



SOUTHEAST ALASKA FOOD SYSTEM ASSESSMENT

A PILOT PROJECT to identify actions
to promote self-sustaining communities
and a resilient food system



Acknowledgements

The Southeast Alaska Food System Assessment is the result of a four-month research project supported by the People and Place Program, Southeast Conference, Sheinberg Associates and University of Alaska Fairbanks Cooperative Extension Service.

This project would not have been possible without the assistance of the steering committee for their valuable leadership and input in the development of the research project, including survey design, analysis of results and reviewing and editing material for the report. Special thanks to Bob Christensen, Shelly Wright, Patricia Phillips, Barbara Sheinberg and Darren Snyder.

Special thanks to all of the Southeast Alaskans who opened up their homes, gardens, and thoughts to offer their candid experiences, struggles, plans, methods, and suggestions about improvements that could be made for cultivators and to increase locally grown foods in their communities. Thank you to the community members in Kake who participated in the wild foods focus group and shared their ideas to improve their experiences in wild food harvesting and to Adam Davis, Organized Village of Kake, for organizing the focus group.

Thank you to additional reviewers Carin Smolin, Jon Heifetz and Sara Cohen. A thanks also goes to Marja Smets, Farragut Bay, and Matt Kern for providing images and Sara Cohen for donating a map for the report.

Table of Contents

Executive Summary	1
1. Introduction	2
2. Background	3
Conceptual Framework	4
3. Methodology	5
Cultivator Survey	5
Wild Foods Focus Group	7
4. Cultivator Survey Findings	8
Food Sales	10
SWOT Analysis	17
Recommendations	20
Collaborative Network	20
Food Hub	20
5. Wild Foods Focus Group Findings	23
6. Next Steps	24
Future Research	24
Glossary of Terms	25
Works Cited	26
Appendix A: Cultivator Inventory	27
Appendix B: Southeast Conference Questionnaire	28
Appendix C: Resources	29



Executive Summary

Food security and self-reliance are critical components to building sustainable communities in Southeast Alaska. However, in many communities in Southeast Alaska, residents are burdened with the challenge of obtaining healthy and affordable food due to the distance between food producers and consumers, the high cost of transportation between producers and consumers, and the complexity of government management of wild food harvests. Southeast Alaskan residents are especially vulnerable to external disturbances such as spikes in fuel prices, extreme weather events, and changing or hard-to-understand rules governing wild food harvest. These disturbances can undermine the capacity of a community to meet its food needs.

This report presents an analysis of data collected for a pilot study of Southeast Alaskan community and regional food systems from September through December of 2013. The purpose of this research is to identify existing food system challenges in order to target areas of change and actions that can be taken to promote self-sufficient communities and a more resilient food system. As new data is collected, this report can be updated. Ultimately, this research will help guide future efforts to increase the production of cultivated and harvest of wild food that is locally processed, distributed, and consumed in Southeast Alaska.

An initial baseline of food cultivation operations in communities around the region was established. This included a survey of the goals, challenges, and limitations of these growing operations to determine opportunities to improve procedures and identify factors that lead to success. A sample of cultivators were surveyed in the communities of Haines, Gustavus, Juneau, Elfin Cove, Game Creek, Pelican, Sitka and Farragut Bay. This assessment does not provide comprehensive data on all facets of cultivated foods within Southeast Alaska.

Some strengths of the current cultivation systems in the region include expertise on how to grow food effectively in Southeast Alaska's unique locations and microclimates, regional support groups such as the University of Alaska Cooperative Extension Service and the Sitka Local Foods Network, and strong markets for cultivators to sell products. Many cultivators have plans to expand their operations because there is demand for more local food.

Weaknesses of the current cultivation system include the lack of communication, collaboration, and networking among food producers, a lack of facilities to process foods for value-added products and limited distribution options. A relatively small proportion of the total food available in communities is locally produced and finding affordable labor is problematic.

Recommendations are proposed based on the challenges, needs, and weaknesses identified by this research, and include: Creating a social infrastructure to facilitate a collaborative network for equipment sharing and a purchasing cooperative. Infrastructure is needed to form a food hub to provide a market outlet, distribution services, bulk purchasing power, and community storage space. In addition, business development is needed for cultivators to increase their combined capacity and meet consumer demands. Space for educational workshops and value-added processing is also needed to enhance business opportunity.

In addition to the cultivator survey, a wild food focus group was held in Kake to identify opportunities to improve the efficiency of wild food harvest activities. The dominant topic of discussion was the subsistence harvest of sockeye salmon. Potential modifications suggested include community - rather than individual - permitting to allow fewer trips to the distant sockeye systems and thus decrease fuel expenditures, a community boat to improve the safety and efficiency of conducting these activities, and the recognition that Alaska Native subsistence lifestyles are self-regulating traditions.

1. Introduction

The overall health of a community can be indicated by a community's resilience. The community's ability to be self-sufficient, adapt, and meet its own needs under conditions of external change can be indicators of an empowered, vibrant, healthy population. Food plays a unique role in this conceptualization of health. Not only can food meet individual nutrition needs, food builds the notion of "health" into the reality of social and cultural community strength and in many cases connects individuals to the land to promote stewardship and responsibility¹.

In many remote communities of Southeast Alaska residents are burdened with the challenge of obtaining healthy and affordable food due to the distance between food producers and consumers, the high cost of transportation between producers and consumers, and the complexity of government management of wild food harvests. Southeast Alaskan residents are especially vulnerable to external disturbances such as spikes in fuel prices, extreme weather events, and changing or hard-to-understand rules governing wild food harvest. These disturbances can undermine the capacity of a community to meet its food needs.

There is growing interest in the region in taking stock of local food production, harvest, and distribution systems to increase reliable access to fresh, healthy and affordable foods. Accomplishing this will keep more money circulating within communities and in the pockets of local businesses and residents.

This report presents an analysis of data collected in a pilot study of community and regional food systems. The purpose of this research is to identify existing food system challenges in order to target areas of change and actions to promote self-sufficient communities and a more resilient food system. As new data is collected this document can be updated. Ultimately, this research will help guide future efforts to increase the production of cultivated and wild food that is locally harvested, processed, distributed and consumed in Southeast Alaska. Information provided by this study can be a tool to promote on the ground projects, create enabling environments and increase food security in the region.

Wild Foods	Cultivated Foods
Mushrooms, salmon berries, blue berries, devils club, salmon, halibut, crab, shell fish, moose, deer, grouse, etc.	Carrots, potatoes, squash, cabbage, raspberries, rhubarb, lettuce, garlic, zucchini, basil, rosemary, etc.

Researcher

The author of this report, Lia Heifetz, served as the principal investigator of the project, led the design, and carried out the day-to-day implementation to develop, conduct and analyze the data to complete this study. A steering committee helped to refine activities, develop study methods and materials and make recommendations based on the results. The steering committee consisted of Bob Christensen, Director of the People and Place Program; Barbara Sheinberg, Community/Strategic Planner and owner of Sheinberg Associates; Patricia Phillips, board member of Southeast Conference and Mayor of Pelican; Shelly Wright, Executive Director of Southeast Conference; and Darren Snyder, 4-H Youth Development and Agriculture/Horticulture Agent for the University of Alaska Fairbanks Cooperative Extension Service.

Support

This project would not be possible without the support financially and in-kind from The People and Place Program, Southeast Conference, Sheinberg Associates, and University of Alaska Fairbanks Cooperative Extension Service.

2. Background

A basic understanding of food system structure is required for this analysis. In Southeast Alaska the food system has inputs of wild foods and cultivated foods. The following diagrams illustrate aspects of a food system.

One way to define the food system by the steps within the supply chain, or the distance food must travel from the original point of harvest to the consumer's table. Prior to modern refrigeration and long distance travel, interactions between the food producers and consumers ensured that information about products (growing techniques, processing methods, etc.) was well understood by the consumer. Today, this is more complex; the general supply chain for Southeast Alaska is illustrated in Figure 1.

Figure 1: Modern Supply Chain²



A second way to look at our food system is to consider the relationship between the original source of food and the consumer; this can be either a direct or intermediated relationship (see Figures 2 and 3). There are differing opinions on the advantage or disadvantage of the intermediated source/consumer relationship that is in place today at Southeast Alaska's major grocery stores: some argue that the intermediated market contributes to declines in how much food producers receive for their products, while others argue that the intermediated market reduces the costs producers pay to operate and distribute their goods.

Figure 2: Direct Market²



Figure 3: Intermediated Market²



In modern times, the supply chain has expanded in size. In Southeast Alaska, the distance between the food origin and consumer is

typically thousands of miles. A large gap between supply and demand has created a scenario where the supply capabilities of producers, processors and retailers (local and global) may not match the demands of the consumers. Additionally, this is fuel intensive and expensive, and leaves Southeast Alaskans vulnerable to spontaneous disturbances anywhere along this extensive supply chain.

