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# Growing Roots: Gardening as a means to mitigate urban poverty and its symptoms

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# Growing Roots

## *Gardening as a means to mitigate urban poverty and its symptoms*

*"They were beaten; they had lost the game, they were swept aside. It was not less tragic because it was so sordid, because that it had to do with wages and grocery bills and rents. They had dreamed of freedom; of a chance to look about them and learn something; to be decent and clean, to see their child group up to be strong. And now it was all gone-it would never be!"*

*-Upton Sinclair, The Jungle, Ch. 14*

*St. Rose's Garden, Fall 2013 Photo Credit: Bruce Gilbert*

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**Environmental Policy Thesis**

**Abstract**

Urban gardening has become a very popular trend in the last few years in both affluent neighborhoods as a form of relaxation and in impoverished areas as a form of hunger relief. In impoverished areas, urban gardens are usually exclusively advertised as a solution to limited food access; however, there is a naïve belief that these gardens are effective forms of mass food production. Presently, these gardens are not productive enough to globally effect food production and the environment. However, to the communities surrounding the gardens, the effects are immense. Urban gardens are cheap and effective solutions for many of the problems associated with poverty and food deserts. Some of the issues I will address are: obesity, education, social interactions, income supplementation, health issues, dangerous neighborhoods, and refugee assimilation.

The overall approach will be based on public health and the health of the community. I will address the physical and psychological effects of urban gardens, but I will also touch upon the effects on the ecology and psychology of the neighborhood, urban and suburban planning and its accompanying laws, environmental psychology, and environmental education. I will initially detail some of the consequences associated with living in an impoverished area. I will use the various research and case studies performed, as well as some of my own observations working in these areas. I will then compile the individual research of various solutions to food deserts and assemble them into an analysis of the overall beneficial effects of urban gardens.

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**Introduction**

I was first exposed to extreme poverty and hunger working with my father on the Havasupai reservation in 2007. Located at the bottom of the Grand Canyon, the tribes' only source of income is from tourists hiking to the nearby waterfalls. Due to this limited and unstable income, they depend on farming the limited arid soil. Without their farms, they would have to rely on the local grocery store, which only sells basic staples, and lots of chips, candy, and soda. Their isolated location means hours of traveling either by mule or hiking to the store, which simply isn't an option for most. However, it is because they have the knowledge and skills to farm that they are able to sustain themselves even in a very harsh environment. My most vivid memory of that time, was when I was handed an unripe pomegranate (which to my surprise tasted like butter, the kernels were a clear delicate yellow instead of the deep red while ripe) by a young Havasu girl who had been collecting them in her skirt. We ate one together; me, my father, and the girl. I remember how large her smile was as she ate the fruit and told us about her family. Amidst all the poverty, the fact that a pomegranate could make the girl smile like that really impacted me.

It was during my time at the Havasupai reservation that I truly began to realize that even in our wealthy and prosperous country, people were going hungry every day. Throughout my life food has always been extremely important to me. Growing up, I was fortunate enough to have two parents who were, and still are, amazing cooks. Because of them I learned to appreciate culture, traditions, and food from all around the world. The fact that not everyone had access to something so simple and basic to survival, that had brought me so much joy, was not available to everyone, disturbed me greatly. It was when I first entered Fordham University that things began to really change for me. For the first time ever, I was living right next to poverty.

Unlike the Havasupai reservation, though, I saw no reprieve. How could people live a few blocks from the immense wealth of Manhattan and yet still be so poor, and why was no one doing anything about it. To me it seemed that everyone merely accepted the Bronx as it was, and that there was no hope for change. Even though I could not ignore the suffering that was offering on the other side of the fence, I could see no possibility of ever being able to make a difference myself.

On a whim, I started working with St. Rose's Garden, the new vegetable garden on campus. It was there that I fell in love with gardening, getting my hands dirty, and teaching people about social welfare and nutrition through gardening. I started to notice the immense impact that the garden had. It easily brought everyone together; we had liberal members, conservative members, professors, students, and my army friend who we jokingly deemed the "Security Commander", I even managed to get my friend who doesn't like vegetables to help out. We saw the immense impact that the garden had on the Fordham community, so we attempted to branch out. We unfortunately were unable to bring in local community members because of Fordham's strict regulations, but I had seen the impact one small garden could have, and I wanted to learn more.

To gain more experience, I began interning at the Ruth Rea Howell Family Garden in the New York Botanical Garden. The Family Garden is a two-acre garden that hosts children on field trips, has a spring, summer, and fall session camps, and also welcomes day-to-day guest. We use the garden and natural environment to teach about food, nutrition, ecology and stewardship. I was eventually hired and was able to continue learning from my colleagues and students. My junior year I became the Garden Manager of St. Rose's and worked on spreading its impact throughout the school through farmer's markets, volunteer days, and a CSA

(Community Supported Agriculture). Senior year, I was introduced to Concourse House, a shelter for abused women and children. When I heard about their need for someone to run their garden, I jumped at the opportunity. I hoped to transform their garden into a sanctuary everyone could enjoy. I believe I was able to accomplish that and our first breakthrough was getting all the kids to hold a worm in their hand, the screams and laughter were unforgettable.

I initially became interested in gardening because of my own love of food and in the beginning, I viewed it as a way to help with food insecurity in the areas I was living. Over three years working with various gardens, I learned a great deal about myself, the people I work with, and the world in general. My understanding about the social and political issues surrounding hunger and poverty grew and changed as I went from learning about poverty in class to working directly with those whose situation I had studied. Over all it was an astonishing experience, which has continued to amaze me as I meet with new people and work with new communities. I also made some extremely important discoveries that changed my goals and approaches. The first discovery I made me almost question my efforts. I realized how big the issues of hunger and poverty are in the United States. It was at the same time that I realized that there was no possibility in the near future of using urban agriculture to make a significant impact of hunger and food systems in the United States. We as Americans do not have the time, space, or motivation necessary to devote sufficient resources to create enough urban gardens to feed everyone in impoverished areas. It was around this time that I was hired at the New York Botanical Garden. I had started losing faith that my efforts were too small minded and would never be an effective way to help people. However, it was my work at the Family Garden that changed that. There I met children who had never had a vegetable before, never played in dirt. The reactions I saw on their faces when they tried a fresh pea, held a worm, or followed a

butterfly from flower to flower cemented my belief that there is unexplored potential in urban gardens.

Throughout this paper I will be referencing experiences from my work and my life to help supplement the data that I will be presenting. I have not been trained in psychology or childhood development, so my observations are merely to support the claims that I am making and to show their application in real life, closer to home scenarios. I will also be using multiple examples and case studies. I have limited my selection to North America; including the United States and Canada. Although my focus will be implementation in the United States, I chose to include Canada because their culture, economics, and climate are very similar to ours. They have also been one of the most progressive countries in terms of grassroots and unique solutions to poverty and hunger issues. As a result of this movement, they have the most long term case studies with supplementary data and research. Please be aware when I present these case studies that because of different land use laws and communities, not every idea will work with every community. In the same way, plans that work in Los Angeles, California may not apply to the different culture and harsher climate of Milwaukee, Wisconsin.

While this article will focus on all races, genders, and ages. There will be an emphasis on children throughout my analysis. This focus on one particular demographic is because my own primary focus over the last few years has been on children. The secondary reason is that children are extremely vulnerable to the factors around them. Throughout adolescence the child's body and brain are still developing. This means that they are extremely sensitive to environmental factors like poor air quality and toxin contamination which could cause lasting mental and physical disorders. Their developing brains also means that they are highly sensitive to social factors which can greatly affect them. Children are incapable of choosing where they

live, what they eat, and who they interact with (Lopez, 204). All of these make children an extremely vulnerable population. By focusing on youth living within impoverished communities, we can reduce the number of children who are at risk and potentially create ways to help them out of the cycles of poverty that are so prevalent in this country.

In the first chapter of this paper we will address the problem I am addressing. It is essential that we understand the problem in order to make sure that it is effectively responded to and the most urgent matters and seen to first. I will explain briefly poverty in the United States and then narrow down our focus of study to food deserts, explaining their significance and problems. In the last part of the chapter I will discuss urban gardens, so that the reader has a basic idea of what they are, where they can be found, and the different types of gardens that can be made and utilized.

In chapter two, I will begin to address the impact urban gardens can have on individuals and communities. First, I will address and hopefully alleviate some of the angst associated with urban gardens. Then I will address the physical health benefits of urban gardens on individuals. The third chapter will discuss the social and psychological effects of urban gardens on communities. And the fourth chapter will discuss the physical effects of urban gardens on communities.

In the last chapter I will address the political issues that urban gardens can face, and how they have been dealt with in the past, as well and including my own opinions on useful policies and programs that could be implemented in order to benefit and ease the strain of running an urban garden. The last chapter will be followed by a brief description of six different urban

gardens that have impressed me greatly for the communities they help, the innovations, they make, or other things that make them unique.

## Chapter 1. What is the Issue we are facing?

In 2008, the world passed an amazing landmark, half of the population was officially living in an urban setting and the migration into cities showed no sign of stopping. In the United States, people were en mass selling their farmland and moving into cities, hoping to make a better living than the extremely low prices of crops were producing (King, 42). Only two percent of the United States is now farmland. The mass migration into cities is also associated with an increasing number of people living in sub-standard conditions, and an increase in the various physiological, psychological, social, and developmental issues associated with urban poverty. These health problems are extensive and often vary based on each individual community. The physiological issues can include, but are not limited to: obesity, heart disease, asthma, diabetes, and some cancers. Socially, poverty creates an unsafe environment which greatly limits peoples' lives and experiences. Lastly, growing up in poverty can greatly effect a child's development which will continue to limit the child and reduce their ability to remove themselves from poverty.

The official United States' governmental definition of poverty is based on a formula created by Mollie Orshansky in 1963. She attempted to find the amount of money required for a family of any given number to buy the basic supplies and services required to maintain an accepted standard of living. She based her formula off of conclusions that showed that a family of three will generally spend a third of their money after taxes on food. To arrive at the poverty

threshold she multiplied the cost of the economy food plan by three. This definition for the absolute poverty threshold was adopted by the Office of Management and Budget (OBM), which was at the time the Bureau of the Budget, in 1969 and has since then been used to create and define law standards. However, as the years progressed the thresholds effectiveness at maintaining an acceptable standard of living has continued to decrease. Orshansky's analysis used the lowest data measures in order to garner the most support, which placed the threshold at its lowest possible placement. Since 1963 though, the housing market changed, food prices increased, and social interactions changed resulting in the poverty threshold decreasing from approximately 50% of a family of four's median income in the 1960's to about 28% of the median income in 2000 (Handler & Hasenfeld, 19-20).

