

**Individual and Community Food Security in New Orleans:
A Case Study on the Effects of Urban Agriculture in a Food Desert**

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Abstract

New Orleans, Louisiana is thought to have the worst food deserts of any city in the United States. Worsened by the effects of major hurricanes in 2005, the food security of individuals and communities is weak due to a deficiency of full-service grocers, rampant low-income population rates and a dearth of available fresh, healthy food. In response, an urban agricultural system has been steadily developing, providing residents with alternative options for accessing food. This study of fourteen individuals from urban agriculture organizations and growing projects aims to answer two questions: first, what is urban agriculture's role in a place defined as a food desert? Second, how are urban agricultural efforts affecting the food security of individuals and communities in New Orleans, LA? This study has three main findings: that urban agriculture enhances the short term food security of a limited constituency of people; urban agriculture relies on a cohesive system of many food system actors; and the current coalition of food system actors is fragmented, jeopardizing urban agriculture's effective reach. Further questions include what other potential benefits, such as economic or ecological sustainability, that urban agriculture can provide in a city like New Orleans.

Keywords: urban agriculture, food desert, food security, community, individual

Introduction

New Orleans, Louisiana is thought to have the worst food deserts of any city in the United States. After Hurricane Katrina in 2005, New Orleans began to face an even greater deficiency of full service food retailers than it previously had, thus engraining the city's food desert status. Since 2005, the city has seen a drastic increase in the amount of urban agricultural projects focused on improving food access and supporting a sustainable local food system. Agriculture has the potential for improving the food access of active individuals and communities who participate in growing, selling or agricultural organization administration. In a city with a year-round growing season, available land and the need for improved food access mechanisms, it is critical that New Orleans consider the enhancement of its urban agricultural sector. Currently, the city does not have the infrastructure or residential capacity to replace the market-based system in place, nor would replacement be desirable, though, urban agriculture can play a crucial role as an alternative method for affecting positive social, economic and environmental change throughout the city.

Since its inception in the mid-1990s, the phrase 'food desert' has been used to describe areas with low food access, often due to the limited geographic location of full service grocers. The current definition provided by the USDA's census-based assessment constrains the application of the food desert designation to a strict rubric, which includes: distance to a full service grocer, travel time, income level and car ownership (Ver Ploeg et al., 2009). More recently, researchers have begun to critique the reliance of a standard definition of a food desert in determining the true accessibility of food for consumers in certain locations (Besharov et al., 2010; Whitacre, 2009; Ver Ploeg et al., 2009). Other food access techniques such as self-provisioning or alternative market forms have recently begun to play an important role in

improving food access. Are alternative avenues to healthy and affordable food access such as community gardens or farmers markets as fundamental to the food environment and resulting food access of individuals as the full service grocer?

The use of a secular term like food deserts has strong political implications for addressing individual and community food insecurity in areas with low food access. While positive consequences may arise, such as the development of a low-cost food retailer or increased funding for fresh foods ("Fresh food retailer," 2012), patronizing views of low food access areas can stigmatize individuals' socio-economic standings in too general a fashion, including all residents in a distinct geographical location that may or may not be low income or food insecure. As Guptill & Wilkins (2001) explain, "the community food security movement seeks to enhance the capacity of communities to ensure universal access to safe, healthy, and culturally appropriate food." The food security of individuals and communities in New Orleans' food deserts has been narrowly but positively impacted by the growing presence of urban agricultural initiatives. Rather than relying entirely on the use of a standard definition of food security-which ignores the presence of alternative methods for food access-urban agriculture offers an opportunity for communities to ensure their food security in safe and healthy manners.

Urban agriculture in New Orleans focuses on increasing the availability and accessibility of locally produced healthy and affordable foods. The most common forms of urban agriculture found in New Orleans are community, schoolyard, personal, kitchen gardens and farms which increase the production of locally grown goods as well as access to fresh foods. These initiatives are developed and implemented by a number of agricultural organizations as well as through autonomous maintenance of growing sites and markets. Urban agriculture must not be overlooked as a necessary "...component in a complex food-security system..." (Jolly, 1999). As

agriculture has an indispensable role in urban areas as an essential player in the production of more food and increased food access, improved social responsibility and economic impetus, Jolly (1999) notes that,

...[it] presents opportunities, but it also faces substantial constraints. In the industrialized nations, the success of urban agriculture depends on the demographic characteristics of the community; the local structure of support; the availability, quality and permanence of land; access to, and cost of, water; leadership; and local organization.

New Orleans faces a number of challenges in regards to a thriving agricultural system including water and soil contamination, low municipal funding, poverty, resident apathy and minimal governmental support. Since the devastating hurricane season of 2005 which destroyed a number of major projects and growing sites around the city, New Orleans has managed to maintain a consistent and increasing quantity and spread of urban agricultural projects that range in size, scope and efficacy. Since then, over a dozen major urban agriculture organizations have developed to aid residents in overcoming the above mentioned urban agricultural hurdles.

The purpose of this study is to address food security issues by investigating two main questions. First, what is urban agriculture's role in a place defined as a food desert? Second, how are urban agricultural efforts affecting the food security of individuals and communities in New Orleans, LA? Through a small qualitative study with fourteen individuals, this study has found that urban agriculture is an unrealistic approach to improving the food security of all individuals within New Orleans. Even with the perceived individual empowerment, increased food access, localized sections of the food system and other community developmental benefits received from urban agriculture in New Orleans, this study has found that individual or community growing cannot replace the current market based food distribution mechanisms in place as a means of

securing food access. This study argues that the short-term food security of individuals and community participants is improved with urban agricultural projects occurring in close proximity to individuals' homes or communities. Beyond this level of basic engagement, urban agriculture is insufficient at effectively improving the long-term food security of individuals who work in community gardens or with other agricultural projects. Additionally, long-term food security relies on the forward-thinking and cooperative work of multiple sectors of the food system to ensure the access and affordability of healthy, fresh food for all residents of New Orleans. In order for urban agriculture to have a stronger effect on improving the food security of New Orleans entire population, a more robust coalition of the current fragmented intervention efforts is necessary. Although the existing urban agricultural projects, community gardens and organizations alter or improve some access issues for many individuals and communities, they do not reverse food insecurity for all citizens, even those who participate in growing projects. Regardless, urban agriculture should be praised for its community development efforts and ability to improve food access for some individuals and communities and its potential for further development.

Background

Food Deserts

The phrase food desert was originally coined in the mid-1990s in Scotland to describe areas in which there was poor access to a healthy and affordable diet (Kristjansson & Cummins, 2009). This label has been growing in popularity since its incarnation. It has been used as a way to discern whether the barriers inherent in a consumer's relationship to their food environment or the location of stores, the prices of foods and the quality and availability of food stores, are in

some way less adequate than one of its food secure counterparts (Power, 1999). Together, the variables that consumers face such as their income, available transportation and food preferences are assumed to be influenced by the type of food environment that they live in. Though, contentions have been made by a number of studies done in the past half of a century against these correlations (Smith & Cummins, 2011). The United States Department of Agriculture uses a census tract based determination of whether or not the food environment of designated areas should be considered food deserts (Ver Ploeg et al., 2009). While its determination is comprehensive in its span of the United States population, the depth of its understanding reduces the influence of subjective and less rigid factors, including the presence of alternative food retailers or self-provisioning, for example (Besharov, Bitler & Haider, 2010).

Within the past decade and a half, researchers have begun to critique the reliance of a standard definition of a food desert in determining the true accessibility of food for consumers in certain locations (Besharov et al., 2010; Whitacre, 2009; Ver Ploeg et al., 2009). These reviews of food deserts have identified myriad tensions between the USDA's definition of food deserts and one that may consider a broader scope of influencing factors in determining food security. Besharov (2010) uses an economic analysis to question the actual existence of food deserts and whether or not they are merely a useful tool for studying food and nutrition accessibility.

The USDA has created a systemic analysis of food deserts which uses rural and urban determinations along with federal poverty standards as their means of understanding the existence of food deserts in the United States. By determining food access with just three variables: distance to a food retail outlet, car ownership and travel time to a store; a multitude of other impactful and site-specific factors are dismissed (Ver Ploeg et al., 2009). For example, Sharkey (2009) compares the personal relationship to a food environment with the personal

income, like the USDA but includes other factors such as schedule, food preferences and knowledge of food sources that an individual may face. While there are obvious benefits to studying food deserts at the national level, such as being able to aggregate the food environment data of the entire country, these trends dismiss the prevalence of individual and site-specific variables that may present a larger correlation to food insecurity than distance, time and transportation. The census tract method of determining the areas that are to be studied creates very strict standards for determining food accessibility. These standards define food security strictly by the place in which a person lives and does not consider their travel patterns, where they work, go to school, worship or enjoy leisure (Lewis et al., 2011; Rose, 2010). Further, these standards create the stigma that says that food deserts are inherently bad because there is not sufficient healthy or affordable food within a certain geographic area. Rather, this leads critics to examine the extent to which food deserts are negative environments because of their accessibility to food based on USDA measurements.

While the governmental standards for defining food security and food deserts are empirically based and fundamentally relevant for beginning the discussion of food deserts' importance, they should not be utilized as the only measurement for determining their existence and impact. Studies done by Blanchard & Matthews (2007) and Ver Ploeg et al. (2009) of food deserts are based on an absolute standard of how much nutritious food is within a certain area. This could be translated as an environment in which there is a deficiency of food for its residents assuming that because there are "insufficient" amounts of food, all people in that area are inherently food insecure (Whitacre, 2009). While in some places in the United States, there is an insufficient amount of food for its population; this does not mean that all labeled food deserts fall under this category. Rather, some areas may simply have less nutritious food than others,

namely an unequal retail environment (Beaulac et al., 2009). This leads critics to question whether or not food deserts are fundamentally negative environments or whether it is the presence of low-income populations that defines their depravity (Besharov et al., 2010).

Both Beaulac et al. (2009) and Ver Ploeg et al. (2009) consider areas with lesser quantities of available food as areas suffering from deprivation amplification, where the area-level deprivations (quantity of healthy foods) compound individual disadvantages (food security and adequate nutrition). Assuming that food deserts have insufficient amounts of foods clusters all areas labeled as such as comprised of populations who are food insecure and without access to enough food, let alone nutritious food (Ver Ploeg et al., 2009). While this determination requires the definition of a food desert to be more flexible, it also continues to assume that there is only one characterization of healthy food that is appropriate for all populations.

Bodor et al. (2007) assert the claim that a more useful term for areas in which there are enormous amounts of non-nutritional foods at inexpensive prices to be called a “food swamp” rather than a food desert. Conceptually, a desert would have an extreme deficiency of food altogether, regardless of its nutritional content. A swamp suggests that a large percentage of shelf space in retail stores is reserved for energy-dense goods, thus *swamping out* healthier foods. While similarly vague to a food desert classification and no less challenging to identify, food swamps provide a conceptual approach to identifying problematic situations within a food environment (Bodor et al., 2007).

A current understanding of “healthy” food has focused around an increase or decrease of certain families of foods. One popularly assumed condition of consumption is the availability of foods in a retail environment. Like Bodor et al. (2007) suggests the “swamping out” of healthy food leads to poor nutrition regardless of dietary recommendations. While the United States

government has created standards for a healthy diet, portrayed through the formerly accepted *Food Pyramid* and the current *MyPlate* initiative, their efforts are supposedly approved for the entire United State population (US Department of Agriculture, 2010). Less scientifically-based approaches that make recommendations from a policy standpoint have been contested with ideologies that have swept the nation. Ideals such as “healthism” (Guthman, 2011) and “nutritionism” (Pollan, 2007) have been vital to thinking about diets and consumption within certain contexts. Pollan (2007) makes note that following a diet specifically based around nutrients is out of the social context of eating, as well as that it assumes that all consumers inherently know what nutrients are better or worse for their health.

The discussion surrounding health and consumption is fundamental to understanding the way in which the foods that people purchase affect their health and the health of those around them. In general, it has been assumed that food consumption is based solely off of the food environment that one lives in, also influenced by a household’s circumstances including income, knowledge of food and food preparation and time availability (Sharkey, 2019; Smith et al., 2010). While there may be validity in this claim, proper health is not necessarily determined strictly by retail access (Cummins & McIntyre, 2006), rather, it is a constant that cannot be continually obtained through food consumption alone (Guthman, 2011). Good health standards, especially when speaking on the topic of consumption, are narrowed in this context to retail outlet access where fresh foods, especially fruits and vegetables are available. While this approach has provided great insight into the relationship between food access, consumption and subsequent health status, poor access to foods cannot be considered the only causality of poor health or food insecurity.

Food Security

Defined at the Food Security Summit of 1996, “food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 2008). The Food and Agriculture Organization identify four primary dimensions of food security: availability, access, utilization and stability. The physical availability of food addresses the supply of food in an area as determined by production and stock levels. Access is defined as the economic and physical access to food in relation to income, market prices and expenditures at the household or individual level. Food utilization is most commonly associated with the way in which the body biologically uses the various nutrients received from foods. Utilization also includes the nutrient intake of individuals based on food preparation, feeding practices, diversity of diet and intra-household distribution of food. Lastly, the FAO defines the stability of the three previous dimensions as the satisfaction of these three concepts over time. As noted, “Even if your food intake is adequate today, you are still considered to be food insecure if you have inadequate access to food on a periodic basis, risking deterioration of your nutritional status.” (FAO, 2008).

