gardening approach and 5 participants (57%) disagreeing. *Table 3* shows which participants agreed or disagreed, as well as which participants grew more food because of the pandemic. To further investigate these results, I will discuss each participant's response individually.

Figure 3

Participants' Responses: "Did the pandemic change the way you approach your garden?"

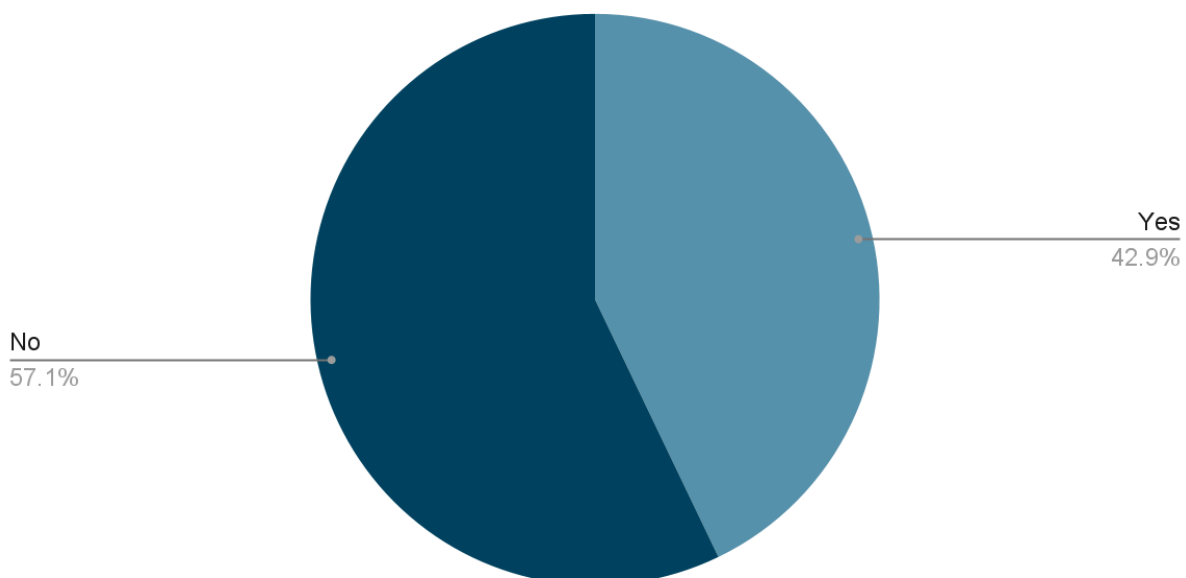


Table 3: Participant Responses About COVID-19 Impacts on Gardening

Participant #	Changed Garden Approach?	Grew Bigger Garden?
Participant 1	Yes	No
Participant 2	No	No
Participant 3	Yes	No
Participant 4	No	No
Participant 5	No	No
Participant 6	Yes	Yes
Participant 7	Yes	Yes

Participant 1

Participant 1 agreed that the pandemic did have an impact on the way he approached his garden (Interview 1, 17 Nov. 2023). Specifically, it reinforced his view of his garden as a source of fresh food that can be traded as commodities within his community. The effects of the pandemic reaffirmed his belief that the support gardens can provide, especially urban gardens, is beneficial to community wellbeing. The increase in food prices during the pandemic caught his attention, and he shared his concerns about high food prices becoming a long term issue. His concern wasn't about himself, but about community resilience in the face of financial distress and sudden disaster. He said:

I think the pandemic had a big shift in the prices at the market, and overall this is gonna affect us long term for a really really long time. And I don't think the prices are gonna come down any time soon. So we have to be more conscious of what we are growing, you know. What do we actually use...? What's available? What can we grow? What are we using? What can we help other people out with...? So yeah, the pandemic had a huge effect, I think, on the market as far as vegetables, fruit, herbs, and all that stuff. And I

think long term that's gonna affect us, so it's more important now for us to take care of ourselves basically, as far as what we're using (Interview 1, 17 Nov. 2023).

Participant 1 was concerned with the ways that the pandemic influenced food prices, and he saw gardening as a way to reduce the burden of those increased costs. He also saw the need to critically reevaluate gardening choices to make them as useful as possible. While the pandemic did affect his disposition toward the value and function of his garden for the community, Participant 1 did not make any physical changes to his garden as far as crop selections or number of plants.

