FEEDING AMERICA’S GROWING CITIES:
THE ROLE OF URBAN AGRICULTURE IN THE FUTURE OF FOOD DISTRIBUTION
AND ACCESSIBILITY

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Abstract

The current challenges of poor food distribution and accessibility faced by residents of urban food deserts will be exacerbated by increasing rates of urbanization. Existing income inequality within cities is the root cause for the limited access to healthy foods experienced by a large percentage of city residents living at or below the poverty line. These city dwellers are at a significantly higher risk for developing diet-related diseases. My research explores whether urban agriculture can be a viable solution for feeding urban food deserts in America’s growing cities. Through case studies of urban agricultural practices in two American cities, Portland, Oregon and New York City, my thesis explores the impact of these efforts and determines if they can be implemented into other cities. My research concludes that, although traditional urban agricultural practices cannot entirely sustain a city, these efforts can instead provide the city with invaluable opportunities for business entrepreneurship, community development, and food education. These urban agricultural initiatives allow some people living in food deserts to have access to healthy food options despite the growing economic divide. Urban food deserts are actually products of government failure to provide sufficient food access and distribution throughout cities, and while urban agriculture can ameliorate this issue, it can never fully solve the urban food crises; city governances should work towards increasing the percentage of food produced within city limits through urban agriculture.
Chapter I: Introduction

In recent years, it seems as if the term “urban agriculture” has been on everyone’s radar. With a growing awareness about our current food systems through expository films such as *Food Inc.* and *Fed Up*, Americans have begun to make more health-conscious choices in their efforts to live more wholesome lives. From spending the extra dollar on organic lettuce at the supermarket to frequenting the local farmers’ market more often, it is evident that a new health movement is occurring throughout cities across America. Urban agriculture is at the forefront of this movement with many people looking to grow their own food or participate in a local CSA share. But what exactly sparked this newly-found interest in urban agriculture? Community gardens have always existed within the urban environment, but only until recently has they gained this kind of attention. There are many different reasons for why urbanites have begun to express interest in urban agriculture: one being this new awareness of food systems, another being the sole trendiness of this idea which sprang from a heightened desire to engage in healthier lifestyles. The increased visibility of these urban agriculture practices in the cityscape sparked my interest in this field and prompted me to conduct the following research in order to determine how and if urban agriculture could serve as a viable solution to urban food deserts in America as urban populations begin to grow.

The United Nations estimates that by 2050, the world population will reach 9.6 billion people. While most of this population growth will be seen in developing countries, there is a growing urban population in the United States.¹ According to another United Nations Study, 81% of Americans currently live in cities and this percentage is expected to increase to 87% of

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the United States’ population residing in cities by the year 2050.\textsuperscript{2} If current trends of food distribution and access continue within cities, the urban populations that are disproportionately impacted will continue to experience these harmful effects. Both a societal and political shift is necessary in order to accommodate this future population growth and create a more equal system of urban food distribution and accessibility.

Although urban agriculture has become a trendy idea over the course of the past few decades, it has been a part of the urban landscape and lifestyle for far longer. Urban agriculture is defined as the growing of produce and the raising of livestock in cities in conjunction with innovative forms of food distribution and processing and is often closely embedded into the local urban communities.\textsuperscript{3} Is it possible that urban agriculture can serve as a viable solution to feeding America’s growing cities? The pessimistic, yet realistic, answer is no. A study from the University of Washington analyzed the city of Seattle, Washington to determine the percentage of food that could be produced within city limits. The disheartening result of this study reveals that the Seattle could only produce between one and four percent of the entire city’s dietary requirements.\textsuperscript{4} Increased density within cities, the necessity of sufficient caloric intake from grains, and the lack of space within cities are just some of the many reasons as to why cities today cannot produce the majority of their food within city limits. However, the growing urban


agriculture movement throughout the United States offers evidence that there are added benefits to these endeavors that are not as tangible as the mere production of food.

I first embarked on this research endeavor in the hopes of learning more about urban agriculture and how it could be a beneficial force in reconnecting urbanites with their food sources, especially in areas of high food insecurity. I imagined that food deserts could greatly be impacted by urban agricultural practices and that such implementation into future city planning models might be able to solve the current urban food crises in America. My personal experience in this field had cast a positive light on urban agriculture which encouraged me to pursue further research in this area. I conducted research in Portland, Oregon and in New York City where I met with dozens of urban farmers to discover the ultimate goals of urban agriculture and to determine whether these endeavors could indeed solve the effects of urban food deserts. To my dismay, the conclusions I have reached through this research process are far from what I had originally imagined them to be.

Insufficient access to healthy food options within cities is a serious problem; the widespread availability of processed and unhealthy foods within these urban areas is a primary reason for the rise in chronic illnesses such as obesity, hypertension, and diabetes. In fact, a third of all American adults are obese, and an additional third are overweight.\(^5\) My initial hope for this research was to reveal that urban agriculture could be a solution to these urban food crises. However, my research actually revealed that despite the enormous potential that urban agriculture can have on cities, without proper government funding and support, this movement might only be reserved for a more trendy and hipster demographic. Urban agriculture which takes the form of community gardens or educational approaches within schools does not apply to

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this generalization. However, many urban agriculture efforts to hyper-localize foods tend to attract a much more affluent population which unintentionally pushes out those who could actually benefit from increased accessibility to healthy foods.

This study analyzes innovative urban agricultural practices used in the cities of Portland, Oregon and New York City that have the potential to be utilized in combatting the negative effects of urban food deserts. Both of these cities have high poverty rates and are experiencing significant population growth that is challenging them to look towards innovative alternatives to food production and distribution. Portland is a relatively small city of 145 square miles. However, over the past few years, the city’s population has grown by 1.72 percent with the addition of 40,621 new residents between 2014 and 2015. This is equivalent to 111 people moving into the city per day. New York City, a much larger city in comparison to Portland, is 304.6 square miles and is home to nearly 8.5 million people as of July 2015; its population has increased 4.6 percent since 2010. Portland and New York City were selected as case studies for this research on urban agricultural initiatives because of the population growth and the large percentage of residents living at or below the poverty line in both of these cities. Moreover, by examining two completely different cities in respect to culture and size, a better understanding of urban agriculture strategies and potential implementations can be developed.

My study of these two American cities explores how urban agriculture attempts to serve as a response to the current urban food crises. The case studies of these practices in both cities

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will reveal the missions, struggles, and strategies of these endeavors. Additionally, I seek to determine whether these practices can be implemented into other cities and if urban agriculture can be a viable solution to the current issues found within urban food deserts. The analysis of Portland and New York City will reveal the hidden benefits of these practices and the existing obstacles which hinder their overall potential; through these case studies, we can begin to develop a better understanding of the future of food within cities.

Chapter II: Food Affordability and Distribution within Cities

The urban food crises which plague many American cities exist because of a failure to develop sustainable systems for proper distribution of food. While some areas in the urban environment have ample access to fresh produce, other parts are deemed urban food deserts because of the limited amount of healthy food options available. Fast food chains and corner stores are often defining characteristics of these areas. The distressing discrepancy between food quality, accessibility, and affordability within cities further emphasizes the need for some sort of reform. While urban agriculture can certainly be a method for overcoming the issues faced by these urban residents, it is solely a way to ameliorate a much larger problem in the urban environment. The root cause of these discrepancies among urban residents is poor food distribution in conjunction with income inequalities; urban agriculture is just a way of lessening the harmful effects but in order to affect permanent change regarding our food systems, some governmental intervention is essential.

Poor food access and affordability in cities throughout the United States has led to a variety of harmful impacts on urban dwellers. The current methods of food distribution within these urban areas prove to be inefficient since a large percentage of city dwellers do not have adequate access to healthy food options. To further complicate this matter, as U.S. cities continue...
to grow in size, it becomes apparent that the current means of distribution of food must be altered in order to accommodate the growing demand; the ways in which we produce, consume, and distribute food within our cities is at the crux of this issue. The current food crisis began in the 1980s when supermarkets moved out of cities and into the suburbs, creating a food void which was quickly filled by fast food chains and corner store markets. For this reason, urban dwellers went from having limited food to having a surplus of processed and unhealthy meals. This transition of food production and consumption caused unexpected problems including chronic illnesses and an overall decreased connection to one’s food origins. Dr. Eric Holt-Giménez argues that food production is not the root cause of these problems; rather people are locked out of the market because of failing distribution methods and a lack of affordability. While alternative production methods for food could help to lower these prices, the topic of poor food accessibility cannot be detached from the cost and availability. If the current food problems are not resolved, the situation will only continue to get worse.

