

BLUEBERRY EAST FOOD VENTURES

Prepared for

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With Funding from

Broad Reach Fund, a component
fund of the Maine Community
Foundation

The Stephen and Tabitha King
Foundation

Partridge Foundation

Pre-Feasibility Report for a Value-Added Wild Blueberry Processing Enterprise in Eastern Maine

December 2012



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Executive Summary

Background

Blueberry East Food Ventures (BEFV) is a group of conventional and organic wild blueberry growers and organizations in eastern Maine interested in adding value to the local wild blueberry harvest by manufacturing blueberry juice, blueberry puree, blueberry pulp and/or blueberry concentrate. Toward that end, BEFV is interested in evaluating the feasibility of establishing a fruit processing facility for conventional and organic wild blueberries in Washington County, Maine to allow for better financial returns to growers and increased employment and income opportunities for residents of eastern Maine. BEFV has identified 13 tasks in three project phases for this work. This first phase of the study is focused on analyzing the supply and demand as well as current processing capacity to determine whether to move forward with the remaining part of the feasibility study. The subsequent phase of the feasibility study will investigate processing capacity and needs for space and equipment, ownership and management structures, and staffing. Assuming the feasibility study leads to a decision to move forward, an entrepreneur would need to be engaged prior to developing a business plan.

Maine's acres of wild blueberries grow naturally and are adapted to Maine's naturally acidic soils and severe winter weather. Wild blueberries are a low input crop requiring minimal management. They are harvested on a two-year cycle – each year half of a grower's land is managed for harvest the following year, and the other half is harvested in late summer. Grade A berries refer to high quality wild blueberries that are typically sold unprocessed in fresh or frozen form. Grade B berries refer to lower quality berries that are typically used for further processing into juice, concentrate, pulp, or puree. The products explored in this report are all products that would be made using B berries. The total supply of all types of berries, both A and B, is considered in order to make assumptions about the number of B berries potentially available for a venture.

In 2007, direct and indirect economic impact of the wild blueberry industry in Maine totaled \$250 million, a major contribution to Maine's economy.¹ Wild blueberry production in Maine is dominated by two large companies, Wyman's and Cherryfield Foods, Inc.; many of the small to medium-sized blueberry growers in Maine are paid less for their berries than in other parts of the country. There are 208 conventional, independent, small (with 0.1 to 100 acres of wild blueberry land) wild blueberry farms in Washington County with a total of 2,729 acres in production (average

¹ Cooperative Extension: Maine's Wild Blueberries. <http://umaine.edu/blueberries/>

size is 13.2 acres).² In comparison, Cherryfield Foods owns and manages over 24,000 acres of wild blueberry land in Maine and the Canadian Maritimes, making them the largest fruit farm in the world. Small to mid-size growers in Maine face price challenges due to the market dominance of these two large companies.

The main goal of BEFV is to provide fair wholesale prices to eastern Maine wild blueberry growers, and to create additional employment and income opportunities for residents of eastern Maine. It is assumed that growers that receive more competitive prices for their berries will be more likely to maintain and even expand production, thus sustaining this important aspect of Maine's cultural identity.

Feasibility Study and Methods

BEFV received funding from the Broad Reach Fund (a component fund of the Maine Community Foundation), The Stephen and Tabitha King Foundation, and the Partridge Foundation to study the feasibility of a processing facility for wild blueberries. The study is sponsored by the Maine Coast Heritage Trust (MCHT), which conserves and stewards Maine's coastal lands and islands, and manages 80 acres of land in commercial wild blueberry production.

To understand wild blueberry supply in Maine, Yellow Wood conducted a wild blueberry grower survey, which was distributed to a total of 346 growers in print and online formats. In total, the survey received 54 responses, of which 33 respondents (or 61%) were located in Washington or Hancock County, the main target counties for a potential Blueberry East Food Ventures enterprise. Overall, the survey had a response rate of approximately 16%.

Based on conversations with Marie and Dell Emerson, Yellow Wood developed a processing diagram showing the different processes required to produce juice, concentrate, pulp and puree.

To better understand demand for wild blueberry products, and processing capacity, Yellow Wood conducted interviews with potential purchasers of blueberry products, and with people and organizations with processing capabilities.

Wild Blueberry Supply

The respondents to the Blueberry East Food Ventures Grower Survey account for approximately 9% of all wild blueberry growers in the state. Survey respondents have 2,805 acres in wild blueberry production, which represents about 6.3% of all acres in wild blueberry production in Maine. The 33 respondents from the target areas of Washington and Hancock Counties account for 9% of all growers in those two counties, and report 2,366 acres in wild blueberry production, 6% of the total wild blueberry acreage in the two counties.

² Extrapolated from USDA NASS. Census of Agriculture.
http://www.agcensus.usda.gov/Publications/2007/Full_Report/Census_by_State/Maine/

This survey did not distinguish between the sales of fresh berries and the sales of berries for freezing or processing. Based on the findings of this survey, the Maine survey respondents indicated there were 1,327,800 pounds of wild blueberries already going to wholesale markets, plus potential plans for an additional 28,545 pounds to be sold at wholesale³, for a total potential wholesale volume of 1,356,345 pounds. See Table 1.

Table 1. Potential volume of whole wild blueberries available (in pounds) for a wholesale enterprise. Based on grower survey.

	Total pounds already sold wholesale	Total potential additional wholesale volume in pounds	Combined current wholesale and potential wholesale volume in pounds
Maine	1,327,800	28,545	1,356,345
Washington and Hancock Counties	1,150,950	6,200	1,157,150

Given that the State of Maine produces 83 million pounds of wild blueberries on average each year, and the respondents to this survey account for 9 percent of the 577 wild blueberry growers in the state and 9 percent of the 383 wild blueberry growers in Washington and Hancock Counties, there are many more wild blueberry growers to engage in this potential venture.

Wild Blueberry Demand

Yellow Wood Associates spoke with 19 businesses and organizations in Maine and nearby states to learn about demand for 100% Maine wild blueberry juice, pulp, puree and concentrate. We selected businesses on the basis of the potential value to them of products and ingredients produced in Maine. Of these organizations, 16 are interested in learning more about a product from Blueberry East Food Ventures (see Demand Interview Contacts list in Appendix C).

We spoke with a wide range of potential wild blueberry buyers that included retailers, distributors, institutions, brokers and dealers that may carry wild blueberry products, as well as value-added producers that may use wild blueberries as an ingredient in their products. Value-added businesses that we spoke with included concessionaires, restaurants, distilleries, wineries, breweries, soda manufacturers, bakeries, tea manufacturers, medicinal supplement manufacturers, dog food companies, ice cream makers, and cruise lines.

³ It is unclear whether this additional wholesale potential is associated with additional acreage.



Single Serving Juice

Conversations with various potential single serving juice buyers confirmed that there is demand for blueberry juice. The most enthusiastic buyers were those distributors who work directly with food cooperatives, natural food stores, and Whole Foods Markets. Price was less of a factor for these particular distributors, as their customers are more willing to spend more for a quality product, than it was for those distributors selling to more conventional markets. All potential buyers with whom we spoke expressed interest in a shelf stable single serving size (8 oz.) and a larger size (quart or half gallon) in either glass or plastic. The price companies were willing to pay ranged from \$2.00 to \$3.00 per serving. Many were interested in an organic product, but could be flexible if it was a natural product without preservatives. Buyers noted that a blended product would cost less to produce and most likely can be sold for a lower price than a 100% wild blueberry juice. Two potential buyers were only interested in a 100% blueberry juice product, while four buyers were potentially interested in either a 100% blueberry juice product or a blended product, or both.

Yellow Wood calculated that the two juice retailers who specified the volume of product they were interested in represent a volume of nearly 627 gallons of juice to 1,254 gallons of juice per year. Table 2 shows the number of gallons of juice needed to meet the specified demand for single servings of juice. Actual demand would likely be significantly higher than this, as others expressed interest, but were unable or unwilling to give specific volume information. In addition, Yellow Wood reached a small sample of potential buyers, so there are many other potential buyers of wild blueberry juice that may have interest in a BEFV juice.

Juice, Pulp and Puree as an Ingredient

The market demand for Maine wild blueberries as an ingredient varies widely, but represents a significant amount of volume. Juice, concentrate, and puree were all products that garnered significant interest. Prices, packaging, and shelf-life needs vary depending on the ingredient and the end-use of the product. All businesses interviewed make purchases independently. Continuing conversations with businesses as a product is developed will help to ensure that packaging, volume, prices, and shelf-life all meet the needs of target end-users

Yellow Wood calculated the known demand for wild blueberry ingredients. In looking at juice, there were four interviewees that were interested in using 100% wild blueberry juice in their products, two of which were willing to share the volume they would need, which ranged from over 4,106 gallons, to 4,370 gallons per year. This volume is shown in Table 2.

Two interviewees expressed an interest in puree and specified volume. We were able to calculate the approximate volume by converting the number of truckloads a client was interested in, and the type of container, a 55 gallon steel drum, to find the approximate number of total gallons in each truckload and to find the volume of puree that the potential customer is interested in. One interviewee gave specific volume information – which ranged from 11,440 gallons of puree to 45,760 gallons of puree. There were not specific enough volumes given for pulp to calculate a range of demand.

Total Demand

In total, these numbers show a demand for blueberry juice and puree equivalent to 169,163 to 510,300 pounds of whole, unprocessed wild blueberries that would be required to meet the stated demand of just these interviewees for juice and puree. The actual volume of demand is even higher, as many interested businesses declined to give information about how much product they would need. In addition, Yellow Wood reached a small sample of potential buyers, so there are many other potential buyers of wild blueberry juice and wild blueberry ingredients that may have interest in BEFV products.

Table 2. Total known demand for juice and puree, and total pounds of whole berries needed⁴

	Minimum Demand Specified	Maximum Demand Specified
Gallons of Juice (Single 8 oz. serving)	627	1,254
Gallons of Juice (as an ingredient)	4,106	4,370
Total Gallons of Juice	4,733	5,624
Gallons of Puree	11,440	45,760
Total Pounds of Blueberries for juice	59,163	70,300
Total Pounds of Blueberries for puree	110,000	440,000
Total Pounds of Blueberries	169,163	510,300
Annual acreage - Conventional	42.29	127.58
Annual acreage - Organic	112.78	340.20
Acres of Conventional berries required to meet demand	84.58	255.15
Acres of Organic berries required to meet demand⁵	225.55	680.40

Overall, 83% of interviewees are very interested in a 100% Maine wild blueberry product, particularly juice, concentrate, or puree. Some producers have very specific needs, such as the ability

⁴ Assumptions:

- 20% of conventional berries and 40% of organic berries are B berries.
- 8.75 lbs. of berries to one gallon of juice. 30% waste.
- 10% waste from berries to puree.
- 4,000 lbs. of conventional blueberries per acre and 1,500 lbs. of organic blueberries per acre.

⁵ The number of organic acres required is more than the number of conventional acres required is due to the variation in yields between conventional and organic acres. Conventional blueberry acres produce an average of 4,000 lbs./acre while organic blueberry acres produce an average of 1,500 lbs./acre.

to meet Food and Drug Administration (FDA) and organic certification requirements. Required shelf-life also varied to a great degree and is influenced by the packaging and the type of product. None of the interviewees indicated that they have specific insurance requirements. Organic products are important to some, but are only a requirement of one producer.

Demand interviews show a significant level of interest in a BEFV product. Many businesses have trouble finding 100% Maine wild blueberry products that fit their needs. All interviewees who indicated an interest in a BEFV product would be interested in continued communication if wild blueberry products come to fruition. Further product development and packaging decisions could affect the interest and usability of products for end-users, so it will be important to continue conversations with those interested to ensure product development meets the needs of interested parties.

Wild Blueberry Processing

Juice, concentrate, pulp and puree production each require different production processes, which are covered in greater detail in the full report.

Yellow Wood investigated processing options in Washington County and beyond. Focusing on Washington County alone would not have provided adequate insight into available processing capacity. In addition, processors closer to population centers may have more connections to potential distributors and buyers. Available wild blueberry product processing capacity in Washington County is limited. If potential processing options outside of Washington County seem more favorable than those within Washington County, there may be value in pursuing them. This would allow Blueberry East Food Ventures to work on the aggregation, marketing and branding required to build a successful enterprise and to build demand for BEFV offerings, which may eventually drive the demand for a facility in Washington County.

The available processing capacity of the companies studied is fairly minimal at this point. Almost all the processors with whom we spoke would require investment before being able to process any BEFV products. One processor could potentially process 20,000 lbs. of wild blueberries into pulp in a month and possibly 173,000 lbs. of blueberries into puree annually, but their ability to increase volume produced is limited until they expand their facility next year.

Other processors had freezer and storage capacity, but little in the way of the processing equipment needed to produce the products in which BEFV is interested. The shared use kitchen opportunities that are forthcoming may be able to product small quantities of pulp and puree, but it is unlikely they would have the equipment to process berries into juice.

Bringing Supply and Demand Together

Yellow Wood created three scenarios that show potential supply of products based on an assumed percentage of available whole berries in Washington and Hancock County that BEFV could process. These three scenarios are then broken down by the amount available conventionally and organically.

Scenario 1 assumes that 4% of available berries in Washington and Hancock County would be used by BEFV. Scenarios 2 and 3 show an increasing supply of whole berries available, at 8% and 15%, respectively. Each scenario shows the total pounds of wild blueberries available in Washington and Hancock Counties or the State of Maine (extrapolated from USDA numbers), the total pounds of berries assuming BEFV can obtain the percentage in the scenario (4%, 8% or 15%), the total pounds of B berries available, and the gallons of juice, pulp and puree that volume of B berries could be made into. The calculations for each product – juice, pulp, and puree – assume that all the B berries available would be converted into that single product. Additional assumptions would need to be made to calculate the volume available of a range of products, such as whole blueberries being processed into 30% juice, 40% pulp, and 30% puree. An assumption could also be added to include a percentage of product that would meet organic specifications.

Table 3. Scenarios for conventional B berry products using total conventional B berries available in Washington and Hancock Counties.

