

Opportunities for Values-based Supply Chains on the North Olympic Peninsula

Clea Rome, Assistant Professor, WSU Extension

Laura Ryser, Assistant Professor, WSU Extension

Anthony Gromko, Assistant Professor, WSU Extension

Nils Johnson, Program Coordinator, WSU Extension

Karen Affeld, North Olympic Development Center

Abstract

In 2017, WSU Extension applied for and received a Rural Business Development Grant (RBDG) to assess the viability of coordinated production and processing of vegetables for small-scale farmers on the North Olympic Peninsula. Opportunities for the centralized aggregation, processing, storage, and distribution of produce for commercial consumption and non-commercial consumption by area residents were explored. After determining that a larger scale, infrastructure heavy approach to processing and aggregation was not feasible given limitations with both supply (scale of current production) and supplier interest and capacity, it was determined that focusing on smaller-scale, targeted value-chain investments and business assistance for farmers could achieve similar goals to grow the agricultural sectors across Clallam and Jefferson Counties.

Project Purpose

In 2017, WSU Extension applied for and received a Rural Business Development Grant (RBDG) grant to assess the viability of coordinated production and processing of vegetables for small-scale farmers on the North Olympic Peninsula. The initial focus was on salad green production and processing, but over the course of the grant, the scope was expanded to explore opportunities for the centralized aggregation, processing, storage, and distribution of produce for commercial consumption and non-commercial consumption by area residents.

Project background

The 2017 USDA Census of Agriculture indicates that less than 10% of farms across Clallam County make \$25,000 or above annually in farm-related income. The situation in neighboring Jefferson County is similar, with recent survey data collected locally showing that over 90% of smallholder farms depend on off-farm income to operate. According to the USDA, small farmers who make up the majority of organic farms, “are challenged by the lack of distribution and processing infrastructure of an appropriate scale that would give them wider access to retail, institutional, and commercial food service markets where demand for local, organic foods continue to grow” (Regional Food Resource Guide, 2012). The North Olympic Peninsula (NOP) is no exception to this challenge.

The lack of processing infrastructure facing small farms on the NOP was the impetus for the RBDG grant awarded to WSU Extension in 2017. The grant application stemmed from a series of conversations conducted by WSU Extension and the North Olympic Land Trust in 2016 with farmers in Clallam County, during which producers expressed an interest in exploring opportunities for increasing processing and value-added opportunities. Shared processing

infrastructure would benefit growers and retail outlets locally and would allow producers to tap into the consumer demand for organic produce in larger regional markets.

Methodology

To understand factors affecting the growth of wholesale supply chains for processed local produce in the region, this study explored both barriers to development and opportunities that could support the expansion of the local agricultural sector in general. A literature review of pertinent publications and projects both regionally and nationally was conducted, along with primary research through on-line surveys and key-informant interviews.

Primary Research

Research questions were developed to meet the purpose of this study and guide how information was collected throughout the project. Through online surveys and key informant interviews, primary research was conducted with three key stakeholder groups, including 1) food growers; 2) food buyers; 3) members of the Peninsula Food Coalition. In total, 11 online surveys were completed by food growers/producers; 6 online surveys were conducted with food buyers; and 8 key-informant interviews were conducted with members of the Peninsula Food Coalition between October 2018-August 2019.

Production/Farmer Focused Research Questions

- What do farmers need to sell through wholesale markets?
- How can farm businesses scale up production to meet increasing market demands regionally and meet food safety standards?
- What do farm businesses need to achieve scaling up? How long would it take to scale up if farm businesses had what they needed?

Buyer Focused Research Questions

- Is there sufficient purchasing power and market share to sustain the food hub over time?
- Can a locally-produced processed food product be financially sustained with the existing North Olympic markets?
- What opportunities exist for new wholesale markets for farmers' products?

Coalition Member Focused Research Questions

- Can a food hub business be financially sustained on the North Olympic Peninsula?
- If so, does a processing facility need to be part of it? Aggregation? Cold storage? Education? Other elements?
- What existing infrastructure and relationships exists to support a food recovery hub and what else needs to be in place?

The following criteria were used to code key-informant interview data:

- Barriers to local food procurement, aggregation, processing
- Existing infrastructure in local food procurement, aggregation, processing
- Vision, Goals, Opportunities for local food procurement, aggregation, processing

The interview and survey questions can be found in Appendix A and results of the surveys can be found in Appendix B.

Secondary Research

A literature review was conducted to guide the design of this project and gather information about similar studies across the region and nation.

Project Findings

Investing in enhanced processing, aggregation and distribution infrastructure on the North Olympic Peninsula could strengthen and grow the small and emerging enterprises of many farmers in the region. However, this research found many challenges to the creation of a centralized processing facility, as well as challenges to an expansive food hub concept that would address the aggregation, distribution, and marketing of local produce. This research proposes that growing incremental “value-chain” connections, where the actors share in common values and mutually beneficial returns, can be a baby step towards both increasing the production and the demand for locally processed vegetables in a region not ready to support a stand-alone processing and wholesale enterprise.

Food Hub Business Model considerations

While all of the Food Coalition partners interviewed expressed an interest and a need for local food aggregation and distribution services, the economic reality of sustaining a centralized food hub business model to accomplish this goal brings many challenges for an isolated, rural community with agricultural production at the current scale on the North Olympic Peninsula.

When estimating the financial performance of a food hub business model, 2018 data from fifty different food hub facilities was used to understand what the costs and profitability might look like for a centralized facility serving Clallam and Jefferson counties.

The study revealed that, on average, food hubs posted an annual net loss of 1.4%. This included the food hubs utilizing grants and contributions to provide 12.5% of revenue. Without grants and contributions, the average food hub operation experienced an even greater net loss of between 10 and 11% of revenue annually. It was only the top 12 to 13 performing facilities (top 25%) that were able to realize, on average, a net profit of 0.9%, but only with the aid of grants and contributions and a significant reduction in costs from greater operating efficiency. (Food Hub, 2018)

This information indicates that even with significant grants and contributions going to support food hub programming, it is still challenging to operate a profitable food hub. Moreover, for a food hub to be profitable there needs to be production at a large enough scale to create opportunities for cost reduction.

The average gross profit margin differed significantly for the entire 50 food hubs analyzed versus the top performing 25%. The average gross profit margin was 7% across all hubs while the top 25% achieved an average of 11% gross profit margin. This points to the importance of reducing variable costs, in this case, the cost of product, as well as selling and distribution costs. A reduction of variable costs for food hubs is often accomplished by operating at a larger scale. As a hub purchases greater quantities of product and produces greater volumes, opportunities arise for cost reductions and greater operating efficiencies. This reduction of variable costs by 4% by the top performing food hubs points to greater operating efficiency and a lower break-even point. (Food Hub, 2018). Also, historically, there does appear to be a correlation between food hubs that have been in business longer and greater operation efficiency. (National, 2017)

In a phone conversation with a researcher at the Wallace Center, he shared that in general, it would take between \$1 million and \$1.5 million worth of throughput of product annually for a food hub to cover base costs. He indicated that the traditional aggregation-distribution model of a food hub is infrastructure heavy with very slim margins. The top performing food hubs in the 2018 benchmark study showed, on average, a throughput of \$2.2 million (with an average gross profit margin of 10.8%) to achieve break-even. (Food Hub, 2018)

The top challenge associated with operating a food hub according to a 2017 survey was reported as ‘balancing supply and demand’. More specifically, supply limitations (not having enough product and seasonality issues), customer limitations (not enough customers or consistency from customers), and supplier limitations (not willing to commit to the food hub model). These top challenges of food hubs have surfaced consistently across surveys from 2013 and 2015 as well. (National, 2017)

As a result of the heavy investment needed and the slim margins in profitability; subsidization for operations through continued grant funding and donations; and the amount of throughput required in order to break even; it was determined that while there does exist a strong need for aggregation and distribution services on the North Olympic Peninsula, the centralized, stand-alone food hub concept is not currently feasible as a viable means to support farmers in this region.

Centralized Processing Center for Salad Greens Considerations

The start-up costs and on-going operating expenses associated with a fully operational processing facility vary depending upon a variety of factors. According to a Yellow Wood (2004) Associates feasibility study for a fresh-cut produce processing facility in Madison, WI, the total equipment costs on a “basic set-up” for product preparation, cutting, washing, drying, packing, and sealing were approximately \$400,000. If added capacity for freezing products was included, this would bump total costs up to almost \$1 million. This same feasibility study estimated total fixed costs for one year at \$530,000 (which included the debt service on a 14,500 ft. facility and equipment) (p. 47). The maximum capacity of this facility would be 1.6 million pounds (Yellow Wood 2004, p.55). This information provides a sense of scale and cost associated with a fully operational stand-alone processing facility.

Six farmers in Clallam County who had expressed interest in the initial concept of a centralized processing center for salad greens met in the fall of 2017 to begin conversations about the possibility of collaboration and development of this shared infrastructure.

In January of 2018, the group took a field trip to Cloud Mountain Processing Center to explore a regional processing facility. Although the participants agreed that the equipment and vision were relatively simple and not to the scale of the above-mentioned facility, it was clear from the discussion with individual farmers involved in the effort that there was not the level of interest in a coordinated salad greens industry reliant on centralized processing for regional markets. For the majority of farmers involved, this concept would mean a significant adjustment to their diversified vegetable operations to focus exclusively on ramping up greens production.

Investing in Value-Chain Development

Because producer interest on the North Olympic Peninsula is currently not present to support the concept of coordinated salad greens production and processing, nor is the current scale of production sufficient to sustain a centralized “food hub” concept that not only processes, but aggregates and distributes many different types of produce, this project chose to focus on the

possibilities for increasing wholesale market opportunities and processing infrastructure in conjunction with the network of partners in the area, rather than as a stand-alone operation.

With the remainder of the time and resources available through the grant, the focus turned to supply chain dynamics present in the existing partnerships with the emergency food networks on the North Olympic Peninsula. The goal was to recommend strategies for the creation of both new and expansion of existing supply-chains for local farm products using value-chain connections with local partners as a platform for scaling up wholesale marketing and processing for small farms.

The opportunities for creative partnerships in this arena are abundant. Extensive groundwork for supply-chain growth in this area has already been laid through the work of the Peninsula Food Coalition (PFC), a group of local food banks and partner organizations such as WSU Extension, Northwest Harvest and Food Lifeline. Because of these strong partnerships and relationships, food banks on the North Olympic Peninsula are already:

- Contracting/buying directly from farmers
- Bringing in large amounts of perishable local produce through a gleaning program
- Storing and re-distributing perishable food to fellow PFC member food programs
- Creating pilot projects to process perishable food for value-added products for local food access programs

As such, many food banks in the area already act as de facto “food hubs”, coordinating the aggregation and distribution of large amounts of food on the Olympic Peninsula, albeit for distribution to food banks and food pantries rather than for-profit food retailers. To varying degrees, these food banks have existing infrastructure for their emergency food networks such as limited cold storage, refrigerated trucks, and established transportation networks between food banks and meal sites.

Because of the success of the farm-to-food bank program through Harvest Against Hunger, local food banks have increased their direct purchases from local farms. In addition, as a result of a strong network of over 300 gleaners coordinated by WSU Extension over the last 6 years, food banks are receiving an abundance of fresh local gleaned produce during the harvest season. This has led to opportunities for processing gleaned food to more shelf-stable products with the abundance of product available during the harvest season.

As these efforts have demonstrated success through the farm-to-food bank program, tapping into the demand of the emergency food networks can be an avenue for small farms to engage in relatively low-risk wholesale supply chains and pre-season contracting. By having a guaranteed buyer for their products through pre-season contracting, farms are able to invest and grow with significantly less risk. On the western end of the county, the farm to food bank program has been critical in sustaining farms that otherwise would struggle to exist from season to season.

Providing targeted upgrades in processing, storage, and enhanced distribution infrastructure *for existing food access partners* (rather than the creation of an independent operation) could set the stage for growth in farm-to-institution or increased wholesale market sales for small farms.

Creating targeted improvements in processing and storage infrastructure to food banks and other partners can offer farmers a platform for scaling up their production for processed vegetables while allowing the food banks to fill the role of a food hub that fits the needs of both community food security and small farmers interested in processed vegetables and cold storage. ***This research proposes that growing these incremental “value-chain” connections, where the actors share in common values and mutually beneficial returns, can be a baby step towards***

both increasing the production and the demand for locally processed vegetables in a region not ready to support a stand-alone processing and wholesale enterprise.

According to the FoodLINC report developed by the Wallace Center, “the value chain approach to community food systems has relationship building and maintenance as its core feature, and is a more sustainable community investment than investing in hard infrastructure.” (Wallace Center). Traditional supply chains are different from values-based supply chains in that traditional supply chains focus on adding economic value whereas values-based supply chains add in environmental and social values. Feenstra et al. (2011) notes that value-based chains aspire to improve small to midscale farmers’ financial viability with products embedded with environmental and social benefits. Values-based chains require all partners to work closely together to both optimize value for everyone and uphold transparency through information sharing (p. 71).

One beginning step to move this work forward is to identify existing infrastructure amongst partner organizations for targeted investments to help move local value chains forward. In order to do this, surveys identified what roles the partners might play.

Value-Chain Actors

Port Angeles Food Bank

The Port Angeles Food Bank serves Clallam County residents. It is set-up like a grocery store to empower clients to make their own food choices. They have an emergency food assistance program, a commodity supplemental food program, and meals for students program. In one month (September), they served 1,560 individuals.



Their purchasing program spends around \$60,000 per year and spends \$15,000 on fresh food. In terms of physical infrastructure, they have around 3,000 square feet of dry storage, a delivery truck, two walk-in freezers, and two walk-in and coolers.

The Port Angeles Food Bank expressed interest in either purchasing more from a local food aggregator or expanding capacity to become a local aggregator. They would also like to expand cold storage space for farmers. (Port Angeles, n.d.)

Sequim Food Bank

The Sequim Food Bank provides food and assistance to people and organizations so that no one goes hungry in Sequim. They provide emergency food at their food bank and the Sequim school district.



They have a backpack program and a delivery program for homebound individuals. They serve about 300 families every week. Their purchasing program spends about \$10,000 per year, of which 10% is designated as local. They distribute 60,000 to 70,000 pounds/month (25% of which is purchased, 75% of which is donated). The food bank primarily purchases from Charlie’s Produce (a wholesale purchaser out of Seattle) and secondarily with local farmers. Their distribution program has a backpack program, a holiday program, and does home and church deliveries. Their infrastructure consists of a dry goods warehouse, walk-in freezer, walk-in coolers, multiple buildings for storage, and a recently purchased property.

The Sequim Food Bank expressed interest in either purchasing more from a local food aggregator or expanding capacity to become a local food aggregator. They liked the idea of pre-season planning with farmers to coordinate on buying specific crops and the idea of purchasing processed, packaged, or value-added produce. (Sequim, n.d.)

Craft 3

Craft3 is a regional Community Development Financial Institution (CDFI) that provides financing and technical assistance “to strengthen economic, ecological, and family resilience” around Washington and Oregon states. They specifically lend to start-up or existing businesses and established nonprofits.