Insufficient food access cannot be discussed without addressing the disproportionate percentage of city dwellers living in poverty. Problems in food production and distribution are not solely responsible for the food crises. Over the past few decades, food has actually become cheaper as a result of government subsidies. Yet, people’s purchasing power has greatly decreased therefore preventing them from being able to access healthier food options (Figure 8). 

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8 Mark Winne, *Closing the Food Gap: Resetting the Table in the Land of Plenty* (Boston: Beacon Press, 2008), 111.

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10 The more we are able to recognize these relationships and associations, the more likely we are to close the food gap.\textsuperscript{11} Areas with limited or no access to healthy food options are classified as urban food deserts, with a large percentage of that population being food insecure. The City of New York defines food insecurity as “the lack of access, at times, to enough nutritionally adequate food for an active, healthy life for all members of a household.”\textsuperscript{12} Even where healthy food is available, the prices tend to be unaffordable. In addition to the increasing amount of diet-related diseases resulting from these urban food deserts, an overall disconnect to one’s food sources is also a growing problem. A lacking knowledge of food origination has the potential to encourage poor food choices that eventually lead to disadvantageous diet-related health issues such as diabetes and obesity. Only by addressing the root cause of these problems can any progress be made in the elimination of urban food deserts.

The sharp income inequality present within cities is a primary reason for the declining health of some city residents. Economic fairness and income inequalities are inversely related; therefore as the gap between the wealthy and the poor begins to grow, the associated fairness consequently declines.\textsuperscript{13} This correlation is similar to the overall accessibility of food. As income inequality widens, some people are able to purchase healthier food options, while others are restricted to more affordable, yet unhealthy selections. Therefore, affordability of food is closely

\textsuperscript{10} Cockrall-King, \textit{Food and the City}, 61.

\textsuperscript{11} Winne, \textit{Closing the Food Gap}, xix.


\textsuperscript{13} Paul Ryscavage, \textit{Rethinking the Income Gap} (New Brunswick: Transaction Publishers, 2009), 63.
tied to the increasing prevalence of diet-related diseases. Since the majority of one’s income is often used for rent and other daily lifestyle needs, the remainder of one’s wage is often not enough to take advantage of healthy food alternatives. Therefore, if we want to overcome urban food crises, efforts should be made to raise the minimum wage so that healthy foods are no longer viewed simply as luxury items but as necessities. A study done by the National Bureau of Economic Research studied the impact of minimum wage on one’s BMI. “The Impact of Minimum Wage Rates on Body Weight in the United States utilized statistical analyses to determine a correlation. The final conclusions of this study suggest that there is definitely a relationship, although not as strong as one may think:

If the decline in minimum wages has contributed to increasing obesity in the United States then it is tempting to consider whether increases in the minimum wage might reduce obesity in the United States, producing benefits in both better health and lower health care costs. Indeed, the Federal real minimum wage has already increased by about 40% since 2006. Real minimum wages would have to rise by an additional 60% to restore them to their 1968 levels, and such increases could have adverse effects on employment, companies that depend on minimum wage labor, and the prices of other goods and services that are heavily dependent on minimum wage labor.  

Therefore, by raising the minimum wage, there are potential implications that there would be a positive impact on the local population. In order to adequately combat urban food crises, the minimum wage should be reevaluated.

Poor distribution within cities is an additional reason for the presence of food deserts and diet-related diseases. The prevalence and affordability of supermarkets are primary reasons for why health issues exist within certain urban areas. It has been found that a healthful diet is largely dependent upon the existence of stores which sell fresh foods. Therefore, if the only

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accessible food establishment is one which serves solely fast food options, then an individual is increasingly more susceptible to health concerns as a result of a poor diet. Moreover, this fact strongly associates “lower-income, racially segregated neighborhoods” with disproportionate rates of diet-related disease developments because of poor food options in the respective area.\textsuperscript{15}

While some areas of cities have adequate access to healthy and good quality foods, others do not. For example, a more affluent section of a city may have multiple supermarkets of high quality such as Whole Foods or New Seasons in contrast to food desert areas which may only have access to fast food chains or corner stores. The locations of these food establishments are not random. Rather, these chains tend to locate in areas where there is a greater demand for their food.\textsuperscript{16}

Urban agriculture often develops in areas of poor food distribution as a way for residents to reclaim their food and gain some control over its production. Often the same areas which are categorized as urban food deserts are the same ones which have the most community gardens. This correlation is shown through a series of three maps of New York City (Figures 2, 3, 4). It is evident that there is a strong correlation between rates of diet-related diseases, community gardens, and food deserts. Those residing in these areas suffer from harmful effects and therefore resort to urban agriculture. Areas with higher rates of poverty tend to utilize community gardens as means of expression in the neighborhood and also as a way to overcome the detrimental impacts of poor food choices at local stores. In New York City, areas such as the South Bronx, Harlem, and parts of Brooklyn are home to the majority of the city’s community gardens (Figure 2). Additionally, the heightened amount of obesity within these same areas is closely related to a

\textsuperscript{15} Winne, \textit{Closing the Food Gap}, 92.

low consumption of healthy food (Figure 3). The last diagram depicts the areas of little or no access to supermarkets in New York City (Figure 4). In areas where supermarkets are scarce, produce consumption is low, and obesity rates are high; urban dwellers often turn to urban agriculture in an effort to make healthy lifestyle choices despite their current situation. In contrast, areas with greater access to supermarkets, higher rates of fruit and vegetable consumption, and decreased prevalence of obesity tend to be high-income neighborhoods. In this situation, community gardens and urban agriculture can serve as a beneficial force, but realistically, if more efforts were made to introduce supermarkets into these impoverished areas, then the problem would not have such a harmful impact. Overall, issues of minimum wage and general food distribution within cities tend to be the root causes of these resulting issues.

Government interventions and policy changes which work towards food affordability and proper distribution are essential to the future health of cities. While urban agriculture can certainly work towards the amelioration of these problems, it will never fully be able to resolve the issue. Moreover, efforts should be put into solving the issues rather than just looking for ways to lessen the harmful effects of them. Therefore, through effective policy changes regarding minimum wage along with just distribution of food throughout urban areas, we can work towards the reduction of urban food deserts and future crises. Especially with the growing rate of urbanization in American cities, if these issues are not resolved now, the future impact will be significantly worse. It is imperative that we supplant the current food system which relies on inexpensive, processed food with a system that is local and more environmentally conscious. Urban areas could significantly benefit from a food system established on principles of resiliency
and community. With proper government support, urban agriculture can be a powerful force in helping to achieve healthier cities.

Chapter III: Portland Case Studies

Background Information on Portland, Oregon

Portland, Oregon is a unique city which intentionally sets itself apart from the rest of the United States. Known for its “hippie” community and large food culture, this West Coast city does not entirely fit the stereotype of urban America at first glance. Visitors to Portland will first be intrigued by hyper-localization of food in supermarkets, the artisanal coffee and beer scene, raised beds of broccoli on front lawns, and the incredible amount of food trucks throughout the city. Making itself known as a food capital, many chefs, food-lovers, and hipsters have flocked to this area to see what the buzz is all about. Yet, this city still is facing many urban issues which can easily be overlooked even by Portlanders. Despite the food culture which Portland is known for, there is also a large portion of the city which resides in food desert areas and struggle with food insecurity. Often those in the city center forget about the outskirts of Portland where the food quality is significantly less than that of downtown Portland or the trendier areas. In addition to the discrepancy in food access, increased population growth within the city is beginning to impact original city dwellers. Those who had once lived in the Alberta Arts District or Hawthorne area are now being displaced because of increasing rent hikes. As a result those who are being pushed out of the center city are now moving to areas on the periphery of the city and consequently pushing out another population of people. Even though Portland’s Urban Growth Boundary allows the urban community to benefit from local food sources, it still suffers from

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some of the common urban problems including discrepancies in food access and rising gentrification.

Portland’s Urban Growth Boundary is a statewide initiative of the Oregon government which works towards the protection of the land outside cities from urban sprawl. Senate Bill 10, created in 1969, requires cities and counties within the state of Oregon to develop exhaustive plans for land use that coincide with the state specifications. Later in 1973, Senate Bill 100 generated the Land Conservation and Development Commission which oversaw these local plans in accordance with strategic goals. Still in effect today, these goals focus on the safeguarding of “farmland, open space, housing, public facilities and services, urban growth boundaries, and economic development.” The urban growth boundary which surrounds Portland is a primary reason for the increased locality of food found within the city. Since many American cities suffer from urban sprawl, they do not have the benefit of producing food in such close proximity. For this reason, Portland is able to boast about the locality of its food sources.