There are two main methods to defining poverty. The first, as utilized by Orshansky, is the economic approach. This is where only the basic needs and services are considered and then used to define the minimum income needed to access them. The other approach is social, and considers the factors that are necessary to be a participating member of society. The European Union generally uses this approach defining poverty as: "the poor shall be taken to mean persons, families, and groups of persons whose resources (material, culture, and societal) are so limited as to exclude them from the minimum acceptable way of life in the member state in which they live" (Handler & Hasenfeld, 19).

The National Academy of Science (NAS) has also attempted to redefine our definition of poverty. This revised method is much more comprehensive and takes into account factors such as updating the consumer expenditures for food, clothing, and shelter for a family of four. It also includes an increase in expenditures for other necessities, will change based on housing differences geographically, and will account for disposable and non-disposable income. This

definition would place poverty for a full-time working family to be forty percent higher than it is currently defined (Handler & Hasenfeld, 21). The continuing problem with both the Orshansky and NAS method is that they still define poverty as the fault of the individual instead of a societal problem. This has been a generally accepted belief since the War of Poverty in the sixties (Handler & Hasenfeld, 3).

Out of ten surveyed developed countries, the United States had the third highest rate of poverty, passed only by Australia and the U.K. Even though our per capita income is thirty percent higher than the other ten, our welfare and aid systems are much more limited than the other (Handler & Hasenfeld, 68). This study is also exacerbated by the fact that the United States' extremely low poverty definition means that the number of people who qualify as being in "poverty" as we define it is relatively low, while the number of people who have a substandard quality of living is extremely high. Many of the people that would benefit from welfare and aid programs would be able to increase their standard of living however. The current definition also places many people right above or near the poverty line. This is a very precarious position because if they are suddenly faced with a major expense like medical bills or losing a job, they can very quickly fall below the poverty line. Although standard of living has greatly improved over the last decade, the prevalence of poverty has remained uncomfortably high, especially in a country that boasts about being the most affluent and generous. The means by which people have attempted to eradicate poverty vary from governmental welfare programs, soup kitchens and pantries, shelters, educational programs, and very recently urban gardens.

An understandably initial assumption that many people make is that we simply do not have enough food in the United States to feed everyone who is hungry. However, this is not the case in United States. With only 5% of the world's total population and a quarter of a percent of

the world's agricultural population, we produce fourteen percent of the world's agricultural exports, and absorb twelve percent of the world's agricultural imports (Lawrence, 27). In 2004, the United States and Canada alone produced 389 million tons of cereal grain (Lawrence, 28). Unfortunately, the majority of that grain does not go to feed people, instead it is fed to livestock to feed America's voracious appetite for meat. In 2004, together we produced 43.5 million tons of meat, a sixty-two percent increase from the century before (Lawrence, 29). As a country we consume four times more poultry, three times more beef, and six times more cheese than the rest of the world. As a result of our immense consumption, we ingest thirty-five percent more calories, fifty-two percent more protein, and one hundred percent more fat than the world average (Lawrence, 30).

The problem now is that healthy food is simply too expensive. Between 1995 and 2000 decisions were made on United States agricultural policies that resulted in the price of fruits, vegetables, and cereals increasing, while the price of foods that were higher in fats and sugars began decreasing (Lawrence, 122). The below chart illustrates how the price divide increasingly grew over time. To add insult to injury in 2007, the price of food increased as when 1/5 of the corn produced in the United States was being used to produce ethanol. This greatly drew down the world's grain reserve and spiked the price for livestock feed and spread to almost every type of food (Lawrence, 36). Today, only two percent of the economically active people in the United States and Canada are employed in the agriculture sector. Increasing costs, reduced margins, and low prices have left the lasting farmers economically weak and dependent of the companies that hold their contracts. This meant that they were only able to grow what was most profitable for them (corn, wheat, and soybeans). This made it extremely difficult to diversify the products enough to lower food prices so they have continued to rise (Lawrence, 32).

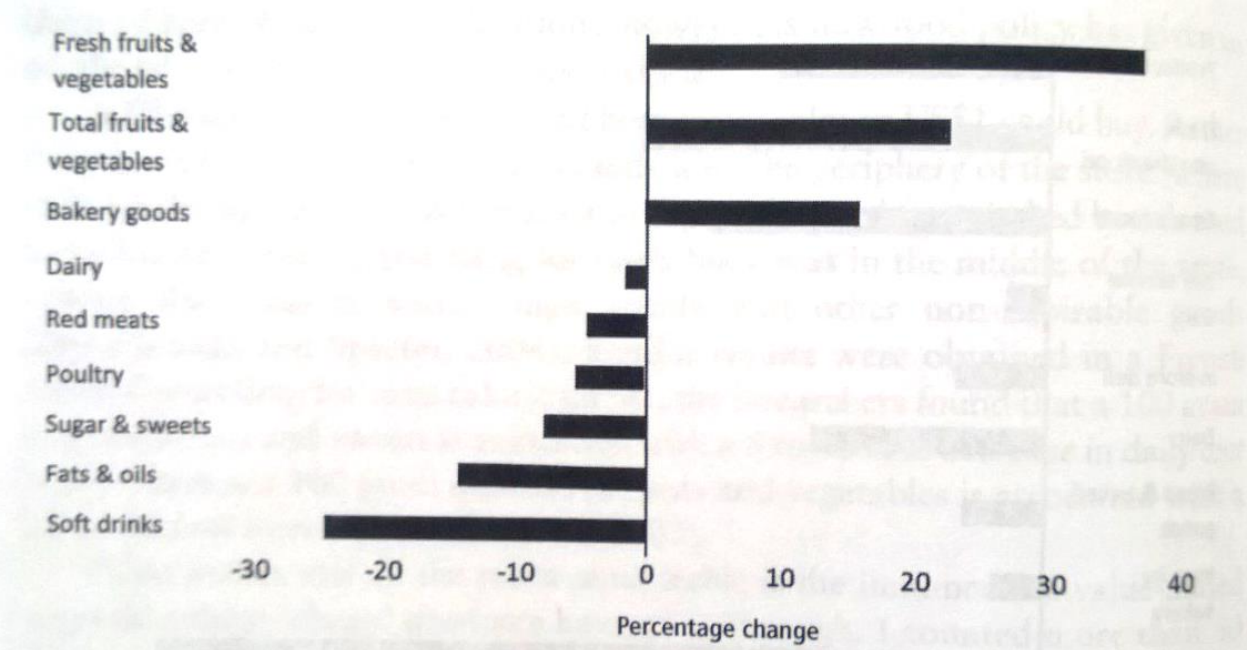
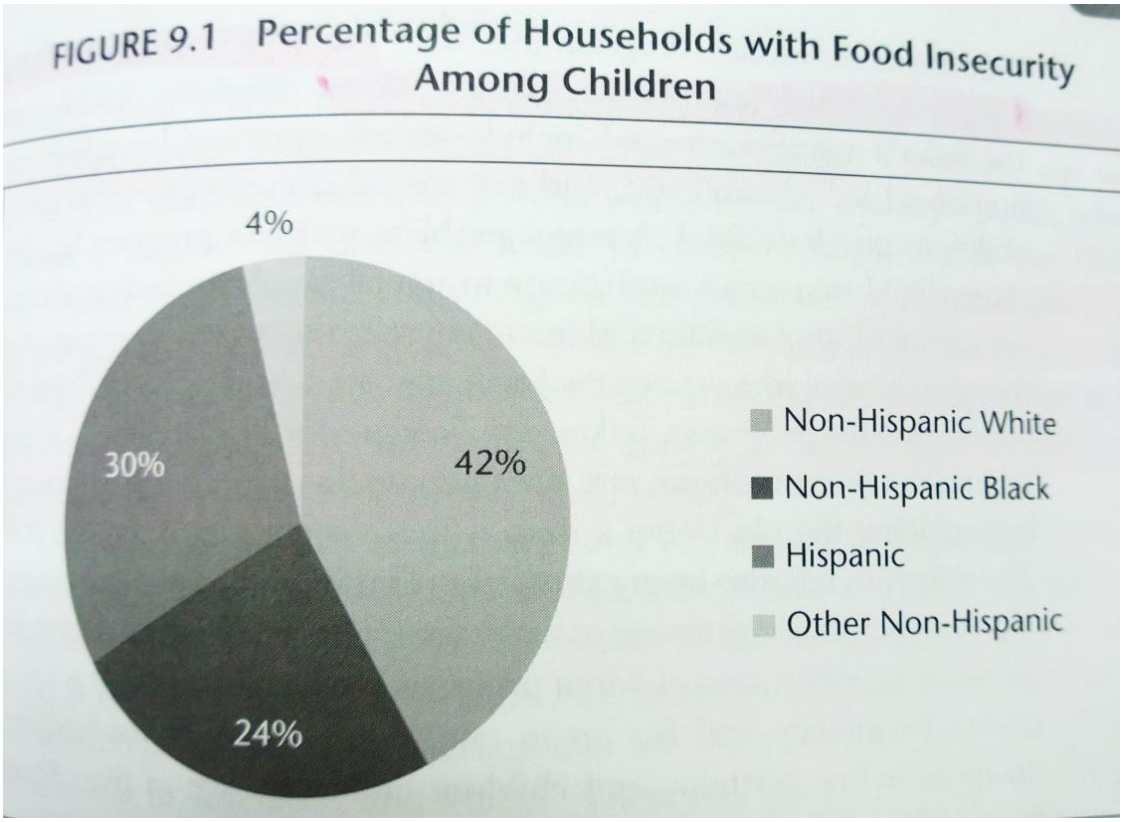



Figure 4.2 *Change in food prices, 1985–2000 (converted to real 2002 US$)*



All of this led to America's current problem. As of 2007, thirty-six million Americans were considered "food insecure" or did not know where there next meal would come from, this number was much more prevalent in minorities (USDA, 17). Between 2006 and 2010, there was a forty-six percent jump in Americans depending on soup kitchens, food pantries, shelters, and any other form of food assistance (Ladner, 199). The Food insecurity in New York City alone is rampant. Since 2003, there has been a sixty percent jump in people experiencing the difficulty of affording food for themselves and their family, bringing the total count to 3.3 million New Yorkers. The New York City Food Bank provides approximately 400,000 free meals a day (Ladner, 199).A large portion of this need can be based off of the fact that although necessary, food is considered a flexible item. People generally pay other household expenditures like lighting and gas first, this will often greatly reduce the available budget for food. Unfortunately that means they must choose the poorer quality of food, or in really desperate situations choosing whether to feed themselves or their children (Cockrall-King, 123). People in the United States spend approximately 9.4% of their income on food. This is one of the lowest percentages of all other industrialized countries. Of the money spent on groceries 22% is spent on treats and snacks, only 12% is spent on fruits and vegetables (Ladner, 199).

