Sowing and reaping on borrowed land| Garden City Harvest's community gardens

Joellen Shannon

*The University of Montana*

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Sowing and Reaping on Borrowed Land: Garden City Harvest’s Community Gardens

by

Joellen Shannon
B.A. University of Notre Dame, 1996
Presented in partial fulfillment of the requirements for the degree of
Master of Science in Environmental Studies
The University of Montana
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Approved by:

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Date
Sowing and Reaping on Borrowed Land: Garden City Harvest's Community Gardens

Committee Chair: Neva Hassanein

The motivation behind this research project was to discover what the key benefits of Garden City Harvest’s community gardens (CG) were to individual and the community in Missoula, Montana. The central research question asks, “Who are Missoula’s community gardeners and what benefits do community gardens bring to the gardeners and the community?”

Much of the existing literature on CGs speaks to the social, economic and environmental benefits of community gardening. The extensive history of CGs revealed the depth and strength that CGs possessed, standing the test of over a century’s worth of changes in the U.S. However despite their long history, support for CGs has ebbed and flowed over time. Current day CGs are presented with challenges such as a lack of data on their success, land insecurity, and a lack of recognition from municipalities.

In order to gain an understanding of the experience community gardeners have in Missoula, Montana, I developed two surveys that were administered to gardeners in the 2003 gardening season. Based on these surveys I found that CGs in Missoula were valued by both seasoned veterans and newcomers to the project. They involved close to 150 people at five urban gardens. The majority of gardeners were of a lower income, a high education attainment, and men and women participated almost equally. Community gardening had immediate and tangible effects, such as decreased grocery bills, more control over the food one consumes, and the attainment of gardening skills and knowledge. Most gardeners had a positive outlook on their experience, highlighting community building, access to land and resources, attainment of knowledge and participation in the production of their food as the most valuable aspects of their experience. This process also extended benefits to the social realm, where the community aspect of gardening helped to develop relations between gardeners and a sense of community connection.

Gardening in community also had its drawbacks, as gardeners reported on vandalism, theft, lack of adequate water and tools, and pest issues. On the whole the benefits certainly outweighed the problems for most gardeners.
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Chapter 1

Introduction

There is a quiet revolution stirring in our food system... The revolution is taking place in small gardens, under railroad tracks and power lines, on rooftops, at farmers' markets, and in the most unlikely of places. It is a movement that has the potential to address a multitude of issues: economic, environmental, personal health, and cultural.
—Michael Abelman (Brown 2002, 3)

Conventional wisdom tells us that food production is a rural issue and does not suit the urban environment. Images of high rise buildings, parking lots, apartment buildings and storefronts do not often lend themselves to notions of verdant green spinach, dark red beets, and brilliant sunflowers. However, growing food in and around cities, whether on farms or gardens, is a common occurrence. In fact, approximately half of the United States' food, including 86% of the fruits and vegetables produced in the United States and 63% of our dairy products, come from urban influenced areas (urban centers and the area around urban landscapes) (AFT 2002).

Community gardens (CGs) are an important part of urban food production. They are a global happening, rich in history and in the provisions they yield. CGs provide resources (typically, land, water, tools) for people to grow food, most often in urban areas. CGs can also be sites of recreation, social and cultural exchange, and the development of open space, community spirit, skills and competence (City of Madison, 1999). In the U.S., the American Community Gardening Association estimated that there are over 6,000 CG nationwide in over 40 cities (ACGA 1998).

CGs have a significant history in the United States (U.S.). They were established in the U.S. in the late 1800s, with their origins in England (Bassett 1980). Although the
underlying reasons for creating CG have changed over the years, the primary aim of their establishment has been to provide people with access to land on which to grow food. However, the benefits of community gardens appear to go well beyond food production. CG are part of the “quiet revolution that is stirring in our food system”, creating numerous benefits that encompass environmental, social, and economic concerns for urban communities and their residents (Brown 2002, 3).

Although CGs have great potential, knowledge about their worth is not widespread. There is not an excess of research on the benefits of present day CGs in the U.S. This is in part why I chose to research CGs in Missoula, Montana. Another reason why I chose this research was because over the past few years I have had the opportunity to work as a community garden organizer in Missoula. This in conjunction with my academic interests of food and farming allowed me to develop a research project around CGs. This research addresses the central question of, “Who are community gardeners in Missoula, Montana, and what benefits do CGs bring to gardeners and their community?”.

Purpose

The purpose of this research is to better understand the benefits that CGs provide to their participants in Missoula, Montana. Participants are those who lease a garden plot, on which to grow their own food. The Missoula-based nonprofit, Garden City Harvest (GCH), operates the network of CGs in the city. The mission of GCH is to “provide high quality produce to low-income people, to offer education and training in ecologically-conscious food production, and to use the garden sites for the personal restoration of youth and adults”. GCH achieves this mission through the operation of a
community farm and five community gardens. My research focuses on these five CGs.

The primary motivation behind this research is to provide GCH with information that they may use to support their work in the continuance and development of the Missoula community gardens program.

Background

Increased developments in CGs have arisen in part because of recent critiques of conventional agriculture and its impact on the American food system. Although conventional or industrial agriculture has provided unprecedented yields of food crops, it has done so with significant environmental and social costs.

American agriculture has changed significantly over the past century. We have moved from a nation of small independent farmers to large-scale corporate enterprises which feature high technology, high capital inputs, monoculture cash crops, and global trade markets. Technology, globalization, and U.S. farm policy have all played a role in this change to an industrialized agriculture.

Industrial agriculture is characterized by intensive chemical, water, energy, and capital inputs, which are used to obtain a monoculture of unhealthful food that has caused erosion, pollution, deforestation, and serious damage to surrounding ecosystems and soils (Kimbrell 2002). As a nation we are entrenched in this environmentally degrading practice that uses tremendous resources to produce highly processed, cheap, and chemically laden food. As a result of industrial agriculture we witness at least two key issues: 1) the depletion of the earth’s resources and the degradation of the environment at an alarming rate; and 2) the domination of agri-business which results in an agriculture
that is owned and operated by large corporations who control food pricing, quality, and availability, which suppresses the ability of the small family farm to compete, and gives the consumer less purchasing power and choice (Bird et al 1995).

**Sustainable Agriculture**

There are however, alternatives that provide a challenge to the industrial paradigm as well as spaces for transformation within it. There is a time-tested approach, made up of many practices, that has proven to be effective in terms of food production, environmental care, and community enhancement. Sustainable agriculture, or ecologically-based agriculture, challenges the basic principles of industrial agriculture, by rooting itself in land stewardship aiming to be biologically diversified, environmentally sound, and socially just. Sustainable agriculture looks to integrate agriculture and nature, enhance local and regional food systems, decentralize control of farm resources, and increase self-sufficiency and independence of farm operators (Bird et al., 1995). In theory, sustainable agriculture does not participate in the technological treadmill of chemical applications but treats soil as a precious resource building a polyculture of crops, while providing habitat for beneficial insects, migrating birds, and other mammals. Sustainable agriculture treats the farm as an ecosystem that should foster life and be passed on to future generations in a condition equal or superior to the condition in which it was found.

One of the most effective and creative ways to transition to a more sustainable agriculture is through the promotion of Urban Agriculture (UA). UA is defined as “the production of food and nonfood plant and tree crops, and animal husbandry, both within
and fringing urban areas” (Kaufman and Bailkey 2000, 3). Developing and promoting UA or a more community-based food system, can address such issues as food security, increased proximity to source, self-reliance, and sustainability. Food security addresses food access especially for low-income people. Proximity refers to the distance between different components of the food system, such as, production, processing and distribution. The goal here is to decrease the distances between these components while developing relationships between different stakeholders in these processes. The goal of self-reliance is to increase the degree to which a community is meeting its own food needs. Lastly, sustainability refers to the idea that the community is working to hold its food system accountable to economic, social and environmental standards so that future generations may prosper and enjoy these benefits of the earth and its bounty (Wilkins 2003).

Although UA may not be extensive and productive enough to fully replace the industrial agriculture model, it provides Americans with a significant amount of their food supply. In fact, approximately half of the United States’ food, including 86% of the fruits and vegetables produced in the United States and 63% of our dairy products, come from urban influenced areas (urban centers and the area around urban landscapes) (AFT 2002). Increasingly common examples of UA initiatives include: urban farms, farmers markets, community and school gardens, community supported agriculture programs, community kitchens, and small-scale food processing. These projects are windows of opportunity providing alternatives to the industrial model of agriculture. These endeavors can be for-profit, a supplement to a family’s food needs, or simply an enjoyable activity. These emerging markets and UA projects have also been a way for
farmers to address the problems within agri-business through niche and value added marketing. By selling to local markets, promoting locally grown produce, organically grown produce, and by adding value to one’s product (salsa, syrup, jams) farmers are finding niche markets in a troubled industry.

The following chapter will focus on CGs as an integral component to UA. CGs have the potential to address the above mentioned principles of food security, increased proximity to source, self-reliance, and sustainability (though all CG projects may not address these issues). I will examine CGs through a literature review of the history of CGs and a review of the economic, social, and environmental benefits CGs provide. I will also examine the challenges CGs face today, providing some actions that may be taken to overcome some of these obstacles. I will describe the methodology in Chapter three, and the results of the study of community gardeners in Missoula, Montana in Chapter four. This study was designed to obtain information, through a survey, on the benefits that Missoula community gardeners receive from their participation in the CGs program, as well as their suggestions for change. Lastly, I will conclude the paper by discussing themes in the data and recommendations for GCH.
Chapter 2

Literature Review

CGs are not new to the U.S. or its urban agriculture scene. The literature I found on CGs was significant but not extensive. I organized the information on CGs into six categories: History, Economic Benefits, Social Benefits, Environmental Benefits, Problems and Challenges, and Policy Solutions. Each is discussed below, in turn.

History

Community Gardens have served numerous purposes and have involved distinct players throughout their history. The United States has experienced a century long tradition of CG projects, which seem to have been initially modeled after Western European allotments, chalet gardens, or small gardens, which were used by gardeners to relieve rural and urban poverty (Bassett 1981). Thomas Bassett, author of “Reaping on the Margins: A Century of Community Gardening in America,” has identified seven periods or CG movements that describe the history of CG in America. In order to understand the evolution of CG, each period will be described below.

Potato Patches

As a response to poverty and unemployment resulting from industrial slowdown and pressures of urbanization in the late 1880s, cities began to stake off areas for gardening for the destitute, immigrants, and unemployed. By 1895, Detroit had 455 acres of municipally and privately donated vacant land, where gardeners were growing a
variety of vegetables for local markets. Principal crops were potatoes, beans and turnips. This project, funded with $5,000 by the Poor Commission funds of Detroit, reaped $28,000 worth of produce (Bassett 1981).

Philadelphia soon followed suit, and in 1897, twenty-seven acres were under cultivation with about 100 families working quarter-acre plots. Waiting lists of people began to develop, though vacant urban land was abundant. This gardening program was successful, encouraging gardeners to develop a method of self-help, freeing them from public charity which helped them to feel the spirit of the independent, yeoman farmer. However when economic instability and social unrest began to wane so did the support for the garden programs. Prosperity and employment returns caused property owners to use their donated land for other profitable uses (Warner 1987).

School Gardens

Concern over the congestion and the absence of nature from the urban world caused a second movement for community gardens in the U.S.. This concern was particularly focused on the needs of children growing up in urban environments. From 1900 until World War I, public schools developed school gardens to teach children about nature and civic responsibilities. Short season vegetables, such as radishes and lettuce were grown and used by the schools. These gardens became outdoor classrooms for children from New York to Dayton, Ohio, stressing scientific education, human-environment relationships, and civic engagement. Gardens existed in about 488 cites before 1918, and occupied over 4,000 cities in the year of 1918, showing an increase in the number of these gardens through a wartime period (Tucker 1993:129).
Garden City Plots

Garden City Plots were part of a neighborhood beautification movement used to cleanup neighborhoods in the 1890’s. This beautification movement meant to deal with hundreds of acres of waste and unproductive lands, which were viewed as “civic blemishes” (Bassett 1980, 4). Garden City Plots turned rubble strewn lots into “flourishing vegetable gardens” (Bassett 1980, 4). Community leaders saw these conversions as socially, economically, and educationally worthwhile endeavors, attracting shoppers and inhabitants to these aesthetically pleasing areas. In Minneapolis the success of these garden plots was so significant that local grocers began to complain about the competition of vegetable sales and production. Bassett concludes that “a new sociability that cut across classes was aroused, health was improved, money was saved, and rest from the tensions of urban life was gained through gardening” (Bassett 1981, 4).