In addition to the urban growth boundary, Portland’s forward-thinking governmental policies encourage urban agriculture to be practiced within the city. In June of 2012, Portland initiated an update to the already existing Urban Food Zoning Code. This updated addition was aimed at “enhancing Portlanders’ connection to their food and community.” The Bureau of Planning and Sustainability for Portland outlined the following reasons as to being the primary reasons for revisiting this urban food zoning code:

This project will increase access to healthful, affordable food by removing zoning code barriers to growing, buying, and selling food—particularly in neighborhoods. While the food economy—from farmers markets to community gardens—has dramatically

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increased over the last decade, the zoning code has not kept pace; the regulations can be a disincentive because they do not address some situations and are unclear and/or too restrictive about others. With zoning barriers removed, government and social services providers can more effectively prioritize programs that increase access to healthful, affordable food to diverse communities.¹⁹

This updated zoning code worked towards heightened inclusivity regarding locations of community garden plots, distribution sites, and farmers’ markets (Table 1). Government interventions and implementations of urban agriculture such as these are beneficial for the urban community and should be looked towards for future city planning models in order to encourage accessibility to locally-grown foods and the knowledge surrounding it.

A hidden issue within Portland is the discrepancy between access to healthy food throughout the city. Through my interactions with those in the city, it was evident that a major divide existed among the different demographics. In speaking with some residents, I was surprised to learn that urban food deserts did not exist within the Portland area; in fact, some residents expressed that food access and distribution was not even a problem that the city faced. But conversations with other individuals, especially those who didn’t live in the city center, provided this research with an entirely new perspective. Kris Soebroto of the Janus Youth Program Village Gardens said, “Portland has blinders on” when it comes to recognizing the

inequalities present within the city. With a poverty rate of 18.3 percent, Portland is definitely experiencing issues of income divides, food insecurity, and other associated factors.

Rapid population growth within Portland is threatening this small city with displacement of persons and increased development. Before the urban growth boundaries were put into effect with the Senate Bill 100, the urban area of Portland was rather low in regards to density. Single-family homes, scattered apartment buildings, and very few high-rises made up the majority of the Portland built environment. However, the past decade or so has seen increased development of condominiums and apartment buildings. This new obsession with the city has caused population to sky-rocket which is threatening the “weird” atmosphere which so many Portlanders boast about. In January of 2015, a YouTube video entitled, “Stop Telling People about Portland” gained attention among Portlanders by shedding some light on this outrageous population growth. With more people moving to the city, the rents have begun to rise and ultimately have pushed out people who had originally lived in the area. This vicious cycle threatens the character of Portland by constantly forcing out the residents of Portland.

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20 Kris Soebroto (Village Gardens Program Director), in discussion with the author, February 16, 2016.


Urban agriculture and other environmentally-friendly practices are popular within Portland. Many residents grow their own food or know of someone who does. With the Urban Growth Boundary of the city, urban sprawl is prevented which further allows for the preservation of farmland in the surrounding region. Combined, these two concepts allow for a unique and local food culture to develop within the city. Despite the poverty rates and urban food deserts present in Portland, some of the city’s policies and regulations should be followed for future city planning. Blue House Greenhouse Farm and the Noble Rot Rooftop Garden are two of the many ways in which urban agriculture is utilized within Portland.

**Blue House Greenhouse Farm**

Nestled in the heart of the changing Portland landscape is a small third of an acre urban farm that provides local produce to the community while also serving as a unique business opportunity. Started by Amanda Morse in 2010, Blue House Greenhouse Farm has developed into a full working business (Figure 5). Primarily run by three farmers, Amanda Morse, Adam Marx, and Gentiana Loeffler, this farm works towards providing healthy food to their local urban community. Blue House Greenhouse Farm is a great representation of the many other local farms in the area that have an important community component while also serving as a successful business endeavor. The rising population growth within Portland is presenting Blue House Greenhouse with a challenge as the surrounding neighborhood is beginning to develop rapidly; the farm is in danger of disappearing as the rest of the community builds upwards. However, this resilient farm is continuing to provide CSA shares for the remainder of the season with the hope that they will be able to continue into the following year. CSAs, or Community Supported Agriculture, are “a farm direct marketing model where individuals/families purchase a share of
products grown by a single farmer or group of farmers.”

This urban agricultural practice should be looked towards when attempting to incorporate urban farms into the city landscape. However, through this case study of Blue House Greenhouse Farm, it becomes apparent that efforts to protect urban farmers are essential in order to preserve urban agriculture.

What are the advantages to farming on a third of an acre corner in the middle of a busy city that is drastically changing? Amanda, the owner of the Blue House Greenhouse Farm explains, “We choose to farm in the city because we believe that food should be grown close to eaters, and that farming in the city can be productive and beneficial by greening our environment and making part of our food system visible.” This is a commonly held reason for why so many urban farmers prefer to work in the city as opposed to its rural counterpart. The community aspect of urban farming is central to the farm’s mission. Through providing CSA shares to the local community, this business aims to encourage a deeper connection between the community and their food sources. Even for those who are not involved the CSA program, the presence of this farm entices those from the neighborhood to see how food is grown and how they can be more conscious of their dietary choices. The role of urban agriculture takes on many forms from business opportunities to social justice. Adam, a co-farmer at Blue House Greenhouse Farm, is interested in the community component which can ultimately alter how people perceive food. According to Adam, “If you can get people more familiar with what goes into their food, then

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maybe they will have more respect for their food.”

It is evident that for those at Blue House Greenhouse Farm, as well as many other urban farmers, the mission of their business is not solely to make money. Rather, there is a longing to create a deeper connection with those in the local community and to develop a better understanding of one’s food.

For the past few years, the business has relied on farm stands, service to local restaurants, and CSAs. However, because of the recent development in the area, the primary source of their income for the 2016 season is solely from their CSA business. The increased development in the area prevents a lot of pedestrian traffic in the area which would have crippled their farm stand business. This season, the farm is offering 40 CSA shares to this NE Portland community. A single share costs $264.00 for the season while a double share costs $440.00 per season. Adam estimated that this CSA program offered by the farm will reach up to 200 people, which may not seem that significant when put into the context of the larger population, but is definitely a step in the right direction. This price tends to prevent a large percentage of the population from purchasing these CSA shares despite the large amount of vegetables that are provided throughout the season. However, this season, Blue House Greenhouse is finally able to accept WIC (Women, Infants, and Children) and SNAP (Supplemental Nutrition Assistance Program) payments. According to the Agricultural Act of 2014, SNAP can now be used as payment for CSA shares in advance of the food delivery or pickup. This change allows farms to reach those who may otherwise not have been able to take advantage of these CSA opportunities. Especially

26 Adam Marx (Blue House Greenhouse Urban Farmer) in discussion with the author, February 16, 2016.

27 Ibid.

since CSAs are often associated with a more affluent demographic, the inclusion of the broader population through the acceptance of SNAP payments is essential for fighting the poor health issues found within cities. Adam explained that the area of Portland in which the farm is located is considered “food dry,” meaning that there is limited access to healthy food. Since SNAP and WIC are now accepted by the farm, there is an increased opportunity to reach those in the local area who could significantly benefit from this CSA program.

Small-scale urban farms within cities, while seemingly romantic and inspiring, actually require a lot of maintenance to sustain without providing a significant source of revenue. Adam, along with the other two farmers at Blue House Greenhouse Farm cannot rely on this as their primary source of income. Adam mentioned that those who are drawn to urban agriculture for the “romantic” aspect of growing one’s own food will become quickly disenchanted by the hard labor that goes into the general upkeep of the farm. Dedication and passion are essential in this sort of business because sometimes the revenue may not seem to be equivalent to the physical labor applied. But for those who already have this genuine interest in gardening, this path of urban farming for revenue could be a potential business opportunity within cities. This model can be either scaled up or scaled down to meet the needs of the urban community with whom the urban farmer seeks to work. A major benefit of an urban farm with a focus on CSA shares is the deep connection created between the producer and the consumer. It emphasizes the significance of the association between one’s food and where it was grown in contrast to the ambiguous food system in which most urban dwellers regularly ascribe. This impersonal interaction of food

29 Adam Marx (Blue House Greenhouse Urban Farmer) in discussion with the author, February 16, 2016.

30 Ibid.
production and consumption further disconnects the consumers from their farmers and the place in which the food was grown.\textsuperscript{31} Urban farms which specialize in CSA shares can ultimately benefit the community by solving this disconnect. Not only can it offer a unique business opportunity, it can also serve as a successful way to provide access to healthy food options in areas where fresh food is difficult to obtain.