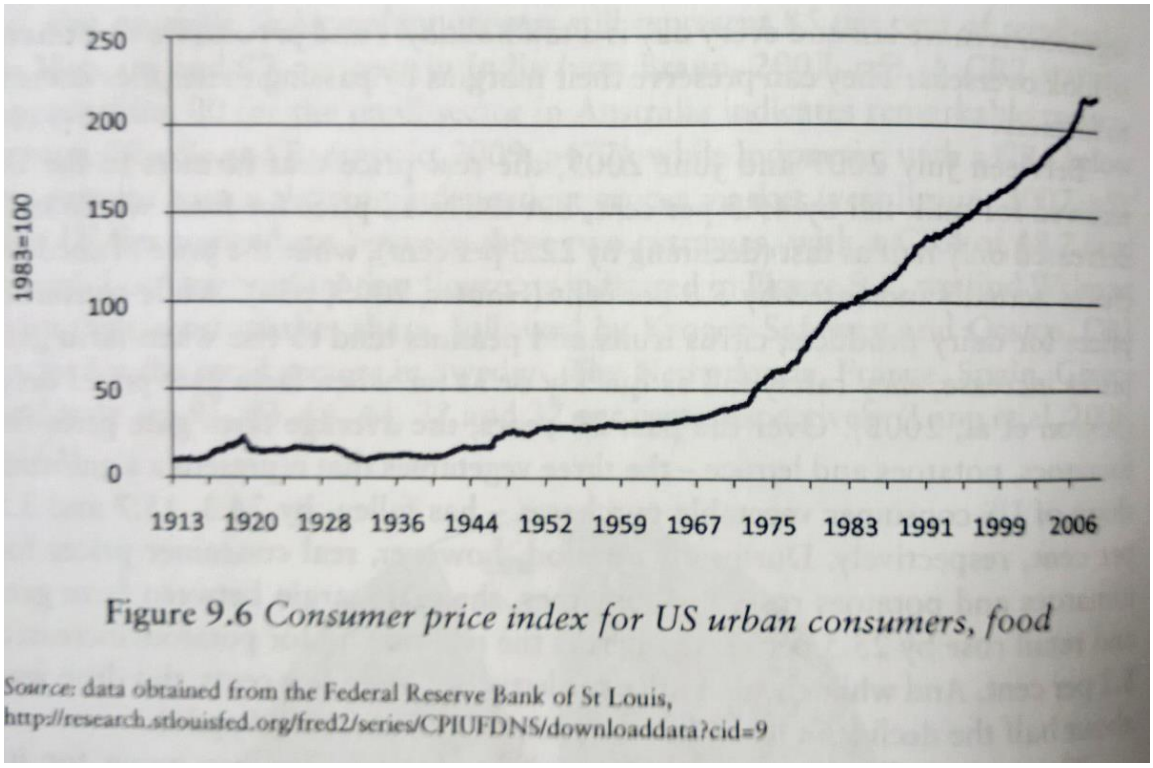



Figure 9.6 *Consumer price index for US urban consumers, food*

*Source*: data obtained from the Federal Reserve Bank of St Louis, http://research.stlouisfed.org/fred2/series/CPIUFDNS/downloaddata?cid=9

The United States Department of Agriculture has fifteen programs that provide people with money or coupons in order to help feed themselves. One of the earliest official programs was the Needy Family Program, introduced during the Great Depression. Its name was eventually changed to the Food Distribution Program on Indian Reservations (FRPIR). Some of the other main programs include the 1946 National School Lunch Program, the 1961 Food Stamps program (now called Supplemental Nutrition Assistance Program [SNAP]), the 1972 Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the 1992 Farmer's Market Nutrition Program (FMNP). The FMNP also began giving WIC recipients coupons to help them buy fresh produce at the markets. Today these programs reach about 1 in 5 Americans but they are grossly underfunded and the focus is still on distributing the surplus from producers and not meeting the nutritional needs of those dependent on the programs (Ladner, 201). The below chart shows the distribution of funds to various welfare programs. Although it

seems like a generous amount is directed towards the Food Stamp program, food insecurity is still extremely high especially among families with children. The following chart shows the distribution of food insecurity among children in the United States based on race.

Table 3–1. *Expenditures for the public welfare state*

| | Costs (billions) | Recipients (millions) |
|---|---|---|
| Old-Age, and Survivors, and Disability Insurance (2004) | $493.3 | 47.7 |
| Old Age and Survivors Insurance | 415.0 | 39.7 |
| Disability | 78.2 | 8.0 |
| Supplemental Security Income (2004) | 37.0 | 7.1 |
| Medicare (2004) | 303 | 41.6 |
| Medicaid (2002) | 213.5 | 49.8 |
| Unemployment Insurance (2004) | 36.8 | 8.7 |
| Workers Compensation (2003) | 54.9 | 1.3 |
| Temporary Assistance for Needy Families (2004) | 9.4 | 4.7 |
| Food Stamp Program (2004) | 24.6 | 23.9 |
| Women, Infants, and Children (FY 2004) | 4.8 | 7.9 |
| Child Care and Development Fund (FY 2004) | 8.2 | 1.7 |
| Federal Child Care and Development Fund | 4.8 | |
| State Matching and MOE | 2.1 | |
| TANF Direct | 1.3 | |
| Housing (FY 2004) | 22.4 | 3.4 (units) |
| Earned Income Tax Credit (FY 2002) | 32 | 19 |

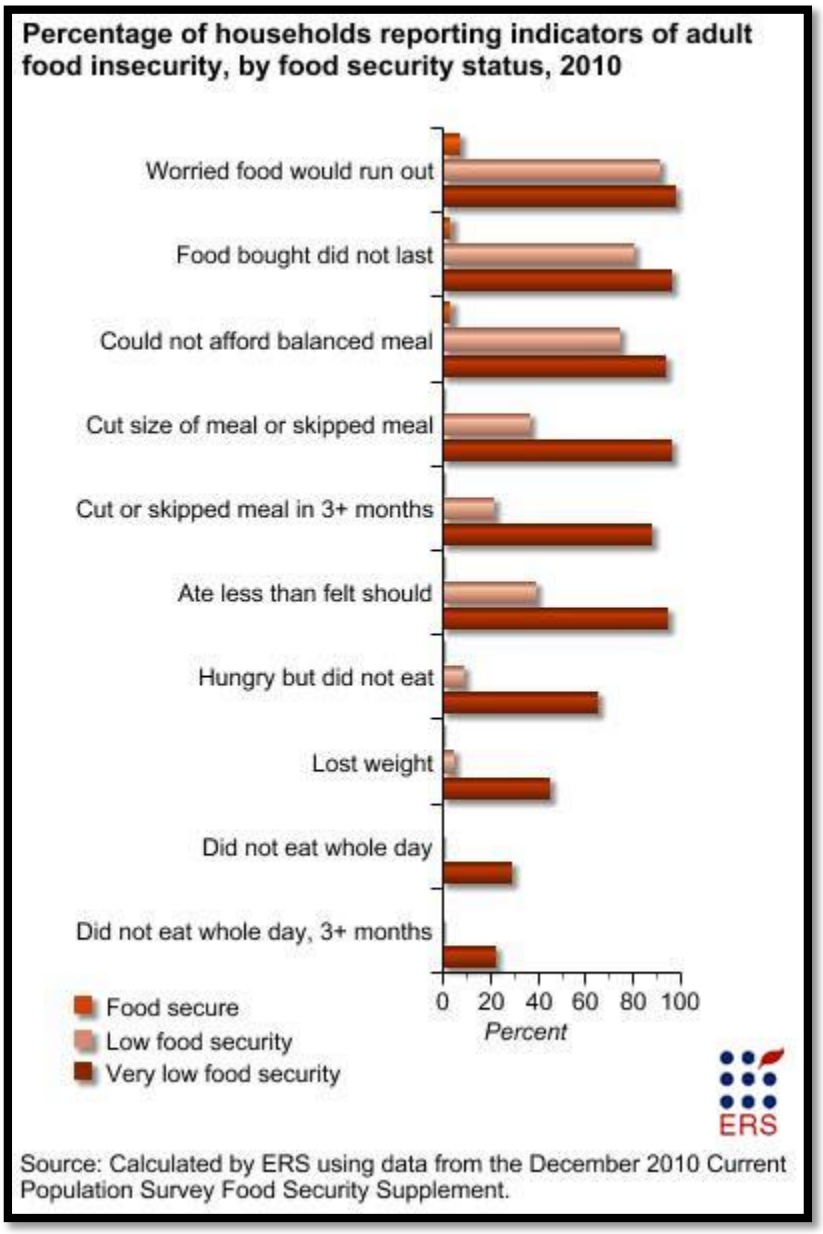
*Source:* The numbers are from the current U.S. government Web sites. See, e.g., http://www.ssa.gov/policy/docs/chartbooks/fast_facts/2004/ff2004.pdf. The data on workers' compensation (2003) is from http://www.bis.gov/news.release/osh2.101.hm.



Carolan, Michael. *The Real Cost of Cheap Food*. London: Earthscan, 2011.

## *Food Deserts*

As we have seen, poverty is a very broad topic, and groups living in poverty can be found all over the world and the United States. For this paper we will narrow down our study to areas generally categorized as urban food deserts. The 2008 Food Bill defines a food desert as an "area in the United States with limited access to affordable and nutritious food, particularly such an area composed of predominantly lower income neighborhoods and communities" (USDA, 1). The previous term is extremely basic and describes the essential problem, however, it does not address why people have limited access which is a much more complex issue. The reasons can be geographical, social and/or political and may change based on the person. As one Chicago resident described it: "In my neighborhood, I can buy designer gym shoes, every kind of fast food, junk food, all kinds of malt liquor, illegal drugs, and maybe even a semi-automatic weapon. But I cannot purchase and organic tomato" (Ladner, 218).




