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Cultivating dreams: examining community involvement and satisfaction in Fayetteville farms

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Cultivating Dreams:
Examining Community Involvement and Satisfaction in Fayetteville Farms

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CHAPTER 1: HISTORY AND TRENDS OF URBAN AGRICULTURE

Introduction to Study

As the world becomes increasingly globalized, increasing disparities between the rich and the poor are becoming even more prominent. Between 2009 and 2012, the top 1% of America's income grew by 31.4% while the rest of the country's income grew by a meager 0.4% (Saez, 2013). Millions of children and adults got to bed hungry every night in the United States. Many more lack access to healthy, nutritious food or are unable to afford it in the wake of cheaper options.

Yet agriculture places first in Arkansas' industry, hosting 49,346 farms covering 29 million acres (Arkansas Farming Facts, 2013). The state ranks 12th in cattle production, first in rice production, second in broiler production and tenth in soybean production in the United States. More than three million pounds of tomatoes, ten million pounds of peaches and 108 million pigs are produced annually. Moreover, Arkansas boasts retail giants such as "Wal-Mart, the most widespread food retailer in the world; Tyson Foods, the largest poultry and meat processor in the United States; and Riceland Foods, the leading rice exporter in the United States" (Arkansas Farming Facts, 2013). All this considered, the high percentage of the population that struggles with food hardly seems plausible.

In 2011, the Supplemental Nutrition Assistance Program supplied food assistance to 37,695 households in Arkansas' third congressional district, approximately 12% of all households in that district. Eighty-one percent of households to receive aid had at least one working member and 62.2% had one or more child less than eighteen years of age (USA, 2013). Furthermore, approximately 43% of Fayetteville students participate in free or reduced meal plans at their school (Arkansas Department of Education, 2013). On the other side of the story, a study

performed by the University of Arizona indicates that forty to fifty percent of food ready for harvest in America is never eaten and goes to waste (Half of US Food, 2004).

Research Problem

Agriculture has a great, often untapped potential to be integrated in to the urban landscape as part of a green infrastructure and food production network. Urban agriculture is often piecemeal and opportunistic, rarely part of a city-wide master plan or with a comprehensive site plan. Because of this, farms are less likely to be considered as public space like parks and plazas or be studied as part of the human environment.

Research Questions

Can an analysis of local urban farms lead to a template or set of guidelines for use among farms in Northwest Arkansas?

How do volunteers at the farms feel about the farms where they work? Are they satisfied with them? What do they feel is important in local urban farms?

Research Justification and Significance

Urban agriculture has the potential to provide opportunities for promoting food security, social justice and health literacy, along with a host of other benefits (Golden, 2013). In consideration of these facts, this study utilizes data triangulation from site analysis, policy analysis and surveys. The survey questions what workers and volunteers value in urban farms and will be compared with site drawings, photographs and other research. From connections formed through these comparisons, the research will attempt to determine how urban farms might be

improved in specific categories by creating a series of general physical and procedural templates that farms may use as a starting point for improving relationships with both their workers and their surrounding communities.

Assumptions:

I began this study with a series of assumptions, listed below, which helped me to determine the questions I would ask on my survey and what the site analysis and policy analysis would focus on.

1. The farms will likely be near residences or within neighborhoods.
2. The farms will have large numbers of regular volunteers.
3. Most workers will be young and educated.
4. Most workers will be lower-income.
5. Heat and air-conditioning will rank highly in importance as temperatures in Arkansas can rise to over 100 degrees Fahrenheit in the summer and drop below freezing in the winter.
6. There will be little shade in the farms.
7. Seating and shelter from the elements will be important as resting places for volunteers.
8. People will prefer a beautiful, comfortable farm to work in.
9. Disability access will be desired as a method of integrating the elderly in to the food production system.

Definition of Key Terms

Urban Agriculture: "an industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city or metropolis, on land and water dispersed throughout the urban and peri-urban area, applying intensive production methods, using and reusing natural resources and urban wastes, to yield a diversity of crops and livestock (Cheema, 1996)"

Civic Agriculture: the trend towards locally based agriculture and food production that is tightly linked to a community's social and economic development (Lyson, 2004)

Community Farm: "a piece of land used for the production of crops or livestock which strives to meet both the interests of the community in which it resides as well as the interests of the farmers who steward the land" ("Farm", "What is a Community Farm") According to the USDA, a place qualifies as a farm if $1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the year from the land (Glossary, USDA).

Community Garden:" a neighborhood space designed, developed, or managed by local residents on vacant land, possibly including viewing gardens, play areas, and community gardens. These gardens are often developed on private land and are not officially viewed as part of open space system of cities making them vulnerable to displacement by other uses such as housing and commercial development " (Lee, 1)

Community-supported agriculture (CSA): "a community of individuals who pledge support to a farm operation so that the farmland becomes, either legally or spiritually, the community's farm, with the growers and consumers providing mutual support and sharing the risks and benefits of food production. Typically, members or "share-holders" of the farm or garden pledge in advance to cover the anticipated costs of the farm operation and farmer's

salary. In return, they receive shares in the farm's bounty throughout the growing season, as well as satisfaction gained from reconnecting to the land and participating directly in food production. Members also share in the risks of farming, including poor harvests due to unfavorable weather or pests. By direct sales to community members, who have provided the farmer with working capital in advance, growers receive better prices for their crops, gain some financial security, and are relieved of much of the burden of marketing." (Community Supported Agriculture, 2014)

Community Food System:" a system in which food production, processing, distribution and consumption are integrated to enhance the environmental, economic, social and nutritional health of a particular place." (Discovering the Food System)

Local food: "locally or regionally produced agricultural food product transported less than 400 miles from its origin, or within the state in which it is produced" (Farm Act, 2008)

Food miles: "a unit used to measure the distance that a food product travels from where it is produced to where it is sold or consumed" (Food Mile, 2012)

*Food desert: "*areas that lack access to affordable fruits, vegetables, whole grains, low fat milk, and other foods that make up the full range of a healthy diet" (A Look Inside Food Deserts, 2014)

*Food security: "*when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy, active lifestyle" (World Food Summit, 1996) "including both physical and economic access to food that meets people's dietary needs as well as their food preferences" (Food Security, 2014)

Food justice: "a movement that aims to ensure that the benefits and risks of producing, distributing, and consuming food are shared fairly by everyone involved and to transform the food industry to eliminate inequalities" (Linkon, 2014)

Food sovereignty: "the right of peoples, communities, and countries to define their own agricultural, labor, fishing, food and land policies, which are ecologically, socially, economically and culturally appropriate to their unique circumstances. It includes the true right to food and to produce food, which means that all people have the right to safe, nutritious and culturally appropriate food and to food-producing resources and the ability to sustain themselves and their societies." (Food Sovereignty, 2002)

History and Current Trends

Many of the benefits of urban agriculture have been known for centuries. In fact, the practice was once a critical aspect of a city's development (Gorgolewski 2011, 12). As early as 3,500 BC, Mesopotamians set aside small lots of land for agricultural uses within their growing cities. In ancient Sumer, 90% of the population produced food in fields adjacent to the central city. The ancient Incan city Machu Picchu supported itself through terraced, irrigated fields surrounding the city while the residents of medieval castles planted kitchen gardens and orchards within their walled boundaries (Green, 2012).

With the onset of the Industrial Revolution, allotments were developed to enable the increasing influx of people in to the cities to grow their own food and connect with the land. At the same time, gardens popped up in North America with the intent to encourage moral and spiritual welfare (Warman, 1999). Beginning in the 1830s, Mayor Pingree of Detroit encouraged owners of vacant lots to allow the chronically unemployed to farm on their land, producing $12,000 worth of fruits and vegetables in the first year and promoting feelings of self-reliance and independence among the workers (Sprouts in the Sidewalk, 2014).

In part due to the Industrial Revolution, the US population increased by 60.5 million people from 1860-1910. As urban populations expanded at an astronomical rate the quality of life of city residents quickly deteriorated, crime rose and disease ran rampant. The City Beautiful movement began as an effort to "inspire feelings of civic loyalty and moral rectitude in the impoverished that would help to lower crime rates. (Rose, 1996)." While some kitchen gardens were destroyed to make way for the classic landscapes of this movement, many others were created and provided teachers and school children the opportunity to be involved outdoors and grow food (Williamson, Bassett, 2011). As an alternative to the City Beautiful Movement, Ebenezer Howard described an idealized city model known as the Garden City in which five-sixths of the land is set aside for food production (Howard, 1898)

Figure 1.1: Victory Garden Poster

Some years later in1936, World War II "Victory Gardens" supplied about 36% of America's fresh fruits and vegetables (Green 2012). Campaigns of posters, cartoons and press releases sought “to arouse the patriots of America to the importance of putting all idle land to work, to teach them how to do it, and to educate them to conserve by canning and drying all

food that they could not use while fresh" (Pack, 1919). Although the prominence of urban agriculture declined in the years following the world wars, many cities in the US and across the world are now encouraging the cultivation of food within their borders as part of the creation of a world-wide sustainable food system (Nordahl 2009; Blay 2011). In addition to these areas of cultivation, food banks and nonprofits such as Feed Fayetteville have sprouted up throughout the United States and often use urban agriculture to achieve their goals (Calendar, 2013).

These goals often include increased access to healthy, locally-grown food, facilitating social interaction, adding job and boosting the local economy (Rich, 14-15). Urban agriculture also reduces often heinous food miles (Pfeiffer, 2008). According to a recent study, food destined for consumption in Toronto Canada travels an average of 3,333 miles and a typical American meal hosts ingredients from at least five different countries. In fact in 2001 approximately 39 percent of fruits, 12 percent of vegetables, 40 percent of lamb and 78 percent of fish and shellfish eaten in America were grown and shipped from other countries (Pfeiffer, 2008). R educing these miles would serve to lessen carbon emissions, oil and gasoline usage and pollution and will benefit even those who have no affiliation with urban farms.

Furthermore, as more and more of our food comes from singular farms and centralized processing plants the dangers of food-borne illnesses affecting thousands or even millions of people is greater than ever. During four months of summer of 2008, a rare strain of the Salmonella bacteria infected tomatoes and peppers and caused 1,442 people in forty-three states to become sick. That same year, infected peanuts originating from a single processing plant in Blakely, Georgia sickened over seven hundred people and killed nine across forty eight states (Nordahl, 2009). Even when food is not recalled to diseases, there is a risk of contamination through other sources. According to a USDA report, of the 25 recalls of meat, poultry or processed egg products in the first quarter of 2013, over half were caused by traced of plastic being found within the products (ExpertRECALL, 2013). Decentralizing the food system and increasing the number of potential sources of fresh food with smaller, more numerous farms will effectively limit the frequency and severity of these mass recalls and the potential of food borne illness.

Conclusion

Urban agriculture has a long history throughout the world extending from the hilltop terraces of Machu Picchu to the allotment gardens of London and green roof farms on New York City. As urban agriculture continues to grow in both prominence and popularity, it is the shapes and forms of the farms and practices will take that is in question rather than urban agriculture's continued existence. This study seeks to examine what that direction might be in the Northwest Arkansas area through studying current farms and how they are viewed by the people who work them.

CHAPTER 2: IMPLICATIONS OF URBAN AGRICULTURE

> The old farming landscape evolved...and this landscape which is the product of centuries of controlled evolutions developed its beauties slowly (Fairbrother, 2002)

Introduction

The old farming landscape that Fairbrother mentions referred to generally rural, less-industrialized farm. Yet the overwhelming presence of the massive industrial agriculture complex often renders this stereotype untrue. Although agricultural landscapes featuring rustic barns and cows grazing in open fields still exist throughout the world, they are no longer the norm in many places. In the wake of this shift, it is imperative that we discover improved theories that synchronize with our changing ideals of food production and food systems.

Environmental Implications

Nathan McClintock discusses one such theory in his article *Why Farm the City? Theorizing Urban Agriculture Through the Lens of a Metabolic Rift* (McClintock, 2009). The idea of this rift originates in Marxist thought, wherein Karl Marx argued that capitalism would inevitably disrupt humanity's "social metabolism" as fewer and fewer people work the earth (McClintock, 2009). Marx states that "labour is, first of all, a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature" (Marx, 1976, 283). Without this process, ecological,

social and individual rifts form in our understandings of the world around us. Urban agriculture is one method that may be used to remediate these rifts.

Ecological rifts include disruptions to prominent natural cycles and the enormous rescaling of production and agricultural space that follows in their wake (McClintock, 2009). As an example, a mere 17.7% of the United State's population lives in rural areas as of January 2010, compared to 36% in 1950 (Rural Population, Trends in Rural Population, 2014). The rise of the city has paralleled a rise in large, industrial farms (Fairbrother).

Figure 2.1 Harvesters on Rice Field

The technologies and processes that enable these industrial farms to work severely impact the environment. Approximately ten times more topsoil erodes from agricultural fields than can be replaced naturally within any set period of time.

Pesticides contaminate our water resources and the water we do have access to is being used up (Trautmann, 2012). In a study by Kansas State University, it was found that the Ogallala Aquifer, which extends across eight states in the US and covers about 147,000 square miles will be depleted by approximately 69% by 2060 if its use is not altered. About 95% of that use is pumping for irrigation practices in agriculture areas (Ogallala Aquifer, 2013).

Nathan McClintock argues that capitalist nations rationalize these harmful policies as solutions to 'crises of production,' including reduced profits, a decline of raw materials, environmental pollution, poor health in workers, and reduced demands for products world-wide (McClintock 2009; Moore 2000, 2008). "In capitalist economies, [the relationship between human beings and land] is a relationship between owner and commodity, an alienated relationship wherein man stands as an outsider and interprets nature casually (Cosgrove, 2002)." This relationship, while not inherently dangerous, can account for a great deal of the apathy that allows for man to so egregiously damage the world in which he lives.

Figure 2.2 Children in Field

Contact with nature and the connections established from this contact are also linked to a reduction in behavioral issues, especially in children. R. Louv discusses a new child issue called nature-deficit disorder, which causes diminished use of the senses, attention difficulties and higher rates of physical and emotional illnesses (2008). Along with the

reduced mental and emotional stimuli, physical activity are also being limited by not being outside. A study performed by the National Sporting Goods Association showed that bike riding is down by 31% between 1995 and 2007 (Louv 2007). Another study by the nonprofit Aquatic Adventures shows that in San Diego, California 90% of inner city children are unable to swim and 34% have never been to the beach (Louv, 2007).

These children are lacking the "transcendent experience" that Louv states has influenced environmentally-aware adults and conservationists throughout history. He is concerned for the future of the earth if the next generation doesn't care about going outside or seeing the environment. I believe his concern is valid and we must work to reestablish a connection with nature for humanity.

Michael Hough discusses several principles that could reeducate and illuminate many of these issues through design. While these principles primarily serve to increase the regional character of agriculture and landscape practices, they also reconnect people to the earth through increased knowledge and understanding. These principles include recognizing how people use different places to fulfill the practical needs of the people, maintaining a sense of history, improving environmental literacy, limiting impact to the site, and using sustainable practices (210-213). Maintaining a sense of history serves to preserve a spatial identity which links us to the past while improving environmental literacy serves increases awareness of the effects of our current agricultural system and the need for alternate systems. Limiting impact to the site and using sustainable practices promotes regional characters by limiting the distance materials travel to the site and discouraging the practice of completely clearing a site in order to begin with a blank slate.

Social Implications

Beyond environmental concerns, social rifts, which "arise from the commoditization of land, labour, and food at various scales", impact government and authoritative laws and regulations that affect urban agriculture (McClintock, 2009). Zoning laws can be extremely limiting or extremely valuable in pushing agriculture in to new and increasingly valuable areas. Until recently, livestock production in Fayetteville, AR was only allowed with special permits in residential neighborhoods. Even areas where livestock is now allowed is subject to limitations (Barksdale, 2011).

Within these constraints and the new prominence of urban agriculture, in cases where a designer is creating an urban agricultural environment, he or she must account for the new social conceptions of this generation. Because the culture of farming has changed from largely sustenance farming to production for profit, the landscape must change as well. In *Landscape as a Cultural Product,* Denis Cosgrove discusses the implications of cultural ideas and philosophies in the creation of landscapes.

Today many American farms produce singular staple crops such as rice or cotton and do not act as self sufficient entities. He argues that these landscapes are in flux, alternating between the "insider" relationship where nature is felt more than seen and the "outsider" relationship where land can be weighed and its value determined by statistics and probabilities (Cosgrove, 2002). People can pick and choose which relationship they want with which place and which time. As designers, we can attempt to influence these relationships but we cannot be assured of success.

In order to improve our likelihood of success, we must involve the community in the establishment of urban agriculture. This process, often called participatory democracy, is a

critical component of improving public perception (Allen, 2013). Because of the belief in much of western society that the city is a separate entity distinct and even adversarial to nature, the inclusion of food production within the city can be perceived as a potential safety hazard (Logan, 2013). For example, residents of a neighborhood in St. Louis where a 10 acre block was recently converted into a corn and soybean farm are concerned about new pests such as bugs and possums and potential crimes such as drag racing and muggings. One resident tells the story of a man who fled from the police through the corn field directly in to her yard until she chased him away. Although there has been little actually increase in crime in the area, the concern is certainly there (Logan, 2013).

The most common complaint from the residents however was a lack of warning about the farm project. Although several residents were spoken to ahead of time, several stated that "they only learned of the project when insecticide sprayers came through early this summer." This dramatic almost overnight change proved to be a "jarring shift from living in a depopulated urban neighborhood to living in something that looks like Iowa, if Iowa had the occasional crumbling brick vacant building sprinkled in. (Logan, 2013).

In *Community Design,* Randolph Hester Jr. discusses various design considerations in the creation of public spaces and addressing the concerns of the people in and around the site. First and foremost, he states that "the designer should be responsible to the users in creating socially suitable neighborhood spaces (2002, 49)." Other policies he promotes include: "incorporating the users' values in to the neighborhood design process rather than relying exclusively on the designer's] values, not using professional ethics as a justification for the high cost and questionable results of neighborhood spaces, and fostering user involvement throughout the neighborhood design process (Hester, 2002).

Agriculture, either urban or rural may not be the most appropriate option and thus its suitability must be judged on a case by case basis. Economic concerns, future development plans and environmental impacts also play in to design considerations. In order to work out conflicts with our current food system, we must work "through the active participation of the citizenry (in the broad, denizen sense of the word) and political engagement to work out our differences (Hassanein 2003, 79).

Economic Implications

Finally, individual and economic rifts "alienate humans from nature and from the products of our labour. (McClintock, 2009)" When humans are alienated from food, the results are generally not appealing. Hunger, malnutrition and obesity are becoming enormous problems around the world as many people simply lack access to healthy food. Fast food chains and gas station convenience stores are the norm for thousands, often because it is all they can afford to buy. Food is critical to survival and Leon Davis, a community activist in California, agrees:

> Food is the key, food is the gold. Even when people get kicked out of their apartments and they're out there homeless on the street, they're still going to have to acquire food. For people out on the streets, how can they get fed for that day? “When my stomach get growling, man, and I don't have no money in my pocket, I'll go steal something out the store,” you see? So if you don't establish a network with food as a basis, you're going to have more thieving, more people are going be stealing from stores, robbing people because they

> don't have no money, so they can buy food. Not so they can buy drugs, but so they can buy a sandwich. People robbing each other so they can buy a sandwich. So food production needs to ramp up. More local farms, not just in the outlying areas, but right here in the city, people growing, knowing how to grow. (Interview, 16 March 2009, Oakland, California)

As Marc Treib discusses in Must Landscapes Mean, in most cases meaning of a space comes from the people that use it and the memories that are formed there rather than an implicit meaning established by the designer (2002). If an urban space means that someone will be able to feed himself or herself that night, it will very likely hold a special value to him or her. If they understand the processes behind this special place, this understanding can act as a springboard for creating ecological- and sustainability-minded people.

Patterns repeated throughout a space and region are vital to establishing understandings of how the region and the landscape work (Woodward, 2002). Joan Woodward affirms that three culturally driven explanations for humanity shaping and changing the earth around them are the need for protection, the need for production and the desire for meaning. Urban agriculture provides a nexus of all three, giving environmental protections, food to eat and often meaning as well.

Connecting to the earth has other economic and social impacts beyond the individual worker as well. According to a study in 2012, 49% of Americans gardened in some way or another. The study showed that these gardeners were "25% more likely to pay

more for eco-friendly products and donate money to environmental causes and 26% more likely to buy locally grown food (Home News, 2013)."

As Denis Cosgrove states, the "key to the modern landscape idea and its development lies in the dual significance of land during the struggles to redefine it." If land can be redefined as valuable beyond the money that may be gained from it, it may be deemed more worthy of protection. Yet to do so, it is imperative that we both understand the landscape and the desires and values of people.

Conclusion

The myriad of social, ecological and economic benefits urban agriculture gives to surrounding areas will likely continue to increase in popularity. Yet as more and more space is taken up through this practice, it is critical to realize that this space is in fact space and that the people who use it may have desires of it beyond simply a place to grow food. The following chapters discuss the methods by which this study is researching some of these desires and values.

CHAPTER 3: RESEARCH METHODS

Introduction

Robert K. Yin defines the case study as an "empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident," (1994, 13). He further claims that case studies should utilize multiple sources of data in order to better triangulate results and form sound conclusions. There are three different categories of case study: exploratory, descriptive, and explanatory (Yin, 1994, 17). This research is an explanatory case study which seeks to explain causal links between certain factors within urban farms.

More specifically, this study seeks to determine the influence and impact of individual factors of urban farms such as seating availability and the diversity of educational options on the quality and experience of the facility as a whole. It examines three community farms in or near Fayetteville, Arkansas selected for the array of management styles and physical variations they each provide. Tri Cycle Farms is a small community farm with a heavy emphasis on civic agriculture within the center of Fayetteville. Cobblestone Farm is a production based civic farm that utilizes three full-time employees in lieu of large number of volunteers. Ozark Alternatives Farm and Orchard is an organic, permaculture farm that works with WWOOF interns to provide in-depth hands-on experiences. The study also inspects Earthworks Urban Farm in Detroit established in 1997 as a comparison to the recently constructed Fayetteville farms. Furthermore, Earthworks is unique in that its footprint is spread over seven lots with a three-block radius.