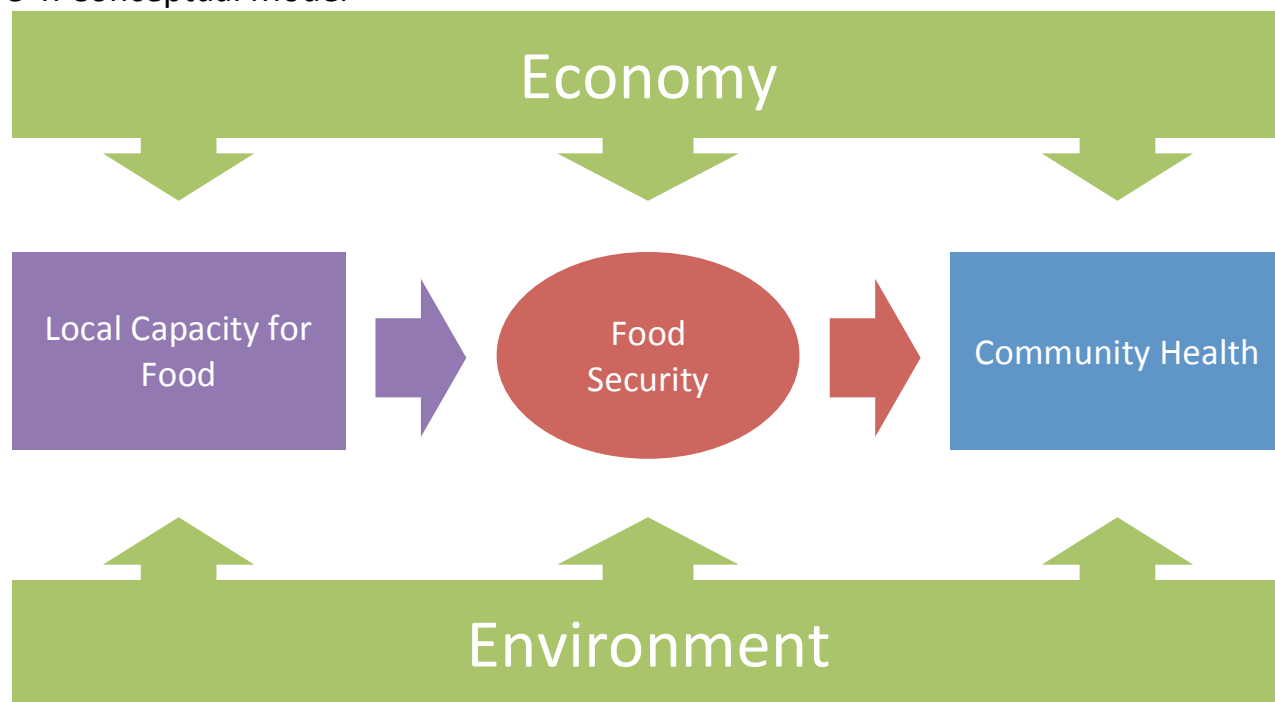
What is local food? Local foods include agricultural production and wild foods. Agricultural production is the cultivation of plants and the domestication of animals. Cultivation includes the planting, tending, improving, and harvesting of crops, as well as the preparation of ground to promote growth. For the purposes of this study, domesticated animals were not taken into account, as they are uncommon in the region. Wild foods include hunting and gathering of wild game, seafood, mushrooms, berries, and seaweed.

Southeast Alaska is a unique region for local foods because the landscape of the region defines the borders, which are made by water, ice fields, and mountainous, undeveloped terrain. "Local" can be interpreted as within the Southeast Alaska region, or within individual communities. In an attempt to define local, a regional study area can be examined to see at what scale a viable, logical and complete food system exists.

Conceptual Framework

A third way to look at our food system is through a conceptual model within a community. Figure 4 represents the key concepts that make up a food system within a community. This framework can be used to understand the big picture system in the region to identify, highlight and improve food access and security³.

Figure 4: Conceptual Model³



Local Capacity is the ability to produce, import, and process food. In Southeast Alaska, most of the food consumed is imported. Other than the large number of wild food resources (fish, deer, berries, etc.), there are limited local foods available. Local capacity for food increases food security and decreases vulnerability.

Food Security is at the center of the model. When the locality has reliable sources of food (either locally produced and processed, or imported) the food security of that place is in a good state.

Food security is “the access by all people at all times to enough food for an active and healthy lifestyle.” Food access is people’s ability to physically and economically access safe, culturally appropriate and nutritious foods⁴.

Community Health refers to the general health of a region and a community’s physical, social and economic well-being. This model indicates that

economy, food security, and environment affect the overall health of a community. This is also to say that if a community has a strong economy, fertile environment, and local food capacity, the food security of the region will be in a good state.

Economy and Environment are the two overarching factors that influence all segments of the model. Economies can be diverse, but generally healthy economies consist of inputs and outputs of production and the distribution of goods and services. A community’s local capacity for food and food security can be influenced by the state of the economy and visa-versa. For example, in a healthy economy individuals have purchasing power, and are able to afford a greater selection of nutritious foods. The other contextual factor that influences the entire model is the environment. The environment consists of the physical context of the place including the climate, topography, fertility of the land; as well as the remoteness and health of the local ecosystems.

3. Methodology

Two methods were used to conduct this research; a Cultivator Survey and a Wild Foods Focus Group.

Cultivator Survey

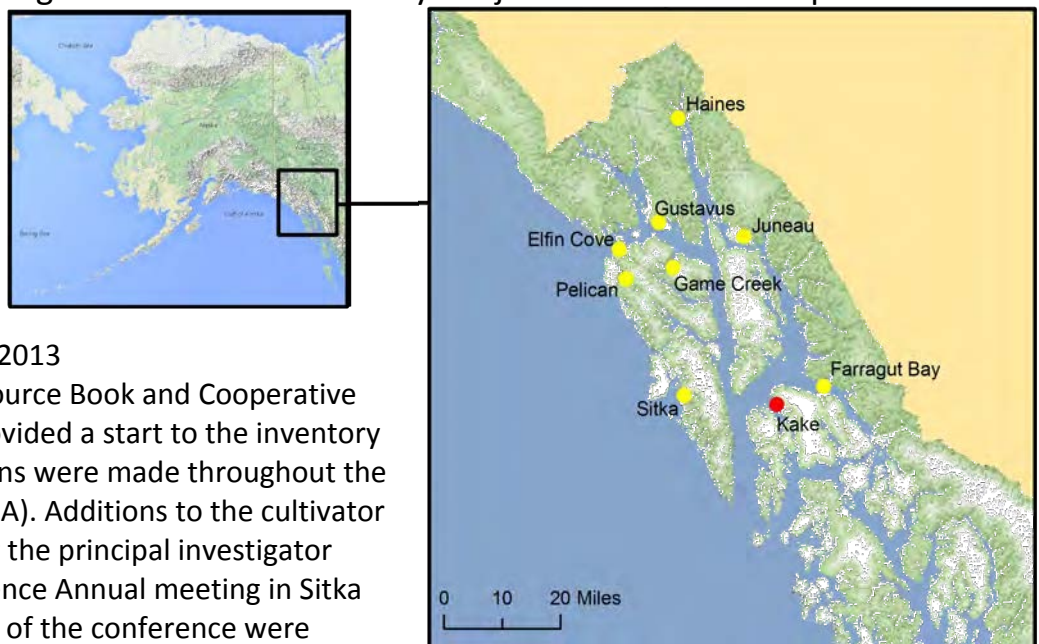
A baseline of cultivation operations in the region was established and a survey of the goals, challenges and limitations of these operations was assessed in order to determine opportunities to improve procedures, and identify factors that lead to successes in food cultivation. The gross value of cultivation operations was also investigated. Community gardens, school gardens, and other entities that may provide local produce were not included. Cultivators growing food to sell and for personal use were subjects of this study. The only criterion was that they cultivate quantities of food large enough to provide (either by selling or giving away) to members outside of their immediate family, or in quantities to feed their immediate family year round.

Surveys were given to cultivators in Haines, Gustavus, Juneau, Elfin Cove, Game Creek, Pelican, Sitka and Farragut Bay in

September through December 2013

(Figure 5). The Alaska Grown Source Book and Cooperative Extension Service in Juneau provided a start to the inventory of cultivators and many additions were made throughout the study (for full list see Appendix A). Additions to the cultivator inventory were also made after the principal investigator spoke at the Southeast Conference Annual meeting in Sitka to begin the project. Attendees of the conference were asked to fill out a short questionnaire (Appendix B) that requested contact information of people involved in local food production throughout the region.

Figure 5: Location of Survey Subjects and Focus Group



Haines, Gustavus, Juneau, Elfin Cove, Game Creek, Pelican, Farragut Bay, and Sitka (yellow) were included in the Cultivator Survey. Kake (red) was the location of the Wild Foods Focus Group. Map made by Sara Cohen.

Site visits were made in Haines, Gustavus, Juneau, Game Creek and Sitka. These communities were chosen based on the quantity of cultivators from the original inventory list and based on their proximity to Juneau. It is important to note that this is not a comprehensive survey of the region and there are communities and cultivators that are not included, especially those in Southern Southeast Alaska.

The survey consisted of qualitative and quantitative inquiries (Table 1). The qualitative inquiries asked cultivator goals, challenges and limitations. Quantitative values of costs of inputs (labor hours, cash costs, land use, season extensions, soil amendments, etc.) and quantities of specific cultivated items were requested in the survey.

Table 1: Cultivator Survey

All questions can benefit from further investigation. Questions that did not apply to a cultivator (for example, not all cultivators sell their produce) begin with an asterisk (*).