Participant 2

For Participant 2, there was no change in his gardening approach because of the pandemic (Interview 2, 17 Nov. 2023). Participant 2 lives a very self-sufficient lifestyle with regards to procuring food, saying:

I brew my own beer, make my own wine, make my own hard cider. I have all of my own meat that I raise, pretty much. I hunt. And I grow my own food... I go fishing. And I do other stuff – I gather mushrooms, I harvest plants. You know, I'm a forager (Interview 2, 17 Nov. 2023).

This level of self-sufficiency and relative independence from the globalized food system made it so that Participant 2 was virtually unaffected by the COVID-19 food system issues. Since he is accustomed to growing, hunting, and foraging, his food supply was not negatively impacted by store prices or shortages since he doesn't buy many items from the store in the first place. Because of his garden, he was less dependent on store bought food and therefore was able to endure the pandemic food system instability with relatively little disturbance:

When the pandemic hit, I was like, "I'm built for this." Because, it really didn't change anything for me... I was like, "I'm set for a couple years." So you know, I was fine... it really didn't impact me at all. The only way it really impacted me is that I didn't really have any parties. Imagine that! (Interview 3, 17 Nov. 2023).

Like Participant 1, Participant 2 did not report making any changes to his usual garden plan. He did not plant more crops or edit his usual selection of varieties because of the pandemic.

Participant 3

Participant 3 did have a change in her approach to gardening because of the pandemic (Interview 3, 30 Nov. 2023). Specifically, it impacted her view on the importance of locally produced food. Similarly to Participant 2, Participant 3 was relatively unaffected by pandemic-related food shortages because of her garden. Even before the pandemic, she saw her garden as a sort of security blanket because it allowed her to nourish her family without relying on store bought produce, which is grown with harmful chemicals and damaging agricultural practices. For Participant 3, the pandemic shed light on the fragility of the global food system which she was able to be independent from because of her garden. Of this realization, she said:

Well [the pandemic] definitely helped me to realize the issues that arise in the food system. Like acquiring produce and distributing produce. And it has helped me to hyperfocus on locally grown produce. So if I can't grow it myself, then I'm acquiring it from somebody that I know or a local farmer, so I don't have to rely on those external avenues of getting food (Interview 3, 30 Nov. 2023).

Though Participant 3 did not make any alterations to her garden plan because of the pandemic, she did notice more gardens in her community that weren't there previously. She was happy to see people doing what they could within their means to supplement their food supplies, even if it made only a small difference.

Participant 4

Participant 4 reported that the pandemic did not have an effect on his gardening approach (Interview 4, 4 Dec. 2023). Specifically responding to the question, "In what ways, if any, did the pandemic affect your gardening plans or how you decided to approach your garden for the future?" he said:

In all honesty, not in the least. Didn't affect it at all. I was able to get the plants I needed, although they were a little bit scarce... There's no gap in what I did. It really didn't affect it at all... in all honesty I can't think of a single thing that the pandemic changed in the gardening (Interview 4, 4 Dec. 2023).

Ultimately, the pandemic didn't have an effect on this participant's gardening whatsoever. Participant 4 explained that he didn't really know how the pandemic affected store prices of the crops he grows since he doesn't usually buy them unless he needs them fresh during winter. Also, he had no trouble finding the plant starts he needed in the spring of 2020 despite the increased number of people planting gardens that year. Ultimately, Participant 4 did not plant more crops or increase the selection variety due to the pandemic or its effects on the food system.

Participant 5

Participant 5 also did not change his gardening approach due to the pandemic (Interview 5, 11 Dec. 2023). While he didn't depart from his usual gardening plans, he was on a sabbatical during 2020 which gave him more time to work in the garden. This gave him the opportunity to fix his fence which had been in need of repairs.

Participant 6

Participant 6 agreed that the pandemic did have an impact on the way she approached her garden (Interview 6, 11 Dec. 2023). Because of increased time at home due to quarantines, she started her entire garden from seed for the first time ever. She and her husband were able to grow their seeds inside their house, because they have a room with large windows that let plenty of sunlight in. For Participant 6, this experience totally shifted her mindset about starting from seed. She said, "I was amazed, it convinced me that starting from seed is worth it. Because there were so many of them. So that's how it changed my attitude toward gardening," (Interview 6, 11 Dec. 2023). However, once her busyness picked up again after the pandemic, she hasn't had the time to start her garden from seed again.

Participant 6 is one of two participants in this research project who opted to plant more crops in preparation for potential food shortages caused by the pandemic. In her case, she planted significantly more food than usual. She explained:

Because that year, you know everybody talked about “there might not be food, there might be food shortages,” so [my husband] convinced my parents – because they’re on the two and a half acres – to till up a whole big garden. And they planted corn, and they planted zucchini, and cucumbers, and tomatoes, and potatoes... but what we found was, to be in town and have to drive fifteen minutes to take care of the garden, it just wasn’t worth it. So we tried that for two years and then they just let it go back to grass. (Interview 6, 11 Dec. 2023).

