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Feasibility Study and Best Practices for a Campus Community Garden on the University of Arkansas Campus

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Feasibility Study and Best Practices for a Campus Community Garden on the University of
Arkansas Campus

An Undergraduate Honors Thesis

in the

Department of Crop, Soil, and Environmental Sciences

Submitted in partial fulfillment of the requirements for the
University of Arkansas
Dale Bumpers College of Agricultural, Food and Life Sciences
Honors Program

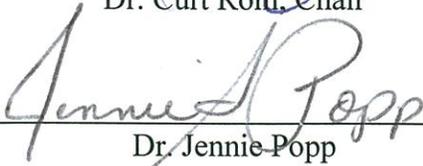
by

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December 2011



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Abstract

Although community gardening on college campuses is not a new concept, campus community gardens have recently grown in popularity. Campus community gardens, however, have not been extensively researched. In order to better understand campus community gardens and to determine the feasibility of a campus community garden at the University of Arkansas in Fayetteville (UAF), this study was conducted in three components. An online survey of 88 campus community gardens in the United States and Canada served as the first national survey of universities and colleges with campus community gardens. The survey included demographic information, management, funding, liabilities, risks, obstacles and successes, uses, and operations of the gardens. Visits to six campus gardens provided additional information regarding on-site garden management and specific best practices of the garden. Personal interviews were conducted with select UAF student, faculty, staff, and administration members in decision-making capacities to understand the potential opportunities and limitations to a community garden at the UAF. A campus community garden at the UAF was determined to be feasible if identified challenges and obstacles were addressed properly. Seven best practices for campus community gardens were determined and will be a useful tool for campus community garden participants and leaders.

Contents

I.	Introduction	4
II.	Background	7
	A. Learning in community and school gardens	7
	B. Health and nutrition	10
	C. Social capital in community gardens	12
	D. Sustainability and community gardens	13
III.	Methods	15
	A. Survey of campus community gardens in the US and Canada	15
	1. Survey participation database development	15
	2. Development of online survey	16
	3. Execution of the survey	17
	4. Data management	17
	5. Hypothesis development and testing	17
	B. Case study site visits	19
	1. Contact for participation	19
	2. Development of site visit questions	19
	3. Execution of site visits	20
	4. Data management	20
	C. UAF Campus Feasibility Study Interviews	20
	1. Development of interview questions	20
	2. Execution of interviews	21
	3. Data management	21
IV.	Results	21
	A. Online survey	21
	1. Descriptive statistics	22
	2. Hypotheses tested	35
	B. Case Studies	42
	1. Hendrix Community Garden at Hendrix College	42
	2. The Burning Kumquat at Washington University	44

3.	<i>Community Garden at University of Texas in Arlington</i>	48
4.	<i>Concho Community Garden at University of Texas in Austin</i>	50
5.	<i>The Living Library at Texas State University</i>	53
6.	<i>Community Garden at Texas A&M</i>	55
C.	Feasibility Study	57
1.	<i>Garden Logistics and Operations</i>	58
2.	<i>Opportunities of a Campus Community Garden</i>	60
3.	<i>Challenges, obstacles and concerns of a campus community garden</i>	62
4.	<i>Feasibility of a campus community garden</i>	64
V.	Discussion and Conclusions	66
A.	Feasibility of a campus community garden at UAF	66
B.	Best practices for campus community gardens	69
VI.	Literature Cited	71
	Appendices.....	77

I. Introduction

Concerns over food security, adequate nutrition, food costs, and “food miles” have given rise to interest in sustainable and local agriculture efforts worldwide (Turner et al., 2011; Weber and Matthews, 2008). University campuses across the United States have begun initiatives towards becoming more sustainable, with many institutions researching sustainability in several contexts. One consideration of sustainability is the local food system and food sourcing. Campus community gardens are symbolic of local food systems and have become an educational model for understanding food issues.

Of the 322 institutions surveyed in the United States and Canada for The College Sustainability Report Card, 70% of the respondents maintained a campus community garden or farm (The College Sustainability Report Card, 2011). Campus community gardens provide means for practicing and researching topics in agriculture and agribusiness, horticulture, environmental science, resource management, sustainability, social sciences, landscape design, and nutrition. Campus community gardens also provide opportunities for students to participate in experiential learning, develop interpersonal and gardening skills, and gain access to fresh produce (Alaimo et al., 2008; Allen et al., 2008; Macias, 2008).

Although several universities across the United States and Canada have established campus community gardens, there is no published research regarding campus gardens. A better understanding of campus community gardens and the feasibility of a garden on the University of Arkansas, Fayetteville (UAF) campus will lead to a better understanding of how a garden can contribute to education, sustainability, and food security goals of the UAF campus and serve as a model for campuses across the country.

The UAF is working towards becoming a more sustainable campus, through the establishment of the UA Sustainability Council. The Sustainability Council outlines the “Seven Pillars Working Groups” to guide sustainability efforts on the UAF campus (The University of Arkansas, no date). The development of a campus community garden at the UAF pertains to five of the “Seven Pillars Working Groups.” Academics and Research is the first pillar. A community garden on the UAF campus could be available for participation by students, faculty and staff, which allows for an interdisciplinary approach to sustainability education. Both pillars, Water Resources and Land Use and Development, identify storm water discharge as a problem to address, pertaining to the quantity and quality of runoff on campus. Gardens can be designed to improve water quality by catching and retaining storm water, improving surface infiltration, and therefore reducing storm water runoff impact (Yang et al., 2010). Food, Agriculture and Forestry is another relevant pillar. A campus community garden directly supports efforts towards sustainable food systems, with campus community members gaining practical knowledge about producing food and managing natural resources. The final relevant pillar is Social and Community. A campus community garden on the UAF campus could provide social and community benefits, such as building strong social networks and increasing community pride (Firth et al., 2011; Wakefield et al., 2007), and could serve to engage the wider Fayetteville community in outreach activities.

Student malnutrition is an important issue that must be addressed on university campuses (ACHA, 2011). According the American College Health Association biannual report on university student health (ACHA, 2011), Body Mass Index values calculated from the respondents’ height and weight information indicated that 32.4% of the respondents were overweight to obese. Furthermore, 93.8% of the respondents reported consuming less than the

recommended five servings of fruits and vegetables per day (ACHA, 2011). Community gardens provide potential ways to increase preference for and consumption of fruits and vegetables (Alaimo et al., 2008; Litt et al., 2011; Wakefield et al., 2007), which may encourage healthier lifestyles and reduce obesity on university campuses.

On the other end of the spectrum, hunger in Northwest Arkansas and on the UAF campus is a concern. In Washington County, 15.5% of the population is food insecure (Feeding America, 2009). Of those being served at local Feed America Food Banks in the Northwest Arkansas region, 49.7% of those being served are under the age of 29, with 12.2% between the ages of 18 and 29 (Mabli et al., 2010). The opening of the Full Circle Food Pantry on the UAF campus in February 2011, which serves UAF faculty, staff and students, provides evidence that there are food insecure students and personnel on the UAF campus. The pantry serves forty people per week on average, and more people are being served as awareness of the pantry increases (Arkansas Newswire, 2011). A campus community garden at the UAF would not only provide a practical tool for both nutrition and sustainable agriculture education, but it would also provide for awareness and availability of healthy foods.

Researching campus community gardens and the feasibility of a garden on the UAF campus could lead to a better understanding of how campus gardens can contribute to education, sustainability goals, and food security. The purpose of this study was two-fold. The first objective was to survey campus community gardens in the United States and Canada, in order to gather demographic information, management practices, and challenges and successes of the gardens. The second objective was to determine the feasibility of a campus community garden at the UAF.

The study was conducted in three parts; an online survey of campus community gardens in the United States and Canada, site visits to six campus community gardens, and personal interviews with UAF student, staff, faculty and administrative leaders regarding the feasibility of a campus community garden at the UAF.

The information gathered from the three portions of the study will provide information regarding the opportunities for, challenges of, and best practices for operating campus community gardens.

II. Background

The American Community Garden Association defines a community garden as “any piece of land gardened by a group of people” (ACGA, no date). Even though there is no published research about campus community gardens, there is an abundance of relevant research pertaining to the health, education and social behaviors of adults and children participating in school gardens and community gardens, in addition to the ways in which community gardens contribute to sustainability. This research provides insight into the operations, social interactions, and potential benefits present in community and school gardens and allows for interpretation of how they may be applied in the university setting.

A. Learning in community and school gardens

School gardens have been shown to positively influence participating students, with relation to science achievement, life skills and “natural human capital” (Fusco, 2001; Klemmer et al., 2005; Krasny and Tidball, 2009; Krasny, 2009; Macias, 2008; Robinson and Zajicek,

2005; Smith and Motsenbocker, 2005). School gardens and community gardens give participants opportunities to bridge concepts about growing food, environmental stewardship, and community engagement (Krasny and Tidball, 2009). Although the majority of these studies involve the educational influences of community and school gardens upon adolescents, similar topics may be learned and researched in campus community gardens by students, faculty and staff at a higher level. For example, research about the effects of participating in school gardens upon science achievement scores of youth (Klemmer et al., 2005; Smith and Motsenbocker, 2005) alludes to the concept that university students may apply science concepts acquired in the classroom by designing and conducting scientific research within the garden.

Participation in school and community gardens provides participants with hands-on learning, allowing for them to acquire scientific knowledge through witnessing and interacting with ecological processes in the garden (Krasny and Tidball, 2009). Science achievement scores of elementary school children participating in the school garden as a supplement to the science curriculum have been compared with the scores of those students who did not have experiences in the school garden (Klemmer et al., 2005; Smith and Motsenbocker, 2005). Klemmer et al. (2005) found that third, fourth and fifth grade students who participated in the school garden had higher science achievement scores compared with the control group of students, with the fifth grade students who participated in the garden making significantly higher scores than the control group. These results were in agreement with previous research that indicated experiential activities increased student knowledge about classroom topics (Klemmer et al., 2005). One explanation for the fifth grade students scoring significantly higher scores than the younger students could be that older students had more cognitive skills and were therefore able to learn, apply and relate science concepts learned in the classroom and in the garden (Klemmer et al.,

2005). This explanation may provide insight into how university students could utilize a campus community garden, with regards to scientific learning and achievement.

Community gardens not only provide ways to supplement classroom learning, but also ways to gain life skills and “natural human capital” (NHC). “Natural human capital” refers to both human capital and natural capital (Macias, 2008). Human capital is a set of skills and education that one accumulates and uses for employment. Natural capital refers to the essential ecosystem services that contribute to human economy. Community gardens have been shown to encourage NHC through social interactions, where garden members learn from each other, and direct experience with growing food, which provides a connection to the environment. A working knowledge of growing food is increasingly important as food prices and food miles increase (Macias, 2008). Those who have gained NHC from experiential learning, perhaps in a community garden, could have the potential to produce food independently. Participation in a campus community garden could provide students with opportunities to gain NHC that can be used in job market (Holland, 2004).

School and community gardens give participants the opportunity to engage and learn with others, which helps develop leadership, teamwork and interpersonal skills pertaining to conflict resolution, communication and cooperation (Allen et al., 2008; Robinson and Zajicek, 2005; Twiss et al., 2003). Robinson and Zajicek (2005) assessed the changes in life skills development of elementary school students participating in a one-year school garden program and those students who did not participate in the garden, through analyzing pre-test and post-test scores of the students. The skills that were analyzed included teamwork, self-understanding, leadership, decision making skills, communication skills and volunteerism. Students who participated in the garden had significantly higher overall scores in the post-test, while the control group did not.

Participating students also received significantly higher scores on specific questions related to teamwork and self-understanding, but did not receive significantly higher scores on the questions related to the four other constructs (Robinson and Zajicek, 2005). University students attend college not only to learn in a particular academic field, but to also gain meaningful experiences that can be translated into the real world (Van T. Bui, 2002). Opportunities to gain life skills in community gardens could provide valuable experiences for students outside of the classroom.

B. Health and nutrition

Community gardens provide participants with access to inexpensive, fresh produce and opportunities for increased physical activity. Consumption of fruits and vegetables is low among college students, which is a problem that could be addressed in community gardens. Among college students who participated in a study carried out by the American College Health Association, 93.8% of the respondents reported consuming less than the recommended five servings of fruits and vegetables per day and over 30% of the respondents were overweight to obese (ACHA, 2011). Participating in a community garden may promote healthier lifestyles, which can help address obesity problems on university campuses. Furthermore, hunger is also a problem that can be addressed in community gardens, through providing access to fresh produce. Community gardens have potential for increasing food equity in a community, which refers to the equal opportunity for all to access healthy and safe foods (Macias, 2008).

Participation in community gardens may help to increase consumption of fruits and vegetables in the United States (Litt et al., 2011). Studies documenting fruit and vegetable intake of individuals participating in community gardens compared with non-gardeners revealed that

those who participate in community gardens consume more fruits and vegetables than non-gardeners (Alaimo et al., 2008; Litt et al., 2011; Twiss et al., 2003). Participation in community gardens may also provide opportunities for increased physical activity in the garden, which can help promote a healthy lifestyle for participants (Twiss et al., 2003; Wakefield et al., 2007). However, it cannot be determined from these studies whether or not participation in the community garden alone influenced fruit and vegetable consumption or physical activity. There may be other factors that affect healthy dietary and physical habits among community gardeners. For example, individuals who prefer to eat fruit and vegetables may participate in community gardens as a means for growing the foods they already consume regularly, rather than community gardens positively influencing consumption preference (Alaimo, 2008).

There is potential to grow adequate amounts of food in community gardens, which can help reduce household food costs. Farming Concrete is a network of community gardens in New York City, New York and began a project that sought to document the amount (by weight) and type of produce that was produced in community gardens. The 2010 Harvest Report (Farming Concrete, 2010) estimated that 110 gardeners in 67 community gardens with a total area of 0.69 hectares produced nearly 40,800 kilograms of produce over the summer and autumn seasons, which was estimated to be valued at over \$200,000. This report provided evidence that community gardens may be viable ways to supplement food bought from the grocery store (Litt et al., 2011). By not relying upon grocery stores for produce, garden participants can exert a certain power over what they consume, which may give them a sense of economic independence (Turner, 2011).

In Macias' (2008) research of community-based agricultural schemes and their social impact upon communities, he considered how these schemes affected food equity of community

members in Burlington, Vermont. The community-based agricultural schemes Macias analyzed included community gardens, community-supported agriculture (CSA) programs, and a direct-market organic farm. Low-income households may not have access to high quality and locally-produced produce due to high costs and the inability to invest time in order to seek out locally-grown foods or keep up a plot in a community garden. The community garden provided for the best mode of local agriculture that supported food equity, compared with the CSA program and the direct-market farm. Although community gardens provided an inexpensive method for gaining fresh produce and thus encouraged broad participation by all socioeconomic groups, the high time commitment required for keeping up garden plots discouraged individuals with multiple jobs and/or children. All three of the local agriculture programs sent excess produce to local social service agencies, which played a role in increasing food equity in the wider community (Macias, 2008). Campus community gardens may promote food equity in the university community, through providing a way for low-income students to gain access to fresh produce, either from working directly in the garden or from receiving produce from a local food pantry.

C. Social capital in community gardens

Community gardens serve as places where people work together, share ideas and knowledge, and exchange cultural information. As a result, community gardens can promote community building and social capital. Social capital is “a concept used to refer to the social structures, institutions and shared values making up communities” (Firth et al., 2011, p. 558-59). Social capital is based upon the trust that is built between individuals in a social network, and it

has been suggested that strong social networks may benefit group members and society as a whole (Firth et al., 2011; Macias, 2008).

Participating in a community garden involves sharing knowledge, space, tools and responsibility, which promotes social integration, or “meaningful connections to other human beings,” among participants (Macias, 2008, p. 1089). Community gardens aid in increasing social cohesion among a community through the responsibility of a shared space (Firth et al., 2011). Wakefield et al. (2007) surveyed participants of a community garden in Toronto and documented the individual and community benefits identified by garden participants. Benefits to the community included improved relationships among people and increased community pride and attachment to the community. Garden participants also emphasized the notion that the garden provided a place where positive social interactions could occur among individuals from diverse cultural and social backgrounds (Wakefield et al., 2001). University student participation in a campus community garden may help students gain social capital and form relationships with other student, faculty and staff garden participants.

D. Sustainability and community gardens

Community gardens can serve as a model in a community, in order to promote and enact principles of sustainability (Holland, 2004; Stocker and Barnett, 1998; Turner, 2011). Sustainability was subject to different meanings among the research, which included sustainability as it relates to the wider community and sustainability as it relates to the specific gardening site. Stocker and Barnett (1998) stated that community gardens promote community sustainability in three ways, through demonstrating social, environmental and economic

sustainability. Growing fresh produce and providing local communities with fresh and safe produce promote ecological and physical sustainability, which is crucial for sustaining environmental health. Providing community members with a place to interact and build relationships promoted social sustainability. Community gardens can also provide for opportunities in research, design, development, and demonstration in areas such as community development, horticultural techniques and innovative technology. These opportunities helped to promote economic sustainability within a community (Stocker and Barnett, 1998).