Having limited access to food is not merely an issue of lack of grocery stores or farmers markets. People can be limited various factors. A lack of car or public transportation is one of the major contributing factors to someone living in a food desert. Most suburban neighborhoods are set up so that a car is necessary in order to reach any commercial location including grocery stores (Ladner, 221). If a family does not have access to an automobile, they often have few choices besides bodegas and gas stations to purchase food. This problems is mostly a result of "supermarket redlining" which means that there are districts where grocery stores will not open

branches because they are not considered profitable enough. The following chart describes how supermarkets access is divided among income, age, and racial lines.

**Supermarket access by household income, race/ethnicity, age, and vehicle access (walking distance)**

| | | | | Distance to nearest supermarket miles | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | High access (0.5 miles or less) | | Medium access (Between 0.5-1 mile) | | Low access (More than 1 mile) | |
| | Number (millions) | Percent | Median[1] (miles) | Number (millions) | Percent | Number (millions) | Percent | Number (millions) | Percent |
| Income:[2] | | | | | | | | | |
| Low-income | 79.3 | 28.8 | 0.76 | 22.6 | 28.5 | 26.4 | 33.3 | 30.2 | 38.1 |
| Higher-income | 196.1 | 71.2 | 0.87 | 43.8 | 22.3 | 66.3 | 33.8 | 86.1 | 43.9 |
| All income levels | 275.5 | 100.0 | 0.84 | 66.5 | 24.1 | 92.7 | 33.7 | 116.3 | 42.2 |
| Race/ethnicity: | | | | | | | | | |
| Non-White | 85.7 | 30.7 | 0.63 | 31.4 | 36.6 | 31.5 | 36.8 | 22.8 | 26.6 |
| White | 193.9 | 69.3 | 0.96 | 39.1 | 20.2 | 61.3 | 31.6 | 93.4 | 48.2 |
| All races/ethnicities | 279.6 | 100.0 | 0.86 | 70.5 | 25.2 | 92.8 | 33.2 | 116.3 | 41.6 |
| Age: | | | | | | | | | |
| Age 65 or more | 34.8 | 12.4 | 0.81 | 8.9 | 25.7 | 11.8 | 33.9 | 14.1 | 40.4 |
| Less than age 65 | 244.8 | 87.6 | 0.82 | 61.6 | 25.2 | 81.0 | 33.1 | 102.2 | 41.8 |
| All ages | 279.6 | 100.0 | 0.82 | 70.6 | 25.2 | 92.7 | 33.2 | 116.3 | 41.6 |
| Vehicle access: | | | | | | | | | |
| Households without vehicle | 10.8 | 10.3 | 0.55 | 5.0 | 46.2 | 3.4 | 31.7 | 2.4 | 22.1 |
| Households with vehicle | 94.1 | 89.7 | 0.84 | 22.2 | 23.6 | 31.7 | 33.7 | 40.2 | 42.7 |
| All households | 104.9 | 100.0 | 0.81 | 27.2 | 25.9 | 35.1 | 33.5 | 42.5 | 40.6 |

[1]Medians are weighted by population of each square kilometer grid area.

[2]Low-income households are those with income less than or equal to 200 percent of the Federal poverty threshold for family size.
Sources: USDA, ERS analysis based on data from Census of Population, 2000 and the ERS-compiled supermarket directory for the contiguous U.S. in 2006.

Table 2-3

**Household vehicle access and supermarket access**

| | | Households without access to a vehicle | | | |
|---|---|---|---|---|---|
| | | Between 1/2 to 1 mile from a supermarket | | More than 1 mile from a supermarket | |
| Geographic area | Total households[1] | Number | Percent | Number | Percent |
| | *Millions* | *Millions* | | *Millions* | |
| Total U.S. | 104.9 | 3.4 | 3.2 | 2.4 | 2.3 |
| Low-income areas | 25.1 | 1.6 | 6.4 | 0.9 | 3.8 |
| Urban areas | 69.9 | 2.9 | 4.1 | 1.1 | 1.5 |
| Low-income areas | 15.6 | 1.3 | 8.3 | 0.4 | 2.5 |
| Urban clusters | 9.7 | 0.4 | 4.1 | 0.2 | 2.5 |
| Low-income areas | 3.6 | 0.2 | 5.6 | 0.1 | 3.3 |
| Rural areas | 25.3 | 0.2 | 0.8 | 1.1 | 4.4 |
| Low-income areas | 5.9 | 0.1 | 1.7 | 0.4 | 7.4 |

[1] This column shows the total number of households regardless of vehicle access.

Source: USDA, ERS analysis based on data from Census of Population, 2000 and the ERS-compiled supermarket directory for the contiguous U.S. in 2006.

United States Department of Agriculture. *Access to Affordable and Nutritious Food: Measuring and Understanding Food Deserts and Their Consequences*. Rep. Economic Research Service: June 2009. Print. Report to Congress.

While lack of an automobile is one of the primary reasons behind food deserts, there are a number of reasons while people may have limited access to nutritious culturally appropriate food. Elderly or disabled peoples may not have the ability to get to a grocery even if one is within walking distance. Neighborhood crime can also limit people's access to food. A person may not feel comfortable walking to their local grocery store or their work hours may mean that they are only at home late at night when the danger can increase greatly. Lastly, culturally appropriate food is not something that most people consider as a factor in food deserts. However, a person may feel they are in a food desert as a Chinese immigrant if they do not have any access to what their culture would deem appropriate. The reverse would be true, if an American moved to China, they may not be able to find enough to eat that they recognize as food.

Unfortunately research by Professor Kameshwari Pothukuchi at Wayne State University showed that most cities do not have programs to help get fresh produce into underserved city neighborhoods (Ladner, 222). This is a sad reversal of roles for cities which were originally created in order to store food and protect domesticate agricultural produce (Ladner, 37). Therefore, grassroots movements like the recent emergence of urban gardens can go a long way to help those who are currently stuck living in food deserts.

As we will discuss in chapter two, there are a variety of health issues that are associated with living in a food desert, most of which are a result of not being able to get adequate nutritious. There is a direct correlation between distance to a grocery store and obesity rates. East Harlem in New York City has approximately half the number of supermarkets with fresh produces as the Upper East Side does and the rate of obesity is doubled in Harlem (Ladner, 218). Detroit is considered in one of the worst neighborhoods in the country for access to fresh foods, as a result of this limited access, they also have twice the rate of deaths from cardiovascular

disease as the rest of the country (Ladner, 220). On the revere side of the research, if the distance to grocery stores is shortened, and the distance to fast food restaurants and bodegas is increased, diet-related community health improves (Ladner, 220).

### *Urban Gardens*

Over the last decade there has been a major increase in the number of people who are interested in and practice urban gardening. One of the most interesting things about this movement is that it is a movement of almost all racial and demographic profiles (Hanson, 4). Empty vacant lots are being turned into gardens by marginalized African American and Hispanic communities. Immigrant communities are working together to use traditional farming practices to sustain themselves and their families. Affluent neighborhood are planting gardens at churches and backyards, much of which they then donate (Hanson, 10). Even corporations and companies are jumping on the trend, many have begun installing gardens that employees can work on during breaks and lunches in order to relax and exercise. They also generally donate their produce.

Urban gardens have been and extremely important part of the United States history. During World War I people depended on "War Gardens" for produce and during World War II it was considered unpatriotic not to have a "Victory" garden, because then you would have to buy the precious canned fruits and vegetables that could be going to the soldiers overseas. In 1944, 20 million Americans had Victory gardens which produced approximately forty percent of the fresh vegetables in America. In the 1970's there was a revival of urban gardens in the United States. The renewal of interest was fueled concern over environmental issues, massive inflation

of food prices, and was seen as a way to alleviate blighted neighborhoods and combat poverty (Brown, 22). In 1972, the current Massachusetts Representative, James Burke, defended urban agriculture stating "The average gardener can produce $240 worth of food for no more than an outlay of $9. In the past year, home gardeners of the Washington DC metropolitan area produced over $1 million worth of food that would not have otherwise existed. (Brown, 23)"

All over the world there are cases of people depending on urban gardens. They became common in Eastern Germany to supplement rations, and after the fall of the USSR without the reconstruction of their entire agricultural system into vast urban gardens called *Organiponicos* most of Cuba's population would have starved to death. Even today ninety percent of Havana's produce comes from within its own borders (Cockrall-King 287). Statistics show that financial stress and wars are associated with an increased interest in urban gardening (Hanson, 7). This statistic however suggests that the interest will eventually wane, but there is also support that the urban gardening movement coupled with people's increased focus on eating locally, as well as people's growing concern over poor health and obesity in the united states and the prevalence of hunger, all these suggest that this is a movement that could continue and will cause major change in the way that food is produced and distributed in the united states, rather than it being a waning fad (Hanson, 8).

How do we define an urban garden? The most basic definition "farming in a city (Hanson, 4)" just simply does not do it justice. They are more than farms. They educate, provide food, and create a safe haven for the communities in which they are located. David Hanson, author of "Breaking Through Concrete: Building and Urban Farm Revival" identifies that while most urban gardens are different in one way or another, they all have the same intention, and that is what he bases his definition on. "An urban farm is an intentional effort by an individual or a

community to grow its capacity for self-sufficiency and well-being through the cultivation of plants and/or animals (Hanson, 5).” He identifies three different types of urban gardens that almost every example will fit in. The first category are Urban Farms, which are “Either for-profit or nonprofit organizations that are growing produce, flowers, herbs, and/or animals within a city. These organizations have paid staff that produces products for sale for a local market only (Hanson, 6).”

The second category are Community gardens, which can be described as “An individual or collection of individuals growing plants and/or animals on either public property or private property for their own consumption or to donate to the needy (Hanson, 6).” The last category has become very popular in the last few years and are proving to be extremely valuable resources. School Gardens are “A garden located on a school campus that acts as a laboratory in conjunction with an academic class, a demonstration, or a source of food for the students. Farm to School programs, which link local farmers with school cafeterias and provide education to students, often work closely with school gardens to increase the consumption of local, fresh produce by students and school staff (Hanson, 6).” Throughout this essay, I will generally use the term “Urban Gardens” as a general all inclusive term unless it is specifically important to the case that the garden is identified as one of these three categories.

In the last few years there has also been an increase in the number of people who are gardening in their own homes. These should be differentiated because unlike the other urban gardens, they are not open to the community or to a select number of people. These gardens are extremely important because they are helping people be healthier and producing their own food. Because personal gardens are replacing water and pesticide dependent grass, they are also have a very important environmental impact. The general manager of Intervale Compost projects, Dan

Goosen, estimates that the average American lawn requires up to 8,000 gallons water a year. While a one acre organic gardening plot only requires 3,000 gallons water a year. The Environmental Protection Agency (EPA) states that lawnmowers are incredibly wasteful and can emit as much carbon in one hour as a 200 mile car ride (Ladner, 45). However, besides one case study in which multiple neighbors were working together on each other's yards, these types of gardens will not be addressed in this essay.