Food deserts, due to their interpretation as a low-access area further compound the negative consequences of individual and community food security (Beaulac et. al, 2009). The community food security movement seeks to “enhance universal access to safe, healthy, and culturally appropriate food” (Guptill & Wilkins, 2001). An increase in local food production has been shown as a channel that positively increases health, food security and ecological sustainability.

When attempting to understand food deserts as a concept, hyper local research spends too much time on food preferences and dismisses the systemic issues associated with food retailer locations, accessibility of food outlets and food costs. The many factors that influence food access are complex, often site-specific and rely on the assumptions of trends from neighborhood to the national level. The economic and social structures of any community may influence the individual choices of consumers similarly to the impacts that the international agricultural system may have on retail outlets across the nation. Consequently, the definition of a food desert cannot be determined merely by numerical and population-based determinants. Rather, a comprehensive look into the variety of factors present must be regarded as the defining features of a food desert. Further research into the importance of food deserts must also take into account the repercussions of health related complications or successes due to food access. A standard measure of health or diet cannot be prescribed to a community, let alone the entire nation at any one given time. The complex relationship between food access, consumption and food security must be pieced apart and studied through smaller more specific lenses to designate how the prevalence of food deserts impacts the health and food security of a community.

However important the use of a common term such as a food desert is at describing a food environment, its label is hampered with loaded implications. In the most widely-spread use of its definition, a food desert is a place in which a specific family of healthy food is predominantly unavailable to the majority of the population. Most often, this family of healthy food is credited to fresh fruits, vegetables, fiber and dairy. While there is contention surrounding the actual benefits of having canned fruits and vegetables as a substitute for fresh produce, the majority of studies done have looked into the correlation between access and fresh produce (Bodor et al., 2007). A wide variety of studies have been able to dispel many of the assumptions

inherent in this ambiguous term by questioning the specific circumstances and impacts of its myriad variables on populations around the country.

Individual circumstances. The relevance of researching consumer data helps to report detailed food expenditures at the household level and reflects patterns in a population that could be influencing poor health based on food choices. One could consider how an individual maximizes their happiness or utility by spending their food dollars on any number of items. Within an economic viewpoint, people will allocate their dollars based on the optimal utility of that money which maximizes their happiness, such as buying a cheaper item of food rather than not buying that item at all. Economic expenditures on food in particular are subject to the influences of an individual's time, budget and biology (Cawley, 2010). But Cawley (2010) considers the rationality of individuals or household's food choices as an issue that secures happiness, the determinant for how well a person's well-being or quality of life is qualified. Similar to Bodor et al.'s (2007) argument that individuals will buy inexpensive, energy-dense goods, it becomes obvious that fresh fruits and vegetables produced by local agriculturalists will fall outside of an affordable range. Moreover, the time and energy it would take to access these goods, whether at a farmer's market or specialty store may be beyond the physical capacity of an individual.

To quantify what is a rational or irrational choice would be like laying the groundwork that every person had the same economic and physical access to a diet which simultaneously achieves both economic happiness and a healthy diet. While this is an intractable issue to tackle, one might consider the variables that do in fact hinder individual food security. Cawley (2011) spends some time utilizing the "last dollar" rule, in which a person attempts to optimally allocate

their money to achieve a maximum utility. Smith and Cummins (2011) evidence this by noting the shopping habits of many low-income consumers or those with lesser access. They state that the frequency of major shopping trips at supermarkets, which would include either staple and non-staple foods or luxury items, occur less often. Rather, more “top-up” trips at convenience and smaller stores occur on a more frequent basis (Smith & Cummins, 2011). These trips include less healthy items, such as fresh fruits, vegetables, and dairy items, because smaller convenience stores do not carry as wide of a variety of goods as do supermarkets or larger retail outlets (Smith & Cummins, 2011). Further, an individual’s perception of their access to food influences their food choices. As we have previously seen, individuals may or may not choose to shop at the store nearest to them (Gallagher, 2010; Sharkey, 2009). Instead, consumers will decide where they will shop based on their spatial perception of the food retailer to their home, considering the type of purchase they intend to make (Thomas, 2010). If an individual lives just outside of a convenient distance to a supermarket, they may be more likely to shop at a local convenience store, thus impacting a negative shopping cycle (Bodor et al., 2007).

While consumers may choose to purchase goods at one store or another based on individual preferences, convenience or distance to a store, there may be other factors that influence the decision of where to shop for groceries. Low-income consumers often utilize the assistance they receive from supplemental federal programs such as the Supplemental Nutrition Assistance Program (SNAP) to purchase food items (Ver Ploeg et al., 2009). This program provides vouchers for purchasing foods—anything that is considered a food item, to be consumed at home (USDA, 2012). The limitation to this program is not such that there are ineligible foods at any given store, more so that participating stores may be geographically further from the consumer’s household. The USDA (2012) claims that more low-income

communities are subject to farther distances from SNAP benefit participants such as larger grocery stores, as opposed to local convenience stores who may not accept food stamps (Ver Ploeg et al., 2009). Moreover, McLaren (2011) claims that those who participate in federal supplemental programs are more likely to have negative health outcomes. Titled the “food stamp cycle”, consumers who receive economic supplements or social assistance at the beginning of the month may over-consume and subsequently gain weight when the cheapest or most available foods are calorie dense, non-fresh foods and available close to their homes. Poorer access to healthy goods at distances appropriate to a consumer’s lifestyle, along with dependence on nutritional supplements may lead to food insecurity—where food insecurity is not an insufficient intake of foods, rather a reliance on inexpensive poor quality food (McLaren, 2011). Further, when food insecurity is evident, McLaren (2011) notes, a stress response is activated in which some biological or behavioral links to unhealthiness are present because of social or economic deprivation. In the context of food, the deprivation amplification cycle begins and low-access to food compounds poorer food choices.

Community and interpersonal circumstances. Individual access to food is impacted by a multitude of influences including a person’s genetics, personal preferences, dependence on food assistance programs, utility, etc. Individuals then are inextricably connected to larger organizational structures such as their household, place of work, school or pleasure. These interrelationships create a system of dependency which can determine how a household or family interacts with their food environment. The cumulative income within a household may provide more or less freedom when determining shopping patterns. Further, instances such as a single mother or a disabled adult will have different circumstances to adhere to (Cawley, 2011).

Maternal employment may mean that more prepared foods are bought and consumed due to time constraints, or the proximity of the retail outlet may make a large difference in the world of a disabled person who cannot travel far distances to acquire their nutrition. Factors such as these often determine whether or not a family or individual is food insecure and can be interlaced with the larger economic, political and social structures at hand in determining food security and/or health.

Individual dependence on a multitude of factors could be considered a community-level interaction in that the decisions that an individual make are determined by underlying communal circumstances. The available transportation within an area, whether that be personal, through a social network or through public transit can deeply affect how an individual accesses their food (Sharkey, 2009). Similarly, the physical geography of a food environment will have subsequent effects on the availability of accessing food for communities. Rose et. al. (2009) describes the identification of a food desert through four main standards: the food environment, the measure of access (distance and density), the disadvantage of the consumers (poverty, transportation, etc.) and the geographic threshold (low food access plus the distance to the outlet). This definition introduces individual dependency on external factors into the understanding of community food access. Community structure, such as is seen through the social services and resources available to consumers is a significant determinant for how food security is manifested in an area. Rather than merely individual hindrances, communities may face certain hurdles to food access such as the physical distance to food retailers, transportation and overall economic status (Rose et al., 2009).

While health and food security ranks at the individual level may be simple to see through physical, economic or social standards, these individual cases inherently make up the larger

network of the food environment. The infrastructure that is built up by many individuals influences the social networks, common norms and food environment that supports or impacts a community's health. Conversely, the environment that has been built up through common norms is the determining factor for how individuals interact with each other and the services and resources available to them. The retail environment of a community represents the amount and type of food outlets in an area (Economos & Sliwa, 2011; Guptill & Wilkins, 2002; Lewis et al., 2011; Thomas, 2010). While some retail environments are of higher quality, meaning that they have developed an identity that suits their populations in such a way that they respond in a positive and engaged manner, some environments, as we have seen, are insufficient at providing adequate food products to their community. The retail identity of a community defines its purpose and how it serves the populations around it. If the consumer feels adequately served, they may be more apt to respond and interact with their retailer. On the other hand, where retailers are larger and their provisions are on a greater scale, consumers may not feel as inclined to develop a relationship with their retailer. This could lead to habitual shopping habits which may or may not be the most beneficial to their health (Guptill & Wilkins, 2002). Thomas (2010) argues that the nutritional deficiencies in communities are not due to the presence of an accumulation of food insecure individuals; rather, it is a stark deficiency of the food system. The purchasing power of neighborhoods impacts the food environment, when the food environment is lacking in depth and support. Where the food environment is improved, individual motivation and access to food will improve as well (Thomas, 2010).

Societal circumstances. Communities are inherently affected by the societal patterns of their larger collective structures. Like the relationship between individuals and communities, any

neighborhood or city food environment is subject to greater systemic influences such as state or national trade patterns, climatic influences on food prices or seasonality. In thinking about the retail environment in the United States, it is apparent that the shift into a mass-market food system post World War II has concentrated food production and distribution into large supermarket centers placed away from urban centers (Guptill & Wilkins, 2002; Ver Ploeg et al., 2009). The rise of the supermarket and supercenter, while concentrating food stuffs in central locations for many suburban populations, has simultaneously dismantled the local market system, disembodiment smaller retailers and moving food away from local communities (Ver Ploeg et al., 2009). These large stores require large tracts of land and an area with a population who will satisfy its economic needs. For example, the kind of store will be determined by the economic, political and social structure of an area, meaning that discount stores may center in low-income areas, or specialty stores will set up shop in higher income communities (Guptill & Wilkins, 2002). The influence of store type and location has far reaching effects into the determination of a food environment, and potentially a food desert. A higher concentration of large retail outlets outside of urban limits creates the potential for a food desert when the retailer is out of reach. Moreover, Ver Ploeg et al. (2009) state that these conditions will indicate higher food prices for low-income citizens within inner cities. On the other hand, Thomas (2010) argues that the correlation between low-income or inner city citizens and high cost for food and food retailers does not always match up. Rather, Cummins & MacIntyre (2002) found that food costs were similar in food deserts, but the access to a broader spread of food products, including fresh produce might be lower.

Intervention Strategies

If we consider the existence of food deserts as true, those areas in which food access is compromised because of distance, proximity or individual access to a retail outlet with substantial, healthy and affordable food products, then we must also reflect on the impact that interventions play in altering the food security status of a communities. Community food security is a great foundation to begin considering the potential for community interventions to ensure food security. While there are a multitude of approaches for transforming a community's food environment, those ranging in scale from the individual to the national or macro social trends which influence food access and security, there are also conceptual approaches that can be applied to any level of community intervention (Economos & Sliwa, 2011; Lewis et al., 2001). Interventions can be seen in the form of organizational changes through policy interventions, federal programs to benefit food insecure populations, or community leaders inspiring and educating individuals to be active food consumers, just to name a few. These actions can have far reaching effects for improving the food access of those populations living both within and outside of food deserts.

As noted, consumers who live in a food desert are considered to be subject to poorer food choices than their food secure counterparts (Ver Ploeg et al., 2009). To adequately study the relevance of this claim and to consider the potential impacts of interventions, on any scale, one must also consider the type of environment that will be studied. While the identity and culture of a community is important for determining its internal needs or wants, the spatial proximity of the environment will control its span of effectiveness in interactions as well (Economos & Sliwa, 2011). Further, community interventions should consider the effects that they will have on all levels of the food environment. In other words, how will work with individual's food behavior affect the neighborhood retail environment, how could national policy changes affect individual

access to healthy foods or how can the altering of social norms sustain beneficial household changes in food purchasing and consumption. These questions will need to be answered on a case-by-case basis that considers the environmental influences from the individual to the national levels.

Community interventions. Just as understanding food environments is best achieved through a variety of scales, interventions are most likely developed and focused on scales of their choosing, as well as from individual to national programs. Individual socioeconomic statuses play heavily into the relationship between households and their food security and while individuals are susceptible to their income, employment status, dependency of children, work schedule and availability of time for acquiring, preparing or serving food, they are also deeply impacted by the forces of the market and greater accessibility issues which are out of their control (Cawley, 2011). Individuals may choose to be active consumers, in which they are knowledgeable about the foods they are buying, where that purchase takes place and how those purchases are affecting the larger food system (Wilkins, 2004). This view assumes that first, most consumers are aware of the influences that their purchases have on the food system and second, that consumers care about being a food citizen (Wilkins, 2004). Active consumption relies on the ability for a person to feel as though they have a choice in their purchasing decisions. In a food desert, individuals may feel as though those choices are compromised, due to limited access to foods or retail outlets. One may question whether or not there is even a place for food citizenship within a food desert as basic sustenance is a more weighted decision than the effects of educated purchasing decisions. Many of the interventions for improving the food environment expect desired consumer participation. In thinking about interventions for

individuals and their attention to sustainable food purchases, the focus will need to be on education of healthy food choices and the impact of purchases on their food environment.