Essentially, Participant 6 and her husband borrowed land on her parents’ property outside of town to grow a large food production garden. This was well outside the realm of what Participant 6 and her husband usually grow, as far as crop selection and method of growing. Participant 6 is the proponent of the Square Gardening Method, so she is used to managing a much smaller growing space. This garden was row-style, organized by variety of crop. Growing this large garden was a new experience that ultimately led to more challenges than benefits. The main challenge was the distance. Participant 6 mentioned that it was sometimes difficult to plan to visit the food production garden to maintain it properly and harvest the produce before it went to waste. She realized that for her lifestyle, it is much harder to maintain a garden that is not on her residential property.

Participant 6 did not discuss whether or not the food grown in the production garden helped her family’s food supply during the pandemic.

Participant 7

For Participant 7, there was a change in her gardening approach due to the pandemic (Interview 7, 21 Jan. 2024). She also planted more crops during the 2020 growing season, but for her it wasn’t in anticipation of food shortages. Quarantine allowed her to spend a lot more time outside in her garden than she was normally able to, and as a result she planted a bigger garden with more of her traditional crops. She also tried growing new crops that she doesn’t usually incorporate into her rotation, such as asparagus. She was thrilled to have more time outside in the garden, especially as a way to boost her mental health in the midst of COVID-19. About gardening during the pandemic, she said:

For some reason the idea of shortages in stores didn't really concern me a whole lot. Just because you learn to simplify, and you discover the stuff that you don't really need. It's like, "Huh okay you know what? I can't get it, [but] I'm doing just fine without it. We're good." So that didn't really affect me a whole lot. Mostly what affected me was the time. I had a lot more time so I could spend it outdoors. Yeah, so that was nice. Especially mental health wise, you know in the sunshine. It was great (Interview 7, 21 Jan. 2024).

Fundamentally, Participant 7 kept a bigger garden during the pandemic as a function of being home more and having time to maintain it. Working in the garden gave her time outdoors in the sunshine that helped her mental health experience during the pandemic. She did not intentionally plant more crops to supplement her food supply in case of pandemic food shortages.

Overall, whether or not participants changed their gardening approach because of the pandemic was a very individual circumstance. Some made a choice to change their approach to their gardens; others realized a shift in mindset or view of their garden over time. I had expected to find that more participants intentionally chose to grow more food in preparation for potential COVID-19 related food system instability, but that is not what I found to be true for most of these. Two participants (Participant 6 and Participant 7) grew more food, but only Participant 6 grew more specifically to apprehend food shortages. It is important to note that every participant in this project had been growing gardens annually long before spring 2020 — I did not interview one person who took up gardening because of the pandemic. Actually, all of the participants I interviewed had begun gardening as soon as they could in their adult lives, and two said they had been gardening for about thirty years. This could be a limitation to this research project, since I didn't speak with anyone who began gardening because of COVID-19.

Gardening Experiences in Childhood — A Predictor of Gardening in Adulthood?

Through the interviews, I learned that every single participant had a childhood experience with gardening. Every single participant had either parents or grandparents who kept a garden. They all recall memories from spending time in their family gardens as children. Five of the seven participants (71%) explicitly recounted helping in the garden during childhood, with two participants estimating they were about 8 years old when they got into gardening. Many

explained that it was their parents' expectation that they would help weed the garden. Participant 2 said that he and his brothers had to weed the garden every Saturday morning in the summer before they were allowed to watch cartoons (Interview 2, 17 Nov. 2023).

Further, six out of seven (86%) of participants were able to name one or two specific people who were influential gardening mentors in their lives. Four of the five participants who grew up helping in the garden named either parents or grandparents as influential role models who helped them become the gardeners they are today. *Table 4* lists the participants and their relation(s) who they identified as garden mentors. Participant 5 is the only person who did not identify a particular person as a gardening mentor or influential role model.