From partner surveys, Craft3 expressed interest in being a partner in the development of regional food and agricultural systems. Specifically, Craft3 can play the role of financing for a basic processing line for a food bank to expand capacity for aggregation/distribution, for example, or offering business education, such as technical assistance to food producers. Craft3 has a vested interest (as part of its 5-year strategic plan) in building food and agriculture-specific capital and is actively working to define programs or products that would be widely used in Washington and Oregon.

Craft3 mentioned seeing a need for both cold and dry storage for producers, interest in financing a food aggregation, distribution, or processing scenario, and interest in helping find grant funding for a local business incubator for food and agriculture related businesses. (Craft3, n.d.)

North Olympic Development Council (NODC)

Another partner agency interviewed was the North Olympic Development Council. This group serves as the economic development district for Jefferson and Clallam counties. Specifically, the NODC does regional economic development planning, supports small business development through workshops/trainings, develops projects that support the farm, food, forestry, and marine sectors, works to conserve the environment, and provides technical assistance to partner organizations to advance regional projects.



The NODC expressed an ability and willingness to play various support roles within the context of local food procurement, aggregation, and processing. Specifically, they mentioned their capacity and experience with owning and leasing equipment as a 501(c)3. There was also expressed interest in purchasing some minimal processing equipment for chopping, flash freezing, and dehydrating. The NODC mentioned that they saw a real need for increased freezing capacity in order to have more local produce year-round. (NODC, n.d.)

Olympic Community Action Program (OlyCAP)

The Olympic Community Action Programs (OlyCAP) works to serve the broader community of Clallam and Jefferson through a variety of different programs and services that promote self-reliance and health. Some of these programs include a food buying program (feeding 6,000 people per month through food pantries), food distribution network (pick up food and deliver it to various sites), and physical infrastructure (warehouse, delivery truck, and walk-in cold storage).



OlyCAP expressed interest in buying from a local food aggregator, doing pre-season planning with farmers on crop production (specifically for their senior meals program), and developing their warehousing program with the capacity for greater storage, refrigeration and freezer space. (OlyCAP, n.d.)

In the case of this study, partners interviewed all expressed interest in playing key roles to advance the local supply chain. It is also clear from the recurring themes coming out of the

partner interviews that there is a real opportunity to invest in and benefit from *value-chain coordination* between these partners and small farms. According to the Wallace Center, value chain coordination utilizes existing infrastructure and relationships in the community to create “momentum, stability, and fairness in supply chains”. Investing in softer infrastructure is a much less risky way to develop a value chain concept than investing in heavy and expensive infrastructure. Value chain coordination investment offers more potential for significant impact than do farmers markets or food hubs. (Wallace)

Project Recommendations

Taking a value-chain analysis approach to growing wholesale and processing opportunities for farm products has informed the core recommendations developed in this project. These recommendations include:

1. Creation of value-chain coordinator position to focus on implementing targeted investments in small-scale infrastructure improvements for existing partners
2. Business assistance to farmers to remove barriers to scaling-up

1. Targeted investment in value-chain coordination and development

It is recommended to create a Value-Chain Coordinator position to work with producers, buyers and partners around Clallam and Jefferson counties with targeted micro-investments to advance local values-based supply chains.

A Value Chain Coordinator (VCC) is someone who brings partners together to define collective interests, address issues and respond to opportunities quickly, and effectively communicates the value chain effort to others. A VCC assists partners with the development of “feedback” loops which provide helpful information across value-chain networks. (WealthWorks). A VCC can facilitate local supply chains by identifying shared environmental and social values between buyers and growers, integrate planning, incorporate diversities of scale, expand information flows, and educate where needed throughout the value chain.

In a study of farm-to-institution relationships, Feenstra et al. (2011) notes that information flows and education play key roles in values-based supply chains. Producers and distributors both need education on new methods for aggregating and processing products as well as new ways of telling their stories to buyers (p. 82). A VCC can facilitate market access for agricultural producers in several ways, including coordinating one-on-one mentoring to navigate specific barriers and challenges, assistance with developing marketing materials and product promotion strategies, and connecting with the correct market outlets to fit differing scales of production.

One suggested approach is that interested partners within the PFC hire and oversee a value chain coordinator that would serve the central role of holding and weaving project coordination and micro-investment efforts together. Another option could be for one of the partner organizations to step forward and take on this capacity as a VCC for the group of dedicated partners. In either case, WSU Extension would act to provide the VCC the necessary support and additional resources to achieve success.

Below are four opportunities for project coordination and micro-investment that a VCC could actively work on organizing and achieving for Clallam/Jefferson counties: 1) pre-season coordination, 2) local aggregation, 3) cold storage expansion and/or 4) development of a micro processing line.

Pre-season coordination: Several PFC partners expressed interest in doing pre-season planning with local farmers on crop production for the purpose of buying specific crops. This process would help balance supply with demand. Efforts such as these take coordination and planning. A VCC can be instrumental in providing the added capacity to coordinate and oversee pre-season planning and forward contracting between buyers and growers. Small growers improve their participation in values-based supply chains when they have more opportunities such as these. (Feenstra et al. 2011) In the case of a pre-planning coordination opportunity, this would require local partners to make the investment (time, capacity, and/or funding) in a VCC with the capacity to bring partners and producers into a planning process together.

Local aggregation: All partners interviewed expressed interest in seeing local food aggregation exist from becoming a local food aggregator to purchasing from a local food aggregator to financing a local food aggregator. If the five partners involved in this study organized around the creation of a local food aggregator (not necessarily a fully operating food hub), then this would strengthen the local food system. The creation of a local aggregator is a broader investment that might also include cold storage and pre-planning coordination as part of the whole.

With the added capacity that a VCC position provides, partners can shape a model for aggregation and distribution that will best respond to the challenges facing the region. A VCC can oversee a platform to provide wholesale, retail and institutional markets “one-stop shopping” opportunities for more convenient sourcing of local products than currently exists. This can be as simple as standardized pricing and uniform fresh sheets as well coordination of the existing “CoolPup” trailer for transportation of produce between farms and food banks.

Cold storage expansion: Four of the five PFC partners interviewed identified a need for expanding cold storage space within their own operations and/or for producers. This is consistent with what the producers mentioned in the final survey as well. Specifically, freezer space was the most common need or use of equipment identified in the surveys. The value-add with an investment in cold storage would be the ability to offer a wider and more consistent variety of local produce year-round. It would also increase the buying opportunities between local partners and local producers.

A VCC can facilitate the coordination of micro-investment opportunities in cold storage with partners as well as develop new partnerships that capitalize on underutilized kitchen and cold storage facilities such as the Port Angeles School District’s Lincoln Center or Sequim’s Guy Cole Center. The opportunity for storing local produce year-round would increase and benefit the regional economy. Investigation into the efficiencies of utilizing *existing facilities* to build a network of coordinated cold storage, transportation and distribution is a role that a VCC can play.

Development of a micro-processing line for local produce: In the absence of a critical mass of farmers interested in coordinating and scaling up salad greens production to the level needed to support large-scale shared, centralized processing infrastructure, the scenario of a smaller-scale simple processing line for mixed salad greens or other basic processed products could be incorporated into an existing commercial kitchen facility (OlyCAP, various church kitchens or granges) with minimal upgrades. The financial estimates, design and instructions for implementation can be found in Appendix D.

According to this project’s analysis, the start-up costs for this small-scale “micro” processing line that relies on existing partnerships and infrastructure would be reasonable, the operation could be profitable, and the source of capitalization exists. With the support of Craft3 financing

and/or grant funding, start-up costs could be covered. With the added capacity of a VCC to organize and implement the model, along with a local partner to provide space for the micro processing line, a small-scale operation such as this could be feasible. An entrepreneur might be able to fill this operational niche, or a partner interviewed could also provide this support.

The micro-processing line could be feasible, but again, because of the lack of an existing lead entity, would require a VCC to help organize and coordinate. One approach would be to pursue funding to implement a pilot project designed to create a processed product that can be incorporated as a component into prepared meals for delivery to food access sites. This pilot project would build on and enhance an existing organizations' abilities to incorporate and process local produce into their emergency food operations.

On the front end, the project would serve to shepherd small-scale and beginning farms through a "contract growing" process. One advantage of working with a meal delivery site such as OlyCAP or a partner food bank is that these institutions have control over their purchasing decisions. With incentives provided through a pilot grant-funded project, a partner organization, or multiple partners could undertake this at little or no risk.

The project would allow local food coalition partners to develop the small-scale processing and production line for local produce that builds off of existing infrastructure, and in the process, help partners understand and troubleshoot the challenges of creating a processed product from local produce. By creating a processed product from local farm produce, capacity begins to be built for expanding other potential markets such as farm-to-institution.

The easiest and most straightforward of the value-chain enhancement and micro investment opportunities that we identified would be the cold storage and the pre-planning coordination. The cold storage effort would require the VCC to help organize the interested local partners. One or more of the four local partners that expressed interest would need to acquire the equipment either through financing or grant funding and it would also need to house the equipment. The organization and coordination of usage of the new cold storage would also need to be managed by one or more of the four partners.

The more complex micro investments would be the local aggregation effort and the implementation of a micro processing line. A local aggregation effort was of interest to all the partners involved in the survey, however, this would require a VCC to help identify which partner is best positioned to take on this role.

Recommendation 2: Creation of Farm Business Advising Services on the North Olympic Peninsula

It is recommended to create a pilot program that tests the effectiveness of one-on-one business advising to help North Olympic Peninsula farmers remove barriers to scaling up.

Analysis of the feasibility of a food hub or centralizing processing center on the North Olympic Peninsula identified the likelihood of insufficient throughput as a major barrier to financial success. Individual wholesale buyers surveyed also identified the lack of availability of sufficient quantities of produce as a major barrier to increasing their purchasing from local growers. **More than half of the growers surveyed said they were interested in scaling up their production.**

Producers identified a number of barriers to scaling up, including a need for access to additional land, to more labor, and to financial, human resources and business advising services. In fact, as

many producers identified a need for financial advising, food safety training and certification as well as access to cold storage or processing equipment. An even higher number identified a need for risk management consulting.

Several models were explored that provide these kinds of services to farmers, some in conjunction with a food hub or processing center and some as a stand-alone program. These services can assist farmers in expanding their operations and in making existing operations more profitable. Three examples of organizations that provide these services are described below.

Northwest Agriculture Business Center

The Northwest Agriculture Business Center, based in Mount Vernon, Washington, serves farmers in Skagit, Whatcom, Snohomish, Island, San Juan and King counties. In addition to assisting with cooperative development, infrastructure development and the Puget Sound Food Hub, NABC offers one-on-one business and financial advising services to individual producers on a fee for service basis. NABC's one-on-one services include:

Business planning:

- Hands-on business plan review and development, including strategic and marketing plans and financial projections;
- Preparation of capital and financing plans;
- Project evaluations; and
- Professional referrals.

Value Added Product Development:

- Evaluation of market demand;
- Access to production facilities;
- Establishing quality standards; and
- Access to capital.

Marketing and Sales Assistance:

- Marketing strategies and annual or long-term marketing plans;
- Building a brand;
- Distribution options; and
- Buyer presentation and pricing strategies.

Kitchen Table Advisors (KTA)

Based in Oakland, California and working in twelve counties in northern California, Kitchen Table Advisors uses a somewhat different model. Services to farmers are provided free of charge, with producers committing to participate in the program for three years. Each farmer works with a business advisor, meeting with them at least once a month, usually on the farm. The advising is personalized, based on the needs of the producer, ranging from strategic decision making to sales and marketing to financial recordkeeping, budgeting and cash flow. KTA also assists producers with finding financing, helps the secure land for expansion and makes referrals to a network of professionals such as attorneys, accountants and human resource managers.

KTA piloted their model from 2013-15 with a cohort of ten farmers and ranchers. At the end of three years, average net income for the growers had increased by 60%, from \$18,000 to \$30,000. During that period, business advisers provided 2,400 hours of one-on-one consulting to participating producers.

Since 2015 the KTA program has continued to grow and they are currently working with 64 farmers and ranchers. Average revenue per farm has increased to \$80,000. They work primarily with beginning and disadvantaged farmers, half of whom are people of color and sixty percent of whom are women. The program is intensive and expensive but effective.

The Carrot Project

Based in Boston, Massachusetts, The Carrot Project works throughout New England and the Hudson Valley with farmers who use sustainable practices and with food businesses that source their ingredients locally. They offer a range of programs, including workshops, webinars and seminars, financing, sector development and one-on-one business advising.

The organization started around 2005 as a lender but soon discovered that funding alone was often insufficient to create a stable, sustainable farm or business. They found that many of their borrowers needed to understand recordkeeping, financial statements and using financials to guide decision making. They added additional services as the need arose.

Their one-on-one business advising services are provided by either a Carrot Project staff person or a partnering consultant. Services may be free or reduced cost if the farmer lives in Massachusetts or on a fee for service basis elsewhere in New England. Charges are based on a sliding-scale fee structure utilizing HUD income guidelines. Services include:

- Business plan review to assist with decisions about accessing financing
- Development of financial statements in preparation of loan packaging or accessing financing
- Cash-flow budgeting
- Enterprise planning and development of financial projections
- Setting up financial tracking systems such as QuickBooks
- Optimizing financial tracking systems to assist with business decision-making
- Pre- and post-loan technical assistance
- Loan packaging
- Loans of up to \$75,000
- Introductions to investors and assistance with pitch preparation
- Other services such as feasibility studies and preparation of business plan



MEET TYLER SAGE
In 2014, Tyler Sage started Sage Farm on 90 acres in Montague, MA, pasturing heritage pigs with intensive rotational methods. Tyler supplements his pig production with a horse-powered logging business, providing him with a steady year-round business.

ACCESS TO BUSINESS ADVISING AND CAPITAL
Tyler recently purchased 115 acres in Montague. Scaling his business on his new land will allow him to realize a long-held goal: increasing production significantly, up to selling 300 pigs yearly. He's figuring out the puzzle of meeting restaurant demand for fresh meat and specialty cuts.

WHAT'S NEXT?
Like many small farmers in New England, Tyler continues to navigate new challenges while operating a successful, innovative beginning farm.

ABOUT THE CARROT PROJECT
\$10,500 average increase in net income
39 jobs supported • 560 acres in production
\$268,500 loaned to current borrowers
90% learned at least one new financial management skill (impact for clients employing remote-based advisers is still)

Local agriculture is a powerful, multifaceted vehicle for seeding positive change.

OUR VISION
It launches entrepreneurial development and green jobs with independent businesses; strengthens our regional and local economies, fosters a sustainable environment for our health and welfare as individuals and communities — and of course, feeds us!

Working with livestock is always an exciting challenge. Trying to build a sustainable business makes it even more challenging and exciting. Tyler Sage, Sage Farm, Montague, MA

is to significantly increase the number of successful farm and agriculture businesses, resulting in a meaningful increase in local production of food in New England and the Hudson Valley.

We want the farms and businesses that we work with today to be here in 5, 10, and 30 years from now. Their success is the cornerstone of a strong local farm and food economy.

carrot PROJECT

Farmers commit to a minimum of two years of participation – intensive up front, then more seasonal. There is an individualized, targeted scope of work for each farmer. Assistance is long term but doesn't average a lot of hours per farmer. In 2018, the Carrot Project's business advising services resulted in an average increase in net income of \$10,500 and supported 39 jobs and 560 acres in production.