Liberty Gardens

Prior to the First World War gardens were most active during economic hardship. During these times gardens were mainly seen as tools for the poor (Warner 1987). However, the onset of WWI called on soldiers to defend their country abroad and all citizens at home to “plant for freedom” (Bassett 1981, 5). Food shortages caused the formation of the War Garden Commission in 1917, which encouraged U.S. citizens to put idle land to use and to conserve by canning and drying food that was not eaten fresh. It became very patriotic to cultivate vacant land and grow food in community. The hoe was just another weapon that could be used to defeat the enemy in this time of war, while gardening symbolized unity and organization of the home forces. In addition, vacant lot
gardening reduced food transport, leaving resources available for other war-time needs. These gardens were in fact very productive. The War Garden Commission reported that in 1918 there were over five million war gardens which produced 525 million dollars worth of vegetables (Bassett 1981).

**Relief Gardens**

Like Potato Patches, Relief Gardens began as a response to the social and economic stresses of a time period, in this case, the Great Depression. These gardens supplemented the food needs of the hungry, while also putting the unemployed to work. Relief gardens existed in two forms, the individual plot and the undivided large-tract design. Although a debate developed over which type of garden was more valuable, reports concluded that for each dollar invested in either of the two types of gardens, four to eight times the amount was reaped in returns (Bassett 1981). Potatoes and beans were principal crops in these gardens, providing sustenance to a population that was living without adequate food. These gardens also appeared to provide people with a sense of self-respect and independence in a time when these characteristics were hard to come by. Gardeners were respected for their participation in relief gardens. The need for this program was not seen as a personal weakness, but those who sought assistance did so as a result of a failure of the entire economic system (Warman 2004).

Led by the welfare department and helped by the Works Progress Administration, New York City led a campaign during this time that resulted in the formulation of over 5,000 gardens on once vacant lots (Warner 1987). This relief garden program resulted in a total of $2.8 million worth of food by 1934 (Tucker 1993). However, by 1936 the
gardens were again viewed as a way to specifically help the poor, not just the everyday citizen who was affected by the Great Depression. The relief gardens were renamed welfare gardens, and were "no longer a symbol for those destroyed by the system but they were once again intended for those who would not support themselves" (Warman 2004: 17). These negative attitudes decreased financial support and by the end of the Great Depression relief gardens faded away.

_Victory Gardens_

Again, war-time brought about the need for community gardening and increased food production by the average citizen. World War II caused the American government to develop the National Victory Garden Program. This garden program shouted slogans across the airwaves, such as, "Vegetables for Vitality, for Victory" and "Food for Freedom" (Bassett 1981, 7). The five main goals of this program were to: 1) lessen demand on commercial vegetable supplies, making more available to Armed Forces; 2) reduce the demand on strategic materials used in food production and processing; 3) ease the burden on railroads transporting war munitions; 4) support the vitality and morale of Americans at home through food production; and 5) preserve vegetables and fruits for future use and in times of shortage (Bassett 1981).

Like Liberty Gardens, Victory Gardens exemplified staggering success. In 1944, 20 million victory gardens yielded 40% of the fresh vegetables consumed in the U.S., while involving over 5.5 million gardeners (Bassett 1981, 7). It was also during this gardening effort that people began to realize other benefits that gardens provided to their participants. Gardening was seen as a way to relieve war-time tension, offering
recreational and therapeutic benefits for an anxious lifestyle brought on by war (Warman 2004). Clearly, in time of need and when shown significant support from the government these types of community gardens can have a large impact on food production, consumption, land use, and individual well-being. Again, however, once the war ended the interest in gardens declined, losing their image of patriotism and necessity, as well as the land on which the vegetables proliferated.

Modern Community Gardens

The desire and interest in community gardens never completely faded from the Victory Garden Movement, and resurgence was clearly marked in the 1960s and 70s (Williamson 2003). There are numerous reasons for this modern period of urban community gardening including: energy and environmental concerns (especially pesticides), community development ideas, civil rights issues and a skyrocketing inflation rate which caused prices in food to rise. Community gardening was seen as a tool to provide: neighborhood revitalization, environmental stewardship, community development, food production for urban poor, and urban beautification. The CGs of today are characterized by people of diverse ages, ethnicities, educational backgrounds, and incomes.

A Gallup poll in 1982 found that more than three million Americans gardened at community sites, with an additional 7 million who would garden if land were available to do so (Patel 1991). In addition, 76% of people surveyed stated they wanted community gardens to be a permanent part of their communities (Patel 1991). Similar results were found in a 1994 study, conducted by the National Gardening Association where 6.7
million households, not engaged in gardening, said they would be interested in community gardening if there were a garden nearby (Hynes 1996). Clearly many people want to participate in these gardening programs in the present day.

In the U.S., the American Community Gardening Association estimated that there were over 6,000 CGs nationwide in over 40 cities in the late 1990s (ACGA 1998). The primary category of urban community gardens is the neighborhood garden, making up 67.4 percent of the total (ACGA 1998). The next two leading categories of gardens are public housing gardens and school gardens. Although still a very small percent, entrepreneurial gardens were on the rise according to this 1996 study, showing an increasing interest in using gardens as training grounds for economic development (ACGA 1998).

CGs have been lost and gained in this current period of gardening. According to ACGA, however, from 1991-1996 a significant number of gardens have been started, for an overall increase in gardens during this five year period. Credit for this garden increase is given to community efforts, ACGA mentoring, and a more favorable outlook on gardens by municipalities (ACGA 1998). Of the gardens lost, the primary reason why gardens closed was because of a lack of interest by gardeners (49.4%), followed by loss of land to a public agency (19.7%), and loss of land to private owners (15.3%) (ACGA 1998).

The community gardening movement has gone through numerous transitions since the 1880s, each reflecting diverse needs, including: beautification of the urban environment, feeding the hungry, creating work, supporting a nation in times of war, increasing food supply and environmental action. Through these changing times CGs
have adapted, standing the test of a century of time, with current numbers increasing and support growing for these community based projects.

**Economic Benefits**

As an urban economic activity, agriculture has attractive attributes. It creates jobs at low capital investment. It is a basic industry that stimulates growth in forward and backward links. ...It altogether increases the size of the urban economic pie.

---Jac Smit (ACGA 2001)

CGs have clear economic benefits. Although returns can vary based on climate and growing season, even Northern states’ harvests have proved significant. Information from 1993 estimated that urban gardeners involved in United States Department of Agriculture (USDA) programs grew $16 million worth of fresh food in one growing season (USDA 1999). A 1991 Philadelphia study of urban gardeners indicated that the mean economic value of 151 assessed garden plots was $160/plot for one year. In that study, gardeners on average spent $47 for costs associated with the garden (Blair, Giesecke, Sherman 1991). A Rutgers University study found that the average New Jersey community garden plot (about 700 square feet), produced about $500 in vegetables in an average growing season. Deducting the costs, these gardeners netted $475 tax-free dollars each season (The dollar value of production was developed by the USDA and was based on garden area, frost-free days, and crop intensity)(Patel 1991). These estimates demonstrate a direct economic benefit to people and neighborhoods, addressing food security issues and helping to reduce community members’ dependence on agri-business.
The development of CGs can provide a positive economic experience for governments as well. A 23-city program sponsored by the USDA and managed by university extension programs; found that a dollar of government investment led to the production of six dollars worth of vegetables (Hynes 1996). CG may also be a good investment for local governments. In Sacramento, California a study compared start-up and maintenance costs of a park containing 140,000 square feet with the costs of a community garden that contained 121,300 square feet. The study found that the park cost about $60,000 to develop and maintain, while the community garden cost about $3,000 to develop and maintain (City of Madison, 1999). At CGs participants are taking care of their individual plots, watering, weeding and harvesting these edible open spaces.

CGs can also provide excellent sites for entrepreneurial activity and education. These gardens can be vehicles for community economic development and employment in meaningful jobs. A recent study conducted by researchers at the University of California at Davis, looked at 27 entrepreneurial gardens nationwide which sold a portion of their produce or value-added product from the garden or employed community members (Feenstra, Goodlett, and Garrett, 1999). Following are some of their findings:

•Most projects used a cooperative marketing model and sold produce and flowers at farmer’s markets, restaurants and community supported agriculture programs. Gross sales from all projects varied widely from $20/year to $280,000/year. In general, sales were modest with a little less than half reporting more than $10,000/year.

•About half of the projects employed ten or fewer persons, were located in low-income communities and provided a unique experience for at-risk or displaced persons. Youth
were given significant opportunities at these gardens; representing 60% of the population employed.

• Although some projects were self-sufficient and able to cover their costs, most were not and required outside funding from government or private sources.

• The benefits from these projects included long-term rewards and stability for community residents, basic job-readiness skills, entrepreneurial skills, and a strengthening of one’s education. Six of these projects noted that participants had gone on to jobs in urban gardening, landscaping, construction or retail grocery industry. Many of these gardens also stimulated the circulation of financial capital locally, along with social and human capital throughout the community (Feenstra, Goodlett, and Garrett, 1999).

Social Benefits

Community gardens are places where individuals work side by side with neighborhood children, businessmen, homeless folks, and artists, all at once. They share stories and shovels, laughter and water, and slowly they build relationships that extend beyond the garden and into our larger community.

--Annice Keenan, Durham, North Carolina (ACGA 2001)

Studies indicate that community gardens can have positive social impacts on those who participate in these programs. The Philadelphia study cited above also researched social factors and indicated that urban gardeners were, “more likely than non-gardeners to participate in food distribution projects, neighborhood clean-ups or beautification projects, and neighborhood barbeques and social events” (Blair, Giesecke, and Sherman 1991, 164). This research also found that those who gardened seemed to “find life more satisfying and felt as through they had more positive things happening in their lives than those who were not” (Blair, Giesecke, and Sherman 1991, 165).
The 1991 Rutgers Study by the County Agricultural Agent Patel also discovered social benefits attributed to community gardening. Following are some of the results of the 178 person sample that was interviewed:

• One fourth of the participants said they derived personal satisfaction from gardening
• A third of the participants developed new friendships.
• A third spent time helping other gardeners.
• Nearly a fifth shared produce with other gardeners.
• Thirteen percent of the participants concluded that the gardening activity improved their neighborhood, identifying that gardening served as a way to break down some of the social barriers that exist between neighbors, and helped to clean up vacant and garbage filled lots.
• Nearly fourteen percent reported feeling of self-sufficiency as a result of gardening, thus emphasizing the significance of providing a piece of land on which to grow their own food. The researcher concluded that, “For landless Americans, community gardens can be the first step towards self-sufficiency—providing land to garden, a place to call ‘mine’, and the opportunity to grow and produce things of value” (Patel 1991, 3).

In an attempt to discover how both American-born and immigrant gardeners benefited from their CG experience, researcher Sinang Lee conducted a study for her masters thesis at the University of California, Berkley, on the city of San Jose’s CGs. She developed and analyzed surveys from gardeners at eight community gardens in the city. Her results showed that the top five choices of declared individual benefits ranked similarly among American and immigrant gardeners. The top five statements respondents chose were: “I enjoy gardening as a hobby, I can share my vegetables with
others, I feel healthier when I eat my own produce, I can feel proud of my garden, and I garden to relieve stress” (Lee 2004). These statements exemplify social, psychological and nutritional benefits that gardeners receive from their experience.