Table 4: List of Participants' Gardening Mentors and Type of Relationship

Participant #	Garden Mentor Relationship
Participant 1	Mother and Grandmother
Participant 2	Father
Participant 3	Grandmother
Participant 4	Father and Grandfather
Participant 5	No Mentor
Participant 6	Mother and Grandmothers
Participant 7	Mother and Grandfather

I was surprised to find this incredible connection from the interviews. Yet, there is research to support this connection. One study done in 2005 found that childhood experiences with nature increased appreciation of nature into adulthood. For example, their participants who had gardened as a child were twice as likely to have participated in some type of gardening program or class within the previous year than the participants who had no childhood gardening experience (Lohr & Pearson-Mims, 2005). Seeking to understand how childhood gardening experiences affect the likelihood of gardening into adulthood could certainly provide an

opportunity for additional research, since the study by Lohr and Pearson-Mims was the only one I found. More of the scholarly research around the effect of childhood gardening in adulthood focuses on food choice and health rather than gardening.

Conclusion

With this research project, I wanted to understand what people value about their home gardens in the twenty-first century, when store bought food has never been more accessible in the history of the world. Grocery stores and big-box stores offer the widest variety of fresh food and pre-packaged convenience items that civilization has ever seen, yet people still choose to grow their own food right in their backyards. Based on this research, some reasons for that are due to the fact that people don't only garden to produce food – they garden to protect themselves from chemical exposures; to maintain the skills and knowledge to be able to feed themselves; to eat unique foods with robust flavors; to save money on groceries; to spend quality time with family members and in the outdoors; to refresh their states of mind; and to live out their relationships with the environment and with the land. The reasons that motivate people to garden are often complex, interconnected, and strongly influenced by personal convictions and lived experiences.

There will presumably continue to be a gap in the literature about home gardening, but this research project illustrates that ethnographic methods can be an extremely effective tool for researching home gardens. Existing home garden research primarily focuses on how home gardens can affect community or household food security and nutrition status, with most of this research being conducted in majority world countries. There are other studies that address other aspects of home gardening but these are much smaller in number compared to the amount of studies conducted on community and school gardens. There is a growing body of literature about the upsurge in gardening during the pandemic which, along with this project, will provide more information about what can be learned about the functions of gardening during COVID-19.

Through my research on this project, I have come to the conclusion that the mass home gardening upsurges in the United States during times of crisis such as World War II and COVID-19 illustrates that people will react to protect themselves from harm, especially if they think their safety or wellbeing is in danger. In the case of World War II, government propaganda and campaigning strongly encouraged home gardening, conflating the activity with civic duty and patriotism during wartime. However, the COVID-19 home gardening upsurge was not encouraged by campaigns or government initiatives. It is yet to be fully understood through scholarly and peer reviewed research what drove more people to garden, since a multitude of

factors were at play. Unfortunately, this research project did not include any first time pandemic gardeners. Rather, this research focused on long-time gardeners in the greater Meadville area.

First, I wanted to understand why these participants continue to home garden year after year. I wanted to learn what values, functions, and benefits that they describe their gardens to provide. After synthesizing the data across participants, the interviews yielded eight categories of motivations that had varying levels of participation among the respondents: Flavor/Culinary, Control/Quality, Self-Sufficiency, Food Production, Cost, Recreation, Mental Rejuvenation, and Relationship to Land. The top category was Food Production, with 100% of participants identifying this as a motivation. The next two most identified categories were Control/Quality (86%) and Recreation (71%). 57% of participants were motivated by Self-Sufficiency and Flavor/Culinary. Mental Rejuvenation was a factor for a little less than half of participants at 43%. Finally, only 29% of participants identified Cost and Relationship to Land as motivators for home gardening.

The Flavor/Culinary category refers to the desire for flavorful, unique foods that are either difficult to find at the grocery store or are better quality when grown at home. This category was important for participants who enjoy making certain preserves such as canned tomato sauce. They seek the highest quality and best tasting ingredients they can find. It is a commonly held belief that homegrown produce tastes better than store bought, but does it really taste better? A thread titled “What produce do you feel tastes significantly better when homegrown vs bought in store? In-season vs out of season?” on the Reddit community r/Cooking tackled this question (Desperate-Ad8286, 2023). The popular consensus was that most fruits and vegetables taste better home grown or at least locally sourced. Corn, tomatoes, strawberries, beans, asparagus, snap peas, peaches, and melons were among the many foods suggested as tasting better homegrown compared to store bought. Outside of popular opinion, one scientific study suggests that the perception of taste has more to do with belief about flavor quality than actual difference in flavor (Bernard & Liu, 2017). This could be an area of future study, since there is significantly more academic literature that investigates flavor differences between organic and conventional produce rather than homegrown.