Further, individual level approaches to improving food security in a food desert may focus on the will for individuals to change their environment. Lewis et al. (2011) note that community coalition work, where "...multiple sectors of the community, [come] together to address community needs and solve community problems" (Lewis et. al, S95). These initiatives are there to encourage individual and interpersonal connections to improve individual health statuses (Economos & Sliwa, 2011; Lewis et al., 2011). Lewis et al. (2011) focus on three key aspects to implementing community level change: support, access and authority. The presence of community development will ultimately improve the community's and subsequently the individual's food security and finally, once individuals and the community as a whole are empowered to take authority of their food environment, can they make policy and institutional change. While this is just one approach to improving the food environment of a community, there are many other approaches that can come in the form of food pantries, community gardens, school agricultural programs, co-ops and food policy coalitions; all of which have strengths in impacting a certain sector of the population in a community (Guthman, 2006; Ver Ploeg et al., 2009).

On a larger note, there are national initiatives to improving the accessibility of food to certain vulnerable populations. Societal level studies address the social and cultural norms which can dictate the health, economic, educational, social and political structure of larger populations. For instance, the federal programs such as Women, Infants and Children program, SNAP or the Thrifty and Low Cost Food Plan program are aimed at supporting populations who may need support in acquiring adequate food. These programs may be aimed at providing

welfare for low-income individuals, mothers with children, and to determine the real price of food and how it has changed in relation to consumers (USDA).

Urban Agriculture

Agriculture has a long and practical history in the timeline of human civilization. From hunter-gatherers to the first agriculturalists, humans have long relied on the systemized production of food for feeding themselves, their families and neighbors. Like many great ancient civilizations, the Mayans for example, had farming practices located directly outside of cities to feed the populations within and relied on these intensive practices to maintain great societies (Turner, 1974). By the late 1800s through early 1900s, agriculture remained an important aspect in the everyday lives of urban dwellers. Public markets and gardens, and small family farms were the common type of food environment in cities around the United States. Over time, the utilization of local agriculture lost its functionality and community-based food knowledge was essentially lost as the adoption of improved agricultural technologies expanded and food production moved further away from cities. Over hundreds of years, the agricultural prototype of early civilizations was reshaped into the more recent form of urban agriculture that we see today: from local to distant and back to local production methods. Our current urban agriculture was fashioned by four primary forces: the continuity of historical practices (food production within city limits), the industrial agricultural revolution, post-World War II rapid urbanization and the expansion of low-income sections of urban populations (UNDP, 1996).

After a short-lived phase of victory gardens as a means of sustenance during World War II, self-provisioning through gardening again decreased. The coupling of the industrial agricultural revolution that provided modern refrigeration and large-scale goods transportation

with the rapid urbanization after WWII-which relegated pristine land patterns within cities-relegated urban agriculture obsolete (Norhdahl, 2009; UNDP, 1996). City properties underwent an internal compartmentalization and a separation from the agricultural integration of the past. Norhdahl (2009) asserts,

The pervasive ideology of the mid-twentieth century became that food production was no longer suitable in and around our cities, as it had been for centuries. Growing fruits and vegetables was no longer the work of community-minded individuals and families on small local farms, but endeavors better suited to corporate-owned, factory-like 'agribusiness' in more distant parts of the county (3).

The rise of the industrial food system has been argued to be the premise for the devaluation of food by diminishing the importance of taste, the health of the environment and by disenfranchising farmers and consumers; forcing them to buy and sell within a system that is essentially out of their control. During this time, the vertically integrating food market squeezed small-scale farming out of the equation, leaving consumers with less diverse food purchasing options (Andreatta and Wickliffe, 2002). By the 1970s, concerns of health, rising food prices and environmental sustainability increased and the United States saw a resurgence in home and community gardens. By 1994, 30% of US families were gardening, with 80% of these gardeners being urban dwellers (UNDP, 1996).

Regardless of the growing trends back towards individual and community food production in urban areas, the current industrial food production system still greatly outweighs urban agriculture's capacity. Coupled with the continually rising costs of food and declining health of the American people, a pejorative attitude that protests large-scale corporate agriculture is being awakened in much of the American population (Norhdahl, 2009). But when thinking

about urban agriculture merely in terms of food supply, local food production overlays the current food production system, rather than replacing it, making it a viable option for a number of urbanites looking to supplement their food supply with these kinds of goods (UNDP, 1996). A necessary social, economic and health practice, urban agriculture makes increasing sense in our current society.

Urban agriculture has been described as the “new frontier in public health” offering two potential health benefits: first, it provides more fresh fruits and vegetables for urbanites, and second, it necessitates the exercise involved in raising food. Another way in which urban agriculture provides health benefits is “by improving the social determinants of health, including the beauty and safety of neighborhoods and the strength of community ties and social interactions” (Norhdahl, 2009). The UNDP (1996) asserts “urban agriculture contributes to the health and well-being of a community by reducing hunger, improving nutrition and improving environmental conditions that affect health” (160). Overall, having more fresh foods produced in a local context increases the physical quantity and thus availability of healthy food to the local population. The more healthy and local foods available, the more options there are for consumers to buy. Norhdahl (2009) asserts that a more public system of food production which addresses food insecurity should be supported if and where it does ensure sustenance, nutrition and community development.

Agriculture in urban spaces has historically flourished mostly in the form of community gardens. Especially during times of economic downturn, community gardens offer a low-cost way of supplementing food purchases. Beyond the additional food supply from urban gardens and farms, these spaces develop civic communities that nurture the health of local cultures, spawn horticultural skills and employment opportunities and teach skills that empower

individuals and support neighborhood cooperation (Lyson, 2004). Moreover, Whyte (1980) stresses that, “food attracts people who attract more people.” Whether through public market spaces or community gardens, the perceived positive impacts of food draw people in.

The notion of civic agriculture, says Lyson (2004), “embodies a commitment to developing and strengthening an economically, environmentally, and socially sustainable system of agriculture and food production that relies on local resources and serves local markets and consumers.” As noted, urban agriculture supplies a safe and healthy stream of food to local markets but in order for a civic urban agricultural sector to thrive, Norhdahl (2009) emphasizes the need for municipal support. Urban agricultural projects have the potential to start up and function at a small scale, but in order to create a city-wide system of public agriculture, local legislation must allow for it. Zoning restrictions have, in many places, altogether pushed out any kind of urban farming project from city centers. An effective method for transforming the food environment of an urban area might be,

...for the municipality to cultivate a policy that exploits the food growing and distribution potential of public spaces within these communities, to ensure that fresh, wholesome food is, at the very least, as prevalent as fast food, and just as cheap (or preferably, cheaper).

(Norhdahl, 2009, 38)

In effect, more urban agricultural projects can reinvigorate the health of a city’s residents, promote a local economy and help to ensure the food security of more people. The transformation back to more local food production is being demanded by consumers. One way to properly ensure its revival would be to have administrative support behind community-based urban agricultural projects (Norhdahl, 2009).

Urban agriculture, with its inherent community support and direct supply of fresh food to a local economy does not come without serious environmental concerns. Issues of water contamination and scarcity, soil degradation and waste products are concerns at any size of agricultural production. Small-scale agriculture in urban areas similarly deals with these hurdles but allows some wiggle-room for more diversified mediation techniques than farms that produce mass-amounts of waste, for example. Moving away from the mass-produced food system that the United States currently depends on weakens the reliance on fossil fuels for production and transportation and diminishes non-sustainable environmental practices involved in agriculture. Localized and small-scale food production also minimizes the food system's vulnerability to large-scale catastrophes like wide-spread cases of food-borne illness (Norhdahl, 2009; UNDP, 1996). In general, urban agriculture reduces the environmental impacts of agricultural production by improving urban management, enhancing the environment through beautification and efficient use, contributing to waste management through compost and the re-use of other industry by-products and resource conservation (UNDP, 1996).

Study Site: New Orleans

New Orleans is the largest metropolitan area in the state of Louisiana. It has a population of 360,740 people. Statistically, the city has proportionately higher levels of low income and minority citizens than the rest of Louisiana. The city has a relatively high minority rate of over 60%. Further, New Orleans suffers from an extremely high poverty rate of 25.7% (US CENSUS, 2010). The demographic differences in the city are evidenced by its neighborhood structure. Many areas of the city are well-known to be demographically similar. Unlike many cities who previously shared separations of race or class internally, New Orleans continues to face severe

demographic lines. In a separate vein, New Orleans has a high educational attainment rate of 83.9% for individuals aged 25+, coupled with an unemployment rate at around 6.5% shows that the city has the educational and employment resources to adequately serve the majority of the population (US CENSUS, 2010). Although the unemployment rate is low and the high school education rate is fairly high in this small city, much of the population remains under the federal poverty line. A number of overqualified residents in New Orleans take minimum wage jobs and have a hard time making ends meet (Deslatte, 2011). Therefore, many of these individuals and families rely on federal aid program assistance such as Welfare, SNAP and medical services to maintain their household's health. SNAP or the Supplemental Nutrition Assistance Program supports individuals and households by increasing access to healthy food more readily through federal economic benefits to communities for food purchases (USDA, 2012). In the state of Louisiana, more than 19% of residents receive SNAP benefits, a high number compared to the national average of 15%. In New Orleans alone, 22% of residents rely on this assistance program. Even with the federal assistance programs in place, 20.6% of individuals and families remain food insecure (Feeding America, 2012).

New Orleans lies deep in the heart of southeastern Louisiana, straddling the mouth of the Mississippi River. Curving itself around a deep arc in the Mississippi, the city has coined the nickname "the Crescent City". With a humid, subtropical climate, New Orleans experiences mild winters and hot, humid summers. The climate offers year round growing conditions with a variety of wet and dry, cool and very hot seasons. New Orleans is extremely vulnerable to hurricanes. Because of its low elevation and three-sided water exposure, the city is prone to flooding (City-Data, 2009).

Considering the time since Hurricane Katrina in the late summer of 2005, four other major hurricanes have hit New Orleans: Isaac, Gustav, Rita, and Ike. These extreme weather events have severely impacted the agricultural environment in New Orleans, initially wiping out most agricultural projects. The most influential recent storm, Hurricane Katrina in August and September of 2005, severely impacted the landscape of the city. A category 3 storm and the one of the strongest to hit the United States Gulf coastline in the past 100 years, over 80% of New Orleans sustained flooding as a result of levee failures (NOAA, 2005). Please see Appendix A for a map of the flooding rates throughout New Orleans post-Hurricane Katrina. The aftermath of Hurricane Katrina, combined with the almost immediate damage incurred by Hurricane Rita in September of 2005 resulted in a massive population loss and severe environmental destruction. Enormous levels of toxic pollution carried in by floodwater left many of the cities houses with airborne mold contamination, soils with elevated toxicity and severely degraded the Gulf Coasts' coastlines and wetland areas (Rastogi, 2010).

Today, after enormous clean-up efforts by local and out-of-state volunteers, state and federal support, the city has recovered more in some areas than in others. About 25% or 48,000 of the 190,000 properties in New Orleans are either abandoned or considered blighted land (Krupa, 2011). There is an extensive amount of land available within the city without infrastructure currently built on it, although, some less populated areas such as the Lower Ninth Ward have been tested to have lead and arsenic levels that exceed public health regulations (Shogren, 2006). Some of the lowest-income areas more than others suffer from a loss of inhabits, such as the infamous Lower Ninth Ward or New Orleans East, where the destruction caused by the hurricanes was more severe (Boudreaux, n.d.)

Food market environment. While considered to be the United States city with the most and worst food deserts of any in the country, New Orleans is also a place with some of the most vibrant food celebrations and traditions. Local cuisines have been developed by a history of rich ethnic influences, from creole and Cajun cuisines to French staples. The city relishes in its close proximity to the Gulf of Mexico, making seafood a staple in many dishes.

Historically, New Orleans operated more public markets than any city in the country. Farmers would bring their produce to open air markets located around the city to sell directly to customers. The earliest markets were run by government officials and operated centrally to “protect consumers from high prices and poor food quality” (Sauder, 283). Over time, this market accommodation, which eliminated middlemen and controlled prices, had spread to virtually every neighborhood throughout the city. Until the mid-1860s with the legalization of private markets, the public market was the primary form of food distribution around the city. Over the next half century or so, the market system in New Orleans went through a tumultuous transition with an increase in competition between private and public markets, the monopolization of the city’s food distribution system and the establishment of the middleman in public markets. With this transition, accompanied by the invasion of chain stores, New Orleans saw the public market disappear and individuals began investing in private markets. By the 1930s, the city realized that competition had risen immensely and there was a lack of operational supervision for food distributors. The city attempted to reinvest in the public market by renovating many of the past market spaces. Unfortunately, these attempts to revitalize New Orleans traditional markets and resist outside food interests failed; “for new patterns of marketing had already been established in the city” (Sauder, 296).