Malve Von Hassell’s book, “The Struggle for Eden: Community Gardens in New York City”, creates a strong argument for the benefits of community gardens with historical information, case studies, and concrete and conceptual support for community gardens as place-based integrated approaches to community development work. He gives support for CG citing this statement by Hugh Joseph (Von Hassell 1999,134):

Community food initiatives can empower residents and community-based organizations and institutions by developing opportunities for them to have greater participation in and control over their food systems-including production, distribution, access, consumption, and disposition of food waste. Participation in the food system can also support broader community revitalization efforts that address local economic, cultural, and environmental concerns. While targeting food-insecure residents, Community Food Security can support efforts at the local level (and beyond) that promote broader social change and support environmental and social justice objectives.

Environmental Benefits

CGs also have the potential to turn vacant, urban lots and weed fields into beautiful food producing green spaces to be enjoyed by the community. These diverse, polyculture green spaces can attract wildlife and create safe places for birds and insects in an otherwise urban and concrete environment. Gardens can also improve the air quality, through the release of oxygen and filtration of air pollutants. Green spaces in urban environments help to reduce the heat island effects associated with cities (Malakoff 2003). Gardens can also help with the problems associated with excessive runoff, allowing storm water to absorb into the permeable surfaces. Local food production can also reduce harmful transportation practices associated with the global food system.
The education and outreach that occurs as a result of urban greening is also an important environmental factor. Gardeners share knowledge in their community space and CG staff teach participants about the benefits of organic and ecologically-based agriculture (GCH 2003). Local knowledge spreads and those involved learn the environmental benefits of growing one’s own food.

Human connectivity to non-human natural processes is critical for the future of our planet. Giving people the ability to realize the potential of positive interactions with the natural world can help us to maintain and restore biodiversity. Ecologically-based agricultural programs in urban areas can help to connect youth and adults to the natural world of plants, insects, and the fundamentals of biological processes. A youth gardening program in Texas exemplifies this idea. In San Antonio, hundreds of Master Gardeners are teaching fourth and fifth grade students to grow plants in community gardens. As of 1995, the district had 133 schools taking part in the program. A study indicates that students who participate in this program have better school attendance and have gotten their parents more involved in their schooling than non-gardening students. Teachers have noted that the students who garden have feelings of accomplishment and have shown a sense of increased responsibility (City of Madison 1999).

Problems and Challenges

Despite the existing data, the benefits of community gardening are difficult to quantify. This presents problems for those who wish to build a case for their gardening projects. In fact, community gardeners and greeners were dealt a huge blow in 1993 when Congress eliminated funding for the USDA’s Urban Gardening Program which had
helped over 150,000 low-income gardeners in 23 of the nation’s cities (Malakoff 2003). A partial explanation for the demise of this program is attributed to the scarcity of concrete evidence on the benefits on gardening. People involved in these projects are well aware of their benefits, yet others need more data that these gardens make a difference. Richard Mattson, a Kansas State University professor who has been involved in numerous greening studies, concludes, “Now, I believe the data is out there. But there is the question of being able to find the time and money necessary to collect” (Malakoff 2003, 7).

Another challenge that community gardens face is land tenure. With urban land at a high premium and financial incentives to develop land for commercial or residential use, land can be difficult to secure and preserve for community gardens. This situation has played out in numerous cities such as in New York City in the 1990s, when many community gardens were bulldozed for housing projects (Von Hassell 2002). According to an ACGA study done in 1996, almost all respondents to a national survey (6,000 gardens in 40 cites), said that site permanency was an issue (only six said it was not an issue) (ACGA 1998).

One reason why CGs face land insecurity may be attributed to the fact that food systems have been absent from local policy initiatives and the agenda of municipal institutions. Food systems, including CGs, are largely overlooked in the planning field in America, despite the natural fit and connectivity between the two. A study of 22 planning agencies found that planning agencies are “at best only lightly involved in the food systems arena...and in most cases, when they do get involved their role is reactive rather than proactive and piecemeal rather than comprehensive” (Pothukuchi and
Kaufman, 2000, p. 115). This lack of attention restricts the potential for cities and regions to become more self-reliant through urban agricultural efforts. However, this neglect is not going unnoticed. Charlie Hales, a City Commissioner of Parks in Portland, Oregon states, “whether it’s a planned part of new housing, or by acquisition and development in the city’s own capital improvement program, we must consider neighborhood parks and community gardens as part of the necessary ‘green infrastructure’ of a healthy city” (ACGA 2000, p. 2).

Policy Solutions

Getting community gardens on the urban agenda means that gardeners and the organizations who run CGs must become involved in the policy making process. To gain support and recognition from municipalities, the benefits of these gardens must be recognized by policy makers. Some cities have been successful at gaining recognition for CGs. The city of Seattle has written community garden goals, which include inter-agency and inter-governmental cooperation to expand its program into the most recent comprehensive plan (Kirschbaum 2000). This clear language can help legitimize the benefits of CGs, making them more than just an interim use of land until something better comes along. Seattle CGs have also relied on the Department of Parks for ownership of many CG sites and has acquired land with open space funds and a one-time grant from the city to develop gardens.

Portland, Oregon has a similar arrangement where many of its CGs are located on city park land, increasing land tenure and security. Portland has also recently developed a City/County Food Policy Council that will provide analysis and policy advice to the
city and the county regarding food matters (The Business Journal 2002). This committee is jointly staffed by city employees as well as a citizen planning group which includes a representative from the Portland Parks and Recreation Community Gardens Program (The Business Journal 2000).

Madison, Wisconsin has also developed policies and has been active in making recommendations to the city regarding CGs. According to a plan developed by the city of Madison, Wisconsin there are policy initiatives that can be taken to help support CGs in urban areas. The Madison Food System Project, a pilot project of the Wisconsin Food System Partnership and the City of Madison, outlined recommendations for CG policy to be developed and adhered to by the city government, neighborhood organizations, land trusts, and other public and private agencies. Following are three of those recommendations that could be relevant for all cities across the United States (City of Madison, 1999).

1. “Land Security is critical to the sustainability of community gardens” (19).

Land security will protect the investment of time, energy and resources by organizations and community members in community garden projects.

• The city should adopt a policy in support of CG on leased land to have their leases extended to five years or longer (on city land or otherwise).

• Private or non-profit landholders that lease land to CG should be given public recognition for their generosity.

2. “Community Gardens are to be developed as permanent public assets” (19).

• The city should create a gardens acquisitions program that would create at least one new site every year until a balance between supply and demand is reached.
• The city should establish support/operating funds that will be made available to community garden groups as a grant program. Money should also be available for CG groups to purchase land.

3. “City government can support community gardens through planning and zoning actions” (20).

• CGs should be included in the city-wide land use plan, and/or the Parks and Open Space Plan.

• The city should give priority to planned urban developments that incorporate gardens as a use of open/common space.

• Encourage the City Parks Department to house CGs, and create demonstration sites at city parks.

• Amend relevant zoning ordinances to include CGs as a permitted use in all zoning districts.

The benefits of community gardening are clear and extensive marking a century of economic, social and environmental results due to the provision of land to the landless on which to grow food. Despite the research, the support of CGs in urban areas seems to fall short due to competition from housing and economic development projects and from a lack of knowledge that CG projects have significant and accountable worth. Some cities in America are setting good examples for the nation; however, with land at such a premium and city budgets minimal, the nation’s cities making CGs a priority seems unlikely. In order to gain significant recognition, CG participants and supporters must enter the policy arena, integrating CG programs into other development projects and petitioning for support from the municipality. Evidence of the benefits of CGs is
necessary to obtain this support and is part of the reason why I have chosen to research CGs in Missoula.
Chapter 3
Methods

The most appropriate place to seek information about the benefits of community gardening is from community gardeners themselves. Since 2002 I have had the opportunity to work with the non-profit Garden City Harvest (GCH) as a Garden Organizer, in Missoula, Montana. Being in this position has allowed me to work with community gardeners, understanding their concerns and the satisfaction they receive from gardening. As an organization GCH has typically collected information in survey form from their CG participants; however, in the past few years their response rate was extremely low. In order to increase the response rate and to better understand the experiences of community gardeners, I revised the surveys and took responsibility for their administration.

Survey Design and Data Collection

I developed two surveys to be completed by CG participants. I administered the collection of surveys to community gardeners in Missoula, Montana from April 2003 through January of 2004, with the help of garden organizers at each of the five gardens run by GCH.

Survey questions were developed by myself from reviewing past surveys, existing literature, and through the identification of key issues by GCH. The first survey was termed the sign-up survey and was administered to gardeners on opening day of gardening at all of the CGs (see appendix 1). Opening day occurs the second week of
April when gardeners are encouraged to sign up for plots for the season. This survey was designed to obtain demographic and background information on participants. Questions included income, sex, education level, years at the garden, level of gardening experience, and distance of garden from home. These questions were mainly asked in a closed format.

A second survey was administered at closing day of the gardens, in October, 2003 (see appendix 2). Gardeners are expected to attend this day to close their garden plot, tilling in the remains of their garden, covering the garden with a mulch, filling out a survey, all in order to receive their deposit and remain in good standing for the following year. This survey was designed to obtain information about what the gardeners got out of their experience at the garden. This survey focused on the benefits received from participation using both open ended and close ended questions. A few questions asked participants to rate their experience based on a scale, while others asked gardeners to use their own words to describe their experience. Questions were also asked about food consumption and savings due to gardening.

In 2003 there were a total of 145 gardeners involved in the GCH community garden program. It was most common for one person to tend a garden plot on their own. However, there were plots rented by two or more persons. Of the renters that had two or more persons involved, only one survey was requested to be filled out for the party. When accounting for one representative per garden plot, there were 121 gardeners. This number was used in calculating the response rate for surveys.

I performed an extensive amount of work to obtain a high response rate for surveys. Initially 84 gardeners filled out a sign-up survey at opening day, while 57
gardeners completed a closing-day survey at the completion of the season. In order to increase the response rate I mailed surveys in December 2003 to those who had not completed them at opening or closing day. This mailing brought the number of surveys completed to 98 for the sign-up survey, and 69 for the closing-day survey. A last attempt to increase the response rate for closing-day surveys was made through the administration of the survey by telephone in January of 2004. This brought the total of closing-day surveys to 81. All of these efforts brought the response rate for sign-up surveys to 82% and 67% for closing-day surveys. I made these efforts to obtain a high response rate so that the data would be representative of as many gardeners as possible. A higher response rate can make the data more credible, whereas a low response rate would not tell us how the majority of the population felt about their experience. Both of my response rates suggest a high degree of confidence that survey results can be generalized to all community gardeners in Missoula.

Study Sites

There are five CGs in the GCH network. All of the garden sites serve individuals or groups through the lease of 15 x 15 plots on which the participant(s) can grow their own food. GCH provides the land, water, tools, and gardening advice to participants. Gardeners must abide by a few rules set by GCH, but are free to grow food, flowers, and herbs for household consumption or for sale.

An important focus of these gardens is that all food and flowers must be grown in an ecologically-conscious manner. The gardens do not allow the use of synthetic pesticides or fertilizers, and encourage gardeners to learn alternative and least toxic ways
to deal with insects, weeds, and other pests. GCH provides manure or compost for fertilization while offering advice on how to grow organically.

Participants are free to choose the garden of their preference, often choosing the garden located closest to their home. Currently there are no waiting lists for gardens, but most years the Northside and Associated Students of the University of Montana gardens sell out of plots. Return gardeners have the first choice for their previous plot, but otherwise gardens are awarded on a first-come, first-serve basis on opening day.

All of these gardens also run the Volunteer for Veggies Program where persons who wish to garden can work at the garden sites in exchange for food. This is a highly successful program with most people volunteering because they wish to learn about gardening. Individuals as well as groups are encouraged to volunteer. CGs serve as community service sites for Missoula Youth Homes, Missoula Correctional Facilities, Montana Conservation Corps, and the Watson’s Children’s Shelter. In the 2003 season, volunteers donated approximately 1,800 hours of time to the network of gardens, reaping over 2,000 pounds of food as a result of their work (GCH 2003).