Upon competition, the study will compile a template of guidelines which may provide urban farms with a method to establish improved connections with their workers and communities, potentially creating a more stable economy, a healthier living and working environment within the

cities and the farms themselves, and increased access to sustainable, nutritious food for the general public. These guidelines may also be used by local and state planners to better determine suitable locations for farms within the urban fabric and may provide a starting point for cities.

Methods

The study gathers understanding from multiple sources to establish guidelines that may be used to create more socially viable environments within urban farms. To do so, it utilizes four distinct data types as described by Yin in Table 3.1 (1994).

Data Source Type	Primary Functions	Specific Types
Documentation	Corroborate and augment evidence from other sources	Newspaper articles, brochures
Archival Records	Precise, quantitative evidence	Maps and Charts, Survey Data
Interviews	Targeted: Focuses directly on case study topics Contextual: Provides perceived causal inferences	Personal Interviews, Questionnaire
Direct Observation	Covers events in real time and accounts for context	Farm visits, Attendance of Classes

Table 3.1 Document Sources

Documentation and archival records both provide consistent data that may be studied over the course of the research. Interviews add a human element to the research and garner insights from those closest to the farms' everyday lives. Direct observations allow experiential analysis as well as increased understanding of how specific functions such as educational classes and events which occur at the farms.

One of the key strengths of case studies is the opportunity to utilize multiple sources of data (Yin, 1994). These multiple sources develop converging lines of inquiry which look at the same data set from multiple angles and serve to draw a single conclusion from the accumulation of data (Figure 3.1). In this study, these sources of data originate from site analysis, current policies and procedures, and a survey completed by workers of the Fayetteville civic, community and urban farm case studies.

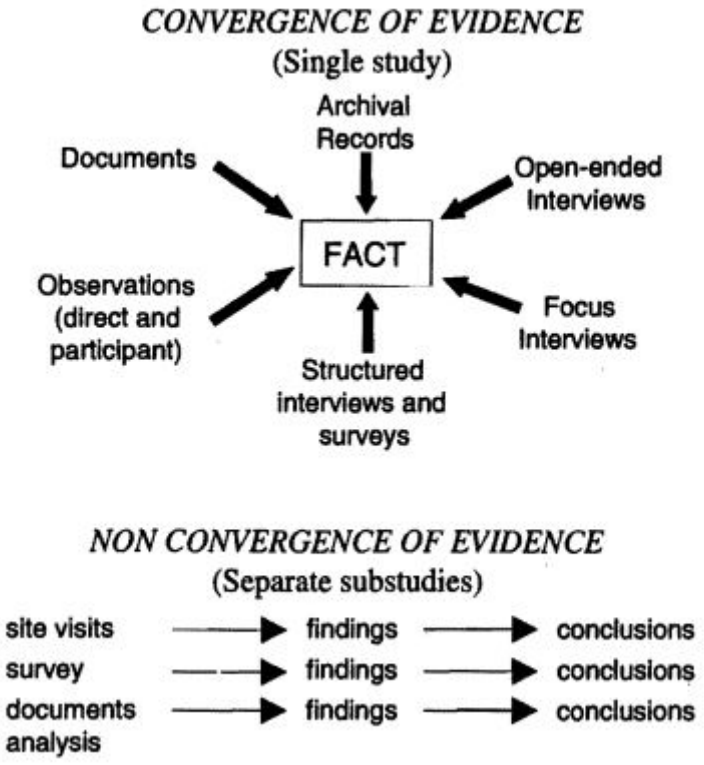

Figure 3.1: Convergence and Non Convergence of Multiple Sources of Evidence (Yin, 1994)

Site Analysis

The study inspects physical aspects of each farm through detailed site inventory and s drawings. This analysis will be based on the researcher's training in the field of landscape architecture, defined by Walter Rogers as "the profession which applies artistic and scientific principles to the research, planning, design and management of both natural and built environments" (2010, 1). This training includes procedures and methods by which to analyze a landscape both through inventory and analysis drawings and photographs. Inventory includes the locations of amenities within and near a site. For example, are there public restrooms within the site boundaries? Analysis goes further to examine the quality and relationships of said amenities. For example: will these restrooms accommodate a crowd during harvest

events? Are they clean and in good condition? It is this second stage of analysis that will provide a critical component to this study.

While inventory is necessary in a physical site analysis, it does not provide detailed enough information concerning structures and amenities, rather it merely confirms their presence and general condition. Analysis allows the surveyor to make decisions concerning what to do in the future. If the existing restrooms are insufficient, analysis will determine whether a new structure needs to be built or if an addition would suffice, whether the existing structure is safe enough to remain or needs to be torn down, if its location could cause potential problems in the future. It is this decision-making process that makes site analysis valuable.

Policies and Procedures

Procedural characteristics of each of the farms were also examined. Management rules and short and long term goals and plans tend to determine the methods by which farms move forward and scrutinizing this data, compared to worker surveys, may provide data on how well each farm communicates with its workers and potential areas for improvement. For example, classes offered and available hours could provide incentive for farm workers to come. By analyzing the times that most workers come, farms may be able to determine when classes could potentially impact the most people.

Furthermore, the study will examine zoning laws and other city policies that affect these farms to gain insight in to what could be done to improve urban agriculture policy within Fayetteville, such as the new ordinance that came in to effect on April 18, 2014 allowing single family residences to keep up to 20 ducks or chickens, three goats and four beehives on their

property depending on its size (Carilla, 2014).

Survey

A survey, written as a series of ranked and multiple choice questions with a number of open-ended responses was compiled to compare to each other (Appendix A). These surveys in combination with site analysis (see section below), assess how well farms and worker expectations align.

The survey asked workers for information concerning their attendance patterns, other forms of agriculture they may practice, and their opinions about various units of analysis within the farm, including parking, seating availability, shelter from the elements, air conditioning and on-site restrooms (Table 3.2). This data will be used largely to study relationships among conditions of the farm and the desires of the workers.

Table 3.2 Analysis Measurements of Survey

Category	*Questions*	*Conclusions*
Clear directions and maps	*Can the farm be easily found from main roads? Is the farm easy to get around?*	*Methods by which navigation may be improved*
Seating Availability	*Is there seating available? Is there seating away from sun and/or rain?*	*Seating sufficient/ insufficient*
Shelter from the Elements	*Is there protection from poor weather?*	*Shelter sufficient/ insufficient*
Parking	*Is there parking nearby? Is there ADA accessible parking?*	*Parking sufficient/ insufficient Optimal placement*
Livestock Production	*Is there a separate area for animals within the farm? Types of animals?*	*Optimal placement*
On site Restrooms	*Are there available restrooms? Quality? Cleanliness? Distance from main work area?*	*Restrooms sufficiently accessible/ insufficient*
On site kitchens/ Food storage	*Is there any on-site food preparation/storage facility??*	*Kitchen/Storage sufficient/ insufficient*
Diverse classes	*Where are classes held? How much space is available for classes? Is it enough?*	*Additional classes that may be offered Additional structure (un)necessary*
Sun-Shade Cover	*Is there a mix of sun and shade? Are plants placed accordingly?*	*Methods to improve diversity*
Microclimate	*What types of microclimates are formed in the farm? Are they utilized appropriately?*	*Methods to improve microclimates*

For each category, the study attempts to locate differences in opinion and possible areas of improvement within each farm, compiling a list of guidelines that could be used to enrich farm/ community relationships, expand a volunteer base, and develop future plans for their site. The case study outside of Fayetteville serves as a comparison examining differences and similarities between these relatively new farms and an established, highly successful farm that may help to depict varying trends and determine guidelines.

Introduction to Case Studies

The case study analysis will examine three urban farms within Fayetteville, AR as well as an exemplar study in Detroit, MI. The urban farms in Fayetteville are spread throughout the city (Figure 3.2) and host a variety of organizational styles and physical features.

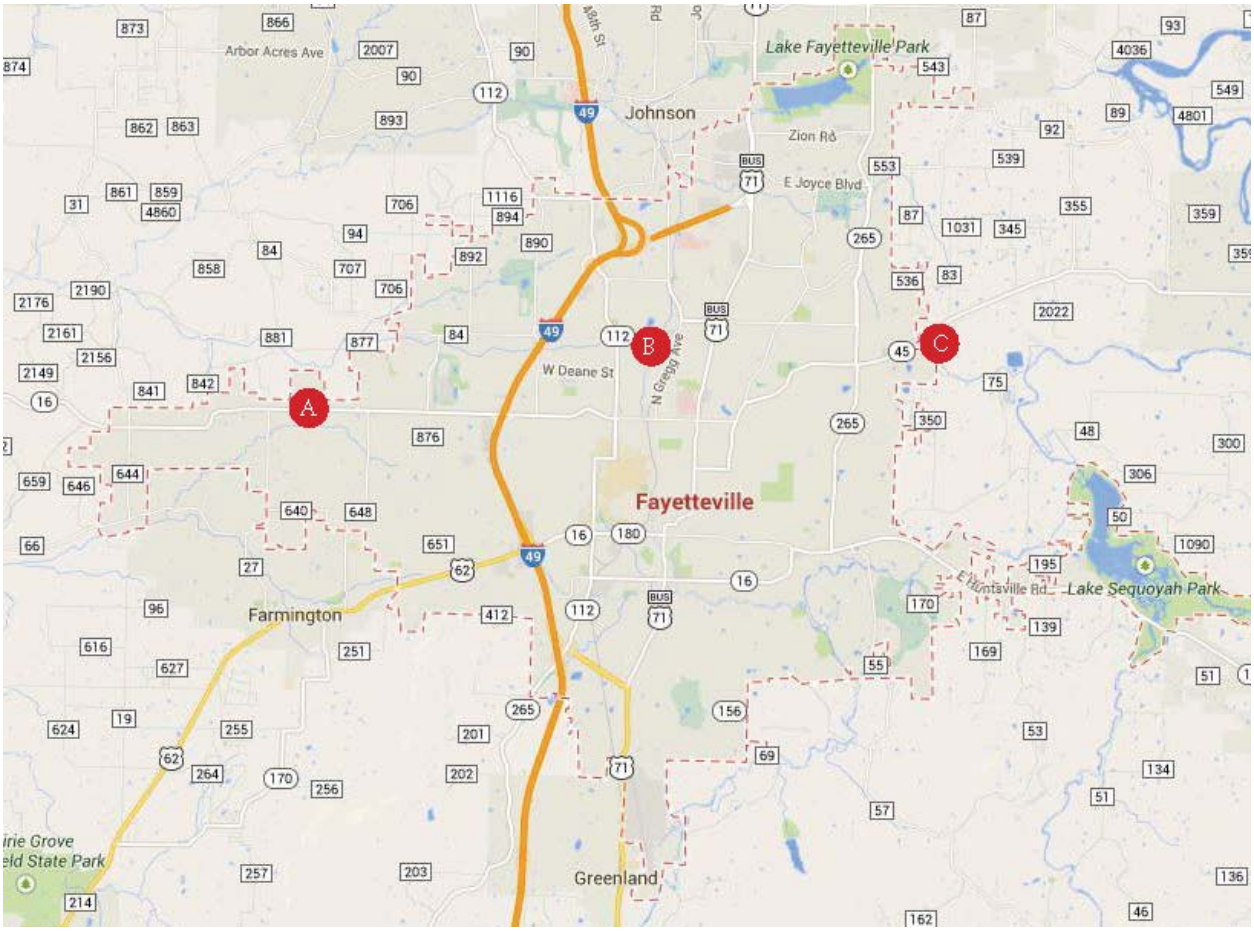

Figure 3.2 Map of Fayetteville Case Studies, Access Fayetteville Maps. A) Cobblestone Project Farm B) Tricycle Farm C) Ozark Alternative Farm

Tricycle Farm

Tricycle Farm, located at the 'T' of Sycamore Avenue and Garland Avenue (see Figure 3.3-3.6), has stated its mission as:

> "creating an edible, sustainable urban farm park in the center of Fayetteville, AR, where we cherish and steward education, community, and soil. We want to share the earth, share the crop and share this beautiful place. We invite volunteers and community groups to positively impact their own food security by coming together to grow healthy food. We stand firm in our mission 'Growing Community through Soil." (Tricycle Farms, 2013)

The farm rests behind a number of single family residences, the bulk of its one acre of productive land remains hidden from view along the street. Pedestrians enter the site through a dirt pathway between a group of pines adjacent to the brick office building (Figure 3.7-3.8). A large barn dominates the northern portion of the field and provides storage for tools and equipment while a pavilion and hoop house bookend the western portion of the site (Figure 3.9) A large planting bed in the midst of these structures produces most of the crops of the two acre-site (Figure 3.10)

Tricycle farm now provides one third of its produce to its volunteers, donates a third to local organizations such as food banks, and sells the final third to earn money to run the farm and its programs. Some of these programs include various festivals such as the Roots Festival and the Pesto Fest, and classes such as the Cooking Matters and Shopping matters sister classes, aimed toward teaching families how to better shop and prepare healthy meals (Tricycle Farms, 2013).

Figure 3.3 Tricycle Farm Site Boundaries, Google Maps, 4/2013

Figure 3.4 Tricycle Land Use and Context Map One, Access Fayetteville

Figure 3.5 Tricycle Land Use and Context Map Two, Access Fayetteville

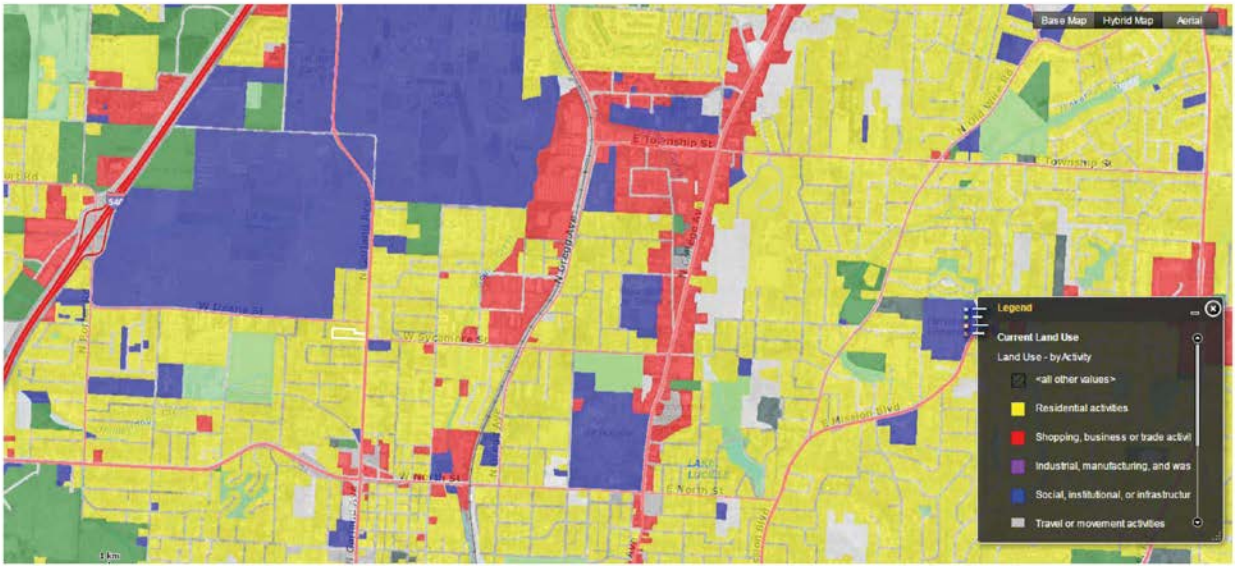

Figure 3.6: Tricycle Land Use and Context Map Three, Access Fayetteville

Figure 3.7: Pedestrian Entry through Pines, Photo by D. Freeman 8/14

Figure 3.8: 1920s House as Office , Photo by D. Freeman 8/14

Figure 3.9: Pavilion and Hoop House with Diversity Tree in Rear

Photo by D. Freeman 8/14

Figure 3.10: Bike tires form a boundary to the planting area

Photo by D. Freeman 8/14

Cobblestone Farm

Cobblestone Farm is a facet of the Cobblestone Project formed in April 2008 by a group of Northwest Arkansas families in a local church to complete their mission of establishing 'A Community Without Need' through 'identifying issues of social justice, connecting needs with willing resources and fulfilling needs with sustainable solutions (Cobblestone, 2014)." The farm is located on 10 acres owned by New Heights Church off of Wedington Drive in Fayetteville, AR (see Figure 3.11-3.14). It is 'certified naturally grown' with programs in place to minimize impacts to water and soil.

The most prominent structures on site include two hoop houses, an open air tool shed, a smaller tool shed and a chicken house (Figure 3.15-3.17). Approximately three acres is devoted to row crops, with a line of berry bushes near the middle of the site next to a flower and herb garden (Figure 3.15). A series of smaller flower beds are found along the edges of the road and near the entry sign on the southern portion of the farm proper.

The farm employs three full-time workers who manage the day to day operations of the farm and operate the farm's programs including distributing its harvest through farmer's markets and CSAs, a gift card program, a work-share program, numerous classes, a school garden program, and events scheduled throughout the year. The farm is also working with the University of Arkansas Division of Agriculture, Department of Crop, Soils, and Environmental Science to study the effects of a rotational grazing pattern for chickens.

Figure 3.11: Cobblestone Farm Site Boundary, Access Fayetteville Interactive Maps, 4/13

Figure 3.12: Cobblestone Land Use and Context Map One, 2013

Figure 3.13 Cobblestone Land Use and Context Map Two, 2013

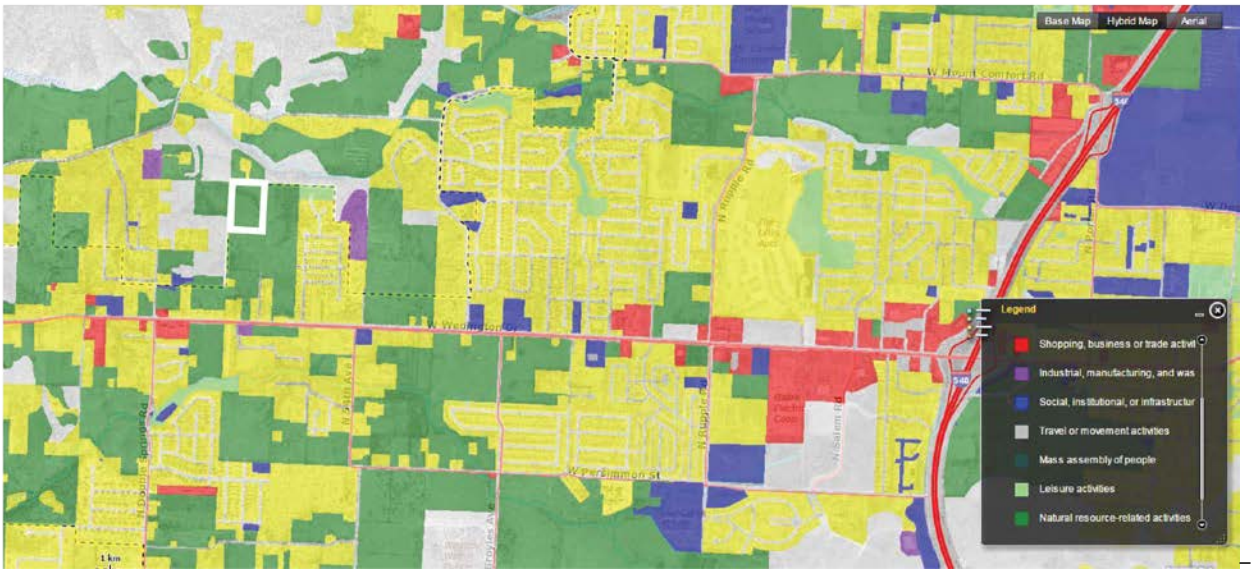

Figure 3.14: Cobblestone Land Use and Context Map Three, 2013

Figure 3.15 Cobblestone Flower and Herb Garden in Bloom

Photo by D. Freeman, 8/14

Figure 3.16 Cobblestone Chicken House in Northern Portion of Site

Photo by D. Freeman, 8/14

Figure 3.17: Greenhouse, Hoop house and Open Air Tool shed

Photo by D. Freeman, 8/14

Ozark Alternatives Farm and Orchard

Certified naturally grown, Ozark Alternative Farm and Orchard (Figure 3.5), founded by Paul Chapricki and Amanda Wunderlich, produces seasonal crops which are then sold through a community-supported agriculture program, local farmers' markets, and retail outlets (Figure 3.24). Ozark Alternative Farms is run by Paul, who works with WWOOF (Worldwide Opportunities on Organic Farms) to gather and train interns on a long term basis. These interns are provided food and accommodations in exchange for their labor; the farm has no paid employees.

The CSA program provides weekly deliveries of produce such as carrots, lettuce, Japanese turnips, Russian Kale and blackberry jam, in addition to recipes using these foods. The farm accepts volunteers throughout the year as the farm acts to educate those willing to learn about food and - sustainability. They host periodic workshops on sustainable living, including specifics such as season extension, seed saving, small scale biodiesel, solar energy, straw bale gardens, hoop house construction, rain harvesting, composting, vermiculture, organic gardening and permaculture.

The farm itself runs on permaculture principles. The plantings are dense and multi-seasonal with different crops ripening mere days apart. The chicken coops and fruit orchard work in synergy; chicken droppings fertilize the soil while the trees provide shade and habitat for the birds (Figure 3.23)

Ozark Alternative also works with the WOOF program, renting out cabins for volunteers from across the states and even from other countries who spend weeks or months working at the farm. These residents stay in quarters above the general office (Figure 3.22).