Community gardens provide participants and the wider community with opportunities to learn about and adopt lifestyles that promotes sustainability. Turner (2011) analyzed community gardeners' reasons for participating in community gardens and how those reasons related to the principles of sustainability. Turner (2011) focused on the gardeners personal experiences in the garden and the "issues focusing on minimizing the impact of gardeners on the ecosystem to facilitate productive, long-term use of specific gardening sites" (p. 510). Many of the community gardeners became involved with community gardens due to reasons related to broader social, economic and health issues. Participating in the community garden provided many gardeners with gaining a deep connection to the land and to the food system. For example, several gardeners had to remediate the soil in order to establish a garden, which gave them a strong connection to the soil. Turner states that it is this "connection which underpins a broader sense of belonging" (p. 516). Gardeners also became more aware of seasonal eating, food miles and water conservation issues in the garden, which promoted sustainable resource consumption in the garden. However, the sustainable practices applied in the community garden by the users were not necessarily translated in everyday habits outside of the garden activities, such as being completely committed to local foods or sustainable living practices. For example, the majority of

gardeners were motivated by price, access and quality when buying foods, instead of organic practices or food miles (Turner, 2011). Participating in a community gardens may help to create awareness on university campuses of sustainable practices, but other factors may play an important role in facilitating the application of these practices learned in community gardens into everyday life.

III. Methods

A series of three studies were conducted in order to accomplish the two primary objectives of the study, which were to understand campus community gardens in the United States and to determine the feasibility of a campus community garden for the UAF. First, an online survey of universities with campus community gardens was conducted. Second, site visits were made to six campus community gardens as case studies. Third, personal interviews were conducted with UAF student, faculty, staff, and administration members in decision-making capacities to understand the potential opportunities and challenges to a community garden. Details of how each study was conducted are provided below.

A. Survey of campus community gardens in the US and Canada

1. Survey participation database development

A database of college and university campuses with community gardens was created. An initial list of college and university campus community gardens was obtained from Rodale Institute's "Farming for Credit Directory" (Rodale Institute, 2011). The directory provided web

addresses of institutions that have various opportunities with university farms or gardens. Each institution website found on the Rodale directory was accessed and searched, in order to determine if the institution had a community garden or farm and to obtain contact email addresses for those universities with community gardens and student farms. Additional institutional contacts were generated from an email request sent to targeted working group listserv groups (local foods systems, public horticulture, administrators) of the American Society for Horticultural Science, requesting contact information of coordinators or leaders of the members' campus community garden. Additionally, internet searches were conducted using the search terms, "university/student community garden" and "university/student farm." A database of 111 colleges and universities with community gardens or farms, the name of their garden or farm operation, and the contact email(s) was generated and stored in a spreadsheet format [Appendix A].

2. Development of online survey questions

Survey questions were developed during winter 2011. Survey questions were written to collect demographic and descriptive information of the institutions and the garden users, garden management and operation information, and the challenges and successes of the gardens [Appendix B].

Advisory committee members were asked to participate in editing and revising the survey, in addition to testing how long it took to complete the survey. The final survey questions were submitted to the International Review Board (IRB) for approval, which was gained on 31-

January-2011 (IRB Protocol number: 10-11-309). The survey was developed as an online instrument using the UAF Qualtrics system.

3. Execution of the survey

The survey was conducted by the UAF Survey Research Center. An email script was developed for participation in the survey [Appendix C]. On April 18, 2011, the invitation email was sent to 111 universities for participation in the online survey. Reminder emails were sent on two occasions and the survey concluded on May 24, 2011.

4. Data management

Raw data from the survey were provided by the UAF Survey Research Center. The survey aimed to analyze one response per institution with a community garden or farm, and as such the data sets were cleaned to remove duplicate institution survey responses. Common responses to free-response questions were classified into categories, in order to analyze themes among responses. The online survey data were analyzed (SAS, Cary, NC, 2011) for descriptive summaries using response frequencies.

5. Hypothesis development and testing

Six key hypotheses were developed and tested from the online survey data set. These hypotheses were:

- a. Hypothesis 1: There is no significant difference in reported challenges of garden maintenance, campus involvement and funding between gardens with managers and gardens without managers.
- b. Hypothesis 2: There is no significant difference in reported success with public outreach and community engagement across gardens with different group sizes of non-student community member participation.
- c. Hypothesis 3: There is no significant difference in reported success with public outreach and community engagement, and campus involvement and community building between gardens where produce was donated to the community and gardens where produce was not donated.
- d. Hypothesis 4: There is no significant difference across institution types regarding the amount of funds provided to the campus community garden.
- e. Hypothesis 5: There is no significant difference between campus community garden size and the undergraduate enrollment of the institution.
- f. Hypothesis 6: There is no significant difference between the funding for campus community gardens and the garden size.

Hypotheses were tested using appropriate statistical tests. A 95% confidence level was set before running the following tests. Chi-square tests were used to test hypotheses analyzing categorical data. Fisher's exact tests were used to test hypotheses analyzing smaller sets of categorical data. T-tests were used to test hypotheses analyzing continuous data and two variables. Linear regressions were used to test hypotheses with independent and dependent variables.

B. Case study site visits

1. Contact for participation

Campus site visits were conducted in order to understand specific practices of campus community gardens and to observe gardens firsthand. Universities with community gardens were identified in the West South Central and the West North Central region states for campus garden visits [Appendix D]. Campus site visits were targeted in these particular region states, as per availability of research travel funds. Individuals from these universities were then contacted through email about visiting the garden and interviewing a representative from the garden. Four of the six gardens visited had completed the online survey prior to the inquiry for a follow-up visit. These four individual responses to the online survey were analyzed prior to the site visit.

2. Development of site visit questions

For each garden site, two sets of questions were developed for the case studies. One set of questions was developed expanding upon specific questions and responses to the online survey [Appendix E]. An additional set of questions about the specific site garden were created. The two universities that had not completed the survey were contacted through email and asked to complete the survey prior to the campus for the garden site visit, which was received upon arrival to the garden. The general set of questions which expanded the online survey was discussed instead.

3. Execution of site visits

Garden visits were conducted over the summer of 2011. Site visits ranged from one to three hours in length. The visit included a meeting with the garden manager, active garden participants, or supervisor, and a visit to the physical garden site. Photographic data of the garden area and garden participants were also recorded of each site.

4. Data management

Descriptive data of the site visits and responses to the key questions are presented as individual case studies. Information presented in case studies includes general facts about the university and garden, the structure and management of garden operations, garden participation, garden activities, and the successes, challenges and learning lessons of the gardens.

C. UAF Campus Feasibility Study Interviews

1. Development of interview questions

In order to assess the feasibility of a community garden on the UAF campus, interviews were conducted with UAF student, staff, faculty and administrators. Campus leaders were identified and a contact list was generated [Appendix F]. Interview questions were developed and reviewed with advisory committee members [Appendix G]. The interview questions were designed to gather opinions in two general areas: opportunities related to a campus community garden and challenges or limitations to creating and operating a campus community garden. The questions attempted to gauge the funding, location, potential connections to academics, challenges, concerns, and liabilities of a community garden at the UAF. The last question of the

interview asked interviewees to list additional people whom they thought were important to interview concerning a campus garden at the UAF.

2. Execution of interviews

Email invitations were sent to a total of 26 campus leaders on July 13, 2011 and on subsequent dates following interviews. Of those 26 individuals contacted, 15 individuals agreed to be interviewed. Interviews ranged from 30 to 45 minutes in length.

3. Data management

Information gathered in feasibility study interviews were analyzed qualitatively. Similar responses were classified into categories for analysis. Common responses to specific questions were identified and the frequencies of those responses were recorded.

IV. Results

The following describes the key results determined from each of the three study segments presented above.

A. Online survey

Survey invitations were sent to 111 colleges and universities from which 94 individuals responded. Four responses from duplicate institutions were deleted. Two responses that indicated

there was not a campus garden on the respondents' campus were disregarded. Therefore, 88 surveys responses were considered valid and used in the following evaluation. These 88 survey respondents indicated that there was a community garden or farm present on the institution's campus. The number of responses to individual questions varied, however, as respondents had the freedom to skip questions and irrelevant responses to individual questions were disregarded.

1. Descriptive statistics

Institution demographics, garden demographics, garden management and the success, obstacles and key learning lessons of the garden were analyzed using descriptive statistics. Frequencies and percentages of responses to each question were generated using the SAS system (SAS Inst. Inc., Cary, NC, 2011).

a. Institution demographics

Of the 88 total respondents, 84 respondents provided information regarding the type of institution. Of these, 35% were public land grant institutions, 32% were public but not land grant, 30% were private institutions and 4% were community colleges. Eighty-two of the 88 respondents provided information regarding enrollment. The majority of respondents (31%) had 10,001-20,000 undergraduates enrolled. The undergraduate enrollment of the respondents' institutions are listed in Table 1. As seen in Table 1, more than half of the respondents were from universities of 10,000 students or greater. Of these schools, 53% granted PhDs, 16% granted Masters degrees, 14% granted Bachelor's degrees, and 4% granted only Associates degrees as the highest degree level.

The locations of the respondents' institutions are listed in Table 2. Respondents were most commonly located in the Pacific region states (AL, CA, HI, OR, WA), followed by the West North Central (IA, KS, MN, MO, NE, ND, SD) and South Atlantic Region (DE, DC, FL, GA, MD, NC, SC VA). There were the fewest respondents from the East South Central and Mid-Atlantic region states. Respondents were asked to indicate of the type(s) of agriculture, horticulture or environmental science departments at the institution; 83 responded. Of them, 88% had an environmental sciences department, 77% had a botany, biology or plant sciences department, 46% had a horticulture, crop sciences or agronomy department, and 43% had an agriculture department.

Table 1. Undergraduate enrollment of respondents' institutions as reported in an online survey of college and university campus community gardens or farms, 2011.

Undergraduate enrollment*	Percentage (%) of respondents**
≤ 2,500	22
2,501-5,000	16
5,001-10,000	10
10,001-20,000	31
≥ 20,001	22

*Based upon the question asked, "What is the undergraduate enrollment of your institution?"

**n=82

Table 2. Regional location of respondents’ institutions as reported in an online survey of campus community gardens or farms, 2011.

Region of location*	Percentage (%) of respondents**
Pacific (AK, CA, HI, OR, WA)	23
West North Central (IA, KS, MN, MO, NE, ND, SD)	22
South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV)	17
Mountain (AZ, CO, ID, NM, MT, UT, NV, WY)	10
East North Central (IN, IL, MI, OH, WI)	8
West South Central (AR, LA, OK, TX)	8
Canada	4
New England (CT, MA, ME, NH, RI, VT)	4
East South Central (AL, KY, MS, TN)	2
Middle Atlantic (NJ, NY, PA)	2

*Based upon the question asked, “In which region is your institution located?” **n=83

b. Garden Location, Size, and Users

Of the 88 respondents that indicated there was a community garden or farm present on the institution’s campus, 79 respondents reported the location of the campus garden or farm. The majority (75%) of the campus gardens or farms were located on campus property. The locations of the campus gardens or farms are presented in Table 3.

The garden size was reported in acres and the responses are found in Table 4. Of the 75 responses, the majority (39%) reported the garden to be 1.0-1.9 acres in size. From these data the median garden size was approximately 1.0 to 1.9 acres in size.

The development of gardens was relatively new at most reporting institutions. The year of the garden or farm establishment was reported by 71 respondents. Twenty-two percent of the respondents established campus gardens before the year 2000, while 88% established gardens after the year 2000 (no gardens were established directly in the year 2000). The most frequent years that gardens were established was in 2009 (14%) and 2005 (13%).

Respondents reported that campus community gardens receive funding from a range of sources. The most commonly reported source of funding came from the university budget (53% of 74 respondents). Other sources of funding reported were external funding, gifts and/or grants (49%), fund-raising events (37%), general donations (37%), farmers market or farm stand (30%), student fees for participating with the garden (23%), student activity fee per credit hour (18%), produce sales to campus dining services and facilities (15%), Community Supported Agriculture (CSA) program (11%), membership fees for garden participation (10%) and endowments (7%).

The amount of funding spent for garden operations annually also varied. Fifty percent of the 64 respondents spent less than or equal to \$5,000. The amount of funding spent for garden operations are listed in Table 5.

Table 3. Location of respondents' garden or farm as reported in an online survey of campus community gardens or farms, 2011.

Location of farm or garden*	Percentage (%) of respondents**
Campus property	75
University farm or agriculture experiment station	18
Private property donated to the garden	5
Private property leased by the garden	4
Other	6

* Based upon the question asked, "Where is the garden or farm located?"

**n=78

Table 4. Size of campus garden or farm in acres as reported in an online survey of campus community gardens or farms, 2011.

Size of garden or farm (acres)*	Percentage (%) of respondents**
≤ 0.5	27
0.6-0.9	1
1.0-1.9	39
2.0-2.9	13
≥ 3.0	20

*Based upon the question asked, "How large is the garden, rounding to the nearest acre?"

**n=75

Table 5. Annual amount of funding spent on garden operations in dollar amounts as reported in an online survey of campus community gardens or farms, 2011.

Amount of funding*	Percentage (%) of respondents**
≤ \$5,000	50
\$5,001 - \$10,000	14
\$10,001 - \$25,000	17
\$25,001 - \$50,000	11
≥ \$50,001	8

*Based upon the question asked, “Approximately how much funding is spent for operating the garden per year (including paid garden manager position if applicable, supplies, etc)? (If exact figure is not known, please estimate.)”

**n=64

c. Garden users

Undergraduate students comprised the majority of the primary users of the garden, with 90% of the 82 responses. Primary users of the gardens or farms also consisted of staff (45%), graduate students (42%), faculty (38%) and others (35%). Faculty members comprised 58% of secondary users of campus gardens or farms out of 77 responses. Secondary users included staff (47%), undergraduate students (42%), graduate students (33%), and community members (29%).

The frequency and types of academic majors represented by the students who use the garden was reported. Of the 79 responses, 35% reported that 6-10 majors were represented, 27% reported 11-15 majors represented, 16% reported 0-5 majors represented, 11% reported 16-20 majors represented, and 10% reported 21 or more majors represented. The types of academic majors were entered into a free response space and responses were grouped into commonly

reported academic majors. The majority of academic majors represented other sciences (59% of 63 responses), which included biology, earth sciences and nutrition. Environmental sciences and environmental studies were most commonly reported (54%), followed by agronomy and agroecology (33%), liberal arts (32%), and horticulture (19%).

Community members participated in the majority of gardens, with 93% of 71 responses reporting that at least one community member annually participated in the garden. The majority of respondents (17%) had 1-19 non-student community members annually participate. Table 6 presents the frequency of the amount of community members annually participating in the garden.

Forty-nine percent of 81 responses reported that the garden has access for persons with physical disabilities. Thirty-two percent of the respondents did not have access for persons with physical disabilities and 19% of respondents did not know if the garden had access. Of those who reported having access for persons with physical disabilities (40 total responses), 80% had wheelchair accessible pathways, 55% had disabled parking, 33% had raised beds at an appropriate level for wheelchairs and/or elderly gardeners, and 20% had special tools available for use by gardeners with physical disabilities. The majority of respondents did not know if persons with physical disabilities were currently using the garden or had previously used the garden, with 33% of the 81 responses. Thirty-two of the respondents indicated that there was access for persons with physical disabilities, but that they had not previously used nor do not currently use the garden. Twelve percent of the respondents reported current use and twelve percent reported previous use by persons with physical disabilities.

Table 6. The frequency of response of nonstudent community members annually participating in campus gardens or farms as reported in an online survey of college and university campus community gardens, 2011.

Average number of nonstudent community members*	Percentage (%) of respondents**
0	7
1-19	17
20-29	14
30-39	7
40-49	8
50-99	15
100-149	13
150-199	1
200-249	7
250 or more	10

*Based upon the free-response question asked, “On average, approximately how many community members (i.e. high school students, civic clubs, senior citizens, family members, etc.) annually participate in the garden? (Please enter a number).”

**n=71

d. Garden management and operation

Eighty-two percent of the 76 respondents reported that there was a garden manager. The majority of the reported garden managers were undergraduate students, with 37% of the 61 responses. Staff members (34%), faculty members (9%), graduate students (3%), volunteers (2%), and others (13%) were also reported to serve as garden managers. Garden managers who were reported as being undergraduate or graduate students were most commonly paid as an hourly employee (44%). Student garden managers were also volunteers and not paid (28%), funded with scholarship money (8%) or were paid by work-study programs (8%). The majority

of garden managers were a part-time position (51% of the 61 responses). Twenty-one percent held full-time positions and 28% held another form of employment. Sixty-two percent of those respondents with garden managers reported that the garden managers were employed year-round, 30% were employed seasonally during the growing season, and 8% were employed seasonally during the academic year.

Respondents who reported that there was not a garden manager present responded to another question, separate from those questions asked about the garden manager. These respondents reported that the garden was managed by students and faculty members (43% of 14 total respondents without garden managers), a student club (36%), interns (14%) or staff members (7%).