Qualitative Survey	
1.	Why did you start your food growing operation/business? What were/are your goals?
2.	About how long has your food cultivation operation existed?
3.	Do you typically sell anything you produce?
4.	*Where do you most frequently sell your food?
5.	*Do you think you get a fair price for the food you sell?
6.	*About how much of the total food you cultivate do you sell?
7.	If you had the opportunity to sell your produce to stores and restaurants would you consider this?
8.	Do you typically give away anything you produce for free? a. If yes, whom do you give food away to and why? b. If yes, about how much of the total food you produce do you give away?
9.	What best describes your growing practices? a. non-certified organic, b. certified organic, c. not organic
10.	Do you have storage capacity for your food after it has been harvested? a. If so, what type?, b. If so, are you able to store for weeks? Or months?
11.	*Do you do any marketing? a. *If so, what do you do?
12.	Are you producing less, the same, or more food now than you have in the past? Why?
13.	*Do you think you would be able to sell more food in your community if you were able to produce more?
14.	What are the main challenges associated with the cultivation of food that you face?
15.	Do you have plans to expand your operation?
16.	What are some obstacles people face in your community to getting healthy foods?
17.	How could more locally grown food be available year round in your community?

Quantitative Worksheet	
1.	About how many square feet did you have in production in 2013?
2.	What methods do you use to extend your growing season? a. About how many square feet do you have (or what length x width) of each? b. What type of glazing materials do you use (glass, plastic, other)? c. Is any of your growing space heated or actively cooled? (if so, about how much?) d. About how many weeks is your growing season in closed structures?
3.	About how many weeks is your outdoors growing season (not in a closed structure)?
4.	What type of machinery/equipment do you own to make your food growing operation successful? a. About what do you think this machinery or equipment is worth today? b. Can you estimate what it would cost if you had to buy this machinery or equipment new today?
5.	About how many hours per month of skilled labor are put into production and harvest? (building greenhouses, developing schedules, bookkeeping, marketing, re-planting, thinning, etc.)
6.	About how many hours per month of unskilled labor are put into production and harvest? (weeding, watering, etc.)
7.	Approximately how many hours per season is equipment used to mechanize operation?
8.	*Approximately how many hours is spent getting food ready to sell and selling it?
9.	How much money per year is spent on: fuel, electricity, water, fertilizers (what type?), seeds, machinery rental, materials, soil amendments, and other expenses?
10.	What crops/products are produced? How much of each?

Survey Administration

Surveys were conducted either in-person at the site of the operation, in-person at another location, electronically, or a combination of electronically and in-person.

In- person

The site visits were scheduled prior to arrival in each community via email and/or phone call. In most cases a site visit started with a tour of the cultivation operation. Photos were taken of growing techniques and land use. The site visits concluded with the qualitative questions of the survey leading to a conversation between the cultivator and the researcher. The cultivator was left with the quantitative section of the survey and asked to mail or email the completed worksheet within the next three weeks. They were left with a pre-addressed and stamped envelope.

Many visits with cultivators led to additions to the cultivator inventory (Appendix A), as many people growing food knew others undertaking cultivation

A total of 13 surveys were conducted in-person at the cultivation site, five surveys were conducted in-person not on site, and five were conducted by email. A total of 14 surveys were completed in whole (qualitative and quantitative sections); the remaining nine cultivators either declined to participate in parts of the survey or the quantitative section of the survey was not returned.

activities. In most cases a letter was sent via email or USPS mail to thank the cultivator for their time and willingness to participate.

Electronically

If a site visit or other in-person meeting was not possible, cultivators were contacted via telephone or email. Once they agreed to complete the survey a copy of both the qualitative and quantitative sections of the survey were emailed. They were given the option of sending the completed survey back via email, fax or USPS mail.

Wild Food Focus Group

A focus group was held in Kake to understand where there are opportunities to improve the efficiency of wild food harvest activities. The purpose of this was to inform future actions to improve the effectiveness of these activities.

Seven residents of Kake participated in a focus group to understand where opportunities exist to improve local wild food gathering and harvesting. Adam Davis of The Organized Village of Kake invited community members who have traditionally shown a strong interest in wild food harvest through email and phone messages, as well as flyers in multiple spots around town. A facilitated conversation was led about some of the challenges and potential improvements that can be made to increase the efficiency of conducting wild food harvesting. The conversation was left open-ended, and guiding questions directed the conversation (Table 2).

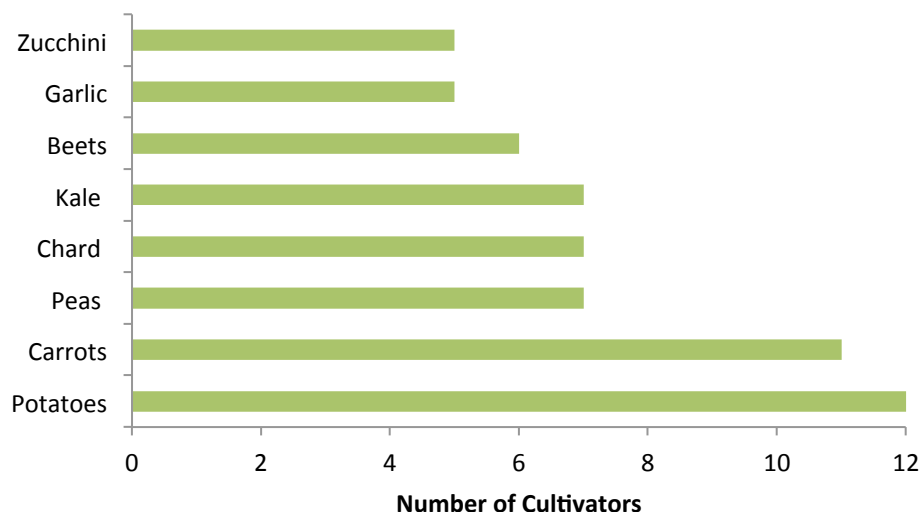
Table 2: Wild Foods Focus Group Prompts

What are the difficulties related to food security at the community level? Why do you think these exist?
What are the challenges you face when practicing in customary and traditional activities?
How have your customary and traditional subsistence practices been limited by the costs associated with these activities?
What are some practical changes that can be made to policies to make these activities easier/more efficient?

4. Cultivator Survey Findings

Twenty-three cultivators participated in the survey. Out of these, 14 surveys were completed in full. Varying degrees of detail were provided in the answers.

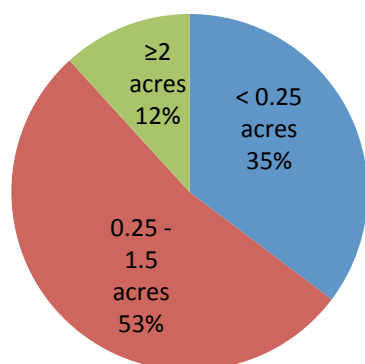
Figure 6: Frequency of Top Crops



Zucchini cultivated in Sitka, potatoes cultivated in Haines during summer of 2013.

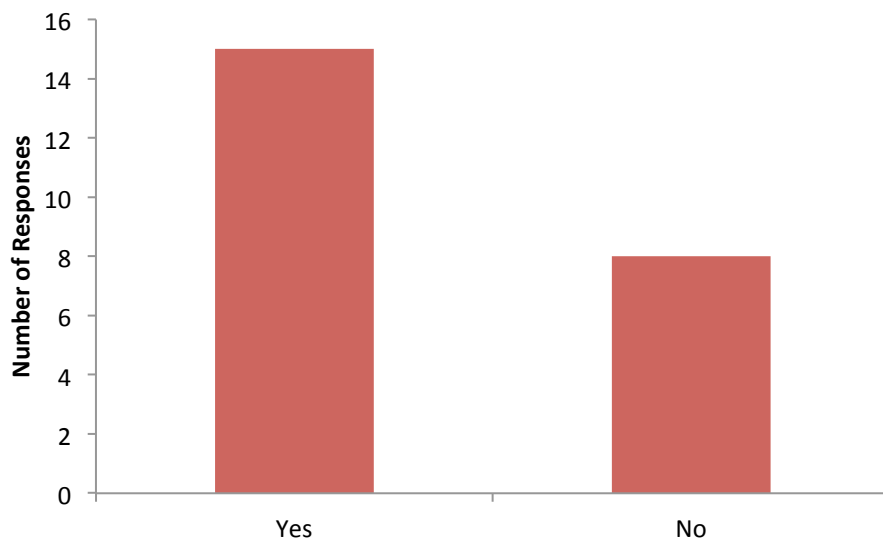
Twelve out of the fifteen cultivators reported growing potatoes; eleven reported growing carrots; seven reported growing peas, chard and/or kale; six reported growing beets; and five reported growing garlic and/or zucchini. A wide variety of other crops were reported not as frequently. These include apples, Asian greens, asparagus, basil, broccoli, Brussels sprouts, cabbage, cauliflower, celery, cucumbers, currents, edible flowers, garlic, garlic scapes, grapes, green beans, various “greens”, various “herbs”, jalapenos, kiwi, kohlrabi, leeks, lettuce, mustard greens, onions, squash, parsnips, peas, peppers, cherries, plums, raspberries, rhubarb, rutabaga, sorrel, spinach, strawberries, tomatoes, turnips, radishes and watercress.

Figure 7: Percentage of Cultivation Sites by Size



The majority of the operations, 53%, reported using a quarter of an acre to one and one-half acres for food cultivation. Thirty-five percent reported using less than a quarter acre, and 12% reported using two or more acres. Although this data comes from the question “about how many square feet did you have in food production in 2013?” some answers may reflect total area of food production, including the use of land for livestock grazing and pasture, thus this provides only a rough estimate.