CONVENTIONAL (@4000 lbs/ acre)			
Scenario - % of total harvest assumed available for BEFV	Scenario 1 - 4%	Scenario 2 - 8%	Scenario 3 - 15%
Average Annual Total Yield (from USDA)	79,334,640	79,334,640	79,334,640
Assumed available for BEFV, Wild Blueberries Wash/Hancock Counties(in pounds), all types	3,173,386	6,346,771	11,900,196
Available Conventional B Berries (in pounds), assume 20% of available berries are B berries	634,677	1,269,354	2,380,039
Gallons of Juice	50,774	101,548	190,403
Gallons of Pulp	634,677	1,269,354	2,380,039
Gallons of Puree	571,209	1,142,419	2,142,035

Table 4. Scenarios for organic B berry products using total organic B berries available in Washington and Hancock Counties.

ORGANIC (@1500 lbs./ acre)			
Scenario - % of total harvest assumed available for BEFV	Scenario 1 - 4%	Scenario 2 - 8%	Scenario 3 - 15%
Average Annual Total Yield (from USDA)	300,510	300,510	300,510
Assumed available for BEFV, Blueberries Wash/Hancock Counties(in pounds), all types	12,020	24,041	45,077
Available Organic B Berries (in pounds), assume 40% of available berries are B berries	4,808	9,616	18,031
Gallons of Juice	385	769	1,442
Gallons of Pulp	4,808	9,616	18,031
Gallons of Puree	4,327	8,655	16,228

Yellow Wood’s analysis shows that there is enough conventional production to meet current minimum demand levels, but the amount of acreage in organic production must be increased to create the volume necessary for a line of organic products. However, it is unclear at this point how much demand there would be for organic products. There is likely more demand than indicated, as only a small percentage of the total market was interviewed.

The total pounds of B berries needed to meet the demand quantified from interviews ranges from 169,163 pounds of berries to 510,300 pounds of berries. Using our assumptions, the total supply in pounds of B berries available to BEFV (at 4% of total harvest in Washington/Hancock County) from conventional methods is 634,677 pounds annually. There are 4,808 pounds of organically grown B berries that may be available to BEFV.

Partnering with existing processing facilities would allow Blueberry East Food Ventures to work on the aggregation, marketing and branding required to have a successful enterprise and build demand for BEFV offerings.

Recommendations and Next Steps

Based on the results of this preliminary feasibility research, we believe that there is reason to proceed with the full assessment of feasibility. There seems to be sufficient demand from a variety of potential buyers to justify further investigation. In addition, there seems to be sufficient supply to warrant further consideration.

While there are processors available and interested in working with BEFV, most are outside of Washington County and would require significant machinery and equipment investments to be able to produce the types of products BEFV is interested in marketing. One, Coastal Farm and Food Processing, while outside of Washington County, is open to adding equipment that would be useful to their clients; it is our understanding that they would be willing to incur those additional machinery/equipment costs if the demand required them. Processors in Washington County are very small and, while open to collaborating with BEFV, do not seem to offer optimal situations for a BEFV enterprise.

There are several next steps for a Blueberry East Food Ventures enterprise. Based on a meeting held November 28, 2012 in Sullivan, Maine, several immediate next steps were discussed which should be taken before the completion of the full feasibility study.

1. Maine Coast Heritage Trust (MCHT) and others will draft the story of the BEFV mission, vision, and history to be part of a Request for Proposals to engage an entrepreneur or coalition of entrepreneurs.
2. MCHT/BEFV will continue the conversation with Marie and Dell Emerson, Dwayne Shaw and Cheryl Wixson of Cheryl Wixson's Kitchen to determine if there may be interest on the part of any or all of them to move forward with a value-added processing enterprise. Alan Furth of the Cobscook Bay Learning Center is another potential partner, as he has underutilized staff at this time.
3. MCHT/BEFV will engage potential interested funders and institutions in the work moving forward. These include the Maine Community Foundation (MCF) and the Sunrise County Economic Council. Sustainable agriculture and Washington County are high priorities for MCF and Sunrise County Economic Council. MCHT/BEFV will also discuss potential networks to engage.

Once the immediate next steps are completed, Yellow Wood recommends that BEFV moves forward with the second phase of the full feasibility report, chooses a management structure and identifies an entrepreneur to take leadership, and develops a business plan.

Introduction

Blueberry East Food Ventures (BEFV) is a group of conventional and organic wild blueberry growers and organizations in eastern Maine interested in adding value to the local wild blueberry harvest by manufacturing blueberry juice, blueberry puree, blueberry pulp and /or blueberry concentrate. Toward that end, BEFV is interested in evaluating the feasibility of establishing a fruit processing facility for conventional and organic wild blueberries in Washington County, Maine, to allow for better financial returns to growers and increased employment and income opportunities for residents of eastern Maine. BEFV has identified 13 tasks in three project phases for this work. This phase of the study is the first part of the feasibility study, analyzing the supply and the demand as well as current processing capacity to determine whether to move forward with the remaining part of the feasibility study. The subsequent phase of the feasibility study (discussed in the section on Next Steps) will investigate processing capacity and needs for space and equipment, ownership and management structures, and staffing. Assuming the feasibility study leads to a decision to move forward, an entrepreneur would need to be engaged prior to a business plan being developed.

Sponsors and Advisors

This study, sponsored by the Maine Coast Heritage Trust, has been funded by a variety of funders, including:

- Broad Reach Fund, a component fund of the Maine Community Foundation
- The Stephen and Tabitha King Foundation
- Partridge Foundation.

Advisors who have been engaged throughout this work include:

- Melissa Lee, Maine Coast Heritage Trust
- Jane Arbuckle, Maine Coast Heritage Trust
- Tom Haslett, Maine Coast Heritage Trust
- Marie Emerson, Wild Wescogus Berries
- Dwayne Shaw, Downeast Salmon Federation
- Tim Beal, Moon Hill Farm.

The Maine Coast Heritage Trust (MCHT) conserves and stewards Maine's coastal lands and islands for their renowned scenic beauty, outdoor recreational opportunities, ecological diversity and working landscapes, such as the Bog Brook Cove property which is 1,700 acres including 80 acres managed for commercial blueberry harvesting.

Goals of the Endeavor

The main goal of this endeavor is to provide fair wholesale prices to eastern Maine wild blueberry growers. Maine wild blueberry growers are often paid less than their counterparts in other parts of the country. According to the April 2012 *Acadia Blueberry Price Report*,⁶ “at about \$1.33 cultivated blueberry growers in Canada and the US on average were paid 1.56 times the Maine field price.” It is assumed that growers that receive more competitive prices for their berries will be more likely to maintain and even expand production, thus sustaining this important aspect of Maine’s cultural identity.

Description of Products and Characteristics of Wild Blueberries.

Wild blueberries, or lowbush blueberries, are different from highbush blueberries (cultivated blueberries); wild blueberries are much smaller and sweeter than cultivated blueberries. Blueberries in general, but especially wild blueberries, have significant health benefits. Wild blueberries have powerful antioxidant and anti-inflammatory properties that help protect against diseases such as cancer, heart disease, diabetes and Alzheimer’s.⁷

Blueberry East Food Ventures is interested in the potential to produce a 100% Maine wild blueberry juice (all blueberry or blended), concentrate, pulp and puree. Concentrate is juice that has had the water taken out. Pulp is simply blueberries that have been pulverized, while puree is basically pulp that has been cooked.

Methods

Several methods were used to determine the preliminary feasibility of an enterprise to add value to wild Maine blueberries. Previous research undertaken on behalf of BEFV was reviewed, including:

- Blueberry East Food Ventures Feasibility Study, prepared by the Down East Business Alliance in March 2011. We reviewed all related background information that was transmitted to us related to this study, including surveys and survey results, interview notes, etc.

⁶ Acadia Blueberry Price Report. Volume 3, Issue 1. April 2012.

⁷ ORAC of Selected Foods, USDA-ARS, May 2010. [Journal of Agricultural and Food Chemistry. 2004; 52:4026-4037](#)

Wolfe KL, Liu RH. [Journal of Agricultural and Food Chemistry. 2008; 56\(18\): 8418-8426](#)

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Joseph JA, Denisova NA, Arendash G, Gordon M, Diamond D, Shukitt-Hale B, Morgan D. [Nutritional Neuroscience. 2003; 6: 153-162](#)

Joseph JA, Denisova NA, Arendash G, Gordon M, Diamond D, Shukitt-Hale B, Morgan D. [Journal of Neuroscience. 1999; 19\(18\): 8114-8121](#)

Shukitt-Hale B, Lau FC, Carey AN, Balli RL, Spangler EL, Ingram DK, Joseph JA. [Nutritional Neuroscience. 2008; 11\(4\): 172-182](#)

Krikorian R, Shidler MD, Nash TA, Kalt W, Vinqvist-Tymchuk MR, Shukitt-Hale B, Joseph JA [Journal of Agricultural and Food Chemistry. 2010; 58, 3996-4000](#)

- Farmer/Grower/Processor Survey undertaken as part of the 2011 study.
- Notes from site visits to the Cornell Lab.
- Mount Desert Island Market Advisory.
- Equipment information and interviews by Charlie Hitchings, 2010-2011.

Yellow Wood built on existing research through:

- Conducting a survey of Maine wild blueberry growers to gauge their interest in participating in a Blueberry East Food Venture initiative. The survey was distributed using two methods – through the online survey tool SurveyMonkey, and in print format in person to approximately 225 growers who attended the July 18, 2012 Wild Blueberry Field Day at Blueberry Hill Farm in Jonesboro, Maine. Growers who did not complete the survey in person were given a postcard with information on how to access the online survey. The online database for the Blueberry East Food Ventures Grower Survey was developed by Yellow Wood using online directories (see Table 19 in Appendix B), including the Maine Department of Agriculture’s Get Real Get Maine directory, the Value Added Producers list through the University of Maine, and the Maine Organic Farmers and Gardeners Association (MOFGA) directory. Through these directories, Yellow Wood generated a database of 121 Maine wild blueberry growers with publicly available email addresses. Three reminders were sent. The survey information and link was also published in the University of Maine Cooperative Extension’s *Wild Blueberry Newsletter* in August 2012, accessible through the following link: <http://umaine.edu/blueberries/newsletters/wild-blueberry-newsletter-august-2012/>. In total, the survey received 54 responses, of which 33 respondents (or 61%) were located in Washington or Hancock County, the main target counties for the potential Blueberry East Food Ventures enterprise. Overall, the survey had a response rate of approximately 16%.⁸
- Interviewing potential buyers of juice, concentrate, pulp and puree including supermarket chains, distributors/wholesalers, brokers, institutions, and those who might be interested in ingredients, such as producers of non-alcoholic and alcoholic beverages, cruise lines, restaurants, natural product manufacturers, etc. For a list of interview conducted and questions asked, see Appendix C.
- Interviewing Maine processing companies to learn more about existing processing capacity and whether there might be ways of collaborating to produce an eastern Maine wild blueberry product. See Appendix D.
- Identifying funding sources and investigating basic staffing requirements.

⁸ Internal surveys (i.e. employee surveys) generally have a much higher response rate than external surveys (e.g. customer satisfaction surveys). Internal surveys will generally receive a 30-40% response rate or more on average, compared to an average 10-15% response rate for external surveys. <http://www.surveygizmo.com/survey-blog/survey-response-rates/>

Setting the context

Eastern Maine Economy and Definition of Region

Down East Maine includes Hancock and Washington Counties. According to the 2010 U.S. Census, Hancock County has a population of 54,418 and Washington County has a population of 32,856, for a total of 87,274.

Down East Maine is relatively rural and has a fairly isolated population. The economy of the Down East Maine region has traditionally relied on natural resource industries, such as fishing, forestry, and agriculture, specifically wild blueberries. These industries have been steadily declining, and incomes in the region have lagged behind other regions of Maine. According to a 2006 Brookings Institution report⁹, in 2004, average annual wages in Hancock County were \$28,500 and \$25,200 in Washington County. Both figures lagged behind the Maine state average of \$31,900.

Wild Blueberry Cultivation and Its Role in the Culture and Economy of the Region

Maine's acres of wild blueberries grow naturally in fields and barrens that stretch along the Down East coast to the state's southwest corner. Adapted to Maine's naturally acid, low fertility soils and challenging winters, wild blueberries are a low input crop requiring minimal management. The berries are grown on a two-year cycle — each year, half of a grower's land is managed to encourage vegetative growth and the other half is prepared for a wild blueberry harvest in August. After the harvest, the plants are pruned to the ground by mowing or burning.

According to University of Maine Cooperative Extension, “Wild blueberries hold a special place in Maine's agricultural history — one that goes back centuries to Maine's Native Americans. Native Americans were the first to use the tiny blue berries, both fresh and dried, for their flavor, nutrition and healing qualities but it was not until the 1840s that wild blueberries were first harvested commercially.¹⁰ As a symbol of Maine's agricultural heritage — a heritage that respects and values the environment — growers consider the future well-being of the land in their management practices, allowing neighbors and visitors to continue to enjoy some of Maine's most scenic vistas and precious wildlife habitats.”

⁹ Brookings Institution. 2006. Charting Maine's Future: An Action Plan for Promoting Sustainable Prosperity and Quality Places. *A Profile of Down East Maine: Hancock and Washington Counties*.

<http://www.brookings.edu/~media/research/files/reports/2006/10/cities/downeast.pdf>

¹⁰ Cooperative Extension: Maine's Wild Blueberries. <http://umaine.edu/blueberries/>

Description of the Blueberry Industry in Maine

In 2007, direct and indirect economic impact of the wild blueberry industry in Maine totaled \$250 million.¹¹ By comparison, according to the Maine Lobster Council, the 2011 catch exceeded 100 million pounds and generated close to \$331 million in ex-vessel or dock value.¹² Both industries make a major contribution to the state's economy and help define the identity of Maine.

Size of Players

The blueberry industry in Maine is dominated by two large corporate players, Jasper Wyman & Son and Cherryfield Foods, Inc.

Jasper Wyman & Son, family owned since 1874, is the leading and largest US grower, packer, and marketer of wild blueberries and berry fruits flash-frozen, canned, and in juices. Wyman's is also a premium supplier of other frozen fruits such as blackberries, raspberries, cranberries, strawberries and mangoes. Wyman's has state of the art facilities in Maine and in Prince Edward Island, Canada. In addition to their frozen lines which are produced for the retail, foodservice and industrial markets, Wyman's also produces wild blueberry juices and wild blueberry blended juices for the retail market.¹³

Cherryfield Foods, Inc. owns and operates the largest fruit farm in North America. In 1866, Cherryfield Foods was originally founded as a blueberry canning operation. In 1962, the company constructed the first freezing plant in Washington County. It was the largest plant in the United States devoted exclusively to freezing wild blueberries. Oxford Frozen Foods Limited of Nova Scotia purchased the former company in 1982 and created Cherryfield Foods, Inc. Cherryfield Foods markets to the United States, Europe and Asia. Their processing facilities are located in Nova Scotia, New Brunswick and Maine. Their wild blueberries are available in IQF, as a concentrate, a puree, sugar infused and canned.¹⁴

The remaining actors in the blueberry industry in Maine are small to medium-sized growers and processors. The largest of the remaining actors include Merrill's Blueberry Farms in Ellsworth and G.M. Allen and Son, Inc. in Blue Hill. Merrill's is the largest player that handles organic berries.