Maintenance outside of normal academic semesters, such as over summer and winter breaks, was reported. The most commonly reported method of maintaining the garden over academic breaks was with student, faculty or staff garden participants who were not paid (67% of the 69 total responses). Employed garden managers also maintained the garden over academic breaks (59%), followed by volunteer garden managers (23%), paid students (9%) and garden participants (7%).

The majority of respondents reported that there was a form of organizational structure for garden operations and management, with 85% of 71 responses reporting that there was organization in the form of a club, committee, faculty/departmental oversight, farm/garden manager oversight or other structure. Thirty-six percent reported that there was a club organization, 28% reported a committee organization, 13% reported faculty/departmental oversight, 6% reported other organization, and 1% reported farm/garden manager oversight.

Key positions in the organizational structure were reported to be elected positions (47% of 53 responses), appointed by the garden manager or director (36%), or other (17%).

The majority of respondents reported that there was a person or persons with supervisory responsibility over the garden manager and/or organization, with 90% of 58 responses reporting that there was supervision assigned to the garden. The most commonly reported person who supervised garden organization was a faculty member (59%), an administrator (24%), staff member (21%) or other (16%).

All applicable forms of produce appropriation were reported among 73 respondents. The majority of respondents (68%) reported that produce was donated to the community outlet, such as a food bank or a homeless shelter. The methods of produce appropriation are listed in Table 7.

Table 7. Forms of produce appropriation in campus gardens or farms as reported in an online survey of college and university campus community gardens, 2011.

Form of produce appropriation*	Percentage (%) of respondents**
Donated to community outlet	68
Volunteers received share of harvest in return for work	59
Produce sold to or used in on-campus dining facilities	44
Produce sold at farmers market or farm stand	33
Personal consumption of produce	27
Produce sold in a Community Supported Agriculture program	12
Produce sold to local businesses	5

*Based upon the question asked, “How is produce from the garden appropriated or used? (Check all that apply).

**n=73

e. Institutional concerns, liabilities, garden contracts and rules

Major institutional concerns of the garden were reported by 61 respondents. The most commonly reported institutional concern was the security of the facility and equipment (38%). Other institutional concerns included risk and safety of gardeners (33%), vandalism (31%), liability of gardeners (30%), liability of consumers (23%), negative public relations or response (20%), aesthetics and maintenance of the garden (13%), and maintaining student involvement and leadership (8%). Twelve percent of the respondents reported that there were no major institutional concerns with the garden.

Sixty-two respondents reported the primary liability of operating the garden. The most commonly reported primary liability was the injury of the gardeners (34%). Other primary liabilities included injury of non-gardeners visiting the garden (16%), consumption of produce and food safety (13%), and aesthetics and maintenance of the garden (10%). Fifteen percent of respondents reported that there was not a primary liability of the garden.

Fifty-two respondents reported all of the applicable ways in which liabilities were managed or minimized. The most commonly reported way in which liabilities were managed or minimized is with personal liability insurance for gardeners (46%). Other ways in which liabilities were managed or minimized was with institutional insurance for property and tools (33%), institutional liability insurance for consumers (15%), required contract release forms for garden participants (13%), personal injury insurance for gardeners (12%), personal liability insurance for gardeners (8%), and safety precautions (6%). Thirteen percent of respondents reported that there was not a way in which liabilities were managed or minimized.

Fifteen respondents uploaded garden rules and contracts. The two most common occurring specifications in garden contracts and rules were that users had to pay a participation

or user fee, refundable or non-refundable (80%) and that users were responsible for garden maintenance (80%). The most commonly occurring specifications stipulated in garden rules and contracts are reported in Table 8.

Table 8. The most commonly occurring specifications in garden contracts and rules as reported in an online survey of college and university campus community gardens, 2011.

Specification in garden contracts/rules*	Percentage (%) of occurrence in contracts/rules**
Garden users pay a participation fee (refundable or non-refundable)	80
Garden users are responsible for garden maintenance (weeding, removing litter)	80
Purpose of the garden stated	60
Regulation of the application of fertilizers and/or pesticides in the garden	53
Garden users encouraged or required to participate with activities/work days in garden	47
Garden users are required to clean up plots at end of season	47
Garden users may only harvest produce grown in their own plot or in designated plots	40
Garden users agree to take personal responsibility for liabilities in garden	40
Regulation of watering in garden	40
Garden users must respect neighboring plots	33
Alcohol and drug use prohibited in garden	13

*Based upon the question asked, "Please include your garden rules as a .pdf or .doc file, if available."

**n=15

f. Successes, obstacles/challenges, and learning lessons

Fifty-seven respondents indicated their top three obstacles to establishing the campus garden or farm. The most commonly reported obstacle to establishing the garden was finding a suitable location (56%), followed closely by securing funding (54%), and gaining campus support (53%). Seventy percent of responses reported other obstacles, which were variable. Sixty-three respondents reported the top three greatest challenges, obstacles or limitations to current garden operation. Maintenance of campus involvement and campus support was the most commonly reported challenge (60%), followed by maintenance of funding (41%), garden maintenance (25%), and environmental constraints due to water or climate (13%). Sixty-five percent of the respondents reported other obstacles, which were variable.

Sixty-five respondents reported the top three learning lessons that could be provided to a new garden. The most commonly reported learning lesson was to build campus partnerships with administration, faculty, staff and/or students (33%). The other learning lessons reported included securing funding (23%), establishing protocol and keeping records (22%), building community partners (20%), and integrating educational opportunities in the garden (14%). Ninety-five percent of the respondents reported other learning lessons, which were variable.

Sixty-four respondents reported the top three attributes and successes of the campus garden or farm. Forty-seven percent of the respondents reported campus involvement and community building in the garden as the most commonly reported success attribute. Other successes in the garden included public outreach and community engagement (38%), educational opportunities in the garden (34%), and attractiveness and/or restoration of the site (19%). Eighty percent of respondents also reported other success attributes of the garden.

Seventy-one respondents reported ways in which impact and success of the garden was measured. The most commonly reported way in which impact and success was measured was with the number of persons gardening (72%). Other ways in which impact and success was measured was with the amount of produce produced (61%), the number of hours spent gardening (36%), the volume or value of sales of produce (35%), the volume or value of produce donated to relief services (23%), and the volume or value of produce used by the institution (20%). Thirty-eight percent of respondents reported other ways in which success and impact was measured, which included the educational use of the garden (10%) and the satisfaction of those involved in the garden (7%).

2. *Hypotheses tested*

A series of hypotheses were tested from the online survey data. The hypotheses were tested using chi-square tests, Fisher's exact tests, t-tests, and linear regressions. All of these tests were set at the 5% level of significance.

- a. *Hypothesis 1: There is no significant difference in reported challenges of garden maintenance, campus involvement and funding between gardens with managers and gardens without managers.*

Fisher's exact tests showed no significant differences in two of three of these challenges between gardens with and without managers. Gardens with garden managers did not have fewer reported problems with garden maintenance than gardens without garden managers ($p=0.2090$). Gardens with garden managers did not have fewer reported problems with maintaining campus

involvement and campus support ($p=0.1074$) than gardens without garden managers. However, more gardens with garden managers reported more problems with maintaining funding ($p=0.0373$). Therefore while the hypothesis that there were no differences in challenges regarding funding between gardens with and without managers can be rejected, we failed to reject the hypotheses that significant differences do not exist in challenges regarding garden maintenance and campus involvement between gardens with and without managers.

These results showed that there were reported challenges with garden maintenance and campus involvement, regardless of whether there was a garden manager in the garden. The results also showed that gardens with garden managers reported challenges with funding more often than gardens without garden managers. Because many garden managers held paid positions, concerns over maintaining the funding for that position may have been reported more frequently.

b. Hypothesis 2: There is no significant difference in reported success with public outreach and community engagement across gardens with different group sizes of non-student community member participation.

Hypothesis 2 was tested using chi-square tests. These tests were run four ways. In the first chi-square test, comparisons were made using all ten original categories of the average number of community members participating in the garden (0, 1-19, 20-29, 30-39, 40-49, 50-99, 100-149, 150-199, 200-249, ≥ 250). The chi square statistic was $p=0.2215$. Next data were collapsed into five new categories of the average number of community members participating in the garden (0, 1-49, 50-99, 100-199, ≥ 200). The results suggested greater differences existed with

this collapsed classification, yet results were still insignificant ($p=0.0893$). Data were collapsed further into three categories of the average number of community members participating in the garden (0, 1-99, ≥ 100), yet results remained insignificant ($p=0.2114$). Finally, data were collapsed into just two categories of the average number of community members participating in the garden (0-99 and ≥ 100). The results suggested even greater differences existed with this collapsed classification, yet results still remained insignificant ($p=0.0554$). Therefore we failed to reject Hypothesis 2. The results indicated that regardless of the number of non-student community members participating in the garden and regardless of the way in which data were collapsed, there was not higher success with public outreach and community development in gardens that had non-student community member participation.

- c. Hypothesis 3: There is no significant difference in reported success with public outreach and community engagement, and campus involvement and community building between gardens where produce was donated to the community and gardens where produce was not donated.*

Fisher's exact tests showed no significant differences in reported garden successes between gardens that donated produce to the community and gardens that did not donate produce to the community. There were no significant differences in the reported success with public outreach and community engagement between gardens that donated produce and gardens that did not donate produce ($p=0.1825$). There were also no significant differences in the reported success with campus involvement and community building between gardens that donated produce and gardens that did not donate produce ($p=0.1174$). Therefore we failed to reject Hypothesis 3.

The results indicated that gardens where produce was donated to the community did not have higher success with public outreach and community engagement, and campus involvement and community building. Gardens were successful based on undefined criteria of success. Therefore a garden that donated produce to the community as part of their objectives or mission was considered successful. A garden where users received a share of the harvest in return for their work or where produce was sold to on-campus dining facilities was also considered successful, as these forms of produce appropriation were integrated into the objectives or mission of the garden. Gardens appropriated produce in many ways and were successful regardless of the methods of produce appropriation. Thus, the success metrics tied to the objectives or goals of the garden should be established as part of garden operation design.

d. Hypothesis 4: There is no significant difference across institution types regarding the amount of funds provided to the campus community garden.

Chi-square tests and a t-test showed no significant differences in the amounts of funding provided for campus gardens between institution types. A chi-square test showed no significant differences in the amount of funds that were contributed by public land grant universities or other types of institutions to the community garden ($p=0.7707$). A chi-square test also showed no significant differences in the amount of funds that were contributed by private institutions or other types of institutions ($p=0.3060$). A t-test also indicated that land grant institutions did not provide more funding for campus gardens and farms than other universities ($p=0.3223$). Therefore we failed to reject Hypothesis 4.

The results indicated that regardless of the type of institution, there were not differences among the amount of funding provided for campus community gardens. Public land grant universities did not provide more funding for campus community gardens compared with the other types of institutions. Hence, there was not a set funding model for campus community gardens regardless of the type of institution. The majority of campus community gardens received funding from a variety of sources, such as the university budget and external funding, which indicated that it was important for gardens to develop a financial plan in order to fund garden operations.

e. Hypothesis 5: There is no significant difference between campus community garden size and the undergraduate enrollment of the institution.

Hypothesis 5 was tested using chi square tests and a t-test. The chi-square test was run two ways. In the first chi square test, comparisons were made with four categories of garden size (≤ 0.5 , 0.6-1.9, 2.0-2.9, ≥ 3.0) and the reported five categories classifying the size of the undergraduate enrollment of the institution ($\leq 2,500$; 2,501-5,000; 5,001-10,000; 10,001-20,000; $\geq 20,001$). The chi-square statistic was insignificant ($p=0.2840$). In the second chi-square test, data were collapsed into 2 categories ($\leq 10,000$, or $\geq 10,001$) and a significant result emerged ($p=0.0447$). Therefore, while we failed to reject the hypothesis when the chi-square test was run using four categories for garden size and five categories for institution size, we were able to reject the hypothesis when the institution enrollment size was collapsed into two categories. These results indicated that schools with enrollments of $\geq 10,001$ had significantly larger gardens than smaller institutions.

A third chi-square test was run, where garden size data were collapsed into two size categories (<1.0 acres and ≥ 1.0 acres) and tested against the two classes of institution sizes ($\leq 10,000$, or $\geq 10,001$). These results were insignificant ($p=0.1833$). The garden size data were again collapsed into two new size categories (<2.0 acres and ≥ 2.0 acres) and tested against the two classes of institution size in a fourth chi-square test ($\leq 10,000$, or $\geq 10,001$). Results were again insignificant ($p=0.1362$). Therefore we failed to reject the hypothesis when data were again collapsed into two different categories for garden acreage.

A linear regression test was run to determine if the garden size was a function of the institution undergraduate enrollment size. Results were insignificant ($r^2=0.0190$ and $p=0.2410$). Therefore we failed to reject Hypothesis 5 using the linear regression. This result supported the results of the chi-square test.

A t-test was run using the raw reported acreage of the garden (continuous data, not in categories) and the two collapsed categories for undergraduate enrollment ($\leq 10,000$, or $\geq 10,001$). The results, however, were insignificant ($p=0.2410$) and supported the results from the chi-square tests and linear regression analysis.

The results from the chi-square tests, linear regression test and the t-test validated that the size of the garden was not related to the enrollment size of the institution. Hence, smaller-sized institutions could have larger-sized gardens and larger-sized institutions could have smaller-sized gardens. The resources available to the institution for a campus garden may have a direct impact upon the size of the garden. The objectives and mission of the garden may also play a role in the size of the garden.

f. Hypothesis 6: There is no significant difference between the funding for campus community gardens and the garden size.

Hypothesis 6 was tested using chi-square tests, linear regressions and a t-test. Two chi-square tests were run. The first chi-square test was run using five categories for amount of funding spent ($\leq 5,000$; 5,001-10,000; 10,001-25,000; 25,001-50,000; $\geq 50,001$) and four categories for the acreage of the garden (≤ 0.5 , 0.6-1.9, 2.0-2.9, ≥ 3.0). The results were insignificant ($p=0.0603$). When garden size data were collapsed into two classes (<1.0 acres and ≥ 1.0 acres), results remained insignificant ($p=0.0511$). Therefore we failed to reject Hypothesis 6. These results indicated that the amount of funding for the garden was variable among gardens of different sizes.

Linear regressions were tested three ways. The first way in which the linear regression was tested, the size of the garden was the independent variable and the funding for the garden was the dependent variable. The results were significant, but the r-square value was small indicating no causality or relationship ($p=0.0217$, $r^2=0.0662$). For the second linear regression, the garden size was collapsed into two categories (<1.0 acres and ≥ 1.0 acres) and was the independent variable. The results were again significant and there was a small r-square value ($p=0.0242$, $r^2=0.0781$). The results from the first two linear regression tests indicated that although there were significant differences among the amount of funding for gardens across different garden sizes, the overall influence that the garden size had upon the funding for the garden was small.

The third way in which the linear regression was tested, the size of the funding for the garden was the independent variable and the garden size was the dependent variable. The results were again significant, and the r-square value was small ($p=0.0217$, $r^2=0.0808$). These results

indicated that although there were significant differences among the amount of funding for gardens across different garden sizes, the influence that funding for the garden had upon the size of the garden was small. The garden size did not influence the amount of funding for the garden and the amount of funding for the garden did not influence the garden size.

A t-test was run using the raw, uncategorized data of funding for the garden and the raw, uncategorized data of the size of the garden. The results were significant ($p=0.0242$). Therefore with this result we rejected Hypothesis 6. This result indicated that different sized gardens received different amounts of funding for the garden.

B. Case Studies

Site visits were conducted at six universities in Arkansas, Missouri and Texas. Specific information and photographic evidence were gathered at the site visits. Information regarding the general facts about the university and garden, the structure and management of garden operations, garden participation, garden activities, and the successes, challenges and learning lessons of the gardens was gathered in order to develop case study reports. Complete answers to case study interview questions can be found in Appendix H.

1. Hendrix Community Garden at Hendrix College

a. General Information

Hendrix College is a private institution located in Conway, AR. The Hendrix community garden was established in 2007, located on the Hendrix campus. The garden was approximately

0.16 acres in size. In 2010 an Edible Forest Garden was established on the same piece of land, which was 0.03 acres. Undergraduate students were the primary users of the garden. Hendrix supported the garden and provided a \$1000 budget each year, which came from a student activity fee per credit hour.

b. Structure & Management of Garden

The garden was not divided into individual plots but was maintained as a common production area. There was not a specified garden manager. The garden was run by a student organization, and there were there leadership positions that were filled by students through club elections. The three leadership positions were the Garden Guru, the Compost Captain, and the Event Executive. A faculty member held supervisory responsibility for the garden management and operation.

c. Garden Activities

Garden participants were allowed to take a share of harvest in return for their work. Additionally, the garden was open to all Hendrix students who were allowed to harvest vegetables from the garden even if they did not work in the garden. Many Hendrix students, however, did not know about the community garden or the freedom to harvest produce from the garden.