Figure 8: Plans to Expand Cultivation Operation



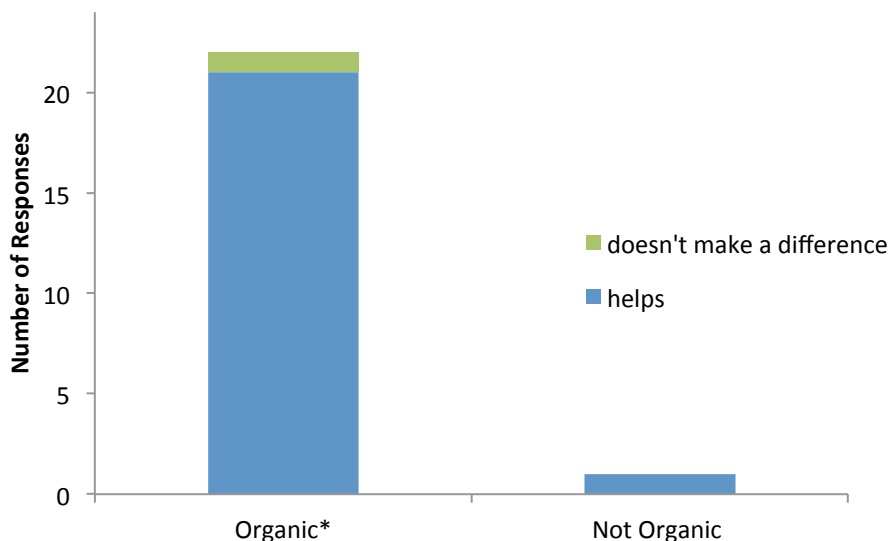
Fifteen cultivators reported they have plans to expand their cultivation operations, while eight cultivators reported they are either downsizing or do not have plans to expand their operation.



Newly constructed high tunnel in Haines.

Figure 9: “Is your food grown organically? Does this help or limit you in any way?”

Almost all cultivators reported that they use organic methods. Twenty-one out of 22 cultivators claimed this helped them in one-way or another. Many reported organic methods are better for their health, for the environment, and is what their customers want. The one cultivator that grew using conventional methods reported doing so because they have financial pressure to produce a crop consistently.



*Cultivators reported the use of organic methods although they did not have USDA Organic certification at the time of the survey.

Food Sales

Figure 10: "Do you typically sell food you grow?"

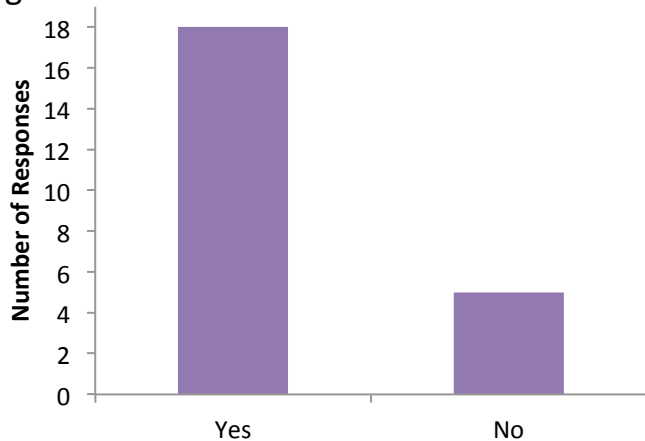
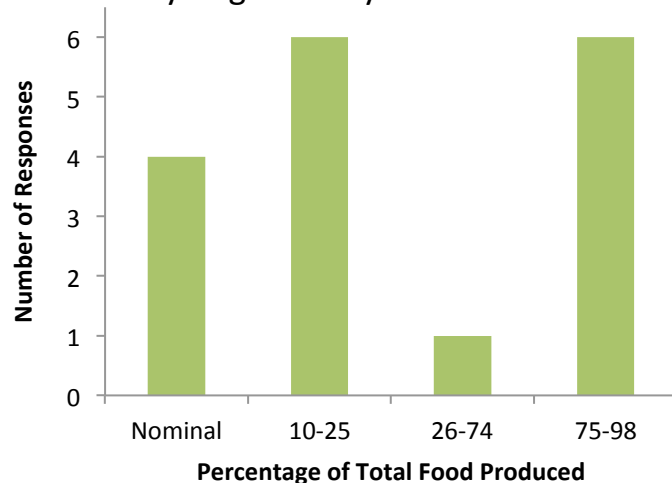


Figure 11: "If so, about how much of the total food you grow do you sell?"



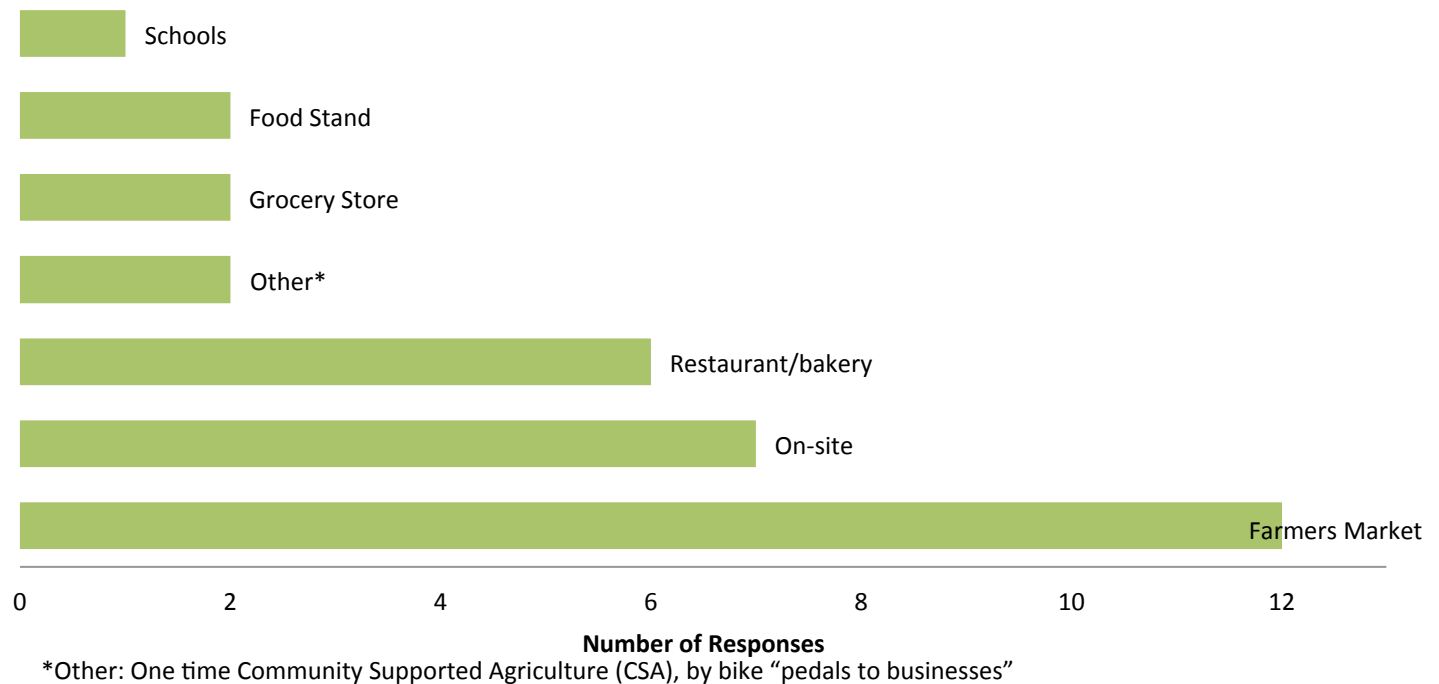
According to the 17 cultivators that reported, "typically selling food," four said they sell a "nominal" amount, six reported selling ten to 25% of the total food they cultivate, one reported selling 26 to 74%, and five reported selling 75 to 98% of the total food they cultivate. One cultivator did not report an amount of food they typically sell.

"Nominal" classification refers to cultivators who reported the following answers: very little, not much, less than one percent, and values >0 and <3%



Potatoes, garlic and garlic scapes grown by Orsi Organic Produce are prepared for a Juneau farmers market.

Figure 12: “If yes, where do you typically sell your food?”



For many cultivators, marketing and selling their products is the most challenging part of their operation. The majority of cultivators sell their food at farmers markets and in some cases this is the only opportunity to sell produce. Implications of this are that this is an entire day, or multiple hours, of transaction costs, which is valuable time that could be spent on cultivation of food. This includes time transporting food to and from the markets, preparing food to sell, and selling it. Given some of the landscape and geography of the region this could mean transporting food from remote locations and over long distances.



Produce grown by Farragut Farm for sale during the Petersburg farmers market. Photo courtesy of Marja Smets.

Cultivation for Profit

Although many cultivators reported they grow food out of a “labor of love,” an analysis of the gross dollar per hour values was completed to identify characteristics of operations that produce at the highest and lowest values.

How was this calculated? Three values were used to calculate the gross dollar per hour value⁵.

1. Skilled and unskilled labor (hours)

This value includes skilled and unskilled labor reported monthly and then summed for the entire year. Skilled labor includes tasks such as building greenhouses, developing planting schedules, bookkeeping, marketing, re-planting, and thinning, among other activities. Unskilled labor includes activities such as weeding and watering.

2. Transaction cost (hours)

Six cultivators reported the “approximate number of hours spent getting food ready to sell and selling it”. The value was on average 24% of the total labor hours reported (values ranged from 16 to 44% of the total time reported). Transaction costs are values associated with delivery of the product from the cultivator to the customer. This includes post harvest handling, packaging, storage, as well as labor to sell, invoice, and delivery of the product.

For the cultivators who did not report this value, or who do not typically sell produce, this value was estimated using 24% of their reported skilled and unskilled labor hours.

Total Hours = Skilled and unskilled labor + Transaction cost

3. Value of produce (\$)

The first step in this process was to normalize the quantities reported by cultivators. Quantities were reported in gallons, pounds, bunches, heads and various other measurements. In most cases conversion to pounds was necessary. This was done by weighing gallons, heads or bunches of items in supermarkets and determining an average conversion value.