There are 530 MOFGA certified organic acres in blueberry production in Maine.¹⁵ Approximately 53 certified growers reporting some amount of blueberry production for MOFGA certification in

¹¹ Cooperative Extension: Maine's Wild Blueberries. <http://umaine.edu/blueberries/>

¹² Maine Lobster Council. 2011. <http://www.lobsterfrommaine.com/about-lobster.aspx>

¹³ Jasper Wyman & Son. <http://www.wymans.com/>

¹⁴ Cherryfield Foods, Inc. http://oxfordfrozenfoods.com/cherryfield_foods

¹⁵ Email communication. Grace Keown, Certification Assistant. MOFGA. 2010. www.mofgacertification.org. (207) 568-4142.

2009. There are 208 conventional, independent, small (with 0.1 to 100 acres of wild blueberry land) wild blueberry farms in Washington County with 2,729 acres (average size is 13.2 acres).¹⁶

Fresh Berries versus Berries for Processing

Wild blueberries come in from the field unwinnowed (with leaves and stick in them), at which point they move through a blower, which blows out the debris. From there, the berries move through a grader that removes any berry less than a quarter of an inch. Then the berries move through a tilt belt. Berries that roll go on to be sold fresh as grade A berries. Berries that do not roll are caught in a container and become the juice berries, or grade B berries. These juice berries may be perfectly good, but may still be attached by stems. With wild blueberries, about 20% of the harvest are B berries. B berries are most often not sold fresh, so are best used for processing into other value-added products. For conventional wild blueberries, it is estimated that 20% are B berries; however, for organic berries, the percentage of B berries is quite a bit higher, at an estimated 40%. The percentage depends on the season, weather conditions and harvesting method. For example, drier berries are smaller and hang onto the stem more.

Challenges for Small Growers

At this point, Wyman's and Cherryfield Foods have a significant share of the wild blueberry market. Cherryfield Foods owns and manages over 24,000 acres of wild blueberry land in Maine and the Maritimes of Canada making them the largest fruit farm in the world.

There are ongoing challenges for small growers in an area where these two companies control a huge proportion of the wild blueberry market. In 2004, wild blueberry growers won \$18.6 million in a class action lawsuit against three processors they accused of price fixing. The processors are Allen's Blueberry Freezer of Ellsworth, Jasper Wyman & Son of Milbridge, and Cherryfield Foods of Cherryfield.

The *Acadia Blueberry Price Report* shows that “unless further supplemental payments are made the prices, returns and margins for the 2011 wild and cultivated blueberry crops will provide a textbook example of the workings of a competitive market versus one in which the largest firms can set prices without much fear of any adverse consequences.”¹⁷

Dave Robinson of *Acadia Blueberry Price Report* explains that the price relationships are not as good today as they were at the time of the big class action lawsuit in 2003-2004 against the three big

¹⁶ Extrapolated from USDA NASS. Census of Agriculture.
http://www.agcensus.usda.gov/Publications/2007/Full_Report/Census_by_State/Maine/

¹⁷ *Acadia Blueberry Price Report*. Volume 3, Issue 1. April 2012.

processors. During the court case, the Maine price was 50% of the Canadian export price. This declined to 39% in the mid 2000s. It has grown a bit since and is now averaging about 42-43%.¹⁸

Dave Robinson explains that the Maine industry has not seen as much growth in volume as the rest of the blueberry industry in the US and worldwide. According to Robinson, data for the current year suggests that there are increasing volumes of cultivated blueberries. “If you look at the volumes in Maine today versus 10-20 years ago, there is growth, but not significant growth compared with other states. US and Canadian cultivated production has soared compared to wild production.”¹⁹ This lack of growth in the volume of Maine wild blueberries has led to less favorable prices to Maine producers. Dave Robinson explains, “Part of the answer to the issue of overall growth is that value-added is needed.”²⁰

Value-Added Wild Blueberry Product Demand

In an effort to learn more about the demand for a 100% Maine wild blueberry juice, concentrate, pulp and puree, interviews were conducted with potential buyers in a variety of markets. Yellow Wood developed a list of potential buyer categories (distributors, groceries, institutions, etc.), and specific buyers within those categories, which were reviewed by the BEFV advisory committee. Yellow Wood was seeking businesses that might have a value proposition related to Maine wild blueberries, including companies rooted in Maine that would want to source value-added berry products from Maine.

Yellow Wood spoke with 19 businesses and organizations in Maine and nearby states to learn about demand for 100% Maine wild blueberry juice, pulp, puree and concentrate. Of these organizations, 16 are interested in learning more about value-added wild blueberry products from Blueberry East Food Ventures.

We spoke with a wide range of potential wild blueberry buyers and users that included retailers, distributors, institutions, brokers and dealers. We spoke with retailers that may carry wild blueberry products, as well as value-added producers that use wild blueberries as an ingredient in their products. Businesses that we spoke with include concessionaires, restaurants, distilleries, wineries, breweries, soda manufacturers, bakeries, tea manufacturers, medicinal supplement manufacturers, dog food companies, ice cream makers, and cruise lines.

¹⁸ Lacking an annual average return to processor figure, Dave Robinson turns to the average value to Canadian exports each year.

¹⁹ Phone communication. Robinson, Dave. Price Analyst and Publisher. *Acadia Blueberry Price Report*. November 9, 2012. (902) 455-7120.

²⁰ Phone communication. Robinson, Dave. Price Analyst and Publisher. *Acadia Blueberry Price Report*. November 9, 2012. (902) 455-7120.

Juice and Concentrate

We determined that the market for juice and concentrate would most likely be from supermarkets, distributors/wholesalers, restaurants, and institutions. Conversations with various potential buyers confirmed that there is definitely demand for blueberry juices. The most enthusiastic buyers were those distributors who work directly with cooperatives, natural food stores, and Whole Foods Markets. These distributors, on behalf of their customers, expressed demand for natural, organic or conventional wild blueberry juice with few, if any, preservatives. Price was less of a factor for these particular distributors, as their customers are more willing to spend more for a quality product, than it was for those distributors selling to more conventional markets. All potential buyers with whom we spoke expressed interest in a shelf stable single serving size (8 oz.) and a larger size (quart or half gallon) in either glass or plastic. The recommendation was to start with both a shelf stable 100% wild blueberry juice and a shelf stable blended juice in two sizes, the single serving (8 oz.) and the larger quart or half gallon size. The price companies were willing to pay ranged from \$2.00 to \$3.00 per serving. Many were interested in an organic product. A blended product will cost less to produce and most likely can be sold for a lower price than a 100% wild blueberry juice.

While we spoke with potential buyers about both juice and concentrate, there was little demand mentioned for concentrate. One distributor was potentially interested in concentrate, but more interested in juice.

Table 5 summarizes demand from potential buyers, such as distributors/wholesalers, restaurants, and institutions, of wild blueberry juice and concentrate. Contact information can be found in Appendix C.

Table 5. Summary of demand from buyers for wild blueberry juice and concentrate.

Company	Blends or 100% blueberry	Packaging	Sizes	Volume	Price	Interest in Organic?	Shelf-life	Interest in BEFV?
Associated Buyers	Blend and 100% blueberry	Plastic	Single serving (8 oz.) or quart size.	½ or full pallet at a time	\$2/single serving	Yes	Shelf stable	Yes
Pine State Trading Company*	Blend or 100% blueberry	Sturdy enough for distribution by tote. Retail ring required on cap.	Single serving (8 oz.)	Not sure	Not sure	Maybe	Freezer, frozen or shelf table products	Yes
Crown O’Maine	100% blueberry	Glass for larger size, plastic for single serving	Single serving (8 oz.) and larger size	10-20 cases a week of small (single serving – 12 to a case) and large sizes.	Not concerned with price.	Organic or conventional	Shelf stable	Yes
National Park Concession	100% blueberry	Glass or plastic	Single serving (8 oz.)	Not sure	\$2 retail price/ single serving	Yes	Shelf stable	Yes
Jordon Pond House	100% blueberry or blended	Plastic	Half gallon or quart	Delivery once every 2 weeks. Serve 200,000 people a season.	\$2-3/glass retail.	Yes	Shelf stable or refrigerated	Yes
Eastern Maine Medical Center	100% blueberry or blended	Aseptic	Single serving	Not sure.	Not sure.	Not necessarily.	Shelf stable	Yes

* This company was interested in any of the products BEFV produces.

Based on the information above, Yellow Wood was able to calculate volume using the assumption that a standard pallet in the United States is 40 inches by 48 inches and is typically packed 54 inches high.²¹ Although the type of packaging will influence how many units can be packed on a pallet, we used the assumption that 7,581 8 oz. bottles would fit on one standard US pallet.²² Using these assumptions, Yellow Wood calculated that the two juice retailers who specified the volume of product they were interested in represent a volume of nearly 627 gallons of juice to 1,254 gallons of juice. Table 6 shows the number of single servings this demand would account for, the number of ounces, and the total volume in gallons of juice. Actual demand would be significantly higher than this, as other buyers expressed interest but were unable or unwilling to give specific volume information. In addition, the potential buyers that were reached are a small sample of the total population of buyers; undoubtedly, other buyers will be interested, especially in the 100% wild blueberry juice, which seems to be difficult to find. This table also shows the number of acres of conventional or organic berries that this volume of demand represents. Because wild blueberries are grown on a two-year cycle, we have also shown the acres of berries that would need to be harvested each year to meet this volume of demand.

Table 6. Known minimum volume of demand for single serving (8 oz.) wild blueberry juice.²³

	Single 8 oz. servings	Total Volume (oz.)	Total Volume (gallons)	Lbs. of berries	Annual Acres of Conventional berries	Annual Acres of Organic berries	Acres of Conventional Berries	Acres of Organic Berries
Minimum Demand	10,030	80,240	627	7,836	1.96	5.22	3.92	10.45
Maximum Demand	20,061	160,488	1,254	15,673	3.92	10.45	7.84	20.90

²¹ Pallets Unlimited. Pallet Size and Pallet Dimensions. http://www.palletsunlimited.com/pallets_size.html. Accessed November 8, 2011.

²² Goodpac Plastics. <http://goodpac.com/index.php/8-oz-and-12-oz-bottles/>. Accessed November 8, 2011.

²³ Assumes 8.75 lbs. of blueberries per gallon of juice, 4,000 lbs. of conventional blueberries per acre and 1,500 lbs. of organic blueberries per acre.

Puree and Pulp

We theorized that the market for pulp and puree would be most likely from those using these products as ingredients for an end product, like dog food, ice cream, baked goods, alcoholic and non-alcoholic beverages, and natural and beauty products. Based on interviews conducted with a variety of potential buyers, we have learned that beverage producers (both alcoholic and non-alcoholic) have significant demand for blueberry puree and pulp, for use in sodas, vodkas and rums. See Appendix C for a list of questions and contacts.

Comparable purees include Funkin Blueberry Puree (1 kg. size or 2.2 lbs.) at \$23.90, Culinary Traditions Blueberry Puree at \$25, and another in a 2.2 lb. tub at \$32.02.

Table 7 summarizes demand for wild blueberries as an ingredient.

Table 7. Summary of demand for wild blueberries as an ingredient.

Company	Product	Blueberry Form	Packaging	Volume	Price	Organic Interest	Shelf-life	BEFV Interest
American Cruise Lines		Frozen		About 10 pounds purchased occasionally				Yes
Atlantic Brewing Company	Blueberry beer, soda, and wine	Ideal product would be blueberry juice that is flash pasteurized	11 liter plastic jugs are ideal. Packaging cannot have any type of ethanol.	15,000 to 16,000 liters for beer and wine	Pay market price, about \$3.00 a liter in 11 liter jugs.	Yes	Flash pasteurized product generally stores for 4-6 months at 50 degrees	Yes
Cellar Door Winery	Two blueberry wines	Currently use whole fresh grade A blueberries – 6-8 tons, very interested in a puree or crushed berry product		1,200 gallons of juice annually	Field weight price for fresh grade A wild blueberries is between \$1.05 and \$1.40	Not important		Yes
Gifford’s Ice Cream	Maine Wild Blueberry Ice Cream	Frozen blueberries	30 pound cardboard boxes on a pallet	8,000 pounds annually	Unwilling to give price information	No	Use within two weeks so storage is not a problem	No
Herb Barber & Sons	Unknown	Single strength puree, not from concentrate, run through a screen	400 pound open head steel drums or 28 pound pails	1 to 4 truckloads annually	Would work with client to determine	Yes	2 years for frozen product	Yes
Main Root Soda	Blueberry soda	Juice	5 gallon buckets	Unwilling to share volume	Must be equal to or less than what they currently pay (unwilling to share)	Maybe	30 days	Yes
Maine Coast Herbals	Herbal teas	Dried blueberries, pulp and possibly other products						Yes
Maine Distilleries, LLC	Cold River Blueberry Vodka	Currently use frozen wild blueberries, but considering juice in concentrate form	Bottle	Currently use 5-6 pounds of frozen blueberries a week	Unsure	Yes	At least 6 months	Yes

Company	Product	Blueberry Form	Packaging	Volume	Price	Organic Interest	Shelf-life	BEFV Interest
Maine Medicinals	Autoimmune Elderberry Syrup	Currently use frozen whole organic wild blueberries, very interested in concentrate and juice	Container must be FDA approved and comply with organic certification	Thousands of pounds (unwilling to specify more than that)	Price per pound for Maine organic wild blueberries – about \$3.00	Only interested in organic	24 month shelf life in frozen form in a 20 degree freezer	Yes
Sea Hagg Distillery	Blueberry flavored rum	Recipe developed using whole berries because juice was prohibitively expensive		6,000 to 10,000 pounds of whole blueberries		Maybe		Yes
Native Maine Specialty Foods	Not sure. For foodservice	Frozen pulp and puree	32 oz. gable top, 6 per case	30 days supply. 100 lb. boxes	\$25 is the retail price	No	1-2 years frozen; 14-21 day refrigeration life once thawed	Yes

The market demand for Maine wild blueberries as an ingredient varies widely, but represents a significant amount of volume. Juice, concentrate, and puree were all products that garnered significant interest. Prices, packaging, and shelf-life needs vary depending on the ingredient and the end-use of the product. All businesses interviewed make purchases independently. Continuing conversations with businesses as a product is developed will help to ensure that packaging, volume, prices, and shelf-life all meet the needs of target end-users.