These historical market structures appeared unidentifiable as they were used for a number of other businesses and objectives (Sauder, 1981). Meanwhile, New Orleans has not entirely lost its public market tradition. One example of a thriving public market atmosphere in New Orleans is its extensive farmers' market system. A number of farmers' market programs are currently operating around the city, hosting over a dozen pop-up markets throughout the week. Umbrella organizations that focus on stimulating economic activity through agriculture in the New Orleans area have greatly increased the support and education for public markets in and around the city (marketumbrella, n.d.). What values were thought to be lost with the disintegration of the public market in New Orleans, such as the intimate social relations, local food distribution and the support of small-scale entrepreneurs are being rediscovered. The current resurgence of "eating local" (Guptill, 2002) and rising health concerns such as obesity and food contamination are clear motivations for consumer involvement in local food markets. Urban agriculture, as seen through the farmers market develops a sense of security in ensuring the quality of food products bought and consumed (Norhdahl, 2009). Moreover, the farmers market provides a safe space, free of middlemen, private interests and unsanitary conditions to sell local produce directly from farmer to consumer in an urban environment.

The economic, ecological, social and health benefits associated with farmers markets bring back the sentiment that New Orleans honored in its historic public market system. The direct transactions between grower and buyer promote local economic development, while concurrently educating the consumer on the growing practices utilized and ensuring the nutritional health of those individuals and families who purchase their food there. These benefits are indisputably effective at creating a space for public food distribution, but inherently lack the full-service availability to reach the entire population of a city. Farmers markets tend to cater to

individuals and families who are seeking to establish a bond with their food or food system, whether that is a social, spatial or natural connectivity (Feagan & Morris, 2009). These motivations are keen at attracting those individuals with the economic, social interest and time availability to spend at a farmers market. But, while some markets work on outreach to bring in more low-income customers, many participants remain disillusioned by the opportunities for food purchasing options at the market with or without financial aid assistance programs (SNAP, 2010). Regardless of the impression that markets can actively exclude certain consumer populations and deepen adverse priorities and competition, the transactions between consumers and producers provide an alternative and productive method for closing the food purchasing gap seen in the supermarket system, (Andreatta & Griffith, 2011; Kay, 2006). There are obvious benefits and challenges to developing a local food system, and while the farmers' market prototype is just one example of the possible retail environments available to farmers and consumers, it does not necessarily represent the most thorough or far-reaching method for integrating all residents in a given area.

Methods

Study Sample

New Orleans was chosen as the study site due to the national press coverage after the Hurricanes of 2005 which resulted in an exodus of full service grocery retailers from the city (Boudreaux, n.d.). Consequently, the small number of remaining supermarkets has relegated New Orleans as having a number of food deserts (USDA,2013). In order to complete this study, an initial compilation of food-related organizations and institutions in the city of New Orleans was developed through internet research. This list included urban farms, schoolyard and

community gardens, farmers markets and food policy councils to develop a picture of the urban agriculture climate in New Orleans. Prior research into these organizations was necessary to establish what kind of information would be collected from each respondent as well as to verify that there were at least a dozen interview sites who promote urban agriculture and food access to feasibly work with (Baker & Edwards, 2012). Prior to these interviews, an extensive literature review of urban agriculture and food security was completed as a means of determining who would be interviewed and what questions they would be asked. As determined, interviewees would be chosen based upon their role in the urban agricultural environment in New Orleans. More specifically, subjects would be chosen based on whether or not their position or organization had a component focused on improving the food security of individuals and communities through urban agriculture rather than any urban agricultural organization or project.

Respondents were asked different questions based on their title, either as an organization member or an agriculturalist. Questions were focused on their personal interpretation of how urban agriculture in New Orleans was potentially affecting the food security of individuals and communities where they worked. More specifically, organization respondents were asked about the reach and mission of their organization, while agriculturalist respondents were asked more specifically about their individual goals in relation to growing and their food security. The interviews also included questions about community involvement and interactions between other organizations and growers, their opinion on New Orleans' food desert status, and the role of major weather-related events in the progress of their growing or organization's functioning. Please see Appendix B for a complete list of questions used during interviews.

Organizations were contacted by telephone and email with addresses found through internet research. Many of the organizations did not have email addresses and required phone

calls. Just one interview was set up before physically being in New Orleans in January. The remainder of interviews were acquired after contacting the organizations again once in New Orleans or physically appearing at the organization or garden sites. Interviews with personal gardeners, growers and farmers were set up through snowball sampling where their contact information was received from organizational personnel. In total, fourteen interviews were conducted over a span of four and half weeks during January and February of 2013. These fourteen interviews included sessions with a total of nine different organizations, of which one person represented two different organizations (Organizations 5 and 6), and two interviews were conducted at one organization (Organization 2). The interviews also included six different growing sites of which one could be considered an organization and a growing site (Organization 8).

Interviews were conducted either at the organization that was being interviewed, the physical growing site, various coffee shops or over the telephone. All interviews lasted for no longer than an hour and half and were conversationally based. Most interviews were recorded and later transcribed.

Ethical Considerations

In order to complete ethical human research, this study was approved under the Institutional Review Board (IRB) at Bennington College. Under the committee's approval, subjects were informed of the specific nature of the research being conducted and were asked to consent to the following conditions: their information would be kept completely confidential and any information collected could be withdrawn upon their request; subjects have the freedom to skip any question; all transcriptions and notes would be disposed of after this study is complete;

no compensation would be provided; and no risks should be anticipated throughout the course of this study. IRB approval was completed in the winter of 2012. Subjects were asked to sign an informed consent form or provided consent over the phone with the above information provided.

Scope of Research

The number of organizations and individuals who were used in this study are to be considered a very small sampling of the larger urban agriculture environment in New Orleans. This is true of both physical and communicative boundaries in the city and limits the extent to which this study can be used as a complete study of the relationship between urban agriculture and food security of the entirety of New Orleans.

Due to time and budgetary constraints, the geographical extent of this study is limited. This study focuses on organizations and individual agriculturalists in the southern half of the city, but it should be noted that there are urban agricultural projects occurring in all sections of New Orleans. A representation of the amount and location of growing sites, organizations and other food system-related places can be found in Appendix C: New Orleans Food and Farm Network Growing Sites Map. Note that this map presents the extent of established community gardens throughout the city as determined by the New Orleans Food and Farm Network; this does not include personal and household garden plots.

Another limitation to this study is the small representation of urban agricultural constituents that were willing or available to be interviewed. Of all individuals who were contacted, 54% were interviewed and included in this study. Difficulties in contacting individuals ranged from private contact information to lack of responses from interview invitations.

Analysis

For the purpose of this study, the goals and missions of these organizations were analyzed with consideration of the four main dimensions of food security as determined by the Food Security Programme of the Food and Agriculture Organization (FAO, 2008). These dimensions include food availability, access, utilization and the stability of the previous three concepts and are applied to each organization based on the researcher's interpretation of the organizations attempts to satisfy these dimensions.

Because of the small size of this study, responses from each interview were considered qualitatively, both individually and across the sample. As a whole, responses were organized and analyzed for trends and outliers to determine the effects of urban agriculture on food security within the entire urban agriculture environment in New Orleans.

Results

A goal of urban agriculture in New Orleans is to provide an alternative arena for food production, consumption and distribution. While its attempts at transforming the general food system fall short practically, the benefits inherent in individual and community based agriculture are evident. The current urban agricultural system alone cannot supply the city of New Orleans with enough food to entirely ensure complete food security. Moreover, urban agriculture as a system must compete with the larger capitalist structures at play that are engrained in our current society (Organization 9, 2013). The current model does not have the realistic potential to improve food security for everyone, but it can alter some individuals and community's food access in a limited time span. If agriculture wants a practical place in the larger New Orleans

food system, all actors must work together in a more cohesive nature than the current fragmented

food system coalition.

Individual food security in New Orleans is temporarily being improved for those who actively participate in agricultural activities by increasing their ability to access healthy or fresh foods. For the majority of the city's population who do not participate in any kind of urban agricultural activity, their food security is neither improved nor hindered by these kinds of activities occurring elsewhere in the city. Community food security is improved by urban agriculture for communities that have agricultural projects functioning nearby or within them by promoting local food production and community values such as sharing and communication. In general, urban agriculture in New Orleans is only slightly improving food security through food access and availability initiatives rather than utilization strategies or long-term stability of the local agricultural environment.

Over the span of the research time spent in New Orleans, fourteen interviews were conducted. Table 1 briefly describes all individuals who were interviewed and their roles as either organization employees or agriculturalists.

Interview Type	Organization Type	Employment Position
Organization	Independent growing system installation	Employee
	Non-profit community organization	Director of internal division
	Independent farm/youth employer	Employee
	Non-profit community development organization	Employee
	National Food Bank branch	Employee
	Independent policy council	Co-chair
	Non-profit network	Director
	Non-profit organization	Employee*
	State university	Employee
Agriculturalist	Farm	Owner
	Farm	Owner
	Farm	Manager*
	Community garden	Head gardener

	Community garden	Plot gardener
	Grower	Independent grower
*Same individual, who is considered an organization employee and farmer.		

New Orleans Food Desert Identification

New Orleans, Louisiana is not a single food desert, rather, a compilation of various food desert neighborhoods or sections within the entire city. No organization respondents denied the presence of food desert areas within the city, with one respondent explaining that “there are great inequities in that some neighborhoods are [food deserts] and some that are not. As a whole, the numbers don’t look great, especially when considering race and class lines in the city” (Organization 3, 2013). Organization 6 (2013) noted that when defining areas as having low or high food access, or living in a “food desert”, statisticians tend to aggregate too large of areas “...which ignores the serious demographic, income, food access and political access differences in New Orleans” of which the lines are stark and close in physical proximity.

The implications for defining a place as a food desert can have positive or negative consequences including economic development or stigmatization of the population living in said “food desert” (Organization 6, 2013). In an area that is considered to have low food access, that distinction may instigate the development of a grocery store. On the other hand, it has the potential to imply that all residents in that area are of low income status. The political implications of the food desert identification are part of a necessary family of phrases that have political cache-an influence for the general public and for political activity. Whether or not it is a perfect term and whatever the implications that a food desert classification has for policy change, the catchiness of such a phrase is necessary for developing a repertoire about low food access in a political realm. Other mainstream phrases were used to describe New Orleans as well.

Organizations 3, 6 and 9 substituted the phrase “food swamp” as a place where there is food everywhere, just not healthy or affordable food, as more descriptive identification for the city of New Orleans (see Table 2 for responses about New Orleans status as a food desert).

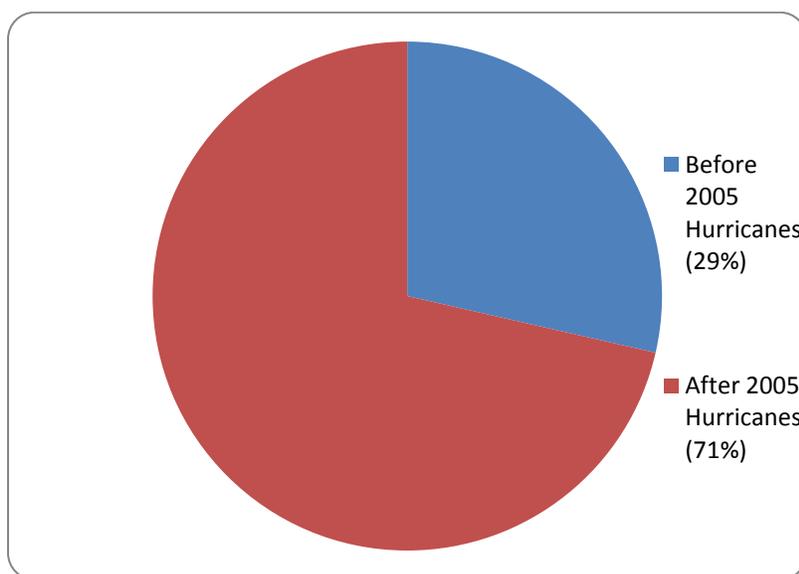
Is New Orleans a food desert?		Implications for food desert identification?
Organization #2	No, there are places with a ton of access to food (Uptown, the Riverbend) but there are also pockets with hardly any access to food (Algiers, Bywater previously).	
Organization #2	Yes just because everyone does not have access to fresh food.	
Organization #3	Yes there are great inequities in that some neighborhoods are, and some are not. As a whole, numbers don't look great especially when considering race and class lines.	Could be better described as a food swamp-people will eat if they can, no matter what that food is.
Organization#5/6	Parts of New Orleans-there are multiple.	We tend to aggregate too large areas. Food desert term is vague, what we are really talking about is food access Classifying a place as a food desert can have good and bad implications for policy change-creates a stigma (can either hinder or help economic development). Food swamps are real in the city.
Organization #9	I think they exist, but I don't think it's a perfect term by any means.	They can help improve things because it empowers people in bonding individuals and community. In poor places it can be a means of economic development and skill building.
Farmer #2	Food deserts are real in the city, convenience stores are everywhere-some have fresh foods, but not quality fresh foods.	Need retail initiatives to improve the food in corner stores.

With all respondents claiming that New Orleans as a whole or in parts has food deserts, and in understanding the political and economic reactions that may occur, one option that arose as a potential method for improving the symptoms of food desert resident's food access might be urban agriculture.

Many organizations, as well as individual agriculturalists began their work after the major hurricanes of 2005 including Hurricane Katrina and Hurricane Rita when food access had decreased immensely. Figure 1 displays the percentage of all respondents who have been

working in New Orleans in relation to the 2005 hurricane season. The majority of people who were interviewed began their work in New Orleans after this specific hurricane season showing a striking increase in a local agricultural system in New Orleans.