Another important component of the CGs is food aid. Each garden designates a portion of its food production to hunger agencies and homeless shelters such as the Missoula Food Bank, The Poverello Center, The Joseph’s Residence, and others. This food is grown at the gardens by the garden organizer with the help of volunteers. In 2003 the CGs grew over 7,300 pounds of food for food aid (GCH 2003). Crops included onions, potatoes, tomatoes, squash, greens, and others.
Overview: Five Community Gardens in the GCH Network

1. The Associated Students of the University of Montana Community Garden (ASUM)

This garden is located in the Southeast part of the city. It was started as a student run garden club in 1982, and in 1997 it became a part of the GCH network of CGs. This site sits at the base of Mount Sentinel and is adjacent to the University of Montana (UM) golf course and student housing. The land is owned by the UM, and seems to be secure as a community garden. Although priority for plots is given to students, the non-student community also utilizes this CG. The garden site has a total of 70, 15x15 plots, 60 of which were rented in the 2003 season. Four plots were used for food aid for hunger agencies, while the remaining were not fit for lease and were readied for future use by the garden organizer over the summer.

2. The East Missoula Community Garden

This garden began in 1998, and is located in a low-income section of the city serving a small population of gardeners. There are eight raised-bed plots, six of which were gardened the summer of 2003. Unfortunately a city sewer project has disrupted this garden in the past two seasons, but gardeners have not been discouraged. The land is owned by First Citizens Bank, and is used by GCH at no cost. There is no long term lease for this garden.

3. The Mullan Road Community Garden

The Mullan Road CG is the newest garden, finishing its second year of operation in 2003. This land is owned by the Missoula Bone and Joint Corporation and is used by
GCH without fees. In fact, the corporation has sponsored projects at the garden, providing financial assistance to run the CG. The site is located in a highly-developed, commercial part of town, with new homes and offices being constructed in close proximity. This site is over an acre in size and is mostly used for food and flower production for hunger agencies and for sale. In 2003, over 6,000 pounds of food was grown for hunger agencies and volunteers who worked in exchange for vegetables. In 2003 there was one community gardener, and the hope is that this number will increase in the years to come. There are other projects on the horizon for this garden, including the development of a flower CSA and the ability to partner with the adjacent Missoula Correctional Facility. Currently there is not a long term lease for this garden, but only a year-to-year agreement. Development pressures are intense at this garden site and land tenure is insecure despite a great working partnership with the Missoula Bone and Joint Corporation.

4. The Northside Community Garden

The Northside CG was started in 1984 by the Missoula Urban Demonstration Project (MUD). This garden is a stronghold on the Northside of town, well-cared for and attended by community gardeners. The garden includes a community raspberry patch, a hops shelter, community herb beds, and copious sunflowers that reseed themselves every year. This garden has over 60 plots, with 54 leased in the 2003 season. The remaining plots were used for an educational start-to-finish gardening program. This garden became a member of the network of gardens with the inception of GCH in 1995. GCH provided assistance to MUD to run the garden through 2003; GCH gained complete
oversight of the garden in 2004. The land is owned by St. Mary’s Catholic Church, and it is utilized by MUD/GCH at no cost. There is no long-term lease for this garden.

5. The River Road Community Garden

The River Road CG is located in a neighborhood on the west side of town. This garden began in 1996, and although it retains loyal gardeners, it has suffered from instability. In the 2002 season the garden lost its lease, but luckily was able to move next door to a vacant parcel of land. In 2003 GCH regained the original leased site, moved its food production operation to this site while retaining the adjacent parcel for CGs. These two sites are over an acre in size. In the 2003 season 13 gardeners leased 22 garden plots. Food production at the original site consisted of a CSA which served 10 members and grew over 13,000 pounds of food for these members, volunteers, and hunger agencies. The land at River Road is owned by an individual who charges the organization $1,500 a season to lease both parcels. There is no long-term lease agreement on this land. Development pressures exist for this garden as numerous new housing projects surround this remaining parcel.

The surveys developed were intended to understand more about this gardening population in terms of their background, and the reasons for participating in the gardening program. Their perspectives were sought because it is the most valuable in terms of determining what benefits these gardens provide to the gardeners themselves as well as to the surrounding urban community.

A wide range of information was obtained from gardeners from the five CGs. These gardens are located throughout the city of Missoula and directly engage 145 people in their programs. However, the CGs efforts are felt throughout the community through
food aid and volunteer projects. Each garden is unique but has common properties. The participants’ perspectives of their experience at each of the gardens will be discussed in the next chapter.
Chapter 4
Analysis and Results

Results from my research are divided into two major categories. The first part of the data comes from the sign-up survey and mostly consists of demographic information. These findings characterize the participants and provide us with insight as to who the community gardeners are. The second set of data reaches a bit further into the community gardening experience, attempting to understand the positive aspects of community gardening, as well as some shortcomings of the program. This information was taken from the closing-day survey.

Opening Day Data: Demographics

Number of Participants

![Figure 1. Number of Gardeners at all Sites](n=145)

During the 2003 season, 145 people participated in the Garden City Harvest Network of Community Gardens. About half (52%) of these were women. The majority of those participants gardened at the Northside CG, followed by the ASUM garden, River
Road, and East Missoula. Only one gardener participated at the Mullan Road CG (see Figure 1).

Although there were a total of 145 gardeners, the following information is based on 98 respondents to the sign-up survey. Total numbers for each individual question may vary slightly due to respondents skipping some questions.

Ethnicity

Almost all of the gardeners were white (93%). There was one representative from each of the following ethnic groups: Asian/Pacific Islander, White and Asian/Pacific Islander, White and Native American, and Russian/Eastern European. There were no African American or Latino respondents. Three respondents checked the box that indicated other, with only one person indicating what other was. His ethnicity was Melungeon. These ethnic percentages coincide with the representative percentages for the city of Missoula. The 2000 Census statistics show that 92% of the county population was white, .35% was black, 1.22% was Asian, and 4.05% was other (ERsys 2004).
Education

Seventy-four percent of the respondents had a college degree or higher, exemplifying that this population of gardeners was well-educated. Only five percent of the sample identified themselves as having only grade or high school educations (see figure 2).

Income

Although gardeners were asked to indicate whether this income was household or individual the majority of respondents did not clarify, therefore it is unclear whether these incomes are household or individual.
The majority of respondents (67%) identified their annual income as below $19,999. Only 15% identified their income as $40,000 or greater. Although respondents were asked to indicate whether their income was household or individual, only 25 answered that part of the question. Respondents most likely did not see this part of the question as it was secondary to the overall income question. Of those that did notice this part of the question, 14 people indicated that their income was individual and 11 responded that it was household. Whether household or individual, the incomes indicated for the gardeners themselves shows that the majority of community gardeners in Missoula are of a fairly low income (see Figure 3).

Conventional wisdom often attributes gardening as a hobby for the affluent, not an activity that lower-income populations have the time to experience. This data from Missoula would indicate otherwise showing that the majority of gardeners do not represent an upper-income group.

Home Ownership

Less than 25% of the gardeners owned the home in which they lived, whereas the majority of participants rented their homes (76%). This may indicate that renters are more likely to use the CGs because they are less likely or unable to put their “yard” into garden space. They may simply not have the authority to plant gardens at their homes, or there may not be any space to plant a garden. While collecting the data for this research project, I found that tracking all of the gardeners down after closing day was difficult. Numerous addresses were incorrect and phone numbers had been disconnected. This
may be attributable to the fact that community gardeners could be a more transient population partially due to their rental status.

*Years of Participation*

![Bar chart showing years of participation](image)

The majority of the gardeners had only participated in the garden for one year (55 people—see Figure 4). For the 2003 season, this indicates that most people were new to the garden. This may also indicate that most people only garden for one year and then do not continue to participate in the program after one season. However, 44 participants gardened for at least two years (including the 2003 season), with 20 persons being at their respective garden for more than three years.

*Closing Day Data: The Community Gardening Experience*

The bulk of the data for this study comes from the closing-day survey. This information contained both open-ended and closed-form questions, and asked participants about their experiences at the garden and the benefits of community gardening. The
The first question on the closing-day survey asked gardeners to rate their overall experience at their garden, based on a scale of “great”, “good”, “fair”, or “poor”. More than half of all respondents said their overall experience was “great”, while almost 40% said their experience was “good”. Only 5% of the respondents said their experience was only “fair” or “poor” (see Figure 5).

**Scaled Outcomes**

The following chart presents responses to a question that asked participants to rate how true a statement was for them in terms of their participation in the CG. The question
contained nine statements and was based on the scale of "very true", "somewhat true", or "not true". Statements are ranked in order from highest percentage to lowest percentage of respondents who felt a specified factor reflected their experience. "Very true" and "somewhat true" percentages were added together to figure rank. Therefore the statement with the lowest "not true" percentage is ranked first and the highest "not true" percentage ranked last.

Table 1-Scaled Outcomes. Degree to which specified factors describe community gardener's experiences, as a percentage of respondents.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very True</th>
<th>Somewhat True</th>
<th>Not True</th>
<th>N (number of respondents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>My gardening skills improved over the summer.</td>
<td>58</td>
<td>36</td>
<td>6</td>
<td>77</td>
</tr>
<tr>
<td>I felt a sense of community connection.</td>
<td>41</td>
<td>53</td>
<td>6</td>
<td>81</td>
</tr>
<tr>
<td>I shared food with friends, family, other gardeners, neighbors, or hunger agencies.</td>
<td>74</td>
<td>19</td>
<td>7</td>
<td>81</td>
</tr>
<tr>
<td>Gardening gave me a sense of empowerment in terms of participation in and control over the food I ate.</td>
<td>48</td>
<td>44</td>
<td>8</td>
<td>79</td>
</tr>
<tr>
<td>I ate more vegetables.</td>
<td>46</td>
<td>46</td>
<td>8</td>
<td>78</td>
</tr>
<tr>
<td>Participation in the garden increased my interest in what was happening in my local community.</td>
<td>23</td>
<td>62</td>
<td>15</td>
<td>79</td>
</tr>
<tr>
<td>My awareness an attention to the larger food system has increased.</td>
<td>29</td>
<td>54</td>
<td>17</td>
<td>78</td>
</tr>
<tr>
<td>I shared gardening knowledge with others in the community garden.</td>
<td>36</td>
<td>42</td>
<td>22</td>
<td>81</td>
</tr>
<tr>
<td>I have become more active in my community.</td>
<td>9</td>
<td>63</td>
<td>28</td>
<td>79</td>
</tr>
</tbody>
</table>

Gardening Skills

Experience is often the best teacher. Learning through participation seems to have helped improved gardeners' skills over the summer. Close to 60 percent of the
sample said that the statement regarding improvement in their gardening skills was “very true”. Thirty-six percent indicated that this statement was “somewhat true”, with only six percent of the population indicating it was “not true”. Those that indicated their skills did not improve or only somewhat improved could be responding in this way because they may already have refined gardening skills, therefore not having much room for improvement. It is difficult to tell, given the way the question was posed.

Community Connection

The term “community garden” inherently speaks to the notion of sharing space and providing the opportunity for people to work together. When asked, the majority of participants (53%) responded that the statement, “I felt a sense of community connection”, was “somewhat true” for them. Over 40% said this statement was “very true” with only 6% deciding this was “not true”.

Because I did not define community for the respondents it is difficult to say exactly what gardeners meant by a “community connection”. For the purposes of this paper I will base community on the respondent’s perception of what community is rather than a specific definition. This concept of community will be based on how gardeners described community in an open ended question on the survey. Some responses included, community gardening is “a wonderful way to connect with community members”, it “helps create a sense of community”, allowing for “shared experiences with others of like mind”, and “community participation and interaction”, while “building relationships while working together”. These responses show the reader that for
gardeners the community represents the idea of bringing people together to build relations, connect, and share experiences.

Food Sharing

Almost three-quarters of the responding population decided that the statement regarding food sharing with friends, family, other gardeners or hunger agencies was “very true” for them. Of all nine statements offered in the survey this statement received the highest percentage for the response, “very true”. This generosity can have positive impacts on the community of gardeners and beyond. This finding is congruent other studies on community gardening, such as the 1991 Rutgers Study. In that study the researcher discovered that nearly a fifth of the participants shared produce with other gardeners (Patel 1991) (my study shows an even greater percentage for food sharing, 93%). And again in Sinang Lee’s research, one of the overall top five choices of declared individual benefits of community gardening was, “I can share my vegetables with others” (Lee 2004).