All three of these models demonstrate the effectiveness and impact of providing one-on-one business advising to farmers. Producers on the North Olympic Peninsula currently lack access to such services. Indeed, due to the low population and geographic isolation of the region, even finding professionals such as attorneys and accountants who are knowledgeable about agriculture can be a challenge. A pilot program to test the effectiveness of one-on-one business advising to help NOP farmers scale up their production is a recommendation of this study.

Summary

Working in coordination, a VCC and business advisor could provide major enhancements and expansion on many links in the existing local value-chains. The recommendations provided in this report are place-based responses to challenges facing the region's food system, including isolated communities in need of improved access to local food, limited transportation networks, and small-scale, highly diversified farms that are not necessarily looking to scale-up significantly.

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Opportunities for Values-based Supply Chains on the North Olympic Peninsula: Appendices

Appendix A: Interview and Survey Questions

Appendix B: Survey Responses

Appendix C: Food Coalition Interview Data Themes

Appendix D: Micro-processing Line for Local Produce

Appendix A: Interview and Survey Questions

Peninsula Food Coalition Partners Interview Questions

Section A. Current Operations and Purchases

1. Could you tell us about your organization's mission?
 - a. (Do you have a board of directors?)
2. What food program does your organization coordinate?
3. How are your food programs funded?
4. Do you currently purchase food?
 - a. (If so, where do you purchase it from?)
5. Do you work with a food distributor?
 - a. (How does food get to you?)
 - b. (How often do you receive food?)
 - c. (Do you redistribute any food to other programs?)
6. How interested are you in buying local food?
 - a. (do you already?)
 - b. (where from?)
7. How many total pounds of food do you buy each month?
 - a. (produce & fruit?)
 - b. (dairy?)
 - c. (meat & seafood?)
 - d. (grains?)
8. Roughly what percentages of your current food purchases are designated "local"?
9. Do you have a local percentage goal?
10. Do you have any procurement policies in place?
11. Do you have any state or federal regulations you have to abide by for procurement?
12. What limits your local food purchases?
13. Can you give us data on how much total \$ you spend on local food per year?
 - a. (If don't know, can you give us data on what your budget is for spending?)
14. Do you have a limit on \$ you're able to spend on local food?
 - a. (How much?)
15. What food would you be most interested in buying if a local source was available?
 - a. (Can you estimate number of pounds?)
 - b. (Do you need help finding these products?)

Section B. Interest in Food Recovery Hub

16. How interested would your organization be in operating as a local food aggregator (i.e. "food recovery hub") as a means of streamlining local food procurement and distribution with partners in the Coalition?
 - a. (If answered yes as interested, what is your current capacity to implement this?)
 - b. (What would your organization need to be able to implement?)
17. How interested would you be in buying from a local food aggregator (i.e. "food hub") as

a means of streamlining local purchases?

Section C. Logistics & Infrastructure

18. Are you able and willing to buy produce seconds?
19. Do you want to purchase processed, packaged or value-added produce?
20. What certifications are required for you to purchase local food (e.g. GAP, labor practices, organic, etc.)?
21. How interested would you be in pre-season planning to coordinate with farmers about buying specific crops or other food items?
22. What equipment, warehouse space, and vehicles does your organization currently own?
 - a. (What is the square foot of your warehouse?)
23. Do you have any cold storage?
 - a. (If so, what is the square foot?)
24. Would your organization be interested in renting cold storage space to farmers for a fee?
25. If you had the funds, what equipment and other infrastructure would you like to purchase?

Section D. Social Impacts

26. How many people do you serve per day through your programs?
 - a. (If don't know: How many meals per day do you serve?)
 - b. (How many people at each meal?)
 - c. (How much overlap in customers?)
27. Do any of your food programs directly offer or provide information about WIC, EBT, SNAP or Fresh Bucks?

Section E. Follow Up

28. Is there anything else you would like to share today?
29. Is there anyone else you recommend we contact for an interview?
30. We will send you a summary of your interview response to make sure that we have correctly understood what you have shared with today. How would you like for us to send this to you – by email or mail?
 - a. (If respondent says email: What is your email address?)
 - b. (If respondent says mail: What is your address?)

Food Grower/Producer Online Survey Questions

1. How many years have you operated your farm/food business?
 - a. 0-3 years
 - b. 3-6 years
 - c. 6-10 years
 - d. 10+ years
2. What type of food do you primarily produce?
 - a. Produce

- b. Dairy product
 - c. Livestock for meat
 - d. Poultry for meat
 - e. Eggs
 - f. Value-added
 - g. Other
3. What types of markets do you sell and distribute your food through?
 - a. Direct markets, such as farmers markets, CSAs, farm stands
 - b. Food cooperative
 - c. Grocery store
 - d. Wholesale through a distributor
 - e. Food broker
 - f. Other
 4. Are you interested in accessing food processing equipment?
 5. If so, what are you looking to process?
 6. How many pounds might you process per season?
 - a. 0-50 pounds
 - b. 50-150 pounds
 - c. 150-500 pounds
 - d. 500 pounds +
 - e. Other (use if reporting metric other than pounds)
 7. What equipment would you need to use for processing?
 8. Are you interested in scaling up production?
 - a. If so, what kind of support do you need to achieve this scaling up?
 9. What services might you be interested in if there was a food venture center available?
 - a. business advising
 - b. risk management consultation
 - c. accessing capital through loans and financing
 - d. research and development of value-added products
 - e. rental of cold storage
 - f. rental of processing equipment
 - g. rental of commercial kitchen
 - h. forward contracting services with buyers
 - i. food safety training and certification
 - j. other

Food Buyer Online Survey Questions

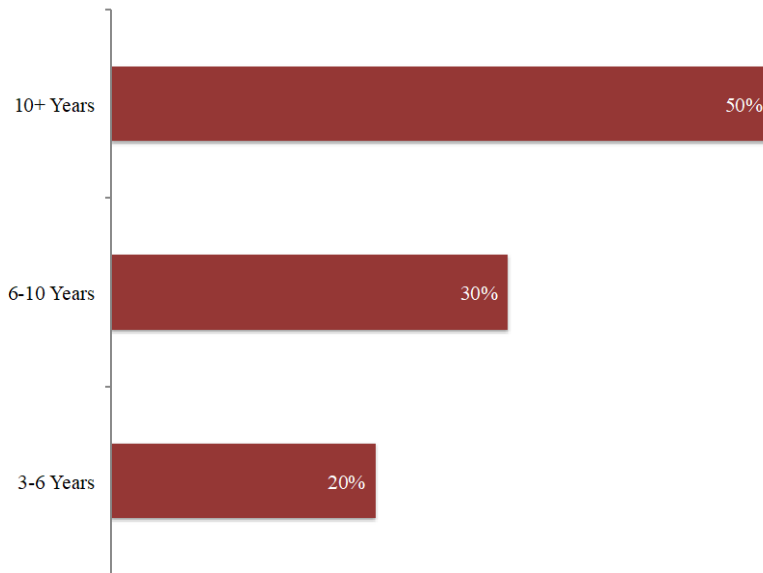
1. On average, how many total pounds of food do you buy each month?
 - a. produce & fruit
 - i. 0-50 pounds
 - ii. 50-100 pounds
 - iii. 100-300 pounds

- iv. 300-500 pounds
 - v. 500+ pounds
 - b. dairy
 - i. 0-50 pounds
 - ii. 50-100 pounds
 - iii. 100-300 pounds
 - iv. 300-500 pounds
 - v. 500+ pounds
 - c. meat & seafood
 - i. 0-50 pounds
 - ii. 50-100 pounds
 - iii. 100-300 pounds
 - iv. 300-500 pounds
 - v. 500+ pounds
 - d. Grains
 - i. 0-50 pounds
 - ii. 50-100 pounds
 - iii. 100-300 pounds
 - iv. 300-500 pounds
 - v. 500+ pounds
 - e. Other
- 2. Do you work with a food distributor?
 - a. If so, which distributor do you work with?
- 3. Do you purchase any locally grown and/or produced food?
 - a. If so, what farm or food producer do you buy from?
- 4. Do you require any certifications by food producers who you purchase from? (multiple choice, choose all that apply)
 - a. Good Agricultural Practices (GAP)
 - b. Hazard analysis and critical control points (HACCP)
 - c. Organic
 - d. Fair labor practices
 - e. Other
- 5. Are there any particular processed or packaged foods that you would be interested in sourcing from local food producers?
- 6. What food would you be most interested in buying if a local source was available?
- 7. What limits your local food purchases?
- 8. Would you be interested in pre-season planning and contracting with farmers and/or food processors to purchase specific crops or other food items?
 - a. If so, what types of food would you be interested in purchasing?
- 9. Would you be interested in purchasing this food through a third-party organization who facilitates farmer contracting as a means of streamlining local purchasing?
- 10. Would you be interested in buying produce seconds? (Produce and/or fruit that might appear blemished but still of high quality)

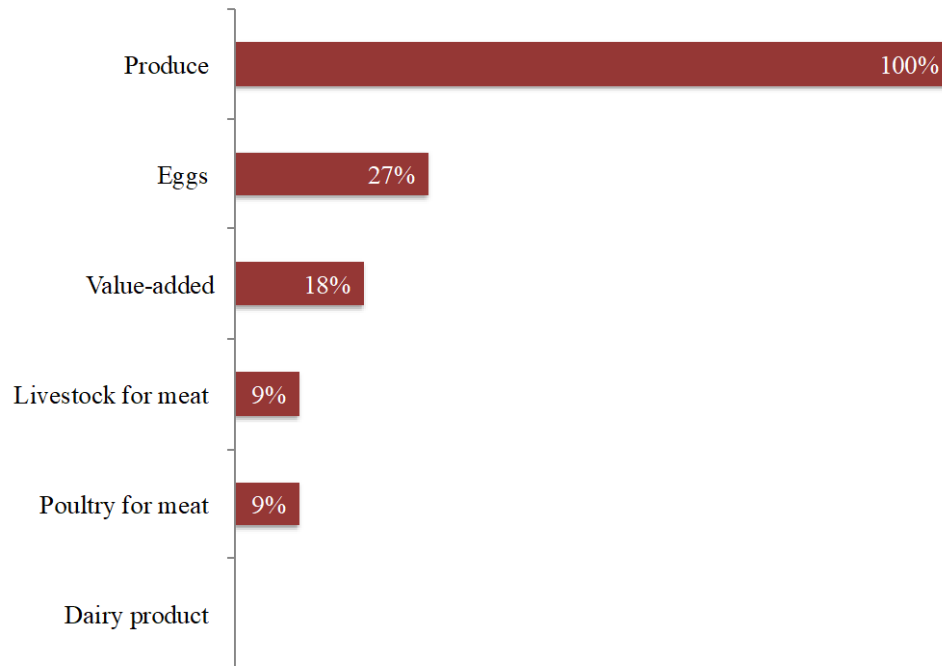
Appendix B: Survey Data

Producer Survey Data

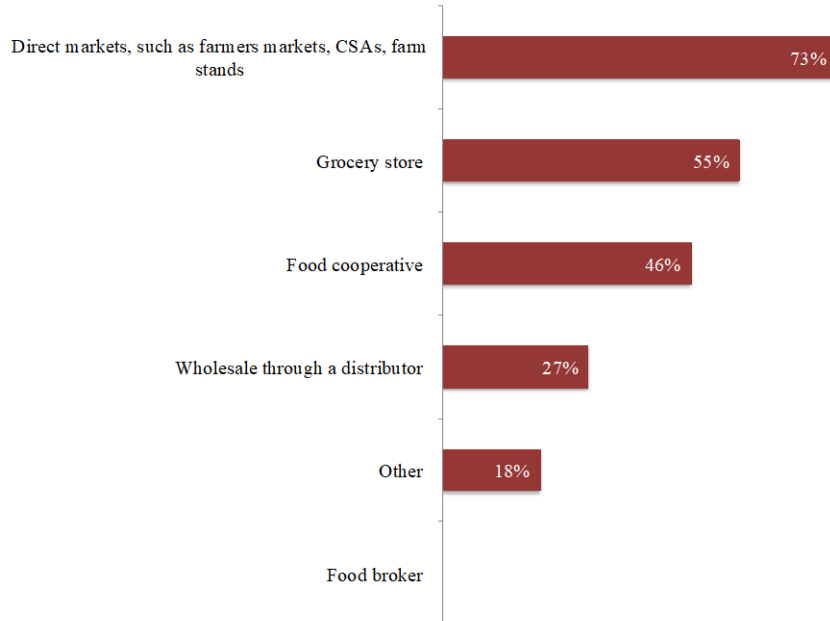
Q1. How many years have you operated your farm business?



Q2. What type of food do you primarily produce? (multiple choice)

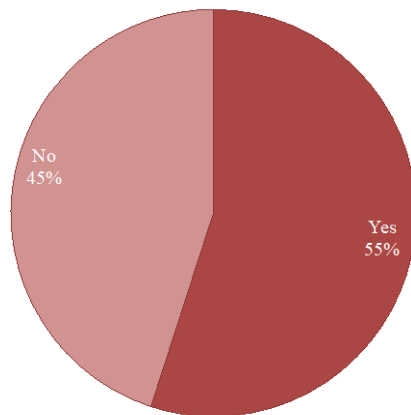


Q3. What types of markets do you sell and distribute your food through? (multiple choice)

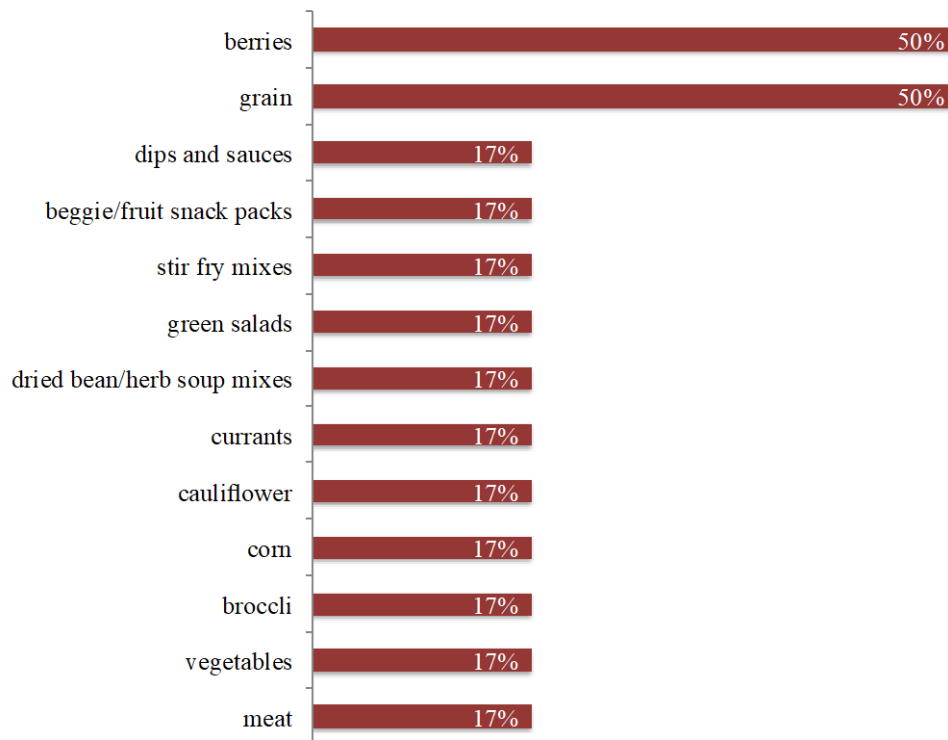


Other - FinnRiver, Nash's Farm Stand, Sequim Food Bank

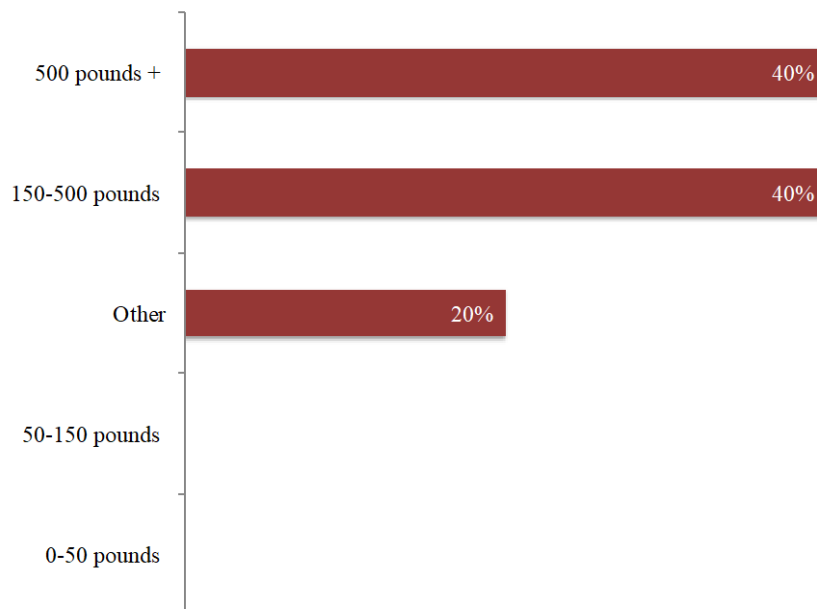
Q4. Are you interested in accessing food processing equipment?