Figure 3.18 Ozark Alternatives Site Boundary , Google Earth 4/13

Figure 3.19 Ozark Alternatives Land Use and Context Map One

Figure 3.20 Ozark Alternatives Land Use and Context Map Two

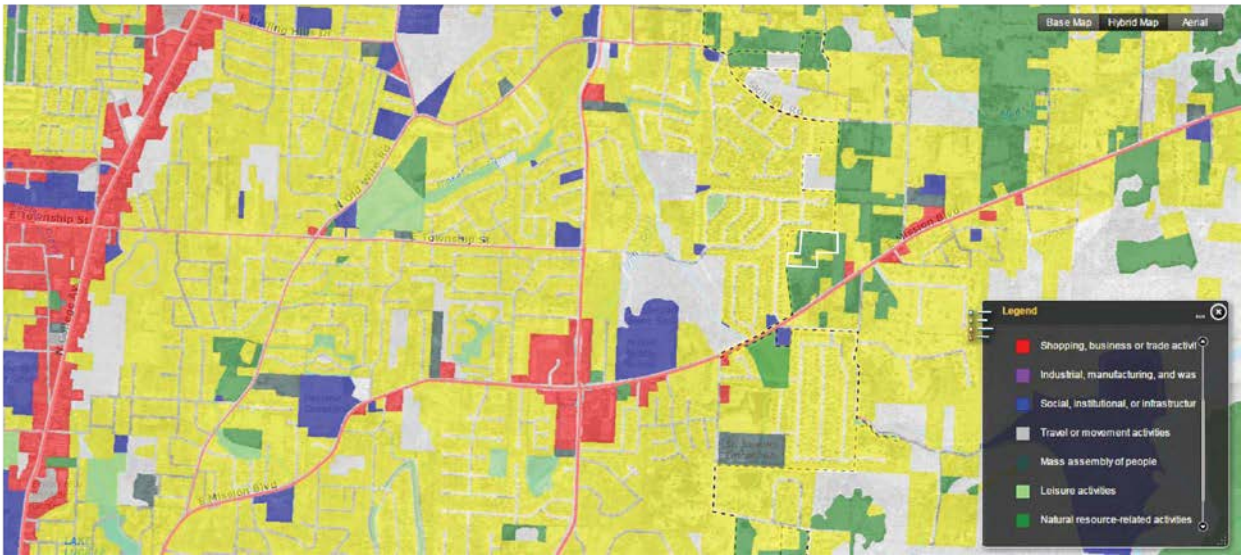

Figure 3.21 Ozark Alternatives Land Use and Context Map Three

Figure 3.22 Ozark Alternatives Office and Intern Quarters

Photo by D. Freeman, 8/14

Figure 3.23 Ozark Alternatives Chicken House within Orchard

Photo by D. Freeman, 8/14

Figure 3.24 Ozark Alternatives Cold Frames Over Crops

Photo by D. Freeman, 8/14

Earthworks Urban Farm in Detroit, MI

The exemplar farm the research will examine outside of Fayetteville is Earthworks Urban Farm in Detroit, a program of the Capuchin Soup Kitchen which promotes sustainable agricultural practices, nutrition, and care for the earth. The farm was founded in 1997 by Brother Rick Samyn at the Capuchin Soup Kitchen. Since its founding, the farm has partnered with Gleaners Community Food Bank, Project FRESH (offered by Wayne County), and the Iroquois Avenue Christ Lutheran Church's WISE coalition (Working in Support of Enrichment) with whom they established a youth program known as Growing Healthy Kids. It is the first organic farm in Detroit and is spread out over a 3-block radius around the kitchen on 7 different lots. The best known lot is depicted below (Figure 3.25-3.27)

The farms hosts an apiary, a youth farm stand and a greenhouse (Figure 3.28, 3.31-3.32). It works with participants to analyze food security, hosts monthly Food Justice Potlucks, table at fairs, and participate in the Meldrum Fresh Market, the "Grown in Detroit" market, the WIC (Women, Infant, and Children) Project Fresh Market at CHASS, and the Solanus Center. Volunteers are welcome at the farm

Aside from the lot adjacent to the food kitchen, Earthworks Urban Farm also includes a greenhouse across the street (Figure 3.29) and a larger production-oriented lot several blocks to the north (Figure 3.30).

Figure 3.25 Earthworks Urban Farm Site, Google Earth Images, 4/13

Figure 3.26: Earthworks Urban Farm Context Map One, Google Earth , 4/13

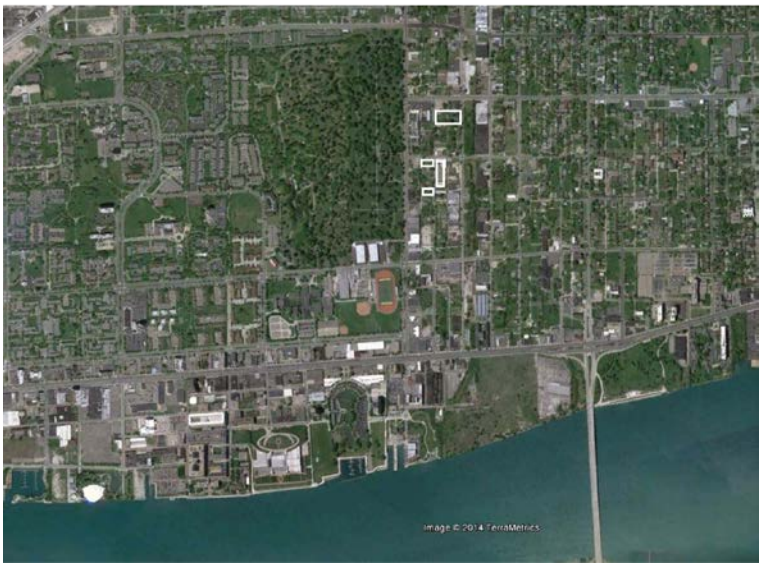

Figure 3.27 Earthworks Urban Farm Context Map Two, Google Earth 4/13

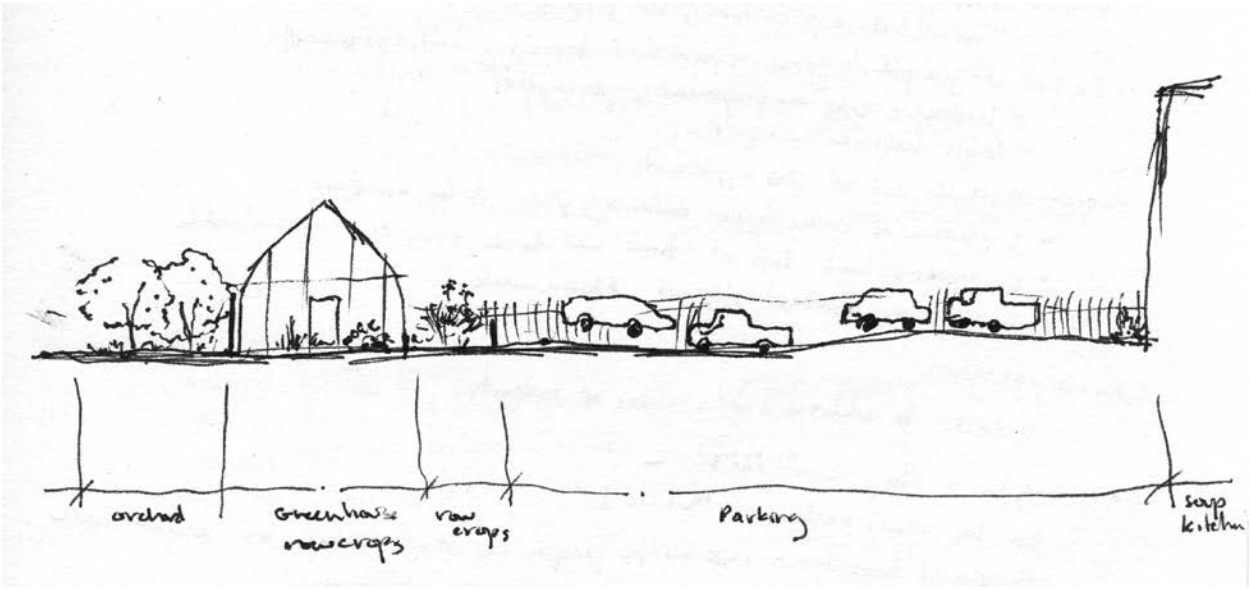

Figure 3.28 Earthworks Lot Section with Soup Kitchen, Sketch by D. Freeman

Figure 3.29: Greenhouse Across Street from Soup Kitchen

Photo by D. Freeman, 8/14

Figure 3.30: Main Production Lot, Photo by D. Freeman 8/14

Figure 3.31: Greenhouse adjacent to parking lot, Photo by D. Freeman 8/14

Figure 3.32 Orchard Adjacent to Greenhouse, Photo by D. Freeman 8/14

Conclusion

The farms provide a wide assortment for study. They are different sizes, different ages, and sit in different arrangements on the land. Furthermore, each farm has a different management style and practices. This diversity provides a solid basis for analysis.

The diversity of analysis types further drives this study by providing multiple sources for a convergence of analysis. The site analysis provides observational data of both workers and the farm environment. Surveys allow volunteers and workers to input their opinions while giving the study knowledge from people closer to the farm's daily practices than the researcher. The procedural aspect of this study provides a structural context from which to examine the physical environment.

Table 3.2 Case Studies Side by Side

Farm	**Primary Goal**	**Land Area (acres)**	**Land in Production**	**Years in Operation**	**Full Time Employees**	**Annual Expected # of Volunteers**
Tri Cycle	Build Community, Hunger Relief	2	1		1	60-100
Cobblestone	Hunger Relief	5	3		3	5-15
Ozark Alt.	Profit	5	3		1	50-80
Earthworks	Hunger Relief, Leadership Training	3	2	15	3	15-80

CHAPTER 4: SITE ANALYSIS

Introduction

Urban farms are often not considered as green space within the urban fabric; however they have great untapped potential to create a green network that could be integrated in to the daily life of the city. In her book *Designing Urban Agriculture,* April Philps notes that many city governments must go through a paradigm shift in order to think of urban agriculture or the food landscape as "a prime ingredient of the green infrastructure of the city and of a city's health. (2013, 90)" Fayetteville AR is currently undergoing such a paradigm shift as the Community Design Center recently formulated a "food city plan" scenario that could be implemented by 2030 which seeks to integrate a middle ground between backyard gardens and industrial farming projects. However, the city has a long way to go before such a plan could be made in to reality. Until then, it is individual farms such as these case studies that will impact how people view urban agriculture within the city.

Summary of Elements

Each of the categories discussed in the following pages was selected because of its impact on the farms and on the people who visit them. Location and visibility heavily influence the farms' interactions with their surrounding environment and whether or not each place is readily visible to potential volunteers, employees, beneficiaries and criminals. This is further impacted by the population density and zoning of adjacent plots.

Topography creates unique challenges and opportunities for water and soil management as well as disability access. Where people park can also influence access to the farm. Light and shade alter microclimates and impact where both plants will grow and where people will

congregate. Variations in shade patterns can promote biodiversity, cultivating the pollinators and wildlife essential to healthy ecosystems. Noise levels, on site restrooms and kitchens, as well as seating areas all cater to farm visitors and workers and can make a place much more human-friendly. Livestock production can shift many other aspects of the landscape such as placement of seating areas and irrigation challenges.

Location

Location Analysis

Urban agriculture occurs in a wide assortment of lot types including but not limited to residential areas, private land, public land such as parks, conservation areas, along roads, streams and railways and semi-public land such as schoolyards and hospital grounds.

Tricycle Farms, situated adjacent to Garland Ave and Sycamore, sits behind a row of residential houses (Figure 4.1). Practically invisible from the road, it was only recently that a sign was installed close to the asphalt to make drivers and pedestrians aware of its presence.

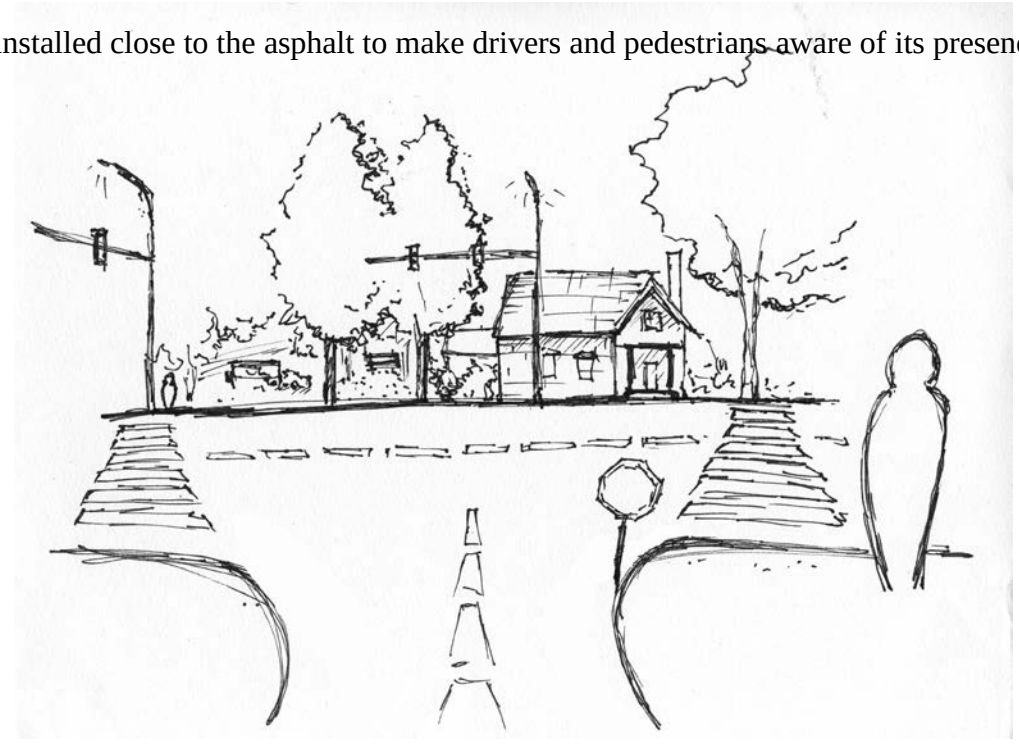

Figure 4.1: Little evidence of an urban farm can be seen from the road, Sketch by D. Freeman, 10/14

There is however, currently a plan to place a small parking lot on the site to better enable handicap access and small groups of volunteers. Upon that development, Fayetteville regulations require one parking spot per 500 square feet of lot space.

Cobblestone Farm on the other hand perches in the rear five acres of a ten acre lot off of Wedington Ave in western Fayetteville. To reach the farm, one must drive north up an adjacent roadway before turning right on to a narrow, bumpy dirt road that bisects the site (Figure 4.2). There is no set parking; rather workers park in grassy areas adjacent to the crops. A sign that had been posted near the main road recently collapsed during a rainstorm and has not yet been reinstalled.

Ozark Alternatives lies just outside of the eastern border of Fayetteville, off of a dirt country road labeled only by a tiny blue sign with the road number (Figure 4.3). Upon entering the property, workers encounter a crossroads; turn right and find a small group of residential homes. Turn left and you will find the farm office, as well as the home of the farm manager commonly known as "Farmer Paul." North of this office is the vast majority of the crops as well as the houses, chickens and orchards.

The best-known portion of Earthworks Urban Farm sits on a road intersecting Jefferson Street which cuts through downtown Detroit. Parking is clearly visible between the on-site green house and the soup kitchen; the farm is easily accessible from the road (Figure 4.4).

Figure 4.2 Cobblestone Farm Pedestrian Site Entry ,

Photo by D. Freeman 8/14

Figure 4.3 Ozark Alternatives Farm Entry, Photo by D. Freeman 8/14

Figure 4.4 Earthworks Urban Farm Entry from Road, Photo by

D. Freeman, 8/14

Circulation

Visibility

As visibility can dramatically increase awareness of a location, the lack of street-front space on the farms present a potential problem. Tricycle Farms, adjacent to an expanding boulevard barely a mile from the University of Arkansas, sits virtually unnoticed hidden behind homes and speeding traffic (Figure 4.5). Nevertheless, it is on its way toward resolving this lack of streetscape. A large albeit temporary sign has been installed near the road intersection. As the street is completed and the street lights become functional, they will host a captive audience directly between the farm's entrance and a hopeful market at the church across the street. In addition, with the purchase of the 1920's rock home on site, Tricycle now has an on-site office and herb garden within feet of the boulevard while a planned bicycle repair station will cater to

Figure 4.5 Most of the farm is set back from road, Google Earth 4/13

Fayetteville's many cyclists.

Cobblestone Farm's issues are less easily remediated. Perched in the rear of a ten acre lot, it is unlikely that the farm will host street-front property in the near future (Figure 4.7). In addition, the closest avenue is Wedington Ave, a high speed road that almost bisects the city. Because of Cobblestone's placement in the outer edges of the city in a low density area, it does not have the sheer traffic volume of Tricycle Farm and its lack of signage makes the area extremely difficult to find without a GPS or prior knowledge of its location. Nonetheless, a new permanent sign adjacent to Wedington should ease the process and allow easier access.

Figure 4.6: Lack of street front property limits visibility, Google Earth, 4/13

In a unique twist, Ozark Alternative's lack of visibility from the road is almost a non-issue. The farm is one of the first properties outside of Fayetteville city limits and is settled along a dirt county road (Figure 4.8). Yet because of its unique setup as a WOOF establishment and a long-term intern farm, this distance is actually beneficial to the area. Workers toil on the farm for months or weeks at a time and live in buildings on the site, as does the farm manger and his family.

Figure 4.7 Lack of street front property eliminates visibility, Fayetteville Interactive Maps, 9/14

The black dashed line represents Fayetteville's city limits.

Despite its location along a residential stretch, Earthwork Urban Farm remains highly visible (Figure 4.4). Along the main stretch of road, greenhouses are visible from both sides of the street directly or almost adjacent to a small urban orchard also split by the road. Further up the road, the main production lot is significantly less visible. The plot sits within a bowl of slightly raised earth dotted by tall bushes and a number of trees (Figure 4.9).

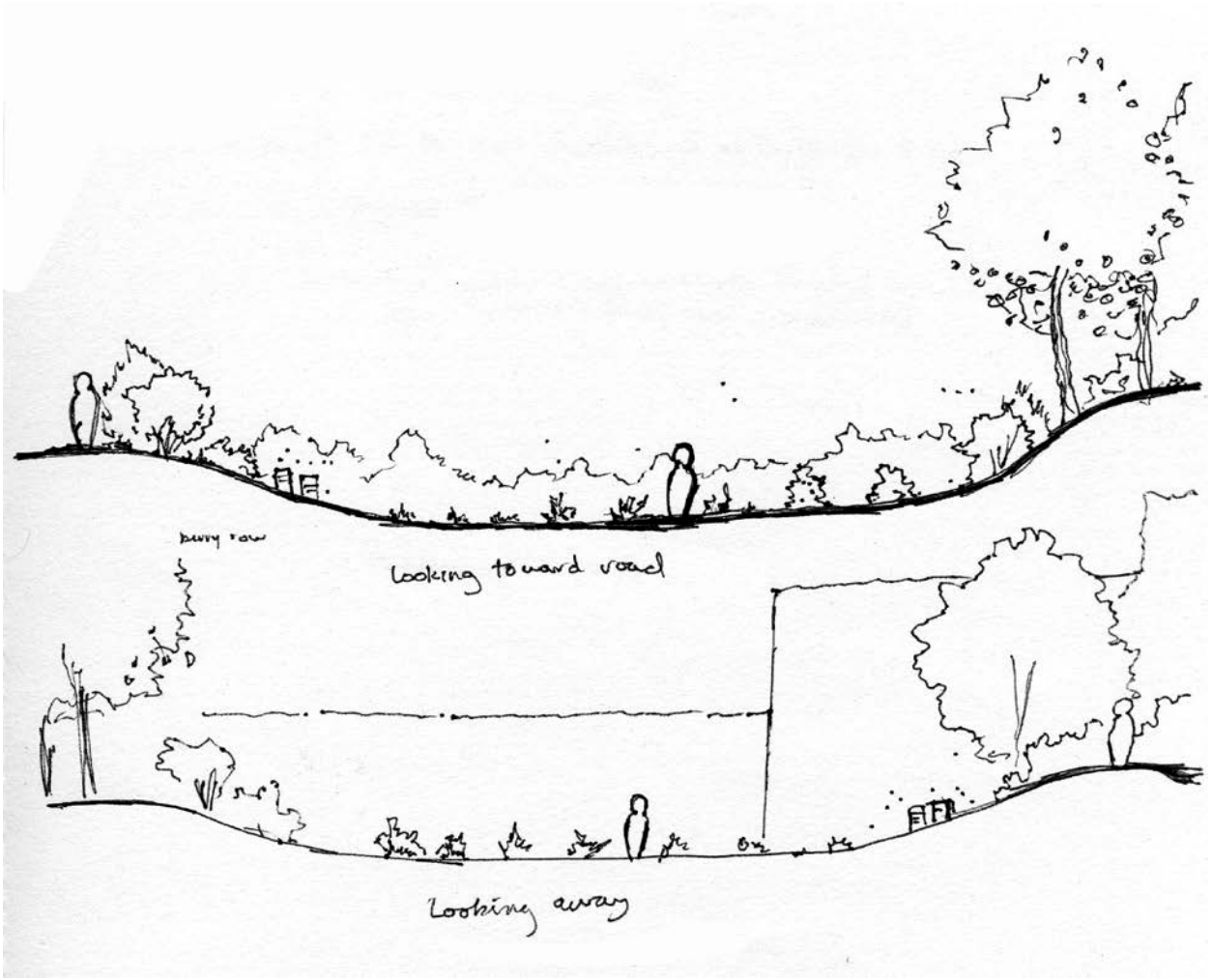

Figure 4.8 Main Production Lot Sections, Drawing by D. Freeman

Population Density

Being surrounded by the city creates a different atmosphere than rural farms. Tricycle Farms perches directly in the center of a small neighborhood with periodic openings in to the neighboring yards. Cobblestone farm sits along the edges of the town in a much lower density area. Ozark Alternatives is just outside of Fayetteville city limits and is directly east of a large housing complex that is nevertheless separated from the farm by a dense expanse of shrubbery and plant life. Earthworks is near downtown Detroit. There are a number of vacant lots within a mile radius of the farm. In examining the farm, it is important to note that Detroit's population is approximately 83% African American. The entire staff has gone through anti-racism and anti-oppression training.