There were typically one workday per week during the spring semester, especially when there was a strong leadership presence. Over the summer a group of gardeners worked in the

garden three times per week, for approximately one to two hours. There were a handful of gardeners who were in the garden on a daily basis over the summer. Gardeners most commonly communicated about garden activities through email and text messaging.

d. Successes, Challenges and Learning Lessons in the Garden

Success in the garden arose from strong leadership, a consistent presence of a core group of garden participants, and a well-planned budget. Garden leaders also indicated that the establishment of the Edible Forest Garden had been successful, because it provided new crops and fruits. As a result, some garden participants had not had to purchase food over the summer when production in the garden was high. The challenges and obstacles to garden operation included maintaining strong leadership over the years, maintaining the garden over the summer, and maintaining student involvement in the garden. Lessons learned in the garden included gaining faculty support for garden operations, building partnerships with campus administration and grounds managers, and incorporating diverse campus community members into the garden. The Garden Guru suggested to new gardens, “Don’t be afraid to try and expand. We started small and then expanded and it worked.”

2. The Burning Kumquat at Washington University

a. General Information

Washington University (WU) is a private university in St. Louis, Missouri. The student garden known as the Burning Kumquat Garden was established in 2007. The total garden space

was about 0.25 acres, but about 0.125 acres was gardened. The garden was located in the heart of the campus on campus property. Undergraduate students were the primary users of the garden and there was a very diverse group of majors represented by the garden participants. The garden received support from many different areas on campus. The garden had a strong partnership with the dining services company on campus, Bon Appétit. Bon Appétit bought produce from the garden and supported the summer program offered in the garden for local children, called Camp Kumquat. The Office of Sustainability on campus financially supported several amenities in the garden such as a garden shed, picnic tables under the trees, and a compost system. Washington University supported the garden in general and often publicized the garden to the public and prospective students.

b. Structure & Management of Garden

The garden was not divided into individual plots for users but was maintained as a common production area. There were several beds with isles in between, but no single student had ownership over particular beds. All of the students worked cooperatively to plan, manage, weed, and harvest the garden. Anyone who worked in the garden was allowed to take produce for personal use.

The garden was run by the garden student organization and there was no garden manager. A president was only identified on paper for WU's Student Union Government. Active members of the garden made up the "Farmigarchy," who managed the garden communally. The Farmigarchy met to discuss plans for the garden and identify key positions in the garden through discussion and consensus. For example, if one member of the Farmigarchy believed that he/she

could do a particular job, he/she would nominate himself/herself and everyone else in the Farmigarchy would agree or disagree. The key positions were identified as: the Sun, the Moon, the Market Bunny and the Party Animal. The Sun was the person who advised the planting plans and the compost. The Moon planned community outreach and helped to organize people for workdays and activities in the garden. The Market Bunny organized farmer's market activity. The Party Animal organized social events for the student group.

c. Garden Activities and Community Outreach

The Burning Kumquat interacted with their campus community and the St. Louis community in several ways. Produce from the garden was sold to the campus dining services company, Bon Appétit, and approximately \$200-300 per semester was raised from these sales. There was a student farmer's market on campus, at which produce was sold during the summer and the fall semesters. In St. Louis, the garden sold to the North City Farmer's Market on Saturdays. They also sold to a community organization called City Greens which provided produce to senior centers in the city.

The Burning Kumquat hosted a summer camp called Camp Kumquat for middle school students (grades 6, 7 8) in St. Louis. The camp was established in 2009 and there were two two-week sessions. The camp gave children the opportunity to learn about food and agriculture. There were activities in the garden and several speakers came to give lessons about different topics related to food awareness. The garden received significant funding from WU and Bon Appétit to make the summer camp possible. WU provided support for WU students who were camp counselors. WU Property provided grants for camp counselors to stay in an

accommodation on campus for free while the camp was in session. The Sustainability Office provided stipends for the camp counselors while the camp was in session. Bon Appétit donated lunches and snacks for camp participants and counselors. There was a fee for camp participants, but it was a sliding scale (\$25-200) depending upon the participant's family ability to pay.

d. Successes, Challenges and Learning Lessons in the Garden

A major success identified was that the garden provided a space for students to experiment and learn about from where their food comes. The summer camp hosted in the garden also gave participating children the opportunity to learn about agriculture and food. An active gardener and member of the Farmigarchy stated that the garden was "...a great tool for getting people together for food advocacy." The garden provided students with an opportunity to meet new people and build relationships.

One challenge in the garden was that it was difficult to get commitment from students because there was a significant amount of work to do in the garden and full-time students did not have much free time to commit to the garden. It was reported that it was also difficult to recruit students to participate in the garden. Because gardener turnover was rapid with students coming and leaving, it was difficult for new gardeners and garden leaders to know about occurrences in the garden. This challenge could be mitigated, however, if information about managing the garden was passed down year to year.

The Burning Kumquat suggested that other university community gardens should solicit assistance from many sources including local farmers. Applying for grants was worth the effort and connecting with other student organizations was beneficial for planning group events and

receiving funding together. They also suggested that those who plan on establishing a garden to begin plans for the garden as early in the season as possible.

3. Community Garden at University of Texas in Arlington

a. General Information

The University of Texas in Arlington (UTAr) is a public university located in Arlington, TX. The community garden was established in early spring 2011 on the UTAr campus. The total garden space was approximately 0.5 acres and was divided into 78 individual plots. Primary users of the garden were UTAr faculty and staff and Arlington community members. There were three wheelchair accessible raised beds, which were utilized by physically disabled garden participants. The garden received funding from the City of Arlington budget, which was approximately \$4,000 annually. The UTAr and the City of Arlington formed a partnership to run the garden. The UTAr primarily provided the land, compost, mulch and recycling pick-up from the garden. The City of Arlington paid a part-time garden manager and provided monetary support for construction in the garden.

b. Structure and Management of the Garden

The garden was divided into 78 individual plots and there were approximately 120 people who utilized the area. Garden users paid a \$25 fee for participating in the garden. There was a paid garden manager, who was a City of Arlington staff member employed year-round. An executive committee consisting of members from UTAr and from the City of Arlington oversaw

garden progress. There was not a particular organizational structure for garden operations and management.

c. Garden Activities and Community Outreach

Some of the produce produced in the garden was donated to a local food bank called Mission Arlington. The garden contracts required garden participants to donate 50% of their produce to the food bank. Individual gardeners harvested produce from the garden and delivered it to the food bank where food was distributed the same day.

Communication among members was primarily through email and Google groups. The use of Google groups was beneficial, because it allowed members to communicate and keep documents and pictures in one place accessible by members.

d. Successes, Challenges and Learning Lessons in the Garden

Successes in the UTAr community garden were attributed to the partnership between the UTAr and the City of Arlington, commitment of garden users to their plot, and the produce donated to Mission Arlington. Challenges in the garden arose from the absence of a structured leadership group, lack of time to focus on the productivity of the garden, and the lack of common understanding and commitment of garden users. Representatives from the UTAr garden reported that identifying a leader first and simplifying the garden design were important learning lessons from experience with the garden. A representative suggested, “Start small—that way gardeners can form intimate relationships...”

4. *Concho Community Garden at University of Texas in Austin*

a. *General Information*

The University of Texas at Austin (UTAu) is a public university located in Austin, TX. The community garden was known as the Concho Community Garden and it was established in early spring, 2011. The total garden space was approximately 0.143 acres and there were 28 plots. The garden was located off of campus, across the street from the UTAu child daycare center. The primary users of the garden were undergraduate students, faculty, staff and the teachers and students from the child daycare center. The garden received monetary support from the UTAu Campus Environmental Center budget, external funding (gifts and/or grants), fundraising events and student fees for participating with the garden. Approximately \$8,000 was spent for garden operations, including a paid garden manager and supplies. The UTAu did not support the garden when it was first being established. Once the Sustainability Director supported the idea, however, UTAu began to support the idea of the garden. Since the establishment of the garden, the garden had received more support from the university.

b. *Structure & Management of Garden*

The garden was divided into individual plots, nineteen of which were for individuals, three of which were utilized by UTAu dining hall chefs, and six of which were for student organizations. The individual plots typically had two people gardening in one plot. The produce produced in the plots utilized by the UTAu chefs was used in the dining facilities on campus. There were fees for participating with the garden, which were \$10 per semester for individual plots and \$20 per semester for student organization plots.

The garden was managed using a committee organization. There was a paid assistant director and one to two chairs who ran the committee. The assistant director oversaw garden operations and acted as a garden manager. The assistant director was paid for 12 hours per week during the spring semester and 20 hours per week over the summer months. The paid position was very beneficial for garden operations and management. The paid garden manager, a volunteer garden manager (who was not paid), and student garden participants maintained the garden outside of normal academic semesters.

c. Garden Activities and Community Outreach

There were weekly workdays during the summer months and bi-weekly workdays during the spring semester. Typical workdays lasted approximately two to three hours. Gardeners were required to spend two hours per week on communal plots and duties.

Individual gardeners from the Concho Community Garden donated produce to a local program that provided lunch for homeless people on Saturdays at a local church. A teacher from the UTAu child day care center maintained a plot in the garden and brought the children into the garden twice a week. Compost and mulch were donated to the garden for free. A local community member donated plants to the garden and they received seeds for free from the America the Beautiful Fund.

Communication among garden participants was primarily through email. They also maintained a Facebook page and a blog, which provided information about the garden to the outside community. The blog contained pictures, a timeline of events in the garden, and a history

of the garden. The blog also had resources for gardeners, recipes, and recommendations for food and books.

d. Successes, Challenges and Learning Lessons in the Garden

Success in the garden was attributed to community building among participants in the garden, continual interest and support from campus partners, opportunities for creativity and creation in the garden, and the attractiveness of the garden. One student said that the garden had been beneficial for her academics and for making better food choices. Another student said, “The garden is so diverse, which is great to help guide the garden. It has created a community within the UTAu gardeners.”

Challenges in the garden arose from low activity in the garden over academic breaks, keeping momentum with interests and enthusiasm in the garden, and maintaining institutional focus and support. There have also been some food theft issues in the garden, which has been difficult to monitor.

Individuals representing the garden gave several learning lessons that could help guide new campus gardens. One idea was to talk with garden participants in order to understand their interests and opinions for ideas in the garden. These ideas would help successfully develop the garden into something with which people want to participate. They also advised allowing garden users to pursue projects in the garden and take leadership for these projects. They suggested building a multi-partner coalition before beginning the garden. Another piece of advice was to require participants to list their strengths on the application when applying for a plot. Classes

and projects could then be developed in the garden that utilized the various strengths of the garden participants.

5. *The Living Library at Texas State University*

a. *General Information*

Texas State University (TSU) is a public university located in San Marcos, TX. The garden was known as the Living Library and was established in 2011. The garden was located on the TSU campus. The total garden area was approximately two acres and there were approximately 35 plots for students who participated in the organic gardening class. The primary users of the garden were undergraduate and graduate students and community service workers. The garden received funding from external funding (gifts and/or grants), general donations and internal grant funding from the university. Some funding for the garden also came from the “campus green fee,” which was one-dollar per semester per student. The university provided the space for the garden and they supported the idea of the garden.

b. *Structure and Management of Garden*

A portion of the garden was divided into individual plots, which were utilized by students enrolled in the organic gardening class. Students were assigned one plot to maintain during the semester, where they grew vegetables and herbs for personal consumption and class participation. Students were graded on the maintenance of their plot at the end of the semester. The other portion of the Living Library consisted of display gardens that were utilized by classes

such as woody and herbaceous plant identification classes. Portions of the garden were also wildlife habitats, certified by the National Wildlife Federation.

There was not a garden manager, but there was a faculty member who oversaw garden operations and management. There were two paid undergraduate workers and one graduate student who worked in the garden over the summer. During the academic year there were two paid undergraduate workers who worked ten hours per week and two graduate students who worked twenty hours per week. Some of the hours the students spent in the garden were course-related and not all garden maintenance. Student, faculty, and staff garden participants, paid student workers and community service workers maintained the garden over academic breaks.

c. Successes, Challenges and Learning Lessons in the Garden

Success in the garden was attributed to student ownership of the garden, educational components in the garden, opportunities for experiential learning in the garden and the certification of the designated wildlife habitats, including a habitat for Monarch butterflies. Because students operated and designed the garden, it gave students ownership of the garden. Students also developed grant proposals and successfully received grants for a vermiculture composting system, two beehives and a rainwater collection cistern. Success was also attributed to the amount of interest in the garden from the outside community and the value put upon the garden from TSU faculty members.

Challenges in the garden were identified as garden maintenance, lack of opportunities to expand the garden, and the topographical challenges of the garden location. The campus was located on a steep slope, which made it challenging to construct gardens. Challenges also arose

from politics among university administrators, climatic challenges such as droughts and heavy freezes, occasional vandalism, and varying support from administration.

The faculty manager of the garden suggested that those interested in establishing a campus community garden should take a grant writing class, utilize community service workers from the campus and the broader community to help with garden maintenance, and delegate trustworthy individuals to help oversee operations in the garden. The faculty manager also suggested to those wishing to begin a new garden, “Don’t lose hope and keep your chin up. Keep in mind that the garden may be a thirty-year plan, that it is a labor of love and that it is ever evolving. Do not take “absolute no” as an answer. Keep working towards the ultimate goal.”

6. *Community Garden at Texas A&M*

a. *General Information*

Texas A&M University (TAM) is a public land grant institution located in College Station, TX. The community garden was established in 2009 and was located on campus property. The garden was approximately 0.75 acres in size. Primary users of the garden were undergraduate and graduate students. The university did not support the garden and did not provide any funding for the garden. Even though TAM charged students a “green fee” (\$3 per student per semester), the garden was denied use of this money for garden operations.

b. Structure and Management of the Garden

The garden was divided into 72 rows that were 40 feet by 2 feet each. There were individual and community plots. There was not a garden manager; garden club officers and members managed the garden. Garden club officers and members also maintained the garden during academic breaks. Club officers were elected and there was a faculty member who supervised over the garden operations.

c. Garden Activities and Community Outreach

Garden users paid an annual plot fee of \$10 per row and payment plans were offered to those who could not afford to pay the fees. Gardeners completed communal tasks in the garden during weekly workdays, such as weeding the flowerbeds and the community plots. Approximately thirteen gardeners were active in the garden over the summer months and approximately 25-45 gardeners were active over the fall and spring semesters. The garden was open to the outside community and community members were allowed to have an individual plot. Individuals who worked in the garden consumed what was grown in their individual plots. Produce was also donated to a local battered women's shelter called Twin City Mission.

Communication among gardeners was typically through email, which was utilized to organize events and workdays outside of normal workday time periods. A garden website was also maintained and listed regular garden duties. Gardeners communicated amongst each other personally in the garden and at garden activities (i.e. potlucks), which allowed for them to catch up on the happenings in the garden.

d. Successes, Challenges and Learning Lessons in the Garden

Successes in the garden were identified as successful education of garden participants, community building and social events in the garden, and access to healthy produce. The garden also provided a unique opportunity for diverse members of the TAM community to connect with each other.

Challenges identified in the garden were sustaining funding, garden maintenance, and securing enough volunteers to work in the garden. Another very important obstacle was that the location of the garden was not permanent. The gardeners did not know how long they were allowed to use the land, which made it difficult to implement long-term projects in the garden, such as construction of a shed.

The garden club president provided several learning lessons for new gardens. Consistency with weekly emails and meetings was important for keeping continuity of participation and interest in the garden. Providing garden users with clear rules and responsibilities in the garden was also important. The club president also suggested providing open access to the garden for everyone on campus and focusing on soil improvements and pest management in the garden.

C. Feasibility Study

Of the twenty-six individuals contacted for participation with the feasibility study interview, a total of fifteen individuals were interviewed. Questions regarding the potential logistics of a campus community garden at the UAF, the challenges and obstacles to establishing a community garden at the UAF, the reasons for establishing or not establishing a community

garden at the UAF and the feasibility of a community garden at the UAF were posed and discussed. All interviewees were asked the same basic set of questions. Interviewees were provided the set of questions prior to the interviews.

1. *Garden Logistics and Operations*

Interviewees most commonly responded (33% of the respondents) that a community garden at the UAF should be funded as a Registered Student Organization (RSO) through the Associated Student Government (ASG) allocations or with general donations (33%), followed by departmental and/or college funding (27%). Two interviewees indicated that there were potential issues with using direct UAF maintenance and operations funds from the institutional budget because UAF funds are tight and restrictive. Only one person stated that the garden should not be funded with any sort of funds from the UAF. One person stated that a community garden at the UAF must meet high priority needs in order to receive funding from direct UAF funding. However, when interviewees were asked about a *specific* source of funding for a community garden at the UAF, the most common response was from general donations (53%), followed by departmental and/or college funds (40%), and ASG funding for an RSO (40%). Responses regarding specific appropriate sources of funding are presented in Table 9.

Interviewees most commonly reported that a community garden at the UAF would best be located with high visibility location on or close to the UAF central campus (60%). Interviewees reported that the Division of Agriculture Experiment Station (DAES) would be an appropriate location for a community garden (53%) and that a location with adequate security would be necessary (13%). However, the majority of interviewees (53%) did not have a *specific* location

in mind for a community garden at the UAF. Interviewees suggested the DAES (33%), the piece of land south of the Maple Hill South residence hall (20%), and the plot of land where the Carlson Terrace residence hall formerly stood (7%) as specific location ideas for a community garden at the UAF.