Urban gardens are beginning to appear wherever there is unused space available. Empty plots are the most common, but garden can also be found on small strips of land, backyards, front yards, concrete planters, and rooftops. Rooftops are becoming very popular because they are generally underutilized space, have a flat surface, and get sun for almost the entire day. One analysis showed that the 4.8 million commercial building in the United States have approximately 1,400 square miles of generally flat roofs. That is an unutilized area the size of Rhode Island (Ladner, 44). However there are restrictions on the use of roofs as gardens. They require extra support because of the increased foot traffic and soil weight. Adjustments can often be made to building to make them usable however, it can often be expensive and therefore not an option for most community gardeners. One owner spent $150,000 stabilizing a building so a garden could be placed on the roof (Ladner, 43).

Large urban gardens on empty plots usually have the land leased or loaned to the, generally free of charge, by the city or a private owner. A 1998 study showed that of the 6,020 community gardens, only 5.3% were owned by the gardeners or part of the land trust. As we will discuss later in this paper, this is an extremely tenuous position for gardeners, because the land can be sold by its owner at any point to developers or another owner. Another 1999 study showed that of the seven hundred community gardens in New York City, one hundred of them

were at risk for being resold for commercial or housing developments. This issue, as well as possible solutions will be addressed in the final chapter.

Funding for gardens can come from a variety of different sources. Jones Valley Urban Farms (see Case Studies) is able to support itself mostly from the produce it sells through farmers markets and CSA's (Community Supported Agriculture) (Hanson, 93). This is not unusual, there are various cases of urban gardens being able to support themselves off of profit. A project in Los Angeles called "Food from the Food" had local food youth work in the gardens, they also have the opportunity to sell salad dressing which they made themselves. The high school students were able to raise over a hundred thousand dollars that was put towards college scholarship (Brown, 26). Urban farms are also often able to sell their produce at high prices to local restaurants which can greatly increase their profits. Based on their market, business savviness, good climate, and produce available; an urban garden could earn an income between $1,000 and $10,000 per acre of land (Brown, 26). In 2010, Growing Power generated $700,000 of surplus value from selling their products, which they were able to use to upgrade, expand, and extend their services to a larger community of people (King, 237).

Most garden however, do not produce a large enough yield to sell, or the produce goes to the community. These gardens are usually supported by grants which are generally provided by the USDA (United States Department of Agriculture) and other organizations. Some gardens support themselves by hosting classes or events that rent out the space. In recent years there has also been a movement towards corporate sponsorship of gardens. They will support the garden, and will often send employees to the garden to volunteer. Many gardens, however, refuse the corporation support stating that they often go against the garden morals such as the Triscuit's support of community gardens. Many gardeners view companies like Triscuit as the reason

behind food insecurity and obesity, and so therefore refuse their support. Will Allen of Growing Power, however believes that they need support wherever they can get it. As long as the company does not attempt to change the method and goals of the organization, then it is fine. Many gardens have found an acceptable middle ground, they will accept funding but will not accept branded sponsorship (Ladner, 193).

Urban gardens can majorly effect the people using them. A researched calculated that, a ten by ten plot, based on an average growing season of 130 days, could grow enough vegetables for one household's yearly needs. Those vegetables would help provide that household with their yearly requirement of iron and vitamin A, C, and B complex (Brown, 25). As a result of not having to purchase produce anymore, a family can save up to $150.00 a growing season on grocery bills alone, according to a Philadelphia study. These families were able to support themselves with fresh produce five month of of the year and the rest was preserved for winter months. Families were also shown to readily share their produce with their community, family, and friends (Dziedzic, 33). In the next few chapters, I will address the other impacts that urban gardens can have on individuals and communities.

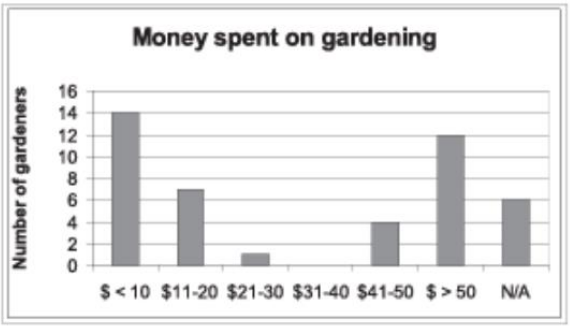



Figure 4. Amount of Money Spent on Gardening per Year

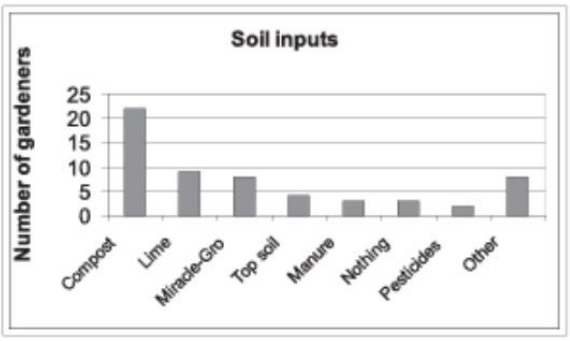



Figure 5. Soil Inputs


Figure 6. Time Spent Gardening per Week

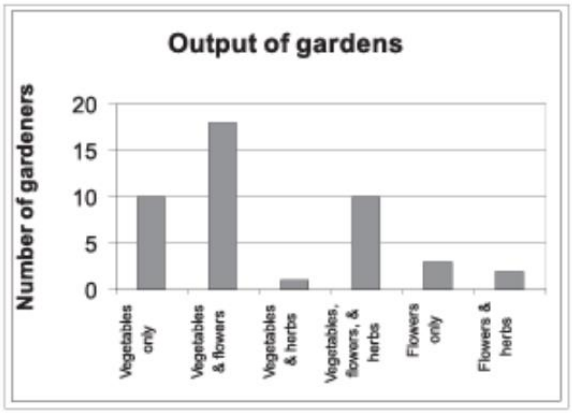



Figure 7. Output of Gardens

Hanna, A. K., and P. Oh. "Rethinking Urban Poverty: A Look at Community Gardens." *Bulletin of Science, Technology & Society* 20.3 (2000): 207-16. Print.

## Chapter 2. The Health Problems associated with urban poverty and how they can be minimized with access to urban gardens.

### *Urban Gardening as a Health Risk?*

*"This is all about the soil. Without high-nutrient soil, you cannot grow healthy food. The taste of the food is due to the richness of the soil"*

- *Will Allen*

In 2006, five community gardens in Montreal were shut down because the food being grown was discovered to be contaminated with metal. In 1984 when the gardens were built, soil contamination was not considered a risk and so they were built on former dump sites. Situations like this and other instances of people getting sick with E-coli and Salmonella have made people nervous about where their food comes from. Generally, food that comes from local sources is considered safer than meat and produce that was shipped from somewhere and produced in unknown conditions. However, as the farms in Montreal show, urban gardening has its own risks. The most dangerous and common issue is contamination of the soil with lead which comes from paint and leaded gas fumes. Lead contamination is most common near old dump sites and highways. Lead can transfer from the soil into most vegetables and herbs. Although fruit it is less of a risk it is not always completely safe. Lead exposure is most harmful in children and infants, causing brain and nerve damage. It can also effect adults with high blood

pressure, nerve disorders, nerve disorders, as well as muscle and join damage. Urban gardens are also at risk for exposure to petrochemicals and air pollution (Ladner, 232).

Although it may seem like there are a lot of health risks associated with urban gardening, most have easy solutions. The general rule is that if there is any doubt in the soil you intend to grow in, get it tested. Most universities and labs will test soil for around $30.00 with results in about three weeks. If there is lead in the soil, planting sunflowers and spinach can help remove a significant amount. The lead and other toxins can be diluted to a safe amount by mixing in lots of fresh and healthy compost. One of the most effective and easiest methods to avoid growing in contaminated soil is to build raised beds and bring in healthy soil separating the two soils with a water permeable gardening material. Air pollution is easily removed by washing the produce before cooking or consuming it. Growing in greenhouses also greatly reduce exposure to air pollution. Lastly, soil contaminated with petrochemical can be fixed by exposing the soil to oxygen, sunlight, and compost which contains microorganisms that break down the petrochemicals (Ladner, 232). Even though there are health risks associated with urban gardens, they are all easily fixed and the health benefits can benefit the gardeners immensely.

### *The Health Benefits of Urban Gardens*

Unfortunately, Americans are sick, and we are getting sicker. Research has shown that as a countries GDP (Gross Domestic Product) increase, the prevalence of obesity also increases. While the same research also shows that as the GDP increases undernutrition is supposed to decrease (Lawrence, 116), however, in the United States, we have a strange dynamic where our country's obesity is directly linked with poverty. This consequence is a result of a few different

trends in the United States. The first, as was described in chapter one is the increase in the price of healthy food and the decrease in price of foods with high sugar and fat content. As a result the United States has shown increasing rates in our consumption of fast foods, eating away from home (where it is more difficult to control what and how much is being eaten) and an increase in the consumption of foods with more sugar and calorific sweeteners (Lawrence, 117). There has also been a trend towards working more sedentary jobs that require little physical activity (Lawrence, 118). As a result of these trends, approximately 35.7 percent of American adults are obese and 17 percent of American children between two and nineteen are obese (USDA, 74).

Obesity can be extremely dangerous. It greatly increases your chance of Type 2 diabetes, hypertension, gall bladder disease, insulin resistance, sleep apnea, breathlessness, and asthma. It even greatly increases your risk of social isolation and depression. Obesity can also cause coronary heart disease, stroke, gout, osteoarthritis, and respiratory disease. In rarer albeit more severe cases obesity can contribute to cancer, impaired fertility, musculo-skeletal problems, and stress incontinence (Lawrence, 147).

Even though a major percentage of Americans are obese, most are malnourished or undernourished which means they do not get the proper nutrients. Even if someone is not considered clinically malnourished, chronic hunger is associated with fatigue, difficulty concentrating, and increased risk to infectious diseases (Brown, 25). Being chronically hungry can also lead to poor healthy physically, emotionally, and mentally (Ladner, 200).One common cycle of hunger is that it commonly causes iron deficiency, often causing iron deficient anemia. Iron deficiency is cause by a lack of iron in the blood which reduces your red blood cells ability to carry oxygen though your body, causing fatigue (Bender, 329). When fatigued, people cannot work well which can cause them to lose their jobs, creating more hunger. This cycle can also

occur in kids. If they do not get enough to eat, they cannot focus well in school, causing bad grades and eventually a poor job with low pay and little money to buy food with (Bender, 331).