Figure 4.9 Parking at Church Across the Street, Fayetteville Maps

Parking

Parking has the potential to influence who can participate in farming and how produce and tools are brought into the farm. Tricycle has plans to create a small lot in the southern portion of the site closest to Garland Avenue (Figure 4.10). Until then, workers park at the church across the street and must brave traffic to get to the farm. Recent crosswalks allow safer travel than was possible before.

Cobblestone has no set parking (Figure 4.11). Rather, visitors pull off of a dead end street to drive along a rutted dirt road toward the farm and stop their vehicles in the grass alongside it. While this is not an enormous issue now, as the farm expands and rows grow closer to the road it creates the potential for a worker to accidentally run over plants best left alone (Figure 4.12).

Ozark Alternatives does not have a traditional asphalt parking lot; rather visitors park in the road or in a small grass clearing between the office space and the crops (Figure 4.13). Parking in the road is convenient when entering the site; exiting is another matter entirely. If a vehicle is parked near the office, it becomes necessary to back out until reaching the crossroads where the vehicle may then shift in to forward. The large rocks directly north of a portion of this road creates a risk of bottoming-out these vehicles, particularly cars with lower bodies.

Visitors to Earthworks Urban Farms park their vehicles in an asphalt lot bordering the Capuchin Soup Kitchen. To enter this lot, the driver must pass through a gate in an extensive metal fence surrounding the property (Figure 4.14).

Figure 4.10 Tricycle Farm Future Parking

Figure 4.11 Cobblestone Farm Parking '

Figure 4.12 Ozark Alternative Grass Parking Lot

Figure 4.13 Earthworks Urban Farm Parking

Topography

Slopes and elevations heavily influence a farm's productivity by shifting irrigation patterns. High slopes limit the planting options available due to erosion and soil slipping. Most of the farms in this study are relatively flat.

The area that hosts the main cropland of Ozark Alternatives is relatively flat although other areas have relatively steep slopes. The land flows down toward the large pond on the southern portion of the site, exposing views to Mt. Sequoyah beyond the farm's boundaries. Most of the water from the farm drains to this pond.

Tricycle Farms is planning on establishing a small pond in the western portion of their plot to both manage excess water on their site and to provide water as a site amenity to the farm.

Cobblestone Farm is also relatively flat; a moderately steep drop off outside of the edges provides a distinct border between easily farmed land and areas that are more trouble than they're worth. Because of the site's location on the top of a large hill, the farmers have little issues with flooding or pooling even during heavy rainfall.

Earthworks Urban Farm features little variation in topography over the dispersed farms; however individual plots do host more differences. The main production lot sets within a dip of earth that rises up from the sidewalk around it.

Disability Access

Examining the survey results, it appears that disability access is not seen as a particularly high priority of the workers in developing and planning urban farms.

This lack of priority is nevertheless understandable; many urban farms are run on a relatively low budget. Installing and maintaining hard surfaces and handicap ramps is an expensive endeavor. According to concretenetwork.com, the average cost of simple concrete is $6-10 per square foot. Furthermore, a sealant or finish must be applied to protect the surface from weathering which adds an additional average of $18 per square foot. In addition, repairs to cracks can add between $50 and $200 for professional work.

Ramps add further expense if a location has steep slopes. If slopes are above 8%, the Americans with Disabilities Act requires the installation of handrails (1990).

Cobblestones disability access is limited heavily by its setup. The farm has no paved surfaces; even the road is dirt and in need of repairs. While the lawn is well kept and mown, the ruts and dips inherent in an earthen landscape severely limit wheelchair use and only slightly less the use of walkers. The number of raised beds are still low to the ground and do not offer much relief for the elderly and others who do not bend so readily.

Tricycle also lacks the paves surfaces that ease the way of the mobility-impaired. Although its smaller size and low slopes are helpful, the fact remains that it is difficult to get around if your joints don't work as well as they should. Further, there are no ramps in to the house

and even where the door meets grade, a small stairwell must be maneuvered before gaining access to the central parts of the building including the restrooms.

Ozark Alternatives provides little in disability aid either. Parking is in a small grass lot while roads are paved in dirt and stones. The planting beds are low to the ground with narrow gaps between beds. Wheelchairs would have difficulty reaching anything but the outermost plants.

Earthworks has been working to improve accessibility. Several raised beds have been set in place for those who have difficulty bending over. In addition, Earthworks installed stone paths throughout the farm to reach key points such as the greenhouses on either side of the road.

Climate and Site Quality

Light and Shade

Variations within light and shade influence farms and the people who work on them. Crops and plant life experience radical shifts in their quality based on the amount of light they receive. Additionally, temperature variances can influence comfort levels.

Tricycle Farms has a wide mix of sun and shade patterns. Directly in front of the site is an open lawn slated to be converted in to a small victory garden near the office. From there, visitors travel through a shaded pine corridor to enter in to the main site, which is largely a full sun environment. Despite the prominence of exposed area, the boundaries of the lot are shaded and offer places to relax out of the sun and cool off.

Ozark Alternatives features a similar composition with shaded boundaries enclosing an open field (Figure 4.15). In addition, a bamboo wall and trail forms a shadowy border separating the office from the main production area. A word of caution to the weary however; this spot is a

favorite hiding place of ticks and it would be wise to examine yourself after staying in the bamboo forest for long.

Figure 4.14 Ozark Alternatives Site Diagram

Cobblestone Farm is very much exposed to direct sunlight through most of its plot (Figure 4.16). Other than a shaded equipment structure, there is very little protection from direct sunlight. Even this space is limited due to the sheer mass of equipment under its roof.

Figure 4.15 Cobblestone Farm Site Diagram

A large portion of Earthworks is exposed to direct sunlight. While there is some shade along the edges of the main production lot, the visitor to this farm has little choice in locations to be outside and in the shade.

Biodiversity

Crop biodiversity is not often thought of when analyzing farm life. Permaculture is a branch of ecological design, ecological engineering, environmental design, construction and Integrated Water Resources Management that develops sustainable architecture, regenerative and self-maintained habitat and agricultural systems modeled from natural ecosystems. The term permaculture (as a systematic method) was first coined by Australians Bill Mollison and David Holmgren in 1978. The word *permaculture* originally referred to "permanent agriculture" but was expanded to stand also for "permanent culture," as it was seen that social aspects were integral to a truly sustainable system as inspired by Masanobu Fukuoka's natural farming philosophy.

> "Permaculture is a philosophy of working with, rather than against nature; of protracted and thoughtful observation rather than protracted and thoughtless labor; and of looking at plants and animals in all their functions, rather than treating any area as a single product system." - Bill Mollison

Agroforestry is an integrated approach of using the interactive benefits from combining trees and shrubs with crops and/or livestock. It combines agricultural and forestry technologies to create more diverse, productive, profitable, healthy and sustainable land-use systems. In agro forestry systems, trees or shrubs are intentionally used within agricultural systems, or non-timber forest products are cultured in forest settings.

Further, a met-analysis of 94 studies dating back from 1989 determined that organic farms contain an average of 26%-42% more species than traditional farming methods with pollinators averaging up to 50% more (Organic Farming, 2014). Organic farms host approximately five times more wild plants in arable fields with 75% more species, three times as many non-pest butterflies,

1.6 times as many arthropods, 1-5 times as many spiders, 25% more birds in field edges and 44% more birds in the field during autumn and winter (Benefits of Organics, 2014).

Ozark Alternatives utilizes permaculture principles exceptionally well. Multiple crops with different harvesting times occupy the same beds. Chickens perch in apple and pear trees while their droppings fertilize the roots.

While Tricycle Farms does not practice permaculture to this extent, they certainly host a wide array of plant materials, even some such as dandelions that are considered weeds by many. Any number of these plants can have benefits aside from typical edible food. Herbs can provide medicinal remedies or push nutrients back in to the soil. Further, by diversifying plant selections it is less likely that a single instance of flood, drought or disease will eliminate a great majority of the farm's produce.

Cobblestone Farm utilizes a more traditional approach to farming although it does practice some permaculture techniques such as planting a new crop before the old one is completely gone and harvested.

Noise Levels

In many of these farms, the noise of the city life and of traffic is diluted almost to the point of nonexistence within the center and rears of these parcels.

The rock home in the front of the Tricycle Farms property and the surrounding vegetation muffle noise. The barn also acts as a silencer.

Cobblestone farm sits in the rear half of a large plot near a heavier traffic road; however, by the time a visitor even reaches the gate to the farm itself, that noise is diminished greatly.

Along the northern boundary of the site, all sight and sound of Wedington has virtually disappeared to be replaced by birdsong and insect activity.

Ozark Alternatives has little traffic influence and is predominantly dominated by natural sounds such as birdsong and insect activity.

Earthworks is on a street with limited vehicular traffic and thus has little traffic noise. There is some bird and insect noise.

Structures and Amenities

Restrooms

A lack of restrooms can create a potential health and sanitation issue. However, all three farms do have restroom facilities of some sort. Both Ozark Alternatives and Tricycle Farm have permanent restrooms: Ozarks is in an exterior structure and Tricycle's found within the 1920's wooden house on site (Figure 4.17, 4.19)

In the present, Cobblestone's on site restroom is limited to a blue porta-potty nestled in the green border of the site near the chicken coops (Figure 4.18). Although largely sufficient when only the three main employees are present, it is sorely lacking during work days with larger crowds. A new restroom with plumbing connection to the city and running water is to be installed with the creating of an enclosed barn. When this may happen is yet unknown.

Earthworks Urban Farm is unusual in that it is actually spread out over 7 plots within a three block radius of the Capuchin Soup Kitchen. While each individual plot may not feature restrooms, the Soup Kitchen has both a male and female restroom within its facilities that is open to the public (Figure 4.20).

Figure 4.16 Tricycle Farm restrooms in Building

Figure 4.17 Portable Restroom at Cobblestone Farm

Figure 4.18 Ozark Alternatives Restrooms in Residence

Figure 4.19 Earthworks Restrooms in Soup Kitchen

Kitchens

Ozark Alternatives does have a small kitchen within some of the homes that are able to be utilized for farm work and due to the small nature of the workforce, these are generally sufficient.

Tricycle Farms now hosts a kitchen in their office building (Figure 4.22). In addition, they often work in cooperative with the church across the street, utilizing their safe-certified kitchen for large meals such as the weekly Sunday dinner where the whole city is invited to participate.

Cobblestone has no onsite kitchen; it does however have a large sink that may be used o wash and clean the produce before it is transported elsewhere for further processing (Figure 4.21).

One of the main plots used by Earthworks Urban Farm shares the land with the Capuchin Soup Kitchen, which hosts a substantial kitchen that can be used in food preservation and cooking. In fact, a fair portion of the fresh produce served in its meals originate within one of Earthwork's plots.

Figure 4.20 Cobblestone Farm tool shed

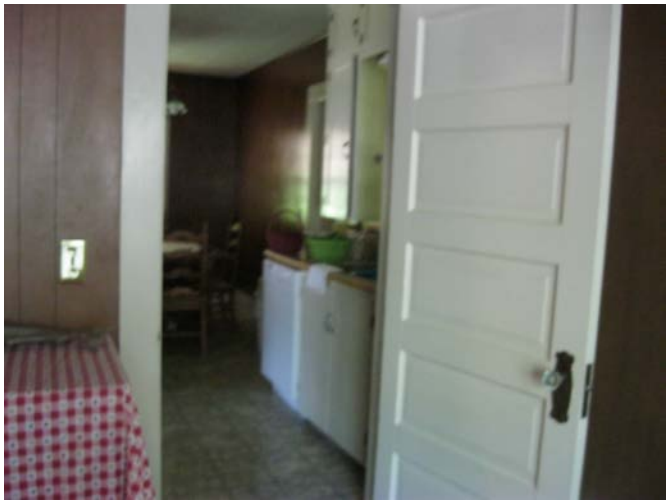

Figure 4.21 Tricycle Farm kitchen

Seating Areas

Several benches provide seating for workers at Tricycle Farm (Figure 4.23) under the shade of a some large nut trees. In addition, raised beds can also act as "seat walls" when more seating is needed.

Cobblestone recently added a small seating area within its boundaries adjacent to the storage area; the presence of heavy farm equipment and farm tools makes this less than ideal for large groups of people (Figure 4.24). However, plans are in the way for a small fruit orchard along the northern edge of the dirt road which would house picnic benches beneath the shade of its branches. After a larger, enclosed barn is installed, the current structure and an additional one in the future will also house seating and space for classes to be taught away from the heat of the sun.

Ozark Alternatives has a limited area for seating, particularly near the farm plots. However, there are a number of benches and seats near the office and home of Farmer Paul that can be used by farm workers (Figure 4.25).

The most visible portion of Earthworks adjacent to the soup kitchen has a number of picnic benches on site near the greenhouse; however these benches are not particularly appealing (Figure 4.26). The wooden structures are largely dilapidated and off-kilter. Additionally the benches sit directly in exposed sunlight over an asphalt parking lot and are thus subject to tremendous temperature fluctuations throughout the day

Figure 4.22 Tricycle Farm Picnic Benches

Figure 4.23 Cobblestone Farm Seating

Figure 4.24 Ozark Alternatives Moveable Seating

Figure 4.25 Earthworks Urban Farm Seating

Livestock Production

All three Fayetteville farms host chicken houses, all generally near the rear of the farm. Tricycle Farm has a coop in the rear corner (Figure 4.27) while Cobblestone's sits in the rear behind a greenhouse (Figure 4.28). Ozark Alternatives' chicken coop rests within the fruit tree orchard in the northeastern portion of the farm (Figure 4.29). Earthworks did not have livestock production.

Figure 4.26 Tricycle Farm Chicken Coops

Figure 4.27 Cobblestone Farm Chicken Coops

Figure 4.28 Ozark Alternatives Chicken Coops

Conclusion

Although these farms have many distinct and unique features, they also have many similar structures and facilities. All of the farms have some form of parking, seating, livestock production, pathways, and restrooms. Some of the farms hosts kitchens on their property; the kitchens range in size from barely a few feet to substantial rooms in large structures. These farms also all partially or largely limit noise of traffic.

- Site Analysis Comparisons

Farms	Location	Visibility	Population Density	Parking	Topograp	Disability Access	Light and Shade	Biodiversity	Noise Levels	Restrooms	Kitchens	Seating Areas	Livestock Production
Tri Cycle	Central Fayetteville	Fair; Office visible from road, sign visible from stoplights	Low; Single Family Residences	Across the street at church	Basically flat	Gravel and mulch paths, access to office requires going up steps	Shade around exterior edges of lot	Extensive row plantings; Edble trees	Traffic noise in front of office; Limited urban noise within production area	Restroom in office structure and adjacent church	Small kitchen within office structure; Certified kitchen in adjacent church	Benches and some moveable seating near barn	Chickens in rear away from main road; bees in rear; plans for goats in future
Cobblestone	West Fayetteville	Poor; Farm set back from road, no visible signs	Low; Single Family Residences and empty lots	Grass lawn outside of gate or gravel road in lot	Basically flat with slopes along exterior	Gravel road with lawn between row crops; Some herb and flowers in raised beds	Shade under open air storage; Shade in orchard as trees grow	Row crops; Orchard recently added	Very little urban noise within farm; Some animal activity	Portable Restroom near greenhouses; Planned restroom within new construction	No kitchen on site	Picnic benches adjacent to storage shed	Chickens in house in northern lot; secluded now but adjacent to planned orchard; bees in southern portion of farm
Ozark Alternatives	Just east of Fayetteville city limits	Poor; Farm set back from county road, no visible signs	Medium; Moderately dense single family residences	Grass lawn outside of gate or gravel road in lot	Basically flat with slopes in southern portion	Gravel paths and lawns; No raised beds	Shade along exterior and under bamboo grove	Extensive permaculture plantings with some natural areas	Very little urban noise within farm; Some animal activity	Restrooms in exterior structure and private residences; Little need for large structure	Kitchen in private residences on site; For use of interns and farm managers	Moveable seating near office; no seating on farm production areas	Chickens in northern plot within permaculture orchard far from most houses; roosters agravate neighbors;
Earthworks	Detroit near river	Good; Farm adjacent to road, Numerous signs	Low; Single family residences and vacant lots	Parking lot adjacent to soup kicthen	Basically flat; Production lot in slight	Raised beds on asphalt lot; Accessible paths going to greenhouses	Shade along exterior of production lot; Little shade in other lots	Greenhouse crops; Some trees and natives	Potential for traffic noise but low use on road	Restrooms within soup kitchen and offices, none on main lot or adjacent greehouse lot	Soup kitchen on site; Feeds hundreds in a day	Decrepit seating near greenhouse on main lot; little to no seating on adjacent lots	No chickens or goats; beehives in main production lot

CHAPTER 5: PROCEDURAL ANALYSIS

Introduction

Procedures and law form a critical component of urban agriculture. This portion of the paper analyzes these factors, studying how they influence the day to day operations of the farms. Categories examined include educational classes, hours of operation, security measures, management types, community involvement and the laws that each city has passed.

Procedures

Classes Offered

Tricycle Farm offers a number of classes including mushroom mycelium inoculation, primitive skills such as soap making, cooking, food preservation, the creation of healing salves, rocket stoves and herb wreaths. In addition, the farm provides a number of workshops on hoop houses and assorted gardening activities such as the creation of tomato cages. They also host a native plants and herb walk as well as a tea making party.

Tricycle cooperates with the Arkansas Hunger Relief Alliance and the Arkansas Coalition for Obesity Prevention in operating the "Cooking Matters" program. Dietetics student volunteers and nutritional experts teach community members how to prepare healthy, nutritious foods through a series of community outreach and scheduled classes.

During the summer, junior high and high school students may participate in the OMNI Summer Youth program, offered in conjunction with the OMNI Center for Peace, Justice and Ecology. The curriculum provides practical experience as it instructs students in gardening and the creation of value added products such as jams and pickled vegetables.

The farm also hosts a summer program for younger children aged 6-10. The 9 week

course, charmingly titled The Little Village, instructs the youngsters in harvesting food and preparing simple recipes. Furthermore, the teachers encourage creativity through arts and crafts. The children construct bird baths, stepping stones, plants markers and other useful pieces that may be placed within or around a garden of their own.

Classes are offered on the first Tuesday of each month at Earthworks Urban Farm on subjects such as food jobs, canning and agricultural techniques. In addition, the farm began offering a 9-month training program from March to October meant to develop leadership and ownership of the local food system by the people who live there in 2010. Extremely popular, only ten applicants are accepted every year out of over 100 total. Three are then reselected the following year to act as mentors to the trainees of that year. Provided a modest stipend of $300 a week, the trainees are not charged but are expected to put in a great deal of time.

Hours of Operation

These farms, perhaps unusually, farms do not have set hours. Tricycle farm periodically hosts events for dozens of people at a time but does not have set farm hours. Rather, the farm remains open throughout the day; the small gate at the entry does little to deter any who wish to enter the site.

Cobblestone Farm also hosts regular events and rarely schedules workers on a regular basis as their focus is on production. Fewer than five people work on the farm full time.

Ozark Alternatives' workers live on site; thus the farm has no set hours. The farmers work when the weather is appropriate and the sun is out, whatever those hours might be.

Security Measures

Both Cobblestone and Tricycle Farms feature gates at their entries. Both are simple metal swinging gates which will prevent vehicles from getting on to the farm proper when closed but will do little to hinder a pedestrian or cyclist. Both farms store their equipment in unlocked structures; while Tricycle seems to have little to no issue with theft, Cobblestone has had a number of incidents in recent years and has plans to build an additional building that will serve as both a locked storage unit and will feature restrooms.

However, it must be noted that Tricycle Farm sits within a circle of homes within ready view of the farm; there is always the potential that someone is watching. Cobblestone Farm on the other hand, is not readily visible from anywhere except on the farm itself.

Ozark Alternatives has neither gate nor fence on the premises yet its sheer remoteness and lack of visibility from any main roads provide a measure of protection; the farm's largest security issues stem from wildlife rather than wayward pedestrians or likely criminals.

The lot including the soup kitchen of Earthworks is surrounded by a tall metal fence with a fence that can be closed at night while the greenhouse lot is enclosed by a chain link fence. Also within a neighborhood, Earthworks has had few issues with petty crimes such as theft.

Management Types

Tricycle Farm was founded in 2011 by Don Bennett when he purchased two acres of land behind his home in Fayetteville. He now runs day to day activities of the farm. Cobblestone Farm is run by a board of directors.

Ozark Alternatives is rented and managed by Farmer Paul and his family. Because the

land is not likely to remain the farm's permanent location, they face different issues than farms like Tri Cycle who own the land on which they work.

Earthworks Urban Farm is run in partnerships between the Capuchin Soup Kitchen, the Wayne County Department of Health and the Iroquois Avenue Christ Lutheran Church's WISE Coalition (Working with Support of Enrichment).

Community Involvement

Tricycle Farm emphasizes community involvement in their mission statement, stating that they seek to "grow community through soil" (Tricycle, 2013).