The majority of interviewees (40%) did not know how the UAF should manage any potential liabilities that a community garden may present. Ideas for ways in which the UAF should manage potential liabilities included requiring gardeners to sign a consent form (20%), establishing rules for participation in the garden (20%), taking safety precautions in the garden (20%) and ensuring that all risks and legalities are addressed before establishing the garden (20%).

Table 9. Responses regarding appropriate sources of funding for a community garden at the UAF as identified by UAF interview participants, 2011.

Source of funding*	Percentage (%) of responses**
General donations	53
Departmental and/or college funds	40
ASG funds for an RSO	40
External funding; gifts and/or grants	27
Student fees for participating with the garden	20
Sell produce for profit	13
Fund-raising	13
Endowments	7
Do not know	7

*Based upon the question asked, “What do you think would be an appropriate source of funding?” **n=15

2. *Opportunities of a Campus Community Garden*

The majority of interviewees reported that a community garden at the UAF could be a benefit or a distraction to the mission of the UAF, depending on various factors (53%). Forty percent of interviewees indicated that a community garden at the UAF would be a benefit to the mission of the UAF and only 7% (one respondent) reported that a community garden would be a distraction. Interviewees identified the potential benefits of a community garden at the UAF as service opportunities a garden could provide students and the broader community, for example

producing food for the Full Circle Food Pantry (40%); educational benefits associated with the garden (27%); and opportunities for collaboration among students in the garden (13%). Those who said that it depended whether a garden at the UAF would be a distraction or a benefit said that a garden could become a distraction if it were not properly maintained (20%).

The majority of interviewees said that a community garden at the UAF would fit with the academic goals at the UAF (53%) and several others said that it depended upon other factors (40%), while only one respondent said that a garden at the UAF would not fit with academic goals. The majority of respondents stated that multiple disciplines could utilize a community garden at the UAF (33%), that a garden at the UAF could fit with the academic goals of fields related to horticulture and agriculture (33%), and that a garden at the UAF could be a teaching tool for sustainability (33%). Several interviewees indicated that a garden at the UAF could provide students with an opportunity to apply the topics they learned in the classroom into real situations (20%). Those who stated that it depended upon other factors indicated various reasons, including that a community garden could fit with academic goals, depending upon how much the garden was integrated with education and how much the faculty utilized the garden (20%). One interviewee stated that a community garden at the UAF could provide a meaningful experience for students only if students acquired skills in the garden applicable to the job market. Another interviewee stated that the garden could fit with academic goals at the UA, "...depending on how it is structured and who runs it. Is there an effort to integrate with academic goals? The more [the garden is] integrated with education, the more it fits with academic goals."

The most common response among interviewees regarding how a community garden at the UAF would fit with the curricular and co-curricular goals at the UAF was that a garden could provide an experiential learning component to supplement topics learned in the classroom (33%).

Other interviewees indicated that it was dependent upon the faculty to utilize the garden for the curriculum (27%) and that a garden fits with curricular and co-curricular goals related to sustainability (20%). One interviewee stated, “I like the way [the garden] could fit with the sustainability minor. [The garden] provides an interdisciplinary approach and a problem-resolution system. It also provides means for practicums. Horticulture and Crop, Soils and Environmental Sciences students could create research projects with and around the garden.” Only one interviewee said that a garden would not fit anywhere with the curriculum or co-curriculum.

3. *Challenges, obstacles and concerns of a campus community garden*

The majority of interviewees (73%) identified adequate funding as a challenge or obstacle to the establishment of a community garden at the UAF. Other challenges or obstacles identified included gaining and sustaining student interest and involvement (47%) and finding an appropriate location (40%). The challenges and obstacles identified by interviewees are presented in Table 10.

The most common concerns that interviewees had with a community garden at the UAF included securing funding (27%), identifying who is responsible for garden oversight and operations (27%), and gaining and sustaining student interest and involvement (27%). Interviewees also identified their concerns as finding a suitable location (20%), gaining administrative support (20%), liability (13%), identifying strong leadership in the garden (13%), garden maintenance over the summer (13%), and general garden maintenance (13%).

The most common responses interviewees gave with regards to major institutional concerns with a community garden at the UAF included liability (33%) and gaining administrative support for the garden (33%). Several of the concerns identified as personal concerns with a garden at the UAF were also identified as major institutional concerns, such as securing funding (20%), identifying who is responsible for garden oversight and operations (20%), finding a suitable location (13%), gaining and sustaining student interest and involvement (13%), identifying strong leadership in the garden (13%), and garden maintenance over the summer (13%). Two interviewees also indicated that there should be no concerns with a community garden at the UAF, as long as potential problems are properly addressed.

The majority of interviewees (47%) said that finding a suitable location was something that would prevent the UAF from having a community garden. Other things that interviewees said would prevent the UAF from having a community garden included securing funding (40%), gaining and sustaining student interest and involvement (40%), and a lack of management or commitment for sustaining a garden over time (27%).

Table 10. Challenges or obstacles to the establishment of a community garden at the UAF as identified by UAF interview participants, 2011.

Challenge or obstacle to the establishment of a community garden at the UAF*	Percentage (%) of responses**
Securing funding	73
Gaining/sustaining student interest and involvement	47
Finding a suitable location	40
Maintenance over summer	27
Liability	27
Identifying who is responsible for the garden	20
Ensuring proper maintenance of the garden	20
Gaining administrative support	13
Establishing who can use the garden	13
Identifying a purpose of the garden	13
Security of the garden premises	13
Others	33

*Based upon the question asked, “What kinds of challenges or obstacles do you foresee during the establishment of a community garden at the UAF?” **n=15

4. *Feasibility of a campus community garden*

Five interviewees said that they thought the UAF should have a community garden, while three said that they did not know whether or not the UAF should have a garden, three said that perhaps the UAF should have a garden, two said that they had no opposition to a garden at the UAF, one said that they had no opinion on the matter, and one person said that there should not be a garden at the UAF. Those who were in favor of a community garden at the UAF indicated

that a garden at the UAF could promote and demonstrate sustainability, bring together diverse groups of students, faculty and staff on campus, provide opportunities for community building in the garden, and provide opportunities for experiential learning. Several of those who were ambivalent about having a community garden on the UAF campus indicated that they saw the potential benefits of a garden on campus, but they were concerned with low participation or commitment (two responses) and the practicality and details of implementing a garden (one response). Interviewees also indicated that obstacles must be addressed first (one response) and that there must be a compelling reason for implementing a garden at the UAF (two responses). One interviewee stated, “[A garden at the UAF is] a great idea, but we can’t really say where, how, or what. The concept is wonderful. The devil is in the details of how to do it. Is it practical? Why do we want it? These answers need to be realistic.”

The majority of interviewees said that they thought a community garden at the UAF was feasible (80%). Two interviewees did not know whether or not a garden at the UAF was feasible and only one interviewee said that a garden was not feasible. Several of those who said that a garden is feasible (seven respondents) at the UAF said that a garden is feasible only if the obstacles and challenges are properly addressed. One interviewee said that a garden at the UAF is feasible, “...because we are already talking about the problems that must be addressed to have a successful garden. These issues, challenges and problems must be addressed before beginning the garden.” Another interviewee said that a garden at the UAF is not feasible because, “...not many crops grow during the academic year [and there is] no one on campus during the summer to maintain a garden.”

V. Discussion and Conclusions

The study was conducted in order to better understand campus community garden demographics, operations, management, challenges and successes and to determine the feasibility of a campus community garden at the UAF. The data gathered from the online survey demographic data, the hypotheses tested, the case studies, and the feasibility study interviews allows for conclusions to be drawn regarding the feasibility of a campus community garden at the UAF and best practices for campus community gardens.

A. Feasibility of a campus community garden at UAF

Although there was a level of subjectivity in the data collected from the feasibility study interviews, a community garden at the UAF appears to be feasible with the conclusions drawn from all three parts of the study. The online survey data provided information about the typical types of campus community gardens, common garden management tactics, and the perceived successes, challenges and learning lessons. This information was valuable for analyzing how a community garden might operate at the UAF and what successes and challenges might arise from a community garden at the UAF. Case study data provided additional insight into operations of campus community gardens and provided unique ideas about garden activities and overcoming obstacles.

Campus and garden demographics gave insight into the commonalities among campus community gardens, from which conclusions can be drawn regarding a UAF campus community garden. The majority of the online survey respondents represented public land grant institutions and several had greater than 20,001 undergraduates enrolled. The UAF is a public land grant

institution with greater than 20,001 undergraduates, thus it can be concluded that it is viable for the UAF to have a campus community garden. The majority of survey respondents had an environmental sciences department or program, which indicated that it was not necessary to have an agriculture or horticulture program in order to host a campus garden. Several of the feasibility study interviewees associated the idea of a community garden at the UAF with a horticulture or an agriculture program. The UAF has a number of academic programs related to environmental sciences, agriculture and horticulture in the Crop, Soils and Environmental Science, Horticulture, Plant Pathology and Agricultural Economics and Agribusiness departments. This indicates that the UAF has the academic capacity for supporting a successful community garden.

Although the majority of the interviewees stated that a garden at the UAF should be located at the DAES, most campus community gardens were separate from university farms or experiment stations and the majority of the survey participants reported that the campus garden was located on campus property. It can therefore be concluded that a community garden at the UAF would not necessarily need to be located or associated with the DAES. The primary users of campus community gardens were typically undergraduate students. It can be concluded that primary users of a UAF campus community garden would be undergraduate students and there would be a diversity of academic majors represented.

The size of a garden at the UAF could not be predicted solely upon the enrollment of the institution according to the insignificant result given by Hypothesis 5. This indicated that the size of the garden could be based upon the needs of the campus community. A few of those interviewed at the site visits provided learning lessons about initially establishing a small garden and expanding in the future to meet specific needs. It was also observed that the structure,

management and purposes of campus gardens were variable among case study visits. Each campus garden provided different opportunities, which suggested that campus community gardens were as unique as university campuses. The purposes and models of campus community gardens revolved around the needs of the campus communities. This conclusion indicated that a UAF campus garden could fit any model that was appropriate for the campus community.

There were three campus community garden models identified among case study participants. One model had individual plots, where gardeners only tended to their individual plot. Another model did not have individual plots, but maintained the garden area communally instead. The last model incorporated elements from the first two models, where gardeners maintained individual plots but also worked in communal areas together. The model of the campus garden was unique to each university and it can be concluded that a garden at the UAF could fit any of these models.

Feasibility study interviewees identified finding a suitable location and securing funding as potential challenges that could prevent the UAF from establishing a community garden on the UAF campus. Survey respondents also reported finding a location and securing funding as the most common challenges to establishing a campus garden. Although identifying a solution for finding a suitable location was not concluded, conclusions can be drawn about identifying solutions for securing funding. Survey respondents reported various funding sources, which included funding from university budget, gifts, grants, fundraising, and general donations. Even though several interviewees said that funding from the university budget was not appropriate, funding for a garden at the UAF could be pursued in various other ways, such as developing grant proposals, hosting fundraising events and asking for donations.

B. Best practices for campus community gardens

A set of best practices were developed based upon the data gathered from the online survey and the case study site visits. It was concluded that practices for successful gardens include:

1. There was not one particular model for running campus community gardens. The model and purpose of campus community gardens developed accordingly to the needs of and resources available to the campus community members.
2. Although garden managers could not always mitigate challenges associated with garden operations, managers may be important components for sustaining a community garden over academic break periods and over several years.
3. Campus community leaders (i.e. faculty member or administrator) with supervisory responsibility were a key component of campus community gardens.
4. Seeking funding from several different sources (i.e. university budget, external funding from gifts or grants, donations, fundraising events) may be an important way to avoid or mitigate challenges associated with sustaining garden funding.
5. Building partnerships with campus community members (i.e. students, staff, faculty, and administrators) may be an important way to avoid or mitigate challenges associated with campus involvement and support.
6. Integrating educational components into the campus community garden provided campus community members with opportunities to learn about food production and may have provided success with public outreach and education.
7. Success associated with campus gardens arose from other activities in the garden, regardless of the way in which produce was appropriated. Examples of success associated

with campus gardens included educational opportunities, diversity of participants, and community building in the garden.

The conclusions drawn here from the online survey, the site visits, and the feasibility study interviews provided insight into the various ways in which successful campus community gardens operate. The conclusions also provided information regarding the potential ways in which a campus community garden could operate at the UAF. Understanding the best practices for campus community gardens gave a better understanding of how campus community gardens may operate successfully and sustainably.

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APPENDIX A: Online survey contact list of universities with community gardens

Contact #	Name of Institution	Name of Garden	Contact email
1	American University, Washington DC	Ecosense Community garden	althea.mickiewicz@american.edu
2	Arizona State University, Phoenix, AZ	Community garden	Jehnifer.Niklas@asu.edu
3	Auburn University, Auburn, AL	Alpha Zeta's Garden Plots	mav0002@auburn.edu
4	Berea College Berea, KT	College Farms, College Gardens and Greenhouses	sean_clark@berea.edu
5	Butte College, Oroville, CA	Butte College Farm	hicksbr@butte.edu
6	California State Polytechnic University, Pomona, CA	John T. Lyle Center for Regenerative Studies	jcaraya@csupomona.edu, kdbrown@csupomona.edu
7	California State Polytechnic University, San Luis Obispo, CA	Cal Poly Organic Farm	aeps@calpoly.edu, orgfarm@calpoly.edu
8	California State University, Chico, CA	Agricultural Research and Teaching Center	laltier@csuchico.edu, AgOutreach@csuchico.edu
9	Central Carolina Community College Pittsboro, NC	The Land Lab, Sustainable Agriculture Program	rkohanowich@cccc.edu
10	Clemson University, Clemson, SC	Student Organic Farm	zehnder@clemson.edu
11	College of the Atlantic, Bar Harbor, ME	Beech Hill Farm	BeechHillFarm@coa.edu
12	Colorado College, Colorado Springs, CO	Colorado College Farm	sustainability@ColoradoCollege.edu, Rebecca.Levi@ColoradoCollege.edu
13	Colorado State University, Fort Collins,	Name of garden unknown	Frank.Stonaker@colostate.edu

CO

14	Cornell University, Ithaca, NY	Dilmun Hill Student Farm	feliciawyu@gmail.com
15	Dartmouth College, Hanover, NH	Dartmouth Organic Farm	organic.farm@dartmouth.edu
16	Deep Springs College, Deep Springs, CA	Farm and Garden	seedsower@gmail.com, mdunn@deepsprings.edu
17	Dickinson College, Carlisle, PA	Dickson College Garden	halpinj@dickinson.edu
18	Duke University, Durham, NC	Duke Community Garden	mmb21@duke.edu, stella.dee@duke.edu
19	Earlham College, Richmond, IN	Miller Farm	farmers@earlham.edu
20	Eastern Oregon University, La Grande, OR	La Grande Community Garden	nella@oregonrural.org
21	Fairhaven College of Western Washington University Bellingham, WA	The Outback Farm	outbackgardens@gmail.com, As.Outback@wwu.edu, John.Tuxill@wwu.edu
22	Ferrum College, Ferrum, VA	Farm	bpohlad@ferrum.edu
23	George Washington University, Washington DC	The GroW Community Garden	aformica@gwmail.gwu.edu, aformica@gwmail.gwu.edu, foodjusticealliance@gmail.com
24	Georgia Highlands College	Green Highlands	greenhighlands@highlands.edu
25	Goshen College, Goshen, IN	Merry Lea Sustainable Farm	dhess@goshen.edu, rlsensenig@goshen.edu
26	Grand Valley State University, Allendale, MI	Sustainable Agriculture Project	sustainability@gvsu.edu, gardnele@gvsu.edu
27	Green Mountain	Farm and Food Project,	ackermanleistp@greenmtn.edu

	College, Poultney, VT	Cerridwen Farm	
28	Hampshire College, Amherst, MA	Agricultural Studies Farm Center	lcox@hampshire.edu or nehFC@hampshire.edu
29	Hendrix University, Conway, AR	Garden project	wilshusensk@hendrix.edu
30	Humboldt State University, Arcata, CA	Arcata Educational Farm	ArcataEdFarm@yahoo.com, corey.lewis@humboldt.edu
31	Iowa State University, Ames, IA	Student Organic Farm	iles@iastate.edu, tgunther@iastate.edu
32	Kentucky State University, Frankfurt, KT	Organic Agriculture Working Group	eddie.reed@kysu.edu
33	Lawrence University, Appleton, WI	Sustainable Lawrence University Garden	garden@lawrence.edu, Jeffrey.J.Clark@Lawrence.edu
34	Longwood University, Farmville, VA	Cormier Honors College vegetable garden	beachjs@longwood.edu
35	Maharishi University of Management, Fairfield, IA	MUM Organic Farms	smclaske@mum.edu
36	McGill University, Ste. Anne de Bellevue, Québec	The McGill Food Systems Project	mcgill.foodsystems.project@gmail.com, jonathan.glencross@mail.mcgill.ca
37	Meredith College, Raleigh, NC	Community garden	landisb@meredith.edu
38	Michael Fields Agricultural Institute, East Troy, WI	Name of garden unknown	sschmitt@michaelfields.org
39	Michigan State University	MSU Student Organic Farm	biernbau@msu.edu, moghtad1@msu.edu
40	Middlebury College, Middlebury, VT	Middlebury College Organic Garden	mcog@middlebury.edu, jay.leshinsky@myfairpoint.net
41	Mills College, Oakland,	Community garden	cmcwhort@mills.edu, bruce@mills.edu