Although the implementation of urban farms is a successful way to decrease the effects of urban food deserts within cities, the rapid rate of urbanization can serve as a problematic challenge that faces many urban agriculture initiatives. Increased development, gentrification, and a lack of government protection threaten urban farms like Blue House Greenhouse and ultimately require more innovative applications into the urban setting while simultaneously demanding more government regulation for these endeavors. “Within city boundaries, land is perceived as scarce, and infrastructure for development is readily available, creating a compelling rationale for the sacrifice of natural areas to urbanized uses.”\textsuperscript{32} The area surrounding Blue House Greenhouse Farm is drastically changing to accommodate the growing population in Portland. Although the lot that the farm is located on is leased from a private owner who is not in any rush to develop the land, the development surrounding the lot is altering the landscape. Within the next year, a condominium will be built on the south side of the lot which would block most of the sunlight for the crops (Figure 6). This could potentially put this farm out of business,

\textsuperscript{31} Winne, \textit{Closing the Food Gap}, 138.

or at least require the owners to seek out a new location. In the meantime, the farm will continue to work until the end of the season and will determine its future in the coming year.

The rapid development within Portland is a complicated situation because the increased density within the city allows for preservation of the hinterlands outside of Portland but also poses a serious threat to the potential loss of urban farmland. Since the urban growth boundary is essential for the culture of the city and the surrounding region, this increased density is welcomed but not without conflicting reactions. Density, while beneficial for the environment and the hinterlands, can also pose a threat to the culture present within any city. Adam feared that with this growing population in this area, comes a new gentrifying demographic which tends to push out the existing population. As a result, the farm would begin to provide CSA shares to a more affluent group of people, thereby reinforcing the perceived connection between urban agriculture, gentrification, and affluence. Since urban agriculture has gained a lot of attention in the past decade, the trendiness of growing one’s own food has led to the commodification and rising costs of basic gardening. “It is not a matter of authenticity; rather, it is an ethical question associated with cutting out populations that could actually benefit from this resurgence of interest in homesteading” and other urban agriculture practices. Since urban agriculture can sometimes be perceived as a gentrifying factor, it should be understood that not all “trendy” aspects of a movement are negative. The increased awareness surrounding the emphasis on the importance of food security through self-sustaining practices helps to inform the wider population of the issues facing many urban communities. It is easy for any urban farm to simply accept the new demographic in order to sustain its business but it is also essential that the community aspects and genuine concern for the population are not lost in the process.

Blue House Greenhouse Farm serves as successful urban farming opportunity which can be implemented into many cities if the space is available. It benefits the local community by providing access to healthy food while also reconnecting urban dwellers with their food sources. This farm seeks to diminish the disconnect between people and their food through the centralized locality of food production right in the heart of the city. Easily implementable into other cities if passionate individuals are willing to commit to it, this urban farm model can be a beneficial addition to any city through its ability to ameliorate the overall impact of food deserts. Since land is a commodity and, without proper government protection, it can easily be lost, more innovative methods may be preferable for denser cities. Regardless of the means of application for this urban farm within cities, the impact of Blue House Greenhouse farm is unique and should be considered for future planning models. CSA offering farms suggest that “urban agriculture is not merely a novel approach to food production but increasingly part of a viable, comprehensive, alternative food system that has the capacity to provide access to fresh food for populations for whom that access is otherwise denied.”\textsuperscript{34} If an urban farm was located in close proximity to every neighborhood, a significant difference could be made in the community. As Adam stated, “Even if we only reach five people, it is better than none.”\textsuperscript{35}


\textsuperscript{35} Adam Marx (Blue House Greenhouse Urban Farmer) in discussion with the author, February 16, 2016.
Noble Rot Restaurant Rooftop Garden

Noble Rot restaurant boasts a trendy and unique urban garden on top of their building which provides year round access to a plethora of vegetables and herbs. This 3,000 square foot garden utilizes the entire space through the incorporation of raised beds and various other forms of container gardening (Figure 7). From rhubarb to chervil, something is always in season at the Noble Rot and ready to be used in the restaurant’s unique dishes. Marc Boucher-Colbert is the primary agriculturalist for this garden, but all of the chefs partake in the overall cultivation and maintenance (Figure 8). Because it is located in such close proximity to the kitchen, the garden allows chefs to climb up the steep ladder to the roof to grab some quick herbs for their dishes. This idea revolutionizes the way in which we conceptualize the “farm to table” movement by decreasing the food mileage significantly; Noble Rot allows for the production of food to be contained to the same place in which it will be consumed.

The initial idea of a rooftop garden for Noble Rot finally materialized in 2008 after a conversation between Marc Boucher-Colbert and Chef Leather Stors, the head chef and developer of Noble Rot. The garden has transformed a lot since its invent in 2008 when the majority of the roof was covered with kiddie pool containers. After much trial and error, the rooftop garden eventually embraced new raised bed approaches which took better advantage of the space. But what exactly tempted Chef Leather Stors, and Marc Boucher-Colbert to construct a rooftop garden on top of the restaurant? Boucher-Colbert explains that, “Leather would be the first to say that the rooftop garden offers unique produce that allows him and his team to create signature dishes with seasonality and story. I think that is the real reason the rooftop garden was initiated and why it has continued for 10 years.”

The restaurant uses 100 percent of the food

36 Marc Boucher-Colbert (Chief Agriculturalist at Noble Rot) in discussion with the author, February 17, 2016.
grown on the rooftop for unique dishes and drinks. Of course a restaurant of this scale cannot solely rely upon the food produced within 3,000 square foot area. When asked how much food is produced in the garden, Boucher-Colbert responded, “No numbers – and who really cares about numbers.” They had attempted to quantify harvests in the beginning since there were too many people working in the garden; it would have been too time consuming to introduce training in weighing and record-keeping. Since this garden is used to primarily serve the restaurant, there is less emphasis on strict management and documentation. Instead, the focus is solely on the quality of the food produced. According to Boucher-Colbert, “Leather and I both agree that the cost savings of the produce is not ‘worth’ the labor and materials time, but clearly the produce has a number of side benefits that make a penny-pinching chef like Leather keep giving his approval year after year.”

Rooftop gardens, while alluring and trendy, also provide a plethora of environmental benefits. The reduction in food mileage and the lessening impact of the urban heat island effect are two of the most compelling arguments for the implementation of rooftop gardens in cities. Increasing the locality of food by limiting the amount of miles travelled by food is a benefit of all urban agriculture but specifically in the case of Noble Rot. It is estimated that the average meal travels about 1,500 miles from farm to plate.38 While this is an astounding statistic alone, it is even more discouraging to recognize that this is simply an average, and one’s meal can actually travel even further. Outrageous miles traveled by food can account for a large percentage of pollutants into the environment. This average mileage came out of a 2001 study at the Leopold

37 Marc Boucher-Colbert (Chief Agriculturalist at Noble Rot) in discussion with the author, February 17, 2016.

38 Cockrall-King, *Food and the City*, 51.
Center for Sustainable Agriculture at Iowa State University. This report attributed between 16 and 17 percent of all U.S. energy consumption to the food system, with 11 percent of that stemming solely from transportation. By working towards decreasing this food mileage, environmental and social benefits can result. The reduction of these some 1,500 miles to only a few feet, the environmental impact could greatly be reduced.

As cities grow and become denser, innovative solutions are essential to the survival of urban agricultural practices. While empty lots can absolutely benefit the local community and beautify the space, these areas are threatened by potential development of the land. These empty lots which were so prevalent at one time are becoming less available as a result of the development within cities. For this reason, rooftop gardening efforts such as Noble Rot’s garden may prove to be a more viable and successful option for future generations. There are countless benefits to rooftop agriculture including the cultivation of underutilized space, the beautification of roofs, a decrease in the urban heat island effect, and the production of food within city limits. A major advantage to producing food on rooftops is the amount of control that one has over the soil. This soil, unlike its earthly counterpart, is free from most contaminants thereby enabling the nutritional value of the soil to be easily monitored.

The hyper-locality of food production offered by the Noble Rot rooftop garden further encourages knowledge about the origins of food sources. We are, in fact, the product of an urban setting, and the manners in which we opt to address our basic needs of food will be greatly

39 Cockrall-King, *Food and the City*, 52.

impacted.\textsuperscript{41} Therefore, by incorporating rooftop agriculture, in addition to other methods of urban agriculture, urban dwellers can begin to reclaim their food through the increased knowledge of the location and farmer who grew one’s food. This information tends to pique one’s interest in their overall food consumption which can also encourage healthier lifestyles. The overall absence of knowledge regarding the origins of our food has “rendered us a nation of wary label-readers, oddly uneasy in our obligate relationship with the things we eat.”\textsuperscript{42} However, by making this information more accessible by having your food produced within the same building in which it will eventually be consumed, we are able to reconnect the urban dweller with her farmer and her food.