Cobblestone hosts community events throughout the year, including harvest parties. They also distribute half of the produce grown on their farm to hunger relief in the Northwest Arkansas area. In 2014, this amounted to over 12,000 pounds of food given to food banks, soup kitchens, shelters, and individual families. The farm manages this through an annual subscription to in which the subscriber receives 20 lugs of seasonal produce, flowers and eggs, Saturday pick up locations in Fayetteville and Bentonville, one You-Pick fruit day and private gardening classes. Part (or all) of this subscription can be donated to local charities or needy families.

Cobblestone recently began a new method of raising funds for hunger relief that involve local community businesses: row sponsorships. Companies which sponsor rows at the farm are given signs to display at the edges of the row. This serves to both offset the farm's budget and give local businesses additional positive publicity.

Ozark Alternatives has outside workers on the farm occasionally. They do however promote a community-supported agriculture program. For a fee, supporters will be given

seasonal produce from the farm on a weekly basis according to what is ripening and ready for harvest.

Earthworks fosters community involvement on a daily basis, with most of the produce going toward meals at the Soup Kitchen. Classes, sales and community potlucks also encourage communication and public participation.

City Policy Analysis

Fayetteville

Fayetteville passed an ordinance on March 18, 2014 further allowing urban agriculture within city limits. The new update allows garage and agricultural produce sales in any location up to four times year no matter its zoning. Individual sales may not extend beyond three days and up to three off site signs and one on site sign may be installed for the two days of prior to the sale.

Furthermore, the law now enables some animals typically associated with livestock raising or farm work, including bees, ducks, chickens and goats as long as they meet certain parameters. Chicken coops are not allowed within 25 feet of a residential zone or a dwelling on the property while animal hospitals, kennels and commercial breeding is not allowed within 50ft. Animal hospitals, dairy farms and poultry farms are required to remain 100 ft from dwellings and residential while hog raising and livestock breeding is limited to 200ft away.

Fowl are allowed within educational and single family residential zones. Both ducks and female chickens are legal to own although roosters are not due to potential noise disturbances. The animals must be clipped so that they cannot fly. In addition, the law limits properties of

5,000 feet or smaller to four birds with an additional bird allowed for every additional 1,250 feet up to a maximum of twenty. Food, water, and shelter must be provided and maintained.

Residential and educational facilities may also contain up to four bee hives with a base of two for properties of 5,000 square feet and additional hives allowed for every greater 2,500 ft. Not permitted in the front, hives must be registered through the Arkansas State Plant Board and must keep in accordance with Arkansas apiary law. Labels detailing the name, phone number, address and state registry number must be displayed on each hive. Africanized honey bees are prohibited.

Female dwarf or pygmy goats weighing no more than 85 pounds may be kept in residential or educational areas of 10,000 square feet or greater. Pygmy goats, kept most often as pets, tend to do well on smaller plots of land and can be used as milk producers. These goats must be micro chipped and registered with the Fayetteville Animal Services program. Lots 15,000 feet and more may hold up to three goats. They must be housed is a secure, fenced yard away from predators.

In examining the policy guidelines, a cost analysis of livestock was completed by the author of this paper. The average cost of a pygmy goat in the Fayetteville area is approximately $70 while the cost of adding a microchip adds about $45 to the expense. Cost of shelter, food and fencing adds between $100-200, creating a total expense of between $215 and $315. While this expense is lessened as additional goats are purchased, it could prove cost prohibitive for those who live paycheck to paycheck.

Many of the farms in Fayetteville have plans to increase their livestock with the passage of this ordinance. Tri Cycle Farm plans to purchase a number of goats first to help clear some of

the brush along the southern portion of the farm and then to live on the farm itself. There is also a plan to purchase bees.

Detroit

Detroit's urban agriculture ordinance covers a much wider array of topics associated with urban agriculture. Proposed applications for new development are reviewed through the Planning and Development Department site plan review process when they meet one or more criteria. These reviews must contain the name, address and phone number of the applicant, the project name and address, a location map with existing conditions such as wetland boundaries, existing structures and sensitive land uses. Furthermore, the application must contain a site plan and a narrative describing methods of handling and storing pesticides, types of vehicles and equipment to be used, environmental impacts, stormwater management plans and waste handling methods.

Within the city code, a number of facets are prohibited. In chapter 6 of the city code, farm animals are listed that are not legal to house within city limits. Chapter 57 details profited tree and plant species.

Conclusion

Procedures within the farm and the laws that affect them enormously impact these urban farms, perhaps as much or more as the actual environment in which they are constructed. Zoning ordinances denote which practices and livestock may be allowed on the premises. Farming policies promote specific techniques while simultaneously determining how the farm

interacts with the surrounding community and the city as a whole.

Fayetteville's recent ordinance changes have opened new doors for the farms of this study as livestock is now more of an option while Detroit's laws create a systematic approach that enables would-be farmers to understand the steps they would need to take to move forward with urban agriculture. Individual farm policies merge to create the character of the farm; Tri Cycle Farm is a community-oriented environment, Cobblestone is focused on production, Ozark Alternatives offers in-depth permaculture training for those in WWOOF and Earthworks utilizes whatever space it can to alleviate an enormous poverty and food insecurity issue.

CHAPTER 6: SURVEY ANALYSIS

Introduction

Compiled from workers from each of the farms, the surveys both serve to analyze worker opinions and demographics. Beginning with questions concerning which farm the respondents volunteer at and how often /when they work on the farm, the survey then follows up with queries. These categories range from livestock production to disability to nonprofit work and community involvement. Questions then follow discussing various issues such as food insecurity and their perceptions by respondents before concluding with demographic statements.

It must be noted that the response from each of the farms was not balanced. Most of the survey participants volunteered at Cobblestone Project; none of the workers at Earthworks Urban Farm filled out and returned a survey (Figure 6.1). While this may lend a bias to the study, it acts as a starting point for further study in the future.

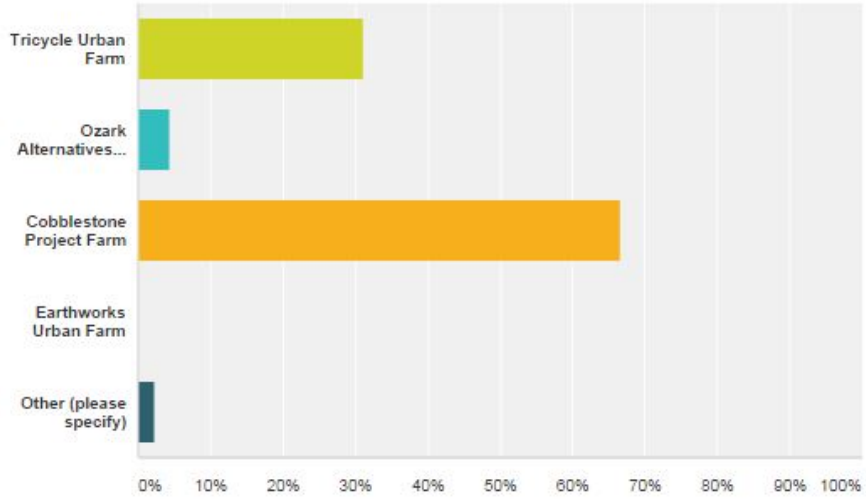

Figure 6.1 Survey Respondents by Farm Where Volunteered

Who, What, When, Where?

Approximately 67% of the volunteers of the farms have worked there for less than a year while the remaining 33% have participated in farm activities for between one and five years.

Of the workers, most work on the farm once a month or less (73%), with those who work daily composing the next rank (11%). Workers who participate once or more a week rate third with 9% while once or more a week volunteers compose 7% (Figure 6.2)

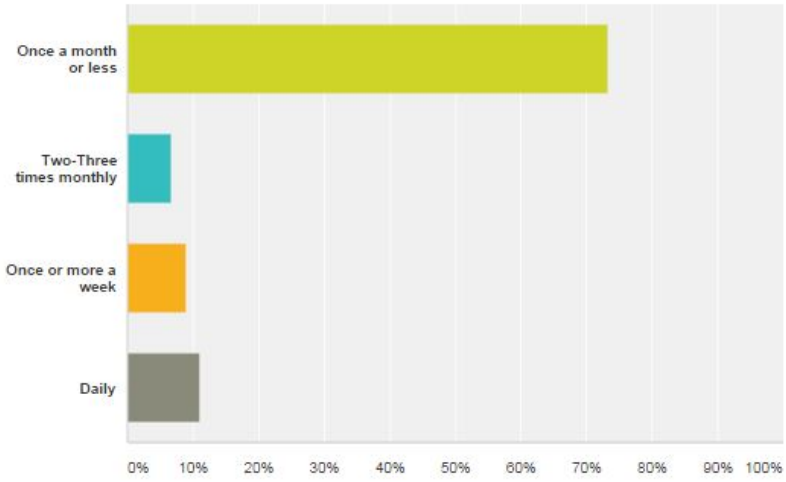

Figure 6.2 Attendance Frequency

Further, most of the respondents volunteer or otherwise work on the farm volunteer with work events (46%). About thirty-two percent work on weekends, 15% volunteer on weekdays before work while 9% work on weekends after work. A small number of respondents work on the farms full-time.

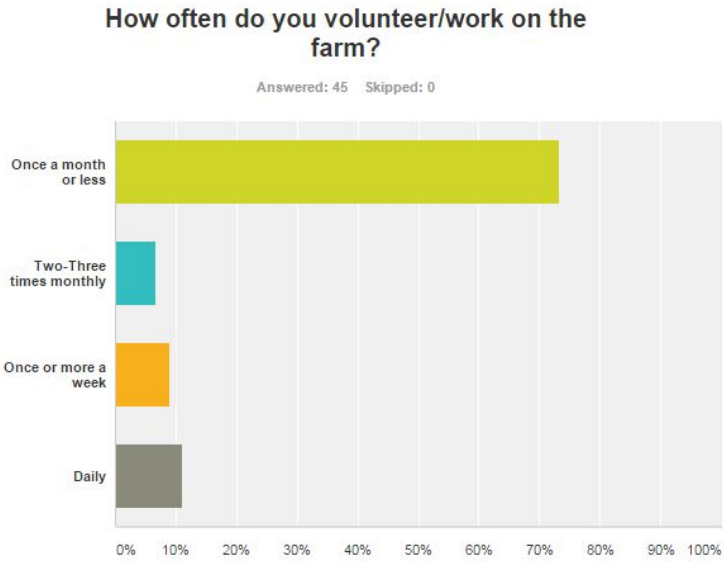

Figure 6.3 Volunteer Attendance

Demographics

The results were relatively evenly split between male and female. 49% of the survey respondents were male and 51% were female. However it must be noted that 85% of respondents were Caucasian so these results may be skewed. Additional surveys would prove beneficial in eliminating this bias.

A wide array of ages are represented among the survey respondents. While the largest individual range falls between 20-24 and 30.34, the ages appear to be somewhat evenly split among the other groups; however, no respondents were above the age of 59.

There is also a wide array of education levels within survey respondents. About 7% have completed high school. Approximately 13% have completed some college, 4% have completed a technical or associate's degree, 40% completed a bachelor's degree and 36% have finished a graduate degree or higher.

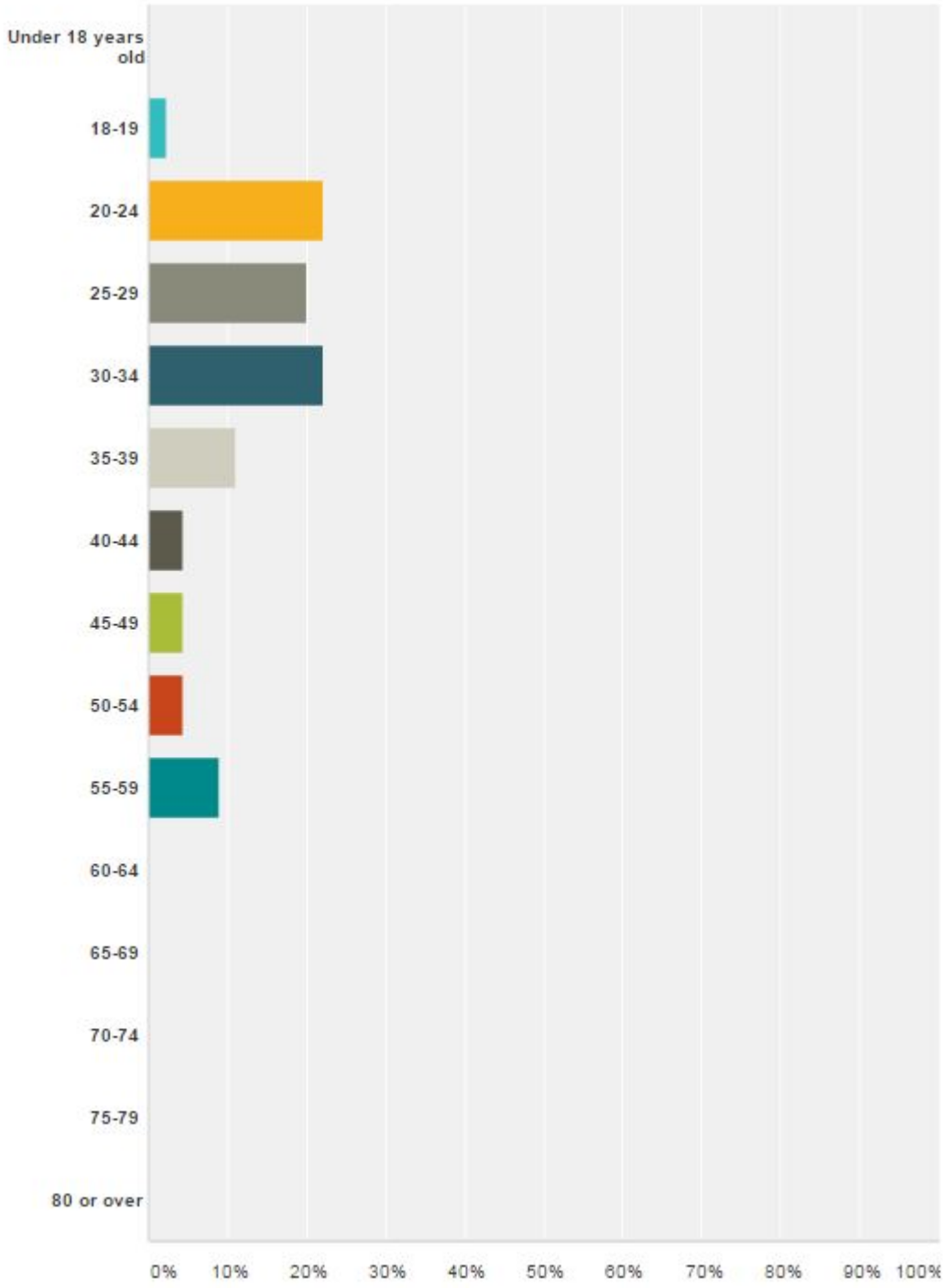

Figure 6.4 Ages of Volunteers

Satisfaction at the Farm

Most of the workers surveyed rate their satisfaction with the farms they volunteer at as very high with over 77%. A moderate 20% rate their satisfaction as somewhat satisfied and a minor 3% rate their farm as somewhat dissatisfied. Over the course of this survey, not a single respondent has claimed to be extremely dissatisfied with the overall quality of the farm.

Picking a Farm

After being asked to evaluate various categories for their importance to a farm, survey respondents were then asked to select the top two things they look for when choosing a farm to volunteer at.

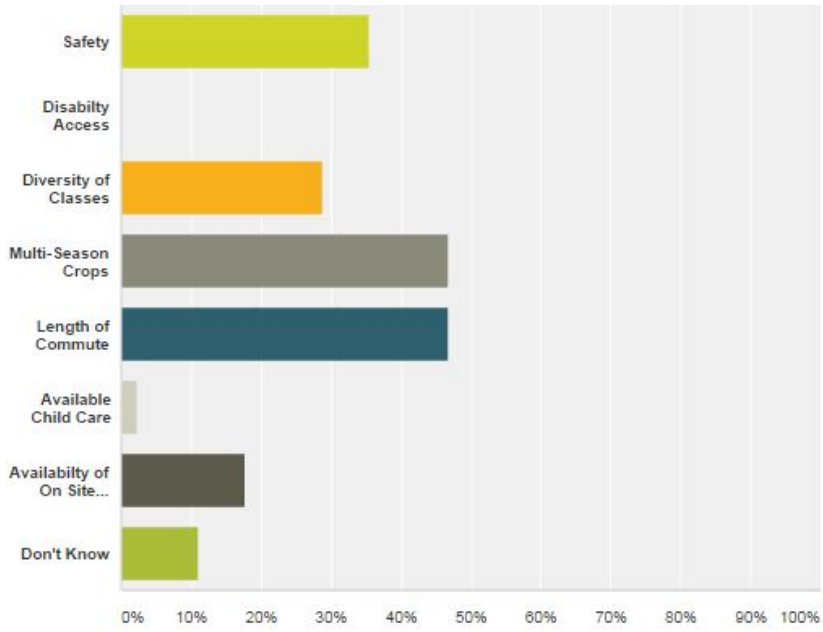

Figure 6.3 Reasons for Selecting a Farm

Given options included safety, disability access, diversity of classes, multi-season crops, length of commute, available child care, availability of on-site amenities and an "other/don't know" option (Figure 6.3).

The options that were selected the most often was length of commute and multi-season crops with 47% each. Safety placed second with 36% while diversity of classes placed third with 29%. Availability of on-site amenities placed next with 18%. Eleven percent were unsure. Disability access did not receive any votes.

Among the "other" selection, respondents spoke about a sense of belonging and

community and well as a farm that forbids smoking on its grounds. Sustainability, access to tools and equipment, and nonprofit work were also mentioned.

Size

In addition to being asked about the qualities of the farm in which they would like to work, respondents were also questioned about their preferred size. Approximately 27% of those surveyed stated that they would prefer a small farm, or one that is less than two acres in size. The vast majority (69%) however replied that they would select a farm that is between two and five acres. A minor 4% said they preferred farms above five acres.

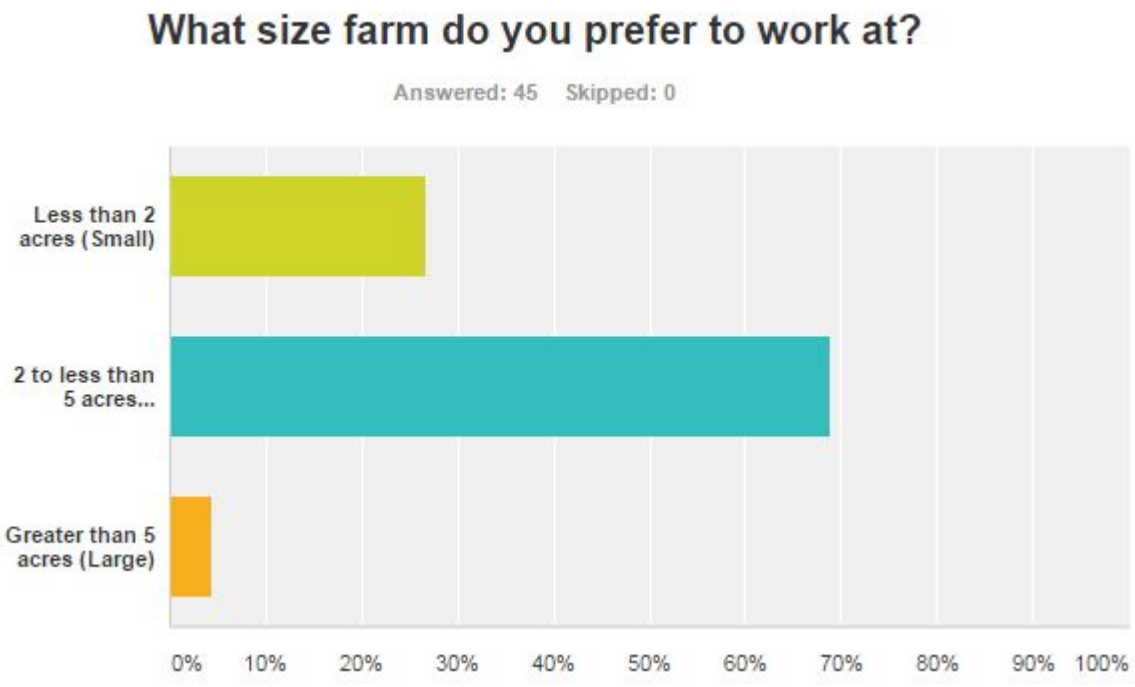

Figure 6.4 Size Preferences

Location of Farms

The survey then queried respondents as to the location of their preferred farm. Twenty-seven percent stated that they would like to work on a farm in the inner city while 20% said they would prefer to work on a farm in the suburbs. A larger 31% claimed farms outside of city limits as their preferred selection while 22% were unsure.