If possible, a retail dollar value was assigned to each crop. These values were derived from a variety of prices in grocery stores in Juneau, and were chosen based on the similarities between the product reported by cultivators and the items available in the store. Retail dollar values used for this calculation also came from the University of Alaska Fairbanks Cooperative Extension Service Food Cost Survey. A total dollar value of produce was summed for all items reported for each cultivator. These are rough estimates.

It is important to recognize that the values listed are meant to be used as an index and should not be taken out of this context, and do not represent accurate profits. During the survey cultivators were asked to approximate their labor hours and quantities of cultivated products. The normalization of quantities of cultivated products represent rough estimates, additionally, not all products reported by cultivators were included in this calculation because market values were not available for all crops.

Gross Value = Produce Value (\$) ÷ Total Hours

Table 3: Index of Gross Value

Cultivator ID	Labor (hours)	Transaction Cost (hours)	Total Hours (Labor + Transaction Cost)	Produce Value (\$)	*Gross Value Index
1	1230	295	1525	506.69	0.33
2	758	182	940	954.51	1.02
3	658	158	815	945.51	1.16
4	280	50	330	455.75	1.38
5	1220	293	1513	3,030.28	2.00
6	790	129	919	2,703.06	2.94
7	1480	300	1780	6,774.06	3.81
8	1315	316	1631	7,425.00	4.55
9	1090	262	1352	6,185.60	4.58
10	200	48	248	1,214.35	4.90
11	150	36	186	1,029.85	5.54
12	202	40	242	1,976.32	8.17
13	480	115	595	6,447.07	10.83
14	360	160	520	6,987.30	13.44

* The values listed here are an index and do not represent real dollar values of products. Market values may differ from community to community and the prices set by cultivators may vary. Transaction cost values in red are the hours reported by cultivators, all other values are calculated using 24% of the reported labor hours.

Figure 13: Gross Value Index

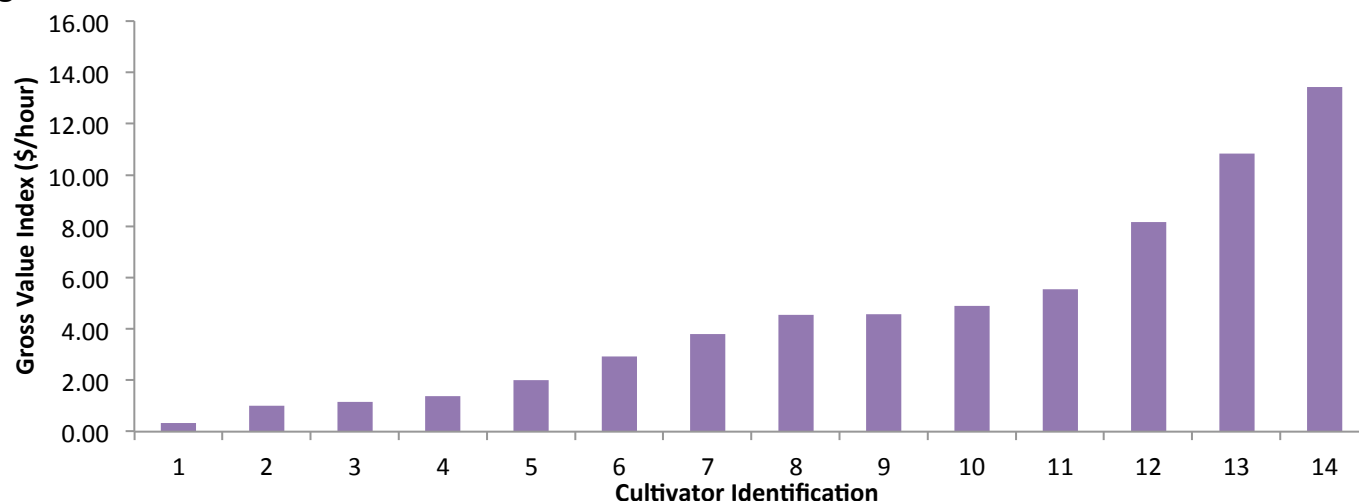
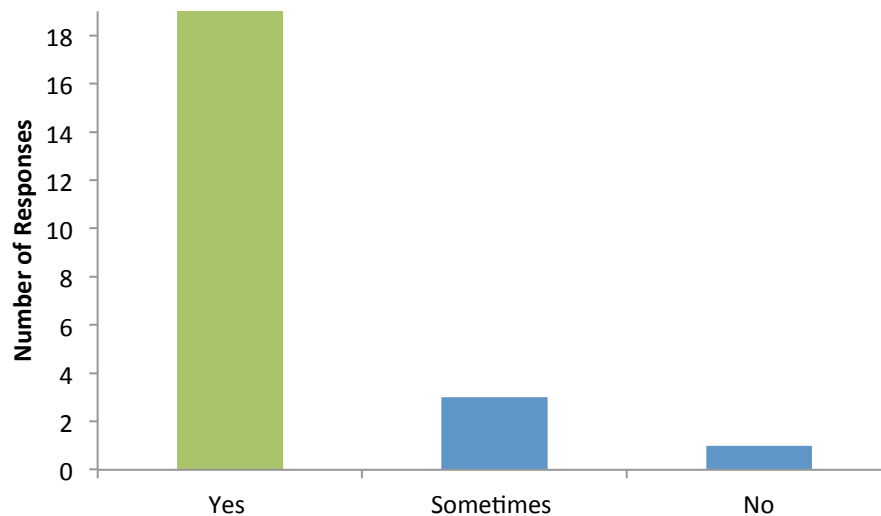


Table 4: Characteristics of Cultivators

Cultivator	Unique Characteristics of Highest and Lowest Gross Value Cultivators
14	Two root crops (garlic and potatoes); crops harvested one time during season; specialized equipment for harvest
13	Well established, old, cultivation operation; unique composting system (use of fish scraps regularly); no hours put into infrastructure
12	Produces few crops; one person labor; major crop has only one-time harvest (garlic); no hours to build infrastructure
3	Labor hours included a lot of time put into building new infrastructure, first year of operation
2	Relatively new operation, many herbs as crops
1	Many labor hours, very large variety of crops

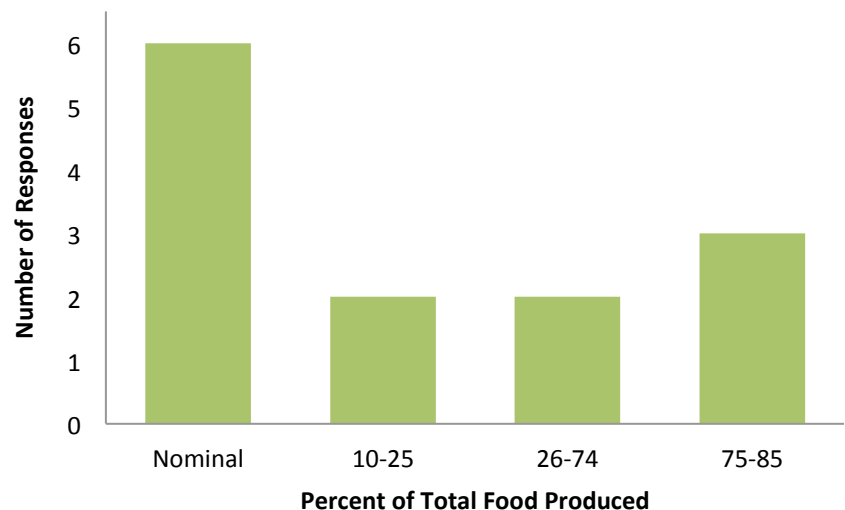
Figure 14: “Do you typically give away food?”



“It takes an enormous amount of time and energy each year to grow the amount of organic fruits and vegetables I grow in our gardens. Consequently, I have never even considered growing gardens for financial gain. I simply and happily grow and gather food for my family, friends and neighbors... and have encouraged others to do the same.”
Florence Welsh, Sitka

Figure 15: “If so, how much of your food do you give away?”

Eighteen cultivators responded they give away food, three responded sometimes and one responded they don’t typically give away food. Those cultivators who typically give away food reported giving it to volunteers, family, friends, neighbors, people in need, and institutions such as homeless shelters or senior centers. Although there is not tangible value, compared to the economic value of the sale of food, sharing food is an empowering and admirable use of these resources.



Brussels spouts grown in Haines, tomatoes grown in Sitka, and nasturtiums grown in Sitka.

“It is so satisfying to see how the high school students thrive and get joy from growing and bringing produce home. It is also satisfying to give produce away, thereby improving some of the diets of my friends.”
Judy Johnstone, Sitka

Community Challenges and Suggested Changes to Increase Local Food Access

The goal to become more self-reliant and to harvest, process, distribute and consume more locally grown food can be met incrementally through a variety of steps. Different approaches depending on the populations, attitude of businesses, local interest level, community culture, and other factors will need to be taken into consideration. There is no one “magic bullet.” There are very large food production gaps and creative, motivated individuals will be the key to solving these issues. There are however, a number of observations and recommendations that can move cultivators, communities and the region forward. These are outlined in the remainder of this report. Following are some insights given by cultivators who participated in the survey. Note again that this assessment does not provide comprehensive data on all of the facets of cultivated foods within Southeast Alaska. Additionally, many cultivators were not included in the assessment, especially those in southern Southeast Alaska.