While this urban agriculture practice is easily implementable into the urban landscape, the Noble Rot model does, to some extent, promote the association between luxury and healthy food. This restaurant is not accessible to all demographics of the urban population because of the high-end menu and prices. Although there is nothing wrong nor condemnable with having an expensive restaurant which caters directly to a specific demographic, there is the potential that future mimicking efforts will be reserved only for a select few and reaffirm the association between healthy food and affluence. Access to healthy food should never be a privilege – it should be a right. The association between wealth and food quality is evident through the selection of food option within cityscapes. Those in the middle class have more opportunities to obtain healthier foods while fast food restaurants strategically place their franchises in low-

\textsuperscript{41} Cockrall-King, \textit{Food and the City}, 79.

It is important to note that Noble Rot is in fact, a positive force in this movement towards hyper-locality of urban agriculture and does not intend to promote any such association. Rather, for future implementations, this potential danger which encourages healthy food access for some and not for others should be noted and avoided.

Noble Rot’s rooftop garden model can serve as a practical solution to increasing accessibility of healthy foods to restaurants and grocery stores within urban settings. Through this method, rooftop gardens can benefit the urban population by making vegetables more accessible to the local grocery stores and restaurants; a communal approach to this rooftop agriculture effort can encourage the development of this in areas which might be considered food deserts. Since rooftops are often underutilized spaces, transforming them into small gardens or farms could greatly reduce the amount of food mileage while simultaneously increasing public knowledge about the origin of one’s food. The already established rooftop farms and gardens throughout American cities serve as essential “proof of concepts” that will lead the way for an overall increased acceptance among property owners while also establishing necessary criteria for the future developments of permit processes at the Department of Buildings (DOB).

In addition to the physical benefits that are associated with rooftop agriculture, close proximity to the origin of one’s food ultimately improves food education while simultaneously encouraging

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healthy lifestyles. Noble Rot restaurant is a perfect example of how an increased connection to one’s food sources can work towards ameliorating the challenges that urban environments foster. Whether it is the “value of produce you can’t really get at the market, the value that comes in being able to educate chefs on how to use really fresh products,” or simply the benefit of “patrons being drawn to Noble Rot because they are curious about the garden and support the hyper-local approach,” rooftop gardens that serve the local community through restaurants or another medium can help to reconnect urbanites with their food sources.\(^45\)

Noble Rot’s rooftop garden is a successful effort to hyper-localize food, but cannot serve all demographics living in urban areas and therefore is not a solution to solving the issues of urban food deserts. If roofs throughout cities were transformed into garden oases, food access would certainly be less of an issue than it currently is. However, for those residing in urban food deserts, these aren’t realistic because of the high overhead costs. If these costs are not subsidized by the government, then there is very little potential for these efforts to materialize. Rooftop gardens definitely have their place in the urban environment, but unfortunately, income inequalities restrict some demographics from taking part in the benefits of these practices. So while this innovative approach can be implemented into cities across America, it will most likely only be serving the upper-middle class and not be an effective solution to the harmful effects of urban food deserts.

**Key Takeaways from Urban Agriculture in Portland**

Portland serves as a great example of a city which is coping with the major difficulties of population growth through innovative approaches to urban agriculture. This once small city with a modest population has the ability to efficiently feed the population through its urban growth

\(^{45}\) Marc Boucher-Colbert (Chief Agriculturalist at Noble Rot) in discussion with the author, February 17, 2016.
boundaries which limit overall urban sprawl thereby allowing food to be produced in the nearby hinterlands. Because of the decreased density and large prevalence of single-family homes, there is ample room for backyard gardening and farming within the city. The surplus of empty lots encourages urban agriculture efforts in the middle of the city center as well as on the outskirts near more food deserted areas. However, with the rising rate of urbanization in this city and the growing force of gentrification, these once empty lots are slowly disappearing as the land becomes more valuable as high-rise condominiums. Moreover, gentrification is also beginning to make it more difficult for farmers to live in the city as urban agriculture begins to develop into a trendy movement adopted by a new generation. Through case studies of these urban agriculture practices in Portland, the benefits of urban agriculture are revealed but ultimately do not prove to be viable options for solving the issues of urban food deserts in today’s cities and in the future.

Blue House Greenhouse Farm manages to ameliorate the harmful effects of urban food deserts within Portland but is in danger because of the increased development. This farm provides CSA shares to local community and also accepts WIC and SNAP so that those in the immediate area are not prevented from partaking in this opportunity. Although they do accept these forms of payment, the population they serve is diverse and those on these programs are not the primary customers for the business. Therefore, while this is definitely helping the local community, it does not have a primary mission of lessening the effects of urban food deserts for those who are impacted the most by them. Moreover, because of the increased development in this area, the future of Blue House Greenhouse Farm remains uncertain. This further emphasizes the need for more innovative solutions for urban agriculture in addition to more government protection of these farms.
Noble Rot restaurant is an innovative way to introduce local foods into an urban environment, but cannot serve as a solution to the urban food crises. The idea of rooftop agriculture is certainly one of the more efficient and environmentally friendly methods of farming in the city. Producing food primarily for a local restaurant not only eliminates food mileage, but also increases the locality of foods which is important in areas where there is an overall decreased connection to food. However, through this case study, it is evident that this sort of endeavor only serves a specific demographic and certainly cannot be implemented into areas of urban food deserts because of the high overhead costs. Although this could certainly ameliorate the situations found in these areas, without proper government policies or allocation of funds, these efforts would not be possible for areas that need them the most.

Both of these case studies are privately-owned businesses which benefit the local community, but are not effective solutions to the urban food crises and the amelioration of urban food deserts. For this reason, urban agriculture methods might be more impactful if they are run by the nonprofit sector which has a greater reach in the community.

**Chapter IV: New York City Case Studies**

*Background Information on New York City*

New York City, a city of roughly 8.4 million people, is known to be a tourist destination, business capital, and center of fashion – just to mention a few. While there is a strong food culture, it is certainly not a defining characteristic of the city. Increasing population growth within New York City presents additional problems for the future of the already dense urban metropolis. While urban agriculture has been a part of the landscape since the 1900s, it has begun to gain popularity as of late and emerge as more of a hipster practice. Being such a large city, New York is home to a wide variety of urban problems including gentrification, food
insecurity and access, and disproportionate rates of poverty and wealth. Urban food deserts are evident throughout various neighborhoods throughout New York City. Simply mentioning an area within one of the boroughs, a New Yorker will most likely be able to identify the food security and accessibility within that area. Community gardens used to be found within more impoverished areas of the city; however, with increasing gentrification and development, there is a threat to these existing community gardens (Figures 2, 4). With the borough of Manhattan and parts of Brooklyn and Queens becoming more popular and gentrified, the previous residents of these areas, like most cities throughout America, are being pushed deeper into the margins of the boroughs. Overall, the city has made many advances towards lessening the harmful impacts of food issues within the five boroughs through many initiatives but could still benefit from more intensified approach to combatting these issues.

The increasing rates of obesity and diet-related diseases in addition to the within New York City elicited a strong response from the city. The 2013 New York City Food Metrics Report reveals that 58 percent of adults and 40 percent of children are overweight.46 New Yorkers have become increasingly aware of the harmful effects of food insecurity within cities and the past decade has seen many new entrepreneurship and movements towards lessening these impacts including Sprout by Design, The Battery Urban Farm, and The Brooklyn Grange, just to mention a few. These nonprofits and businesses are representative of just some of the many urban agricultural practices within the city which work towards increasing awareness of food origination.

With 20.6 percent of New York City’s population living in poverty as of 2015, and nearly 1.4 million New Yorkers residing in food insecure households between 2012 and 2014, it is evident that New York City faces many serious problems regarding the equal distribution of food.\textsuperscript{47} \textsuperscript{48} A study done by Adi Segal regarding urban food deserts within the New York metropolitan area analyzed case studies of East and Central Harlem which analyzed the prevalence of obesity, diabetes, and other aspects related to urban food deserts. The case study resulted in the following conclusions:

1. Bodegas are more abundant and supermarkets less common in East and Central Harlem compared with the Upper East Side.
2. Bodegas carrying healthy food are less likely to be located in East and Central Harlem than on the Upper East Side.
3. Restaurants are common in all 3 neighborhoods, but fast food establishments are more prevalent in East and Central Harlem than on the Upper East Side.\textsuperscript{49}

This study emphasizes the major discrepancy in healthy food availability among the neighborhoods in New York City. Areas like the Upper East Side which is home to a high-income demographic have more access to supermarkets and healthy food options in comparison to areas like Harlem which is roughly a mile or two away. Because New York is home to a large population of affluent individuals, it is easy to forget that this city is also home to a large group of people who are in dire need of healthy food access.