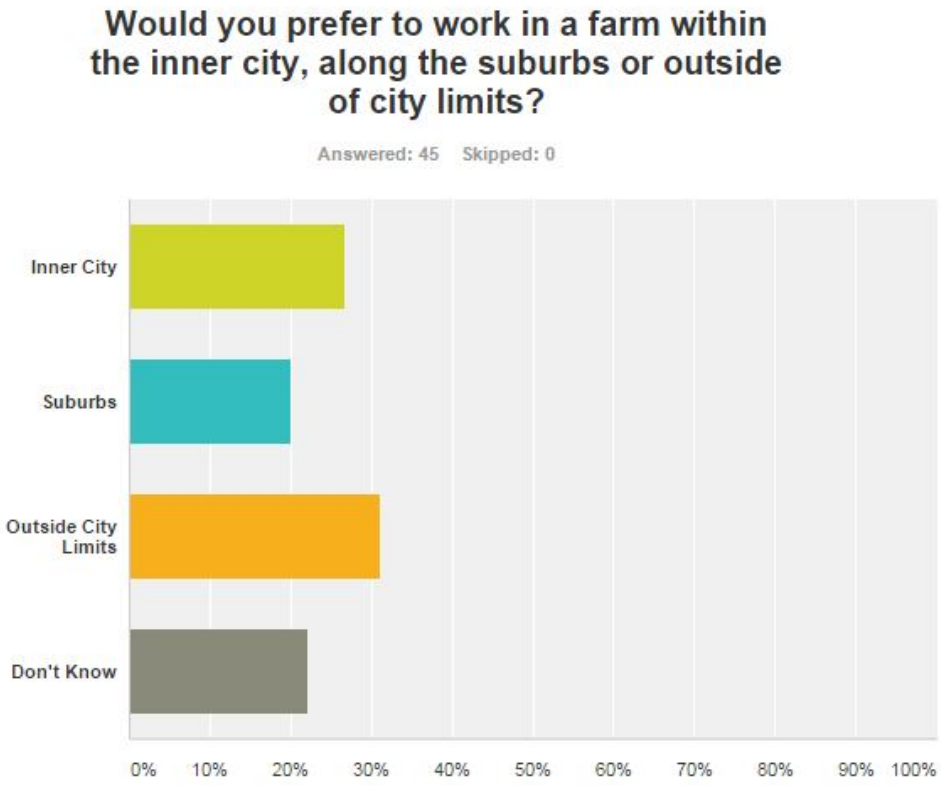

Figure 6.5 Location Preferences

Obstacles to Work

Lack of time ranked by far the largest obstacle to volunteers working on the farm with a whopping 58% choosing this category as their biggest obstacle. The remainder was split between distance from work and home (24%), child care requirements (4%), farm hours (4%) and an "other" category.

Within the other category, respondents talked of other conflicting volunteer commitments, poor weather, and a lack of access with public transportation.

Farm Practices

The overarching category of farm practices was largely questioned through a single graph in which respondents marked a series of choices according to how important they felt each selection was to a successful urban farm. The results of these responses have been compiled in to a table on the following page (Table 6.4) for ease of reading.

The average rating column utilized the idea of ratings to compare individual categories to each other. The very important rating was given the number one while "very unimportant" was given the number five. From these ratings, the selections were averaged to come of with a general rating. Thus air-conditioning/heat with its average of 3.73 is the "least important" of the categories while clear communication with volunteers with a rating of 1.20 sits at "most important," just barely beating sustainable practices (Table B.1).

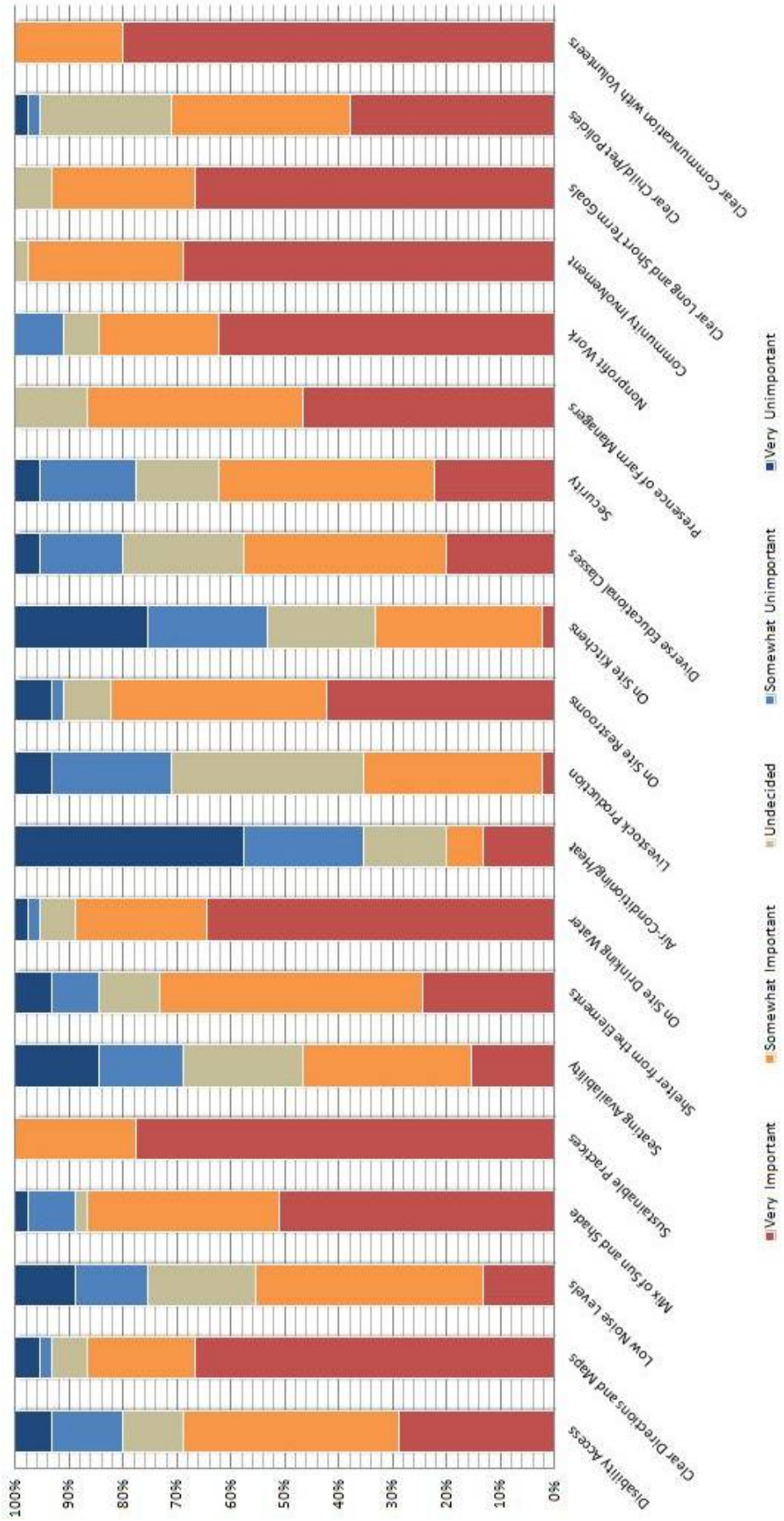

Table 6.4: Comparison of Categories Ranked by Importance to a Local Farm

Survey respondents were asked to rank each category (sustainable practices for example) by importance to local farms on a scale from very unimportant to very important.

Sustainable Agriculture Practices

This category was solidly positive. Seventy-eight felt that sustainable agriculture practices are very important. Another 22% feel that is somewhat important. None of the respondents replied that sustainable practices were unimportant.

Livestock Production

The rankings for livestock production fall solidly in the middle. Two percent of respondents replied that livestock production was very important and 33% stated that it was somewhat important. In fact, 36% were undecided. Twenty-two percent responded that it was somewhat unimportant. 7% claimed livestock production was very unimportant.

Presence of Farm Managers

The importance of a farm managers being present while workers volunteer is one category that received no negative responses. Of survey participants, 13% responded that they were undecided; the remainder selected either very important (47%) or somewhat important (40%).

Security

Sixty-two percent of respondents felt that security was at least somewhat important. Twenty- two point twenty-two percent replied that it was very important. The remaining 22% were split evenly between somewhat unimportant(18%), very unimportant (4%) and undecided (16%).

Policies and Community Involvement

Nonprofit Work

Respondents to the survey indicated a strong response the farms they volunteered at should be involved with nonprofit work, with 62% ranking nonprofit work as very important. Another 22% rate it as somewhat important while 9% rank it as somewhat unimportant and 7% were undecided.

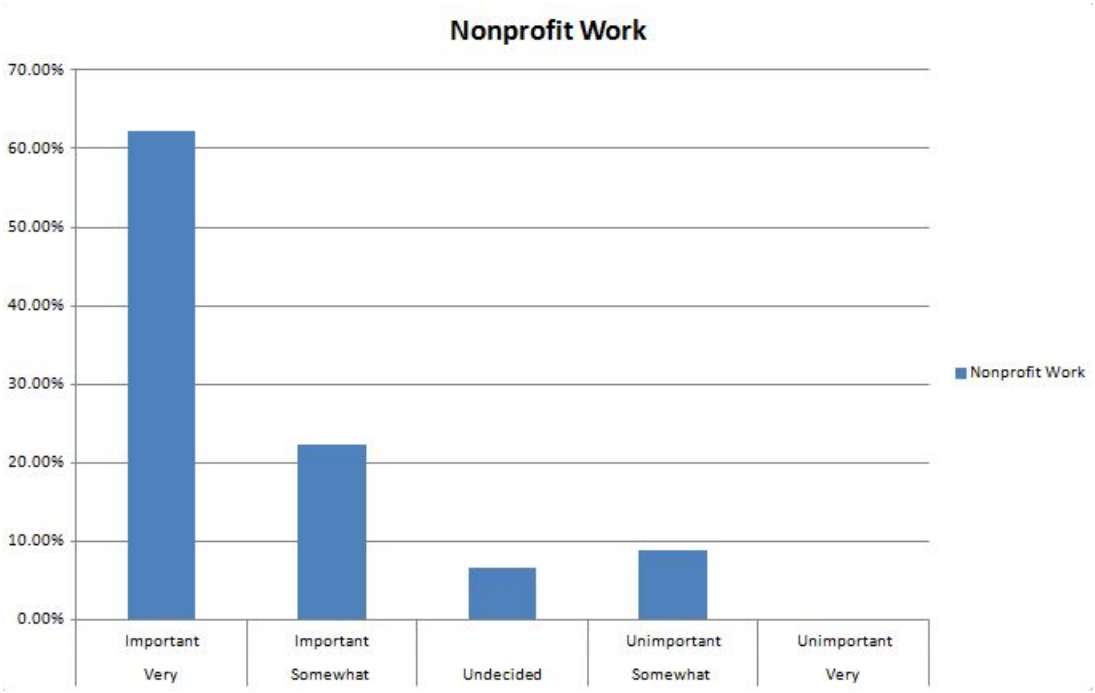

Figure 6.6 Nonprofit Work by Importance to Farm

Community Involvement

Community involvement ranked even higher on the scale than nonprofit work. A solid 69% of respondents rate it as highly important. Two point percent are undecided with the remainder ranking it as somewhat important.

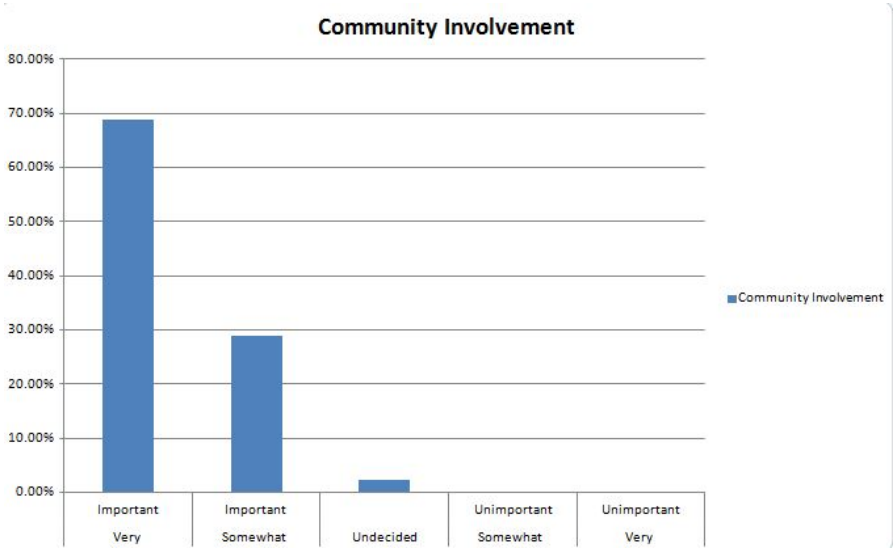

Figure 6.10 Community Involvement

Long and Short Term Goals

Clear long and short term goals garnered no negative responses. Participants were split between very important with 67%, somewhat important with 23% and undecided with 7%.

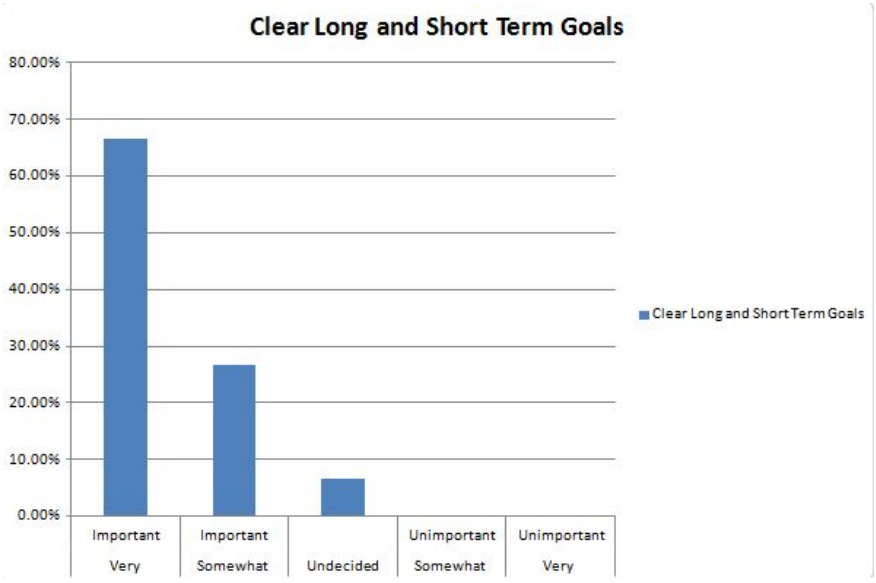

Figure 6.11 Long and Short Term Goals

Child/Pet Policies

Clear child and pet policies were somewhat less solid. While 71% rank these as either somewhat (33%) or very (38%) important, about 24% of the respondents are undecided. Two percent each checked somewhat and very unimportant.

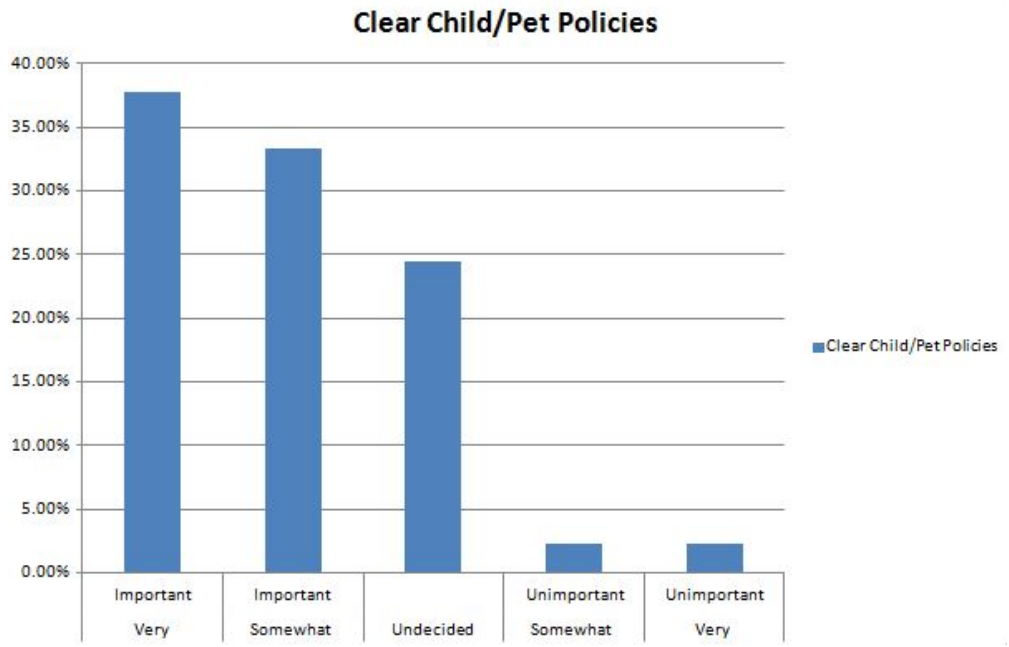

Figure 6.12 Child and Pet Policies

Clear Communication with Volunteers

This category ranked extremely high. Of respondents, 80% rated this as very important to farms with the remaining 20% ranking it as somewhat important.

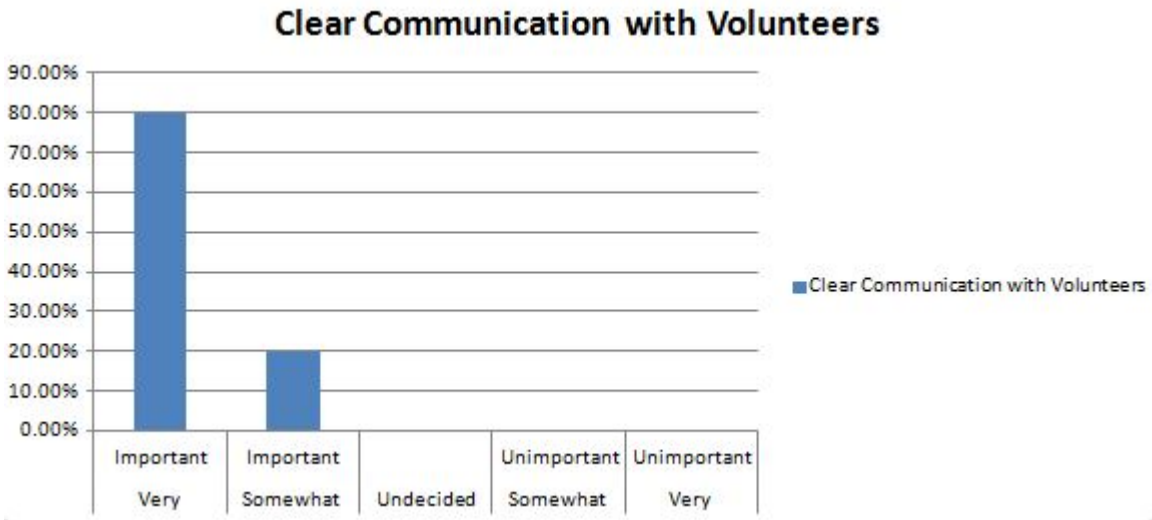

Figure 6.13 Clear Communication with Volunteers

Site Qualities

Disability Access

Of those surveyed, thirteen ranked disability access as very important (29%) while eighteen ranked it as somewhat important (40%) to compose a total ranking of 69%. A moderate 20% feel that disability access ranks as either somewhat or very unimportant while 11% are undecided.

Clear Maps and Directions

Of those surveyed, 67% ranked clear maps and directions as very important with an additional 20% labeling it as somewhat important. Four percent ranked it as very unimportant with 2% ranking it as somewhat unimportant. Seven percent were undecided.

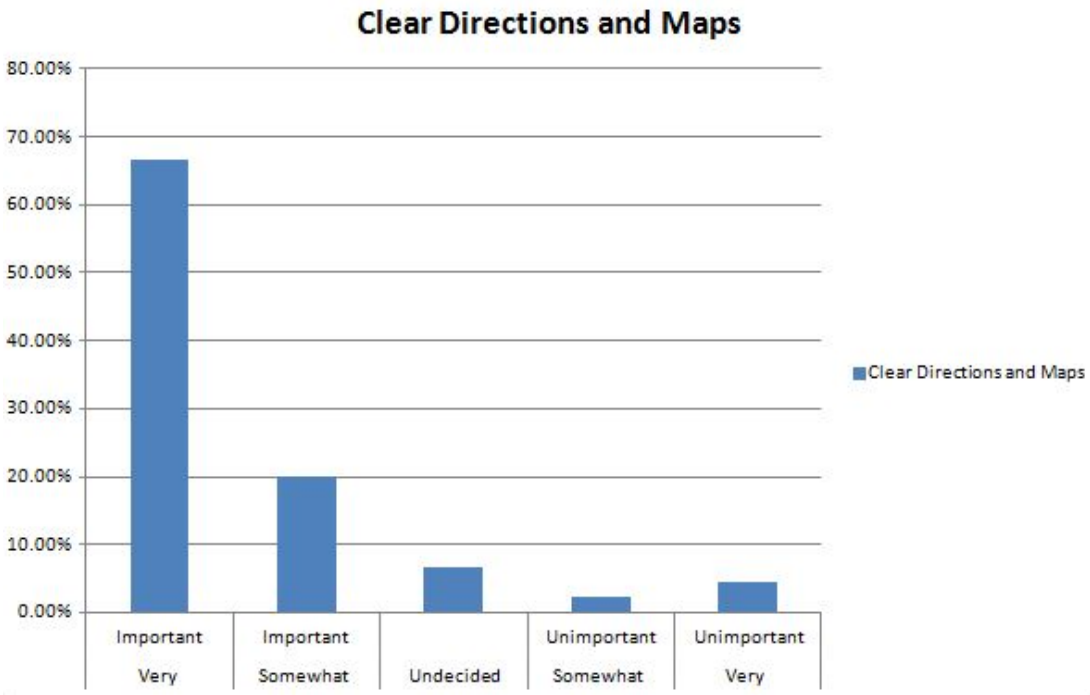

Figure 6.14 Clear Directions and Maps

Low Noise Levels

Results for noise levels sit more widely across the board than many of the other categories. Thirteen percent rank low noise levels as very important; 42% call it somewhat important. Thirteen percent of respondents label it as somewhat unimportant while 11% rank it as very unimportant. An additional 20% are undecided.