Research has shown that the simple act of feeding people well can greatly increase people's quality of life and the cost placed towards improving food are easily paid back by the positive outcome. Dr. Karen Cooper of Vancouver studies how a proper diet can effect homeless people. She found that when the neediest people a fed a proper nutrition meal then the number of calls to police and emergency health services are reduced. "In many cities a disproportionate number of police calls are to low-income housing projects looking after people with multiple disorders. The calls are triggered by fights, assaults, thefts, fires, overdoses and a lot of other crazy behavior. All these dangerous acts are exacerbated when people are hungry. Their bodily systems are out of balance, and stress levels are in the red zone. They are overwhelmed with as much anxiety about their next meal as their next fix (Ladner, 209)." Because of her results, Dr. Cooper views feeding people as crime prevention. By analyzing the costs associated with police and fire calls, courts, jails, emergency room visits, parole supervisors, ambulances, and disease prevention, she found that the cost of feeding people could easily be covered. She also found that substance abusers lowered drug usage when they were sheltered and well fed. Dr. Cooper explained; "A person's blood sugar level in the biggest factor in poor self-control. If the brain's governor is starved of energy, you literally run out of energy for self-control" (Ladner, 210). Research performed at a meal program run by the Portland Hotel Society in Vancouver, backed up Dr. Cooper's research, showing that 911 calls could be reduce by half with one good meal, and almost completely stopped with three meals (Ladner, 211).

Urban gardens can be a simple grassroots (partial) solution to all these problems. They would increase access to healthy nutrition fruits and vegetable, which would increase work

productivity, and reduce fatigue and crime. It would also offer people an outlet where people can relax. Hypertension is one of the symptoms of obesity and can lead to fatal heart attacks. Exercise and relaxation are essential in order to alleviate its severity. Research has shown that "simply looking at a plant can reduce stress, fear, and anger, and lower blood pressure and muscle tension (Brown 28) and gardening is an excellent form of exercise because it can range from simple motor tasks like pruning or weeding to more intense tasks such as turning compost (Brown, 28). Research has shown that when people have access to an urban garden they and their families generally eat more vegetables and fruits and have lower grocery bills (Ladner, 185).

The impact on children can be immense and essential for them to live a happy and full life. School gardens are a great way to introduce children to gardens. They promote teamwork, problem solving, improve relationships between students and their teachers and also teaches them about growing food. A study of sixth graders with a school garden showed that the students had a higher consumption of fruits and vegetables as well as higher levels of vitamins A and C (Ladner, 162). Lindsay Babineau, the Executive Director of the B.C. Agriculture in the classroom foundation found that; "When kids are exposed to new foods in a peer setting, they will try it." "The teacher says 'this is a pear' and they eat it. Everybody has to put it in their mouth. There's been an absolutely phenomenal response to the program. Kids get very excited about discovering things they've never eaten before" (Ladner, 155). When children learn early on to enjoy something, they will continue to seek it out.

## Chapter 3. The Social and Psychological Benefits of Urban Gardens on Communities

*"Plants mirror people and there is so much to be learned there. People on an instinctual level have nurturing needs. We all have a need to take care of something. So a person can fulfill his or her unmet nurturing needs with the plant in a safe relationship" (Hanson, 31).*

Urban Gardens dually have an amazing impact on the people who work in them as well as the communities in which they are located. Gardens are extremely effective at supporting cooperation between neighbors, helping support marginalized peoples, and as a source of therapy for those who need it.

One unique community in Vancouver, was brought together by the ideas of two neighbors who had their own gardens. They contacted everyone in the neighborhood with an interest in gardening, they began working together to improve their gardens. By cooperating they were able to expand and began raising bees and chickens, have canning parties, a community composting project, and pot lucks, which they would have been unable to do individually (Ladner, 192). Kate Sutherland, who helped start the project explained their work, "We share tools, organize large purchases of seeds, compost and rentals together to lower fees. Each week we go to one person's garden to tackle a large project that would take a single person at least a day or two to do themselves. The results have been quite dramatic, visually and emotionally. We've all been blown away by how simple, effective and fulfilling this has been. We can't imagine going back to the way things were before our mini garden revolution. I lived on this block for 12 years and have never been inside most of my neighbors' homes; now I have been in all of the members' homes" (Ladner, 193). This same neighborhood went on to write a

book called "*The Two-Block Diet: An Unmanuel"* about their experiences, including what worked, what did not work and advice to help people begin and advance their own gardens.

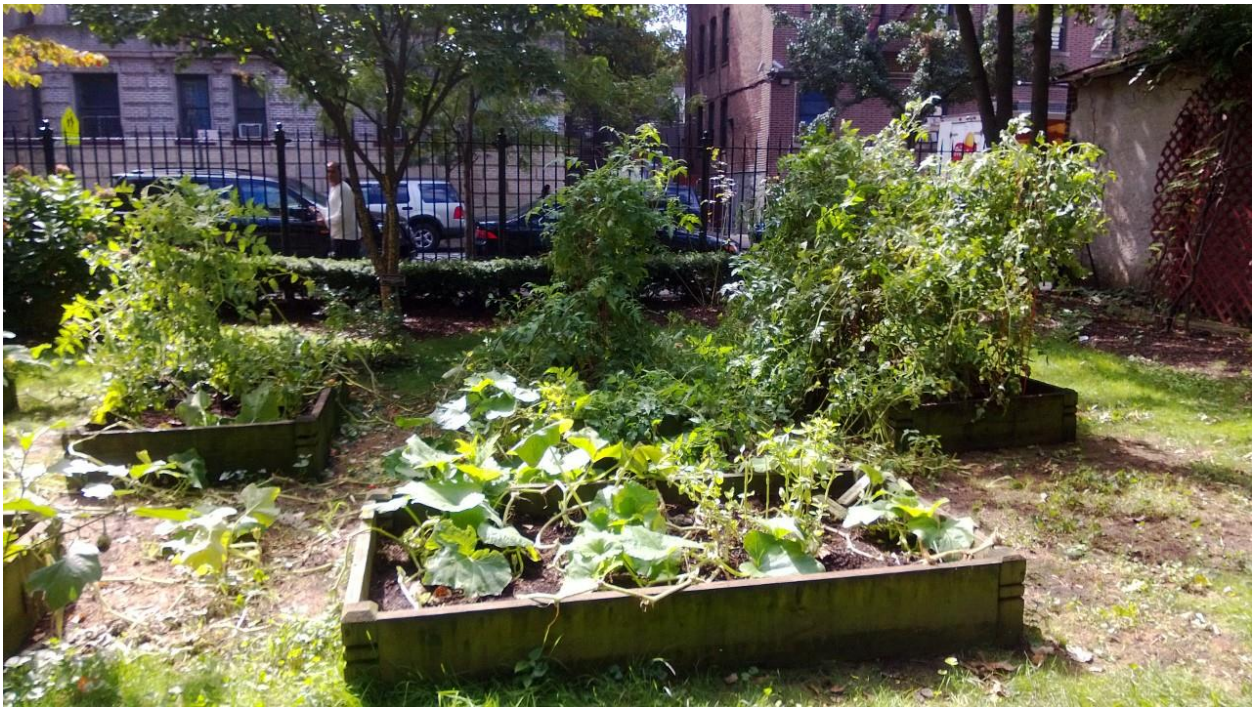
Urban gardens also create opportunities for the community to develop socially and contribute to what is called "social capital". Working together as a community to accomplish goals leads to people developing leadership and organization skills that may not have had the chance to develop prior to the garden. It is empowering for them because they are making a difference in their own lives and the lives of their communities and neighborhoods. This empowerment could allow them to continue to take pursue agendas that they may not have previously believed to be possibly and be a major contributor to lasting social change (Brown, 29).

This sense of empowerment has also helped two different communities who are often marginalized by their communities; immigrants and homeless peoples. Providing immigrants and refugees access to urban gardens and plots of land has become a recent movement which has helped many people who are new to the United States support themselves, learn a trade, earn some money, interact with other people in their community, learn English, and grow culturally relevant produce that helps with homesickness and keeps them connected to their culture. Homeless gardens are also offering the same relief. In Vancouver, a community police officer decided to open a community garden for the homeless. They eagerly embraced it, and the only reported problem was that the plants were being overwatered because so many people wanted to help take care of the plants. The garden allowed them to do something positive, take care of something, and get results out of their labor (Ladner, 185). The Homeless Garden Project (see Case Studies), has similar goals, but is more focused on training the homeless men and women to help them get jobs to support themselves (Hanson, 36).

Many community gardens such as Growing Power and the Homeless Growing Project offer job training for the local marginalized community. They often help the local youth and adults, homeless, and substance populations (Dziedzic, 33). Offering this aid can greatly increase their ability to find jobs and standard of living. Troy Gardens in Madison Wisconsin hosts youth on one day passes from the local jail. "They hate being out in nature," says the Acting Executive Director Christie Ralston, "But when I give them hard, heavy work to do and they see results, they like it. I particularly remember one of the teenage boys tell me after we had done some sampling and pointing out different plants: 'I smelled things I had never smelled before" (Ladner, 185). Will Allen of Growing power also hires challenged youth to help build hoop houses and work in the compos mixing yard. He describes his goals, "This is about growing jobs. We can create thousands of jobs around small-scale agriculture (Ladner, 109). Wood Street Farm trains people with employment barriers to help teach them the basics of finding work and give them some professional skills (Ladner, 36).

Urban gardens have also made immense progress towards removing racial barriers and discrimination "The work that we're doing is social justice work. For white folks to support and ally with people of color and communities that are struggling, they have to understand that it's not just about knowing how to get lettuce. It's important that people doing these projects are very transparent about why they're there (Dziedzic, 49)" says Will Allen who uses his role as an extremely successful African American farmer and CEO to speak out against discrimination (Cockrall-King, 239). The Growing Food and justice Initiative is also combatting what they call "food racism" with a national network of approximately five hundred people. They define food racism as "the structural denial of wholesome food to poor African-American and Latino neighborhoods" (Dziedzic, 40).