\textsuperscript{47} United States Census Bureau New York City QuickFacts. 2015. Raw data. https://www.census.gov/quickfacts/table/PST045215/365100


In addition to the food issues within New York City, gentrification also proves to be a threatening issue. As the borough of Manhattan becomes increasingly more expensive to live in, middle-class families are forced to move farther into the boroughs, and consequently pushing out those who already live there. Gentrification has been occurring throughout the five boroughs and unfortunately prices out a large percentage of the population forcing them to move even farther into the outskirts of the city. This process further jeopardizes the issues of food security because of the introduction of high-end supermarkets into the area. For example, a Whole Foods Market was introduced to 125th Street in Harlem which, despite the fact that it provides access to healthy food, is a gentrifying factor because of its unaffordable prices. Low-income residents of Central Harlem may be in close proximity to a supermarket but the food is still not accessible because of the lack of affordability. In this way, supermarkets tend to be gentrifying forces which further push people out of the market and encourage issues of food insecurity. The discrepancy of equal food access within neighborhoods in New York City in conjunction with the rapid pace of gentrification show the many issues within the city that cannot be solved primarily by urban agricultural practices.

Government implementations of Green Carts, Farmers’ Markets, and other programs provide alternative ameliorating services to areas of limited access to food.50 Garden to Cafés programs and schools gardens are encouraged by the city in order to educate children about making healthy food choices. Many government initiatives throughout the city are attempted to combat this current urban food crisis, but only by addressing the root problem can these issues

50 "Green Carts are mobile food carts that offer fresh produce in New York City neighborhoods with limited access to healthy foods. A Green Cart only sells fresh fruits and vegetables."

ultimately be resolved. Better zoning laws for urban agriculture can prove to be successful in allowing urban residents to develop stronger connections to their food sources. The Battery Urban Farm and the Bronx Green-Up Program are two urban agriculture practices in New York City which aim to lessen the harmful effects of urban food issues.

Battery Urban Farm

Battery Urban Farm is located in southern Manhattan, in Battery Park and is an educational farm which works towards the cultivation of knowledge and an overall awareness regarding our local food sources through collaborations with local public schools (Figure 9). Located on Parks Department Land, this nonprofit organization underneath the Battery Conservancy is protected from future development. Involvement in the New York City Beekeeping association and participation in the Billion Oyster Project supplement their already existing efforts of encouraging environmental stewardship among the local public schools with whom they work. From its founding in 2011 through Millennium High School’s interest in growing their own food on park land, the Battery Conservancy has continued to work with thirteen schools in the area. According to Josie Connell, the chief agriculturalist for the urban farm, by providing actual education about where food comes from, Battery Urban Farm encourages young people to make this very important connection for healthier lifestyle choices in the future. Through the school programs, field trip opportunities, and visual presence in the urban environment, the Battery Urban Farm offers a valuable education model which if successfully implemented into other American cities, can prove to be beneficial for the surrounding community.

Josie Connell (Chief Agriculturalist at Battery Urban Farm) in discussion with the author, March 15, 2016.
With education at the forefront of the Battery Urban Farm’s mission, students and visitors alike benefit from the increased knowledge of food sources. This farm first developed when students from Millennium High School confronted the Battery Conservancy asking for permission to grow vegetables in the park. The Battery Conservancy not only granted them permission but eventually grew this small endeavor into the current program. The Conservancy had new soil brought in to protect against any harmful chemicals within the already existing soil, and began to embark on this venture. Since then, the Battery Urban Farm has developed into an educational space for visitors to the city to become reacquainted with nature. This farm consists of a forest farm, a vegetable farm, and a space for composting and beekeeping. The forest farm is a section of the Battery Conservancy which is adorned with native plants. Bees, as well as other pollinators, significantly benefit from this garden and, through observation, children and adults alike are able to learn more about environmental stewardship in the midst of a busy city. While urban agriculture is often associated with solely a means of food production, it can also serve as an educational tool that emphasizes environmental awareness despite an urban setting.

Throughout the academic year, the farm works directly with thirteen first grade classrooms from the surrounding public schools to foster increased education about food systems and environmental stewardship. Josie Connell, the chief agriculturalist and volunteer manager for the Battery Urban Farm explains that through these consistent school programs, the students have the opportunity to form an immediate connection to the plant particularly because they are given “responsibility over some kind of life.”52 This further emphasizes the importance of food accessibility and knowledge in an urban setting. By developing this connection to plants and

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52 Josie Connell (Chief Agriculturalist at Battery Urban Farm) in discussion with the author, March 15, 2016.
nature at a young, impressionable age, this could serve as a “gateway to other ideas.” Urban agriculture projects, such as this, provide “tangible, accessible opportunities” for urban dwellers to become reacquainted with food origins and an entire food system which, at times, seems out of reach. With a large portion of one’s food being grown and processed elsewhere and being distributed to supermarkets, a major disconnect develops between food and our consumption of it. Battery Urban Farm successfully provides the space for this connection to be fostered in an urban environment while encouraging healthier lifestyle choices in the future.

The food produced by the Battery Urban Farm serves three public schools through the Garden to Café program as well as Drive Change. The Garden to Café program works in partnership with Grow to Learn NYC in order to connect gardens with school cafeterias for the benefit of providing seasonal food education and other activities. This program is managed under the Office of School Food, a sub-office of Grow to Learn NYC, which has a primary focus on encouraging healthy eating habits, providing education regarding food systems, and increasing knowledge about the valuable benefits of gardening. Partnership with this program allows the Battery Urban Farm to grow produce for the surrounding public schools. Not only do the participating schools work towards the cultivation of the produce, they also reap the benefits of urban farming in their school cafeterias. Drive Change is the second recipient of the food grown

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53 Josie Connell (Chief Agriculturalist at Battery Urban Farm) in discussion with the author, March 15, 2016.


at the farm. This is a food truck business which provides fellowship opportunities for formerly incarcerated youth. In order to combat the harsh rates incarceration, this food truck provides the ability for these youth to “obtain preferential employment and educational opportunities.”

Because this farm is located primarily on Parks Department Land in the center of the city is beneficial for the farm’s future and its surrounding community. In contrast to other urban farms and gardens which are often threatened by new developments, this land is protected because it is under the control of the park. Because it is improbable that urban farming will be able to contend with alternative land usages such as commercial and residential development, potential for privately-owned farms on vacant lots is significantly limited. The attempted auctioning of 115 community garden lots by the Giuliani in 1999 aroused a strong reaction from those involved in the urban agriculture movement who ultimately sought out intervention of the state Attorney General. This event significantly emphasized the insecurity of growing spaces in New York City and the necessity of developing proper policies for urban farmland protection. Since this, many government initiatives including Green Thumb NYC and FoodWorks have been implemented to better protect urban agricultural practices. However, despite the various efforts, there is still concern over the security of land for urban farmers. For this reason, The Battery Urban Farm’s location is ideal for the future of the farm since there is no threat of future development on this land. Moreover, this placement of a farm within a local and often frequented


park provides opportunities for experiencing food and relating to it in a certain way. Rather than simply being an aesthetic benefit for the community, this sort of permaculture is seen as the “land providing a service.”\(^{59}\)

The only downside associated with this initiative is its close link to city government and its nonprofit model which can be resented by some communities because of its “us” versus “them” approach. While this is not an obstacle for the Battery Urban Farm, it can be a potential issue for future implementations into other cities. As long as this is consciously avoided through proper communication with the local community, then this model could serve as a viable option for lessening the harmful effects of urban food deserts.

The creation of an urban farm on already existing Parks Department Land is a resourceful way to incorporate education within city limits while simultaneously allowing the land to serve a purpose beyond aestheticism. Future urban agriculture initiatives should mimic the Battery Urban Farm nonprofit in order to adequately maintain control over urban farmland and also provide educational opportunities for surrounding schools. Although community gardens are beneficial for communities, they constantly face the threat of insecurity or protection from future sales. Urban agriculture is going to alter the ways in which cities are planned, and how they operate and are experienced.\(^{60}\) Implementations of city farming within parks are successful means of permaculture which help to shape the culture of the city and strengthen the connection to our food systems especially in areas of limited access to healthy food options.

It is evident that there are many benefits associated with this urban agriculture practice, but realistically can this solve the urban food crises associated with food deserts? For the most

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\(^{59}\) Josie Connell (Chief Agriculturalist at Battery Urban Farm) in discussion with the author, March 15, 2016.

\(^{60}\) Cockrall-King, *Food and the City*, 80.
part, this cannot entirely solve the issue, but instead it can lessen the harmful impacts. Educational opportunities which highlight healthier lifestyles are effective in that they raise awareness. If a young child is exposed to this sort of knowledge at a young age, they will most likely make better choices in the future. Improving food distribution within cities would be the most direct way to combat the food crises but realistically, it is efforts like the Battery Urban Farm which provide urbanites the tools and the education to make the best possible choices in the current state of the city. Creation of educational urban farms within parks should exist in close proximity to every neighborhood so that all demographics can benefit from equal accessibility to these opportunities.