The Control/Quality category has to do with concerns about the safety of store bought, conventionally grown produce. Participants who identified this category are aware of the risks to the environment and human health that are associated with pesticide use in commercial

agriculture. They do not want to rely on grocery store produce that is almost certainly exposed to these chemicals, when ingesting the residues can cause health issues. Yet again, there is a gap in the literature regarding the safety of homegrown produce compared to conventionally grown produce. However, many studies have compared the safety of organic to conventional. A systematic review found that several longitudinal studies report more positive health outcomes with a higher consumption of organic foods, including reduced risk of infertility, high BMI, allergies, metabolic syndrome, birth defect, and even non-Hodgkin's lymphoma (Vigar et al., 2019). Organic foods have also been shown to contain lower contaminations of heavy metals, pesticide and fertilizer residue. Because most of the participants grow their gardens with organic methods, they have confidence in the safety of their produce and are limiting their exposure to contaminants that could be found on conventionally grown food.

Related to this is the Food Production category, which is the simple motivation to garden in order to have fresh food to eat, to cook with, and to preserve. All of the participants engage in at least one form of food preservation, including freezing, drying, canning, and fermenting. Some say that homegrown foods are more nutritious, but more research needs to be done on the subject since I could find no scientific studies on this topic. The Self-Sufficiency category refers to participants' satisfaction with being able to provide food for themselves in some way, whether that satisfaction was directed towards their fresh garden produce or preserved goods. The satisfaction of successfully growing plants was also counted in this category.

The Recreation category encompassed any way that participants described enjoying time in their gardens. This included time spent outdoors in the sunshine, teaching their children, caring for plants, and harvesting produce. The Mental Rejuvenation category has to do with using gardening as a way to relax the mind and cultivate peace in life, sometimes as a spiritual or prayerful practice. There is plenty of data that supports the claim that gardening improves physical and mental health (Thompson, 2018). Gardening activities like digging and raking are often laborious and burn calories similarly to exercising at the gym. Simply being in the sunshine provides positive health effects like increased Vitamin D uptake and lowering blood pressure. One study found that smelling, seeing, and touching soil does have beneficial physiological effects like lowering heart rate and increasing activity of the parasympathetic nervous system (Hanyu, et al., 2014). For mental health, gardening can provide social interaction and the simple

opportunity to interact with greenery, which has been shown to reduce anxiety, stress, anger, and sadness (Thompson, 2018).

The Cost category captures the motivation that participants had to save money at the grocery store by growing their own produce. These two participants had the idea that it is cheaper for them to grow their frequently consumed vegetables instead of buying them. Whether or not home gardening actually reduces food cost depends on many factors (Ferguson, 2022). The best ways to reduce food costs by gardening is to plant crops that are expensive store bought, buy seeds instead of plant starts, and plant perennials. For example, planting berry bushes will likely reduce costs in the long run, since the plants are perennial and berries are some of the most expensive produce at the grocery store. Another category that only two participants mentioned was the Relationship to Land category. This captures the motivation to use gardening as a way to live out their relationship to the land, to feel connected with their environment and practice reciprocity.

The second thing that specifically motivated this project was the impact that the COVID-19 pandemic had on the global food system. The pandemic impacted the food supply chain at every level, leaving grocery store shelves bare and food prices high well into 2020. These factors, along with transportation and economic shutdowns significantly elevated U.S. household food insecurity during the pandemic. I was interested in learning whether or not people were concerned about food scarcity because of the pandemic, and if they opted to take action to prepare themselves for shortages. The data from this research revealed that for some people, the COVID-19 pandemic did impact the way they approached their garden, whether in view or in practice.

The pandemic made a few participants realize the value of their gardens in the midst of pandemic related food shortages and price increases. Participant 1 saw his garden as a force for community resilience during times of hardship, and Participant 3 realized the importance of supporting local produce when she watched the supply chain issues cause shortages in big box stores. Participant 6 decided to grow significantly more food because she had heard that the pandemic could bring about food shortages. Participant 7 decided to grow more crops simply because she enjoys gardening and finally had the time to spend on a larger garden during quarantine. Contrary to my hypothesis, most participants in this research (71%) did *not* plant more crops because of the pandemic.

An interesting piece of data that came out of this project was that all of the participants had been around gardens during their childhoods. Additionally, all of the participants reported starting gardens in their adulthood as soon as they had the space to do it. Five of seven participants (71%) reported that they helped take care of the family gardens as children, some as young as eight years old. In general, six of the 7 participants (86%) reported that they had someone in their life who acted as a role model or gardening mentor for them. Of the five participants who helped with their family gardens during childhood, four named either parents or grandparents as influential gardening mentors.