Figure 1
*% of Respondents who began working in
New Orleans before and after 2005 hurricane season*



Urban organization employees were asked specifically what the mission, goals and day-to-day duties were of their organization and in terms of their personal responsibility. Table 3 displays the answers given by organization employees to these questions and how their work might be improving the food security of individuals who may be living in a food desert.

What is your organization, its main goals? What does it actually do?			
Organization	Mission	Goals	Dimensions of Food Security Satisfied
Organization 1	To make urban farming available to people using innovative, water efficient growing systems.	<ul style="list-style-type: none"> • Sell herbs as a supplement to Rouse's Grocery Store supply. • Work with Sedexo, Edible Schoolyard NOLA to implement aquaponics system. • Install home aquaponic systems. 	<ul style="list-style-type: none"> • Availability
Organization 2	Work with New Orleans residents to improve green and neutral spaces through maintenance, preservation and beautification.	<ul style="list-style-type: none"> • Install and support functioning of community gardens in Orleans Parish. • Material and financial support; horticultural education. • Maintain urban gardens, green spaces, playgrounds, parks and urban forests. 	<ul style="list-style-type: none"> • Availability • Access • Stability
Organization 3	Urban farm that creates job opportunities for high school age kids. Focus on developing responsibility, community, environmental stewardship, and service among participants; enhance leadership and teamwork abilities through the collaborative through work of growing food.	<ul style="list-style-type: none"> • Youth employment program that teaches about awareness of local food economies, leadership development through farm management, farmers market experience. • Produce food that is distributed: 40% is shared harvest/given away, 60% is sold to local restaurants. 	<ul style="list-style-type: none"> • Availability • Access • Stability
Organization 4	Community development corporation-address various aspects of health (community, social, physical, economic) to revitalize the Upper and Lower Ninth Ward Community.	<ul style="list-style-type: none"> • Provide regular access to fresh foods through local farmers market, youth programs, and schoolyard gardens. • Transforming urban blight. 	<ul style="list-style-type: none"> • Availability • Access • Utilization • Stability
Organization 5	Using food distribution as its method, this organization aims to reduce hunger.	<ul style="list-style-type: none"> • Emergency food distribution/social and federal aid programming and implementation (SNAP, WIC) 	<ul style="list-style-type: none"> • Availability • Access • Utilization
Organization 6	Identify channels for support by city and state officials for equitable access to fresh, healthy food.	<ul style="list-style-type: none"> • Examples of policy recommendations: Retail Food Access Program (2009); Transforming School Food; Comprehensive zoning ordinance. 	<ul style="list-style-type: none"> • Access • Utilization • Stability
Organization 7	Food. Farms. Community.	<ul style="list-style-type: none"> • Filling the urban agricultural gap in NO, hub for information • Focus on food access and economic stimulus, Growing guide for NO-template. 	<ul style="list-style-type: none"> • Availability • Access • Stability

Organization 8	Supporting national network-working with adults with disabilities as a place of employment; one of the larger producing farms/employers inside metro area.	<ul style="list-style-type: none"> • Work with 10 adults with disabilities on farm. • Sell to restaurants, food goes to kitchen, farmers markets, and take food home. 	<ul style="list-style-type: none"> • Availability • Utilization • Stability
Organization 9	“Lead the educational, economic, and cultural development of Southeast Louisiana.”	<ul style="list-style-type: none"> • Academic success, • Community outreach • Service 	

Four dimensions of food security.

Three-fourths of the organizations interviewed had a goal of increasing food availability, or a regular supply of fresh foods to the populations they serve or to the entire city (FAO, 2008). Six of the organizations interviewed (Organizations 2-7) focused on increasing food access for the populations that they serve through increased economic and physical access to fresh foods. Four organizations had a food utilization component within their mission or goals (Organizations 4, 5, 6, 8). The last dimension of food security, stability of the previous three concepts over time is a goal of seventy-five percent of the organizations interviewed.

Availability. Of the nine organizations that were interviewed, seven worked to improve the availability of fresh, local foods to individuals or the larger New Orleans community. Organizations 1, 2, 3,4,5,7 and 8 promote the physical production of food throughout the city with gardens and farms. Food production, either through rooftop aeroponic systems (Organization 1), community garden development and support (Organizations 2, 4, 7), or urban farms (Organizations 4, 8, 2013) increases the quantity of healthy, fresh foods within the local food system. As stock levels increase, the availability of food is raised. Moreover, as these projects expand, more individuals are reached and have the potential to be positively affected. The projects that focus on supporting community gardens enhance the food security of those residents who participate in growing their own plot, as many gardeners “...put food on their table...” or “supply their entire household” (Organization 2, 2013). The urban farms generate

even more produce within the city which is often sold at farmers markets, donated to other organizations or food banks or goes home with the growers themselves. The agriculturalists who admitted to having some participation with organizations stated that some of the main benefits to growing, gardening or farming was the food that they can provide to themselves and to the greater New Orleans community. Farmer 1 (2013) asserts that while he wants to be the grower, his farm aids in ensuring the opportunity for more people to have fresh food. He is able to provide all of the produce for his family while also increasing the quantity of fresh foods that are available to others, thus improving both his and his community's food security through sustainable food production (Lutz et al., 2012).

Access. Good food access occurs when there is an adequate supply of food that is accessible in socially acceptable ways (FAO, 2008; Lutz et al., 2012). The seven organizations that enhance access to food in New Orleans do so by reducing the economic and physical strain on individuals and households to acquire fresh or healthy foods. The variability of full-service grocery stores and price differentials between fresh fruits and vegetables and high-calorie low-cost foods hinders household access to nutritionally adequate foods. Urban agricultural projects increase the availability and supply of fresh foods within the city, but do not alone improve access to these goods. Organization 4 focuses on improving individual access to these foods while simultaneously developing community values of health, socially, economically and physically. Through local farmers markets, youth programs and schoolyard gardens, residents in the community learn about the benefits of nutritional food, while being given the opportunity to more readily access these goods. The farmers market is located in a place that is easy to access and accepts SNAP benefits making it both economically and physically more accessible for many of the residents in this community. Organization 3 improves food access by teaching youth

how to navigate their local food economy, while also farming and receiving payment and produce from their work.

Utilization. Food utilization refers to how the body biologically consumes food. It also refers to food preparation techniques, intra-household distribution of food, feeding practices and diversity of diet. Individuals who participate in urban agriculture in New Orleans have higher attainment levels of fresh, nutritional food. The knowledge of how to grow and prepare these foods ensures food safety and can help to diversify the diets of individuals and their household members. Four of the organizations interviewed satisfy the food utilization dimension of food security by educating individuals about how to grow and prepare fresh foods (Organizations 4, 5, 6, and 8). These tools aid individuals in making better choices when buying food. Organization 4 aims to improve community knowledge of healthy diets with improved access to fresh foods and by “awakening an interest in healthier living” (Organization 4, 2013). Organization 5 provides cooking and nutrition classes for families who struggle with hunger.

Stability. Lastly, the satisfaction of all three food security dimensions: food availability, access and utilization are part of the mission of six of the organizations interviewed in this study. Their goals include promoting a sustainable food system that includes production, distribution and healthy consumption of fresh, local foods enhance the food security of the general New Orleans residential community. A stable food environment, that provides economic stimulus and insurance for growers, provides a regular supply of fresh foods that are accessible through markets, personal growing, educational programs and knowledge sharing of how to use foods are supportive of a more food secure environment in New Orleans. The larger and more sustainable this local food system is, the influential it can be to individuals, families and communities within the city. Collaboration efforts to build a local food economy emphasize environmental

sustainability, personal health and economic strength (Lutz et al., 2012). Moreover, the planning and operation of this system require participation by a number of residents for smooth planning and maintenance.

Agriculturalist Goals

Of the agriculturalist respondents, three self-identified as farmers, meaning that they primarily grow with the intention of selling their produce commercially; two self-identified as gardeners, stating that their produce is primarily for home consumption; and one identified as a grower, without a specific intention for the produce. These identifications are not inflexible and all interviewees would agree that what they produced had any number of facets, usages or ending locations. Growers were asked why they engaged in agriculture in the first place and what each individual hopes to accomplish by participating in urban agriculture in New Orleans. Table 4 presents the results.

Table 4	
<i>Agriculturalists' Goals</i>	
Why did you begin growing? What do you hope to accomplish by participating in agriculture?	
Farmer #1	I wanted to bring food back to New Orleans after the shortage that occurred post-Katrina. I want to re-establish the food system in New Orleans, to develop it and make it sustainable.
Farmer #2	It just sort of happened. I been growing on my own land for a while and figured I could make money off my bountiful harvest. I also want to localize food industry.
Farmer #3	I have been growing since I was young. I found decent job farming and wanted to get other people involved with agriculture.
Gardener #1	There were no grocery stores after Katrina. I was also newly disabled and needed something to do; nutrition; wife could do social work in their community.
Gardener #2	I have been growing for a long time. Personal consumption.
Grower#1	Fell into growing. To support urban agriculture in the city.

Two gardeners were focused on community building with their growing plots. Gardener 1 explained that one of his goals is to educate his community about growing their own food. To

do this, Gardener 1 hosts growing workshops, cooking classes and encourages his neighbors to lead a “nutritional life” with their food and general life choices. The other three respondents were farmers who farm as their job and for a profit. All three farmers sell their goods to restaurants throughout the city. Farmers 1 and 2 were not originally farmers, but share the goal of re-localizing the food economy in New Orleans. None of the agriculturalists are certified organic. But all growers affirmatively responded to beginning to grow because they wanted to know where their food was coming from and to ensure that it is grown in a healthy, environmentally sustainable manner.

How might urban agriculture improve individual and community food security?

Table 5 shows respondents replies to the question; do you think that these methods of urban agriculture, such as community gardens, are an effective method for improving the food security of individuals and the community in New Orleans? This study found that “in general, urban agriculture [in New Orleans] is changing how people get their food” (Organization 3, 2013), but is not efficient at alleviating all food insecurity. Individual and community food security has been affected by community gardens; individual growing and urban farms, but is limited due to its participatory nature.

Table 5 <i>Urban Agriculture and Food Security Link</i>		
Do you think this method (community gardens, urban agriculture, etc.) is an effective method for improving food security (for individuals vs. community) in New Orleans?		
	Individual	Community
Organization #2	A lot of gardeners put food on the table-some completely supply their household.	Definitely but we need more gardens in food desert areas of the city. People join once garden is established-fostering community around growing.
Organization #3	There is short term satisfaction of food security by taking food home.	In general, urban agriculture is changing how people get their food-we are producing either free or affordable food for people that is being distributed throughout the city.

Organization #4	Think it's trying but price wise, most farmers markets are not cheap. It's one approach, but there are a million little techniques. It's a huge hurdle for some people to get over.	It's a good learning tool, but I think the most efficient thing would be to just get more food into the city. It builds community and raises awareness, but the bulk of food security issues will be solved with getting food into the city.
Organization #5/6	Think they're great but not very efficient at alleviating food insecurity-many people in food insecure environments have very limited financial resources and limited time. Puts too much pressure on personal responsibility.	I think they are great but they aren't going to alleviate the immediate challenge to hunger in this world today.
Organization #7	It's not just community gardens but backyard gardens that are important for food access	Need to make food security about self-sustainable-food clusters.
Organization #8	Adults do learn about healthy food Adults get to take some home-so yes, to an extent.	We are the largest (employer of) urban farming in the city.
Organization #9	I do, but I'm kind of hopeful. Might be more hopeful if it was somewhere else other than New Orleans. Best method we have right now-quick turnover.	Generally-yes, it creates a sense of knowledge, and that's empowering. It doesn't because it's not getting to everyone. But if it's too big, it loses itself.
Gardener #1	Yes but others are doing it better in other places. Personal food bill is cut in half.	I supports the idea of growing other growers-so yes, if there is food being produced in one place, then why isn't it accessible to everyone.
Farmer #1	I eat a lot of produce from my farm. I refuse to buy anything that can be grown on farm	Getting produce into local economy and food system.
Farmer #2	I eat what is grown on my farm.	Sometimes I share produce with neighbors

Individual Food Security

Urban agriculture has the quickest turnover for improving individual food security in terms of generating a fresh, healthy food supply for individuals who participate in any kind of agricultural activity. Many gardeners are able to put food on their table, some even supply their entire household (Organization 1,2,3, 2013). Every agriculturist responded affirmatively when asked whether the food they personally produce is a part of their diet. Farmer 1 (2013) expressed that he and his family "...eat a lot from their garden..." and "...do not buy anything that [they] can grow."

All respondents noted that urban agriculture is only helpful to the extent that the short term satisfaction of food security can be achieved (Organization 3, 2013). There are many other

methods and processes necessary for achieving complete food security that do not put too much pressure on personal responsibility,

because many individuals who live in a food insecure environment have very limited financial resources and limited time [such as] single parents working multiple jobs making minimum wage; they don't have the time or energy to devote to community gardening. If one were in a situation with access to the resources to construct a garden at low to no cost, they had the experience and time, sure, it could save them money on their food bill and I think for those individuals that that works, it's fantastic. (Organization 5, 2013).