Challenges

There may be practical actions that provide solutions to some of the challenges highlighted by cultivators. Following are some of the themes that emerged from the question regarding challenges of cultivating food; a supplemental table (Table 5) that describes the specific answers follows the graph (Figure 16). Environmental challenges were reported by 15 cultivators and include the cold, dark, wet growing season; pests such as slugs, moose and bears; and the lack of farmable land. Nine cultivators reported a main challenge is that labor is too expensive; six reported other economic challenges; and four reported challenges related to infrastructure.

Figure 16: “What are the main challenges to your food cultivation operation?”

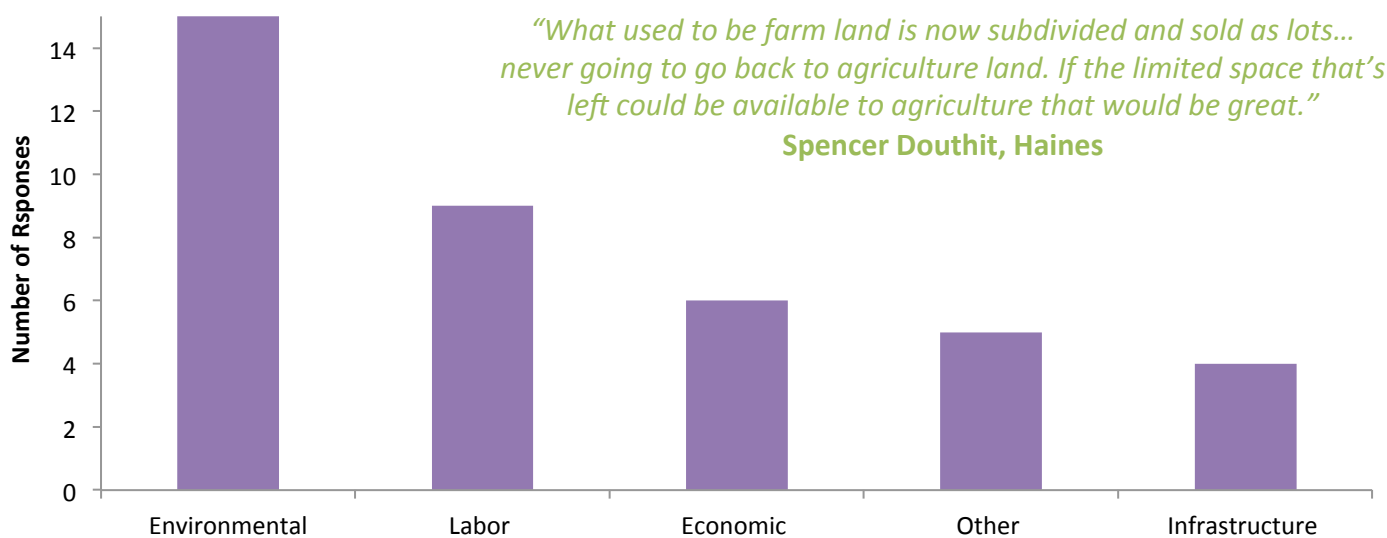


Table 5: Descriptions of Major Themes

Environmental	Cold, dark, wet, soil, pests, lack of farmable land
Labor	Lack of affordable labor
Economic	Cost, money, price, lack of income, expensive, purchasing farmable land on farmers income, sales tax, keeping sales of unprocessed produce within \$5,000 in order to stay "organic"
Other	Knowledge of what grows, unpredictability of growing season, education of seed saving, how to use/cook/store cultivated foods, efficiency of hand work
Infrastructure	Limited market, transportation, storage, limited sales opportunities

Community Needs

All of the survey respondents suggested that opportunities are needed for improving local food cultivation by making available more resources for cultivators to increase their capacity. Following are the themes that emerged from the answers provided (Figure 17), the table describes the most prevalent answers that make up each category (Table 6). Education was the theme that was reported most frequently. Cultivators noted workshops on how to grow food in Southeast Alaska; community food preparation events; education for food store managers on how to stock produce; and education for people who want to begin growing food. Other themes (described below) include gardening; network; economic assistance; community cooperation; and labor.

Figure 17: What changes would you like to see in your community in order to have more locally grown food available in your community year-round?"

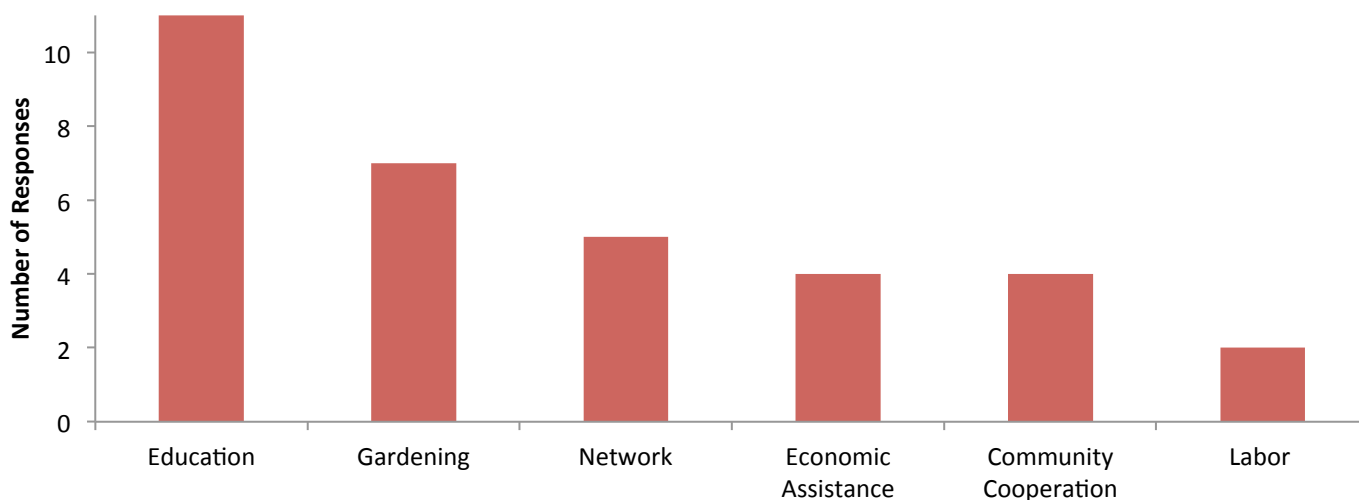


Table 6: Descriptions of Major Themes

Education	Workshops in off-season given by successful growers to train those that would like to grow in Southeast, community food preparation events, appropriate buying practices by stores, education on startup of growing food and associated costs
Gardening	More community infrastructure for growing, community greenhouses, community compost, using excess heat from diesel plant to heat greenhouse
Network	Community buying club for wholesale items, community equipment sharing, regional/local network to distribute goods/knowledge, more farmers markets, community buyers club, more food available to more people
Economic Assistance	Government support, more incentives for growers, tax cuts on sales, agricultural lands
Community Cooperation	More community infrastructure for growing, community greenhouses, community compost, using excess heat from diesel plant to heat greenhouse
Labor	Cheap labor

"Neighborhood gardens are a good idea, that helps the social aspect for people....There's a timing thing people who produce a bunch of food eat it all, or share it, by the time winter rolls around they are out, storage is an issue."

George Campbell, Haines

"A main challenge is the timing of having to do everything to harvest and process produce for limited sales opportunities"

Joe Orsi, Juneau

SWOT Analysis

Information cultivators shared was used to develop an analysis of strengths, weaknesses, opportunities and threats (SWOT) to help understand aspects of the food system that are strong and areas that can be improved. Cultivators shared their experiences and observations regarding the complex issues of food security in Southeast Alaska. They identified both challenges and needs. In many cases if the needs discussed are met, the challenges may also be reduced or alleviated.

Table 7: SWOT Analysis of Southeast Alaska Cultivated Foods

Strengths	Weaknesses
<ul style="list-style-type: none"> • Cultivators have expertise on how to grow food effectively in their locations and microclimates • There are regional and local support groups such as Cooperative Extension Service and Sitka Local Foods Network • There are markets for cultivators to sell products. • Many cultivators have plans to expand their operations • There is demand for more local food 	<ul style="list-style-type: none"> • Lack of communication, collaboration and network among cultivators • Lack of facilities to process foods for value-added product • Lack of storage facilities • Limited distribution options • Labor is expensive • There is a relatively small proportion of the total food available in a community that is locally produced • Lack of local source of seeds
Opportunities	Threats
<ul style="list-style-type: none"> • Food hubs • Education for cultivators • Current cultivators may inspire others to produce food • Funding opportunities for season extension technology and other infrastructure/development • Natural resources to build soils 	<ul style="list-style-type: none"> • Supermarkets provide food at lower prices than locally cultivated goods • Climate, pests, environmental conditions • Cost to produce local foods • Difficulty, high costs to become certified organic • Loss of agriculture land

Strengths

Cultivators have expertise on how to grow food effectively in their locations and microclimates. Cultivators surveyed have the knowledge and experience to do their task effectively and efficiently and most have many years of experience. For example, the Gustavus Inn has been in operation for 60 years and Chilkat Valley Farm in Haines has been in operation for 37 years.

There are regional and local support groups such as Cooperative Extension Service and Sitka Local Foods Network. Cooperative Extension Service provides many valuable resources to guide people to grow food in Southeast Alaska. Additionally, they offer workshops to become master gardeners, and on food safety techniques. Sitka Local Foods Network provides resources for Sitka residents and encourages the use of locally grown, harvested and produced foods.