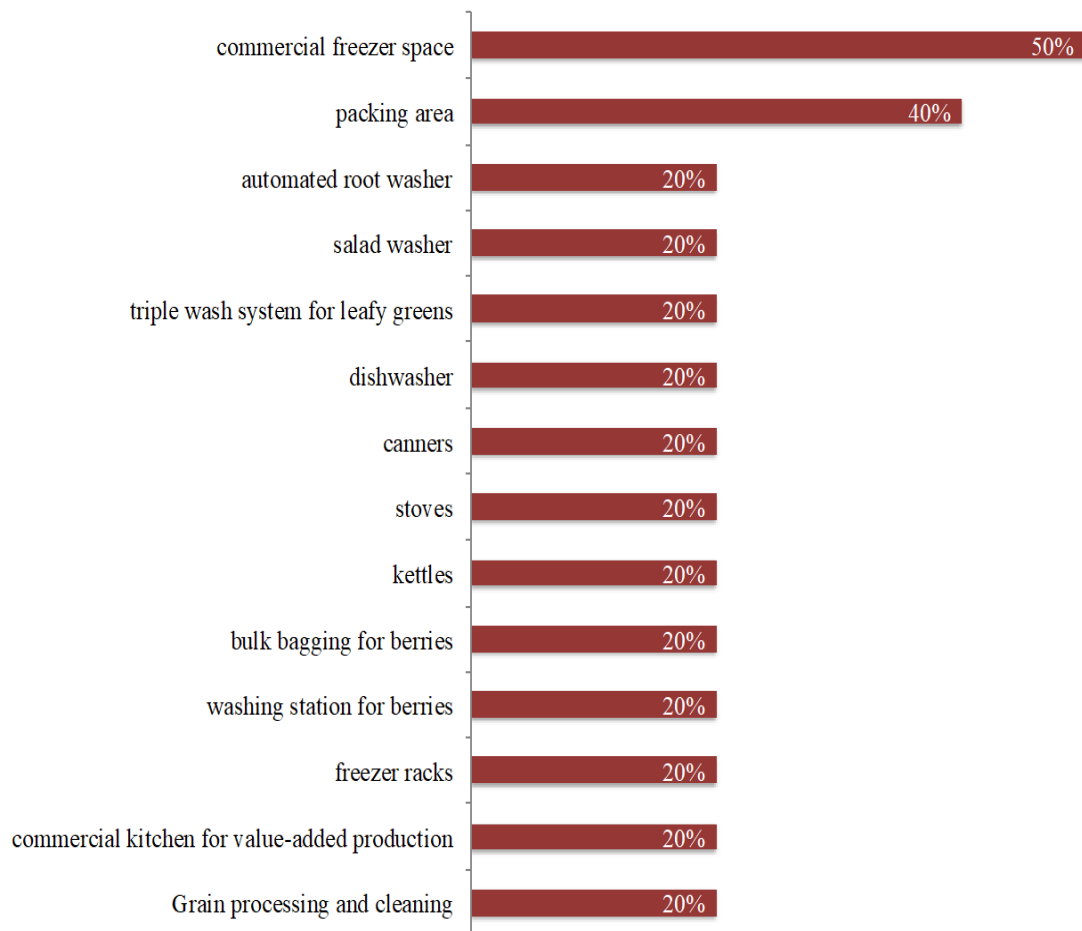
Q5. If so, what are you looking to process? (multiple choice)



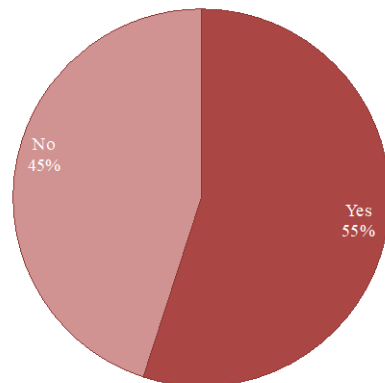
Q7. How many pounds might you process per season? n=5



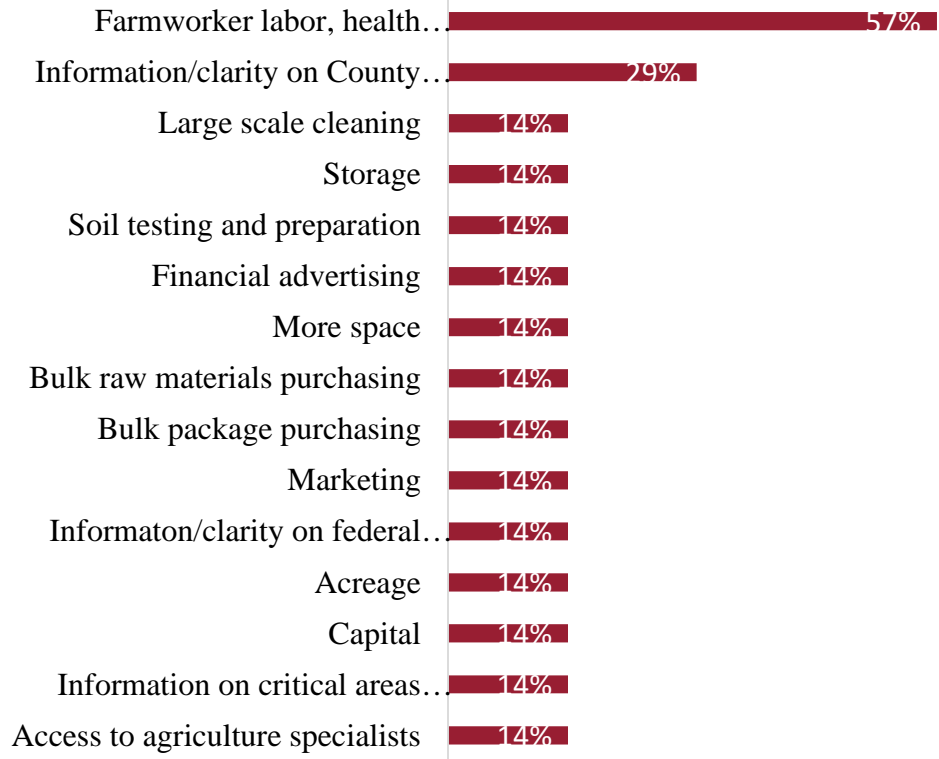
Q7. What equipment would you need to use for processing? (multiple choice)



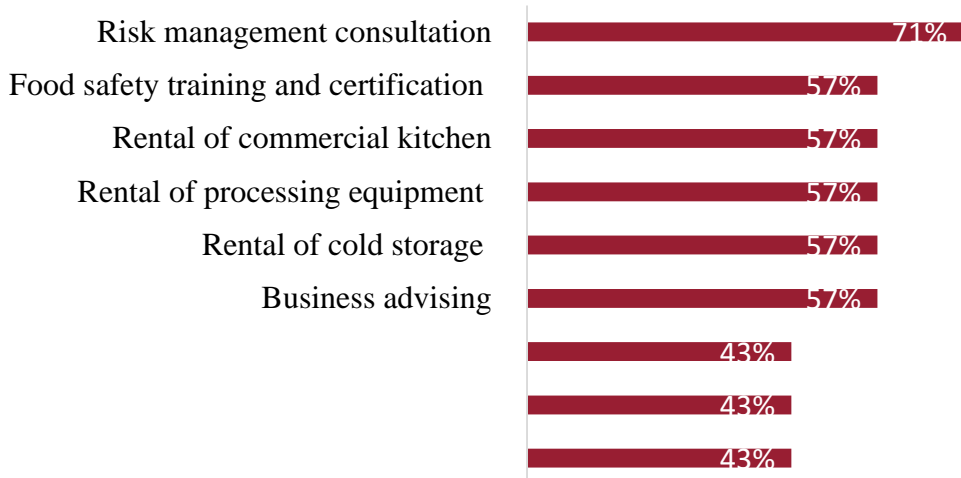
Q8. Are you interested in scaling up production?



**Q9. If so, what kind of support do you need to achieve this scaling up?
(multiple choice)**

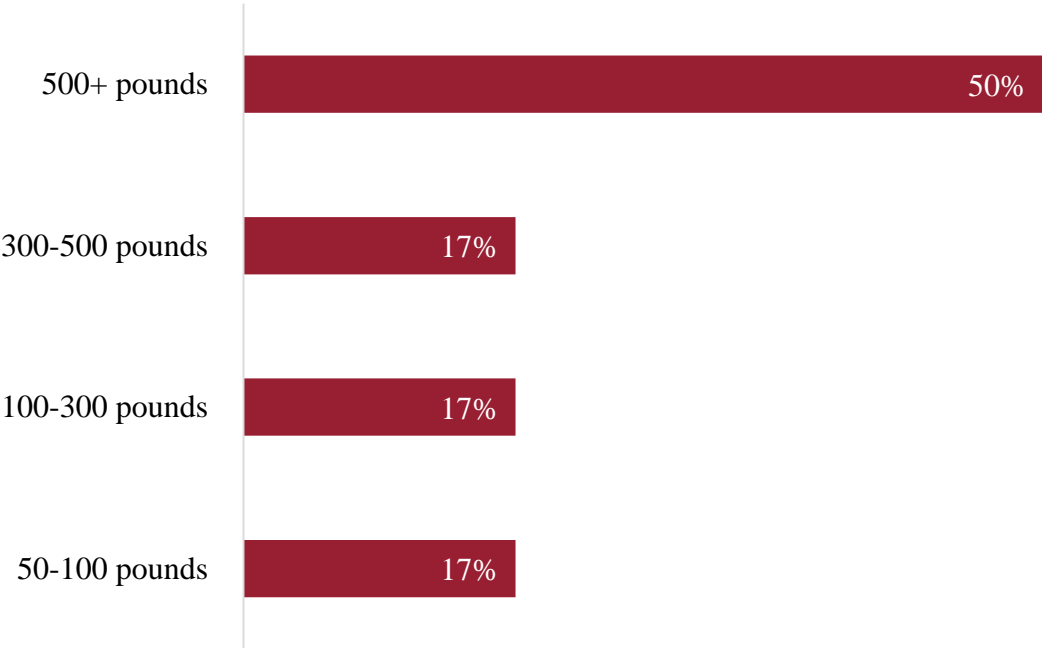


Q10. What services might you be interested in if there was a food venture center available? (multiple choice)

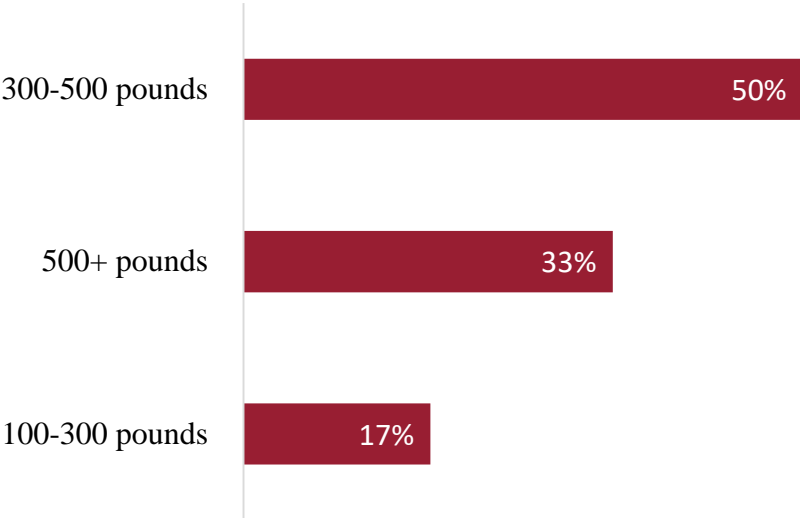


Buyer Survey Data

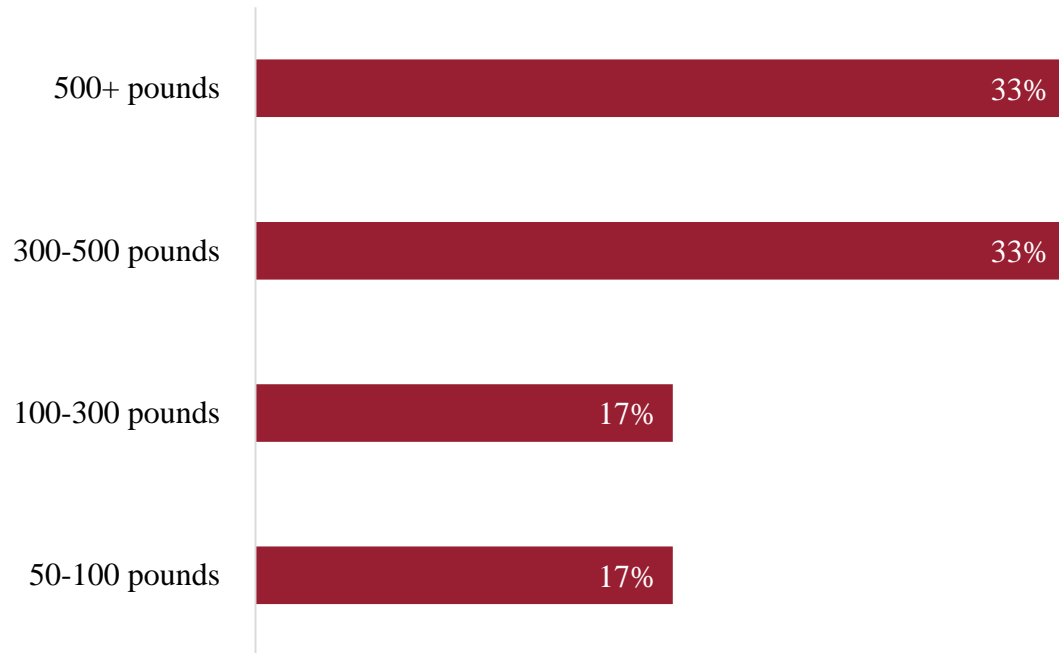
Q1. On average, how many total pounds of produce and fruit do you buy each month?