Organization 5 notes that while urban agriculture is a great method for achieving short term food security, it is just one component to achieving food security that cannot meet the need of the entire population. This study has found that urban agriculture is a useful technique for improving the short-term food security of those individuals who have the resources to participate in agricultural practice. It is part of a larger food web that as a whole can ensure the food security of all individuals.

Community Food Security

Community food security is improved by urban agriculture for individuals who participate in both passive and active forms. Active participation includes community members who physically engage in agricultural activities such as farming, utilizing farmers markets or having family members who utilize these activities. Passive participation includes community members who acquire produce from agricultural projects in the form of donations or locally sourced food purchases. Four of the six agriculturist respondents noted that they would share produce with their close neighbors and other personal relations such as family or friends

(Farmers 1, 2; Grower 1; Gardener 1). This method of sharing produce increases the quantity of food in an area and the actual availability of food. There may be more food being transferred from grower to consumer, but because much of this food is not accessible at all times, the food security of community members isn't greatly altered.

Similar to individual food security, organizations responded such that urban agriculture is generally improving community food security by increasing the knowledge base around the importance of localized agriculture and building community. The limits of agriculture for alleviating food insecurity are subject to the restrictions that apply to community gardens. Unless an individual is an active member, they cannot regularly access these fresh foods, a vital food security component. Rather than responding that urban agriculture is the only or best method for improving food security, all respondents expressed that other approaches of food access and availability are necessary to achieving complete community food security. The alternatives mentioned include, creating self-sustainable food clusters, increasing the food supply within the city and increasing the number and reach of urban agricultural projects (Organizations 1, 4, 7, and 9).

The complete results of this study are three-fold: the short-term security of some individuals who participate in urban agricultural projects is enhanced; urban agriculture relies on multiple sectors of the food system working together to improve the food security of New Orleans' residents; and the current coalition of urban agriculture and food system players is fragmented, reflecting the dysfunctional nature of the current New Orleans' food system at ensuring full food security for all of its residents.

Discussion

New Orleans, like many cities around the United States, has a complex food system. About one fifth of its citizens are food insecure (Feeding America, 2012), over a quarter live in poverty (US CENSUS, 2010) and many struggle to utilize the trifling number of full service grocers around the city. Although not true for all communities or individuals in New Orleans, food insecurity is a challenge for a number of neighborhoods within the city. With fewer than twenty full service grocery stores serving seventy-two distinct neighborhoods, equal access to healthy or fresh foods is severely compromised for those who have trouble reaching these stores. In neighborhoods that do not have ready physical access to grocery stores, residents must travel over a mile or more to access fresh fruits and vegetables on a consistent basis. The inconsistency and distance to full service retailer locations, along with poverty levels and individual transportation has been used as evidence to demonstrate that New Orleans has multiple food deserts (Ver Ploeg et al., 2009). As previously noted, the USDA describes the three conditions listed as the criterion that determines a food desert, a place with low access to healthy and affordable foods. This study does not focus on proving or disproving the accuracy of the USDA's definition, rather, it utilizes the current food environment conditions in New Orleans as a means of contextualizing the potential for food security intervention strategies within the city.

Urban agriculture plays a crucial role in transforming the food environment in New Orleans and has proven to do so even more thoroughly since 2005. With a number of distinct projects throughout the city focusing on producing fresh healthy food, implementing community-based projects and supporting an agricultural market system, the potential for some individual and community food security improves. Over the course of this study it became apparent that regardless of the potential social and economic benefits of urban agriculture in New Orleans, urban agriculture should be deemed inefficient at ensuring the full food security of all individuals

and communities. This study found that a limited constituency of individuals receives food security benefits from participating in urban agricultural projects. Moreover, for urban agriculture to be an extensive and effective resource, all sectors of the food system must work cohesively instead of in the fragmented manner that is currently in place.

The contemporary interpretation that New Orleans has a number of food deserts provides a picture of the symptoms concurrent with a dysfunctional food system. Regardless of the USDA's criteria for food deserts, the numerous other conditions that determine an individual or a community's realistic food access status are relevant for understanding the role that urban agriculture might play in a city. These alternative factors do not all together define an area as a food desert nor transform it, but understanding the implications of defining an area as a food desert aid in potentially remedying the negative symptoms of poor food access. An interview with Organization 5 (2013) explains that the challenge with defining an area as a food desert is:

...that [we] tend to aggregate to large of a space. In fact there are significant demographic differences, income differences, food access differences, political access differences across New Orleans. And it's really neighborhood by neighborhood and sometimes block by block. So when we talk about food deserts, it's kind of a loaded term. It's vague. But really what you're talking about is food access. And food access has multiple components. There's a geographic component, so distance to a grocery or corner store, to a food stand on the side of the road. But distance alone is not an indicator of food desert or not. You have income, questions of financial affordability, etc. (Organization 5, 2013)

The New Orleans tracts that are labeled as a food deserts may be concurrent with low food access due to a limited number of full service grocery stores, poor public transportation and economic status of their residents. Additionally, when considering individual schedules, food

preferences, the high rate of small convenience stores and eating habits, much more of the city may fall under the auspice of a food desert classification (Smith et al., 2010).

Although the entire city could be considered a food desert because everyone is not entirely food secure (Organization 2), the majority of respondents claimed that there are multiple different food deserts in the city (Organizations 2, 3, 5, 6, 9; Farmer 2). Some neighborhoods such as Uptown or the Riverbend have very good access to food while others, such as Algiers or the Lower Ninth Ward are notorious for having hardly any (Organization 2). The obvious inequalities in the New Orleans food environment can often be drawn by apparent demographic lines throughout the city where predominantly low income or minority populations reside. As a whole, New Orleans faces a number of food deserts where food access is desperately unequal in congruence with low income and minority populations (Organization 3). These disparities have been compounded with the transformation of the market system from public to private and the effects that the hurricanes of 2005 had on the physical presence of retailers around the city.

New Orleans Food Deserts after Hurricane Katrina

The major hurricanes of 2005, Hurricanes Katrina and Rita left the New Orleans food system in an even further state of disrepair. As the city rebuilt itself piece by piece, a striking number of large grocery stores did not return to the city. Some neighborhoods were rebuilt immediately while some are still feeling the pressure of absent grocers (Boudreaux, n.d.). Before Hurricane Katrina, the city's grocery stores served an average of 12,000 residents per supermarket. Today, the remaining markets serve nearly 18,000 residents per supermarket. The decrease in available markets illustrates the geographical strain on residents to access food (Boudreaux, n.d.). One gardener noted,

Here was the spring of 2006, the hurricane was over, but there were no stores. The stores weren't willing to come back. A lot had to do with, unfortunately, with some politicians who were trying to say, 'let's not build New Orleans back', and it had a lot to do with politics.

(Gardener 1, 2013)

The stores that were open after the storms were not selling good produce, let alone affordable produce. Smith & Cummins' (2011) argument that shoppers will frequent corner stores more often for "top-up" goods more often than doing their major shopping trips at supermarkets was evidenced by Gardener 1 (2013) when he notes that shoppers, including himself go to the nearest store for small goods. When there were no small stores available after the 2005 hurricanes, many neighborhoods were left without easy access to any food, whether perishable or non-perishable because of these habits and a plethora of small convenience stores. Organization 5/6 (2013) explained,

So we're still feeling the effects of Katrina, in that there are still some areas of the city where the grocery stores still have not returned. And there are a couple grocery stores that are only now rebuilding, seven years later. That had a major impact on where people shopped and how easy it was to access food. The corner stores came back faster and a lot of corner stores do not have a very healthy mix of products, leaving much of the city without access to healthy, affordable foods.

In a city with a huge hunger and food access problem, where 20.6% of the population is food insecure (Feeding America, 2012; Organization 3 and 5, 2013), it is no wonder that the most inexpensive and calorie rich food is widely available and frequently eaten (Bodor et al., 2007). Especially after a disaster (like the recent hurricanes), which "...always affect low income residents disproportionately....it becomes increasingly hard for low income residents to make

ends meet” (Organization 5, 2013). Individuals and families may rely on a system of emergency food supplies and inexpensive groceries to feed themselves and their families, but these services do not provide long term food security. These hurricanes left the New Orleans food environment with a hefty mess to clean up and much of its population even less food secure than it previously was. The food desert status previously held was further compounded with these hurricanes—calling for necessary and immediate action to reduce hunger and food insecurity within the city.

Since 2005, the demographics of New Orleans’ population have changed. With an increase in individuals and groups traveling to New Orleans, to aid in the rebuilding process and with a slew of young professionals, the city faced a clash between old and new ideologies. Organization 9 notes that there are “...so many new people here, that New Orleans is sort of taking that culture that we’ve had for so long and sort of taking it over. They’ve been so influential, they have changed the culture. I think it’s a lot of people who are coming from outside, who are meshing with those who have already been here.” These newcomers are only now balancing out the tension that was created when they first arrived in New Orleans, as post hurricane arrivals. They have shown that they are serious and a certain level of trust has formed between the natives and the outsiders. Organizations 5/6 and 7 made similar comments, about the influx of bright young people and the insider-outsider tension that has been generated. Regardless of this tension, these population shifts resulted in the development of a number of influential organizations and growing sites that are still currently functioning. Newcomers are primarily the ones growing and developing projects, as seen in the constituents of this study. Whether or not they are native to the city, their work is assumed to be beneficial by addressing community needs, diffusing knowledge of local agriculture and expanding the community’s agricultural leadership base (Lewis et al., 2011).

Implications. Living in an area that is considered a food desert or has low food access, whether by federal or other standards can have both positive and negative implications. An adverse interpretation assumes that all individuals who live within a food desert are considered to have low food access, a gross stigmatization of residents' socio-economic status. On the other hand, positive economic development can come out of an area's food desert status. Large chain grocery stores may use food desert data to locate their next branch assuming that there is a demand for better access to foods. For example, Walmart thrives in situations such as this, by promoting low cost food to underserved communities (Organization 5, 6). In other respects, food deserts can be a means for community development, individual empowerment and skill building to mitigate the negative effects inherent in a food desert (Organization 9).

Another major implication of using a phrase such as a food desert is the political weight that is carried with this kind of popular term. When phrases like this are used correctly, they can have beneficial effects on advocacy and policy decisions. A policy maker can reference these words or a phrases and remember generally what the issue is. The more one hears it, the more important it comes across. These political "catch-phrases" push for policy changes that can positively affect a food desert by instituting funding opportunities or retail initiatives that improve food access in underserved areas (Organization 5). Moreover, municipal support can increase the effect on policy and zoning ordinances that would allow for more public agriculture and food distribution projects within cities.

The food security of individuals and communities in New Orleans is affected through both grassroots organizational techniques, institutional level work and at the policy and municipal level. Organization 6, a policy advisory committee who identifies channels of support by state and city officials to ensure more equitable access to fresh, healthy food recommends

policy initiatives that promote food security throughout New Orleans. Recently, this organization proposed policy initiatives that increase fresh food access in retail stores and to create healthier school food environments.

Food deserts certainly have their critiques and implications. One alternative classification that has been suggested is a food swamp and has been described as a more accurate phrase for describing a food environment similar to New Orleans'. The problem is not that there is no food whatsoever, rather, that there is mass of unhealthy, erroneously priced foods (Organizations 3, 6). Regardless of the accuracy of the food desert or food swamp phrase as an overarching term and its political and economic implications, there are various methods for improving the food insecurity of individuals within those areas. From municipal support to grassroots organization, food desert areas must consider a variety of options for improving the food security of its residents.

Urban Agriculture in New Orleans

When thinking about strategies that may be used to alter or improve food security in an urban area, urban agriculture provides a unique method for both individual and community involvement and change. In New Orleans, urban agriculture is a booming industry, hobby and goal for a blossoming number of organizations and individuals. The various strategies being used to combat food insecurity in New Orleans range from community, schoolyard, church, restaurant and personal gardens, to urban farms, policy initiatives, emergency food provisioning, and employment and job training opportunities. Each of these methods has an integral place in the food system in New Orleans in terms of their reach, goal and approach to altering food security. While each aspect of the food system functions individually and reaches only a particular portion

of the population, New Orleans, like most cities needs all parts of the food system (emergency food relief, commercial growing and distribution, individual growing, community leaders, food security outreach programs, federal aid, etc.) to adequately serve the entire population.

As all growers and most organizations mentioned, New Orleans' climate is wonderfully beneficial for supporting an agricultural system. In a place that has two growing seasons, it would seem obvious that a local urban agricultural system should thrive. The extent to which urban agriculture has re-developed since the relative majority of projects were destroyed by Hurricane Katrina is impressive. Attempting to radicalize the engrained market-based food system of a major city is a challenge anywhere, especially through a grassroots system such as agriculture. In that, though, urban agriculture's efficacy for providing fresh, local food to the narrow population that it does is in itself a success, but its ability to completely transform the current market system is a frighteningly ambitious goal and mostly infeasible. Lack of interest, financial and governmental support and structure, environmental restrictions such as soil and water contamination and limited market options are some of the major deterrents for an entirely local agriculture production system in New Orleans.