Limitations

This research project is limited by outside constraints and by the characteristics of the people who participated in the interviews. I only had two semesters to complete this project, which naturally shrank the scope of the research I was able to conduct. Only seven interviews were completed, and I had to focus on the greater Meadville area to stay within an operable scope. Additionally, all of the participants I interviewed have been gardening for a long time. This project did not include any participants who started gardening because of the pandemic. The recruitment strategy of posting flyers around town was intended to compile a more diverse group of participants; however, because the posters failed to attract participants, I had to rely on finding participants through people I already knew. I relied strongly on connections I have made with individuals through the Environmental Science department at Allegheny, many of whom are somewhat predisposed to outdoorsy hobbies like gardening. This fact certainly impacted the data results concerning the ways in which the pandemic affected the participants' gardening approaches, since most of them were gardening well before 2020. Perhaps different results would have been found if the study included participants who began gardening for the first time due to COVID-19.

Potential Directions for Future Research

Home gardening can be a remarkable catalyst for human growth and change, and therefore should continue to be studied. Additionally, more research should be done to investigate what factors motivated people to begin gardening for the first time during 2020. It would be helpful to understand specifically what factors encouraged people to garden for the first

time, as well as how they navigated gaps in gardening knowledge and practice. It would be beneficial to have this knowledge so that governments or non-governmental organizations can create programs to incentivize home gardening. Home gardens could become critical to household food security in the future, especially as globalization and climate change will continue to affect agricultural productivity, the global food system, and supply chain efficiency. Another avenue for future research is to understand how childhood garden experiences impact the likelihood of gardening into adulthood. This research suggests a correlation between childhood gardening experience and home gardening as an adult, which I was able to confirm with additional research. More research should be conducted to ascertain why this correlation exists. This information would be important to understand the barriers that keep people from gardening and how they can be overcome.

This research project shed light on some of the reasons why people continue to garden, even though it isn't needed for survival anymore. Practices like gardening must be passed on and lived out to be preserved through time. Oftentimes, people realize the importance of preserving practices like gardening when they can understand why the activity is valued. What is so special about keeping a garden? Baking bread? Canning homegrown food? Through getting to know each of the participants and conducting research about gardening, I believe I have come to a conclusion about why so many people put time, money, and effort into growing gardens year after year. Gardening allows us to touch the past and engage with tradition, while also preparing a way for the future. We use indigenous knowledge and old family traditions to plant seeds, care for plants, and keep pests away. We spend time preparing gardens and planting them, having faith that they will provide food when the time comes. Gardening is the window between past and future, tradition and innovation. A quote often attributed to Audrey Hepburn is the saying, "To plant a garden is to believe in tomorrow." Our food system is not invincible, and its future will be affected by commercial agriculture, biodiversity loss, and the climate crisis. Yet, gardening has the capacity to strengthen local food systems and bring people together around some of humanity's most instinctive activities: caring for nature and growing food.

Works Cited

- Becker, R. F. (1984). Vegetable Gardening in the United States: A History, 1565-1900. *HortScience*, 19(5), 624-629. <https://10.21273/HORTSCI.19.5.624>
- Bernard, J. C., & Liu, Y. (2017, May 10). *Are beliefs stronger than taste? A field experiment on organic and local apples*. Food Quality and Preference. <https://www.sciencedirect.com/science/article/pii/S0950329317301052>
- Bidwell, P. W., & Falconer, J. I. (1941). *History of agriculture in the northern United States* (Reprinted with the permission of the Carnegie Institution of Washington ed.). Peter Smith.
- Committee on a Framework for Assessing the Health, Environmental, and Social Effects of the Food System; Food and Nutrition Board; Board on Agriculture and Natural Resources; Institute of Medicine; National Research Council; Yih, P. T., Oria, M., & Nesheim, M. C. (2015). Overview of the U.S. Food System. In *A Framework for Assessing Effects of the Food System (1st ed.)*. National Academies Press. <https://10.17226/18846>
- COVID-19 and the role of local food production in building more resilient local food systems*. (2020). Food and Agriculture Organization of the United Nations. <https://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1310470/>
- Darby, K., Hinton, T., & Torre, J. (2020). The Motivations and Needs of Rural, Low-Income Household Food Gardeners. *Journal of Agriculture*, 9(2), 1-15. <https://10.5304/jafscd.2020.092.002>
- Desperate-Ad8286. (2023, July). *R/cooking on reddit: What produce do you feel tastes significantly better when homegrown vs bought in store? In-season vs out of season?*. Reddit. https://www.reddit.com/r/Cooking/comments/15exzld/what_produce_do_you_feel_tastes_significantly/