_Bronx Green-Up_

The Bronx Green-Up is a community garden outreach program that provides technical assistance and education for community garden members throughout the Bronx. This service from the New York Botanical Gardens works towards the empowerment of already existing gardens in order to encourage the reclamation of food sources and lessen the harmful effects of food deserts. Beginning in 1988, this program worked with the local community to help restore beauty to the neighborhoods while simultaneously encouraging urban dwellers to grow their own food. Karen Washington, a community garden activist in the Bronx explained that, "In the very beginning, the job of Bronx Green-Up (BGU) was to turn vacant lots into gardens. As more vacant lots began to disappear or turn into gardens, BGU had to change its strategy and look at how to make the gardens more sustainable—to not rely solely on BGU, but to network and look to other resources such as the community boards, schools, and community organizations."  

Today, this organization works with over 75 community gardens, schools, and community centers in the Bronx (Figure 10). Last year, the Bronx Green-Up held 323 activities and events which impacted the lives of about 4,600 people.⁶²

The Bronx Green-Up offers the borough opportunities for planting workshops, community gatherings, education, and technical assistance. All of the workshops which are offered by this organization are free to the public because they believe that this knowledge should be available to everyone despite economic status. Kadeesha Williams is the urban agriculturalist at the New York Botanical Gardens and she works with the Bronx Green-Up. She believes that this organization and all kinds of urban agriculture methods create “stronger, healthier communities.”⁶³ These community gardens with whom the Bronx Green-Up works cannot provide the entire neighborhood with healthy food nor can it completely overcome urban food deserts. Community gardens do more for the surrounding neighborhood than simply provide food. In the 1890s, when the idea of community gardens in America first began to take off, they were viewed as tools for getting out of poverty. They created employment, education, and access to food. Eventually by the 1970s and early 1980s, community gardens morphed into platforms for activism and social justice. Later in the 1990s, “people began to see the broad benefits of gardens and wanted to use them to help specific populations. So community gardens started to become more top down and more programmatically driven. Instead of being started by

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⁶³ Kadeesha Williams (Community Horticulturist/Urban Agriculturist at the Bronx Green-Up) in conversation with the author, April 9, 2016.
community residents, now a nonprofit would decide to start a garden to help local youth, the hungry, or the homeless.\(^{64}\)

Bissel Gardens is one of the community gardens with whom the Bronx Green-Up team works. Located in the Wakefield section of the Bronx beside a train yard, this 2.2 acre lot caters to the local community through a children’s garden, community plots, participation in the Baychester Farmers’ Market, and a Food for Others Garden (Figure 11). The Food for Others Garden is a plot located towards the back of the garden where all of the food that is produced gets donated to local food pantries and soup kitchens over the course of the season. Over the summer, there are opportunities for youth volunteering to engage teenagers in rigorous, yet meaningful work. Additionally, between the months of July and November, the community garden participates in the farmers’ market in order to provide local and affordable produce to the surrounding community. Meg, an active participant and manager of the community garden expressed the importance of Bissel Gardens. Not only does it “make people smile,” it also provides a safe communal space for barbeques, gatherings, and play.\(^{65}\) While cultivation of local produce is a tangible goal of Bissel Gardens, the underlying objective is to bring the community together through educational shared experiences. Meg hopes that through the help of the Bronx Green-Up, Bissel can transition from a community garden to an urban farm which would be able to sustain itself while providing some job opportunities for the surrounding area.

A major issue which Bissel Gardens is currently facing is that the older generation, that had once tended the garden, can no longer keep up with the necessary maintenance and upkeep. For this reason, the community board reached out to the Bronx Green-Up for assistance with

\(^{64}\) Cobb and Houston, *Reclaiming Our Food*, 69.

\(^{65}\) Meg (Member of Bissel Gardens Community Garden) in conversation with the author, April 9, 2016.
education, technical assistance, and volunteers. The Bronx Green-Up recently held a free class on transplanting seedlings at Bissel to educate the local population on basic gardening skills. Meg believes that by putting more resources into the training of members, the garden will be able to benefit in the future. Additionally, the Bronx Green-Up program was able to assist the garden in acquiring volunteers to repair the surrounding fence. These helpful services which the partnership with the Bronx Green-Up provides greatly benefit Bissel, as well as the other community gardens, because of the invaluable opportunities for educational growth and community development.

Bissel Gardens works towards bringing urbanites closer with their food sources by farming in the middle of the city. Unfortunately, this is a small effort which cannot entirely solve the plethora of issues within urban food deserts. But through the education of the community regarding farming and healthy foods, this community garden in conjunction with the Bronx Green-Up is able to work towards the reclamation of food within urban areas. These efforts provide empowerment for the members and also promote strong community ties. “Schools, community centers, and churches that garden together are always stronger than ones that don’t. And the more soil that trickles through a person’s fingers, the more we can predict that he or she will take care of his or her neighbor, himself or herself, and the land.” Henceforth, the ultimate goal of these community gardens and of the Bronx Green-Up is not entirely to increase access to food. Rather, these initiatives are interested in the wide range of benefits which can result from gardening with one another such as educational opportunities, community involvement and gatherings, and finally, access to healthy foods.

66 Meg (Member of Bissel Gardens Community Garden) in conversation with the author, April 9, 2016.

67 Winne, Closing the Food Gap, 189.
The Bronx Green-Up is an effective way to empower small community gardens throughout the borough and should be encouraged in all cities. While these gardens are prevalent in cities across the country, there is sometimes a lack of knowledge regarding basic gardening practices. Having a program which solely aims towards the advancement of these gardens is essential to their survival. Unfortunately, these will not entirely solve the issue of urban food deserts, but these efforts are a step in the right direction. These small efforts throughout cities help to ameliorate the larger problems of food distribution and access inequalities. While something similar to the Bronx Green-Up is potentially implementable into most cities, there is often a lack of knowledge regarding the cultivation, maintenance, and technicalities of urban farming. The Bronx is fortunate enough to have The New York Botanical Gardens which provides an abundance of knowledge. If other cities have something of the same extent, then this program could certainly prove to be successful in the empowerment of local community gardens.

**Key Takeaways from Urban Agriculture in New York City**

New York City is a great example of how urban agriculture can thrive in cities despite population density and limited land. By taking advantage of underutilized space such as vacant lots or by transforming existing public area into land that is providing a service, cities can begin to incorporate urban agriculture into the built environment. “According to the DCP MaPLUTO 2009 database, there are 8,465 acres of vacant land in NYC, of which 3,621 acres are public land, meaning that they belong to a municipal, state, or federal agency.”68 If this land was utilized in more efficient ways, community gardens could sprout up in all sections of the city and

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provide immediate access to food. Nonprofit organizations are able to effectively use urban agriculture as a way to impact change within urban food deserts. Either by providing educational opportunities to schools or by offering technical assistance to already established gardens, nonprofits are effective ways to work towards the amelioration of urban food deserts with a specific target audience in mind.

The Battery Urban Farm is an educational opportunity within the city which serves primarily as a way to increase awareness about food provenance. By partnering with the local public schools, this organization is able to impact the future lifestyle choices of children. A major benefit of this approach is the fostering of the connection between health and food. Not only is it important to know where your food comes from, it is also essential to recognize the health benefits of eating wholesome food. Although not directly affecting urban food deserts through an alternative method of food production, Battery Urban Farm instead works towards the encouragement of the younger generation to make healthier food choices in the future. By working with the children, this organization hopes that the knowledge learned in these classroom field trips will then be relayed to the child’s family thereby impacting a larger percentage of the population.

The Bronx Green-Up’s impact on the community gardens in the Bronx is highly influential because of the support that they provide for these already existing community gardens. Community gardens are important parts of the urban environment because of the communal approach to growing and reclaiming food sources. By engaging directly with one another in order to cultivate vegetables, deeper connections within the community are developed. Many cities throughout the United States have community gardens but as cities begin to grow in both population and density, the urban community could definitely benefit from the addition of
more gardens within the city limits. With help from organizations like the Bronx Green-Up, community members can begin to feel more empowered in taking on projects such as starting a garden or beginning maintenance on an already existing one. The services provided by this organization greatly benefit the Bronx community and can be implemented into other cities across the country.

These New York City case studies emphasize the influence that the nonprofit sector can have on local populations in regards to urban agriculture. While businesses can certainly arise in this area, most of these efforts will end up serving a more affluent population which is able to afford these luxuries. In contrast, organizations like the Battery Urban Farm and the Bronx Green-Up do not have to worry about a profit and are therefore able to focus more on their missions of serving the local community. For this reason, I would argue that, especially in areas of high density, the majority of efforts in the urban agriculture area which aim at solving the urban food crises will mostly be completed through the nonprofit sector as opposed to small businesses.