On the other hand, urban agriculture's inability to provide complete food security to all New Orleans' residents does not discredit its current and potential long-term benefits. The values associated with urban agriculture can include improving urban blight, environmental health and sustainability, community development, economic stimulus, localized food production, and improved health and crime reduction. Urban agriculture in New Orleans is thriving as an internal system, even it is if not the most extensive food production technique in the city. For example, the New Orleans Food and Farm Network has created a database map of the growing sites, markets and other food- or farm-related sites throughout the city. It displays an impressive

amount of organizations, community gardens and various other projects currently functioning in New Orleans. This map (see Appendix B) provides a good context to show the extent to which urban agriculture is utilized as a means of food production, economic stimulus for individuals or communities, knowledge sharing and community outreach services. The remainder of this section will delve into the benefits and challenges of urban agriculture in New Orleans.

Moreover, it will exemplify how urban agriculture is affecting the food security of individuals and communities within the city.

Urban agricultural organization support. The high percentage (71%) of urban agriculture organizations who began after the 2005 hurricane season demonstrate that New Orleans returned some focus to its agricultural sector as a means of revitalizing the city both socially and environmentally. In general, organizations are working to promote the expansion and better functioning of a number of current operations including increased production of food or resource support, the incubation of new projects, acting as a liaison between individuals and organizations and knowledge or material sharing. Organization 7 explained that after Hurricane Katrina wiped everything out, they attempted to re-organize the food system, to make food accessible for those who were coming back to rebuild. Organization 2's main mission changed when they realized that what the city needed was no longer just landscaping support but to focus more heavily on volunteer coordination, improving public spaces and the revitalization of blighted land and community gardens. Other organizations developed out of the perceived need for community development, reducing food insecurity and urban blight, job training and youth services, all centered on food and farming (Organizations 2,3,4,5,6,7,8, 2013).

With the support of these major organizations, the majority of the current growing sites in the city have been developed. These individual community gardens, kitchen gardens and schoolyard

gardens rely on the financial, material, informational support and advocacy of urban agricultural organizations to properly function. Of the respondents, five of the six agriculturalists noted that they previously or currently have a relationship with any one of the organizations interviewed (Farmer 1, 2, Gardener 1 and Grower 1). The relationship between organizations and agriculturalists support a more local and cohesive food system and Power (1999) affirms that a sustainable food systems approach is one effective method at ensuring local food security. Organization 7 prides itself on linking all aspects of the food and farming environment within New Orleans to promote a more sustainable food system providing accessible information to all interested parties. This organization works to improve food access throughout the city and fill in the current food system's gaps. With the presence of local organizations that promote sustainable agriculture projects and support agriculturalists, the food security of New Orleans' residents has a higher potential to be improved than if there were no urban agriculture organizations present.

To promote these urban agricultural projects and widen their impact, organizations must focus heavily on community outreach. Word of mouth seems to be the most direct route for informing others of the purpose of local agriculture, while also encouraging other community members to become involved in agricultural projects like nearby community gardens. Most agricultural projects in the city are extremely informal and provide little to no accountability beyond the personal relationships between gardeners. This kind of informality can be beneficial in that it provides the space for individually determined commitments. On the other hand, it can be detrimental to the consistency and longevity of projects and for maintaining a sustainable food system throughout the city. Many organizations aid in maintaining some sense of consistency within the gardens through outreach, material lending and funding. Organization 2 maintains consistency by requiring community gardens to check in and meet certain standards, as

determined by community garden members. When a garden does not have the surrounding neighborhood's support, Organization 2 will not initially back the project. Furthermore, when it does not maintain its operations, such as letting the property become blighted or costing too much, the organization will also cease its support. This kind of accountability to a parent organization ensures the consistent functioning of the gardens. With more reliable gardens around the city, residents' access to fresh foods is increased as more food is produced and individuals feel supported.

Organizations play a key role in supporting food security through the city, though with a limited reach. To perfectly satisfy the food security of individuals or communities in the city, organizations would need to support all four dimensions of food security in their work. Generally, organizations have a specific aspect of the food environment that they work on, either improving access, availability, usage or promoting the longevity of a localized food system through community or health development and promotion. As helpful as these organizations are at improving some aspects of individual and community food security in New Orleans, many lack the administrative and monetary support to reach their full outreach capacity. Regardless, their work is extremely useful for developing a healthy and sustainable food system for individuals and communities.

Cooperation and hostility between organizations. A functional local food system relies on the collaborative efforts of organizations and individuals. In New Orleans, the supposed local food system maintains a slim sense of cohesion between projects. While some urban agriculture projects do work together, most operate without collaboration between other projects.

Between urban agriculture organizations in New Orleans, there is an underlying sense of hostility, skepticism or hiding about the inner workings of the organizations. A few organizations

were put off by being asked to speak about their work, some altogether refused to share. The real reasons behind this are hard to say, but in general, it became obvious that many organizations feel as though they are doing something unique and do not want their distinct approach to developing a local food system to be appropriated and implemented somewhere else. Moreover, a number of organizations doing similar work are going after the same funding or competing for a greater local audience (Organization 6 and 9, 2013).

I'd say it's typical New Orleans. You should be forming coalitions and groups to be advocating for more of this. At the policy level, at the city and state level, and trying to expand what you can do. This is a city that is immersed in food, and I mean there should be ample opportunities. It's just how you look at it. So if you look at it like no, 'there is only this much pie and all of us trying to get at that much pie' that's the kind of thing that kills little movements right there. And it has historically. (Organization 9, 2013)

In this vein, there is some coalition work being done between the organizations. For the most part, organizations do not directly interact except when necessary. Some organizations who do work together do so through larger groups such as Organization 6 who merely make policy recommendations to the city rather than instituting urban agriculture on the ground. The lack of organizational cooperation in New Orleans is one detriment to the city's attempt at a thriving local food system. The more work that organizations do together, the more influential they may be at improving the food security of so many New Orleans' citizens.

Benefits of Urban Agriculture-Supporting Food Security

Individuals. While urban agriculture ensures the short term food security of those individuals directly and consistently involved, it does not have the realistic potential to improve the long term food security for every resident in the city of New Orleans. Because urban

agriculture does not have the physical capacity to provide the same quantity and affordability of food as the current market based system of large grocery and convenience stores, it cannot compete as the most efficient method for ensuring urban food security and getting food into the hands of the general population. But with the city's transformation to a private market-based system, residents did not lose their keenness for direct buying and selling of food in a public atmosphere. The current farmers market scene illustrates New Orleans' tradition of shopping in a 'neighborhood market' that was not lost in the city's conversion to a more modern, private food sector. Urban growers and sellers maintain a strong presence in the food environment through the extensive farmers' market environment and schoolyard and community gardens around the city. Although, even with a strong farmers' market presence the mainstream food environment discourages local agriculture and markets, establishing a difficult set of barriers to overcome. The major challenges that urban agriculturalists face include accessing usable land, funding and having a feasible market to sell in. While these challenges persist in most every agricultural setting, individuals and organizations have not been deterred from promoting growing opportunities in the city.

Of the New Orleans' residents who own their own land within the city, many of their properties do not have significant land attached to it, or it is not land that is easily able to be grown on. Plots within the city average around one square acre (NORA, 2013). The West Bank and the Ninth Ward are less densely populated and have more available land. Gardener 1 (2013) mentioned that there are not as many growing sites on the West Bank because there is less governmental funding and describes, "...the West Bank [as] the red-headed child of the city" (Gardener 1, 2013). Nevertheless, NORA's Lot Next Door Program (NORA, 2013) does provide opportunities for property purchases around the city. Although land is available, the current

amount of growing is not nearly as extensive as it could be as the availability of agricultural resources, money, individual and community time commitment, lack of knowledge and individual disinterest are large barriers to navigate and overcome.

New Orleans residents access food in a multitude of ways. After the hurricanes of 2005 and the lack of full-service grocers in the area became apparent, the city responded in two divergent manners. Either individuals accessed whatever food they could, often in the cheapest manner, or they joined projects that would allow them to produce their own food. “When people are hungry, they will eat however they can” explained (Organization 3, 2013). Gardener 1 and Farmer 1 (2013) noted that after Hurricane Katrina, where both were hard fetched to find any fresh food within a reasonable distance from their homes they became impassioned to begin growing for themselves and their families. Moreover, the low return rate of small corner stores, as well as large grocery stores (Boudreaux, n.d.) after the 2005 hurricanes, was an impetus for many individuals to develop organizations to promote local food production and small gardens around the city. As the respondent from Organization 2 (2013) explained, “It’s the native psyche that says sure I can, I know I can”, I can figure out how to find food even when it is a difficult process. While motivations vary, from wanting to know where their food comes from, understanding the nutritional benefits of fresh, naturally grown food, to using agricultural as a profitable business, individuals seem to have a personal drive to pursue urban agriculture (Farmer 1,2; Gardener 1). Individuals felt that living in a city that could not provide fresh food was unacceptable and undertook a responsibility to themselves and to a greater population to provide the food that was missing.

These passionate individuals, along with the support of their parent organizations have aided in transforming a small but powerful sector of the food system in New Orleans. The community

development capabilities of these growing sites have been more influential than their actual production power. Nonetheless, local agricultural projects play an extremely important role in educating communities and individuals about the importance of locally produced food as well as empowering individuals to be personally responsible for the food they eat. An example of a more extensive agricultural project is Organization 1 who manages over thirty-five different growing sites. The prevalence of community gardens is made possible by individuals or groups who garner enough community support to develop a garden, engaging local residents and increasing neighborhood food production.

Agriculturalists in New Orleans fall into two different pools: growing for economic stability and profit and growing as a means of self-provisioning. Of the six farmers interviewed, half were growing primarily as a means of self-provisioning and to improve a community's access to natural, healthy food. The other half of agriculturalists are utilizing farming and gardening primarily for profit and job security. Each one admitted to the obvious benefits of having fresh food at their disposal, but that their main motivation was to sell their produce to restaurants in the city. There are obvious benefits to both forms of agriculture for the larger New Orleans community. Both types of agriculturists have better access to food and nutrition, the economic effect seems to be productive for both, and they are ingrained in the community food system. Developing a local food economy, through transactions between local farms, restaurants and farmers markets encourages healthy and supportive community norms around good food choices (Farmer 2, 2013; Lewis et al., 2011). Moreover, societal patterns that develop when supporting these local farmers promote individual, familial and community health standards that are flexible and self-perpetuating (Economos & Sliwa, 2011; Lewis et al., 2011). The generation of this structure of food production, distribution and consumption ensures a number of

community benefits including changing individual and community perception, knowledge of healthy eating and living, community development and creating a network of community leaders.

The fact that all individuals do not have the physical or economic capacity or desire to grow their own food has been a continual conclusion throughout this study and should be taken as a common assumption. While this may be an obvious remark, it is necessary to note that urban agriculture in New Orleans is as extensive as it is through the rigorous efforts of current organizations and individuals. Nevertheless, the urban agriculture system that is currently functioning certainly changes the way that many people access their food. Because of the quick turnover rate, individuals are able to access healthy, fresh, affordable food immediately after it has been grown. This ensures the short-term food security of individuals and their families. Furthermore, community and individual gardening creates a sense of knowledge and empowerment in taking charge of what one eats (Organization 9). Wilkins (2005) asserts that the empowerment to know about the foods you are eating and intentionally doing so transform individuals into food citizens who have the power to further ensure their own well-being and promote the well-being of the food system around them.

Community effects. Urban gardens and farms have various effects on their surrounding communities. Whether or not neighborhood residents participate with the growing sites, there are positive influences of having a garden or farm nearby to one's home. First, Grower 1, Gardener 1, and Farmers 1 and 2 explained that they currently or have previously given away some of their produce to neighbors. On many occasions, they would grow crops specifically for certain neighbors or friends. Over time, Farmer 1 and 2 realized that to grow and give or sell food to neighbors was not very profitable, for the crops that they were growing like mustard or collard greens are grown frequently and do not sell at a high price reducing the profit they receive.

Regardless, the indirect effects of receiving locally produced fresh food in some ways improves the availability individual's food. On the flip side, the presence of growing sites near to resident's homes does not steadily improve food security because these individuals cannot readily access food all of the time.

The presence of community-based agriculture is purported to support the beautification of urban areas, improve safety and enhance urban ecology (UNDP, 1996). As noted, the extensive amounts of properties in New Orleans that stand blighted or vacant omit an ugly and hostile feel. Gardens and farms transition properties into useful, lovely spaces that engage community members and promote neighborhood communication. With community gardens nearby, Organization 2 (2013) describes the sense of excitement that builds around that space. One new garden, the respondent describes as a plot that is

...just covered in cardboard boxes right now to kill the grass before they start building the raised beds. And already kids from all over the neighborhood are coming over and they're so excited. They cannot wait to join and they want to learn how to garden. So it's already making a change. There's nothing there but a lot covered in cardboard boxes. It's changing them culturally because it makes adults, especially kids aware of their past regarding farming and how it's culturally important, and how they can carry on that legacy in some ways (Organization 2, 2013).

Even with nothing growing at this plot yet, there is evidence behind community development when a garden gets people out of their houses, interacting and paying attention to what is going on in their neighborhood. These interactions are assumed to increase safety and reduce crime by generating pleasant spaces for individuals to interact, learn and heal. Gardener 1 (2013) explained how gardening has a healing effect for individuals and his community. He described

opening his garden up for classes and community learning and how working with teens “changed his life.” This gardener witnessed the change in people who would begin with hostile attitudes, out of hunger or as a result of their home life, and leave with a sense of peace, in knowing that they had grown the food that was going into their body, eating then and there and understanding the benefits of eating a nutritional diet.