- Food and Agriculture Organization of the United Nations. (2019). *The state of the world's biodiversity for Food and Agriculture*. Commission on Genetic Resources for Food and Agriculture. <https://www.fao.org/3/CA3129EN/CA3129EN.pdf>
- Food and Agriculture Organization of the United Nations. (2019). *The state of the world's biodiversity for Food and Agriculture*. Commission on Genetic Resources for Food and Agriculture. <https://www.fao.org/3/CA3129EN/CA3129EN.pdf>
- Food Security*. (2006). Food and Agriculture Organization of the United Nations. https://www.fao.org/fileadmin/templates/faoitaly/documents/pdf/pdf_Food_Security_Concept_Note.pdf
- Ferguson, D. (2022, May 7). *A fresh approach: Cut food bills by growing your own fruit and veg*. The Guardian. <https://www.theguardian.com/money/2022/may/07/how-to-grow-your-own-fruit-veg-cut-food-bills>
- Galhena, D. H., Freed, R., & Maredia, K. M. (2013). Home gardens: a promising approach to enhance household food security and wellbeing. *Agriculture & Food Security*, 2(1), 8. <https://10.1186/2048-7010-2-8>
- Gray, L., Guzman, P., Glowa, K. M., & Drevno, A. G. (2014). Can home gardens scale up into movements for social change? The role of home gardens in providing food security and community change in San Jose, California. *Local Environment*, 19(2), 187-203. <https://10.1080/13549839.2013.792048>
- Hanyu, K., Tamura, K., & Mori, H. (2014, January 16). *Changes in heart rate variability and effects on poms by whether or not soil observation was performed*. Open Journal of Soil Science. doi:10.4236/ojss.2014.41005
- Henry, E. (2020). *Crawford County's Agriculture Industry is Essential to All of Us*. Crawford County Commissioners Office. <https://www.crawfordcountypa.net/Documents/covid19/April16PressRelease.pdf>

- Higgins, A. (2020, Mar 30,). An onslaught of orders engulfs seed companies amid coronavirus fears. *The Washington Post*.
<https://www.proquest.com/docview/2384373095?accountid=8268>
- Horsfall, F. (1969). Horticulture in Eighteenth-Century America. *Agricultural History*, 43(1), 159-168. <http://www.jstor.org/stable/4617638>
- Hunger in America*. Feeding America. Retrieved Nov 14, 2023, from
<https://www.feedingamerica.org/hunger-in-america>
- Kakaei, H., Nourmoradi, H., Bakhtiyari, S., Jalilian, M., & Mirzaei, A. (2022). Effect of COVID-19 on food security, hunger, and food crisis. *COVID-19 and the Sustainable Development Goals*, , 3-29. <https://10.1016/B978-0-323-91307-2.00005-5>
- Kim-Mozeleski, J. E., Pike Moore, S. N., Trapl, E. S., Perzynski, A. T., Tsoh, J. Y., & Gunzler, D. D. (2023). Food Insecurity Trajectories in the US During the First Year of the COVID-19 Pandemic. *Preventing Chronic Disease*, 20, E03.
https://www.cdc.gov/pcd/issues/2023/22_0212.htm
- Kingsley, J., Diekmann, L., Egerer, M. H., Lin, B. B., Ossola, A., & Marsh, P. (2022). Experiences of gardening during the early stages of the COVID-19 pandemic. *Health & Place*, 76, 102854. <https://10.1016/j.healthplace.2022.102854>
- Lohr, V. I., & Pearson-Mims, C. H. (2005). Children's Active and Passive Interactions with Plants Influence Their Attitudes and Actions toward Trees and Gardening as Adults. *HortTechnology horttech*, 15(3), 472-476.
<https://doi.org/10.21273/HORTTECH.15.3.0472>
- Maltz, A. (2015). “Plant a victory garden: our food is fighting:” Lessons of food resilience from World War. *Journal of Environmental Studies and Sciences*, 5(3), 392-403.
<https://10.1007/s13412-015-0293-1>
- Marantos, J. (2020, Apr 16,). DIY: Plant a victory garden now and grow your own groceries. *Los Angeles Times (Online)* <https://search.proquest.com/docview/2390351411>

MARC Community Garden. MARC Website. (n.d.).

<https://www.marc4fun.com/community-garden>. Accessed November 3, 2023

MARC Community Garden Membership Levels and Work Requirements. (n.d.). MARC Community Garden.

https://www.marc4fun.com/_files/ugd/2dccb0_10198ee15382439387649ce075dbffc9.pdf

Meadville market house. Meadville Market House. (n.d.)

<https://www.meadvillemarkethouse.org/>. Accessed November 3, 2023.