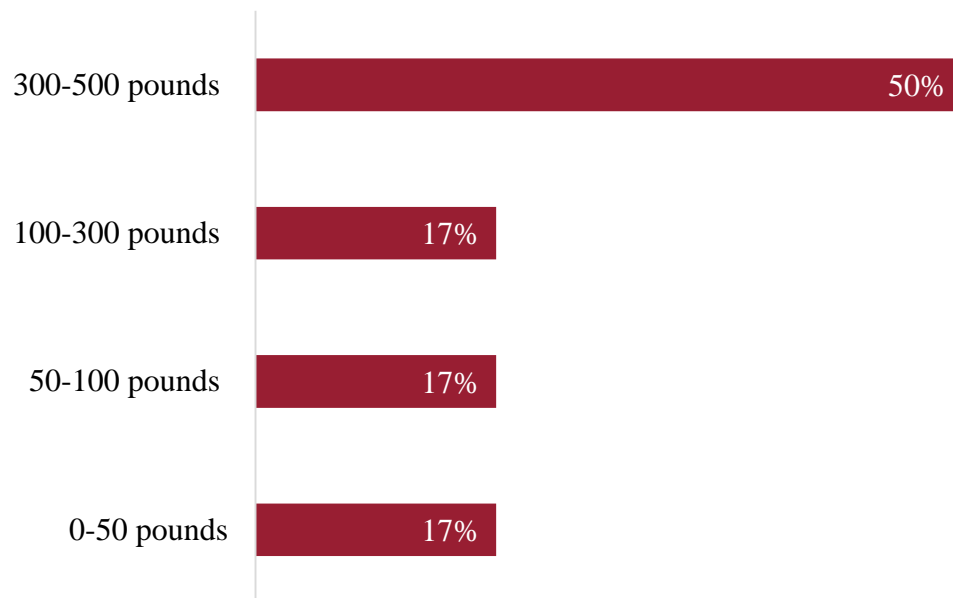
Q2. On average, how many total pounds of dairy products do you buy each month?



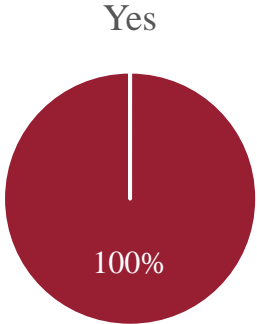
Q3. On average, how many total pounds of meat and/or seafood products do you buy each month?



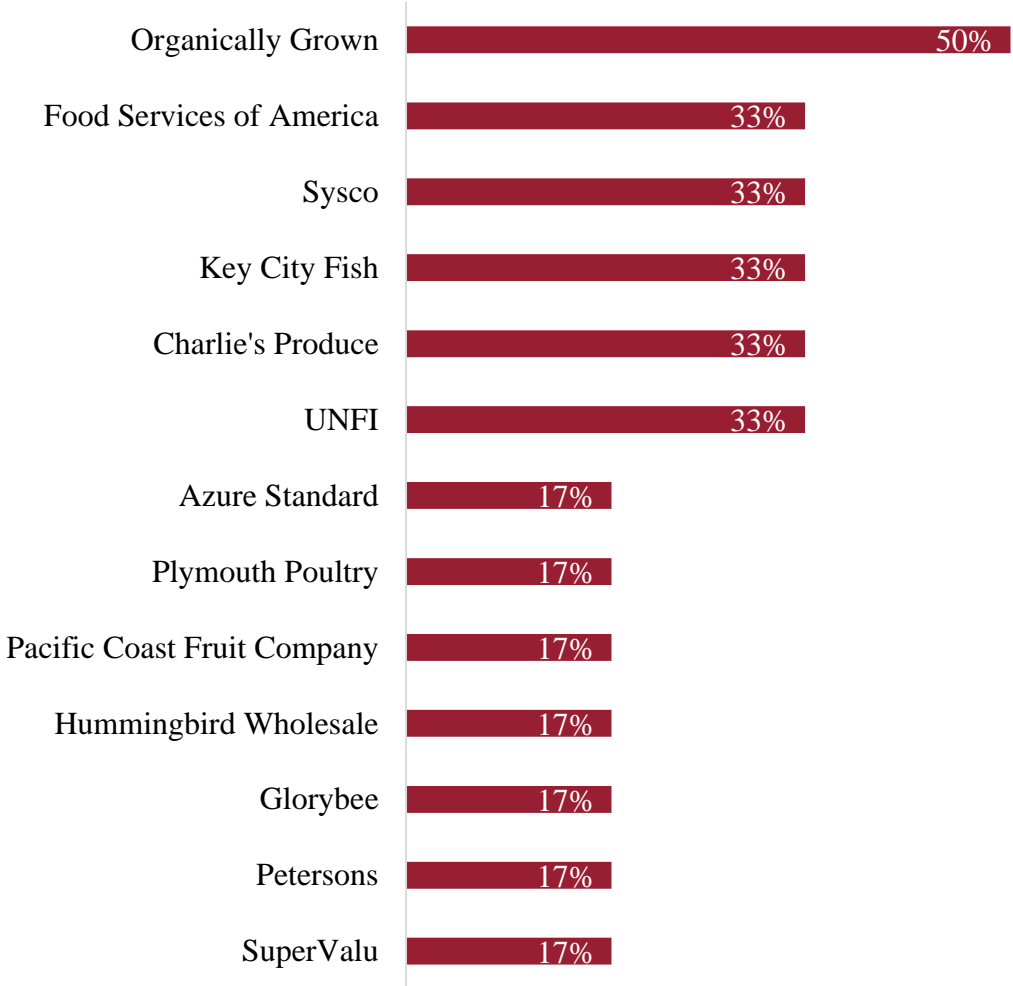
Q4. On average, how many total pounds of grains do you buy each month?



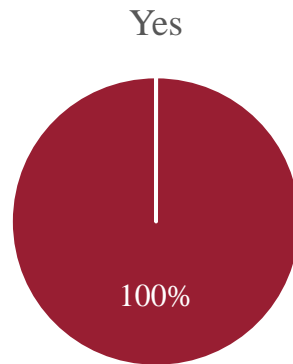
Q5. Do you work with a food distributor?



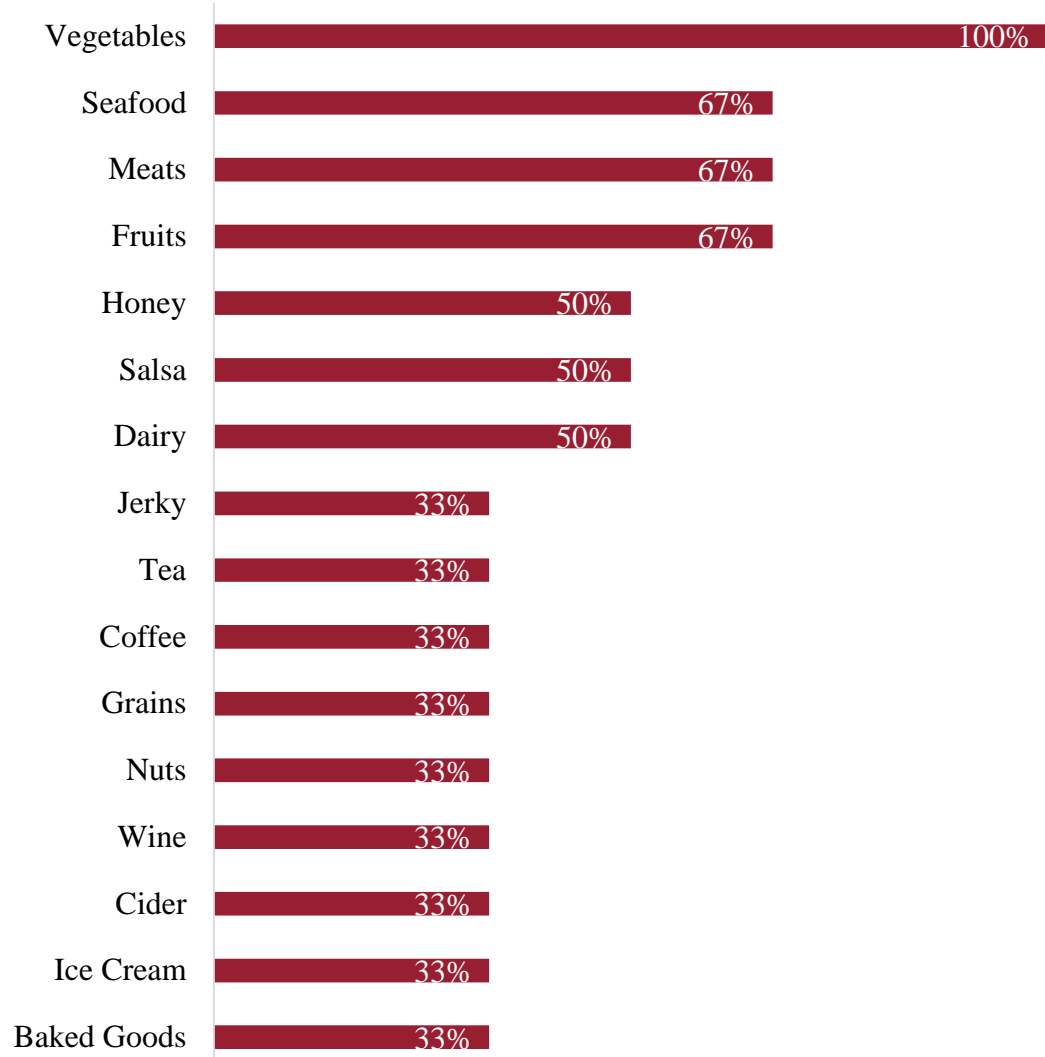
Q6. If so, which distributor do you work with? (multiple choice)



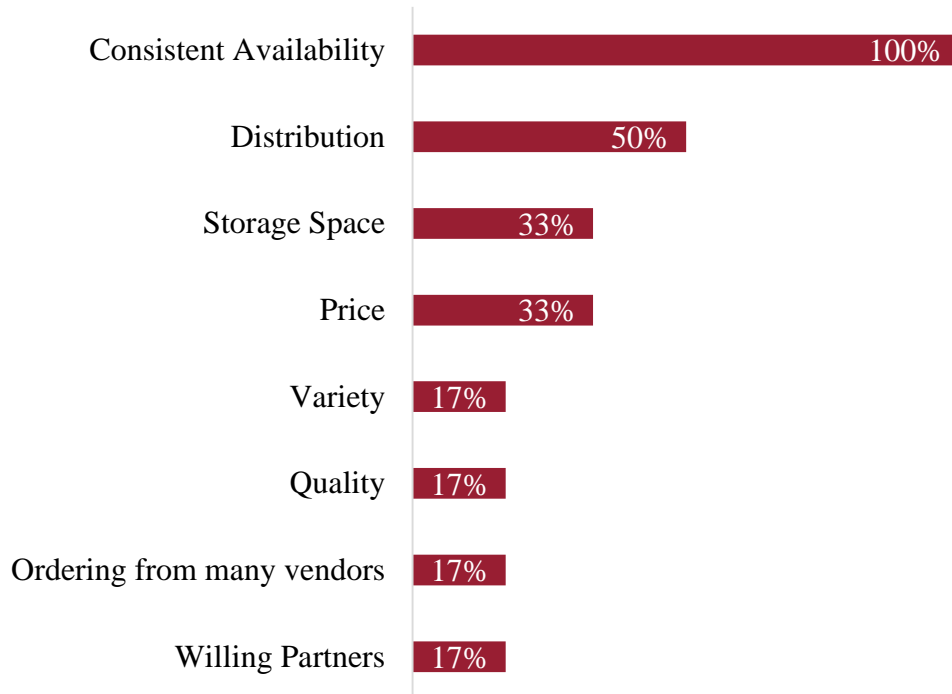
Q7. Do you purchase any locally grown and/or produced food?



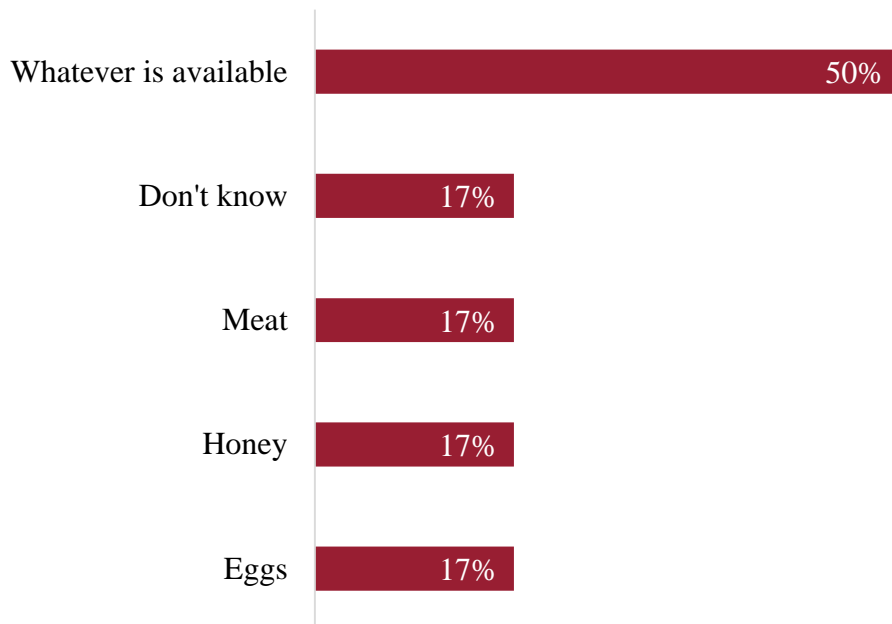
Q8. If so, what local food do you purchase? (multiple choice)