Empowerment Through Growing Food

When asked if gardening gave them “a sense of empowerment in terms of participation in and control over the food they ate”, the majority of participants responded positively. All but eight percent said that the above statement was “very true” or “somewhat true” for them.

But what is meant by a sense of empowerment? One definition describes empowerment as: “a multi-dimensional social process that helps people gain control over their own lives. It is a process that fosters power and responsibility (that is, the capacity
to implement) in people, for use in their own lives, their communities, and in their society, by acting on issues that they define as important” (NBSAP 2003). Using this definition, as well as by examining the wording of the statement, (i.e., including the words empowerment, participation, and control) we can see community gardening as a social process that can help people gain control over their lives through participation in the production of their food.

I believe that in this case the idea of empowerment can be understood specifically as gaining control, knowledge, and self-sufficiency through participation in growing one’s own food. Understanding the process and difficulty behind growing food, reducing transportation and packaging costs, and increasing knowledge around organic growing methods are all possible outcomes of community gardening and seem to provide participants with a sense of empowerment in the food system. The way in which their food is grown (without synthetic pesticides), the quality, handling, and cost are factors that gardeners can control at least to a certain extent. This process seems to have fostered a sense of power and responsibility for participants, acting on issues that they feel have value.

Diet

Close to half of all respondents said that they ate more vegetables as a result of their participation in the CG. This information could indicate that participation in community gardening may help with nutritional and dietary issues for participants (although I did not ask about this specifically). This information coincides with other research discussed in the literature review. In the Rutgers University Study cited above,
35% of the participants felt that the fresh vegetables they harvested improved their diets (Patel 1991). Another study conducted by Sinang Lee (2004), showed that one of the overall top five choices of declared individual benefits to community gardening was, “I feel healthier when I eat my own produce.”. These findings suggest nutritional benefits that gardeners feel they receive from their experience. Similarly, according to the research on the Philadelphia Urban Gardening Project, gardeners consumed the following vegetables more frequently than a non-gardening control group: cole crops (broccoli, Brussels spouts, kale, cauliflower, pak choi and a variety of Chinese vegetable), okra and eggplant, sweet and hot peppers, summer squash, tomatoes and herbs (Blair, Giesecke, and Sherman 1991).

**Interest in Local Community**

The majority of the sample, (62%) found the statement, “Participation in the garden increased my interest in what was happening in my local community” to be “somewhat true”, with 15% deciding this was “not true” for them. For a statement that goes beyond what a seemingly direct benefit of community gardening might be, 85% of the sample said that the above statement was at least “somewhat true”. This is beyond what I expected the response to be, in terms of number people responding positively to the statement. It is interesting to know that by participating in a CG one’s interest in the local community would increase, because it does not seem like a direct outcome. I did not think that such a high percentage of people would indicate that community gardening could be a catalyst for interest in other aspects of the community.
Food System

The simplicity of community gardening may have the capability to get participants thinking about the complexity of agri-business, global trade, and the decreasing amounts of farmland around the world. To try to understand if community gardening increased participants awareness and attention to some of these aspects of the larger food system, participants were asked to rate the veracity of this idea for themselves. Seventeen percent said the above statement was “not true”, while more than half said it was “somewhat true”. In comparison with the other nine statements that participants were asked to rate, this statement was third in terms of the number of respondents who answered “not true” to the statement asked. However, 83% said this statement was either “very true” or “somewhat true” for them. It is impressive that this many people increased their awareness and attention to the larger food system, simply through participation in the CG. Therefore, despite the relatively high number of “not true” responses, greater than 75% said this statement was at least “somewhat true” for them. Again, this is much greater that I expected when the survey was created. I did not think that this outcome would be true for this number of gardeners because it seems like a stretch, beyond a seemingly direct outcome.

Knowledge

The majority of the population reported that the statement regarding sharing knowledge in the garden was at least “somewhat true” for them. Although 36 percent of participants indicated that they shared knowledge to the highest rating provided, 22 % indicated that the statement regarding shared knowledge was not true for them. Of the
nine statements gardeners were asked to rate, this statement had the second highest percentage for the selection, "not true". This may be because gardeners did not feel they were not skilled enough to share knowledge or because they were not afforded an opportunity to exchange information with other gardeners. The way the question was worded did not allow me to decipher this.

**Active in Community**

To understand if community gardening might promote civic engagement, participants were asked to rate the statement, "I have become more active in my community." Of all nine statements, this statement was the least true for respondents. Only 9% indicated that this was "very true", with close to 30% indicating this was "not true" for them. Although over 72% indicated that this statement was at least "somewhat true", these percentages indicate a weaker relationship between community gardening and increased activity in one’s community. The Philadelphia Study cited in the literature review also found that community gardens helped participants to become more active in the community. Their study indicated that urban gardeners were, "more likely than non-gardeners to participate in food distribution projects, neighborhood clean-ups or beautification projects, and neighborhood barbeques and social events" (Blair, Giesecke, and Sherman 1991, 164).
Scaled Question Conclusions

The majority of the sample indicated that each of the statements were outcomes of the CG experience. Although some statements had higher percentage ratings than others, each statement had over a 70% response rate indicating that the statement was “somewhat true”. Statements that had a less than 10% rating for “not true” included: dietary improvements, food sharing, skill improvements, developing community connections, and empowerment. Those statements that had a 15% or greater response rate for “not true” included: sharing of knowledge, awareness of the larger food system, increased interest in local community, and becoming more active in the community. Even though these statements received a lower rating, it is impressive to know the far reaching effects of the outcomes of community gardening. CGs seem to be providing an opportunity for participants to eat better, share more, improve their gardening skills, empower themselves through food production, and establish a connection to their community and the people within it, perhaps encouraging people to move into other aspects of their community and become involved as a result of participation in a community garden.
Savings and Number of People Fed

When asked if gardening saved people money, the response was generally positive. Seventy percent said that their harvests decreased their grocery bill, and on average people saved 14 dollars a week (see figure 6). Twenty-five percent indicated they did not save any money, while five percent were unsure.

Gardeners were also asked how many people their gardens consistently fed and for how long. On average 2.62 persons were fed for 3.25 months by a single garden plot (see figure 7). Although I was able to quantify this information, it seemed difficult for
some gardeners to respond to this question. Twenty-three people did not respond (leaving it either with a blank, N/A, or not sure) to the question pertaining to how long their garden fed them. Nine people did not answer the question about how many people their garden fed. Even though not everyone was able to provide this information, it is clear that gardens are supplementing household food consumption as well as decreasing monthly grocery costs to some extent. The literature supports these findings. The Rutgers University study found that the average New Jersey community garden plot (about 700 square feet) produced about $500 in vegetables in an average growing season. Deducting the costs, those gardeners netted an estimated $475 tax-free dollars each season (Patel 1991).

Sixty-seven percent of gardeners indicated that they earned less than $20,000 per year. This information in conjunction with the information on savings and people fed from individual plots may indicate that these factors play a role in why people choose to participate in CGs. The ability to produce quality, healthy produce may entice a lower income population to community garden, (lower-income people are also less likely to have access to a yard on which to garden). One gardener's comment, taken from an open-ended question in the survey, states, "It (community gardening) allows people to grow food that is much more healthy than 'conventionally' grown produce, and much less expensive than 'organically' grown produce."

This information on food supplementation in combination with the demographic information on income suggests that community gardening assists household food provisions through the summer months and beyond.
Primary Reasons for Participation

The next question had a unique format. It asked the participant what his or her primary reasons were for participation in the community gardens program. This question sought to understand the individual’s reasons for gardening. The question gave a list of 14 choices and participants were asked to choose the top three reasons and to rank them, 1, 2, or 3. Although most respondents only selected three reasons and ranked them (59), some respondents choose more than three (21), while some did not rank their selections and chose more than three (19). I felt the best way to analyze this question was to only count the surveys whose respondents chose three reasons only (60). This seemed to be the fairest way to count how often a response was legitimately chosen. In addition, this group of people represented the majority of respondents. The analysis looks at how often a response was chosen rather than whether the reason was of a primary, secondary or tertiary ranking (analyzing the ranking would have complicated analysis beyond my purposes here). The table below shows how often a certain reason was selected (see table 2). The responses are ranked from most selected to least selected.
Table 2-Primary Reasons. Number of times selection was chosen based upon the primary reasons for an individual’s participation in the community gardens program (n=60).

<table>
<thead>
<tr>
<th>Primary Reasons for Participation</th>
<th>Number of times selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>participate in the production of your food</td>
<td>38</td>
</tr>
<tr>
<td>gain gardening experience/knowledge</td>
<td>25</td>
</tr>
<tr>
<td>therapeutic elements of gardening</td>
<td>23</td>
</tr>
<tr>
<td>control the quality of the food you eat</td>
<td>20</td>
</tr>
<tr>
<td>no space at home</td>
<td>19</td>
</tr>
<tr>
<td>connect to nature</td>
<td>12</td>
</tr>
<tr>
<td>save money on food</td>
<td>11</td>
</tr>
<tr>
<td>family activity</td>
<td>8</td>
</tr>
<tr>
<td>for fun</td>
<td>6</td>
</tr>
<tr>
<td>social interaction</td>
<td>3</td>
</tr>
<tr>
<td>improve neighborhood character (beautification)</td>
<td>2</td>
</tr>
<tr>
<td>cultural/ethnic heritage</td>
<td>2</td>
</tr>
<tr>
<td>other</td>
<td>2</td>
</tr>
<tr>
<td>supplement income through the sales of produce/flowers</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>171</strong></td>
</tr>
</tbody>
</table>

The response, *participate in the production of your food*, was selected most frequently as a primary reason for participating in the CG. This was the most common response for gardeners in terms of why they participate in the community gardening program. Growing one’s own food is a rewarding activity that provides satisfaction with tangible results. Participating in the many stages of food production is motivational for many gardeners in this CGs program.

The second most selected response was to *gain gardening experience/knowledge*. Knowing how to garden and gaining the skills to be self-sufficient in terms of growing
The second most selected response was to *gain gardening experience/knowledge*. Knowing how to garden and gaining the skills to be self-sufficient in terms of growing one’s own food are sought after abilities. The art of gardening requires practice and an acquired set of skills and knowledge. According to these responses attaining gardening skills and knowledge is a primary reason for participation for 25 people.

*Therapeutic elements of gardening* was the third most frequently indicated reason for gardening. Clearly, numerous people feel that gardening provides them with a sort of therapy, helping them to deal with the difficulties of daily life. Gardening may provide its participants a “release” in terms of the stresses that occur their lives. Sinang Lee also found this to be true in her study of California community gardeners. One of the top five declared individual benefits of community gardeners in here study was, “I garden to relieve stress” (Lee 2004).

The fourth most selected response was to *control the quality of the food you eat*. In a time when people may have less knowledge about where their food comes from, how it was treated and handled, and what was used to grow or process the food item, community gardening may provide an avenue to eliminate these uncertainties. Growing one’s own food may provide a reassurance that the food gardeners are eating is safe and healthy to the surrounding environment and one’s self.

The fifth most common response was *no space at home*. Simply put, some gardeners (19) are participants in this program because they do not have the space to garden at their home. CGs provide access to a piece of land on which to grow food and flowers where they otherwise would be unable to do so.
Twelve people said that *connecting to nature* was a primary reason for participation. Gardening can provide an avenue to gain understanding and appreciation for the living soil, plant growth and maturation, pollinators, and other living beauties that utilize urban gardens. Experiencing the natural beauty of ecologically-conscious gardening inspired a number of gardeners.

People also participated in the CGs to *save money on food*. Eleven persons said this was a primary reason for participating. The selection of this category echoes the information gardeners gave regarding savings on groceries and the amount of people fed by their plots. For over a quarter of the responding population, saving money on food was an important reason for participating in the CG.