It was while I was working at Concourse House that I was able experience first-hand the social effects of an urban garden. The shelter is a large unassuming building at the corner of two streets. This means that what is essentially its backyard is also right next to the side street, easily viewable through a fence by the slow but steady traffic that passes by. The garden is directly behind the fence and so therefore the first thing that people see, behind the garden is a lawn area, and behind that a playground. Even from the first day working there, I noticed people would just stop and watch me work. Most would shuffle away when I noticed them, but often people would talk to me and ask questions about what I was planting, what I was building (at the time hoop houses), if it was my garden, and if not whose was it. For the three hours I was there a week, I would have easily five or six people stop to talk, and another unknown number stop to just watch. I even had some special encounters; a Kickapoo Native American man stopped to watch me work and then began describing all the traditional medicinal uses his tribe would have used for each plant in the garden. At one point two people stopped to watch me prepare the soil for spring, and when I told them that it was still too early to plant anything, they entered into a full debate listing plants that they thought I should plant and why. The eventually introduced themselves to each other and swapped phone numbers to discuss gardening later.



Concourse House Women's Shelter Garden

Photo Credit: Maeve Bassett

In New York City, where you generally do not talk to strangers, this one small garden was stopping people, and giving people a common ground to discuss. It's an interest that easily crossed racial, age and gender barriers. You could tell that the garden drew people to it. So many people were asking how they could help. Unfortunately, the shelter has to be strict about who helps there, but I was able to direct people to other gardens. Apparently I inspired a few people who, stopped by the next week to tell me they bought some pots for their fire escape/ windowsill and were wondering what would be the easiest, most productive, most delicious things to grow.

At the Concourse House I was also able to understand Will Allen's quote; "For kids to make their own soil, grow their own food, and then get to eat it, that's a very powerful experience," "There's nothing like hands–on experience for kids who are bored with school. They get excited about what they're learning and then take it back to their classes" (Dziedzic, 43). Most of the children there had never played in soil before, and I could see that it immediately triggered their desire for knowledge and exploration.

## Chapter 4. The Physical Impact of Urban Gardens on Neighborhoods and Communities

Urban Gardens have been proven to positively influence various physical features of neighborhoods such as safety, environmental health, and home value. In one of his lectures Will Allen, of Growing Power in Milwaukee, emphasizes this point an observation he's made; "The mere act of blanketing a streetside boulevard with flowers would remarkably reduce smash-and-grab break-ins in parked cars. Drug dealers also have an aversion to flowers in their favorite parks where they dealt (Cockrall-King, 234). Other research has shown that having a garden project in a neighborhood results in a reduction in illicit drug dealing, burglaries, and thefts (Brown, 29). Although in depth research has not been on the psychology behind this phenomenon, multiple studies including the one illustrated below show a correlation between the increase in green space and the decrease in crime. One of the main theories behind this data if a garden is located in the neighborhood, the prevalence of people who are working outside with their eyes and ears on the streets increases. As we saw in the previous chapter, gardens also lead to people knowing their neighbors better. People are more prone to look out for one another and will more readily notice someone new and suspicious in the neighborhood (Ladner, 185).

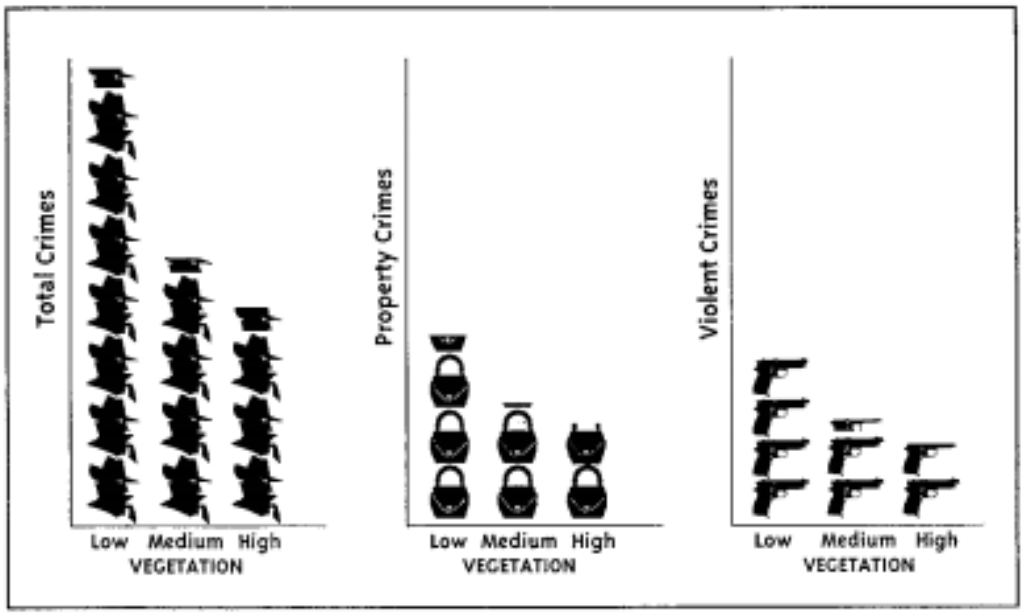



**Figure 3: Mean Number of Crimes Reported Per Building for Apartment Buildings With Different Amounts of Vegetation (each icon represents one reported crime)**

Community gardens have also been shown to increase the price value of neighborhoods a homes. A New York study showed that once a garden opens up in a neighborhood, the property value of all property within 1,000 feet increases and continues to increase over time. A Milwaukee study similarly found that the closer the residence is to a community garden, the more people are willing to pay. As a result of this increase, a three-block radius would contribute $8,880.00 to a city in annual tax revenue (Ladner, 185).

**Table 5. Impacts of a Typical Garden on Residential Property Values**
(estimates based on median per-unit sales price of properties in rings)

| | Distance to garden site (feet) | | | | | |
|---|---|---|---|---|---|---|
| | 0 | | 500 | | 1000 | |
| Time since completion | % | $-value | % | $-value | % | $-value |
| right after completion | 2.4 | 2,134 | 1.5 | 1,359 | 0.7 | 585 |
| 1 year | 3.5 | 3,099 | 2.3 | 1,997 | 1.0 | 895 |
| 3 years | 5.7 | 4,984 | 3.7 | 3,227 | 1.7 | 1,470 |
| 5 years | 7.7 | 6,809 | 5.0 | 4,397 | 2.3 | 1,985 |

*Notes* : % impact is percentage point change in gap between prices in ring and outside;
$-value impact is obtained by applying the % impact to the median per-unit sales price of properties sold in rings. Median price per unit of properties sold in rings is $88,031
The typical garden is considered one which is publicly-owned and has an area of 6,000 sq.ft. (the median garden size in our sample).

At some point, however, this price increase becomes a risk. As we will see in a later case when the value of a plot of land increases there is more risk for the tenant. Especially on the gardens, who generally do not have tenure for the land. Once the value increases, the owner may want to sell to a housing or commercial developer. Increasing property value can also cause angst among people who may worry that the people we are trying to help will eventually be forced out by the very solution that was supposed to help them. While this is a concern, the increase in property value is currently not enough to harm the community members.

Urban gardens can also have a positive effect to on the natural environment of the neighborhood. Green space will attract birds, reptiles, insects, animals, and a variety of microorganisms that will help increase the city's biodiversity. The green space will also provide food and shelter for migrating birds and butterflies, helping to preserve various species (Brown, 32). When properly landscaped and urban garden can also help reduce ground water contamination (especially if they harvest and reuse captured water) and prevent soil erosion.

Merely planting vegetation can also greatly improve an area because the roots of the plants will absorb soil contamination and the foliage will reduce air pollution (Brown, 33).

Lastly, there is the most basic improvement in the appearance of a community with the building of a community garden. Communities usually take over vacant lots. These lots are generally empty of any foliage but weeds and are often used as illegal trash dumps. That was the case with St. Rose's Garden, which was two empty backyards which had not been used in years. We built eight raised bed (because the soil was contaminated) built a sitting area, planted flowers, and began planting. Now the garden is used, for gardening, relaxation, socializing, and learning. As you can see in the below photos, as well as the picture at the beginning of this paper, by making the wasted unattractive space into an urban garden we were able to improve the community and appearance of Fordham University.

**Before**

Photo Credit: Jason Aloisio

**After**

Photo Credit: Maeve Bassett

## Chapter 5. Conclusion: Policy Recommendations for Solving the Problem

One of the main benefits of utilizing Urban Gardening as a solution for all of the problems is that it is community based. It does not require mass overhauls of already in place laws and policies, does not cause political conflict, and is generally unbiased against any race, gender, sexual orientation, or history. Instead it is all community started, run, and funded. They are able to show their independence and for a population who is often involuntarily dependent on the Government, this is a way to help themselves, their children, and their community. This creates feelings of empowerment, self-dependence, and hope. When they do need to turn to the government for support they are generally accepted by most parties and organizations as beneficial. This is because they are independent, require little monetary support, teach people self-sufficiency, and at this point are not productive enough to interfere greatly with food sail, merely supplement them.

There are some instances however that show that policies are in need in order to help defend and support urban gardens. This was seen in the Central City Farms which was mentioned in the previous chapter. They faced a problem which is faced by many community urban gardens. The land that they are working on is not theirs permanently or they have no guarantee that they won't be kicked off at any time. As was discussed above, urban gardens raise the value of the communities in which they are located. This also means that the plot of land in which the gardens are located also increase in value. As a result the owner of the land or the city are more incentivized to sell it to developers. If you are a gardener, working on a plot of land that may not be yours in a few months or a year is extremely stressful.

Many of the problems associated with the negative view of gardens neighboring residential zones is a result of the "Right to Farm" Laws which protect farmers and areas zoned for agriculture from complaints associated with everyday farming practices such as smells, sounds, and unwanted views. As a result of these laws many farmers were able to hide behind the laws and abuse their rights as neighbors (Salatin, 173). As a result, people are often distrustful of urban gardeners. Recent conflicts have emerged because of people switching from the water wasteful and pesticide dependent laws to gardens in their front yards. Neighbors and the Home Owners Association (HOA) commonly complain and can even fine people if the gardens are deemed unsightly or are viewed as a risk to the value of the neighborhood. Community gardens have been similarly attacked, some people may not view or understand the importance or the value that gardens have on neighborhoods.