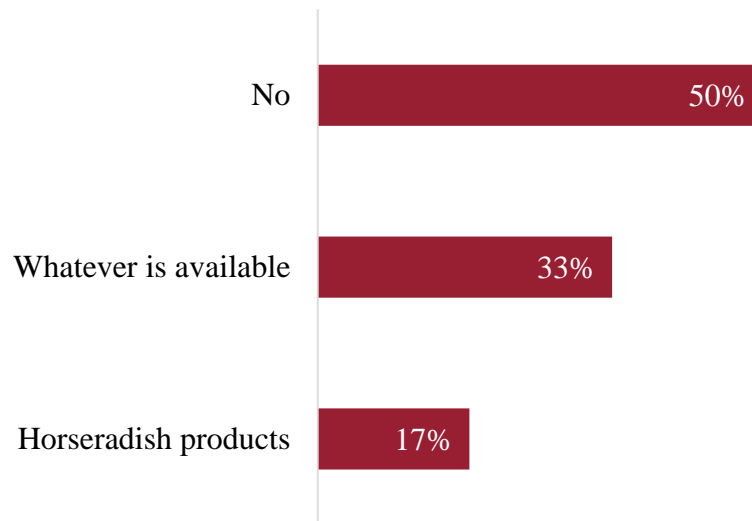
Q9. What limits your local food purchases? (multiple choice)



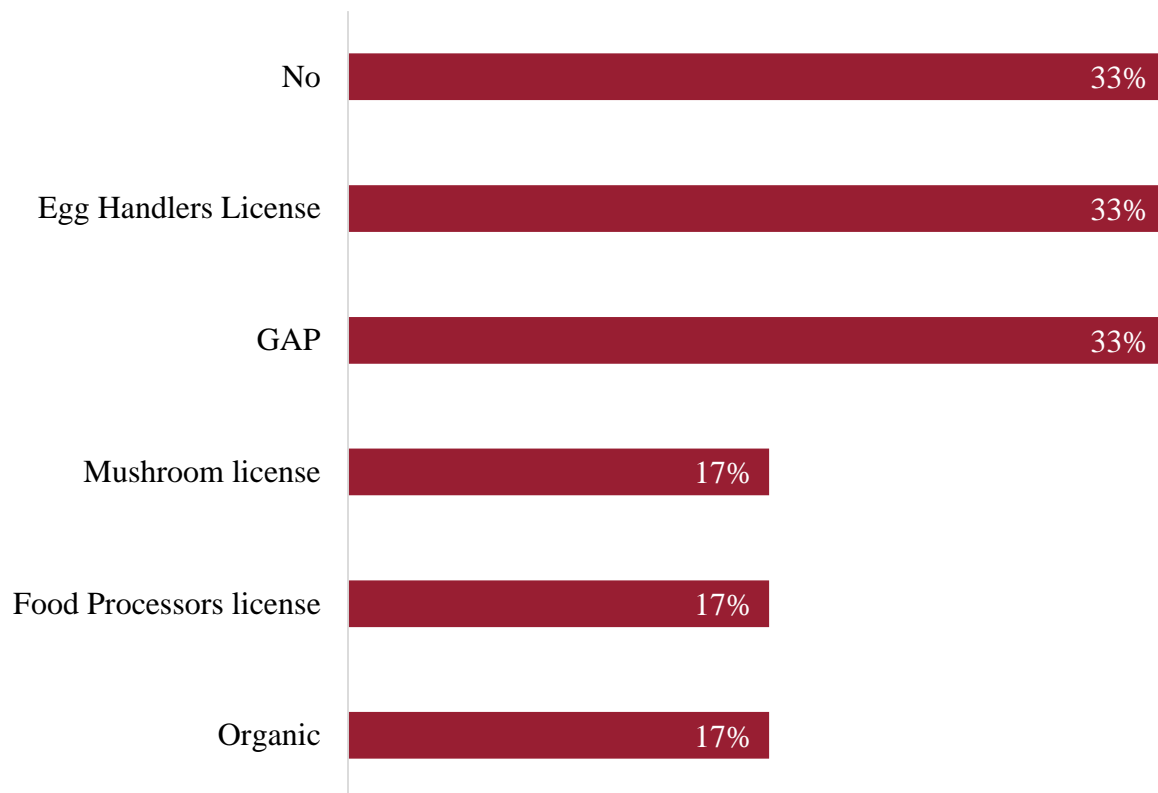
Q10. What food would you be most interested in buying if a local source was available? (multiple choice)



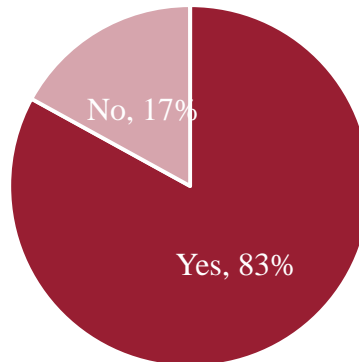
Q11. Are there any particular processed or packaged foods that you would be interested in sourcing from local food producers? (multiple choice)



Q12. Do you require any of the following certifications by food producers who you purchase from? (multiple choice)



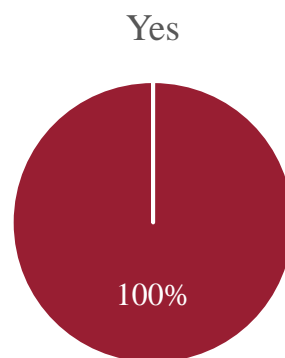
Q13. Would you be interested in pre-season planning with farmers for specific food items?



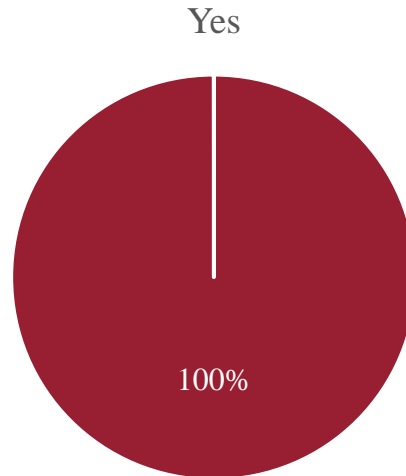
Q14. If so, what types of food would you be interested in purchasing through a pre-season contract? (multiple choice)

- Any product, with a willing partner
- Our produce manager currently meets with all farmers to plan a crop calendar for each year. Our meat manager is meeting with farmers to plan for animals harvested at specific times.
- Carrots, potatoes, onions, kale, spinach
- All fruits & vegetables
- Simple, flavorful, wholesome foods
- Produce for seasonal specials

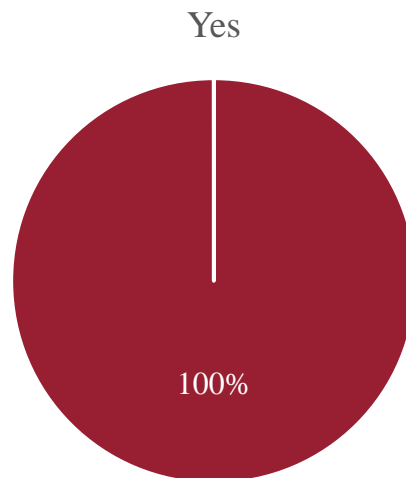
Q15. Would you be interested in contracting with farmers for specific food items?



Q16. Would you be interested in purchasing this food through a third-party organization who brokers farmer contracting as a means of streamlining local purchasing?



Q17. Would you be interested in buying produce seconds? (produce and/or fruit that might appear blemished but still of high quality)



Appendix C: Food Coalition Interview Data Themes

Barriers to Local Food Procurement, Aggregation & Processing

Cost of local food & access to/ability to purchase local food consistently

Access to land for farmers and the best type of land

Not enough storage space for purchased food to meet the demand

Existing Infrastructure in Peninsula Food Coalition

Craft3 focused on lending capital to businesses who can't access traditional capital

NODC able to purchase equipment and infrastructure

Food Banks & OlyCap purchase food and own infrastructure, including;

5 Walk-in refrigerator/coolers

5 Walk in freezers

4 Buildings

3 Dry goods warehouses

3 box trucks

1 passenger/cargo van

Vision, Goals & Opportunities

Craft3 is interested to invest in food-based businesses who are viably operating (aka understand breakeven revenue) & would consider financing a food hub type business.

NODC is interested to purchase minimal processing equipment, along with washing, sorting, and packing equipment beyond what farmers have the capacity to do themselves

OlyCap has a vision to do bulk local food purchasing and processing, and to expand current capacity to run a warehousing program with cold and dry storage for senior nutrition program.

Sequim Food Bank would like to see a facility that has a commercial kitchen for processing and education, and cooking and feeding with a community space for people to gather.

Port Angeles Food bank would like to have a big building, big kitchen, tons of freezer space, cold storage, outside water available, café business and pizza window. Grocery store model where anyone can buy food and food bank clients don't have to.

Appendix D: Micro-processing Line for Mixed Salad Greens

Given the initial scope of the grant, a scenario of a small-scale processing line for mixed salad greens that can be incorporated into an existing commercial kitchen facility was explored. In this case, the Sequim Community Church commercial kitchen was used as an example location (see Enterprise Budget spreadsheets).

Supply and Demand Estimates

An estimate was compiled of start-up and operational costs associated with a basic “micro” operation that could process up to 52,026 pounds per season (May-September) with unskilled labor or up to 78,000 pounds per season (May-September) with skilled labor. In either case, the capacity of this operation would be enough to cover a projected estimate of 51,572 pounds per season (see below).

The justification for looking at a “micro” processing line scenario for mixed salad greens is consistent with what EcoTrust (2016) identifies as a significant category of farming in the Pacific Northwest. With mixed vegetable farming, farmers can include a combination of crops such as leafy greens, brassicas, herbs and others (p.2). Vegetables grown specifically for processing are just as important as vegetables harvested for fresh market. According to EcoTrust, vegetables targeted specifically for processing, as opposed to those grown for the fresh market, are a profitable alternative given the rise in consumer demand for pre-packaged and frozen organic products (p. 4). (EcoTrust, 2016)

According to the USDA Agricultural Census, the number of acres for ‘vegetables harvested for sale’ in 2017 was 199 acres and 41 acres respectively, however, only five acres were harvested for the purpose of processing. (U.S. Census, 2017). While this acreage has the potential to vary widely, it was used as a starting point for determining projected potential yields.

From data provided by a local Clallam County farmer, a one-acre harvest over the course of the season (May – September) yields approximately 10,314 lbs. of mixed salad greens. Considering the five acres reportedly harvested for processing across Clallam and Jefferson counties (per U.S. Census, 2017) and assuming a yield proportionate to local farmer’s data, then a potential mixed salad greens yield for processing of 51,572 pounds per season can be projected.

Assuming a conservative price point of \$4.63 for a one-pound bag of mixed salad greens (USDA Market, 2019) this would generate \$238,778 in revenue (51,572 pounds @ \$4.63 per pound) for processed one-pound bags of mixed salad greens per season (May through September). This price point, however, is conservative compared to what local price points yield. According to price per unit data from data collected, local farmers can currently receive between \$6.50 and \$7 per pound for a minimally processed “field rinsed” mixed salad greens product. In theory, a processing line would need to yield better than \$6.50 to \$7 per pound for local farmers to consider it a value-add above and beyond existing “field rinsing” and bagging practices. According to the data collected,, it is possible to get \$7.25 for bagged and ready to eat mixed salad greens from an institutional buyer. For the sake of the processing line example, the \$7.25 per pound figure was used.

Given the USDA data on harvested acreage for processing and local price point data, a revenue scenario was estimated. Assuming a price point of \$7.25 for a processed one-pound bag of

mixed salad greens and a production level 51,572 pounds of mixed salad greens, this would generate \$373,897 in revenue (51,572 pounds @ \$7.25 per pound) for processed one-pound bags of mixed salad greens per season (May through September).

At a price per unit (one pound of bagged mixed salad greens) of \$6.50 or \$7, it is possible to gross between \$67,041 and \$72,198 for 10,314 pounds (equivalent to yield from one acre) of mixed salad greens per season. The reported variable costs associated with planting and maintaining the crop (seeding flats, transplanting, weed control, and irrigation) for one acre is approximately \$9,135 (435 hours @ \$21/hour) and for processing the crop (prep for harvest, harvest, rinse, spin dry, pack in bulk bags, box and cool, clean-up) for one acre is approximately \$14,448 (688 hours @ \$21/hour). In sum, the variable costs are approximately \$23,583 per acre of mixed salad greens per season.

Projecting that a yield of 51,572 pounds of mixed salad greens from five acres could be produced and processed at a price point of up to \$7.25 per pound, then the revenue yield would be \$373,897 per season. Since variable costs are \$23,583 per acre (from data collected from local farmers), then total variable costs for five acres is \$117,915 (or 32.7% of revenue) per season. Subtracting variable costs from total revenue leaves \$255,982 (or 68.4% of revenue) to cover fixed costs and make a profit.

The survey conducted showed that, of the farmers who expressed interest in processing, there was a total of between 7,300 pounds and 11,300 pounds of goods reported that could be dedicated for processing. Under a much more conservative scenario, taking the low end of this amount and assuming only 7,300 pounds of mixed salad greens for processing, then this would yield a total revenue of \$52,925 per season assuming the price point of \$7.25 per pound.

On the buyer side, survey results demonstrated much more demand than supply. Buyer surveys indicated that of the buyers that responded, cumulatively, they purchase anywhere from 6,000 pounds to 8,150 pounds of produce and/or fruit per month. For a season (again, defined as five months May - September) this is 30,000 pounds to 40,750 pounds of buying capacity. This demonstrates that there is easily enough buyer demand to meet the conservative estimate of surveyed farmers' 7,300 pounds of supply. Under a more aggressive scenario of 51,572 pounds (projected from five acres of production), the buyers for our survey would be able to purchase anywhere from 58% to 79% of that level of supply.

Enterprise Budget Calculations

Enterprise budgets were created for a micro-processing line for ready-to-eat mixed baby greens. These enterprise budget spreadsheets are customizable to fit specific needs of farmers and/or producers. They can be downloaded as .xlsx files at <https://extension.wsu.edu/regionalsmallfarms/>. Examples of the spreadsheets outlining two potential scenarios have been included in this report. These customizable budget sheets represent real startup costs in a useful way for entrepreneurs or potential non-profit partners to explore the costs of the project and allow for the testing of many different parameters.

In the example enterprise budget projections that were created using the Sequim Community Church commercial kitchen as a location, the total startup costs included \$16,699 for equipment (see Processing Equipment list) and \$35,000 for a used truck with refrigeration for a total of

\$51,699. These projected start-up costs (estimates provided by Charlie's Machine and Supply, Inc.) includes mostly new equipment with the exception of a few items.

Two different scenarios were created; one with skilled hourly labor and one with unskilled hourly labor. The unskilled labor scenario is the more conservative scenario and reflects the example used for this narrative. (Note: all of the underlying assumptions for both scenarios are in the 'Throughput' section of the spreadsheets. According to the budgets created, an operation processing around 52,000 pounds of mixed salad greens would yield a profit of \$99,347 per season utilizing unskilled labor for the processing system. However, the \$99,347 in profit does not include the cost of an operations manager or a value chain coordinator to oversee the operation (a crucial aspect of the operation) which would be valued at around \$60,000. This would then change the net profit to \$39,347. In addition, this scenario assumes that the markets and delivery networks to serve the markets are entirely in place when, realistically, they would have to be built over time.

The profit and loss model assumes a sale price point of \$7.25 per pound to buyers. Total revenue from processing around 52,000 pounds equals \$382,991 and associated costs are \$351,200. The costs break down as follows:

- \$43,580 for growing and harvesting the unprocessed greens,
- \$283,644 for processing with unskilled labor (which includes four staff at a fair labor rate of \$26.46 per hour working the triple wash system, and also includes cost of renting the Sequim facility),
- \$24,036 for delivering the processed product.