Urban agriculture does not and cannot reach every person or entirely change a city’s food culture or eating habits. For those that do participate, urban agriculture has the ability to change the perception that some individuals have of their community or of their own health and well-being. Organization 9 noted for individuals to learn about how gardening can improve their own health and see tangible results, that a sense of empowerment is generated. When an individual takes control of their own health by growing their own food either in a community garden or their backyard or with a job training program, they are learning skills that are transformative for a neighborhood, physically, mentally, and environmentally. Organization 9 (2013) explained that urban agricultural is,

...a form of skill building that's so positive for the community. [Communities] are not depending some corporation that is coming to 'give jobs,' when they're still dependent. This is saying, you own it, you're doing something for the land that's positive, that's nurturing. You're giving health to someone.

If people are invested in community agriculture projects, they give more attention to their neighborhood because of the living, growing garden plot down the road; there is room for community building through those shared values and interests (Moskow, 1999). These projects encourage community growth and development by requiring responsibility, creating leadership structures and promoting self-sufficient individuals and thus communities.

The New Orleans Food and Farm Network proposes the idea of food clusters: a neighborhood level organizing framework, comprised of organizations, institutions, schools, individuals and local businesses to collaboratively improve food security and spur local economic activity (NOFFN, 2013). It aims to “...enable anyone from a locality to access resources– seeds, good quality soil, tool-lending, etc. – and education to grow, preserve, process, and distribute food successfully” (Ibid). The benefit of this structure is to “democratize” agriculture in New Orleans, while also giving support to as many agricultural projects as NOFFN can.

Challenges

The complexity of the situation surrounding food security is staggering. Food security is in no way an individual concept, but one that is inextricably tied to the political, social and especially economic structures in any given area, whether that is nationally, individually or at a community or city level. Food security cannot be achieved without full food security at all of these levels, though positive change can be made at specific levels that promote food security for individuals or groups (Organization 5). One distinct challenge in promoting food security through urban agriculture is the basic fact that organizations can only work with the willing. Besides school-based programs or other required activities, only those individuals who are personally driven to collaborate and incorporate agriculture into their life are going to participate (Organization 7). For many organizations, it is not their duty to spend too much effort on community outreach and increasing participation rates. Rather, many of these organizations find it more important to spend their time supporting those programs that are already functioning and with people who are interesting in participating.

Another challenge that urban agriculture faces is the huge hurdle that many individuals must jump in order to participate in growing or buying local, fresh foods. For uneducated consumers, buying local products at a higher price for what conceivably looks like the same product they would at the corner store is irrational (Organization 4). Similarly to growing one's own food, for those individuals who do not have the time or financial resources to participate in an agricultural project, including a daily or weekly exercise into their schedule could be difficult. Once individuals understand the difference that their growing makes or the health benefits of the food they eat, the learning curve gets less steep and individuals can navigate the food environment much easier than before.

One of the largest issues when thinking about food security from the stand-point of urban agriculture is putting too much emphasis on personal responsibility. A respondent from Organization 6 (2013) clearly asserts,

When we focus too heavily... on nutrition education, cooking classes, things of that nature, we begin to focus on the individual responsibility for either poor nutrition or poor access, when in fact it is a systemic issue. It's an issue of poverty, and poverty is not an issue of individual responsibility. Sure there are folks who have made poor choices, or substance abuse issues, but far and away the majority of people suffering from poverty are people who work hard and are people who have had limited access to the resources that they need to succeed, and have been discriminated against. And so, the real issues are issues of lack of a living wage, racial discrimination, or access to educational resources or access to housing

So, all of those are much larger components to the puzzle than individuals' responsibility. The issues behind food security cannot be fixed through small incremental initiatives like more urban agriculture or more farmers markets. Rather, the systemic constructions that compound

individual and community food insecurity need to be addressed. To ensure complete food security for all individuals at all times, a system that guarantees economic stability, education, equitable food access and environmental sustainability and health must be created and maintained. Organization 6 (2013) asks, “Are you food secure if you have all the money in the world, but you are eating food that is produced in a way that is detrimental to both the environment and yourself? Probably not-not long term security.”

Conclusion

In today’s food system that functions with fast-paced supermarket use and federal nutrition assistance reliance, agriculture seems a far stretch from a luxury for most people. Challenges such as giving up work time, finding free time or a backyard to plant, tend and harvest their own sustenance in would be ultimately counterproductive and difficult for many. But for those individuals and communities who strive to replenish the source of healthy food in their neighborhoods, urban agriculture has its place. This study has demonstrated the enormous hurdles that urban agriculture has faced against an engrained, market-based food access system in New Orleans, Louisiana. New Orleans’ food environment is reliant on services that reflect the city’s underserved population. These services are clearly defined by a mass of small convenience stores and lack of full service grocery stores, supplemented by federal assistance programs like SNAP and poor health outcomes. The severity of the food access situation in New Orleans can be drawn back to the physical deficiency of healthy, fresh, affordable food within the city, especially since Hurricane Katrina and Rita in 2005.

Using the popular phrase, food deserts, a number of analyses have proven that food access in many parts of New Orleans is very low. Unequal distances to grocery stores, poor public transportation and low incomes illustrate just some of the reasons behind food insecurity

within the city. Whether or not New Orleans has multiple food deserts, it is apparent that the massive inequalities of food access within the city are affecting the nutritional health of its residents. In order to address these major food security issues, a variety of food access interventions have cropped up around the city. From community gardening, to emergency food services, efforts have been focused on making better quality food available to a broader population.

The urban agricultural scene in New Orleans began an upwards ascent, particularly after the devastating hurricane season of 2005 and the need for more localized food production and distribution within the city became increasingly apparent. Dozens of urban agriculture organizations have developed with the goals of improving food access around the city and creating a sustainable local food system to support the needs of a growing population. Nevertheless, these organizations, who manage community gardens, marketplaces, and schoolyard gardens, are not meeting the current food supply need in New Orleans. Individually, these gardens and organizations fulfill certain aspects of individual and community food security. But, the fragmented efforts of these agricultural intervention strategies do not have the structural support to serve an entire population in the long term. In order to fully satisfy the complete food security of an entire city, urban agriculture would need to expand its reach, organization and production power. The use of a more centralized organizing body could provide the resources to expand the reach of these community gardens and farms, but have the potential to jeopardize the intimate appeal of small, neighborhood driven agriculture.

While the level of urban agriculture currently functioning in the city is impressive, it is also understandable why it would be ambitious to use it as the main source of food in the city. Urban agriculture plays a crucial role as an alternative market within the city. It generates

community development, greens blighted spaces, potentially supports a local economy and improves the food security outcomes of the foods recipients. But it does have the public drive to take over the market based system at hand. Regardless of the market structures that would be in competition with local food production, agriculture as a means of food production is not in the interest of every citizen, nor would it be a cost-effective measure for feeding the entire population at this time. Rather, it should be used as means of improving the short-term food security of its active participants, generating more community involvement and instilling values of health, local economies and cooperation between neighbors and across the city.

This study has found that urban agriculture is successful at improving the short term food security of individuals who are active participants in some sort of growing activity. Likewise, the presence of urban agricultural projects improves the potential for community food security, but does not ultimately alleviate food insecurity within those communities. In order to use agriculture as a method for improving food security for a larger population, this study recommends a more centralized organization of urban agriculture across the city. This would include more funding, better outreach and support functions for individuals not currently involved in projects and a more extensive market for locally produced food. Even with these improvements, urban agriculture does not have the capacity to reach everyone. The food system in New Orleans is reliant on all aspects of food production and distribution mechanisms including, full service and small grocers, emergency food providers and federal assistance programs. While these services are necessary, there is an opportunity to provide more space, funding and support to begin engraining a localized food system within the current food system to support the food security of individuals and communities in a sustainable manner.

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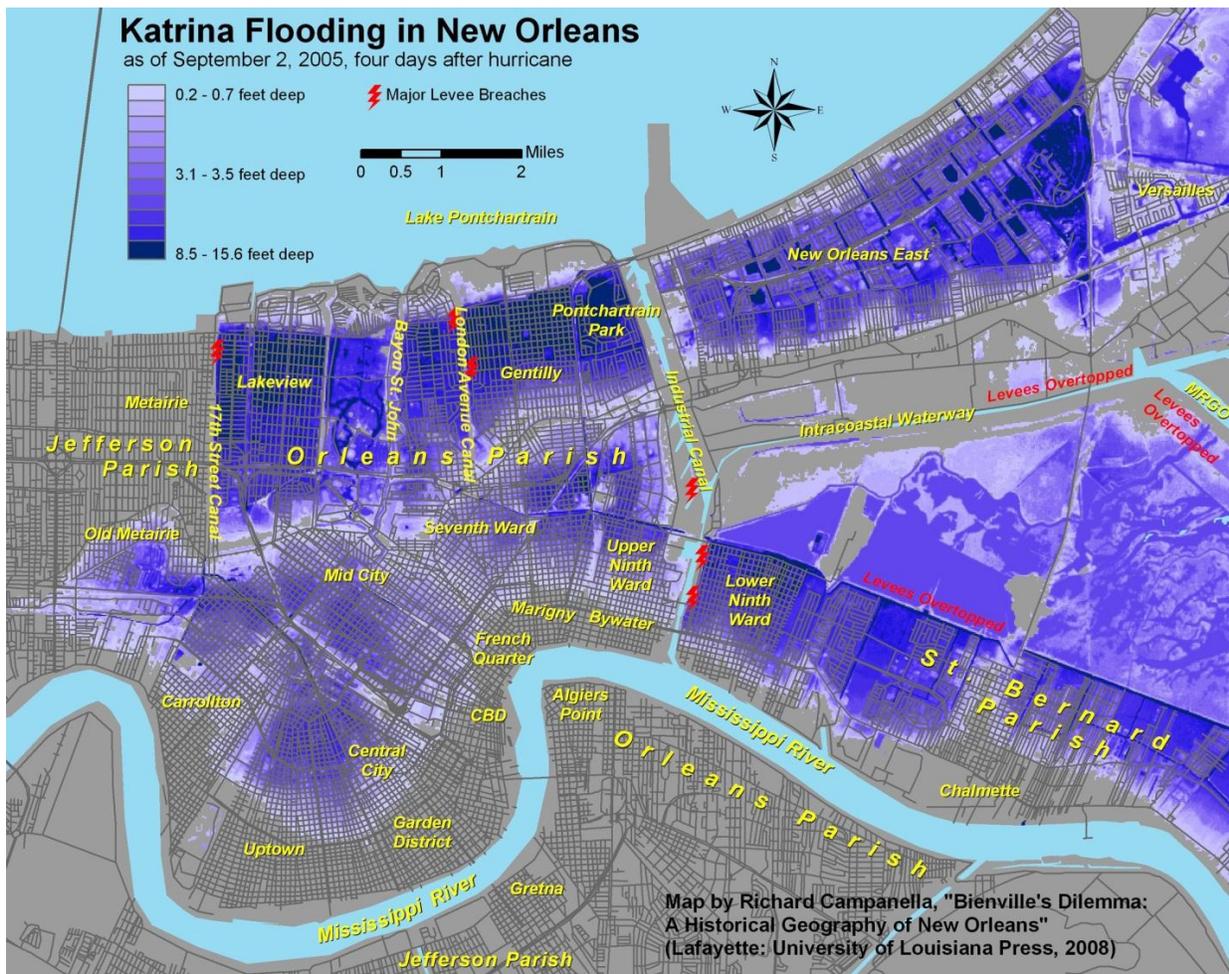
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Appendices

Appendix A: Map of Katrina Flooding in New Orleans



Appendix B: Interview Questions

What is your background? What brought you here? What is your personal story behind the kind of work you do?

Please describe the organization to the best of your ability (goals, function, organizational structure, and mission).

- What is your role as the manager?
 - What are the roles of all program and operational organizers?
- What are the main goals of your organization (If you could give me just three words that epitomize the goals, what would they be)? What is it trying to accomplish?
 - Do you feel the org has accomplished any of its goals since its inception?
- How long has the organization been active? What were the motivations behind its founding?
 - Did Hurricane Katrina play a role in the generation/operations of your organization?
- Do you feel as though the project is reaching its goals or does it feel too early to gauge those potential successes? What would you consider success?
 - How does the organization assess the effectiveness of its work?
- What are the demographics of the population who utilize this organization? (Age group, sex, race)
- At what point do you feel that individuals have taken initiative over their food provisioning? When does the organization step back?
- How many people participate with your organization? Does this vary?
- This will include talking about additional events, opportunities and expectations of the members.

What does the organization see as the benefits for both managers and participants?

What do you think are the challenges for participating members?

- What do you want to do for people-what are participants roles?
- Do participants get to take food/produce home with them?

Other questions:

- Are the populations you serve from what you/USDA consider a food desert?
- Is there active and reliable transportation in this area? How close does it come to this organization?

Does [organization] partner with any other urban agriculture organizations in the area?

Is there camaraderie between these kinds of organizations?

Appendix C: New Orleans Food and Farm Network Growing Sites Map