CA

42	Montana State University, Bozeman, MT	Towne's Harvest Garden	townes.harvest@gmail.com
43	Mount Holyoke College, South Hadley, MA	Crops for a Closer Community Student Garden	mhcgarden@gmail.com
44	New Mexico State University, Las Cruces, NM	OASIS (Organic Students Inspiring Sustainability)	jeweber@nmsu.edu
45	North Carolina State University Goldsboro	Student Organic Farm	rlholnes@ncat.edu, decooper@ncat.edu
46	North Carolina State University Raleigh, NC	SOUL Garden	mail.soulgarden@gmail.com, lamorris@ncsu.edu
47	Northern Arizona University, Flagstaff, AZ	Students for Sustainable Living and Urban Gardening (SSLUG)	gardensslug@gmail.com
48	Northland College, Ashland, WI	Growing Connections	chintz@northland.edu, tfitz@northland.edu
49	Nova Scotia Agricultural College Truro	NSAC Community Garden	lefebvren@nsac.ca
50	Oklahoma City University	OKC Community Garden	bluegoesgreen@okcu.edu, aryburn@okcu.edu
51	Oklahoma State University, Stillwater, OK	Garden...	bennett.18@osu.edu
52	Oregon State University, Corvallis, OR	Organic Growers Club Farm	Anita.Azarenko@oregonstate.edu
53	Pacific University, Forest Grove, OR	The B Street Farm	odayt@pacificu.edu, deke@pacificu.edu
54	Pennsylvania State University State College	Penn State Community Garden	dam37@psu.edu, jfe121@psu.edu

55	Prescott College, Prescott, AZ	Jenner Farm	jpittman@prescott.edu, gmarien@prescott.edu
56	Rudolf Steiner College, Fair Oaks, CA	Biodynamic Garden	raphael.garden@gmail.com, Harald Hoven at 916-965-0389
57	Rutgers University, New Brunswick, NJ	Student Sustainable Farm at Rutgers	durner@aesop.rutgers.edu
58	Santa Rosa Junior College, Santa Rosa, CA	Shone Farm	ldiggs@santarosa.edu, dwalton2@santarosa.edu
59	Slippery Rock University, Slippery Rock, PA	? Maybe a community garden	macoskey.center@sru.edu
60	Southern Oregon University, Ashland, OR	Community garden	ecosgarden@gmail.com
61	St. Olaf College, Northfield, MN	STOGROW Farm	farmers@stolaf.edu.
62	Stanford University, Stanford, CA	Stanford University Community Farm	stanford.farmer@gmail.com, swied@stanford.edu
63	Sterling College, Craftsbury Common, VT	Stirling College Farm	aobelnicki@sterlingcollege.edu, bbenson@sterlingcollege.edu
64	Temple University, Ambler, PA	Campus community garden	gchapman@temple.edu
65	Texas A&M University, College Station, TX	Howdy Farm	barnette87@neo.tamu.edu
66	Texas State University, San Marcos, TX	Garden Court	tc10@txstate.edu
67	The Evergreen State College, Olympia, WA	Community Gardens	tesccommunitygardens@gmail.com
68	The Farm School, Athol, MA	Learn to Farm Program	patrick@farmschool.org
69	The University of Oklahoma, Norman	OUr Earth	becky.wood@ou.edu, dalton@ou.edu
70	Unity College, Unity, ME	Sustainable Agriculture Program	dfox@unity.edu

71	University of British Columbia Vancouver	UBC Farm	lfsgarden@gmail.com
72	University of California Berkeley	The University Village Community Garden	manager@ucvillagegarden.net, chair@ucvillagegarden.net
73	University of California Davis	Experimental College Garden	ecgarden@ucdavis.edu
74	University of Central Arkansas, Conway	Dee Brown Memorial Garden	AllisonW@uca.edu
75	University of Delaware, Newark, DE	Graduate student community garden	feliciawyu@gmail.com
76	University of Georgia, Athens	Garden?	rotate@uga.edu, dberle@uga.edu
77	University of Guelph, Guelph, Ontario	Guelph Organic Agriculture Program	pvoroney@uoguelph.ca, eaclark@uoguelph.ca
78	University of Hawaii	Energy House	adamsrox@hawaii.edu
79	University of Hawaii Maui College, Molokai	Molokai Farm	boswellj@hawaii.edu
80	University of Hawaii, Hilo, HI	Agricultural Farm Laboratory	steiner@hawaii.edu, uhh.sustainability@gmail.com
81	University of Hawaii, Manoa, HI	Sustainable Farming Systems Laboratory	theodore@hawaii.edu
82	University of Illinois, Urbana, IL	Student run garden	zgrant2@illinois.edu
83	University of Maine, Augusta, ME	Community garden	andrea.emch@maine.edu
84	University of Maine, Bangor, ME	Community garden	melissa.cormier@maine.edu
85	University of Maine, Orono, ME	Black Bear Food Guild	mariann2@maine.edu
86	University of Manitoba Winnipeg, Manitoba	UofM Student Community Farm	uofmstudentgarden@gmail.com

87	University of Minnesota St. Paul	Cornercopia, the Student Organic Farm	umsof@umn.edu, amarkhar@umn.edu
88	University of Montana, Missoula, MT	PEAS Farm	joshua.slotnick@mso.umt.edu
89	University of Nebraska, Lincoln	Faculty/Staff/Graduate Student Gardens	gogden1@unl.edu, lsutton1@unl.edu
90	University of New Hampshire, Durham, NH	Student Organic Garden Club	becky.sideman@unh.edu
91	University of New Mexico, Albuquerque, NM	Lobo gardens	amarcum@unm.edu
92	University of North Carolina, Chaple Hill	Carolina Campus Community Garden	clorch@email.unc.edu
93	University of Oregon, Eugene, OR	Urban Farm	hkeeler@uoregon.edu
94	University of Tennessee, Knoxville	UT Gardens	sueham@utk.edu
95	University of Texas, Arlington	The Community Garden at UT Arlington	bill.gilmore@arlingtontx.gov
96	University of Texas, Austin	University of Texas Campus Environmental Center (CEC)	gardening@utenvironment.org
97	University of Vermont Burlington	Common Ground Student-Run Educational Farm	Yolanda.Chen@uvm.edu
98	University of Virginia, Charlottesville, VA	UVA Community Garden	uvacommunitygarden@gmail.com
99	University of Washington, Seattle	The UW Farm	nina@uwfarm.org
100	University of Wisconsin, Madison	F.H. King Students of Sustainable Agriculture Demonstration Garden	mbhahn@wisc.edu, fhking.students@gmail.com

101	University of Wisconsin, Oshkosh, WI	UW Oshkosh Community Gardens Club	lizotte@uwosh.edu, gardens@uwosh.edu
102	University of Wyoming, Laramie, WY	ACRES	uwstudentfarm@gmail.com, unorton@uwyo.edu, kpanter@uwyo.edu
103	Utah State University	Community garden	taun.beddes@usu.edu
104	Vassar College, Poughkeepsie, NY	Poughkeepsie Far Project	susan@farmproject.org
105	Warren Wilson College, Asheville, NC	WW College Garden	garden@warren-wilson.edu, lengnick@warren-wilson.edu
106	Washington State University, Pullman, WA	WSU Organic Farm	jaeckel@wsu.edu
107	Washington University, Saint Louis, MO	The Burning Kumquat	theburningkumquat@gmail.com
108	Western Carolina University, Cullowhee, NC	Campus Kitchen Garden	jlively@email.wcu.edu
109	Willamette University, Salem, Oregon	Zena Farm	jjohns@willamette.edu, jbowerso@willamette.edu
110	Wilson College, Chambersburg, PA	Fulton Farm	eric.benner@wilson.edu
111	York University, Toronto, Ontario	Maloca Community Garden	maloca.yorku@gmail.com

APPENDIX B: Online survey questions

Statement of Consent and Confidentiality for Online Survey Participants

Title: Feasibility Study and Best Practices for a Student-Run University Community Garden on the University of Arkansas, Fayetteville Campus

<i>Researcher(s):</i>	<i>Compliance Contact Person:</i>
Samantha Jones	Ro Windwalker, Compliance Coordinator
Curt Rom	Research & Sponsored Programs
University of Arkansas	Research Compliance
Dale Bumpers College of Agricultural, Food and Life Sciences	University of Arkansas
Department of Horticulture	120 Ozark Hall
PTSC 306	Fayetteville, AR 72701-1201
Fayetteville, AR 72701	479-575-2208
479-575-7434 sej004@uark.edu crom@uark.edu	irb@uark.edu

This study involves research concerning the feasibility of a student-run community garden on the University of Arkansas campus in Fayetteville, in addition to a best practices manual for university community gardens. Ms. Samantha Jones and Dr. Curt Rom of the University of Arkansas are conducting the research.

The purpose of the research is two-fold: 1) to determine the feasibility of a student-run community garden on the University of Arkansas campus in Fayetteville and 2) to develop a best-practices manual for university student-run community gardens. The feasibility study will give University of Arkansas useful information regarding whether or not a student-run community garden is feasible on the Fayetteville campus. A student-run community garden, if feasible for the Fayetteville campus, will be an interactive education tool for sustainable agriculture, as well as an opportunity for students to have access to fresh food. A best practices manual for university community gardens has not yet been developed and will give university students and faculty a helpful resource for initiating and maintaining a garden.

A community garden, as defined for purposes of this study, is a garden that is maintained by a particular group of people. The community garden envisioned for the University of Arkansas, Fayetteville campus is one that is maintained by UA students and faculty. Those who are active members of the garden will receive produce, and any excess produce will be donated to a campus-wide or local food bank.

The approximate duration of participation is 15 minutes. Please answer the questions in the survey to the best of your knowledge. You may discontinue participation at any time.

Participation in the study is voluntary and refusal to participate will *not* involve penalty or loss of benefits to which the subject is otherwise entitled. All responses to the survey questions and identification of the participant will be kept confidential to the extent allowed by law. Participants will be assigned a random number and identified using only the assigned number.

1. Do you consent with the above agreement?

Yes

No

2. Do you currently have a garden or farm, where students are able to get hands-on experience, producing vegetables, fruits, flowers, or other crops?

Yes

No

Starting one now or shortly

3. What type of college or university is your institution?

Public Land Grant Institution

Public, but not a Land Grant Institution

Private Institution

Community College

4. What is the undergraduate enrollment of your institution?

<2500

2501-5000

5001-10,000

10,001-20,000

>20,001

5. What degrees are granted by your institution? (Check all that apply)

Associate Degrees

Bachelor Degrees

Master Degrees

PhD

Professional Degrees

6. In which region is your institution located?

New England (CT, MA, ME, NH, RI, VT)

Middle Atlantic (NJ, NY, PA)

East North Central (IN, IL, MI, OH, WI)

West North Central (IA, KS, MN, MO, NE, ND, SD)

South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV)

East South Central (AL, KY, MS, TN)

West South Central (AR, LA, OK, TX)

Mountain (AZ, CO, ID, NM, MT, UT, NV, WY)

Pacific (AK, CA, HI, OR, WA)

Canada

**7. Does your institution have a horticulture and/or agriculture department, unit, or program?
(Check all that apply)**

Agriculture department

Horticulture, Crop Sciences, or Agronomy department

Environmental Sciences department

Botany, Biological or Plant Sciences department

8. What type of garden or farm is available for use, where campus community members (students, staff and faculty) can grow food crops (vegetables or fruit), flowers or other plants for their own use, sale at a market or local/campus food bank? (Check all that apply)

University farm or agriculture experiment station

Community garden (separate from a university farm or agriculture station)

Other (please specify):

9. Who are the principal or primary users of the garden/farm (those who regularly work in the garden/farm, maintain an individual plot, help with garden work days, etc)? (Check all that apply)

Undergraduate Students

Graduate Students

Faculty

Staff

Other (i.e. high school students, civic clubs, community members), please specify:

10. What other groups on campus and the community besides the primary users above also use the garden (those who occasionally help with maintaining the garden, attend garden work days, etc)? (Check all that apply)

Undergraduate Students

Graduate Students

Faculty

Staff

Other (i.e. high school students, civic clubs, community members), please specify:

11. Roughly how many academic majors are represented by the students who use the garden?

0-5

6-10

11-15

16-20

21-25

26-30

>30

**12. Which academic majors are most represented by the students who use the garden the most?
(Please enter the names of the academic majors)**

13. Does the garden have access for persons with physical disabilities?

Yes

No

Do not know

14. What type of access is available for persons with physical disabilities? (Check all that apply)

Disabled parking

Wheelchair accessible pathways

Raised bed, at an appropriate level for wheelchairs and/or elderly gardeners

Special tools for use by gardeners with disabilities

Other (please specify):

15. Do persons with physical disabilities currently or have previously use(d) the garden? (Check all that apply)

Current use

Previous use

No, but there is access for persons with physical disabilities

No access for persons with physical disabilities

Do not know

16. On average, approximately how many community members (i.e. high school students, civic clubs, senior citizens, family members, etc.) annually participate in the garden? (Please enter number)

17. How large is the garden, rounding to the nearest acre? (Please enter number of acres)

18. In what year was the garden established? (Please enter the year as YYYY, i.e. 1984)

19. Where is the garden or farm located? (Check all that apply if there is more than one location)

On campus property

On private property leased by the garden

On private property donated to the garden

On a university farm or experiment station

Other (please specify):

20. From where/whom does the garden receive funding? (Check all that apply).

Student fees for participating with the garden

Fund-raising events

Community Supported Agriculture (CSA) program

Farmers market or farm stand

University budget

Student activity fee per credit hour

External funding; gifts and/or grants

Endowments

General donations

Other (please specify):

21. Approximately how much funding is spent for operating the garden per year (including paid garden manager position if applicable, supplies, etc)? (If exact figure is not known, please estimate.)

22. Is there a garden manager?

Yes

No

23. Who is the garden manager?

Undergraduate Student

Graduate Student

Faculty member

Staff member

Volunteer

Other (please specify):

24. If the garden manager is a student, how is the student paid?

Hourly

Work study

Scholarship

Graduate Assistantship

Other (please specify):

25. If the garden manager is a faculty or staff member, how is the person funded?

Department budgets

College budgets

Student Services/Student Affairs Budget

Physical Plant/Administrative Services Budget

Other (please specify):

26. What type of position does the garden manager hold?

Full-time

Part-time. What fraction of time? (i.e. 1/2, 1/4, etc.):

Other (please specify):

27. What is the term of employment for the garden manager?

Seasonal (6-9 months) during growing season

Seasonal during the academic year (August/September until May/June)

Employed year-round

28. If there is not a garden manager, how is the garden managed? (Free response)

29. Who maintains the garden during time periods outside of normal academic semesters? (i.e. summer and winter breaks) (Check all that apply).

Employed garden manager

Volunteer garden manager (not paid)

Student, faculty or staff garden participants (not paid)

Other (please specify):

30. What is the organizational structure for garden operations and management?

Committee

Club

Other (please specify):

No organizational structure

31. If there is an organization structure, are key positions elected or appointed?

Elected

Appointed by the garden manager or garden director

Other (please specify):

32. Who supervises over the garden manager and organization? (Check all that apply)

Staff member

Faculty member

Administrator

Other (please specify):

There is no person with supervisory responsibility or authority over the manager or organization

33. How is produce from the garden appropriated or used? (Check all that apply)

Volunteers receive share of harvest in return for work

Produce is sold in CSA program

Produce is sold to or used in on-campus dining facilities

Produce is donated to community (food bank, homeless shelter, etc.)

Produce sold at farmer's market/farm stand

Other (please specify):

34. What are major institutional concerns about the garden? (Check all that apply)

Risk and safety of gardeners

Security of facility and equipment

Liability of gardeners

Liability of consumers

Vandalism

Negative public relations or response

Other (please specify):

35. What does your institution see as the primary liability of operating the garden?

Injury of the gardeners

Injury of non-gardeners visiting the garden

Consumption of produce (food safety)

Other (please specify):

36. How are liabilities managed or minimized? (Check all that apply)

Personal injury insurance for gardeners

Personal liability insurance for gardeners

Institutional liability insurance for gardeners

Institutional liability insurance for consumers

Institutional insurance for property, tools, etc.

Other (please specify):

37. What were the top three major obstacles to establishing your garden? (Please enter the top three obstacles to garden establishment).

38. What are the top three greatest challenges, obstacles or limitations present in currently

operating your garden? (Please enter the top three challenges, etc. to current operation).

39. What are your top three “learning lessons” from operating a garden that you could provide to a new garden? (Please enter the top three learning lessons).

40. What are the top three attributes and successes of the garden? (Please enter the top three attributes and successes).