One way to address this issue is to set basic regulations on urban gardens. Roosters are unnecessary in urban gardens unless they want to produce and raise their own chicks. However, new chicks can easily be bought and the benefit of a rooster does not outweigh the nuisance its crowing will have on neighbors. Other regulations like limiting the number of animals like goats or pigs that could theoretically live on a farm to less than four or five (or less based on the plot of land) would greatly reduce the sound and sell from their presence. One other potential regulation would be limiting which fertilizers can be used, how much can be used, and when they can be used. Regular compost should have almost no scent beyond the common 'earthy smell" most people know, in contrast manure has a much stronger smell which could easily bother neighbors. Manure, however, is much richer and could greatly help leaner, sandier soil such as is commonly found in city plots. Limiting the amount a site can use and restricting its application to days when the temperature is below fifty degrees, such as in the spring before planting has begun. All

of these measures can greatly reduce the negative consequences the garden may have on neighbors.

Although gardens are primarily community funded, I know from experience that a grant of a few hundred dollars can mean a greenhouse to start sprouts early, or a chicken coup to provide the neighborhood with fresh healthy eggs, or even buying higher quality seeds to improve crop yield. It was already shown that improving food access to a neighborhood can greatly decrease the costs of ambulances, police visits, doctor visits, and other poverty related cost. If the United States Department of Agriculture were to offer grants that gardens could apply to in order to improve their gardens and therefore the community they benefit.

One solution that many people believe will solve many of the situations associated with urban gardens having them officially zoned for agriculture. In theory this will help with taxing, land tenure, and water use. However, as we have seen in our case studies, urban gardens are rarely used exclusively for food production. Agriculture zoning puts the focus on production and makes any other use of the land illegal. Many urban gardens are used for teaching, if they charge per student for the lesson, then the garden would be considered an educational institution, which is illegal in agricultural zones. Likewise, if they charged people to merely visit the garden, they would be considered recreational, which is also illegal in agricultural zones (Salatin, 175). Some urban gardens may be able to provide both these experience for free which would not interfere with the laws, however, for many even charging one dollar a person can be a significant income for running the garden.

There are also additional problems if a garden choses to sell its produce. Firstly, items that are produced on the farm, then sent away for processing and again returned to the garden for

sale are illegal. If a garden produces apples that they then send away to be made into an added-value product such as jams or butters, that new product cannot be returned and sold at the garden because it would be considered a "manufactured product" and therefore illegal. This greatly reduces the products that can be made and sold in a garden. A garden may produce an abundance of apples but there are only so many apples that can be sold raw, unless they have a kitchen on their plot where they can process the fruit, they may have no way to profit from the excess fruit (Salatin, 176).

Secondly, one method for gardens to make a profit is to share produce and sell it at the same location. One example would be all the garden plots in a city district sending their excess produce to one central location that has adequate space and employees to run a vegetable stand. If the plot receiving and selling the produce is zoned for agriculture, then this would be illegal because they would require a business license. Obtaining a business license would be a problem for most gardens because they require that the garden have; a commercial entrance, handicapped parking and access, public bathrooms, a parking area that is up to code (has proper curbing, drainage, and parking barriers) and an up to code building. A business license also requires that the gardens places a tax on every dollar of sale. This would increase prices and require extra work to produce monthly reports (Salatin, 177). For most urban gardens, these changes are not monetarily feasible and would hinder their ability to provide fresh produce to their customers. Zoning urban gardens for agricultural use would overall be a hindrance to the garden and would significantly reduce its impact on the community it serves.

When zoning urban gardens there is no clear cut definition. They cannot be zoned as agricultural, aren't merely recreational, are generally not businesses, and are rarely privately owned. What is needed is a new form of zoning for urban gardens that does not restrict their

ability to grow, sell, and teach the community in which they are located. There are two scenarios in which a city has revised its zoning codes in order to support gardens. In 2011, Baltimore changed its zoning in order to recognize community gardens and urban farms (Ladner, 45). Philadelphia also revised its zones to allow gardens within residential area, however, they kept in mind the issues that can arise when living next to a farm. They limited the gardens to "Agriculture and horticulture, except the commercial keeping or handling of farm stock or poultry; and except the commercial greenhouses or establishments for sale of farm of horticulture products" (Ladner, 46). This new zoning supported urban agriculture but restricted its ability to raise animals and sell on a commercial basis and does not allow gardening on a more agricultural format.

One implementation that would greatly benefit current gardeners and one's who intended to start resources, but do not yet have the resources, is the education and implementation of garden educators. These would be people, trained and under the jurisdiction of the USDA, to travel around to all gardens who request their aid. They would be trained on everything from pest management, to watering systems, land use laws, and grant and aid application. Essentially they would be informed on everything important for urban farms and be able to make connections to lawyers and contractors. In the United States we currently have a similar position called an "Extension Agent", however, their current focus is on rural mass producing farms and ranchers.

## Case Studies

In this section, I will list some of urban farms and gardens that I have come across in my research which have had a major impact on their community, the urban agricultural movement, and/or are progressively attempting new methods for farming or civic engagement. One of the main points of this essay is to make people aware of the efforts going on around them and through this section I hope to show people of gardens near them. I will provide information about the garden, the person who runs it, its location, and why it is important.

### Catherine Ferguson Academy: Detroit, Michigan

**Principal: Asenath Andrews**

**Science Teacher: Paul Weertz**

The Catherine Ferguson Academy is a school for teenage mothers and teenage mothers-to-be in Detroit. It began when the science teacher did not want his students to have contact with formaldehyde which can harm a fetus. So he began keeping live chickens and rabbits to use in class. It continued to grow from there. The girls who attend this school often arrive in poor condition often having been cut off from their family and friends because of the pregnancy. The garden gives them the confidence by allowing them to drive a tractor or controlling and milking a cow. The young women as well as the children take care of the animals and plants. It is even extended into the classroom, the science teacher uses the garden every day, the art and writing classes also utilize the garden (Hanson, 129-136).

*"The farm is a great way to teach parenting skills. If you do not water and feed the plants, they wither and die. And training the goats for milking is a great lesson too. We teach kids how training works—you have to be smarter than the animal. I let the goats run wild for the first milking and then I teach the girls that you have to outthink them and train them to do what you want them to do."*

- *Paul Weertz*

**Denver Urban Gardens: Denver, Colorado**

**Board of Directors: Chris Adams (President)**

A community garden mostly taken care of Somalia refugees. The garden allows them to feel at home since most were originally farmers and are able to grow traditional fruits and vegetables. It also creates a community of refugees who can support one another through their transition into the United States. They are continuously welcoming new refugees such as the influx of Bhutanese refugees in 2009. In another part of the city, they run a peace garden to commemorate over one hundred youths killed by gun violence. The founders use traditional Aztec growing methods to teach their children about their ancestry and keep them away from violence. (Hanson, 53-62).

*"We come to the gardens because we want to do something that reminds us of Africa. If I am in Somalia, I am going to make a lot of fruit. To have a garden is fun. The food is fresh, and it's better than staying inside the house."*

- *Abukar Maye*

**Growing Power: Milwaukee, Wisconsin**

**Founder: Will Allen**

Originally located on two acres of land surrounded by an economically depressed area of Milwaukee, Growing Power has become the poster child for the urban gardening movement. The initial 2-acres has greenhouses for all types of plants, greens, mushrooms, and an extensive aquaponics system that grows tilapia, perch and blue koi. The water from the fish tanks is used to feed the plants who readily absorb the nitrogen, the water then runs through the composting system where the worms and bacteria break down the rest of the waste. The water then returns to the fish tanks almost completely clean. The owner, Will Allen initially bought the plot of land for his own use, but when local kids began stopping by asking how to grow their own plants, he realized the opportunity he had. He now brings in neighborhood kids to work on the land. Another workforce he utilizes are juveniles who have court appointed work hours. Through his program they learn valuable life skills and gain work experience that will help them succeed in the future. The farm is also home to chickens, bees, turkeys, and goats. The popularity of their

program has allowed them to expand into fifteen satellite locations and they were just approved to build an innovative vertical farm.

*Mission Statement: "a national non-profit organization and land trust supporting people from diverse backgrounds, and the environments in which they live, by helping to provide equal access to healthy, high-quality, safe, and affordable food for people in all communities. (Cockrall-King, 235)"*

**Homeless Garden Project: Santa Cruz, California**

**Executive Director: Darrie Ganzhorn**

A three-acre study in therapeutic horticulture and job creation. Began as a small plots tended by homeless men and women. Fourteen homeless trainees now work at the garden and help supply and distribute the weekly CSA to twenty-five members and a few social service organizations. While working on the farm, the trainees also take courses on topics ranging from plant pathology, meditation, and resume building. Trainees are also able to learn skills like making candles, wreaths, and added-value products which are then sold at the gift store to support the farm. Two-thirds of their trainees currently have more stable life (Hanson, 25-34).

*"Before, I never had anything I actually earned. Never got to watch something grow and prosper. With this, if I start something, if I plant something in that bed and ten years later*

*someone else is working on that same plant, I can know I helped do that. It's something that I've finished and it gives me a great deal of hope and confidence in myself."*

- *Robert Cochran*

**Jones Valley Urban Farm: Birmingham, Alabama**

**Executive Director: Edwin Marty**

Jones Valley Urban Farm is a 3 ½ acre farm whose focus is teaching children at the local schools about nutrition, where their food comes from, and what goes into producing fruits and vegetables. The farm is visited by multiple classrooms and also hosts summer camps. Every year they host labs for local students (one for each year in highschool). They must research and complete a project that benefits the farm in some way. One student discovered pests attacking one of the crops on the farm, they researched and developed organic methods to combat the insects. If they successfully complete the lab they can apply for twenty-hour a week jobs, where they are paid eight dollars an hour the first year. JVUF supports itself mainly on the produce it grows and sells. In order to not risk production they created a separate children's garden where younger kids can play while the older students work on the produce that is sold to local farmer's markets (Hanson, 91-98).

*"I've had parents come out to the farm and ask how we got their kid to want to eat broccoli- to actually ask for it at dinner. We just showed it to them and had them pick it, then we cooked it together."*

- *Rachel Reinhart*

While the above case studies have had the broadest impact, it is important to note the importance smaller farms can have if they are directed at certain individuals. One instance is the Concourse House Women's Shelter where I worked. Their eight small plots would barely be enough to feed two families, but their existence gave the women and their children a refuge to relax, learn some skills, and play together. It also became a teaching resource for the children so that they could learn about nutrition, ecology, and stewardship in a practical environment. A garden does not need to produce tons of produce and make recognizable benefits to the community to be important. If utilized properly small gardens can have lasting impact on the people who work them. I personally hope that the children who I work with at the shelter will have learned valuable life skills that will help them in the future and allow them to remember their time in a shelter for its benefits rather than for the tragic reason that they ended up there.

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