The estimated costs associated with growing and harvesting the product are in the Grow & Harvest Enterprise Budget section. The triple wash processing systems costs are in the 'Triple Wash Enterprise Budget' section. The delivery costs are in the 'Sales & Delivery Costs' section.

In the processing line example, a physical layout of the space with the equipment placed in the proper locations for an operational system. This map is in the Salad Processing Line Set-up section. In order to cover the costs of start-up, the individual(s) or organization(s) taking ownership would need to either secure financing through a CDFI such as Craft3, self-fund, or find a grant to cover the cost.

For this micro-processing model to be most effective, it is suggested that a community partner non-profit take the lead in finding funding to cover start-up costs and an initial operating cushion for a manager or value chain coordinator to oversee the project launch.

Enterprise Budget Summary: Production (Growing), Processing, and Sales/Deliver

Product: Mixed Baby Salad Greens

Processing Volume (unskilled):	52,026	Lbs
Processing Volume (skilled):	78,000	Lbs

Wks/Season:	22
Shifts/Week:	3
Hrs per Shift:	8

	Per Season	Per Week	Per Shift	Per Lb
Gross Revenue (unskilled):	\$ 382,991	\$ -	\$ 5,803	\$ 7.25
Gross Revenue (skilled):	\$ 574,200	\$ 17,409	\$ 8,700	\$ 7.25

	Per Season	Per Week	Per Shift	Per Lb	Lbs Per Man Hour
Cost to Grow and Haul:	\$ 43,520	\$ 6,598	\$ 2,233	\$ 2.79	
Cost to Process (unskilled):	\$ 283,644	\$ 12,893	\$ 4,298	\$ 5.37	421.7
Cost to Process (skilled):	\$ 297,658	\$ 13,530	\$ 4,510	\$ 2.79	632.3
Cost to Deliver:	\$ 24,036	\$ 1,093	\$ 364	\$ 0.45	85.2
Total Cost (unskilled):	\$ 351,200	\$ 20,583	\$ 6,895	\$ 8.61	
Total Cost (skilled):	\$ 365,214	\$ 21,220	\$ 7,107	\$ 6.03	

Net Profit/Loss (unskilled):	\$ 99,347	\$ 4,516	\$ 1,505	\$ 1.88
Net Profit/Loss (skilled):	\$ 276,542	\$ 12,570	\$ 4,190	\$ 3.49

Startup Costs (Capital Purchases)

Processing Equipment:	\$ 16,929
Delivery Vehicle (refrigerated):	\$ 35,000
Total:	\$ 51,929

Processing Equipment required for a Micro-Processing line for Read-To-Eat Mixed Baby Greens

Note: All costs are for new equipment. Used equipment would typically be available for most items at a much lower cost.

Total as Selected

\$ 16,929

Task	Equipment	Necessary to Purchase	Cost	Shipping	Total w/Shipping	Electric Req.	Water Req.	Weight	Floor Print
Initial clean (mud and heavy soil)	1 Staff Person	Yes							
	50 gallon dunk tank	No	\$ 4,000.00	\$ 100.00	\$ -		Floor Drain	75 Lbs	
	70 Gallon Rubbermaid Tub	Yes	\$90	\$ -	\$ 90.00				
	Spray nozzel setup	Yes	\$ 100.00		\$ 100.00		2-5 gal/min		
	20 gallon perforated tubs	Yes	\$ 50.00		\$ 50.00				
Wash, Rinse, Sanitize	1 Staff Person	Yes							
	3-bay sink large enough for full sheet pan	No	\$ 3,500.00	\$ 100.00	\$ -		Floor Drain		
	Spray nozzel faucet set	No	\$ 300.00		\$ -		2-5 gal/min		
	3 count 20 gallon perforated tubs	No	\$ 150.00		\$ -				
	Test Strips	No			\$ -				
	Approved sanitization substance	No			\$ -				
Spin Dry	1/3 Staff Person	Yes							
	20 Gallon Industrial drier	Yes	\$ 7,900.00	\$ 500.00	\$ 8,400.00	240 V 1Ph	Floor Drain	330 Lbs	38" x 27"
	20 Gallon perferated tub	No	\$ 50.00		\$ -				
Sanitize 20 Gallon Tubs	50 gallon dunk tank	No	\$ 4,000.00	\$ 100.00	\$ -		Floor Drain		
	70 Gallon Rubbermaid Tub	Yes	\$90	\$ -	\$ 90.00		Fill hose		
	Test Strips	No			\$ -				
	Approved sanitization substance	No			\$ -				
	Food Grade Garden Hose (3)	Yes	\$ 80.00	\$ 20.00	\$ 100.00				
	Squeeze-type spray nozzel	Yes	\$ 30.00	\$ 10.00	\$ 40.00				
Sort and Bag	1 Staff Person	Yes							
	1- person sorting Table	Yes	\$ 4,850.00	\$ 300.00	\$ 5,150.00	115V 1Ph		120 Lbs	36" x 48"
	Thermal Bag Sealer	Yes	\$ 333.00	\$ 26.00	\$ 359.00	115V 1Ph		50 Lbs	
	Label printer	Yes	\$ 2,000.00		\$ 2,000.00	115V 1Ph			
Box and paletize	2/3 Staff Person	Yes							
	Boxes	No			\$ -				40" x 48"
	Walking Cooler	No	\$ 9,100.00	\$ 500.00	\$ -	115V			
	Pallets	No			\$ -				7' 9" x 11' 9"
	Pallet Jack	Yes	\$ 465.00	\$ 85.00	\$ 550.00			181 Lbs	
		No			\$ -				



50 Gallon Dunk Tank



70 Gallon Rubbermaid stock tank



Food Grade Garden Hose



Kitchen Spray



20 Gallon Rubbermaid Perforated

20-Gallon Industrial (centrifugal) Salad Dryer from Charlies



Single-Person Bagging Table from Charlies Machine



18" Foot-Operated Impulse Sealer from



Pallet Jack from Uline



Walk-in Cooler with onboard compressor

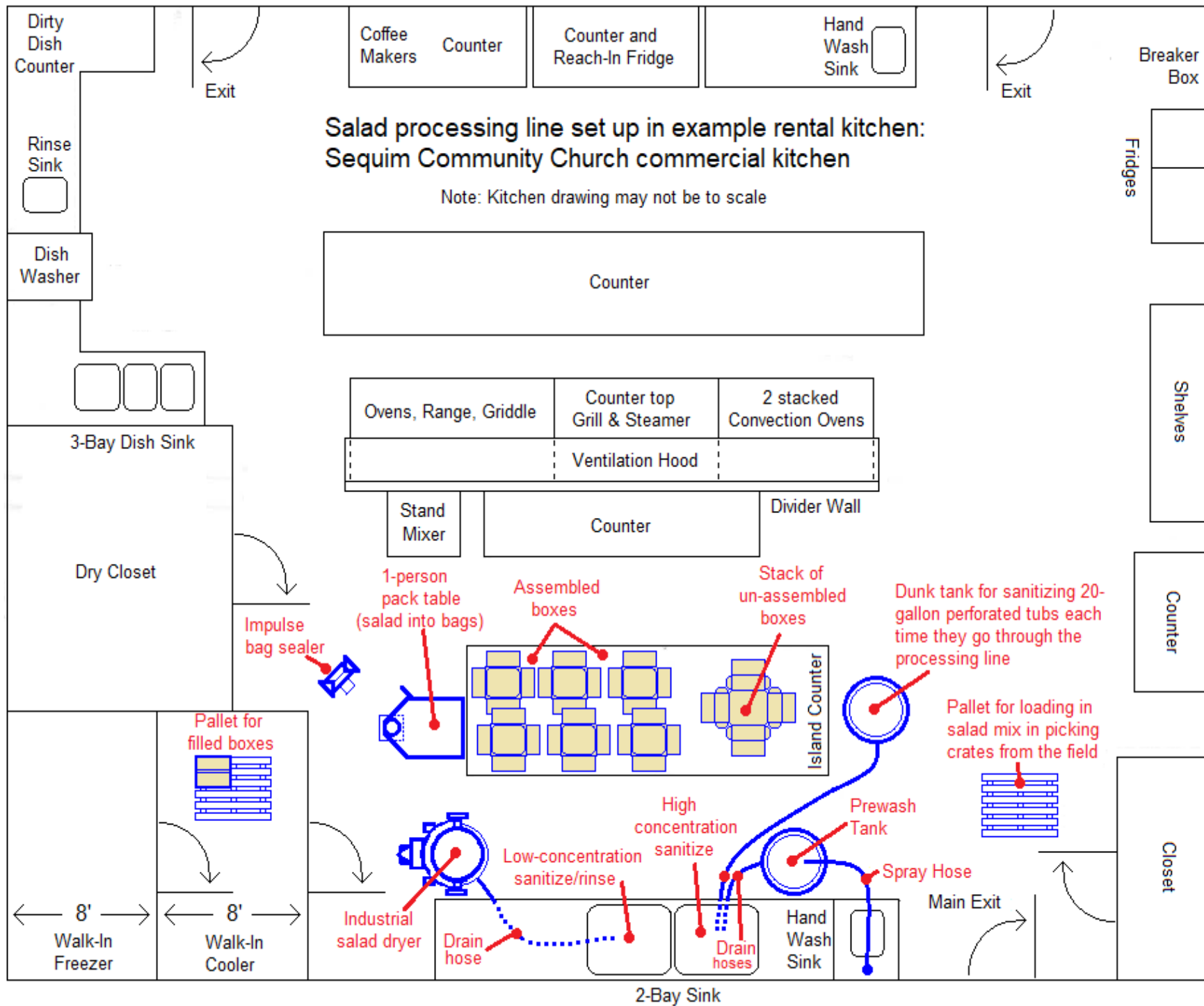


Not to Scale

3-Bay commercial sink with typical wand-type faucet set.

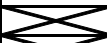

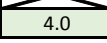


Note: Walk-in may vary from product shown



Throughput Calculations - Mixed Baby Salad Greens

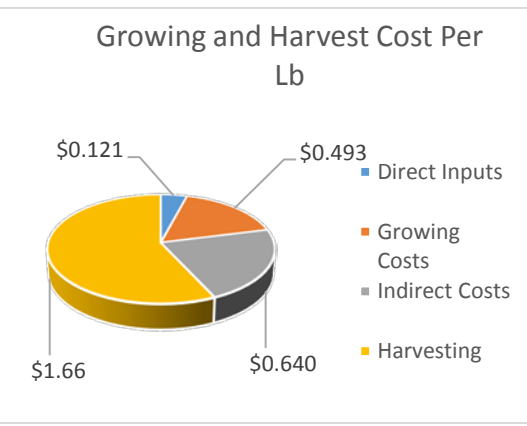
Throughput		
Target:	52,000	Lbs
Season:	5.0	Months (May - September)
Ttl Seas. Hrs	4.333	Weeks per month
242	22.0	Weeks/Season (rounded up)
	3.0	Processing Shifts per week
	1.0	Hours per Shift setup
	6.0	Hours processing per Shift
	1.0	hours sanitation per Shift
	8.0	Total hours per Shift
	18.0	Hours processing per week
	78.0	Hours processing per month
	390.0	Hours processing per season
	4.0	Staff people
	32.0	Staff hours per Shift
	96.0	Staff hours per Week
	100.3	Staff hours per Month
	2,208.0	Staff hours per Season

Total Product Throughput (Lbs)		
Skilled	Unskilled	
200	133	Throughput per Hour
1,200	800	Throughput per Shift
3,600	2,401	Throughput Per Week
15,600	10,405	Throughput per Month
78,000	52,026	Throughput per Season
Pounds per Man Hour		Staff People
37.5	25.0	
	1.0	Lbs per Bag
	6.0	Bags per Box
	50.0	Boxes per Pallet
4.0	2.7	Pallets per Shift

Note: Spreadsheet is protected but without a password

Grow & Harvest Enterprise Budget: Mixed Baby Salad Greens

Cultivated Area (Acres)	1
Bed Size (Sq Ft) cultivated	300
Beds per Acre	87
Number of Beds Used	20
Total Cultivated Area (Sq Ft)	6,000
Growing Season (weeks)	22
Growing Season (months)	5
Yield (Lbs per SqFt)	2.6
Seasonal Yield (Lbs)	15,600
Yield (Lbs per Bed)	780
Farm Labor Pay Cost (per Hr):	\$26.46
Employer Side Taxes & Fees Rate (per Hr):	\$5.46
Farm Labor Pay Rate (per Hr):	\$21.00



	Per Lb	Per Bed	Per Week	Per Month	Per Season
Selling Price (per Lb):	\$ 2.79	\$ 2,176	\$ 1,978	\$ 8,572	\$ 43,520
Cost to Grow, Harvest & Haul (per Lb):	\$ 2.79	\$ 2,176	\$ 1,978	\$ 8,572	\$ 43,520
Profit:	-	\$ -	\$ -	\$ -	\$ -

Production and Harvest Costs		Per Bed	Per Lb
Total Cost:		\$ 3,062	\$ 2.79
Direct Cost to Grow - Totals:		\$ 1,268	\$ 0.49
In-direct Cost to Grow - Totals:		\$ 499	\$ 0.64
Cost to Harvest: Totals:		\$ 1,295	\$ 1.66

Direct Inputs	Per Bed	Per Lb
Seed	\$27.03	\$0.035
Fertilizer	\$67.50	\$0.087
Totals:	\$94.53	\$0.121

Growing Costs	Hrs	PPMH	\$ Per Bed	\$ Per Lb
Total Delineated Labor (Hrs per Bed):	13.91	0.017835		
Prepare Land				
Cultivate	2.2		\$58.21	\$0.075
Apply Amendments	0.75		\$19.85	\$0.025
Prepare Beds				
Form Beds	1.5		\$39.69	\$0.051
Flame Weed	0.2		\$5.29	\$0.007
Plant				
Direct Seeding	0.5		\$13.23	\$0.017
Weeds				
Hand Weeding	7.2		\$190.51	\$0.244
Irrigation				
Manage Irrigation System	0.66		\$17.46	\$0.022
Cost of water/pumping			\$16.40	\$0.021
Pest Management				
Scouting for Pests	0.3		\$7.94	\$0.010
Applying Pest Management Practices	0.6		\$15.88	\$0.020
Total Cost to Grow:			\$384.46	\$0.493

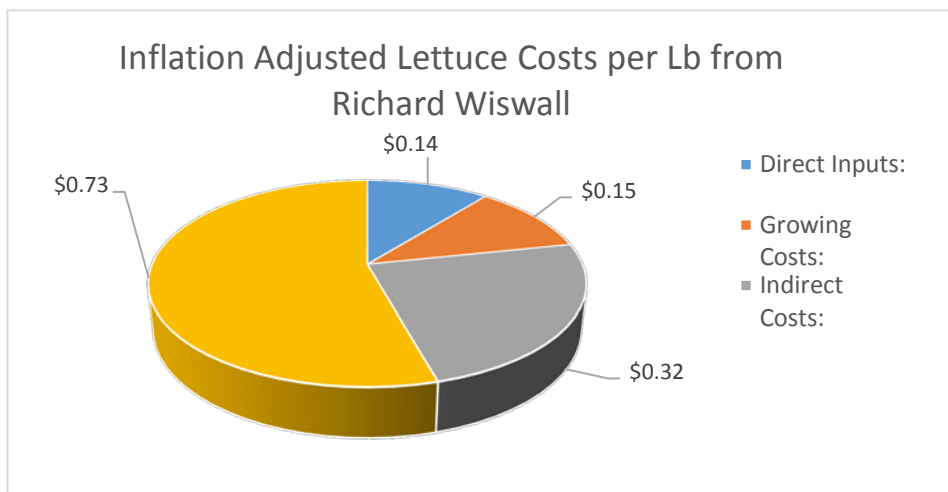
Indirect Costs	\$ Per Bed	\$ Per Lb
Not delineated:	\$499.20	\$0.640