Demand for Wild Blueberry Ingredients

Juice

Yellow Wood calculated the known demand for wild blueberry ingredients based on demand interviews (see Table 8). In looking at juice, there were four interviewees who were interested in using 100% wild blueberry juice in their products, two of which were willing to share the volume they would need, which ranged from over 4,106 gallons, to 4,370 gallons annually. The table below shows the known volume of demand for juice as an ingredient. It shows the gallons of juice required by the two buyers, the pounds of berries that would be required to produce that volume of juice, and the acres required to produce that quantity of berries.

Table 8. Known volume of demand for juice as an ingredient²⁴

	Total Volume (gallons)	Lbs. of berries	Annual Acreage - Conv.	Annual Acreage - Organic	Acres of Conventional berries	Acres of Organic berries
Minimum Juice Demand	4,106	51,325	12.83	34.22	25.66	68.43
Maximum Juice Demand	4,370	54,625	13.66	36.42	27.31	72.83

²⁴ Assumes 8.75 lbs. of blueberries per gallon of juice, 4,000 lbs. of conventional blueberries per acre and 1,500 lbs. of organic blueberries per acre.



Puree

Two interviewees expressed an interest in puree. We were able to calculate the approximate volume by converting the number of truckloads a client was interested in, and the type of container, a 55 gallon steel drum, to find the approximate number of total gallons in each truckload to find the volume of puree that the potential customer is interested in. One gave specific volume information – which ranged from 11,440 gallons of puree to 45,760 gallons of puree. There were no specific enough volumes given for pulp to calculate a range of demand. The table below shows the known volume of demand for puree as an ingredient. It shows the gallons of puree required by the buyers, the pounds of berries that would be required to produce that volume of puree, and the acres required to produce that quantity of berries.

Table 9. Known volume of demand for puree as an ingredient.

	Gallons of Puree	Lbs. of puree	Lbs. of berries	Annual Acres of Conventional berries	Annual Acres of Organic berries	Acres of Conventional Berries	Acres of Organic Berries
Minimum puree demand specified	11,440	99,013	110,000	28	73	55	147
Maximum puree demand specified	45,760	396,053	440,000	110	293	220	587

Total Specified Demand of Juice and Puree from Demand Side Interviews

In total, these numbers show a demand range of 16,173 gallons of blueberry juice and puree to over 50,000 gallons of blueberry juice and puree. This equates to 169,163 to 510,300 pounds of whole, unprocessed wild blueberries that would be required to meet the stated demand of just these interviewees for juice and puree. The actual volume of demand is even higher, as many interested businesses declined to give information about how much product they would need. In addition, Yellow Wood contacted a small sample of the population of potential buyers.

Table 10. Total known demand for juice and puree, and total pounds of whole berries needed.

	Minimum Demand Specified	Maximum Demand Specified
Gallons of Juice (Single 8 oz. serving)	627	1,254
Gallons of Juice (as an ingredient)	4,106	4,370
Total Gallons of Juice	4,733	5,624
Gallons of Puree	11,440	45,760
Total Pounds of Blueberries for juice	59,163	70,300
Total Pounds of Blueberries for puree	110,000	440,000
Total Pounds of Blueberries	169,163	510,300
Annual acreage - Conventional	42.29	127.58
Annual acreage -Organic	112.78	340.20
Acres of Conventional berries	84.58	255.15
Acres of organic berries	225.55	680.40

Types of Buyers

To learn more about demand for wild blueberry products, we spoke with a wide variety of potential buyers, including distributors, stores, restaurants, institutions and businesses interested in using wild blueberry products as ingredients in their own products.

Distributors

Distributors, such as Crown O' Maine and Associated Buyers, were very positive about a 100% Maine wild blueberry juice product. The distributors that serve natural food stores, cooperatives, Whole Foods Markets, buying clubs and more were extremely interested in a "local" and "organic" product. While these particular stores were very interested in organic, local was also in demand. Beyond the product itself, the story behind the product is what is important to the consumers purchasing from these types of stores. The story is about a Maine made product produced from the berries of Maine wild blueberry growers who each have stories of their own, relating to the heritage and culture of Maine.

Grocery stores

There was little success in connecting with grocery stores. Multiple calls were made to Hannaford, Shaws, IGA and Whole Foods. Our sense is that these connections may be more successful if made by BEFV contacts, due to their proximity and connection to the products being discussed. Previous efforts on behalf of BEFV led to information being gathered about supplying product to Hannaford. There are two basic ways to sell product through Hannaford. The first is to sell through the warehouse, and the second is direct to store (DTS). To sell through the warehouse, a vendor has to work with the category manager to be accepted into the system. Nate Sprague is the man to speak with regardless of which way BEFV chooses to sell product through Hannaford. Hannaford may be interested in a BEFV juice product; it would need to be at least 20% juice and preferably not in a glass container. Smaller sizes would be preferable, of 10 oz. or smaller. The label should showcase Maine, Down East and the conservation story.

According to distributors who sell to Whole Foods, an organic, wild blueberry juice product would be interesting to Whole Foods. For Whole Foods customers, price is not as much of an issue as it would be for more conventional stores. However, Whole Foods has a wide range of requirements for all of the products it carries, which BEFV would want to review.

Restaurants

While we had planned to speak with two restaurants, the Jordon Pond House at Acadia National Park was the most responsive. We also attempted to contact the Governor's restaurant chain, with no response. The Jordon Pond House at Acadia National Park is interested in juice and concentrate

from a BEFV venture. John Wight²⁵ would consider it a bonus if it were organic. His purchasing for the restaurant is independent and all about local, Maine products. For his purposes, a half gallon recyclable container would be best; it will be poured into glasses for restaurant customers. He would sell it at \$2-3 per glass, unless it was perceived to have local, sustainable and organic benefits, in which case he could charge a bit more. John believes he might be interested in a pulp and puree as well to experiment with in the kitchen.

Institutions

The Eastern Maine Medical Center²⁶ is interested in a line of Maine wild blueberry juice for its cafeteria, which accounts for 75% of their foodservice. For buyer Valerie Langbein, it is important for the product to be made from wild blueberries, for the health benefits. Valerie is mainly interested in a 100% wild blueberry juice, but is open to considering blends as long as they are not loaded with sugar. Organic is not a driving issue for them, so much as cost. Their interest is in shelf-stable, single serving aseptic bottles. Their purchasing is done through the Eastern Maine Health System Purchasing Group, which also includes other hospitals in the region and the system; the group uses the same prime vendor, Performance Food Group (PFG) North Center. The Medical Center may also be interested in a pulp or puree, if there was interest from their cooking staff.

Businesses Creating a Value-Added Product

The most promising prospects for demand for wild blueberry products as an ingredient in further value-added products included a wide range of businesses and products - breweries, wineries, soda makers, natural supplements, and more. Many of these businesses are currently using fresh whole berries or frozen whole berries – a quantity of nearly 20,000 pounds of whole berries. The high cost of blueberry juice has led some companies to purchase whole berries instead of a value-added product. One distillery has developed their recipe specifically for whole berries due to the cost of juice, which would have been the preferred ingredient. These businesses are further processing these whole berries for use in their own products, and many would prefer to purchase an already processed blueberry product that met their specifications. For Atlantic Brewing Company, having a pasteurized blueberry juice product available would be a “game changer” for their business. Many interviewees expressed great enthusiasm for potential BEFV products, and described the products being considered by BEFV as hard to find.

The container that value-added product manufacturers preferred to receive product in varied. Some required product to be packaged to meet certain specifications, such as to not have any ethanol. For juice, a common container cited was an 11 liter plastic jug. For pulp or puree, a 55 gallon steel drum, or a 5 gallon bucket were commonly cited containers.

²⁵ Personal communication. John Wight. Jordon Pond House. September 5, 2012. (207) 276-3610 ext 15.

²⁶ Personal communication. Valerie Langbein. Eastern Maine Medical Center. November 9, 2012. (207) 973-8241.

Shelf-life varied based on how the product would be used and on the type of product – juice, concentrate, pulp, or puree. Generally a two-year shelf-life in frozen form was expected.

Cellar Door Winery mentioned that they had approached Wyman’s about working together to make a product that fit the winery’s needs, but Wyman’s felt that the company was too small for them to work with. For Cellar Door Winery, having a puree or a crushed berry product would save them processing time, as they currently crush and process blueberries themselves.

Maine Medicinals uses wild blueberries for an elderberry syrup tincture called Autoimmune. They are currently expanding their product lines. Maine Medicinals purchases thousands of pounds of wild blueberries each year, and currently makes a blueberry concentrate themselves. Their process is proprietary. Maine Medicinals is also affiliated with a research and development company called ElderTide, LLC. ElderTide, LLC has done product development work to research and develop antioxidant products from Maine products through USDA grants and has also worked with Al Bushway at the University of Maine. Edie Johnston, who is affiliated with both Maine Medicinals and ElderTide, LLC, is very interested in collaborating.

Many companies that were interested in juice also spoke of the importance of the BRIX level, or the sugar content of the juice. The BRIX level can affect the overall quality of the end product these companies are producing. Continued conversations and learning about the desired BRIX level of different companies would be valuable in developing a juice product.

In general, wild blueberry products used as ingredients are expensive for product manufacturers, and although the blueberry products these companies make are often some of their best-selling products, they typically are also the least profitable. Despite the lack of high profit for products with wild blueberries, many of the companies interviewed are supportive of promoting the working landscape and culture of Maine, and it is important to many of these companies to source local products.

Factors Influencing Demand

Cost is a factor that influences demand. For some buyers, especially those serving natural food stores and consumers who care about organic, cost is not a significant issue. For those buyers who mostly serve conventional markets, cost is more of a factor.

Another factor influencing demand is the marketing, branding and story behind these wild blueberry value-added products, which includes themes around Maine, agriculture, and actual small farmers and growers. These stories and the connection to Maine should be front and center in all marketing and branding around a BEFV product.

Conclusion

Overall, 83% of interviewees are very interested in a 100% Maine wild blueberry product, particularly juice, concentrate, or puree. Some producers have very specific packaging needs, such as meeting FDA and organic certification requirements. Desired shelf-life also varied to a great degree and is influenced by the packaging and the type of product. None of the interviewees indicated that

they have specific insurance requirements. Organic products are important to some, but are only a requirement of one producer.

Demand interviews show a significant level of interest in a BEFV product. Many businesses have trouble finding 100% Maine wild blueberry products that fit their needs. All interviewees who indicated an interest in a BEFV product would be interested in continued communication if wild blueberry products come to fruition. Further product development and packaging decisions could affect the interest and usability of products for end-users, so it will be important to continue conversations with those interested to ensure product development meets the needs of interested parties.

Availability of supply

As part of this study, Yellow Wood developed a survey targeted at Maine wild blueberry growers to identify, 1) the current acreage and production of wild blueberries in Maine 2) the potential for expanded wild blueberry acreage and production, and 3) interest in selling to wholesale markets and supporting a 100% Maine wild blueberry processing venture. The grower survey provides some insight into the availability of supply.

In total, the survey received 54 responses, of which 33 respondents (or 61%) were located in Washington or Hancock County, the main target counties for the potential Blueberry East Food Ventures enterprise. Overall, the survey had a response rate of approximately 16%.

Distribution of Responses by County

According to the 2007 Census of Agriculture,²⁷ there were 577 wild blueberry farms and 44,462 acres in wild blueberry production in Maine in 2007. In 2007, in Washington County there were 259 wild blueberry farmers with 28,560 acres, and in Hancock County there were 124 wild blueberry farms with 11,056 acres.

The respondents to the Blueberry East Food Ventures Grower Survey account for approximately 9% of all wild blueberry growers in the state. Survey respondents have 2,805 acres in wild blueberry production, which represents about 6.3% of all acres in wild blueberry production in Maine. The 33 respondents from the target areas of Washington and Hancock Counties account for 9% of all growers in those two counties, and report 2,366 acres in wild blueberry production, 6% of the total wild blueberry acreage in the two counties.

²⁷ USDA NASS. Census of Agriculture. 2007.

http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_County_Level/Maine/st23_2_034_034.pdf

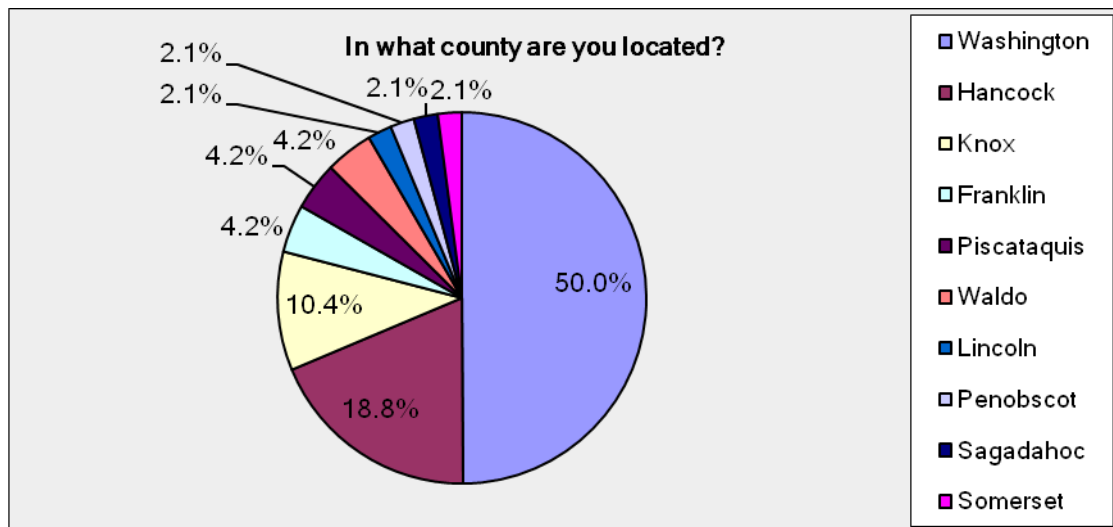
Table 11. Wild Blueberry Farmers and Acreage in Maine

	Farmers	% of Maine Blueberry Farmers	Acres	% of Maine Blueberry Acres
Maine	577	100	44,462	100
Washington County	259	44.8%	28,560	64.2%
Hancock County	124	21.5%	11,056	24.9%

Source: USDA. 2007. Census of Agriculture

The highest response rate was from Washington County, which accounted for 50% of all respondents. Hancock County had the next highest response rate at 18.8%. See Figure 1 for response distribution by county.