41. How is impact and success of the garden measured? (Check all that apply)

Number of persons gardening

Number of hours spent gardening

Amount of product produced

Volume or value of sales of product

Volume or value of product used by the institution

Volume or value of product donated to relief services

Other (please specify):

42. Please include your garden rules as a .pdf or .doc file, if available.

43. May we identify your institution in our results or would you like to remain anonymous?

44. What is your title at the Institution that has you taking this survey? What position do you hold in the garden?

45. Would you like to receive the results of this survey in an email response once the results have been evaluated?

46. May I contact you for a follow-up interview for further information regarding the management of your garden?

APPENDIX C: Invitation Email Script to Participate in the Online Survey

Hello,

My name is Samantha Jones and I am an undergraduate student at the University of Arkansas in Fayetteville. I am conducting a study on the feasibility of a community garden on the UA campus in addition to creating a best-practices manual for university community gardens. I am interested in your progress and management of your institution's community garden and would like to ask you a few questions regarding your garden in an online survey.

A community garden, as defined for purposes of this study, is a garden that is maintained by a particular group of people. The community of gardeners considered in this study are the campus community members – students, faculty, staff and others who are allowed to garden on campus community gardens. The purposes of the garden are diverse and may include learning, experience, and food/plant production for personal use, for market sales, or for food banks.

The online survey is expected to last approximately 15 minutes. Participation in the study is voluntary and refusal to participate will not involve penalty or loss of benefits to which the subject is otherwise entitled.

The survey is available at: http://uark.qualtrics.com/SE/?SID=SV_0IcjZ0wAKgcYZXS

Please feel free to contact me with any questions you may have regarding the online survey. Thank you.

Sincerely,

Samantha Jones

University of Arkansas; Dale Bumpers College of Agricultural, Food and Life Sciences

sej004@uark.edu

APPENDIX D: Institutions visited for campus garden site visits

Visit #	Institution	Location	Type of Institution	Person(s) interviewed
1	Hendrix College	Conway, Arkansas	Private	Three active student garden members
2	Washington University	St. Louis, Missouri	Private	Active student gardener & garden camp counselor
3	University of Texas	Arlington, Texas	Public	City of Arlington Assistant Director of Parks and Recreation & UT Director of Office of Sustainability
4	University of Texas	Austin, Texas	Public	Student garden manager and active student garden member
5	Texas State University	San Marcos, Texas	Public	Horticulture professor
6	Texas A&M University	College Station, Texas	Public Land Grant	Student garden club president

APPENDIX E: Case study interview questions

1. What is your opinion on community gardens? Do you think the community garden has been beneficial to your university? Why or why not?
2. Does your university support the garden?
3. How large is the garden? How many plots are there and how many people are currently gardening in the space?
4. How is the garden divided among gardeners? Are there individual plots or just one big garden for everyone?
5. How do community members participate with the garden (i.e. specific community days, on-going participation, etc.)?
6. Produce appropriation?
7. Funding for operating the garden? How much and where from?
8. Is the funding received for operating the garden enough to cover the cost of operation of the garden over the full year? If not, how do you cover extra costs?
9. What are the major liabilities to the university?
10. How many scheduled garden workdays per week? Approximately how long are people working in the garden during these workdays? Are there people in the garden on a daily basis?
11. What is the main form of communication between participants in the garden? What form of communication do you use to organize events and workdays in the garden?
12. Please list other limitations, obstacles or setbacks to operating the garden.
13. Please list other successes of the garden.
14. Please list any other learning lessons you might have for a university thinking about starting a community garden.
15. If you could start the garden all over again from scratch, would you do anything different?
16. What other type of advice do you have for university community gardens?

APPENDIX F: UAF feasibility study interview contact list

*Chancellor, G. David Gearhart

Provost and Vice Chancellor for Academic Affairs, Sharon Gaber

*Associate Provost for Student Affairs/ Dean of Students, Danny Pugh

*Associate Dean of Students, Judd Harbin

*Vice Chancellor for Finance and Administration, Don Pederson

*Associate Vice Chancellor for Facilities, Mike Johnson

*Vice Chancellor for Development, Brad Choate

*Dean of the Honors College, Bob McMath

*Dean of Agricultural, Food and Life Sciences, Michael Vayda

*Department Chairperson of Horticulture, David Hensley

*Department Chairperson of Crop, Soils and Environmental Sciences, Robert Bacon

General Counsel, Scott Varady

*Associate General Counsel, Bill Kincaid

Director of Risk and Property Management, James Ezell

Director of Planning and Capital Progress, Jay Huneycutt

*Interim Vice Provost for Academic Affairs; University Professor of Kinesiology, Ro Di Brezzo

*Executive Assistant for Sustainability, Nick Brown

Associate Director of Agriculture Experiment Station, Richard Roeder

Assistant Director of the Center for Leadership and Community Engagement, Angela Oxford

Assistant Director of Fitness/Wellness, Katie Helms

Director of Outreach in the Walton College of Business, Michele Halsell

*Professor in Sociology, Kevin Fitzpatrick

Professor in Horticulture, Craig Anderson

Professor in Geosciences, Steve Boss

Associated Student Government President, Michael Dodd

*Associated Student Government Chair of Sustainability Council, Emily Crossfield

* Indicates individual was interviewed

APPENDIX G: Questions for feasibility study on UAF campus

1. Do you think a community garden would be a distraction or a benefit to the mission of University of Arkansas (UA)? Why or why not?
2. Do you think a community garden at the UA would fit in with the academic goals of the UA? Why or why not?
3. How do you think a community garden fits into the curricular and co-curricular goals at the UA?
4. How do you think a community garden at the UA should be funded? What do you think would be an appropriate source of funding?
5. Where do you think would be a good location for a community garden at the UA (private land, general UA property, UA farm, other)? Do you have any specific location ideas in mind?
6. What kinds of challenges or obstacles do you foresee during the establishment of a community garden at the UA?
7. What are your major concerns with a community garden at the UA? What do you think would be major institutional concerns with a community garden at the UA?
8. How do you think the UA should manage any potential liabilities that a community garden may present?
9. What do you think would prevent the UA from having a community garden?
10. Do you think the UA should have a community garden? Why or why not?
11. Do you think a community garden at the UA is feasible? Why or why not?
12. Please list five other UA faculty, staff or students who you think I should interview regarding a community garden at the UA.

APPENDIX H: Complete case study interviews

Hendrix Community Garden Visit Follow-up Questions

Interview with Hendrix students, Kyle, Eugene and Haiyan

1. What is your opinion on community gardens? Do you think the community garden has been beneficial to your university? Why or why not?

The community garden has been beneficial. Community gardens use unused land and here this is unused university land. There is a lot of unused space here at Hendrix. Most people have associated the garden with the Eco-House [student housing, which is across the street from the garden] and they don't think the garden is available to them, however.

2. Does your university support the garden?

Yes. They really support it. We have a \$1000 budget.

3. How large is the garden? How many plots are there and how many people are currently gardening in the space?

About 7,000 square feet. It is one big plot. Everyone works on the whole garden together. There are no individual plots. Students could start individual plots in unused space if they wanted. The Edible Forest Garden [which is an extension of the main garden] was started in 2010 and is 50'x30'.

4. How is the garden divided among gardeners? Are there individual plots or just one big garden for everyone?

It is one big plot. Everyone works on the whole garden together. There are no individual plots. Students could start individual plots in unused space if they wanted.

5. How much is the student activity fee per credit hour?

The student activity fee generates \$150 per student. The budget process for individual things in the garden comes from the big pot of money generated from this university student fee.

6. Is the funding received from the activity fee enough to cover the cost of operation of the garden over the full year? If not, how do you cover extra costs?

We get enough money. We have applied for money from the university budget to establish the Edible Forest Garden. We wanted to buy drip irrigation last year, but we didn't have enough money [at the time].

We went ahead and bought the drip irrigation and then asked for the money in our next funding round (which was in the spring).

7. How many scheduled garden workdays per week? Approximately how long are people working in the garden during these workdays? Are there people in the garden on a daily basis?

We haven't had many this last year. In the spring, we typically have one workday a month when the leadership is strong. We strive to have a workday once a week, now that the garden is bigger. Over the summer we have a pretty good group that comes three times per week. We typically work 1-2 hours. [Kyle and Eugene] are there on a daily basis.

8. Elaborate on the produce appropriation. May any student harvest the produce?

It is free for all. Students who don't work in the garden are allowed to harvest the produce, but a lot of them do not know about the garden.

9. Club organization: Has it been successful for operating the garden?

Well, we lost a lot of our organization this year. The president [of the club] was a farmer and this dictated what happened in the garden.

10. Please list other limitations, obstacles or setbacks to operating the garden.

Occasionally the grounds crew will weed-whack in the garden.

11. Please list other successes of the garden.

Expanding has been really good. We have new crops and new fruits. I haven't had to buy any food lately.

12. Please list any other learning lessons you might have for a university thinking about starting a community garden.

Get faculty and especially agriculture teachers involved with the garden.

13. Access for persons with disabilities?

Not really accessible.

14. How are liabilities managed or minimized?

We don't sell produce, so we don't worry about liabilities. Hendrix gives suggestions for the garden, but does not have a liabilities plan.

15. What other type of advice do you have for university community gardens?

Don't be afraid to try and expand. We started small and then expanded and it worked.

Additional questions asked by email:

16. What is the main form of communication between participants in the garden? What form of communication do you use to organize events and workdays in the garden?

We've mainly used email in the past, but I would like to start using texts more. It seems when people get a message on their phone they think it's an event whereas an email is just a reminder.

17. If you could start the garden all over again from scratch, would you do anything different?

I would not include the greenhouse in the middle of the garden, although gardens seem to be nice in that it seems like every year they can be restarted with a different design.

The Burning Kumquat at Washington University in St. Louis, MO

Interview with Washington University student, Amanda

1. What is your opinion on community gardens? Do you think the community garden has been beneficial to your university? Why or why not?

I love community gardens. I started gardening here and [working in the community garden] gave me my friend base. I began caring about where food comes from and [working in the community garden] taught me about the food cycle and made me want to study the environment. [There is] an incredible diversity of majors present in the garden- everyone can be interested in gardening and come together. [The garden] brings in people from outside the university and they can spread the word about why this is important. [The Burning Kumquat] is beneficial to our university, because it makes the university look good, so they support us fully. We have a great relationship with the dining facilities.

2. Does your university support the garden?

Yes. Ideally we would make enough money from our sales at the farmers market, but we don't. So we get money from the Student Union and the Sustainability Office gave us money for the compost bins and the picnic tables. Several staff and faculty members help manage the garden and have close relationships with us. There is a lot of support that grows exponentially every year. Washington advertises the garden in their magazine about them for "green schools."

3. How large is the garden? How many plots are there and how many people are currently gardening in the space?

An eighth of an acre is actually farmed, and the total plot area is a quarter of an acre. There are a lot of beds with isles in between them...it's just one big garden. The Plant Planner plans out the planting seasonally.

4. How is the garden divided among gardeners? Are there individual plots or just one big garden for everyone?

It is not divided among gardeners. Anyone who works in the garden can take produce. No one person has ownership of the garden.

5. How do students and community members participate with the garden (i.e. specific community days, on-going participation, etc.)?

In the summer, students can go to the farmers market and work days; they can help harvest produce for Bon Appetit [the dining facility company at Washington University], City Greens [a St. Louis community organization that gives produce to senior centers], the farmers market on campus, or the farmers market in North City. We have workdays on Sunday. During the school year, students can participate with the farmers market or on workdays in the garden. During the winter, we have a lot of organizing to do. We host social events in the winter.

We also have a summer camp, called Camp Kumquat, which was started two years ago. It is a camp in the garden for local middle school students (grades 6, 7, and 8) in St. Louis. There are two two-week sessions. There are gardening projects and lessons given in the garden during the camp. The snacks and lunches are donated by Bon Appetit. Speakers from the community come to speak about food awareness. Washington University students are the counselors of the camp. We got a grant to stay in St. Louis over the summer to run the camp from Washington University property department and the Sustainability Office (they gave stipends). Fees for the camp are on a sliding scale and depend upon how much the family can pay to send their children to the camp.

6. How much is the student fee for participating with the garden?

We get funding from the Student Union (\$1500 per semester for tools, seeds, dirt, rights to show movies, preserving, some to the camp, and to make T-shirts). The Sustainability Office donated money for the shed, the picnic tables, the compost bins, and they also paid a landscaping company to install all of these things. We just started to receive money for things like this because they wanted to make it more aesthetically pleasing.

7. How much do you make selling the produce at the farmers market annually?

It's been a slow summer. At the North City farmers market, we make about \$10-20 per week for the 10 week summer. We sell \$200-300 per semester to Bon Appetit on campus. At the farmers market outside of the student center on campus, we make \$30-40 per week during the summer and fall. We started selling to City Greens this summer and make about \$20 per week.

8. Is produce donated or sold to on-campus dining facilities?

Sold at three farmers markets. Sold to the on-campus dining facility through Bon Appetit.

9. Is the funding received from the university budget, the student fees and farmers market enough to cover the cost of operation of the garden over the full year? If not, how do you cover extra costs?

We have enough to cover the costs. It's necessary for us to get money from the university budget, because otherwise we cannot make enough from our sales at the farmers markets. Our "extra" costs are covered by the Sustainability Office.

10. From where in the university budget does your funding come?

It comes from the Student Union, which is the student government.

11. How much does the liability insurance cost the university? How is the cost covered?

We don't pay for insurance. Liabilities are not an issue here.

12. How many scheduled garden workdays per week? Approximately how long are people working in the garden during these workdays? Are there people in the garden on a daily basis?

We have general workdays on Saturday. On Fridays we harvest for the farmers market during the school year. Sometimes we have a mid-week workday if there is a lot to do in the garden. For workdays we usually have 5-10 people and on the weekends we have 20-30 people come in "waves" not all at once. About 4-5 people harvest for the dining service. There are 12 people in the decision making body, called the Farmigarchy, who are the "regulars." We have meetings every other week for anyone to attend. On the off weeks, the Farmigarchy meets. Someone comes every day to water.

13. What is the main form of communication between participants in the garden? What form of communication do you use to organize events and workdays in the garden?

All through email. We advertise to students through activity fairs each semester. We have a website only for the Farmigarchy members, which has the weekly watering schedule and is a way for us to

communicate with each other. We have a blog to keep those who are gone over the summer updated on what's happening in the garden.

14. Communal organization: Has it been successful for operating the garden?

It has been very successful for running the garden. The president is only identified on paper for the Student Union. The positions are:

- Sun: the land person, who advises about planting, composting, etc.
- Moon: the person who organizes people and organizes community outreach
- Market Bunny: the person who organizes the farmers market trips and affairs
- Party Animal: the person who is in charge of pot lucks and social events

There are not elections, members of the Farmigarchy talk about who would be best for each position all together. Transitions into new positions are in the fall, so that previous positions can show the new people the in's and out's of the job.

15. Please list other limitations, obstacles or setbacks to operating the garden.

Student turnover is so rapid, so it's hard to know everything about what has happened in the garden each year, which is why it is so important to pass down information about managing the garden year to year. There is a lot of work to do in the garden for a full-time student, so it's hard to get commitment from students sometimes. It takes work to recruit students.

16. Please list other successes of the garden.

The garden is not about being a business or producing a lot. It's more about experimentation and providing a gateway for students caring about where our food comes from. We're also working with local kids on this issue. It's a great tool for getting people together for food advocacy. I've learned to cook from participating with the garden. I've developed my base of friends in the garden.

17. Please list any other learning lessons you might have for a university thinking about starting a community garden.

Ask for help everywhere. We got our piece of land just by asking a guy in facilities. Start the garden earlier in the season than you think.

18. If you could start the garden all over again from scratch, would you do anything different?

Yes, I would change the direction of the beds so that the water does not run right through the beds (I would have first figured out the slope of the land before building the beds). I also might have bought a

gas-powered lawn mower. Otherwise, it's a good establishment. We have a great location because everyone can walk here for workdays.

19. Any other type of advice do you have for university community gardens?

Ask for help everywhere. Start early. Apply for grants, because it's worth it. Hook up with the sustainability crew and other student groups, so that you can plan events together and get funding together.

University of Texas, Arlington Community Garden

Interview with City of Arlington Assistant Director of Parks and Recreation, Bill, and Director of the Office of Sustainability at UTA, Meghna

1. What is your opinion on community gardens? Do you think the community garden has been beneficial to your university? Why or why not?

[The community garden] has been beneficial. It shows a good partnership between UTA and the city of Arlington. We hope to expand in the future.

2. Does your university support the garden?

Yes. They provide us with compost and mulch and the recycling pick-up from the garden.

3. How large is the garden? How many plots are there and how many people are currently gardening in the space?

A half an acre. There are 78 plots and approximately 120 people gardening (conservative estimate).

4. How is the garden divided among gardeners? Are there individual plots or just one big garden for everyone?

There are individual and group plots (an individual plot maintained by a group of people).

5. How do community members participate with the garden (i.e. specific community days, on-going participation, etc.)?

[The garden is maintained primarily by community members from the city of Arlington.]