The other reasons provided: *family activity, fun, social interaction, neighborhood beautification, cultural/ethnic heritage, and other*, were chosen to a much lesser degree, while to *supplement income* was not chosen by anyone. Overall, this question showed that gardeners participate for a variety of reasons. Five of the 14 options provided appear to be particularly salient: *participation in the production of your food, gain gardening experience/knowledge, therapeutic elements of gardening, control the quality of the food you eat, and no space at home*.

**Primary Benefits to the Community**

The next few questions on the survey were asked in an open-ended format, allowing for a variety of individual responses. Some participants replied to these questions with one response, while others gave several for each question. The first of these questions asked, “What do you feel the primary benefit of the community garden is
to this community?” As opposed to the above question that asked gardeners about their personal reasons for participation, this question focused on the benefits to the community as a whole. Although responses varied widely some themes ran through the answers. I was able to group responses into nine categories, based on the responses that were given. Each category is listed below with the number of responses indicated (see table 3); I then turn to a discussion of each.

Table 3-Community Benefits. Developed categories that reflect the greatest benefit of the gardens to the community, with the number of responses that fit into each of these categories (n=75, each respondent may have given more than one response).

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Building</td>
<td>28</td>
</tr>
<tr>
<td>Access to Land and Resources</td>
<td>27</td>
</tr>
<tr>
<td>Food Production</td>
<td>18</td>
</tr>
<tr>
<td>Education/Attainment of Knowledge</td>
<td>17</td>
</tr>
<tr>
<td>Open Space Issues and Urban beautification</td>
<td>12</td>
</tr>
<tr>
<td>Connection to Soil/Earth</td>
<td>6</td>
</tr>
<tr>
<td>Provision of Food Aid (Hunger Agencies)</td>
<td>3</td>
</tr>
<tr>
<td>Horticultural Therapy</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Responses</strong></td>
<td><strong>113</strong></td>
</tr>
</tbody>
</table>

Community Building. This category had the greatest number of responses. Community Building refers to comments that suggested the primary benefit was to bring all kinds of people together, to strengthen community, and to increase the social relations between community members. Although I created the category of Community Building this concept is framed by the respondent’s statements:
“(The program) brought people in the community together to help each other, be productive, become educated about food, nutrition, gardening, and to save money.”

“It provides people of all walks of life a space to share a common interest, regardless of income or experience.”

“(It is) a wonderful way to connect with community members.”

“It connects people with similar interests—opens up people to the community.”

“(It) builds relationships while working together.”

“The Northside Community Garden is not only beautiful visually, but it is important to the overall community health of Missoula and the earth.”

“The ASUM gardens in particular provide students—a fairly rootless and low-income population—with an opportunity to relate to Missoula itself as ‘regular folk’, raise good food, and have a lot of fun.”

“(It) helps create a sense of community.”

It seems evident that respondents see community gardening as an activity that has the capability of bringing people together to build relations, connect, and share experiences.

Access to Land and Resources. With 27 responses, access to land and resources was the second most frequently expressed benefit. According to one participant CGs in Missoula provide “space, tools, resources (people and water) for folks who have the desire to garden but are unable to”. The responses in this category convey a message that without the provision of these resources 24% of the participants may not have had the ability to garden. Without the provision of land and tools by GCH, people seem to feel restricted due to the cost of gardening or the inability to cultivate land where they reside. One gardener says that CGs, “give renters, small landowners, a place to garden”, while another gardener describes CGs as, “Making gardening possible! The tools, compost,
and starts were as important as the plot. We didn’t have money to put into starting a
garden on our own.”

Access to and control over land and resources can affect issues of livelihood.
Those who have access to land and resources often possess the ability to obtain wealth,
power, and well-being. Those who do not have access to land and resources are often a
marginalized group, limited in their ability to do well for themselves and their families.
CGs give all community members the opportunity to utilize and tend a plot of land as
they wish, for their own needs. This allows people without their own land to produce
quality food and feel some ownership of a piece of ground. Community gardeners in
Missoula express this sentiment by stating, “(The primary benefit is) having ‘ownership’
of a plot of ground in order to produce food and connect with nature”, and “(It is) a good
use of space that allows people who want to garden but don’t have the resources- land,
watering system etc., (to do so)”

Access to land addresses issues of equity, creating opportunities for all people to
reap the benefits of the cultivation of land and the provision of local food. From the
responses one can see that the provision of land is a primary benefit of CGs to the
community.

Food Production. The main thrust of the category of food production was that the
production of local, healthy food was a primary benefit of CGs to the community. In
response to this question gardeners stated that the benefits were to, “to grow organic local
foods”, “having a healthy source of veggies”, and “to focus on local community food
production”. A subsection of this category was the notion of affordable food production.
Five respondents within this category of 18 people mentioned food production in conjunction with savings. They described the primary benefit as “affordable organic food” and making it possible for, “lower income families to grow food and save money”.

Education/Attainment of Knowledge. Another benefit that respondents identified frequently was the informal educational component of gardening. This category was mentioned by 17 people and most people wrote about the importance of learning through participation. The knowledge gained by growing one’s own food seems to have had a profound impact on respondents. The following responses demonstrate the emphasis on learning at the garden:

“It is important to realize you can grow more in Montana than you think. You cannot put a dollar value on the educational side of gardening.”

“(It) teaches people about how to produce their own food.”

“Ideally it is to educate the community about gardening and the benefits of sustainable organic agriculture, small-scale.”

“To educate the people to the importance of locally-grown, fresh, and pesticide free food.”

Also included in this category is the benefit of learning from other gardeners and the importance of sharing ideas and knowledge at the garden. Gardeners described the CG as, “a place for gardeners to share ideas and experiences about the process,” having the capability to “bring people together, who might not otherwise garden, to share knowledge and also to create a space for people to produce their own organic food.”

Open Space Issues and Urban Beautification. Open space issues/urban beautification was fifth category in terms of the most mentioned ideas. CGs serve as edible open spaces
and can help to renew, restore and beautify the concrete uniformity of urban life. Flowers and vegetables can create a refuge in the middle of a city, transforming an urban lot into an enjoyable place to spend an afternoon. Sentiments of gardeners in Missoula track these ideas:

"(CGs) provide an improvement to property that would otherwise be weeds."

"Neighborhood beautification"

"Some of the best open space in the River Road area"

"Beauty and great use of space-feeds back to the community in visual and whole food"

"Maintains open space"

The remaining categories had a fewer number of responses but still had enough responses to merit a category being developed for them: Connection to Soil/Earth, Provision of Food Aid (Hunger Agencies), and Horticultural Therapy.

When asked, "What do you feel the primary benefit of the community garden is to this community?", gardeners responded with an array of ideas. Nine categories demonstrated the variance of these ideas, with the two top categories being community building and access to land and resources. In analyzing the responses it is important to remember the question and its emphasis on the community. It is no wonder that community building was the most selected category when the question asked specifically about the benefits to the community. Conversely, when participants were asked about their individual reason for participation, the sample overwhelming identified participation in the production of your food as the top selection, reflecting an individual concern. Although there is some overlap among the responses in the two questions there
is a clear distinction between an individual reason for participation and a community benefit of the gardens more generally.

The Best Part of the Experience

The next open-ended question asked gardeners, “What was the best part of your community gardening experience?” Again a variety of answers were recorded and grouped into nine categories. The categories and number of responses are listed below (see table 4).

Table 4-Best Part of Experience. Categories that reflect the best part of the gardening experience for gardeners, with the number of responses that fit into each of these developed categories (n=75, each respondent may have given more than one response).

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Food (growing and harvesting one’s own food)</td>
<td>38</td>
</tr>
<tr>
<td>Gardening in Community/Social Interaction</td>
<td>18</td>
</tr>
<tr>
<td>Gaining/Sharing Knowledge</td>
<td>11</td>
</tr>
<tr>
<td>Satisfying Work and Therapy</td>
<td>7</td>
</tr>
<tr>
<td>Connecting with Family</td>
<td>6</td>
</tr>
<tr>
<td>Being Outside</td>
<td>6</td>
</tr>
<tr>
<td>Observation</td>
<td>3</td>
</tr>
<tr>
<td>Sharing Food</td>
<td>3</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
</tr>
</tbody>
</table>

Fresh Food (growing and harvesting one’s own food). Thirty-eight people emphasized the value of growing and harvesting one’s own food as the best part of their gardening experience, with respondents stating, “Eating what I worked hard to grow is pretty great!” Reaping the benefits
of digging and planting solicited the most responses, with participants heralding the greatness of fresh vegetables. The abundance of fresh tomatoes seemed to be a hit among many gardeners. Following are some of the participants’ responses:

“Growing most all my own veggies.”

“Reaping the benefits/fruits of my labor.”

“Taking a neglected spot, nurturing it, and producing great veggies and flowers.”

“Fresh, organic food.”

“Realizing that I can grow my own food.”

“Seeing my tomato plants come back from being nearly killed in the last frost (and losing all their leaves) to becoming a monstrous tangle which yielded over a hundred pounds of fruit.”

Growing food is an amazing process that yields wonderful results. It can give one a sense of self-sufficiency and power. Patel’s (1991) research noted in the literature review speaks to this idea highlighting that 13.8% of the study’s respondents reported feelings of self-sufficiency as a result of gardening. The above quotes also emphasize the power and enjoyment of fresh food and self-sufficiency.

Gardening in Community/Social Interaction. The next most responded to category was gardening in community/social interaction. This category expresses the idea that the best part of the experience was gardening with others and the social aspects of community gardening. Eighteen participants said that sharing the process with others, personal interactions, meeting people, and working with others were the best parts of their experience in the garden. Gardeners describe this category in their own words:
“Talking with others in the garden, exchanging info, commiserating, sharing produce.”

“Meeting other gardeners in neighborhood.”

“Interacting with the multi-culture, age, experience, etc.”

“Doing it with a group of people, the community feel”

“Sharing the process with new friends.”

Community gardening gives individuals a chance to interact with others on a casual basis, apparently bringing them positive feelings about their experience.

**Gaining/sharing knowledge.** The exchange of knowledge had a significant impact on 11 participants. Gardeners seemed to gain knowledge from each other mentioning that the best part of their experience was “asking questions to other experienced gardeners”, as well as through “trial and error, and error, and error!” Other gardeners remarked that the best part of their experience was, “learning more about plants and plant physiology/dynamics and growing techniques” and “sharing food and knowledge with other gardeners at the garden”.

The remaining categories had a fewer number of responses but still had enough responses to merit a category being developed for them: **satisfying work and therapy, family, being outside, observation, and sharing food.**

Community gardening is an individual as well as a collective experience. Responses to the question regarding the “best” part the experience reflect individual and communal enjoyments. **Fresh Food (growing and harvesting one’s own food), and Gardening in Community/Social Interaction** were the top two categories for this question. These responses demonstrate the importance of fresh local food as well as the enjoyment of growing food with others in the community.
Problems at the Garden

Up to this point in the survey most questions asked gardeners about the positive aspects of their experience. This next question asked gardeners, “What problems did you encounter at the community garden?” Gardening in community, on a borrowed piece of land, in the middle of a low-income urban neighborhood, can have its drawbacks. Many problems stemmed from a particular issue at a garden, such as irrigation faults, construction, vandalism, or theft. Below are the problems mentioned by gardeners divided into nine categories (see table 5).

Table 5-Problems. Problems at the five gardens as identified by gardeners (n=78, each respondent may have given more than one response).

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pests</td>
<td>19</td>
</tr>
<tr>
<td>Watering issues</td>
<td>17</td>
</tr>
<tr>
<td>Theft/Vandalism</td>
<td>9</td>
</tr>
<tr>
<td>Time issues</td>
<td>6</td>
</tr>
<tr>
<td>Tool issues</td>
<td>6</td>
</tr>
<tr>
<td>Construction</td>
<td>5</td>
</tr>
<tr>
<td>Distance</td>
<td>3</td>
</tr>
<tr>
<td>Sewer</td>
<td>2</td>
</tr>
<tr>
<td>Misc.</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total Responses</strong></td>
<td><strong>80</strong></td>
</tr>
</tbody>
</table>

Pests. The greatest number of responses (19) fell under the pest category. Pests included insects, weeds, rodents, and deer. Some of the difficulties of organic gardening became apparent through these responses.