Figure 1. Response rate by county



Harvest

Survey respondents were asked about their average annual harvest in pounds. Table 12 below shows that the average annual harvest for Maine respondents was 58,076 pounds, totaling 2.26 million pounds. The average annual harvest for Hancock and Washington Counties respondents was 72,425 pounds, totaling just under 2 million pounds. The average annual harvest for all Maine respondents is almost 3 percent of the 2011 Maine total.

Table 12. Average Annual Harvest

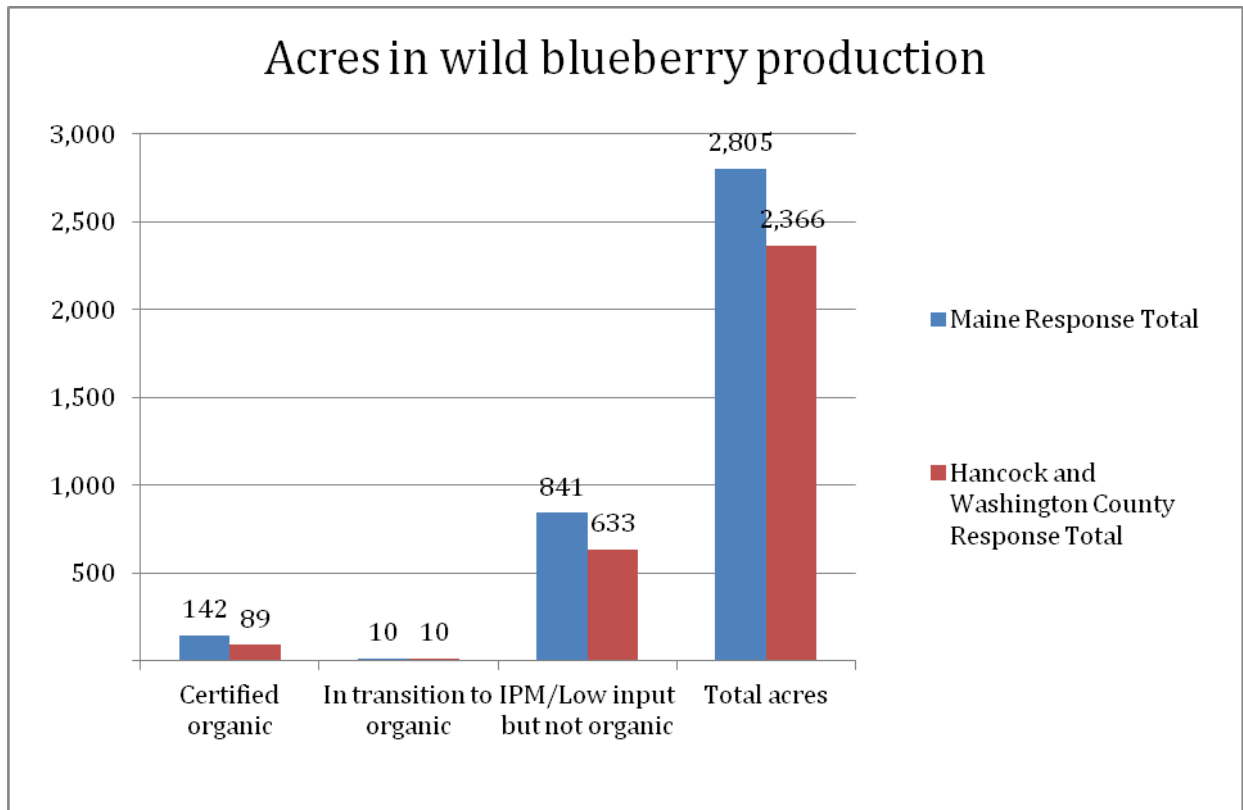
Average annual harvest in pounds		
	Response Average	Response Total
All Maine Responses	58,076.28	2,264,975
Hancock and Washington Counties	72,425.93	1,955,500
2011 Maine Total*	n/a	83,100,000

*Source: 1924-1989 Maine Department of Agriculture (1924 to 1928 includes imported berries), 1990 to 2010. New England Agricultural Statistics Service. <http://umaine.edu/blueberries/factsheets/statistics-2/statistics/>

Acres in Wild Blueberry Production

Figure 2 below shows the total acreage in wild blueberry production among survey respondents, as well as the numbers of acres that are certified organic, in transition to organic, and IPM/low input but not organic. More than half of all wild blueberry acres managed by the Maine survey respondents are conventional, with less than a third being IPM/low input but not organic.

Figure 2. Acres in Wild Blueberry Production



Plans to expand

The 27.5% of all Maine respondents interested in expanding acreage in wild blueberries report an additional 143 acres that could become active in wild blueberry production in the next 1-5 years. Of the additional 143 acres, 131 acres would be added in Washington and Hancock Counties, which at an average harvest of 4,000 lbs./acre, would yield approximately 524,000 lbs. or 262,000 lbs. per year. Table 13 below shows that of the possible expanded acreage, the vast majority would be IPM/low input but not organic.

Table 13. Anticipated Expanded Wild Blueberry Acres

Anticipated Expanded Wild Blueberry Acres		
	Maine	Washington and Hancock County
Certified organic	27	33
In transition to organic	0	0
IPM/Low input but not organic	82	57

Conclusions

This survey did not distinguish between the sales of fresh berries and the sales of berries for freezing or processing. Based on the findings of this survey, the Maine survey respondents indicated there were 1,327,800 pounds of wild blueberries already going to wholesale markets, plus a potential for an additional 28,545 pounds to sell at wholesale²⁸, for a total potential wholesale volume of 1,356,345 pounds. This is a starting point.

Given that the State of Maine produces 83 million pounds of wild blueberries on average each year, and the respondents to this survey account for 9 percent of the 577 wild blueberry farmers in the state, and 9 percent of the 383 wild blueberry farmers in Washington and Hancock Counties, there are many more wild blueberry farmers to engage in this potential venture.

²⁸ It is unclear whether this additional wholesale potential is associated with additional acreage.

Table 14. Potential volume available from respondents (in pounds) for a wholesale enterprise.

	Total pounds already going to wholesale	Total potential additional wholesale	Combined current wholesale and potential wholesale volume
Maine	1,327,800	28,545	1,356,345
Washington and Hancock Counties	1,150,950	6,200	1,157,150

Evidence of Availability

Many of the respondents to our grower survey were already selling into wholesale markets.

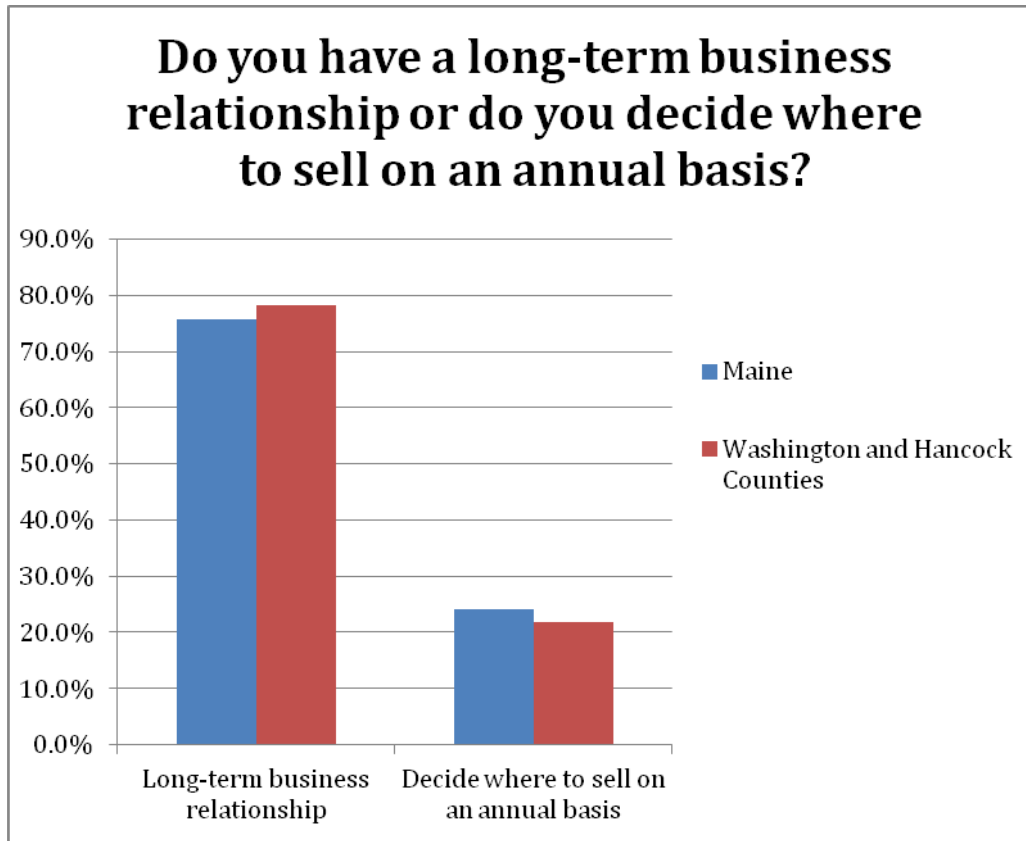
Overall, 65% of Maine respondents currently sell to wholesale markets, with a total volume of 1,327,800 pounds of wild blueberries a year, of which 1,150,950 pounds are sold from Washington and Hancock Counties.

Within the State of Maine, respondents who do not currently sell wholesale indicate an interest in selling 28,545 pounds of wild blueberries wholesale, of which 6,200 pounds would be sold from Washington and Hancock Counties, in addition to what is currently sold wholesale.

From the survey respondents from all of Maine, the total volume of wild blueberries that could potentially be sold wholesale is 1,356,345 pounds.

In Maine and in Washington and Hancock Counties, the vast majority of respondents (just under 80%) typically have long-term business relationships with wholesale buyers, while fewer than 30 percent decide where to sell on an annual basis.

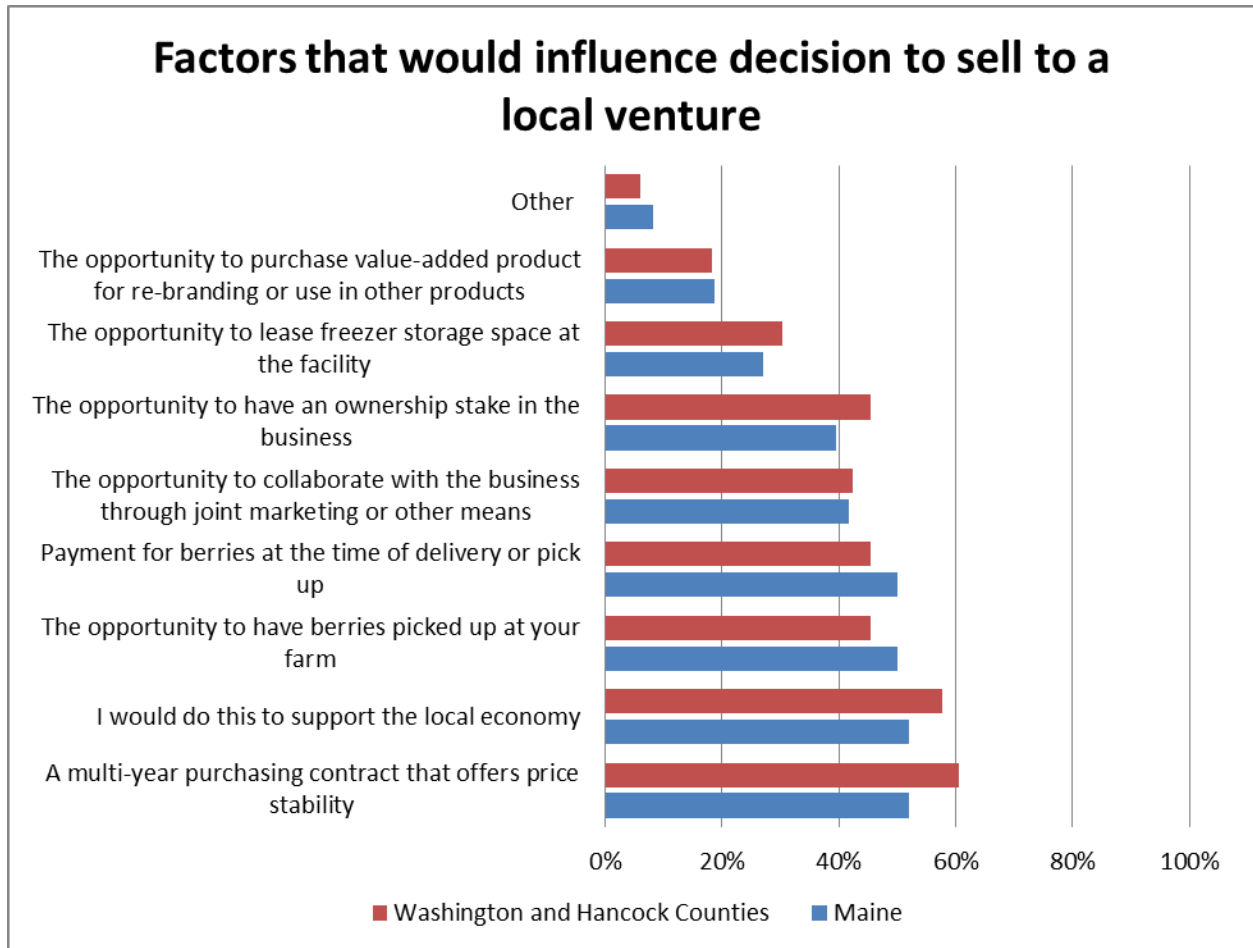
Figure 3. Business Practices



Selling to a Local Venture

Survey respondents were asked about all the factors that would influence their decision to sell to a local value-added business at competitive wholesale prices. Figure 4 shows the responses for Maine respondents as well as those respondents from Washington and Hancock Counties. More than half of Maine respondents were interested in a multi-year purchasing contract that offers price stability, the ability to support the local economy, the opportunity to have berries picked up at their farm, and payment for berries at the time of pick up or delivery. Respondents from Washington and Hancock Counties were interested in those aspects, but also the opportunity to have an ownership stake in the business.