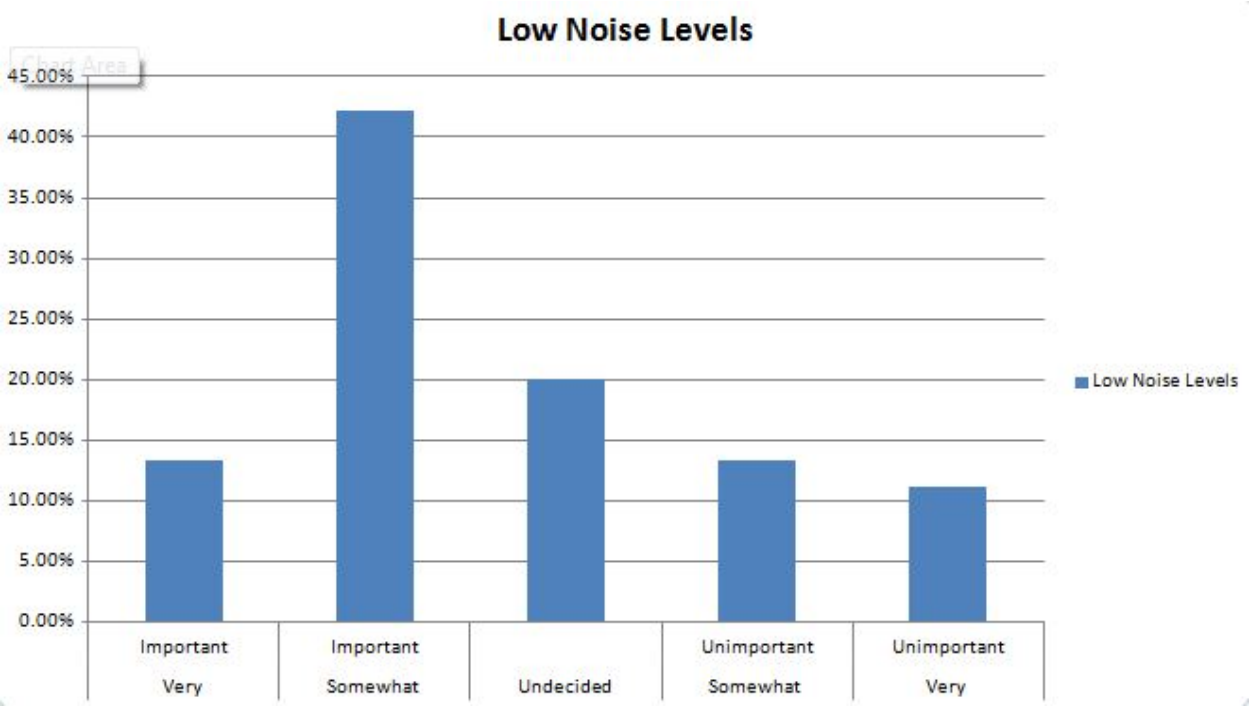

Figure 6.15 Low Noise Levels

Mixture of Sun and Shade

Having a mixture of sun and shade received a thoroughly positive review. 51% ranked it as very important while the remaining 55% labeled it as somewhat important. Two percent of respondents checked very unimportant and undecided each with the remainder selecting somewhat unimportant.

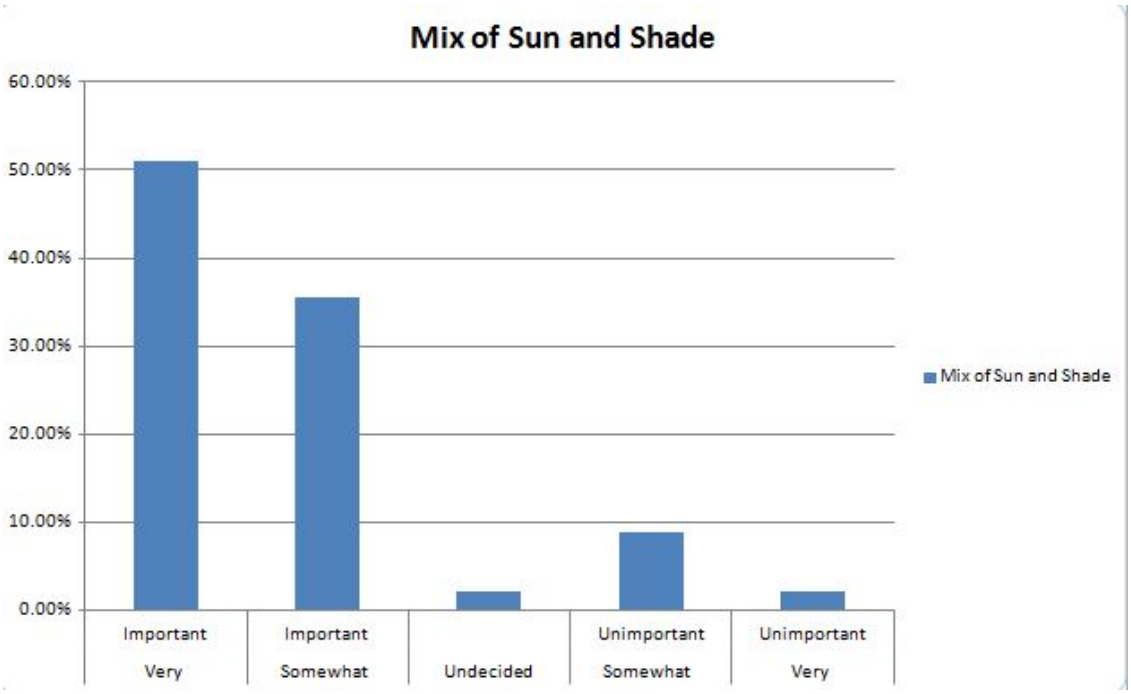

Figure 6.16 Mixture of Sun and Shade

On Site Amenities

Drinking Water

On site-drinking water was ranked as important. 64% of respondents labeled the presence of safe drinking water as very important while 24% rank it as somewhat important, combined for a total of 88%. The remaining respondents ranked drinking water as somewhat unimportant (2%), very unimportant (2%) or were undecided (6%).

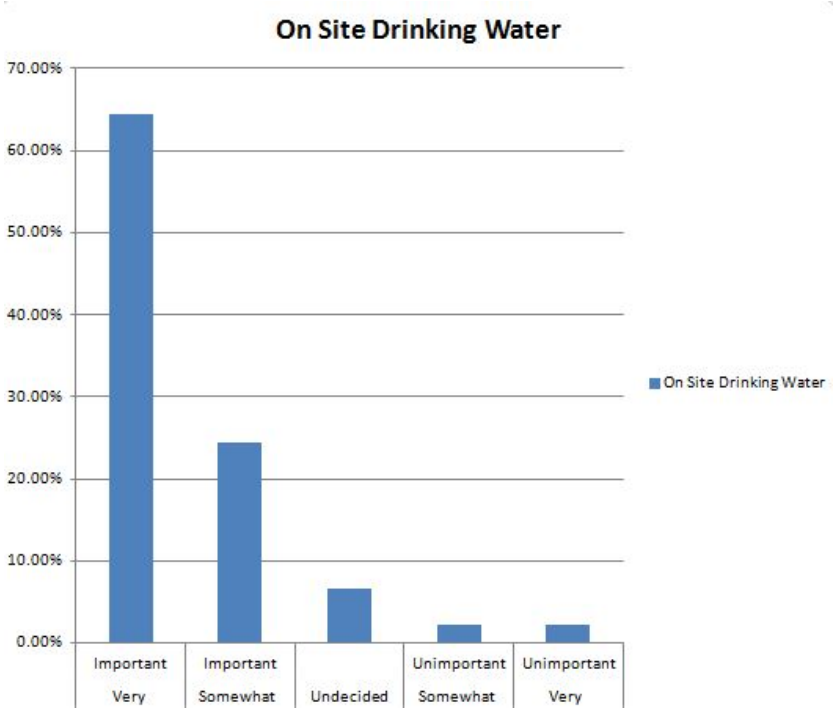

Figure 6.17 On Site Drinking Water

Air-Conditioning / Heat

Temperature control largely ranks unimportant in the scheme of things. Forty-three percent of respondents label it as very unimportant and 22% claim it to be somewhat unimportant. Only 20% rank air-conditioning and heat as somewhat or very important while 16% are undecided.

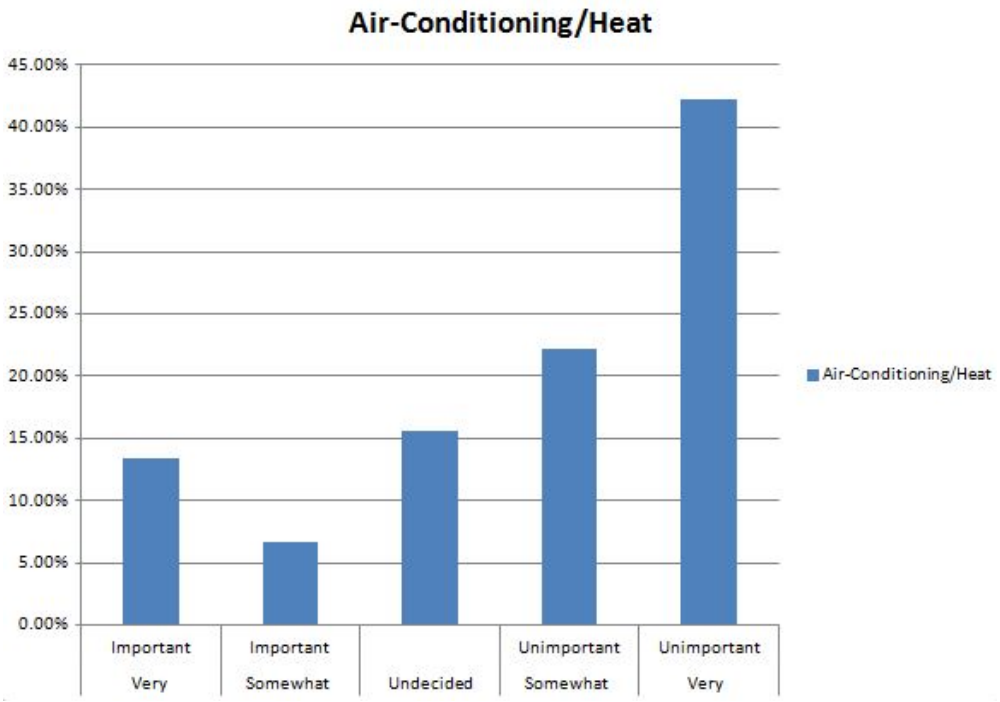

Figure 6.18 Air Conditioning and Heat

On-Site Restrooms

Restrooms sit solidly as "important" in farm life. Eighty-two percent of respondents state that they are either very important or somewhat important. A small 9% are undecided while 2% state that they are somewhat unimportant. Seven percent rank restrooms as very unimportant.

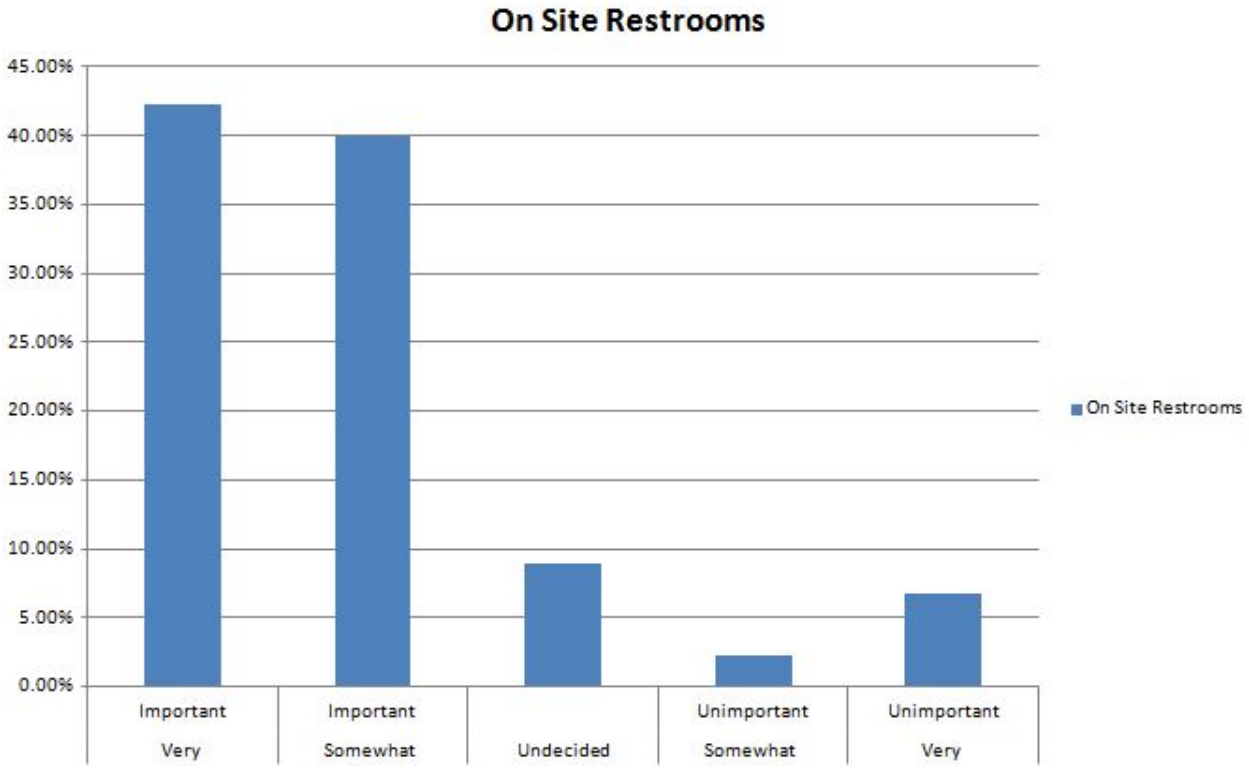

Figure 6.19 On Site Restrooms

On-Site Kitchens

The presence of kitchen within a farm property remains spread almost evenly across the board with 2% ranking them as very important, 31% ranking them as somewhat important, 20% undecided, 22% ranking them as somewhat unimportant and 25% as very unimportant.

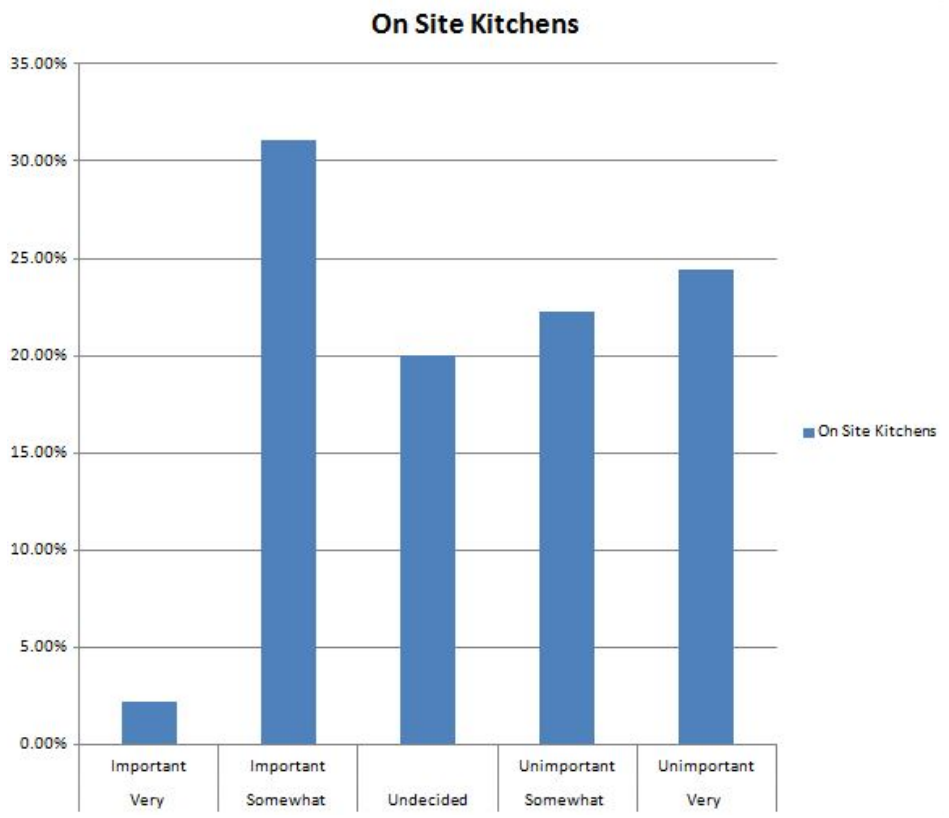

Figure 6.20 On Site Kitchens

Shelter from the Elements

Protection from wind and weather harvested positive views with 73% claiming that it is either very important or somewhat important to a farm's existence. 16% rank shelter as either very or somewhat unimportant. The final 11% are undecided.

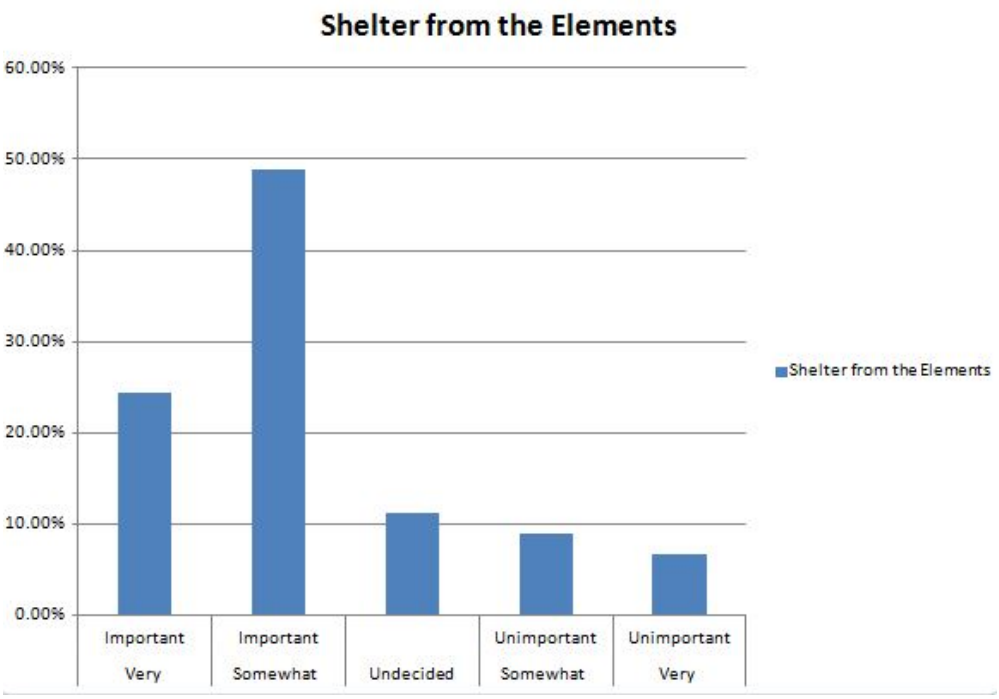

Figure 6.21 Shelter From the Elements

Seating Availability

Seating availability gathered a largely positive result: 21% value seating at very important and 50% rank it as somewhat important. 21% remain undecided and 7% tag seating as unimportant.

Education

Classes

A wide assortment of classes and other educational opportunities received general feelings of approval. Fifty-eight percent of survey participants replied that diverse classes are either somewhat (38%) or very (20%) important. while 16% rank diverse classes as somewhat unimportant. Forty percent label them as very unimportant and the remaining 7% are undecided.

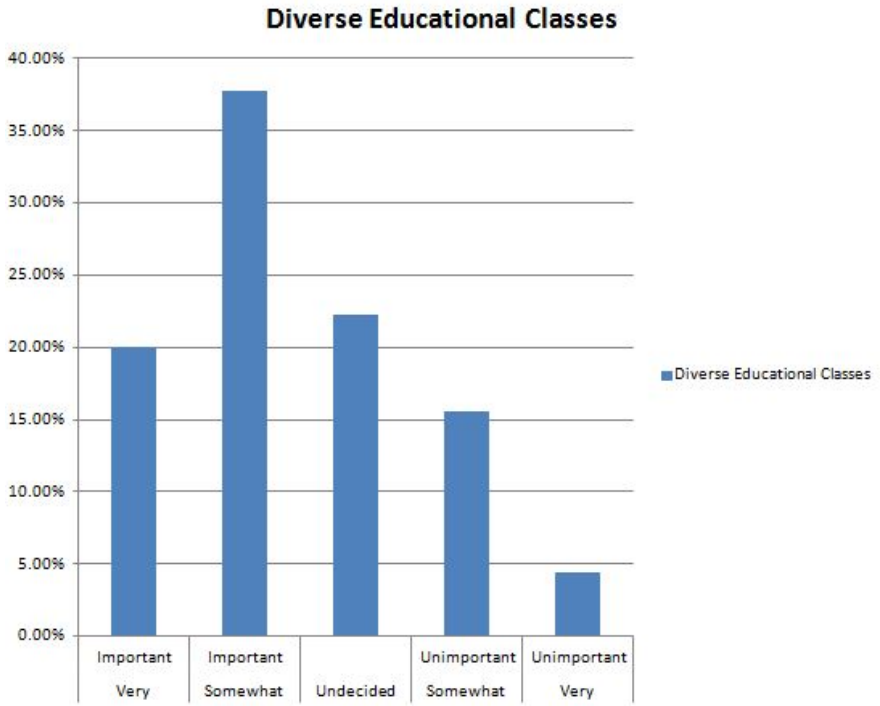

Figure 6.22 Diverse Educational Classes

Local Issues

Survey participants were also asked about various issues and the scale of their affect on their local area. The availability of local food within Fayetteville is largely viewed as not an issue, with 47% claiming that they do not believe it is a problem. Thirty-eight percent labeled it as somewhat of a problem and only 13% claim that it is a big problem in the area. Another 2% were unsure.

Affordable fresh produce was labeled mostly as "not of a problem" with 47% of respondents making that claim. Only 13% feel that it is a major problem while a solid 38% feel that it is only somewhat of a problem. Two percent are not sure.

Food deserts received mixed results. Eleven percent labeled it as a big problem and 31% stated that food deserts were somewhat of a problem. Thirty three percent of respondents claim they are not a problem and 24% were unsure.

Food security was certainly a well-known issue. About twenty-seven percent of respondents replied that it was a big problem while 33% replied that it was somewhat of a problem. Of respondents, 24% replied that food security was not an issue in the NWA area and 16% were unsure.