There are markets for cultivators to sell products. There are farmers markets and harvest festivals in most of the communities surveyed. In the communities that do not have these distribution infrastructures, sales take place directly to lodges (Elfin Cove) or in bake sales (Pelican).

Many cultivators have plans to expand their operations. Fifteen out of 23 cultivators reported they have plans to expand their operations to grow more food and different varieties of produce.

There is demand for more local food. Thirteen out of 23 cultivators reported that if they could grow more food they could sell more within their communities. Two out of 23 cultivators reported they “might” be able to sell more if they were able to produce more food.



Greenhouse in Game Creek Community.

Weaknesses

Lack of communication, collaboration and network among cultivators. Many cultivators noted interest in becoming part of either a regional or local network to connect and/or collaborate with each other. There is much to be shared among cultivators. It is difficult for cultivators to connect with each other to share information and knowledge without a common ground or infrastructure for open communication. Additionally, a regional or local network could provide the medium for cooperative equipment sharing, wholesale purchasing or distribution schemes. See Recommendations section.

Lack of facilities to process foods for value-added products. Cultivators reported that a commercial kitchen or other community facilities could greatly benefit them, especially enabling them to make value-added products. See “Food Hub” in Recommendations section.

Lack of storage facilities. Cultivators who do not have root cellars, excess refrigeration and freezing capacities are limited by what they can store.

Limited distribution options. Farmers markets may not be ideal for all cultivators. Multi-farm Community Supported Agriculture (CSAs) or Buyers Clubs are potential alternative modes of distribution. See “Distribution” in Recommendations section.

Labor is expensive. See Appendix C.

There is a relatively small proportion of the total food available in a community that is locally produced. Most people rely on imported goods bought in grocery stores on a daily basis.

Lack of local source of seeds. See Appendix C.

Opportunities

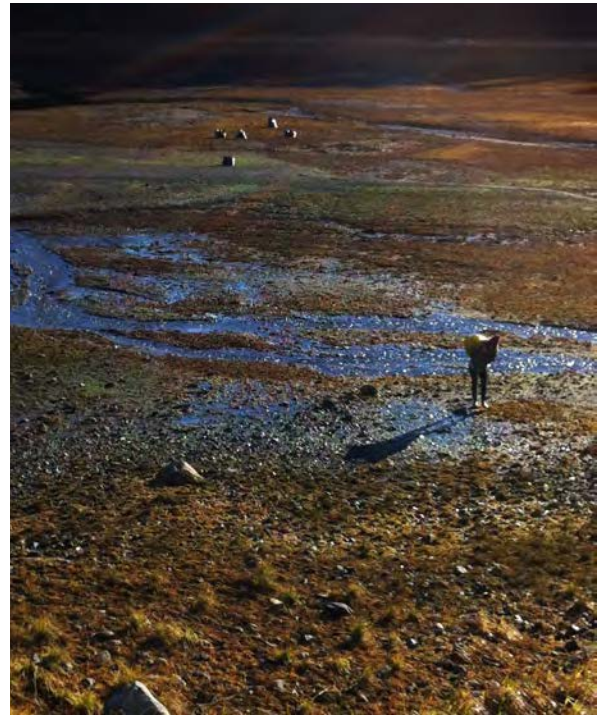
Food hubs. This could be a location shared by cultivators to process, distribute food and hold educational events. See “Food Hub” in Recommendations section.

Education for cultivators. There is much to be learned from experienced cultivators. A medium for collaboration and information sharing could benefit multiple participants in the food system. This includes education for new individuals that are interested in cultivation.

Current cultivators may inspire others to produce food. This could have an impact on new people beginning to grow food for personal use, or at a larger scale. Garden tours and workshops could be a way to promote this inspiration.

Funding opportunities for season extension technology and other infrastructure/development. There are grants and other funds available; many cultivators are currently taking advantage of this. See Appendix C.

Natural resources to build soils. Cultivators reported the plentiful natural resources, such as seaweed, is a key factor in their success.



Seaweed collection for mulch and fertilizer in Juneau. Photo courtesy of Matt Kern.

Threats

Supermarkets provide food at lower prices than locally cultivated goods. Distribution infrastructure may help cultivators market their foods with more value and less costs.



Climate, pests, environmental conditions. Most cultivators in the region know that growing in Southeast Alaska is not an easy task. Many of the environmental challenges are not controllable. Methods such as building green houses and other season extenders may deter some of these elements. See Appendix C.

Cost to produce local foods. Equipment sharing, more community gardens, community greenhouses, and other cooperatives between cultivators may reduce the cost of production. See Recommendations section.

Difficulty, high costs to become certified organic. Alaska producers must comply with Washington inspectors/standards for becoming USDA certified organic.

Loss of agriculture land. The landscape in some Southeast Alaskan communities may not be ideal for food cultivation. Some of the land that is farmable may not be affordable for those living on a cultivators wage.



Top: a moose visits Farragut Farm. Photo courtesy of Marja Smets. Bottom: George Campbell harvests potatoes in Haines.

Recommendations

This section focuses on recommendations to create a more integrated system that is capable of sustaining itself and providing more local foods and less reliance on imported products. The local food systems in communities and throughout the region can become more robust and successful by implementing some of these recommendations.

In this section

1. Collaborative Network
 - Equipment Sharing
 - Purchasing Cooperative
2. Food Hub
 - Food Processing
 - Distribution

1. Collaborative Network

Equipment Sharing

Joint ownership of machinery may increase the net return cultivators receive by reducing equipment costs. This has the potential to greatly improve efficiency for small-scale operations. Benefits that may result from joint machinery ownerships are⁶:

- Greater use of machinery
- More efficient labor during peak fieldwork times
- Greater use of individual operator skills and specialized labor

Proposed Action Steps...

1. Gather interested stakeholders (probably by community, though for larger or only occasionally used equipment, possibly by region or sub-regions).
2. Develop an accurate list of types of machinery needed and minimum capacity for each unit (depends on crops grown, type of tillage, harvesting system, size of cultivation site).
3. Inventory existing machinery, decide if it is necessary, if so, current owner can sell or lease it to joint venture.
4. Decide how to acquire other needed equipment items.

Purchasing Cooperative

The purpose of a purchasing cooperative is to aggregate demand to get lower prices from suppliers. This could be especially beneficial to Southeast Alaskans due to the elevated shipping and handling costs associated with long distance travel of cultivation supplies. Bulk purchase of supplies, soil amendments and ingredients for value-added products can be purchased through the Food Hub model described below.

2. Food Hub

A food hub provides a network for local food producers to collaborate on processing, marketing, distribution and educational events.

Services may include

- Market outlet for cultivators (link cultivators with buyers- individuals, businesses, etc.)
- Distribution services
- Bulk purchase inputs/farm supplies
- Storage space (root cellar, storage for processed goods)
- Business development services for cultivators to increase their capacity to meet consumer demands
- Educational workshops with cultivators in off-season, how to use cultivated foods (process, cook, store, etc.)

Food hubs contribute to local economies by directly purchasing from cultivators and creating jobs. Food hubs are a physical, as well as social infrastructure and operate on the concept that people are stronger when they work together. They may unite consumers and cultivators and cultivators with other cultivators. This type of added infrastructure may also give new cultivators the confidence that they have a consumer base and ensures that cultivators get a good price for their products.

"When everybody was a farmer, there was all sorts of infrastructure to support family-scale farming, and that's all gone. Food hubs are a huge part of the answer to rebuilding that infrastructure"

**Amanda Osborne,
Director of FoodHub.com**

Value-Added Food Processing

Food processing for the purposes of commercial sales is very heavily regulated due to the risk of contamination and illness. Certified kitchens must be up to code and meet specific requirements in order to be used for this purpose. Added community infrastructure that includes a certified commercial kitchen could greatly benefit local food producers (cultivators and wild food harvesters).

Food processing is the mechanized or manual transformation of raw ingredients into food products for consumption. Value added food include a diverse range of products including jams, jellies, preserves, pickles, preserved vegetables, salsas, breads, cookies, and cheeses. Processing includes cooking, baking, curing, canning, drying, mixing, churning, separating, extracting, fermenting, distilling, preserving, dehydrating, and freezing.

Benefits

- Extra produce that cannot be marketed as fresh can be preserved and sold at later dates.
- Blemished produce can be processed.
- Work can be spread out throughout the year, thus, income may be provided throughout the year when products are sold off seasons (example: frozen berries can be processed into jam during winter months).
- Processed products have a longer shelf life.
- Higher prices are typically drawn from these products compared to raw agriculture products.
- Facility could provide a location for workshops on food processing and cultivated food cooking demonstrations.

"I like the idea of a cooperative commercial kitchen so people can make value-added products with food they grow. Most people don't have a commercial kitchen in their home, or access to one for a low enough price to do pasta sauce, or salsa... Commercial kitchens could give people some creative options for doing more with what they are growing and adding dollar value. If something is in a jar, it can be sold in the heart of winter."

Laurie Mastrella, Haines

Distribution

Food hubs may serve as a drop-off point for cultivators and a pick up location for customers who want to buy local food. These hubs may serve as a method of distribution that preserves the identity of the people who grow the products. Local small-scale cultivators may not provide enough quantity on their own for distribution, thus a compilation of these small-scale operations may create a market for new cultivators and small operations. This may also facilitate relationships between local or regional cultivators and businesses, restaurants and institutions.