Figure 4. Factors that would influence decision to sell to a local venture.



Factors Influencing Supply

There are several factors that can influence supply. For any agricultural venture, weather can affect supply. There are pests, like the Asian fruit fly, that can also affect supply. Land ownership and succession can also have an impact on supply, especially if property ownership changes hands or land goes out of production. Only 10% of Maine respondents to the wild blueberry grower survey reported that they are at risk of losing acreage because they do not own the land. In Washington and Hancock County, 12% reported that they are at risk of losing acreage due to lack of ownership.

Acres and Yields

The below table shows some assumptions about acres and yields of wild blueberries in Hancock and Washington Counties. Average organic yields were assumed to be 1,500 lbs. per acre, while average conventional yields were assumed to be 4,000 lbs. per acre. Because wild blueberry acres are harvested every other year, there is an average total yield and an annual yield.

Table 15. Acres and Yields

Place	Total Harvested Acres ²⁹	Organic Acres	Average Organic Yield (@ 1500 lbs./acre)	Annual Organic Yield (lbs.)	Conventional Acres	Average Conventional Yield (@4000 lbs./acre)	Annual Conventional Yield (lbs.)
Hancock County	5812	58	87,180	43,590	5,754	23,015,520	11,507,760
Washington County	14,222	142	213,330	106,665	14,080	56,319,120	28,159,560
Hancock/Washington	20,034	200	300,510	150,255	19,834	79,334,640	39,667,320
Total Maine	22,747	275	412,500	206,250	22,472	89,888,000	44,944,000

²⁹ Yarborough, David. 2011. Statistics: Wild Blueberry Acres by Counties. Total acreage is 44,462 in 577 farms. Total harvested acreage is 22,747 acres in 488 farms. There are 444 farms that have blueberry acreage that is not harvested. According to the 2007 Census of Agriculture, total organic acreage for the State of Maine is 275 acres. This is 1% of the acreage in Maine. As a result, we estimated the organic acreage in the counties by taking 1% of the total harvested acres.

Supply Scenarios

To provide some estimates of supply, we developed three scenarios for both organic and conventional wild blueberry supply. Scenario 1 assumes the use of 4% of the total supply of wild blueberries (in both the state of Maine and then in Washington and Hancock Counties), Scenario 2 assumes the use of 8% (the response to the grower survey), and Scenario 3 assumes the use of 15%. For each scenario, we estimated the volume of berries, the volume of B berries (assuming 20% of all berries for conventional and 40% for organic, per our advisory committee), and then the resulting volume of juice, pulp and puree³⁰. For pulp, there is no conversion, as there is no waste. For puree, we assumed 10% waste and for juice, we assumed 30% waste.³¹

This analysis shows how much of each product (juice, pulp and puree) can be produced under each of the supply scenarios for both conventional and organic wild blueberries. See Table 16 and Table 17 for a detailed analysis.

³⁰ Phone communication. Tom Gibson. Cornell University/NY State Agricultural Experiment Station. September 28, 2012. (315) 787-2258.

³¹ Assumptions:

- 20% of conventional berries and 40% of organic berries are B berries.
- 8.75 lbs. of berries to one gallon of juice. 30% waste.
- 10% waste from berries to puree.
- 0 waste from berries to pulp.

Table 16. Scenarios for organic and conventional B berry products using total blueberries available in Maine.

Scenario - % of total harvest assumed available for BEFV	ORGANIC			CONVENTIONAL		
	Scenario 1 - 4%	Scenario 2 - 8%	Scenario 3 - 15%	Scenario 1 - 4%	Scenario 2 - 8%	Scenario 3 - 15%
Average Annual Total Yield (from USDA)	412,500	412,500	412,500	89,888,000	89,888,000	89,888,000
Assumed available for BEFV, Blueberries ME (in pounds), all types	16,500	33,000	61,875	3,595,520	7,191,040	13,483,200
Available Conventional B Berries (in pounds), assume 20% of available berries are B berries				719,104	1,438,208	2,696,640
Gallons of Juice				57,528	115,057	215,731
Gallons of Pulp				719,104	1,438,208	2,696,640
Gallons of Puree				647,194	1,294,387	2,426,976
Available Organic B Berries (in pounds), assume 40% of available berries are B berries	6,600	13,200	24,750			
Gallons of Juice	528	1,056	1,980			
Gallons of Pulp	6,600	13,200	24,750			
Gallons of Puree	5,940	11,880	22,275			

Table 17. Scenarios for organic and conventional B berry products using total blueberries available in Washington and Hancock Counties

Scenario - % of total harvest assumed available for BEFV	ORGANIC			CONVENTIONAL		
	Scenario 1 - 4%	Scenario 2 - 8%	Scenario 3 - 15%	Scenario 1 - 4%	Scenario 2 - 8%	Scenario 3 - 15%
Average Annual Total Yield (from USDA)	300,510	300,510	300,510	79,334,640	79,334,640	79,334,640
Assumed available for BEFV, Blueberries Wash/Hancock Counties(in pounds), all types	12,020	24,041	45,077	3,173,386	6,346,771	11,900,196
Available Conventional B Berries (in pounds), assume 20% of available berries are B berries				634,677	1,269,354	2,380,039
Gallons of Juice				50,774	101,548	190,403
Gallons of Pulp				634,677	1,269,354	2,380,039
Gallons of Puree				571,209	1,142,419	2,142,035
Available Organic B Berries (in pounds), assume 40% of available berries are B berries	4,808	9,616	18,031			
Gallons of Juice	385	769	1,442			
Gallons of Pulp	4,808	9,616	18,031			
Gallons of Puree	4,327	8,655	16,228			

Summary Comparing Demand and Supply

Based on what we now know about supply and demand, it seems that it would take between 41-126 acres of conventional berries (20-63 acres harvested annually) or between 111-338 acres of organic berries (55-169 acres harvested annually) to fulfill the demand that we uncovered through our interviews with potential buyers. This is by no means the universe of demand, but merely a sample of potential demand. This acreage estimate is well within what is available in Washington and Hancock Counties, as it is just 4% of the Washington and Hancock County conventional wild blueberry acres (3,098 acres) accounted for by respondents to the grower survey. If all of the demand was for organic wild blueberries, having enough acreage in organic wild blueberries might be a challenge. According to MOFGA³², there are 530 acres of organic wild blueberries in the state of Maine; if 100% of the demand was for organic blueberries, that demand would account for 63% of the available organic acreage. However, there is definitely demand for both conventional and organic wild blueberries.

Once we had a better understanding of the supply and demand of wild blueberries in Washington County and beyond, it made sense to explore potential processing options.

³² Email communication. Grace Keown, Certification Assistant. MOFGA. 2010. www.mofgacertification.org. (207) 568-4142.

Table 18: Summary of Demand³³

	Minimum Demand Specified	Maximum Demand Specified
Gallons of Juice (Single 8 oz. serving)	627	1,254
Gallons of Juice (as an ingredient)	4,106	4,370
Total Gallons of Juice	4,733	5,624
Gallons of Puree	11,440	45,760
Total Pounds of Blueberries for juice	59,163	70,300
Total Pounds of Blueberries for puree	110,000	440,000
Total Pounds of Blueberries	169,163	510,300
Annual acreage - Conventional	42.29	127.58
Annual acreage -Organic	112.78	340.20
Acres of Conventional berries required to meet demand	84.58	255.15
Acres of Organic berries required to meet demand³⁴	225.55	680.40

³³ Assumptions:

- 20% of conventional berries and 40% of organic berries are B berries.
- 8.75 lbs. of berries to one gallon of juice. 30% waste.
- 10% waste from berries to puree.
- 4,000 lbs. of conventional blueberries per acre and 1,500 lbs. of organic blueberries per acre.

³⁴ The number of organic acres required is more than the number of conventional acres required due to the variation in yields between conventional and organic acres. Conventional blueberry acres produce an average of 4,000 lbs./acre while organic blueberry acres produce an average of 1,500 lbs./acre.

Processing Options

Before reviewing processing options, it was important to better understand the wild blueberry value chain from growers to buyers in this part of eastern Maine. It was also critical to understand the production processes that were involved in producing juice, concentrate, pulp and puree.

Description of the Value Chain from Growers to Buyers

The wild blueberry value chain in Down East Maine currently includes input suppliers, growers, freezers and storage companies, processors, distributors, wholesalers, retailers, institutions, food manufacturers who use wild blueberry products as ingredients, restaurants, and consumers.

Description of Production Processes and Options by Product

The production of juice, concentrate, pulp and puree requires different production processes, as can be seen below.

First, the wild blueberries are harvested. The berries are run through a blower/grader, which blows out the debris (leaves and sticks) and then run through the grader, which catches anything less than a quarter of an inch. There is a tilt belt; anything that rolls goes on and anything that will not roll is caught in the container and becomes the juice berries. These may be perfectly good berries and may be just attached by stems. There is generally one box for tiny berries and another box for normal berries that have stems on. The latter become juice berries.

After the berries are run through the blower/grader, they are frozen to get the most juice out of the product; the freezing breaks down the tissue. Wild blueberries last up to three years frozen. The berries need to be frozen solid for at least 48 hours.

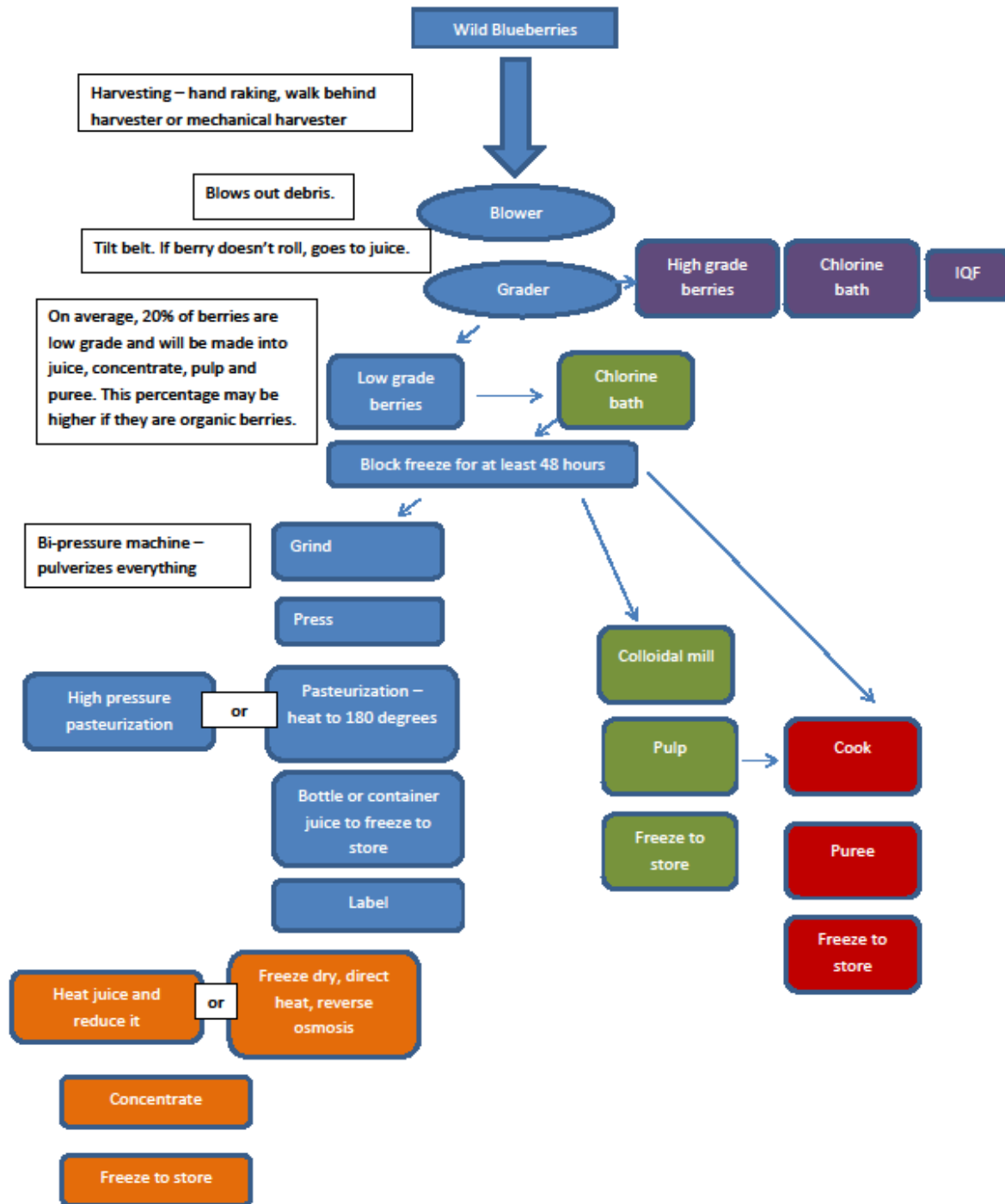
To make *juice*, the next step is to press them. This can be done by either grinding them and then pressing them or just hydraulically pressing them. After that, the juice needs to be heated to 180 degrees to pasteurize it and then bottle it. It is also possible to pasteurize it without heating, but this would not necessarily be the process for a shelf-stable juice. There is also high pressure pasteurization. At this point, the juice can be labeled or it can be blended with other types of juice. The juice can also be put into a container to be frozen or stored. Juice can stay frozen indefinitely as long as it is solid.

For *concentrate*, the juice is heated and reduced. It can be freeze dried or direct heat or reverse osmosis can be used.

To process frozen berries into *pulp*, a colloidal mill is the equipment to use. The mill is under high pressure and it pulverizes the berries into a fine pulp. It grinds the seeds and the skin. The berries would need to be sanitized before or after the berries are processed into pulp to prevent the presence of pathogens. This can be done by using a chlorine bath for the berries before processing into pulp or by heating the pulp afterward.

To process frozen berries into *puree*, a colloidal mill would still be required. Cooked pulp makes puree; the heating eliminates pathogens.

Figure 5. Blueberry Processing



Summary of Available Processing Capacity

Yellow Wood developed a list of potential processors in Maine, through survey responses, conversations and recommendations from the BEFV advisory committee. We investigated processing options in Washington County and beyond, to determine all possible options. Focusing on Washington County alone would not have provided adequate insight into available processing capacity. In addition, processors closer to population centers may have more connections to potential distributors and buyers on the demand side. Available processing capacity in Washington County is limited. If potential processing options outside of Washington County seem more favorable than those within Washington County, there may be value in pursuing them. This would allow Blueberry East Food Ventures to work on the aggregation, marketing and branding required to build a successful enterprise, which may eventually build greater demand and drive the need for a facility in Washington County.