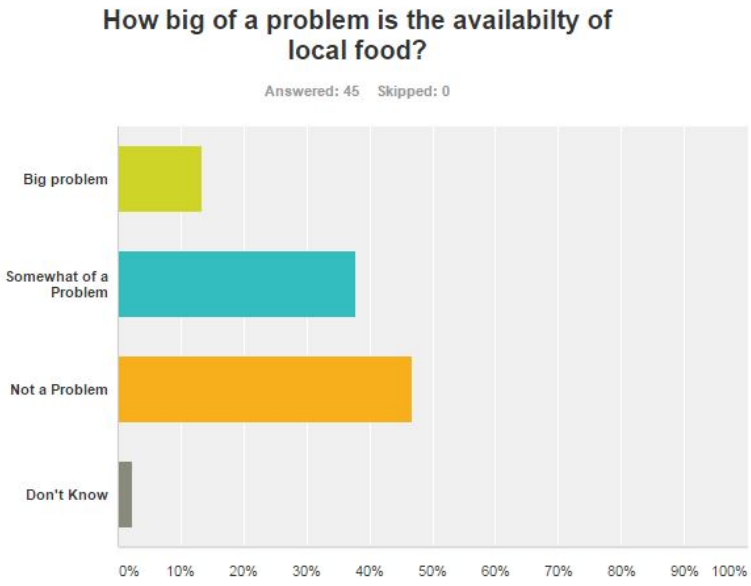

Figure 6.33 Availability of Local Food as Issue

It must be noted that of the respondents to the survey, a number were not local residents

and as such, this data may be skewed. Through the surveying of more local people, particularly those outside of the farm environments, the data could be consolidated to more accurately represent the views of northwest Arkansas residents as a whole.

Other Forms of Production

Among those surveyed, a great many participate in other forms of urban agriculture. Approximately 53% of workers stated that they garden at home while about 56% visit and shop at local farmers markets. A smaller 13% volunteer or purchase produce through community supported agriculture programs or CSAs.

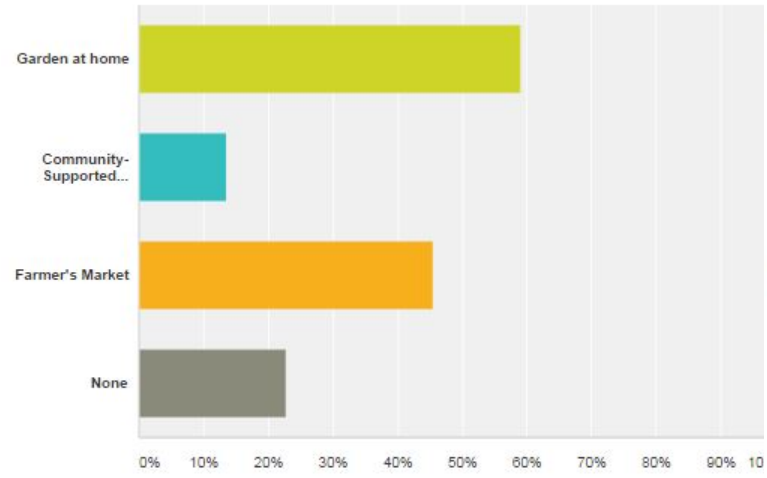

Figure 6.33 Alternative Forms of Food Source (Male)

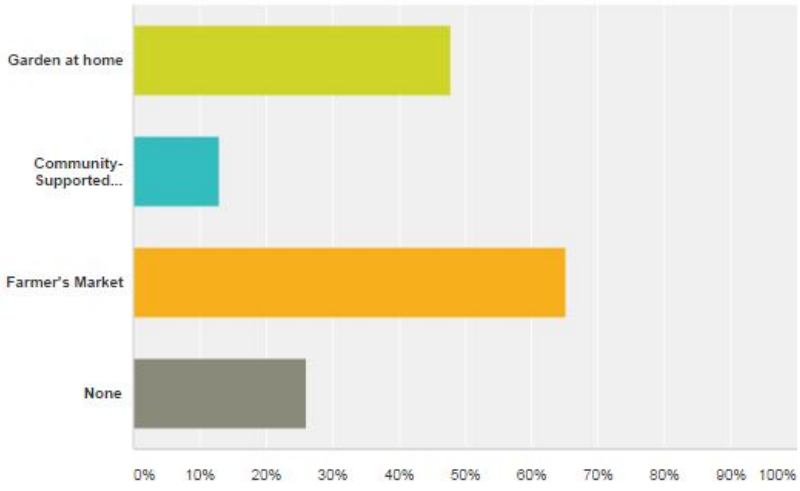

Figure 6.34 Alternative Forms of Food Source (Female)

Twenty-four percent of respondents do not practice any of the above. Among the respondents was also an Arkansas Master Gardener through the Cooperative Extension Office.

There is a notable difference in agricultural practices between male and female respondents (Figure 6.5-6.6). Male respondents were more likely to garden at home than go to a

farmer's market than their female counterparts.

Conclusion

Within the survey, there were a number of findings that were surprising to the researcher. Considering Arkansas's dramatic temperature shifts from below freezing during the winter to over 100 degrees Fahrenheit during the summer, the researcher expected air-conditioning and heat to rank higher in importance. Other surprising statistics included the fact that men gardened at home more often than they would attend a farmer's market while women were the opposite. Another surprising finding was that many of the local issues were not considered to be very big problems; however, by virtue of the survey only questioning people who volunteer at local farms, there is an inherent bias to this question. Surveys would need to be completed outside of the farm's workforce to garner a better understanding of people's views within the city of Fayetteville.

Overall, the survey gathered important data. Of these data, possibly the most important in regards to this study might be that many of the factors that a landscape architect might typically assume were a vital necessity such as seating and shelter from the elements are perhaps not as important to workers of local urban farms as sustainable practices and clear policies.

CHAPTER 7: FUTURE OF URBAN AGRICULTURE

Introduction

In developing a template for urban and civic agriculture, it is important to keep in mind the rapid growth and change that is possible within the urban environment. It is also important to remember that while the primary function of urban agriculture is to produce food, it also needs to function as space in which people want to be. Utilizing public space design principles such as those determined by William H. Whyte in his extensive study of urban plazas throughout the creation of a farm, particularly in public and gathering areas can improve the general public's perception of the farm immensely and can make the space much more comfortable for the people who work and volunteer there (Whyte, Social Life of Small Urban Spaces).

With these things in mind, the next step in this study was to synthesize the data from the site analysis, procedural analysis and the survey results. The study examined commonalities between the constructs of this study, first looking to see if there are any immediate similarities. After that, relationships between categories (such as child policies and community involvement) were examined to discern connections.

Each category was examined through a similar process; it is from this process that the following guidelines were created. For example, was lack of child care a major factor in deterring volunteers from working at the farm? If so, what physical characteristics of the farm might prevent children from safely visiting the farm? What are the farms policies toward children and could they be changed to provide better access to families? Are there existing precedents that do these things well? How can these precedents be utilized in local farms that may not share characteristics?

From these questions and their answers, the researcher combined ideas and precedents to create a template of guidelines that could be utilized on multiple properties throughout the area. The difficulty therein lay in creating something specific enough to be useful but general enough that even new or unusual farms might be able to use them. Because of this contrast, the guidelines were crafted to be slightly more general than the three specific farms involved in the case study might require.

Site Guidelines

1. *Provide signage at the entry of the site, especially in farms with street frontage, and at key points throughout the farm. Signage with directional arrows can be extremely useful navigating large sites or sites with complex layouts and will help workers find their way. Clear maps and directions rated as generally important.*
2. *Create a diversity of seating options. Seating able to hold at least 2/3 of the average number of volunteers should be provided both in shady areas and in sunny areas. Moveable seats can serve both functions. Tables can act as both places to hold water and foods for workers as well as providing space for classes to take notes or complete projects.*
3. *Shelter should be provided as protection from the elements, at minimum for equipment to protect expensive gear from rust or theft. The shelter should be large enough to host several people and should be placed near centers of activity in case of sudden weather changes. Seating should be placed within this shelter*
4. *Parking should be installed close to the main entry in accordance with local laws. Sidewalks should extend from the lot to a main zone to facilitate disability access. If expense is an issue, small areas of disability access such as raised beds near the entry might be used to better include the disabled and meet ADA requirements.*
5. *Any livestock should be placed carefully to minimize noise and odor concerns. Keep nearby residences and local ordinances in mind. In areas with high density, livestock might be best located away from streets, both to lessen stress on the animals and to reduce the risk of unwanted human-animal interactions.*

6. *Clear communication is key in the design process, particularly in areas near or adjacent to residential neighborhoods. When beginning a new farm or making major changes to an existing farm, it would be prudent to inform nearby residents of the changes and what might be occurring. Design charettes could prove useful in developing a new farm.*
7. *Provide habitat for beneficial wildlife and livestock, particularly pollinators such as honeybees and birds. Permaculture techniques such as seasonal rotations, dense plantings, and food forest principles could prove especially useful in creating year-round habitat.*
8. *Utilize vegetation to influence microclimates both to improve plant production and worker satisfaction (Philips, 2013). A large tree that provides twenty square feet of shade in an otherwise sunny plot could be more valuable as a gathering place than as cleared row crops.*
9. *Vertical gardens, green roofs and permaculture practices create highly efficient production models that are especially effective in smaller urban lots (Philips)*
10. *When possible, work with a landscape architect or other planting design specialist to best utilize your existing space. Check soil quality and acidity before planting to best use the space productively.*
11. *Agriculture sites should be selected near public transit locations. Many of those most in need of food assistance also lack access to many forms of transportation.*
12. *When possible, site farms near public trails. The trails provide another way for people to travel to the farm.*
13. *Bring the farm up to the street when possible. This can improve visibility, raise awareness of the farm, and make it easier to find and access.*
14. *Be aware of topography when selecting a site. Dramatic slopes and steep changes, while potentially pleasing o the eye, can prove problematic in water management and crop production.*
15. *Locate productive landscapes within food deserts to mitigate issues of food insecurity and community health. Some cities have data on food deserts and areas with high poverty that could benefit from urban agriculture. Local nonprofits are another good place to gather information and potentially form partnerships with. (Philips, 2013)*

16. *Farms need not be confined to a single lot. A series of smaller plots integrated throughout a neighborhood might better promote community involvement than a single massive plot.*
17. *If security is a concern, providing lighting and locating within a highly visible area may help to alleviate these issues.*
18. *Restrooms should be provided on site. A lack of both restrooms and running water for use of hand-washing could create sanitation and safety issues.*

Policy Guidelines

1. *Farms need to be zoned to allow agricultural practices. Work with local and county governments to promote urban agricultural practices.*
2. *Policies need to be put in place to allow produce to be sold on site. Purchasing produce directly from the farmer provides connections between people and a connection to the land it was grown on.*
3. *If on site slaughter is not allowed, a safe, sanitary area should be provided somewhere readily accessible by local farms. Livestock can provide food for many people; limiting this form of food could prove more harmful than beneficial.*
4. *Provide opportunities for re-use operations, especially concerning waste products such as leftover food. Working with local restaurants, recycling experts, and composters helps create a closed cycle that limits waste.*
5. *If security is a concern, closing the farm after dark may prove beneficial to reducing criminal activity.*

City Guidelines

1. *Plan for integrated agriculture cycles. Try to limit waste going in to landfills or the watershed. Urban farms provide places where debris from cut trees can be sent.*
2. *Communicate clearly with stakeholder and farm owners to determine what needs are and are not being met. Meetings during each season are advised. Furthermore, the city should provide information for those wishing to practice urban agriculture.*

3. *Establish design guidelines on a city level. These might include notes on entries and the farm's interaction with the streetscape. If done well, urban agriculture can compose a key portion of the city's greenscape.*
4. *Work to establish protection for urban farms as a valuable asset to the community. Their productivity can be greatly reduced if they are frequently bought out as the land around them raises in value. Furthermore, temporary lots can limit more permanent practices such as urban orchards.*

Procedural Guidelines

1. *Hours of operation should be expanded whenever possible without compromising security.*
2. *Develop goals and objectives early. Knowing where the farm will be in one, two or three years is imperative in planning permanent amenities such as buildings or orchards.*
3. *Work within existing city resources. Some cities have policies in place for the catching of food waste or the mulching of trees which could be integrated in to compost or other agricultural systems.*
4. *Determine your farm's level of interaction with the community early. Will your farm be community based with many volunteers, production-based with a few full-time employees or somewhere in between? This interaction influences many other farm policies such as security and educational classes.*
5. *Offer opportunities for education, particularly for children and teenagers. The benefits of urban agriculture can be particularly present in younger generations.*

Conclusion

It is critical to note that these will not be a catch-all for all local farms. Some farms will face issues that others will not or have unique opportunities presented by topography, surrounding businesses and the like. This research can act as a starting point for businesses and persons seeking to start or improve their lots; nonetheless, it is recommended that interested parties speak to professionals who may make a detailed analysis and recommendations for specific properties.

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APPENDIX A: COVER LETTER AND SURVEY

Dear
participant,

What do you think about urban agriculture opportunities for Fayetteville, AR and for the NWA region? I am very interested in hearing your views on this topic and other related issues such as food security through the attached short survey. Completing the survey will only take a few minutes but sharing your thoughts and opinions could help shape the development of existing and future urban farms within the area, even of farms where you currently volunteer.

Please keep in mind that your feedback is strictly anonymous. The survey is marked with a unique five digit code that, rather than your name, will help me to analyze both your responses and the responses of others who choose to respond. As such, please do not sign or write your name anywhere on the survey. Eventually your survey will be combined with those from the other urban farms in the area. The information will be a key facet for my academic thesis research and possibly used to stimulate and influence future agricultural developments in the city.

My research has been approved by the University of Arkansas' Institutional Review Board (IRB). This board, among their other duties, recommends policies on public participation in research and monitors their implementation. If you have questions or concerns regarding this research or the policies of the IRB, please email irb@uark.edu or call 479-575-2208.

Please read the survey instructions carefully, and then complete it to the best of your ability and return it to me in the addressed envelope provided. Please note that by completing and returning the survey, you are implying your consent for me to use your feedback in my work. If you are a student, your participation is completely voluntary and separate from any class or exercise, and there is no penalty for not taking part.

Many thanks for taking the time to help me with this vital research.

Best regards,

Donna Freeman
Department of Landscape Architecture
Fay Jones School of Architecture
University of Arkansas
Fayetteville
Arkansas
AR 72701

First, I would like to ask you some questions about the urban farm(s) where you work.

1. Which of the following farms do you currently volunteer at? Check all that apply.

   - ☐ Tricycle Urban Farm
   - ☐ Ozark Alternative Farm
   - ☐ Cobblestone Farm
   - ☐ other_____

2. How long have you volunteered at the farm?

   - ☐ less than one year,
   - ☐ one years to under 5 years,
   - ☐ 5 years to under 10 years,
   - ☐ 10 years or more

3. How often do you work at the farm?

   - ☐ Once a month or less
   - ☐ Two or three times a month
   - ☐ Once or more a week
   - ☐ Daily

4. Overall, how satisfied are you volunteering at the farm?

   - ☐ very satisfied
   - ☐ somewhat satisfied
   - ☐ somewhat dissatisfied
   - ☐ very dissatisfied

5. D ı you practice any other urban agriculture? Check all that apply.
   - ☐ Garden at home
   - ☐ Community-supported agriculture
   - ☐ Farmer's Market

6. Rank the following by importance to an urban farm.

	Very Important	*Somewhat Important*	*Undecided*	*Somewhat Important*	*Unimportant*
Disability Access					
Clear directions and maps					
Low noise levels					
Mix of sun and shade					
Sustainable agricultural practices					
Seating availability					
Shelter from the elements					
On-site drinking water					
Air-conditioning/ heat					
Livestock production					
On site restrooms					
On site kitchens					
Diverse classes					
Security					
Presence of farm managers					
Nonprofit work					
Community Involvement					
Clear long and short term goals					
Clear child/ pet policies					
Clear communication with volunteers					

What would you say are the top two things that matter to you in choosing a farm to work at?

- ☐ safety
- ☐ disability access
- ☐ diversity of classes
- ☐ multi-season crops
- ☐ length of commute
- ☐ available child care
- ☐ availability of on-site amenities
- ☐ other. Please explain. _____
- ☐ don't know

7. What size farm would you prefer to work at?
   - ☐ Small farm
   - ☐ Medium farm
   - ☐ Large farm

8. Would you prefer to work in a farm within the inner city, along the suburbs or outside of city limits?

   - ☐ Inner city
   - ☐ Suburbs
   - ☐ Outside city limits
   - ☐ Don't know

9. What is the largest obstacle to you for working on the farm?

   - ☐ Lack of time
   - ☐ Distance from work and home
   - ☐ Farm hours
   - ☐ Child care requirements
   - ☐ Poor weather

10. When do you typically work at the farm?

    - ☐ Weekdays before work
    - ☐ Weekdays after work
    - ☐ Weekends
    - ☐ Other

'

Next, we are interested in your opinions about the region or broader geographic area that you live in. I am going to read you a list of problems other people have told us about. For each one, please tell me if you think this is a big problem, somewhat of a problem, or not a problem in your region.

11. How about the availability of fresh produce you can afford?

- ☐ Big problem
- ☐ Somewhat of a problem
- ☐ Not a problem
- ☐ Don’t know

12. How about availability of local food?

- ☐ Big problem
- ☐ Somewhat of a problem
- ☐ Not a problem
- ☐ Don’t know

13. How about food deserts?

- ☐ Big problem
- ☐ Somewhat of a problem
- ☐ Not a problem
- ☐ Don't know

14. How about food security?

- ☐ Big problem
- ☐ Somewhat of a problem
- ☐ Not a problem
- ☐ Don't know

About you

Thank you again for taking the time to complete the questionnaire. To help us understand who feels what, we would be grateful if you could let us know the following information. Your answers are strictly confidential and will be used only for the analysis of this study. You will not be identified in any way.

What is your sex?

- ☐ Male
- ☐ Female

What is your age?

- ☐ Under 18 years old
- ☐ 18-19
- ☐ 20-24
- ☐ 25-29
- ☐ 30-34
- ☐ 35-39
- ☐ 40-44
- ☐ 45-49
- ☐ 50-54
- ☐ 55-59
- ☐ 60-64
- ☐ 65-69
- ☐ 70-74
- ☐ 75-79
- ☐ 80 or over

How many years have you lived in Northwest Arkansas?

____

What is your zip code?

_____

What is your ethnic background? (check all that apply):

- ☐ Native American
- ☐ African American
- ☐ Asian
- ☐ Pacific Islander
- ☐ Caucasian
- ☐ Hispanic
- ☐ Other_____

What is the highest level of education you have completed?

- ☐ Did not complete high school
- ☐ High school or equivalent
- ☐ Some college
- ☐ Technical or Associate's degree
- ☐ Bachelor's degree
- ☐ Graduated

Appendix B- Tables

Table 6.1 Importance to an Urban Farm by Category

	Very Important	Somewhat Important	Undecided	Somewhat Unimportant	Very Unimportant	Average Rating
Disability Access	**28.89%** 13	**40.00%** 18	**11.11%** 5	**13.33%** 6	**6.67%** 3	2.29
Clear Directions and Maps	**66.67%** 30	**20.00%** 9	**6.67%** 3	**2.22%** 1	**4.44%** 2	1.58
Low Noise Levels	**13.33%** 6	**42.22%** 19	**20.00%** 9	**13.33%** 6	**11.11%** 5	2.67
Mix of Sun and Shade	**51.11%** 23	**35.56%** 16	**2.22%** 1	**8.89%** 4	**2.22%** 1	1.76
Sustainable Practices	**77.78%** 35	**22.22%** 10	**0.00%** 0	**0.00%** 0	**0.00%** 0	1.22
Seating Availability	**15.56%** 7	**31.11%** 14	**22.22%** 10	**15.56%** 7	**15.56%** 7	2.84
Shelter from the Elements	**24.44%** 11	**48.89%** 22	**11.11%** 5	**8.89%** 4	**6.67%** 3	2.24
On Site Drinking Water	**64.44%** 29	**24.44%** 11	**6.67%** 3	**2.22%** 1	**2.22%** 1	1.53
Air-Conditioning/Heat	**13.33%** 6	**6.67%** 3	**15.56%** 7	**22.22%** 10	**42.22%** 19	3.73
Livestock Production	**2.22%** 1	**33.33%** 15	**35.56%** 16	**22.22%** 10	**6.67%** 3	2.98
On Site Restrooms	**42.22%** 19	**40.00%** 18	**8.89%** 4	**2.22%** 1	**6.67%** 3	1.91
On Site Kitchens	**2.22%** 1	**31.11%** 14	**20.00%** 9	**22.22%** 10	**24.44%** 11	3.36
Diverse Educational Classes	**20.00%** 9	**37.78%** 17	**22.22%** 10	**15.56%** 7	**4.44%** 2	2.47
Security	**22.22%** 10	**40.00%** 18	**15.56%** 7	**17.78%** 8	**4.44%** 2	2.42
Presence of Farm Managers	**46.67%** 21	**40.00%** 18	**13.33%** 6	**0.00%** 0	**0.00%** 0	1.67
Nonprofit Work	**62.22%** 28	**22.22%** 10	**6.67%** 3	**8.89%** 4	**0.00%** 0	1.62
Community Involvement	**68.89%** 31	**28.89%** 13	**2.22%** 1	**0.00%** 0	**0.00%** 0	1.33
Clear Long and Short Term Goals	**66.67%** 30	**26.67%** 12	**6.67%** 3	**0.00%** 0	**0.00%** 0	1.40
Clear Child/Pet Policies	**37.78%** 17	**33.33%** 15	**24.44%** 11	**2.22%** 1	**2.22%** 1	1.98
Clear Communication with Volunteers	**80.00%** 36	**20.00%** 9	**0.00%** 0	**0.00%** 0	**0.00%** 0	1.20