Multi-farm CSA

Community Supported Agriculture programs (CSAs) serve the purpose of the cultivator and buyer sharing the risks of producing food. Typically, CSAs provide produce to a group of shareholders who have paid in advance to receive a share of the harvest throughout the season. This system covers some of the capital cultivators need to purchase seeds and supplies at the beginning of the season. Members, or shareholders, are typically people concerned with where their food comes from and how it is grown. Throughout the harvest season, the inherent risks of cultivating food (bad weather, oversupply, crop failure, etc.), as well as the items cultivated, are shared between the cultivator and shareholder.

A multi-farm CSA program minimizes the risks to the cultivators and members by gathering produce from several local farms. This spreads the accountability and risks associated with raising crops among several cultivators and may increase the variety of items available to the consumer. This method may also be a low risk way for new cultivators to participate in local markets.

There are a variety of ways multi-farm CSAs can be devised:

- Supplemental farms (where a single farm CSA is supplemented with products from other local operations)
- Multiple farm CSA (cultivators network together to supply CSA-like ordering, distribution)
- Cooperative CSA (where cultivators provide the products while other staff provide non-farming duties like quality control, marketing, processing)

Proposed Action Steps...

1. Contact cultivators to see if there is interest in a food hub.
2. Create group of cultivators, businesses, other entities that are interested in establishing food hub
3. Determine what equipment and space is necessary to support such a project.
4. Look for potential sites for a food hub that could accommodate processing needs of cultivators. Look for places that already have kitchens established (schools, churches, etc.).
5. If no existing structures are available, research the possibility of buying land and building a facility as an alternative.
6. Look for property.
7. Create cost-benefit analysis.
8. Write grant proposals.
 - a. See Appendix C.

5. Wild Food Focus Group Findings



High school students in Kake learning to jar sockeye salmon at Culture Camp in July, 2013.

The dominant topic of discussion was the subsistence harvest of sockeye salmon. The cost of harvesting sockeye salmon using current procedures (which are based on a combination of tradition, existing equipment and investment, and adherence to regulation) poses financial and environmental challenges. Changes to make the process more efficient could decrease the environmental and the financial costs of these activities.

Potential modifications include community, rather than individual, permitting to allow fewer trips to the distant sockeye systems and thus decrease fuel expenditures, a community boat to improve the safety and efficiency of conducting these activities, and the recognition that among Alaska Natives subsistence lifestyles are very much self-regulating traditions.

In Kake, food is culture, and subsistence is not just an activity- subsistence is a means to feed one's family, and a way of life.

Other points of discussion during the focus group included sea otter impacts on local shellfish resources and opportunities for harvesting sea otters, investment in community resources, education capacity, the waste of resources under current procedures, and the general of lack of transparency in management practices. The survival of culture and traditions is parallel to the existence of customary and traditional subsistence foods. The relatively small amount of fish and wildlife harvest that is allocated to rural residents of Alaska is essential to the economic, traditional, cultural and physical existence of Alaska Natives.



High school students in Kake learning to process fish at Culture Camp in July, 2013.

6. Next Steps

Constructive and instructive information was gathered during this study. The outreach to food cultivators provoked many people to think about how their food system can be improved, the value that can be shared between food producers, and the opportunities for improvements in the efficiency of the work of the contributors of the food system. The discussion among those at the wild foods focus group also highlighted the importance of the plethora of natural resources Southeast Alaska has to offer and the significance of wild foods to many people's livelihoods and diets.

This report's data and analysis is a first step in a systematic region-wide improvement process and program. It is expected that the data reported herein will be updated as more information becomes available. Each interested cultivator, harvester, project sponsor, community, tribe, or organization should use the information in this report and its recommendations to determine what 'next steps' make sense for action. The goal is to create more local food production and harvest in Southeast Alaska in order to increase reliable access to fresh, healthy and affordable food. The baselines created now may serve as an evaluation tool later, so measurements of progress and improvements can be made.

Future Research

Measures should be taken to track progress, assess feasibility of recommendations, and to increase capacity of communities and the regional food system. The following are some suggestions for future investigation.

Community Food Source Inventory.

- Explore the main sources of a specific community's food.
- Investigate how much of a community's food is local (wild and cultivated).
- Determine how much food is stocked in the grocery stores at a given time.
- Create goals for displacing quantities of imported foods with local foods and measure progress.

Coordinate Local Food Activities.

- Coordinate Local Foods Task Force for region.
- Coordinate Local Foods Task Force for individual communities.
- Strengthen food cultivation capacity.
 - Assess community investment in building local capacity.
 - Do feasibility studies for potential projects.

Continue Cultivator Survey.

- Expand to include more cultivators around the region.
- Determine what is working to grow food in Southeast Alaska at low cost and high return.

Replicate Wild Foods Focus Group in other communities.

Develop Community Food Security Indicators.

- Develop indicators that can be used at a community level to make goals and track progress.

Glossary of Terms

Direct market: a type of relationship between the original source of food and the consumer where there is not an intermediate step in distribution. The food producer distributes to the consumer.

Food cultivator: person who plants, tends, improves, harvests crops and prepares the ground to promote growth.

Food hub: physical and social infrastructure that provides a network for local food producers to collaborate on processing, marketing, distribution and educational events.

Food producer: for the purposes of this study, a person who cultivates foods or harvests wild foods.

Food security: the access (physically and economically) by all people at all times to safe, healthy, nutritious, culturally and socially acceptable foods.

Gross Value: the dollar amount of items produced by cultivators per hours of total labor. These values are to be used as an index.

Wild foods: the hunting and gathering of wild game, seafood, mushrooms, berries, seaweed and other natural resources.

Intermediated market: a type of relationship between the original source of food and the consumer where there are transitional steps that may include food processors and retailers in order to distribute food to consumers.

Local capacity: a community's ability to produce, import and process foods.

Local foods: cultivated foods and wild foods produced in communities/region and consumed in the same communities/region.

SWOT Analysis: strengths, weaknesses, opportunities and threats evaluation.

Transaction costs: values associated with delivery of the product from the cultivator to the customer. This includes post-harvest handling, packaging, storage, as well as labor to sell, invoice, and delivery of the product.

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Appendix A: Cultivator Inventory

Cultivators	Location
Gordon Wrobel	Elfin Cove
Farragut Farm	Farragut Bay
Game Creek Community	Game Creek
Gustavus Inn	Gustavus
Harmony Farm	Gustavus
18 Meadows Farm	Haines
7 Echoes Homestead	Haines
Chilkat Valley Farm	Haines
Columbine Farm	Haines
Raven Farm	Haines
Rob Goldberg	Haines
Sunshine Organic Farm	Haines
White Rock Nursery	Haines
Ed's Edible Landcaping	Juneau
Joe Lassiter	Juneau
Orsi Organic Produce	Juneau
Sarah Hagen	Juneau
Wabi Sabi Wilderness Farm	Juneau
Patricia Phillips	Pelican
Down-to-Earth U-Pick Garden	Sitka
Florence Welsh	Sitka
Judy Johnstone	Sitka
Saint Peter's Fellowship Farm	Sitka

Appendix B: Southeast Conference Questionnaire

FOOD SECURITY QUESTIONNAIRE

Building a Stronger Regional Food System in Southeast Alaska

Objective: Increase food locally produced, harvested, processed, distributed and consumed in Southeast.

Please write on the back if you need more room

1. How heavily do you and your family rely on locally grown or harvested food in your regular food supply?
At which times of the year?

2. What would lead you to increase the amount of locally grown food you or your family consumes? Please be as specific as you can.

3. Have you (your family or someone you know in your community) changed your patterns for hunting or fishing based on the high cost of fuel or other factors? If yes, specifically what are you doing differently or what has changed, and why?

4. Imagine that you have the opportunity to do something in the community to help people have an easier time getting the types of food they want or need. What would you do?

5. Are you aware of any programs/demo-projects/businesses in your area that are producing local food at a scale larger than just for an individual household?

- If so....can you please provide a name and any contact information about the effort so I can get in touch with them.

6. What community do you live in? _____

7. Is there anyone you recommend that I contact? _____

Appendix C: Resources

Resource Type	Source	Link ^c
Equipment Sharing	Iowa State Extension	http://www.extension.iastate.edu/agdm/crops/html/a3-37.html
	Centre for the Study of Co-operatives University of Saskatchewan	http://usaskstudies.coop/pdf-files/Idea%20Worth%20Sharing.pdf
Food Hub	Food Hub Resources Guide: USDA Publication	http://ngfn.org/resources/ngfn-database/knowledge/FoodHubResourceGuide.pdf
	Rural Connections: Western Rural Development Center	http://wrwc.usu.edu/files/publications/publication/pub__6232863.pdf
Funding	Alaska Department of Natural Resources: Division of Agriculture Grants	http://dnr.alaska.gov/ag/ag_grants.htm
	United State Department of Agriculture: Grants, Loans, and Support	http://www.usda.gov/wps/portal/usda/usdahome?navid=KYF_GRANTS
	Farm Aid: Family Farmers sand Economic Stimulus Funding Opportunities	http://www.farmaid.org/site/c.qll5lhNVJsE/b.6060101/k.6E56/Funding_Opportunities.htm
	Healthy Food Access Portal: Find Money	http://healthyfoodaccess.org/find-money?destination=node/210
	Seasonal High Tunnel Grants	http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/?cid=stelprdb1046250
Labor	Worldwide Opportunities on Organic Farms	http://www.woofusa.org/About_WWOOFUSA
Publications, information and instructions for growing food in Southesat Alaska	University of Alaska Fairbanks Cooperative Extension Service	http://www.uaf.edu/ces/gardening/
Sustainable Eating and Nutrition	Alaska Grown Source Book	http://dnr.alaska.gov/ag/sourcebook/index.htm
	National Good Food Network	http://www.ngfn.com