Coastal Farms Food Processing – Jan Anderson³⁵

Coastal Farms is an incubator business in Belfast, Maine (Waldo County), started in July 2012, that provides infrastructure and equipment for individual people and small businesses that want to use it. In addition, Coastal Farms offers copacking services, where the customer maintains ownership of the product throughout the process of having it processed at the facility.

Coastal Farms' food processing facility focuses on processing of fruits and vegetables. Coastal Farms already does quick freeze and IQF for blueberries. They also process apples into applesauce and tomatoes into tomato sauce. Coastal Farms has a cellar for storing jars, kettles for making applesauce and tomato sauce products. Their equipment includes a bottle and jar filler, IQF/freezing and freezer storage, color sorter, and grading equipment. Coastal Farms also provides packaging into 30 lbs. boxes. Right now, Coastal Farms is in the process of getting MOFGA organic certification.

Their capacity at this point is to produce 60 gallons of product at a time, at which point it is jarred or bottled (using their bottle filler) at the rate of 1,000 jars an hour. Coastal Farms can handle 5 million lbs. of blueberries at a time. Their hope is to double their capacity to 10 million lbs. of blueberries in storage possibly by next year. In terms of value-added processing, this is hard to estimate, due to the newness of their operation. Jan believes that they can turn 20,000 lbs. of blueberries into pulp, but it would take about a month, as she believes they can do 5,000 lbs. per week.

Coastal Farms does not have a sense of pricing at this point. For applesauce, they charge \$1/jar to process in 24 oz. and 16 oz. jars. Jan is not sure what it would cost at this point to

³⁵ Personal Communication. Anderson, Jan. President. Coastal Farms. October 5, 2012. 207-505-5710.

process blueberries. Berries would need to be delivered to Coastal Farms, along with jars, labels and any other packaging. Coastal Farms has a labeler, capper, filler, etc. Transportation after processing would need to be taken care of by the customer also. Distributors are already picking up products at the facility.

While Coastal Farms does not have a juicing line, Jan Anderson believes they can produce juice using their pulper. However, they are in the stage of development where they want to be responsive to need. Their current infrastructure has been developed in a very basic way. As different businesses become engaged, Jan explains that they will find out what additional equipment is needed. Their actual processing area is 4,000 square feet; however, they anticipate doubling this size before long. The warehouse room, within which the processing area is housed, is 10,000 square feet. Jan Anderson at Coastal Farms Food Processing in Belfast is open to continuing to talk with Blueberry East Food Ventures.

Cobscook Bay Resource Center – Will Hopkins³⁶

Cobscook Bay Resource Center is a nonprofit organization in Eastport, Maine (Washington County), which has worked since 1998 to make good use of the renewable resources, such as scallops, in Cobscook Bay. The Resource Center recently built a commercial kitchen, which is in the process of being outfitted with equipment. The main business opportunity for this kitchen is to flash freeze scallops in the winter during scallop season and hold them in freezers to sell in the summer, when the population increases. In addition, they will be processing vegetables and farm produce in August, September, October, and November, to be sold retail on premises and to end-consumers and restaurants. Once those two strategies are rolled out, they will also offer copacking services in the fall of 2013 and shared-use kitchen access in late winter/early spring 2014. Will Hopkins explained that they may begin working with a copacking client earlier than fall of 2013 should the opportunity arise, though next fall is the earliest they envision offering copacking services to the general public.

The Resource Center will be producing products for retail and wholesale markets. Their hope is to be organic as well. Their equipment list for this small 1,200 square foot facility (including kitchen and retail area) includes a walk-in cooler (10 foot square), usual prep sink (2 bay), 3 bay wash sink, production line (including a stand-up freezer and stand-up refrigerator, six burner gas stove, and 12 gallon steam jacketed kettle), blast freezer (sufficient size to freeze 1,000 lbs. of scallops overnight). Their goal is to produce a low volume of high value items, rather than the reverse. There will be three small storage freezers to hold what they are freezing. At this point, they realize that they do not have

³⁶ Personal Communication. Hopkins, Will. Cobscook Bay Resource Center. October 16, 2012. (207) 853-6607.

adequate freezer storage space. There is room in the parking lot to place a 10 foot long freezer box. They are currently looking for off-site freezer storage and dry product storage.

If BEFV does end up building a facility with some significant freezer storage associated, Will would be interested in partnering to use some of the storage space and freezer storage space. The only role that the Resource Center might play with blueberries is if there are small-scale growers who want to add value to their own berries, such as small-scale jams, jellies or preserves. They would also be able to freeze small batches of high quality berries. They are not equipped to process berries into juice, concentrate, pulp or puree. On the marketing end, Will may be able to help market whatever retail products BEFV would produce. Will wants BEFV to succeed, because it would add to the local food cluster that is about to emerge in eastern Washington County; this will make it easier to market the Resource Center, to find funding and financing, and to get to markets.

Foggy Hill Farm – Josh Dickson³⁷

Josh Dickson of Foggy Hill Farm in Frankfort, Maine (Waldo County) is mainly selling wholesale organic berries, very small-scale and direct to market. They are looking to buy a commercial fresh pack processing machine and to build a new building in order to ramp up production. His decision right now is whether to purchase a small machine or a larger machine. If they decide on the small machine, they will be able to process their berries and possibly those of one or two other farms. If they decide on the larger machine, they will have much more flexibility to process larger quantities. Josh is also looking at purchasing another piece of land. Josh is open to helping small growers; there may be the potential to process other people's berries. His primary product right now is fresh pack berries. He is not currently doing value-added, but would consider it, depending on the reimbursement scenario. They are interested in getting a foundation for a new building put in this fall or next spring 2013. Based on their existing relationship with MOFGA, Josh believes that getting a facility certified organic through MOFGA would not be a problem. They were already thinking about getting a portion of their land GAP certified. Right now, they have 8 producing acres, out of 40 acres total. Josh believes with some work, he could get another 5 acres producing. In addition, he's thinking about purchasing another 50 acre parcel, of which 10 acres are in berries.

Gladstones Under the Sun – Rosemary Gladstone³⁸

Rosemary Gladstone has been in the food industry and wild blueberry industry for over 10 years. Gladstones Under the Sun, located in Bar Harbor, Maine (Hancock County) started by

³⁷ Personal Communication. Dickson, Josh. Foggy Hill Farm. October 8, 2012. (207) 299-7911.

³⁸ Personal Communication. Gladstone, Rosemary. Gladstones Under the Sun. October 9, 2012. (207) 669-6046.

creating healthy snack foods geared toward hikers, featuring dried wild blueberries without high fructose corn syrup. Using a seed grant from the Maine Technology Institute, Gladstones was able to work with food scientists and processors to come up with a way to get high fructose corn syrup out of dried blueberries and cranberries and work with fruit concentrates instead. Their processing plant is in Hancock, just over the line from Ellsworth. The location is ideal because of proximity to the labor pool and to shipping. Gladstones markets their dried blueberries as Caviar of Maine (Caviarofmaine.com), to appeal to a higher end market. They also produce jarred moist blueberries in blueberry juice, an organic blueberry maple syrup, and pie syrup and spread. There is no waste in their processing.

Rosemary is interested in talking further. They would not be able to process juice without additional equipment, such as bottling and pasteurization equipment. Gladstones does have an evaporator which removes water to produce the kind of concentrate they use in their process, which is basically used to infuse the fruit. Gladstones markets the infused berries which are in juice as moist blueberries in blueberry juice. They use a kettle to bring the berries up to the right temperature and then they have a piston filler to fill jars, at which point the jars go in a hot bath.

Gladstones has a freezer that can hold at least 40,000 lbs. of berries, as well as a loading dock and storage capacity.

Gladstones also has the infrastructure for distribution and marketing which is a benefit. They package in retail sizes or in wholesale sizes for restaurants. Their business model accounts for 25% of sales from value-added retail on the website (which has the best margins) and 60% in wholesale markets for value-added retail units sold to other retailers like L.L. Bean and Hannaford). About twenty percent is sold to other ingredient users. They sell on the internet as well as to Hannaford and Whole Foods in Portland.

Wild Wescogus Berries – Marie Emerson³⁹

Marie and Dell of Wild Wescogus Berries in Addison, Maine (Washington County) have their own facility at this point, with a good size freezer and two fresh pack lines. They have been in business for 30 years; people make a pilgrimage to their farm every year. They also have a cooperative of 17 growers (of which 5 are reliable and steady) that produce for Hannaford and food cooperatives. Marie and Dell also have their own retail store that sells everything blueberry (ice cream, pies, scones, jams/jellies, etc.). They have given some thought to a juice factory, but are also pondering retirement.

Currently, their processing results in a significant volume of B berries, which they sell now to Wyman's, but they would love to be able to add value to the berries on their own. Their

³⁹ Personal Communication. Emerson, Marie. Wild Wescogus Blueberries. October 1, 2012. (207) 483-3884.

property is pesticide free, but not organic. Marie and Dell produce product for retail and wholesale. Frozen berries are sold in pints, 5 lbs. and 10 lbs. boxes. The pints are for the cooperative.

Marie and Dell are interested in processing their berries and other growers' berries into juice. They currently purchase a lot of berries from growers and pay a fair price. They have also considered putting in a juice line. Marie and Dell have already built a large building for storage and a small blueberry museum. They are considering a fresh pack juicing line with glass for agritourism so people could see the whole process. Marie is not sure of the timeline, as they are still determining whether to move forward or to retire. If they did move ahead, Marie believes that growers would bring berries to them, they would be weighed, and growers would be paid at the end of the month. For a bottling line, they would look at using second-hand equipment redirected from dairy farms. Marie and Dell would package in 8 oz. bottles and a larger size for store shelf consumption. Wyman's sells in ½ gallon and 8 oz. bottles.

Cobscook Community Learning Center – Alan Furth⁴⁰

Cobscook Community Learning Center in Trescott, Maine (Washington County) is the nonprofit parent of the for-profit “Maine Fresh” company which currently makes four flavors of frozen seafood pies. They have been in operation for close to two years. Alan is interested in exploring incorporating blueberry processing for BEFV under their business model “umbrella.”

The work that the Learning Center does is specific to production of seafood pies right now and the facility is geared toward that production line. They are currently producing single serving 8 inch seafood pies. Their equipment includes a kettle, 100 gallon or 60 gallon double boiler steam pots, and an assembly line where the pies are loaded by hand. They also have a sealing machine, boxing machine, blast freezer, and storage freezer. They are also HAACP licensed to be a shucking house. The Learning Center purchase vegetables and other ingredients and put them together with the seafood at their plant, from which they also freeze and ship them. Their pies are in Whole Foods from Maine to Washington State and they are hoping to expand to all the Whole Foods nationally.

The Learning Center expects to grow beyond the four types of pies to any number of value-added regional food products.

While they do not have a juicing or puree line, they do have a facility that is HAACP certified, and they may have the land on which to expand their facility, with additional capital. Through their organization and the Cobscook Bay Company, they have an LLC and

⁴⁰ Personal Communication. Furth, Alan. Cobscook Bay Learning Center. November 7, 2012. (207) 733-2233.

a secondary LLC, with different levels of ownership. Their goal is to create profit-sharing ventures that support the community, individuals and businesses. They also hope to be an incubator of businesses with similar missions.

According to Alan, there is potential to explore a partnership opportunity with Cobscook Bay Company, and fold something under their brand. Alan also suggested the BEFV committee talk to the Passamaquoddy Tribe, which has facilities, capacity and interest in developing industries that benefit their community. The cofounder of the Learning Center is the community planner of the tribe.⁴¹

Regarding expansion potential, it depends on what BEFV would need. There is potential, as long as something was done to augment or expand the water retention capacity of their drilled well. The Cobscook Bay Company would be interested in being an advisor, or an actual partner, in a BEFV venture. However, the company is also imagining outgrowing their current space in five years, at which point they would think about building or buying another facility. If partnership was a consideration, Alan believes that they might look at a new facility, but he is willing to invite an exploration as to whether their current facility has the space. Another option is a seasonal production plan. For example, their processing is generally in the winter. If blueberries required processing before winter, Alan may be open to creating an arrangement where the plant could be stripped down, equipment changed, blueberries processed, and then switch the space back into a seafood processing facility.

Processing Capacity Summary

The available processing capacity of the companies studied is fairly minimal at this point. Almost all the processors with whom we spoke would require significant investment before being able to process any BEFV products. Coastal Farms was one processor that could work to process BEFV berries into pulp and possibly puree without additional investment. Jan Anderson believes that they can process juice using their pulper; however, BEFV would benefit from the potential addition of a juicing line to their offerings. Currently, Coastal Farms has the capacity to produce 60 gallons of product at a time, at which point it is jarred or bottled (using their bottle filler) at the rate of 1,000 jars an hour. They can freeze and store 5 million lbs. of blueberries at a time. Jan believes that they can turn 20,000 lbs. of blueberries into pulp, but it would take about a month, as she believes they can do 5,000 lbs. per week. While we did not find great demand for pulp, there was significant demand for puree (100,000 lbs. to 400,000 lbs.). Pulp needs to be cooked in order to transform it into puree; this added step would undoubtedly require more time. Assuming the puree would

⁴¹ Yellow Wood attempted to speak with the Passamaquoddy Tribe contact, but, at the time of this report, had not yet connected.

take an additional couple of weeks, it seems that Coastal Farms may be able to process approximately 173,000 lbs. of blueberries into puree annually, which is at the lower end of the current identified demand. If BEFV is interested in serving the upper limits of the current identified demand, Coastal Farms will in all likelihood be unable to meet that demand, until they expand their facility next year.

Other processors had freezer and storage capacity, but little in the way of the processing equipment needed to produce the products in which BEFV is interested. The shared use kitchen opportunities that are forthcoming may be able to product small quantities of pulp and puree, but it is unlikely they would have the equipment to process berries into juice.

Expertise Required for a Successful Business Venture

A successful business venture based on processing wild Maine blueberries into juice, concentrate, pulp and puree requires a variety of different types of expertise. A potential facility would require its own staff; actual numbers and job descriptions would depend on its size, capacity and services. This information will come with Phase 2 of the feasibility study.