6. Produce appropriation?

Some of the produce goes to a food bank, called Mission Arlington. [The garden] contracts require members to give 50% of their produce to the food bank. The food bank can't harvest the food, so individuals have to do this. The produce is delivered to Mission Arlington by specific members and the food is distributed [to those who need it] that same day.

7. Funding for operating garden? How much and where from?

The City of Arlington funded the initial infrastructure of the garden...the gravel, soil, shade arbor, rain water cistern. UTA furnishes the compost, mulch, professional services for design of shade arbor. Volunteers are going to build the shade arbor.

8. Is the funding received for operating the garden enough to cover the cost of operation of the garden over the full year? If not, how do you cover extra costs?

The fee for participating in the garden is \$25. In the future we will explore finding donations from citizens around Arlington.

9. What are the major liabilities to the university? How are these liabilities managed or minimized?

Liabilities=theft of tools, but nothing has happened so far. Some food has been taken, but they probably needed it.

10. How many scheduled work days per week? Approximately how long are people working in the garden during these workdays? Are there people in the garden on a daily basis?

The city schedules meetings monthly and they are trying to be consistent [with the meetings]. The meetings are held at the city building. We are pushing for a better member organization and for a president/vice president election.

11. What is the main form of communication between participants in the garden? What form of communication do you use to organize events and workdays in the garden?

Email. We are trying Google groups. We have a Keep Arlington Beautiful Facebook page and were using Facebook, but it was too social and we couldn't get enough done. So right now we are using Google. We can chat, keep documents and picture all in one place.

12. Please list other limitations, obstacles or setbacks to operating the garden.

We haven't had any huge obstacles. We need one person to oversee all garden operations. [Bill does] this now, but he is head of Parks and Recreation [for the city]. We want to hire someone to do this job.

13. Please list other successes of the garden.

The partnership between the city and UTA.

14. Please list any other learning lessons you might have for a university thinking about starting a community garden.

Need to sync up leaders for the garden before building. The “build it so they will come” attitude is not the best way to start the garden.

15. If you could start the garden all over again from scratch, would you do anything different?

We would reduce the number of plots—make the plots bigger and have less of them. There are too many people to try to work with. You could start with less plots and then have room to expand. It would also be nice to have room for ornamentals.

Start small—that way gardeners can form intimate relationships and the garden council doesn’t get intimidated by the large group of people.

16. Any other type of advice do you have for university community gardens?

It is good to have a partnership with the city. Sometimes there is a lot of interest at first, but when it comes time to actually do the work, people do not follow through.

University of Texas in Austin (UTA) Concho Community Garden Visit

Interview with UTA students, Danielle and Christina

1. What is your opinion on community gardens? Do you think the community garden has been beneficial to your university? Why or why not?

Danielle: They’re awesome. From my perspective, it has been very beneficial for my academics. It helps to push thinking about my food choices.

Christina: [In the community garden] you can tap into all different types of resources from different people with various economic and ethnic backgrounds, which provides great resources. The garden is so diverse, which is great to help guide the garden. It has created a community within the UTA gardeners. It also has potential to feeds students and residential halls.

2. Does your university support the garden?

Not at first. The community garden committee wrote proposals and they only half looked at it. Once they got the sustainability director behind the idea, they were able to move with their plans. Since then, there has been more support. People appreciate the garden.

3. How large is the garden? How many plots are there and how many people are currently gardening in the space?

The garden is a seventh of an acre. There are 28 plots and an additional landscaped area. There are also five fruit trees.

4. How is the garden divided among gardeners? Are there individual plots or just one big garden for everyone?

19 of the plots are for individuals and are 4'x8', there are 10'x10' plots for student organizations and three 4'x10' plots used by UTA chefs, where everything grown there goes into the dining halls. There are usually two people per plot (in the individual plots).

The Gardening Club also has five plots on campus that have strawberries, herbs, natives. There is a tree-planting initiative around campus, the city and major roadways, which is supported by the student "green fee."

5. How do community members participate with the garden (i.e. specific community days, on-going participation, etc.)? Please expand on the participation with the child day care.

One teacher from the child day care center has a 4'x8' plot and brings the children to the garden two days a week. The child day care center is across the street.

6. Please expand on the produce donations to the community.

Individual and student organizations donate to Open Door Lunch at the UTA Methodist Church, which is a program that provides lunch for the homeless on Saturdays.

7. How much is the student fee for participating with the garden?

It is \$10 per semester for individual plots and \$20 per semester for student organizations.

8. Is the funding received from the student fees, fund-raising events, university budget, and external funding (gifts and/or grants) enough to cover the cost of operation of the garden over the full year? If not, how do you cover extra costs?

We get our compost and our mulch for free. A community member from the area who runs a development non-profit gave us plants. We got seeds from America the Beautiful Fund for free.

9. From where in the university budget does your funding come? How much do you receive from the university budget?

We get our funding from the Campus Environmental Center. Our gardening committee is through the center and some of their budget goes to the garden.

10. How much does the liability insurance cost the university? How is the cost covered?

[Was not sure about the liability insurance and doubted that they actually did have insurance specifically for the gardeners].

11. How many scheduled garden workdays per week? Approximately how long are people working in the garden during these workdays? Are there people in the garden on a daily basis?

Over the summer, we have workdays once a week. Over the spring, twice a week. Workdays are usually 2-3 hours long. Gardeners have to spend two hours per week in the community garden, not in their own plots.

12. What is the main form of communication between participants in the garden? What form of communication do you use to organize events and workdays in the garden?

We send out emails once a week over the fall to our email listserv. We also have a Facebook page. Both of these have general information. We have a separate Facebook page and email listserv for actual members. We blog for the public to see what's going on. We can post more pictures, control the appearance [of the blog], keep a timeline of events and a history of the garden. The blog has resources for gardeners, and food, recipe, and book recommendations.

13. Please expand on the committee organization of the garden.

There is an assistant director, who is paid, and one to two chairs run the committee. The assistant director is more like an internship right now and they oversee garden operations. In the future it will change and there will be three paid positions. The assistant director [Danielle holds this position currently] is paid for 12 hours per week during the spring and 20 hours per week over the summer.

14. Committee organization: Has it been successful for operating the garden?

It has worked, but a better organizational structure would work better. Paid positions are very beneficial and it has been beneficial to have staff working with them.

15. Please list other limitations, obstacles or setbacks to operating the garden.

There has been some food theft issues. Activity levels in the garden vary. Soil testing too forever to do, due to bureaucracy involved (it was not the priority for the guy doing it). The pesticide that is approved for use on campus was not food grade, which lead to some set-backs, but it is not used in the garden.

16. Please list other successes of the garden.

There is a long wait-list to get a plot in the garden and even more interest in emails.

17. Please list any other learning lessons you might have for a university thinking about starting a community garden.

[See question 19].

18. If you could start the garden all over again from scratch, would you do anything different?

No. We are happy with the way it turned out. We have adjusted to changes and opinions. It would be better if there were more participation from members for creating, planning and organizing the garden.

19. Any other type of advice do you have for university community gardens?

Meet people where they are, because it's nice to have diverse opinions. Realize how complex it is. Get people involved based on what they are interested in. Encourage people to pursue projects in the garden. Tap into everyone's strengths. Have an organized system of communication. Members should take leadership on projects they are interested in. Encourage classes to take place in the garden. When people apply for their plots, have them list their strengths. You can look at this to see the sorts of projects and classes the members could host in the garden.

Texas State University in San Marcos, Texas

Interview with Texas State Horticulture Professor, Tina

1. What is your opinion on community gardens? Do you think the community garden has been beneficial to your university? Why or why not?

I'm a big fan of community gardens. There are quantified benefits of community gardens beyond food value, for example sociological, psychological, and educational benefits. Our garden is oriented towards the educational value. There are various species, construction, and landscape designs. The community service workers [who work in the garden] really feel the value of the job and are more interested in horticulture, the soil, etc.

2. Does your university support the garden?

They gave us the space for the garden and the idea is supported. There is a designated committee looking at expanding to plant collections.

3. How large is the garden? How many plots are there and how many people are currently gardening in the space?

About two acres. There are about 35 plots for students in the [Organic Gardening] class.

4. How is the garden divided among gardeners? Are there individual plots or just one big garden for everyone?

The plots are utilized for the students in the organic gardening class. Students get one plot to grow vegetables in over the semester.

5. How do community members participate with the garden (i.e. specific community days, on-going participation, etc.)?

Sometimes master gardeners come to participate in the garden. Community service workers help in the garden.

6. Is the funding received from grants and donations enough to cover the cost of operation of the garden over the full year? If not, how do you cover extra costs?

We are constantly looking for funding to continue expanding the garden and for more plants. The garden is located on a hill, so everything must be terraced and the landscape blocks are expensive. We earn money through plant sales (called the Bobcat Bloom plant sale), which gives us a steady income. The tough weather, such as droughts and freezes, has caused setbacks.

We receive some money for the garden from the “campus green fee,” which is a \$1 per semester student fee.

7. How are liabilities managed or minimized?

In the syllabus for [the organic gardening] class, it states that the university is not responsible for any injuries in the garden.

8. Please expand on the organization of the garden.

We have several classes that utilize the gardening space, such as organic gardening, plant propagation, landscape management, plant identification courses in woody and herbaceous plants, special topics in

construction, welding classes, irrigation design. Sometimes other classes hold their class period in the garden, such as criminal justice.

9. How many scheduled garden workdays per week? Approximately how long are people working in the garden during these workdays? Are there people in the garden on a daily basis?

Students are expected to maintain their plots for the [organic gardening] class throughout the semester and they are graded at the end of the course.

There are two paid undergraduate workers and one graduate student who work in the garden over the summer. Over the academic year, there are two paid undergraduate workers who work 10 hours/week and two graduate students who work 20 hours/week. Some of these hours are course-related and not all of it is garden work.

10. What is the main form of communication between participants in the garden? What form of communication do you use to organize events and workdays in the garden?

11. Please list other limitations, obstacles or setbacks to operating the garden.

Politics. The goal was to have diverse planting for classes. [The university] started removing plants and some people were attached to them. Climate. There has been drought and a heavy freeze. We are trying to be environmentally sensitive about our water usage and watering the plants. Support varies from administration, especially when positions change. There is sometimes vandalism.

12. Please list other successes of the garden.

There have been tours in the garden, where many different people come to see the garden (children, etc.), in relation to sustainability. Other people outside of the Horticulture department really value the garden. The garden is a wildlife habitat and there is a Monarch butterfly area.

Students wrote grants to build a vermiculture [composting system], the two beehives, and the rain water collection cistern.

13. Please list any other learning lessons you might have for a university thinking about starting a community garden.

There needs to be a consistent supervisor for the community service workers to document hours and to oversee the work. Internal grants have been helpful. Students help to write these and direct the garden in the direction they want.

14. If you could start the garden all over again from scratch, would you do anything different?

I don't think I would. Nothing [in the garden] is totally permanent. Maybe we could install irrigation (we are currently hand-watering), but we like to display plants that are drought tolerant and show the survival of the fittest.

15. Any other type of advice do you have for university community gardens?

Go after grant money. Don't lose hope and keep your chin up. Keep in mind that the garden may be a thirty year plan, that it is a labor of love and that it is ever evolving. Do not take "absolute no" as an answer. Keep working towards the ultimate goal. Use grant money and donations to slowly build up for the garden.

**Note: The garden at Texas State is known as "The Living Library" and it's model is somewhat different from the traditional community garden. On the university's website, the garden is explained:

Through efforts of Horticulture students backed by funds from the Environmental Services Committee (ESC) and private donations, a terraced garden has been built around the Agriculture building on Texas State Campus. The garden is home to plants which cannot be found on any other part of campus. Since the Living Library's initial construction began in 2001, the garden has been known to attract faculty, staff and students who are looking for a place to relax and study, or enjoy the beauty of the plants, insects and birds in the garden. Students in horticulture classes can maintain personal plots throughout the semester. Also, the Living Library has become a potential area for both county and campus community service hours to be served and hundreds of hours have been logged in the garden in just the past couple of years.

<http://www.fss.txstate.edu/sustainability/virtualtour/sustainablefeatures.html#Anchor12>

Texas A&M University in College Station, TX

Interview with A&M student and Garden Club President, Beau

1. What is your opinion on community gardens? Do you think the community garden has been beneficial to your university? Why or why not?

The garden has been beneficial. It gives an opportunity that is not available in the classroom. There is no class on organic, practical gardening/farming. The community garden encourages a healthier lifestyle and gives an opportunity to eat organic foods.

2. Does your university support the garden?

No. We have not received any funding from the university for the garden. We do have a “green fee” (\$3/student/semester), but the community garden was denied the money from this fee, since the garden did not meet the “sustainable qualities.” There is no big time composting operation that is used for the garden.

3. How large is the garden? How many plots are there and how many people are currently gardening in the space?

The garden is about three-fourths of an acre. There are 72 rows that are 40'x2'. Gardeners pay a fee/row, and they can have as many rows as they would like. We want to move it towards having more community plots.

There are about 13 people gardening right now [during the summer]. There are about 25-45 people gardening in the fall and spring.

4. How is the garden divided among gardeners? Are there individual plots or just one big garden for everyone?

There are individual and community plots. Community plots are kept up by gardeners during weekly work days on Sundays. People work on the communal tasks then, such as compost, weeding flower beds and community beds.

5. How do community members participate with the garden (i.e. specific community days, on-going participation, etc.)?

Anyone from the community may participate with the garden. In our contract, it says that we can turn away people who aren't affiliated with the university, but community members can have a plot. Community members can also work on the weekly work days. Children are allowed and encouraged to come. We had an event with middle school kids from Houston. They came to visit the garden. We showed them the garden, weeded plots with them, and planted with them. We used to donate produce to the Twin City Mission (which is a battered women's shelter). We want to build a garden for the Steel Creek Ranch, which is a place for orphans, and work with them to grow food.

6. Produce appropriation?

Gardeners take produce from their plots and they can take from the communal plots within reason. They cannot take from other people's plots.

7. Funding for operating garden? How much and where from?

We have not received funding from the university budget over the past year and a half. We are a student organization, so we can apply for funding for one-time purchases.

Membership to be in the club is \$10 for the fall semester. Gardeners pay a one-time fee of \$10 for the fall semester or for the spring & summer semesters. Annual plot fees are \$10/row and after four rows it is \$5/row. We offer a payment plan for those who can't afford to pay these fees. We work with those who can't afford it. Dr. Novak supplied the garden tools. Our membership fees have been enough to cover our costs, but we need to look for other options.

We had a CSA program and a farmers market on campus last spring, summer and fall. We also volunteered with plant sales through the university and raised money through that. We made about \$200/month from the farmers market. The CSA was open to the whole community and most of our customers were faculty and staff. We had about 40 shares. We won't continue with the CSA because the student sustainable farm can take over the CSA program. We might want to start an "underground" farmers market and trade for produce.

8. Is the funding received for operating the garden enough to cover the cost of operation of the garden over the full year? If not, how do you cover extra costs?

No. we wanted a shed, but we couldn't get enough money for a good one.

9. What are the major liabilities to the university? How are these liabilities managed or minimized?

The Horticulture Department sees the community garden as an aesthetic liability. We have liability waivers saying that the advisor to the garden takes responsibility and that the president of the club (Beau) takes secondary responsibility.

10. How many scheduled work days per week? Approximately how long are people working in the garden during these workdays? Are there people in the garden on a daily basis?

We have one workday /week, which lasts about 2-3 hours. People can come to the garden any time. No one can come after 9pm, though. Gardeners are there nearly on a daily basis. We don't have drip irrigation, but individuals have to water their plots.

11. What is the main form of communication between participants in the garden? What form of communication do you use to organize events and workdays in the garden?

We have a listserv and a Facebook page, but it is inactive. We have a website that lists regular duties (aggiecg.tamu.edu). Personal contact, like potlucks and workdays allow gardeners to catch up on what is happening in the garden. We use email to organize events and workdays outside of our normal workday time.

12. Please list other limitations, obstacles or setbacks to operating the garden.

Obstacles to establishing the garden: It was difficult getting the land and convincing the farm crew to use their equipment to till up our garden space [but the farm crew did eventually till the spot for them]. It was also hard to get initial funding to start the garden.

Obstacles to current operation: We don't security for our land. We don't know if we will stay in the spot we currently have, so we can't make any decisions on permanent additions to the garden. For example, a shed, large amounts of mulch, fungal soil additions.

13. Please list other successes of the garden.

Freshman, graduate students, and professors can all connect with each other on campus, when they might not have otherwise. Gardeners learn about self-responsibility and take up a healthier lifestyle.

14. Please list any other learning lessons you might have for a university thinking about starting a community garden.

It is good to have consistency in weekly letters and meetings, so that there is continuity and regularity.

15. If you could start the garden all over again from scratch, would you do anything different?

Definitely. We would not have taken on so much space without having the number of people to garden. We would have started smaller and then expanded. I wouldn't mind having an elected and paid manager for the garden.

16. Any other type of advice do you have for university community gardens?

Make the garden open to everyone on campus. Encourage heirloom planting. Focus on soil improvements (organic matter additions). Focus on insect populations (beneficial and pests) and how to manage them.