“The plot next to me was abandon and full of annoying weeds.”
"Too many weeds, not enough time."

"The flea beetles ate my plants and the grasshoppers too."

"Way too many mice. I caught ten mice and that did not even touch the problem."

"Flea beetles on tomatoes!"

Watering issues. Watering in the arid summer climate of Western Montana is of the utmost importance. Some gardeners met frustration in keeping up with watering and with the watering systems, stating, “I had trouble getting to the garden often to water plants”, and, “U of M needs to give garden manager greater control of the watering system.” Other problems arose with how gardeners utilized the watering systems such as, “people turning off my water, people taking the oscillator I was using” and “crowding caused occasional difficulties in accessing water.”

Theft/Vandalism at the Northside Garden. Theft and vandalism were issues at the Northside CG. Other gardens did not seem to have these problems. This is perhaps the most disturbing of all problems at the garden, as it is difficult to remedy and very damaging to the spirit and potential of CGs, as one gardener states, “We had some carrots and garlic pulled up, and a few things stolen.”

The Northside is located in a low-income neighborhood. It has no fence and is frequented by neighborhood children and adults. On one hand, this is the beauty of the garden, available for all to appreciate, admire and enjoy. However, it only takes a few vandals to ruin a gardener's efforts, tainting the experience for many. One gardener expresses his discouragement by stating, “stealers taking your hard worked cabbages and squashes. The neighborhood thinks it is their garden (maybe do kids programs!)”
Signage has been displayed in this garden, asking neighbors to look but not take or destroy crops. This does not seem to have been effective, and many gardeners have asked for a fence around the garden to keep violators away.

**Time Issues.** The time commitment of gardening was also a problem for gardeners. In theory gardening sounds and seems fun; however, after a few weeks, one realizes that it is a time consuming process that needs a good deal of attention, as one gardener states, it was “hard to find time to get out there”. The manifestation of this lack of time can be seen at some gardens that have become overrun by weeds in July or that are wilting in August. Another gardener laments that his problem with the garden was the, “lack of time and upkeep of the garden and unhelpful friends who said they were committed to the garden.”

**Tool Issues.** The supply and maintenance of tools is the responsibility of GCH and the garden organizer for that garden. Gardeners have unrestricted access to these tools but are asked to care for the tools after use. Participants expressed problems with the lack of tools, their care and usage:

- “Disappearance of tools, breakage of tools and sprinklers” (Northside)
- “Mostly hoses being neglected and not wound up, tools being left laying around-broken sprinklers.” (Northside)
- “The Northside could use tools and sprinklers.”

Other problems included construction at the ASUM garden which caused problems with access to the garden, and a sewer project that unearthed the garden in East
Missoula. Distance was also spoken of by gardeners as it was an issue for those who were located far from their garden.

It is the nature of a project to have some shortcomings and problems. *Pests, watering issues, and theft/vandalism* rise to the top of people’s lists in Missoula’s CGs. Some of these issues are beyond the control of GCH, while others should be addressed by the organization. Suggestions for improving the gardens will be discussed in the conclusion.

**Suggestions**

This question had the least number of responses, with 42 respondents leaving the answer blank, writing none, or zero. The responses were grouped into eleven categories but only two categories received more than three responses. Eight persons gave suggestions regarding irrigation, seven people responded with positive feedback, three responses regarded the garden organizer and attention to the garden, three to plot care, three regarded compost, two to tools, two to volunteerism, two to weed control, two to getting and earlier start, two to wasted food, two to social aspects in the garden, and 8 miscellaneous comments were made.

**Irrigation.** Again irrigation comes up as an issue for gardeners, receiving the most comments in terms of suggestions for the garden. Each quote is followed by the garden from which the comment came.

"A better irrigation system" (River Road)

"More sprinklers" (Northside)

"A more convenient way for the southern most plots to water. Better sprinklers."

(Northside)
"Longer sprinkling during July and August" (ASUM)

"A more definitive watering schedule in the beginning of season—it was always a bit obscure." (ASUM)

Gardening in Missoula necessitates frequent watering with quality tools. It is clear that gardeners desire an irrigation system that is easy to operate, dependable and extensive enough that many gardeners can use it at the same time. This is an issue that should be looked at by the GCH staff, and improvements should be made to accommodate these concerns.

Positive Feedback. The second most commonly mentioned response fell under the category of positive feedback. When asked about suggestions, gardeners responded with complimentary words, such as:

"I can’t say enough about what Greg has done for the garden this year! New tool shed, also always available to answer questions! Please come back to River Road next year!"

"Keep up the good work!" (EMO)

"4 stars! Great encouragement and management." (ASUM)

"Excellent! Keep it up and bring more doughnuts." (ASUM)

These gardeners felt compelled to complement the management of the CG in their own words. This positive feedback gives support to the work of GCH. Other suggestions (3) that came forth remarked on the fact that gardens need a great deal of attention and organization, implying that it did not exist with the current structure or garden organizer. Three others spoke to the concern of neglected plots. Their suggestion was for the garden organizer to be stricter on those who had not cared for their garden
space. Three people had suggestions about compost. Their ideas were to develop a better composting system so that gardens could utilize their waste for fertilizer.

The remaining categories were commented on by two people each: 1) the improvement of tools, 2) the need for more volunteerism at the gardens, 3) the improvement of weed control, 4) getting an earlier start at the gardens in terms of opening day, 5) lessening the amount of wasted food by gardeners in their plots, and 6) increasing the social capacity of the gardens.

Eight individual suggestions were made by gardeners bringing the total number of suggestions to 44. The closing day survey concluded with three more close-ended questions discussed below.

**Garden Organizer**

Gardeners were asked to evaluate the garden organizer in terms of how well he or she did his or her job. Garden organizer duties include: growing food for hunger agencies, educating community gardeners on organic growing techniques, managing water and tools, organizing opening and closing days at the garden, and directing garden activities for volunteers. Over 60% said their garden organizer did their job “very well”. Twenty-nine percent said s/he did her job “well”, five percent said their organizer performed satisfactory and three percent said their organizer did a “poor” job. Overall this is a positive rating for the five garden organizers, with over 90% of respondents giving their garden organizer a mark of “well” or “very well”.

66
Retainment/Attrition

When asked whether gardeners would be returning the garden the next year, 70% said yes. Twenty-three said no, while seven percent were unsure. This response could signify a general satisfaction with gardeners’ participation in the program.

More Gardens

The final question on the survey asked gardeners, “If the garden you participated in was not in your neighborhood, would you like to see a community garden established closer to your home or in your neighborhood?” Most respondents (61%) said that the garden was in their neighborhood. For those whom the garden was not in their neighborhood, 93% said they would like to see a CG established in their neighborhood. Seven percent said they did not wish to see a garden in their neighborhood.

This response shows that most participants have the opportunity to garden in their neighborhood. However of those who do not, the majority would like to see a new garden formed in their neighborhood. This seems to indicate a general support of gardens by participants, and a desire to have them in close proximity to their homes.
Chapter 5

Conclusion

The motivation behind this research project was to discover what the key benefits of GCH's community gardens were to the community and the individuals they served in Missoula. The central research question was, "Who are Missoula’s community gardeners and what benefits do community gardens bring to the gardeners and the community?" As an employee of GCH, I knew this information could be helpful to the organization, and so I designed two surveys to obtain knowledge about the gardens from the gardeners themselves.

CGs are an important part of a sustainable agriculture and UA. CGs are not a complete alternative to industrial agriculture but they give participants a window or space for transformation, an opportunity to be a part of the production of their food rather than purchasing it from an agribusiness. They address issues beyond organic agriculture such as food security, local production, and self-reliance. CGs are an integrated approach to a community’s food production, reducing transportation costs of food delivery, reducing packaging, reducing the use of synthetic pesticides, increasing awareness about food production, educating people about growing food, increasing local food production and increasing the capacity for community relations.

Much of the existing literature on CGs spoke to the social, economic and environmental benefits of community gardening. This literature helped me to develop questions for the surveys and to understand what other gardeners were experiencing in other cities across the nation. The extensive history of CGs revealed the depth and strength that CGs possessed, standing the test of over a century’s worth of changes in the
U.S. However despite their long history, support for CGs has ebbed and flowed over time. Present day CGs are challenged by a paucity of data on their success, land insecurity, and a lack of recognition from municipalities. All of this information on CGs helped to shape my approach and methodology for researching the five Missoula CGs run by GCH. This CGs program, established in 1996, has been gaining support from the community and regional business and possesses strength as it continues to add new gardens to the network.

**Themes in the Data**

Analysis of this data has provided some interesting results. The majority of gardeners are of a lower income, a high education attainment, and men and women participate almost equally. Community gardening has immediate and tangible effects, such as decreased grocery bills, more control over the food one consumes, and the attainment of gardening skills and knowledge. Most gardeners have a positive outlook on their experience, highlighting community building, access to land and resources, attainment of knowledge and participation in the production in their food as the most valuable aspects of their experience. This process also extends these benefits to the social realm, where the community aspect of gardening has helped to develop relations between gardeners and a sense of community connection. Below are some of these themes highlighted and explained.
Community building/social interaction

The idea that CGs provided a community connection, building up relations among gardeners and providing positive social interactions for participants, was prevalent throughout the data on the closing day survey. This information became evident on the scaled question where 94% of respondents said that the statement, “I felt a sense of community connection” was “very true” or “somewhat true”. The second appearance of this theme came in the first open ended question regarding the primary benefit of gardening. Twenty-five percent of the responses (the most number of responses) remarked on some idea of community building when asked what the primary benefit of community gardening was to the community. Lastly, when asked what the “best part” of their experience was, 17% of the responses (second greatest number of responses) reflected the notion of gardening in community and the social interactions this opportunity provided.

Food Production

For many gardeners producing their food was the most important part of their experience. When asked about the primary reasons for participation this was the most commonly selected response (22% selected participate in the production of your food). Fifteen percent remarked on food production as the primary benefit of community gardening (ranked third), while growing and harvesting one’s own food was the most frequently noted for the “best part” of the community gardening experience (25% of responses).
Knowledge

Gaining knowledge, or the educational component of gardening, was also very important for gardeners. In the scaled question gardeners were asked to rate the veracity of the statement, “I shared gardening knowledge with others in the community garden”. 78% responded that this statement was “very true” or “somewhat true” for them. To gain gardening experience/knowledge was the second most frequently selected response in the primary reasons for gardening question (15% of responses). Education/attainment of knowledge was the fourth most commented on category in the primary benefit question (15% of responses). A category was also developed for gaining/sharing knowledge as the “best part” of the gardening experience, remarked on by 11 people (13%). Responses from these questions indicate that the strongest method of education came in the form of hands-on experience from gardening, rather than the shared knowledge between gardeners, even though both were remarked upon throughout the survey.

Access to Land

Both in closed and open-ended questions access to land and resources came up as a theme for garden participation. The response no space at home was the fifth most selected response in the question regarding the primary reasons for participation (11% of responses). Twenty-four percent of the responses for greatest benefit question fell into the access to land and resources category. This was the second most responded to category, with 27 persons remarking that the provision of land and resources was the most significant attribute the program provides to the community.
It is important to know that gardeners emphasized access to land as a major benefit to the community when each garden's land security is so tenuous. Gardeners are excited these spaces exist, yet land tenure at each of these gardens is unstable. None of the gardens GCH operates is owned by the non-profit, and many only have yearly leases. Like other gardens across the nation, Missoula's CGs face land insecurity, with housing development being the most likely threat to the gardens.

**Survey Limitations and Need for Revisions**

Even though I attained over a 60% response rate for both surveys I still don't have a complete representation of gardeners or how they felt about their experience. How do the other 33% of the population feel about gardening? I do not know their reasons for not responding to the survey, and thus I can only report these findings as a representation of the majority of the gardening population.