Chapter V: Conclusions

Ultimately, through these four specific cases studies of various urban agricultural endeavors, it becomes apparent that while urban agriculture can serve as a viable method to lessening the harmful effects of urban food deserts, these efforts alone cannot solve the problem. Despite the fact that urban agricultural practices cannot adequately sustain entire cities nor solve the issues of food deserts, these efforts instead can provide the local urban community with invaluable opportunities for community development and education regarding food systems. Moreover, these efforts allow city dwellers to overcome the constraints of production, distribution, and accessibility present in urban areas. In order to entice participation in these
efforts, city governances should work towards the development of policies and incentives that both protect exist farming practices and also encourage future endeavors. The implementation of urban agriculture business enterprises, rooftop gardens, educational programs, and community outreach projects can benefit local communities by lessening the harmful impacts of urban food deserts but can never entirely solve the problem.

Growing income inequality within American cities must first be overcome in order for effectively increase the health of urban residents. While urban agriculture allows people to reclaim their food choices, better food distribution within cities is absolutely essential. Despite the impacts of urban agriculture, it is important to recognize that through improved food systems, increased access and affordability of healthy food options, and equal distribution throughout all areas of the city, these issues could ultimately be solved. Urban agriculture is a way to ameliorate the current issues that plague urban residents. However, it is only through proper implementations of reevaluated government policies that the root causes of urban food deserts can ever truly be solved. Food accessibility can greatly be fixed by citywide efforts to lower rents and increase the minimum wage. If such a large portion of one’s income was not spent on rent, then healthy food alternatives would be more accessible. However, the combination of expensive produce and insufficient remaining income forces low-income urbanites to opt for less wholesome meal options thus resulting in diet-related health issues.

Government policies and interventions that work towards the protection of urban farming land, zoning laws, and incentives which encourage urban farmers to embark on this venture are essential to the future of urban agriculture. According to a study from Columbia, there are approximately 1 million eligible buildings in New York City for rooftop gardens. This provides
38,256 total acres for potential farming opportunities. If more incentives and loans were provided to urban residents for the creation of rooftop farms or gardens, then low-income communities could be significantly impacted. Additionally, cities should follow Portland’s example of zoning laws so that urban landscapes are beautified with copious among of urban agriculture which is not limited to only certain zoned areas (Table 1). The case studies within this research emphasize the potential that urban agriculture has while also revealing its limitations as a result of governmental failures. Individually, each urban agriculture practice proves to be somewhat impactful and successful, but in order to reach a larger community and work towards the eradication of food deserts, government intervention is absolutely essential. These small steps towards sustainable and healthy cities through urban agriculture are crucial to the survival of cities but prove to be insufficient unless city governances step in to provide incentives, change zoning laws, and fix the income inequality. By first solving the root cause of these urban food crises, these smaller steps to lessen the harmful impacts will eventually be deemed efficient and successful; but urban agriculture ultimately cannot solve this problem alone.

The growing trendiness of urban agriculture is one of the largest threats to this movement. Urban agriculture, which was once reserved for those who could not afford healthy foods, has now become a trend that is being occupied by the “hipster” generation. Growing organic produce in a backyard or at a community garden is developing into the hot new thing to do. This growing interest in urban agriculture is slowly commodifying aspects of the practice and

therefore pushing some people out of the market. As businesses surrounding urban agriculture begin to develop in cities, there is a fear that they will not cater to the populations that need access to these foods the most. Rather, there is a possibility that urban agriculture could become a new hipster movement which completely disregards the initial intent of the practice.

Through my research, I believe that the primary goal and future of urban agriculture is in education. By increasing the public’s knowledge about the origins of our foods, we can begin to solve, or at least ameliorate, the effects of urban food deserts. This will be accomplished through a variety of mediums including community gardens, urban farms, rooftop gardens, nonprofit organization, and outside educational services. Implementation of urban agriculture into school programs throughout the city is an effective way to raise awareness about food origination. By incorporating this into a child’s education at a young age, it can greatly impact their future choices in life. City governments should invest heavily on implementation of urban agriculture programs within schools in order to increase education. Through this, there is great potential to lessen the diet-related diseases which originate from areas of food insecurity. Although there are many social entrepreneurs which are already taking on this challenge in the absence of government interventions, these programs do not have the same reach that a mandated policy throughout the city would have.

There is definitely a future for urban agriculture within American cities. Whether it take the form of community gardens, educational workshops, or small businesses, urban agriculture will continue to be a part of the urban landscape. As far as increased locality of food sources, businesses such as Gotham Greens and the Brooklyn Grange may be able to set the precedent for what an urban farm should be. However, there is still a constant fear that these forms of urban

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agriculture will cater to a specific demographic and will never fully work towards the elimination of food deserts.

If cities want to eradicate food deserts from their landscapes and have limited diet-related illnesses, a societal shift is necessary. The principal obstacle between society and the development of a more localized food system is not solely affordability or expenses, but rather a change in perspective.70 Even small efforts towards the amelioration of areas can help to make a difference in the lives of those impacted. Ultimately, government policies are essential for the future health of cities. But until these initiatives and policies are enacted, urban agriculture is a way for urbanites to reclaim their food sources, educate themselves about food systems, and live healthier lives. “Whether people are motivated by the myth of self-reliance, the fear of a cataclysmic event, or simply the wish to make something ugly into something beautiful, society should permit them to stand in humble repose on their own tiny plots of land and to make what magic they can of it.”71 Government policies should encourage urban agriculture within cities for all those who wish to engage in this activity. Without efforts like Blue House Greenhouse, Noble Rot restaurant, Battery Urban Farm, and the Bronx Green-Up, cities will continue to foster a disconnect to food sources. However, only in conjunction with government policies to empower urban farmers, lower rents, and address income inequalities can the health of cities ever fully be restored.


71 Winne, Closing the Food Gap, 58.
Bibliography


Appendix I: Figures

A poor consumer must make this choice on a daily basis...

A full energy-saturated meal

$2.00

A nutritious snack

$3.00

SOURCE: Devised by author

Note: These prices are approximated from neighborhood stores surrounding Morningside Heights.

Figure 1
Healthy choices are dependent upon affordability in low-income areas.

Fig. 1. Adi Segal, "Food Deserts: A Global Crisis in New York City, Causes, Impacts and Solutions," Consilience: The Journal of Sustainable Development 3, no. 1 (2010), 209.
Figure 2
Placement of community gardens within New York City.

Figure 3
This figure shows the inverse correlation between obesity and fruit/vegetable consumption in NYC.

Food desert areas in New York City where supermarkets are in high demand.

Fig. 5. Leigh Anne Statuto. *Blue House Greenhouse Sign*. February 2016. Portland, OR.

The development surrounding Blue House Greenhouse Farm which threatens the farm’s future

Fig. 6. Leigh Anne Statuto. *Blue House Greenhouse Farm*. February 2016. Portland, OR.
Figure 7
Noble Rot restaurant’s rooftop garden.

Fig. 7. Leigh Anne Statuto. *Noble Rot Roof*. February 2016. Portland, OR.

Figure 8
Marc Boucher-Colbert plucking some specialty grasses which are used in cocktails in the restaurant.

Fig. 8. Leigh Anne Statuto. *Marc Boucher-Colbert and Noble Rot*. February 2016. Portland, OR.
Figure 9

The Battery Urban Farm is an agricultural oasis in the middle of a busy city.

Figure 10
Image from a Bronx Green-Up Pamphlet which maps out all the community gardens in the Bronx with whom the organization works.
Figure 11
The children’s section at Bissel Gardens, a community garden which works with the Bronx Green-Up.

Fig. 11. Leigh Anne Statuto. Bissel Gardens Children Garden. April 2016. New York City.
## Adopted Zoning Code Changes

<table>
<thead>
<tr>
<th>Topic Area</th>
<th>Current</th>
<th>Proposed</th>
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<tbody>
<tr>
<td>Market Gardens</td>
<td>Classified as Agricultural Use, only allowed in a few zones</td>
<td>Allow in all zones with regulations to mitigate impacts</td>
</tr>
<tr>
<td>Community Gardens</td>
<td>Allowed in all zones</td>
<td>Allow in all zones with regulations to mitigate impacts</td>
</tr>
<tr>
<td>Food Membership Distribution Site</td>
<td>Not mentioned in current code</td>
<td>Allow in all zones with regulations to mitigate impacts</td>
</tr>
<tr>
<td>Farmers Markets</td>
<td>Regulated as a temporary use</td>
<td>Add specific farmers market temporary use regulations</td>
</tr>
</tbody>
</table>

Table 1
The updated changes to Portland’s Urban Food Zoning Code