Miller, C. (2003). In the Sweat of Our Brow: Citizenship in American Domestic Practice During WWII-Victory Gardens. *Journal of American Culture* (Malden, Mass.), 26(3), 395-409.

<https://10.1111/1542-734X.00100>

Nicolopoulou-Stamati, P., Maipas, S., Kotampasi, C., Stamatis, P., & Hens, L. (2016). Chemical Pesticides and Human Health: The Urgent Need for a New Concept in Agriculture.

Frontiers in public health, 4, 148. <https://doi.org/10.3389/fpubh.2016.00148>

Niñez, V. (1985). Household-Level Food Production: Introduction: Household Gardens and Small-Scale Food Production. *Food and Nutrition Bulletin*, 7(3), 1-5.

<https://10.1177/156482658500700306>

Overall (all ages) hunger & poverty in Crawford County, Pennsylvania: Map the meal gap. (n.d.).

<https://map.feedingamerica.org/county/2020/overall/pennsylvania/county/crawford>.

Accessed November 3, 2023.

Participant 1, interview, 17 Nov. 2023.

Participant 2, interview, 17 Nov. 2023.

Participant 3, interview, 30 Nov. 2023.

Participant 4, interview, 4 Dec. 2023.

Participant 5, interview, 11 Dec. 2023.

Participant 6, interview, 11 Dec. 2023.

Participant 7, interview 21 Jan. 2024.

Raby, J. (2020, May 1,). Feed the soul In chaotic times, gardening becomes therapy. *The Telegraph Herald (1935)* <https://search.proquest.com/docview/2397128649>

Rao, T. (2020, Mar 25,). Food Supply Anxiety Brings Back Victory Gardens. *New York Times (Online)* <https://search.proquest.com/docview/2382837159>

Santos, M., Moreira, H., Cabral, J. A., Gabriel, R., Teixeira, A., Bastos, R., & Aires, A. (2022). Contribution of Home Gardens to Sustainable Development: Perspectives from A Supported Opinion Essay. *International Journal of Environmental Research and Public Health*, 19(20), 13715. <https://10.3390/ijerph192013715>

Schanzenbach, D., & Pitts, A. (2020). *How Much Has Food Insecurity Risen? Evidence from the Census Household Pulse Survey*. Northwestern University. <https://www.ipr.northwestern.edu/documents/reports/ipr-rapid-research-reports-pulse-hh-data-10-june-2020.pdf>

Schupp, J. L., & Sharp, J. S. (2012). Exploring the social bases of home gardening. *Agriculture and Human Values*, 29(1), 93-105. <https://10.1007/s10460-011-9321-2>

Silva, C. (2020). *Food Insecurity In The U.S. By The Numbers*. National Public Radio. <https://www.npr.org/2020/09/27/912486921/food-insecurity-in-the-u-s-by-the-numbers>

Square Foot Gardening Foundation. (2023, July 24). *Square Foot Gardening Method*. Square Foot Gardening. <https://squarefootgardening.org/method/>

Steinhauer, J. (2020, Jul 15,). Victory Gardens Were More About Solidarity Than Survival. *New York Times (Online)*. <https://search.proquest.com/docview/2423768022>

Taylor, J. R., & Lovell, S. T. (2014). Urban home food gardens in the Global North: research traditions and future directions. *Agriculture and Human Values*, 31(2), 285-305. <https://10.1007/s10460-013-9475-1>

Thompson R. (2018). Gardening for health: a regular dose of gardening. *Clinical medicine*, 18(3), 201–205. <https://doi.org/10.7861/clinmedicine.18-3-201>

- Vigar, V., Myers, S., Oliver, C., Arellano, J., Robinson, S., & Leifert, C. (2019). A Systematic Review of Organic Versus Conventional Food Consumption: Is There a Measurable Benefit on Human Health?. *Nutrients*, 12(1), 7. <https://doi.org/10.3390/nu12010007>
- Wharton, R. (2020, Apr 10). 'If All the Stores Close, We Need Food': Community Gardens Adapt to the Pandemic. *New York Times*.
<https://search.proquest.com/docview/2388018604>
- White, M. C. (2020). *Peas and quiet? In times of turbulence, Americans turn to gardening*. NBS.
<https://www.nbcnews.com/business/consumer/peas-quiet-times-turbulence-americans-turn-gardening-n1210641>
- Zhou, L. (2020). *Coronavirus is exacerbating America's hunger crisis*. Vox Media.
<https://www.vox.com/2020/5/11/21233063/food-banks-snap-coronavirus>