Some of the questions on the survey were problematic. The wording must have confused respondents, or the questions were not clear enough. For example on the primary reasons questions numerous people did not chose only three reasons and rank them accordingly. Twenty people answered this question incorrectly, therefore reducing the response rate for this question, and limiting the potency of findings here. In addition, more specifications were needed on some questions as some people gave more than one reason to a single question. This was not the fault of the respondent because they were not instructed to leave a specific number of responses. For example, some people gave only one answer for the community benefit question while others may have cited three. This could be viewed as an unequal collection of data.
I would combine the two survey format to one closing-day survey. All pertinent information can be gained in one survey administered at the end of the season. This format may also increase the response rate for surveys, diminishing any confusion over participants filling out two surveys at different times. I would alter some questions while eliminating quite a few questions from the opening-day survey (see appendix 3-2004 survey for a revision that is based on this experience as reported in this professional paper).

**Recommendations**

In examining the suggestions gardeners made as well as the problems that were described at the garden there are a few ideas that GCH should consider addressing. I believe that most of these recommendations are realistic in consideration of GCH annual budget.

*Pest Management Education*-Provide workshops, small classes, literature, and tools for gardeners regarding how to deal with pests in least toxic ways.

*Irrigation*-Water is an absolute necessity for gardening in Missoula. Irrigation systems should be user friendly, correctly operating, and an adequate number of watering implements should be available to gardeners. Information about appropriate usage (conservation) and watering schedules should also be available to participants. GCH should make improvements to existing irrigation systems and repair those that are not working properly. Investments should be made in quality and efficient watering systems.

*Tools*-GCH should improve their tool supply, access and storage. In addition clear communication about the care of tools should be delivered to participants.
Adequate Signage—Whether it be about construction access, vandalism, theft, pests, or watering issues, signs should be utilized in the garden to communicate messages to community gardeners and other community members. This may be an effective way to discourage theft or decrease the spread of weeds.

Garden Development—Although some interest was expressed by respondents to develop more gardens around Missoula, my recommendation would be to first make stronger the gardens now in operation. Then with extra funding and support, the development of new gardens could be pursued. These gardens should be established in areas where current gardens do not exist, so that new populations of Missoulians are served.

Community Building—Continue to embrace and enhance the community connection that CGs provide for its participants. Promote opening day, garden potlucks, information sessions, volunteer workdays and garden tours. Attempt to reach beyond the gardening community to the neighborhood at large with gardening news and happenings at the garden. These efforts may help to reduce vandalism and theft at the gardens.

Education—Garden organizers should be trained extensively in ecologically-based agriculture so that they may pass this information onto gardeners and volunteers. The sharing of knowledge between gardeners should be encouraged through workshops and scheduled information sessions.

Gain Support for CGs—Numerous other CG programs have governmental support. GCH should attempt to gain city level support to help finance and/or develop gardens on city park land. Data from this research could be helpful in attaining this support, placing CG issues on the Missoula City agenda. Increased recognition of CGs may help to secure
land for the project, as well as to increase funding opportunities from public and private sources.

On the whole, CGs in Missoula are valued by both seasoned veterans and newcomers to the project. They involve close to 150 people and address issues of food security, community building, land access, and education. They are one small piece of a puzzle that helps a city become a desirable place to live. They bring individuals together to understand the process of growing food, all the while gaining knowledge, friends, a connection to the earth, and copious amounts of fresh, healthy vegetables.

Hopefully this research will provide GCH with a renewed sense of commitment to *put the gardens back into the garden city*. With this data the CGs program should have a clear sense of how they are affecting their participants, and they should be proud of their efforts and the opportunity they are providing for Missoulians to sow and reap on a borrowed piece of ground.
Bibliography


Feenstra, Gail, Goodlett, Martha, Garrett, Steve, “Entrepreneurial Community Gardens: Growing Food, Skills, Jobs, and Communities”, Conference Proceedings, Community

Gallup Organization, National Gardening Survey, 1994, Princeton, NJ.


Garden City Harvest Community Garden Sign-up Survey, 2003
Please take a few minutes to fill this survey out so that we all can make this garden a better place to grow next year. Place an X in front of the answer that is appropriate or circle yes or no. If you'd like to fill out the survey anonymously, that's OK. All information is kept confidential. Your name will not be associated with any of your answers beyond Garden City Harvest Staff.

Garden Site: ___ASUM ___East Missoula ___MUD/ Northside ___Mullan Road ___River Road

1. How did you hear about the community gardens?
   ___Garden City Harvest Staff ___flyer
   ___friend/ family/ word of mouth ___newspaper advertisement
   ___public service announcement ___other

2. How far is this garden from your home?
   _____0-½ mile _____½ mile-1 mile _____1 mile-1 ½ mile _____1 ½ mile or more

3. Would you consider the garden to be in your neighborhood? Yes / No

4. What will be your main mode of transportation to the garden?
   ___walk ___bike ___auto

5. Please indicate how many years you have participated in this community garden.
   _____0 _____1 _____2 _____3 _____more than 3

6. Have you participated in another community garden in Missoula, or in another city? Yes / No. If yes, which garden or what city?______________________________

7. What interested you in community gardening? Check all that apply, and circle your number one interest.
   ___family activity ___meeting neighbors/social interaction
   ___cultural/ethnic heritage ___gaining gardening experience/knowledge
   ___connection to nature ___to supplement income through sales of
   ___growing nutritious/healthy food ___produce/flowers
   ___therapeutic elements of gardening ___improving neighborhood character
   ___saving money on food ___participating in the local production of your food ___other

8. Is the price of the plot ($25 per season)
   _____too low _____too high _____just right

9. How do you rate yourself as a gardener?
   ___novice _____some gardening in past _____experienced
10. Currently, how many meals or snacks do you eat a day that consist of vegetables?
   ____ 0 ____ 1 ____ 2 ____ 3 ____ more than 3

11. How much do you spend per week on your grocery bill? (count food stamps as dollars.)
   ____ $25-35 ____ $36-45 ____ $46-55 ____ $56-65 ____ $66-75 ____ $76-85
   ____ $86-95 ____ $96-105 ____ more than $106 ____ other amount? _____
   How many people are sharing this food? _____

12. Are you interested in:  ____ monthly potlucks?
   ____ gardening classes?
   ____ recipe ideas?
   ____ other? ________________

13. Would you be willing to be on a garden steering committee to participate in how this community garden is run? Yes / No.

Do you have any suggestions now? ________________________________

Name: __________________________________________________________

Address: ________________________________________________________

Phone #: _______________________________________________________

Ethnicity/race:  ____ White/European American  ____ Black/African American
   ____ Native/American Indian  ____ Latino/Hispanic
   ____ Asian/Pacific Islander  ____ Russian/Eastern European
   ____ other _______

Your age: ______________________  Sex:  ____ M  ____ F

Are you a student? Yes / No

Highest level of education completed:  ____ grade school  ____ high school  ____ some college
   ____ college degree  ____ masters or beyond

Do you own or rent your home? _________________________________

Number of people in your household: ______  number of children: ______

Number of household members that will participate in your garden: ______

Your household or individual income:  ____ less than $10,000?

Is this household or individual?  Circle one.
   ____ $ 10,000-19,999?
   ____ $ 20,000-29,999?
   ____ $ 30,000-39,999?
   ____ $ 40,000-49,999?
   ____ $ >50,000

Thank you, happy gardening!
Thank you for your time and participation in this garden. These surveys help us to improve the gardens and your experience. All answers to these questions will be kept confidential.

Name ________________________________ Phone __________________

Garden Site:   ___ ASUM    ___ East Missoula    ___ MUD/ Northside
               ___ Mullan Road    ___ River Road

# of years at this garden ___

1. How would you rate your overall experience in the garden this season?
   ___ Poor   ___ Fair   ___ Good   ___ Great

2. Please indicate how true the following statements are for you, in terms of your participation in the community garden.

   I ate more vegetables.          Very true  Somewhat true  Not true
   □       □           □

   I shared food with friends, family, other gardeners, neighbors, or hunger agencies.
   □       □           □

   I shared gardening knowledge with others in the community garden.
   □       □           □

   My gardening skills improved over the summer.
   □       □           □

   Gardening gave me a sense of empowerment in terms of greater participation in and control over what I ate.
   □       □           □

   My awareness and attention to the larger food system has increased.
   □       □           □

   I felt a sense of community connection.
   □       □           □

   Participation in the garden increased my interest in what was happening in my local community.
   □       □           □

   I have become more active in my community.       □       □           □

3. Did your gardening harvests decrease your grocery bill? yes / no
   If so, by how much? $ ______ per week (give your best estimate)
4. How many persons did your garden consistently feed? For how long?

5. What were the primary reasons for participating in the community gardens program?

Choose ONLY 3 and rate them on a scale of 1, 2, 3, 1 being the primary reason.

- __participate in the production of your food
- __save money on food
- __improve neighborhood character (beautification)
- __connect to nature
- __therapeutic elements of gardening
- __cultural/ethnic heritage
- __control the quality of the food you eat
- __family activity
- __gain gardening experience/knowledge
- __social interaction
- __supplement income through sales of produce/flowers
- __for fun
- __no space at home
- __other_____________________

6. What do you feel is the primary benefit of the community garden to this community?

7. What was the best part of your community gardening experience?

8. What problems did you encounter at the community garden this summer?

9. How well do you feel the community garden organizer did his/her job this season?

- __very well
- __well
- __satisfactory
- __poor

What suggestions do you have for the community garden for next year?

10. Are you planning on returning to this community garden next year? yes / no.

11. If the garden you participated in was not in your neighborhood, would you like to see a community garden established closer to your home or in your neighborhood? yes / no / n/a (the garden is in my neighborhood)

12. Would you be interested in participating in a short interview regarding your participation in the community garden this year? yes / no.

Thanks! Hope to see you next year.
Thank you for your time and participation in this garden. These surveys help us to improve the gardens and your experience. The information you provide will be kept confidential. Your name will never be associated with your answers in any public document.

Name_________________________ Phone____________________

Address________________________ Zip____________________

Garden Site: ASUM East Missoula Northside
             Mullan Road River Road

Number of years at this garden (include this year) ___

1. How would you rate your overall experience in the garden this season?
   ___ Poor  ___ Fair  ___ Good  ___ Great

2. Please indicate how true the following statements are for you, in terms of your participation in the community garden.

   I ate more vegetables.                  Very true  Somewhat true  Not true
   __  __  __  

   I shared food with friends, family, other gardeners, neighbors, or hunger agencies.  
   __  __  __  

   I shared gardening knowledge with others in the community garden.
   __  __  __  

   My gardening skills improved over the summer.
   __  __  __  

   Gardening gave me a sense of empowerment in terms of greater participation in and control over what I ate.
   __  __  __  

   I felt a sense of community connection.
   __  __  __  

3. Did your gardening harvests decrease your grocery bill? yes / no

   If so, by how much? $_____ per week (give your best estimate)

4. Approximately, how many persons did your garden consistently feed? For how long?
5. What were the **primary reasons** for your participation in the community gardens program?

6. What do you feel is the **primary benefit** of the community garden to this community?

7. What was the **best part** of your community gardening experience?

8. What **problems** did you encounter at the community garden this summer?

9. How well do you feel the community garden organizer did his/her job this season?
   ___ very well  ___ well  ___ satisfactory  ___ poor

10. What suggestions do you have for the community garden for next year?

11. Are you planning on returning to this community garden next year? yes / no.

   Ethnicity/race:  ___ White/European American  ___ Black/African American
                    ___ Native/American Indian  ___ Latino/Hispanic
                    ___ Asian/Pacific Islander  ___ Russian/Eastern European
                    ___ other ______

   Your age:_________________ Sex: ___ M  ___ F

   Highest level of education completed:  ___ grade school  ___ high school
                                          ___ some college  ___ college degree
                                          ___ masters or beyond

   Please indicate your household income.

   ___ less than $10,000  ___ $ 10,000-19,999
   ___ $ 20,000-29,999  ___ $ 30,000-39,999
   ___ $ 40,000-49,999  ___ $ >50,000

**Thanks! Hope to see you next year.**