Harvesting	\$ Per Bed	\$ Per Lb
Total cost to Harvest:	\$1,295.00	\$1.66
Harvest Prep:	\$44.66	\$0.06
Harvest:	\$1,071.72	\$1.37
Pack (bulk):	\$89.31	\$0.11
Transport:	\$89.31	\$0.11

Lettuce Production Costs From Richard Wiswall, Organic Farmers Business Handbook			
	Production Cost	Inflated \$	Per 700' Bed
USDA ERS FoodInflation Data	\$1,021.00	\$1,474.78	Heads
	600		Lbs / head
	1.50		
Total Cost Cost per Lb:	\$ 1.13	\$ 1.64	Inflation 2009 - 2019
Sales Price per 700' Bed:	\$1,812.00	\$2,617.33	10 Years
Net Price per 700' Bed:	\$ 791.00	\$1,142.56	4.44% Per year
Net Per Head:	\$ 1.32	\$ 1.90	
Net per Lb:	\$ 0.88	\$ 1.27	

Inflation Adjusted Lettuce Costs per Lb from Richard Wiswall		
Direct Inputs:	\$ 0.14	\$ 0.21
Growing Costs:	\$ 0.15	\$ 0.21
Indirect Costs:	\$ 0.32	\$ 0.46
Harvesting:	\$ 0.73	\$ 1.05
Total:	\$ 1.19	\$ 1.72

Note: Spreadsheet is protected but without a password

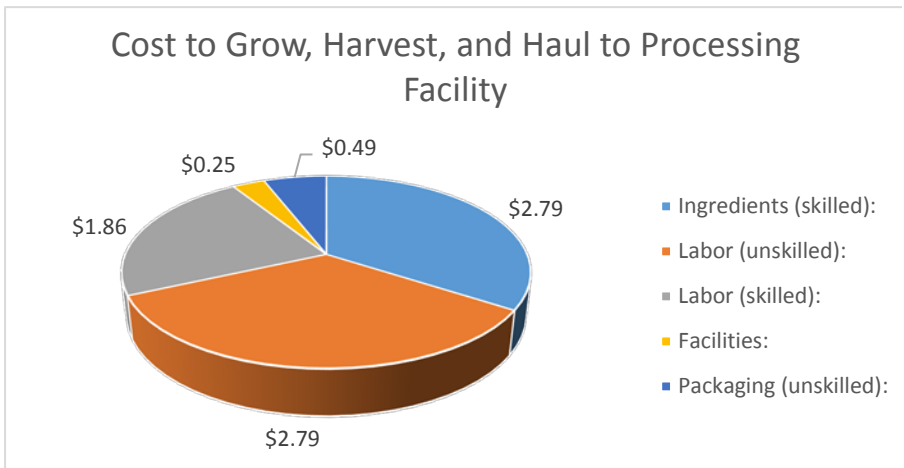


Triple Wash Enterprise Budget: Mixed Baby Salad Greens

Process Data		
Kitchen Rental Rate:	\$25	Per Hr
Overhead Percentage:	0%	Of Rate
Hourly Labor Charge Rate:	\$26.46	Per Hr
Food Safety Staff Charge Rate:	\$26.46	Per Hr
Hourly Labor Pay Rate:	\$26.46	Per Hr
Food Safety Staff Pay Rate:	\$26.46	Per Hr
Ingredient Weight Loss :	0%	
Batch Size:	20	Pkgs
Batches per shift (unskilled):	40	
Batches per shift (skilled):	60	
Shifts Per Week:	3	
Markup Multiplier :	1.92	Muliplier
Market Package Size:	1	Lbs
Market Pkgs per Batch:	20	
Bags per box:	6	
Boxes per Pallet:	50	
Target Production (unskilled):	800	Lbs/ Shift
Target Production(skilled):	1,200	Lbs/ Shift

Analyses				
Per 8-Hr Shift	Per Lb of Product	Per Sales Unit	Per Batch	Per Shift
Farmer Revenue (unskilled):	\$ 2.79	\$ 2.79	\$ 55.80	\$ 2,233
Farmer Revenue (skilled):	\$ 2.79	\$ 2.79	\$ 55.80	\$ 3,348
Processing Revenue (unskilled):	\$ 7.25	\$ 7.25	\$ 145.00	\$ 5,803
Processing Revenue (skilled):	\$ 7.25	\$ 7.25	\$ 145.00	\$ 8,700
Processing Cost (unskilled):	\$ 5.37	\$ 5.37	\$ 107.39	\$ 4,298
Processing Cost (skilled):	\$ 2.79	\$ 2.79	\$ 75.17	\$ 4,510
Ingredients (unskilled):	\$ 2.79	\$ 2.79	\$ 55.80	\$ 3,348
Ingredients (skilled):	\$ 2.79	\$ 2.79	\$ 55.80	\$ 2,233
Labor (unskilled):	\$ 1.86	\$ 1.86	\$ 37.22	\$ 1,489
Labor (skilled):	\$ 0.25	\$ 0.25	\$ 5.00	\$ 200
Facilities:	\$ 0.49	\$ 0.49	\$ 9.70	\$ 388
Packaging (unskilled):	\$ 0.23	\$ 0.23	\$ 4.67	\$ 187
Packaging (skilled):	\$ 0.23	\$ 0.23	\$ 4.67	\$ 280
Product Net (unskilled):	\$ 1.88	\$ 1.88	\$ 37.61	\$ 1,505
Product Net (skilled)	\$ 3.49	\$ 3.49	\$ 69.83	\$ 4,190
Kitchen Revenue:	\$ -	\$ -	\$ -	\$ -
Net Profit (unskilled)	\$ 1.88	\$ 1.88	\$ 37.61	\$ 1,505
Net Profit (skilled)	\$ 4.46	\$ 4.46	\$ 69.83	\$ 4,190

Cost Calcs Per Batch			
			All Costs: \$75.79
Inputs		Costs	
		Rate	
		All Ingredients:	\$55.80
		arm Ingredients:	\$55.80
Salad Greens		\$2.79	\$55.80
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
Other Ingredients/Supplies			\$0.00
Sanitation Supplies		\$25.00	\$0.00
			\$0.00
			\$0.00
			\$0.00
Packaging		Count per Batch	\$9.70
Bags	20	\$0.08	\$1.60
Labels	20	\$0.13	\$2.60
Boxes	3.33	\$1.35	\$4.50
Pallets	0.067	\$15.00	\$1.00



Hours					
Per-Shift Total	8.00				
Hrs/Batch Total:	0.20				
Labor:	% of each Batch	Minutes/Batch	Pay Rate	Charge	Average
Setup	1.81%	0.217	\$0.10	\$0.10	421.7
1st Wash	24.10%	2.890	\$1.27	\$1.27	PPMA
Triple Wash	24.10%	2.890	\$1.27	\$1.27	1,384.1
Dry	16.06%	1.927	\$0.85	\$0.85	421.7
Sanitize Bin	8.03%	0.963	\$0.42	\$0.42	421.7
Bag	16.06%	1.927	\$0.85	\$0.85	421.7
Label	4.02%	0.482	\$0.21	\$0.21	421.7
Box/Pallet	4.02%	0.482	\$0.21	\$0.21	421.7
Sanitation	1.81%	0.217	\$0.10	\$0.10	421.7
Total Man Min:	100%	11.99	5.29	5.29	1,384.1
					Shared by all staff
Facilities:					
Kitchen Time	Hrs/Batch		\$0.00	\$5.00	

Sales & Delivery Costs, Based on Three Delivery Runs Per Week

Total Weekly Costs for Three Delivery Routes:	\$1,092.54	Mileage Cost:	\$ 326.50	Labor Cost:	\$ 745.29	Toll Costs:	\$ 20.75	Total Hrs:	28.17
Cost to Deliver per Lb:	\$ 0.4550							PPMH:	85.25

Delivery Cost Rates		
Total Delivery Labor Rate:	\$ 26.46	Per Hr
Total Delivery Labor Cost:	\$ 21.00	Per Hr
Employer-Side Taxes & Fees	\$ 5.46	\$0.00
Refrigerated Vehicle Cost:	\$ 0.61	Per Mile
Vehicle Purchase Cost	\$ 0.35	\$ Per Mile
Rerifgerated Vehicle Cost:	\$35,000.00	\$
Useful life:	100,000	Miles
Maintenance:	\$ 0.069	\$ Per Mile
Tires:	\$ 0.034	\$ Per Mile
Oil changes	\$ 0.015	\$ Per Mile
Other Repairs:	\$ 0.020	\$ Per Mile
Fuel Cost:	\$ 0.19	\$/Mile
Fuel Price (diesel):	\$ 3.50	\$/Gal
Fuel Usage:	18	Miles/Gal

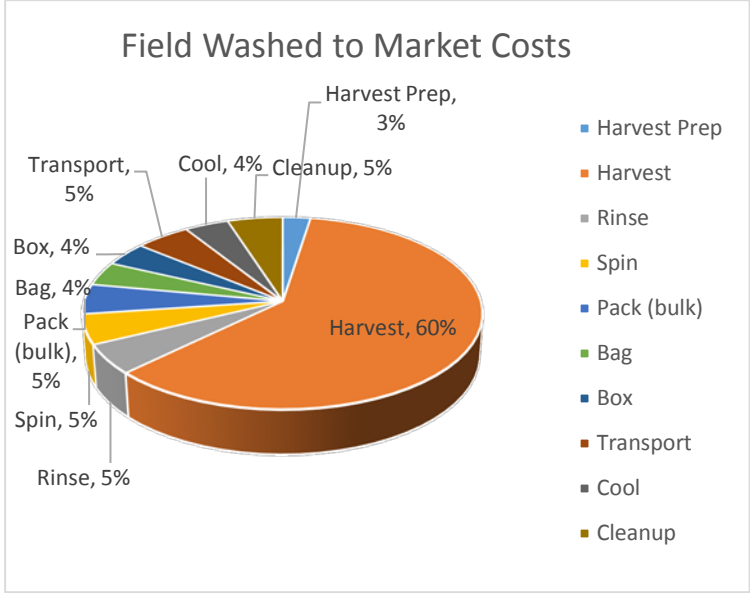
Route 1: Sequim to Port Angeles						Total:	Total	Total
Mileage Cost	\$ 27.00	Labor Cost:	\$ 136.71			\$ -	44	5:10
Trip Time					Parking	Per Leg		
	Arrive	Dwell	Buffer	Leave	& Tolls	Miles	Time	
Farm	7:00 AM	0:05	0:05	7:10 AM	\$ -	0	0:10	
Kitchen	7:45 AM	0:20	0:05	8:10 AM	\$ -	4	1:00	
Retail Site 1	8:35 AM	0:10	0:05	8:50 AM	\$ -	10	0:40	
Retail Site 2	9:05 AM	0:10	0:05	9:20 AM	\$ -	1	0:30	
Retail Site 3	9:30 AM	0:10	0:05	9:45 AM	\$ -	3	0:25	
Retail Site 4	10:05 AM	0:10	0:05	10:20 AM	\$ -	4	0:35	
Retail Site 5	10:30 AM	0:10	0:05	10:45 AM	\$ -	1	0:25	
Kitchen	11:15 AM	0:10	0:05	11:30 AM	\$ -	17	0:45	
Farm	11:55 AM	0:10	0:05	12:10 PM	\$ -	4	0:40	

Route 2: Sequim to Tacoma and Viscinity						Total:	Total	Total
Mileage Cost	\$ 161.41	Labor Cost:	\$ 304.29			\$ 5.00	263	11:30
Trip Time					Parking	Per Leg		
	Arrive	Dwell	Buffer	Leave	& Tolls	Miles	Time	
Farm	7:00 AM	0:05	0:05	7:10 AM	\$ -	0	0:10	
Kitchen	7:45 AM	0:20	0:05	8:10 AM	\$ -	4	1:00	
Retail Site 1	9:50 AM	0:10	0:05	10:05 AM	\$ -	56	1:55	
Retail Site 2	10:30 AM	0:10	0:05	10:45 AM	\$ -	10	0:40	
Retail Site 3	11:40 AM	0:10	0:05	11:55 AM	\$ 5.00	54	1:10	
Retail Site 4	12:20 PM	0:10	0:05	12:35 PM	\$ -	14	0:40	
Retail Site 5	1:00 PM	0:10	0:05	1:15 PM	\$ -	18	0:40	
Kitchen	2:45 PM	0:10	0:05	5:45 PM	\$ -	103	4:30	
Farm	6:15 PM	0:10	0:05	6:30 PM	\$ -	4	0:45	

Route 3: Sequim to Seattle and Viscinity						Total:	Total	Total
Mileage Cost	\$ 138.09	Labor Cost:	\$ 304.29			\$ 15.75	225	11:30
Trip Time					Parking	Per Leg		
	Arrive	Dwell	Buffer	Leave	& Tolls	Miles	Time	
Farm	7:00 AM	0:05	0:05	7:10 AM	\$ -	0	0:10	
Kitchen	7:45 AM	0:20	0:05	8:10 AM	\$ -	4	1:00	
Retail Site 1	10:30 AM	0:10	0:05	10:45 AM	\$ -	120	2:35	
Retail Site 2	11:10 AM	0:10	0:05	11:25 AM	\$ -	9	0:40	
Retail Site 3	11:50 AM	0:10	0:05	12:05 PM	\$ -	6	0:40	
Retail Site 4	12:25 PM	0:10	0:05	12:40 PM	\$ -	6	0:35	
Retail Site 5	1:00 PM	0:10	0:05	1:15 PM	\$ -	8	0:35	
Kitchen	2:45 PM	0:10	0:05	5:45 PM	\$ 15.75	68	4:30	
Farm	6:15 PM	0:10	0:05	6:30 PM	\$ -	4	0:45	

Note: Spreadsheet is protected but without a password

Data from Farmer Interviews



Total:	100%	\$1.66		
Multiplier:	1.38	\$	Field Washed to Market Costs	
3%	3%	\$0.06	Harvest Prep	3%
60%	83%	\$1.37	Harvest	60%
0%	0%		Rinse	5%
0%	0%		Spin	5%
5%	7%	\$0.11	Pack (bulk)	5%
0%	0%		Bag	4%
0%	0%		Box	4%
5%	7%	\$0.11	Transport	5%
0%	0%		Cool	4%
0%	0%		Cleanup	5%
				Field Washed
			Total:	100%
				\$ 2.29

Of Harvest and Field Wash grwoing expense \$ 1.13

Calculations for Harvest through Transportation