Beyond the facility, a value-added wild Maine blueberry enterprise would require a staff member in charge of the logistics and aggregation of wild blueberries from Maine growers. This person would develop and maintain relationships with wild blueberry growers and cultivate relationships with new growers, so would need to have agricultural expertise and good communication skills. An enterprise like this would also require a staff member to be in charge of the marketing and branding of wild Maine blueberry products. This would involve developing and maintaining relationships with potential buyers as well as continually cultivating new buyers. The skills required for this position would be most likely found in someone with expertise in the food industry.

Preliminary Assessment of Feasibility

Based on the results of this preliminary feasibility research, we believe that there is reason to proceed with the full assessment of feasibility. There seems to be sufficient demand from a variety of potential buyers to justify further investigation. In addition, there seems to be sufficient supply to warrant further consideration.

While there are processors available and interested in working with BEFV, most are outside of Washington County and would require significant machinery and equipment investments to be able to produce the types of products BEFV is interested in marketing. One, Coastal Farm and Food Processing, while outside of Washington County, is open to adding equipment that would be useful to their clients; it is our understanding that they would be willing to incur those additional machinery/equipment costs if the demand required them. Processors in Washington County are very small and, while open to collaborating with BEFV, do not seem to offer optimal situations for a BEFV enterprise.

Phase 2 of the feasibility study will further study the existing processing options and required equipment and machinery as compared with the costs of building a processing facility from scratch in Washington County, with the required machinery and equipment.

Challenges and Opportunities

Based on what we know about the wild blueberry industry currently, there are challenges to be aware of, mainly in the area of competition. Wyman's and Cherryfield Foods are the major players in the commercial wild blueberry market. However, this provides an opportunity for BEFV to distinguish itself from the major players as a producer of wild blueberries from small and mid-sized growers. This can be done by using the stories of the growers in branding and marketing of BEFV products.

From the grower survey, it seems that many growers are already selling into wholesale markets, but this may mean that they are already selling to Wyman's or Cherryfield Foods. There may be a challenge in convincing some of these small and mid-sized growers to join the BEFV grower group.

Another challenge that has recently arisen is the Asian fruit fly, which is a significant problem for organic growers in particular. This fly lives in the woods, has a 12 day life cycle and lays so many eggs in green blueberries that they eventually drop off. According to Dell Emerson, conventional growers are planning to spray at least once a week to control it. This fly has the potential to significantly cut blueberry growers' yields.

Another challenge revolves around what it means to be a 100% Maine product. If, in one season, Maine's wild blueberry crop suffers, then the brand may suffer due to a dearth of blueberries. One processor mentioned that they use a "Maine and Maritime" label so that they can secure berries from both Maine and Canadian Maritime small and mid-sized growers, allowing enough duplication so that if Maine or the Canadian Maritimes has a rough year, they can still maintain their supply. This is both a challenge and an opportunity, in that it may open up partnerships across the Maine border.

Funding Sources

Developing a value-added enterprise such as Blueberry East Food Ventures is considering involves a variety of players, next steps and financial needs. Potential funding sources include, but are not limited to, the following:

1. Federal sources, such as USDA Rural Development Grants, Business and Cooperative Grants (for example, value added producer grants), Community Food Projects Competitive Grants.
2. Regional sources, such as Northeast SARE partnership grants, sustainable community grants, and farmer grants.

3. State sources, such as Maine Farms for the Future Business Development and Investment Support program, Agricultural Marketing Loan Fund program, Community Development Block Grant Special Projects Matching Funds.
4. Foundation sources such as the Maine Community Foundation's Community Building Grant Program, the Maine Charity Foundation Fund.
5. Local sources, such as the Sunrise County Economic Council's Washington County UT TIF Loan Fund and the Sunrise Loan Fund.

For more information about these funding sources, go to Appendix F.

Next steps

There are several next steps for a Blueberry East Food Ventures enterprise. Based on a meeting held November 28, 2012 in Sullivan, Maine, several immediate next steps were discussed which should be taken before the completion of the full feasibility study.

1. Maine Coast Heritage Trust (MCHT) and others will draft the story of the BEFV mission, vision, and history to be part of a Request for Proposals to engage an entrepreneur or coalition of entrepreneurs.
2. MCHT/BEFV will continue the conversation with Marie and Dell Emerson, Dwayne Shaw and Cheryl Wickson to determine if there may be interest on the part of any or all of them to move forward with a value-added processing enterprise. Alan Furth of the Cobscook Bay Learning Center is another potential partner, as he has underutilized staff at this time.
3. MCHT/BEFV will engage potential interested funders and institutions in the work moving forward. These include the Maine Community Foundation (MCF) and the Sunrise County Economic Council. Sustainable agriculture and Washington County are high priorities for MCF and Sunrise County Economic Council. MCHT/BEFV will also discuss potential networks to engage.

Once the immediate next steps are completed, Yellow Wood recommends that BEFV moves forward with the second phase of the feasibility report and seeks an entrepreneur.

1. **Complete the full feasibility study.** This preliminary feasibility report is only the first phase of a full feasibility study report. The remaining steps to complete the full feasibility study include:
 - a. Further investigate required processing expertise and facilities and related costs and potential processing partner.
 - b. Understand the logistics of coordination between facilities including how to fill potential infrastructure gaps by improving existing facilities, adding storage, etc. and related costs.

- c. Further investigate organic and/or conventional products, as well as supply in relation to particular products in an effort to determine the right initial product mix and opportunities for diversification over time, based on demand, cost and price estimates.
 - d. Clearly define the role of the business and the business model that makes the most sense, including the role of growers within it. Provision of guidance and insight into legal and organizational structure (coop, etc.) including incorporation status.
 - e. Understand price points and how to achieve a fair return to growers.
 - f. Understand branding costs and process.
 - g. Provide a framework for the business plan that includes:
 - i. revenue analysis based on the demand analysis in Phase I with any other insights
 - ii. estimated budget for coordination between facilities and filling in infrastructure gaps by improving existing facilities, adding storage, etc.
 - iii. staffing structure with compensation/benefit analysis based on the local labor market. Are there skill deficits that we are likely to face?
 - iv. operating margin analysis with respect to other costs of goods besides labor and capital
 - h. Provide final feasibility study and present to the entities requested by the client, including the BEFV board.
 - i. Deliver a presentation of findings in person to MCHT staff and BEFV board, along with ten (10) feasibility study hardcopies and one electronic version in PDF format.
2. Assuming the feasibility study shows that a Blueberry East Food Ventures enterprise is feasible, the next step would be for BEFV to **choose a management structure** for the operation and **identify an entrepreneur or entrepreneurial organization to take a leadership role**. This step needs to be done before embarking on a business plan.
 3. The next step would be to **develop a business plan**. The Business Plan would include a description of the chosen structure, assessment of the competition, refinement of the products and infrastructure required, sources and uses of funds, financial projections, including a breakeven analysis, and operational and marketing plans. The Business Plan would include all information necessary for BEFV to bring the project to funders. Tasks to complete the business plan would include:

- a. Description of the Business Structure and Managerial Feasibility
- b. Summary of Market Potential and Marketing Plan
- c. Operational Plan
 - i. Supply
 - ii. Product Development
 - iii. Infrastructure
 - iv. Staffing
- d. Financial Requirements
 - i. Capital Requirements (including start-up costs)
 - ii. Revenue Projections
 - iii. Operating Costs - Develop a three to five year pro-forma operating budget, with a recommended plan for achieving break-even and profit.
 - iv. Breakeven Analysis
- e. Draft Business Plan
- f. Final Business Plan

Appendices

Appendix A: Grower Survey Instrument and Contacts

Appendix B: Grower Survey Analysis

Appendix C: Demand Interview Questions and Contacts

Appendix D: Processor Interview Questions and Contacts

Appendix E: Potential Funding Sources

Appendix F: Equipment and Cost Information

Appendix A: Grower Survey Instrument



Blueberry East Food Ventures Grower Survey

Introduction

Blueberry East Food Ventures is a collaborative effort of Maine organic and conventional wild blueberry growers facilitated by Melissa Lee of Maine Coast Heritage Trust that is continuing to explore the feasibility of starting a business that would benefit small to mid-size wild blueberry growers in eastern Maine by offering a competitive wholesale price for berries and the possibility of an ownership share in the enterprise. The focus on the business will be on producing and marketing a 100% Maine grown wild blueberry juice along with wild blueberry puree, concentrate, and pulp for wholesale markets. We are considering an organic and a non-organic line of products.

To complete the feasibility study, we must be able to answer one fundamental question:

Is there sufficient supply of wild blueberries that growers are willing to sell to a new venture at competitive wholesale prices to justify the costs of a value-added enterprise at a commercial scale?

Even if you are not interested in Blueberry East Food Ventures, it would help us if you would answer the portions of this survey that are applicable to you. This will give us the most realistic idea of our prospects. Thank you for your time.

If you have already completed this survey, thank you.

Questions

1. Which of the following factors would positively influence your decision to sell berries to a local value added business at competitive wholesale prices? (Please check all that apply)

- A multi-year purchasing contract that offers price stability
- The opportunity to have an ownership stake in the business
- The opportunity to collaborate with the business through joint marketing or other means
- The opportunity to purchase value-added product for re-branding or use in other products
- The opportunity to have berries picked up at your farm
- Payment for berries at the time of delivery or pick up
- I would do this to support the local economy
- The opportunity to lease freezer storage space at the facility

If interested in leasing freezer storage space, what volume of space is needed?

Other: _____

2. Do you have or are you aware of any existing facilities in or within a reasonable distance of Hancock and Washington Counties that may be able to produce blueberry juice, concentrate, puree, and/or pulp for this venture?

Yes No

If yes, we would appreciate the names of these businesses and any contact information you may have.

3. In what county are you located?

- Androscoggin
- Aroostook
- Cumberland
- Franklin
- Hancock
- Kennebec
- Knox
- Lincoln
- Oxford
- Penobscot
- Piscataquis
- Sagadahoc
- Somerset
- Waldo
- Washington
- York

4. What is your average annual harvest of wild blueberries in pounds?

5. How many acres do you currently have in wild blueberry production **in Maine**?

6. Of those acres, how many are:

- # _____ Certified organic
- # _____ In transition to organic
- # _____ IPM/Low input but not organic
- # _____ None of the above.

7. Do you have plans to expand your acreage over the next 1-5 years?

Yes No

If yes, by how much? _____

8. Will the expanded acres be: (Please check all that apply.)

- Certified organic
- In transition to organic
- IPM/Low input but not organic
- None of the above.

9. Are you at risk of losing acreage because you do not own the land?

____ Yes ____No

10. Are you Good Agricultural Practices (GAP) certified?

____ Yes ____No

If no, do you have plans to become GAP certified?

____ Yes ____No

11. Do you currently sell wild blueberries to wholesale markets?

____ Yes ____No

If yes, approximately what percentage of your harvest goes to wholesale markets?

____%

Do you have a long-term business relationship or do you decide where to sell on an annual basis?

- ____ Long-term business relationship
- ____ Decide where to sell on annual basis

12. If you do not currently sell wholesale, would you be interested in selling any portion of your crop at wholesale to a locally owned and controlled wild blueberry processing business?

____ Yes ____No

If yes, approximately what percentage of your harvest would you want to sell at wholesale?

_____ %

13. What types of post-harvest facilities do you have? (Please check all that apply.)

_____ Washing

_____ Sorting

_____ Grading

_____ Cooling

_____ Freezing

_____ Packing for wholesale

_____ Other: _____

14. Would you like to receive the results of this survey?

_____ Yes

_____ No

If so please provide your email address:

If you do not have email and would like the results, please provide your name & snail mail address:

Thank you for your help in determining the feasibility of a value-added enterprise to benefit Maine wild blueberry growers!

Appendix B: Grower Survey Analysis

Introduction

As part of the Blueberry East Food Ventures Feasibility Study, Yellow Wood developed a survey targeted at Maine wild blueberry growers to identify, 1) the current acreage and production of wild blueberries in Maine 2) the potential for expanded wild blueberry acreage and production, and 3) interest in selling to wholesale markets and supporting a 100% Maine wild blueberry processing venture.

Methodology

The survey was distributed using two methods – through the online survey tool Survey Monkey, and in print format in person.

The online database for the Blueberry East Food Ventures Grower Survey was developed by Yellow Wood using online directories (see Table 19). Through these directories, Yellow Wood generated a database of 121 Maine wild blueberry growers with publicly available email addresses.

Table 19 (Appendix). Sources of Wild Blueberry Grower Contacts

Directory	Website
Maine Department of Agriculture, Get Real Get Maine	http://www.getrealmaine.com/
Value Added Producers	http://umaine.edu/blueberries/value-added-products/
Maine Organic Farmers and Gardeners Association	http://www.mofga.org/

The survey was also distributed in paper format to approximately 225 growers who attended the July 18, 2012 Wild Blueberry Field Day, held at Blueberry Hill Farm in Jonesboro, Maine. Growers who did not complete the survey in person were given a postcard with information on how to access the online survey.

The online survey was sent out on July 18th. Reminders were sent to people who had not responded on July 25th, August 2nd, and August 15th. The survey information and link was also published in the University of Maine Cooperative Extension's *Wild Blueberry Newsletter* in August 2012, accessible through the following link:

<http://umaine.edu/blueberries/newsletters/wild-blueberry-newsletter-august-2012/>.

Of the 121 emails sent, two recipients opted out of the survey, three recipients requested to be removed from the email list, as they did not currently grow wild blueberries, and two recipients had completed the survey at the Wild Blueberry Field Day. In total, the survey received 54 responses, of which 33 respondents (or 61%) were located in Washington or

Hancock County, the main target counties for the potential Blueberry East Food Ventures enterprise. Overall, the survey had a response rate of approximately 16%.

Distribution of Responses by County

According to the 2007 Census of Agriculture, there were 577 wild blueberry farms and 44,462 acres in wild blueberry production in Maine in 2007. In 2007, in Washington County there were 259 wild blueberry farmers with 28,560 acres, and in Hancock County there were 124 wild blueberry farms with 11,056 acres.

The respondents to the Blueberry East Food Ventures Grower Survey account for approximately 9% of all wild blueberry growers in the state. Survey respondents have 2,805 acres in wild blueberry production, which represents about 6.3% of all acres in wild blueberry production in Maine. The 33 respondents from the target areas of Washington and Hancock Counties account for 9% of all growers in those two counties, and report 2,366 acres in wild blueberry production, 6% of the total wild blueberry acreage in the two counties.

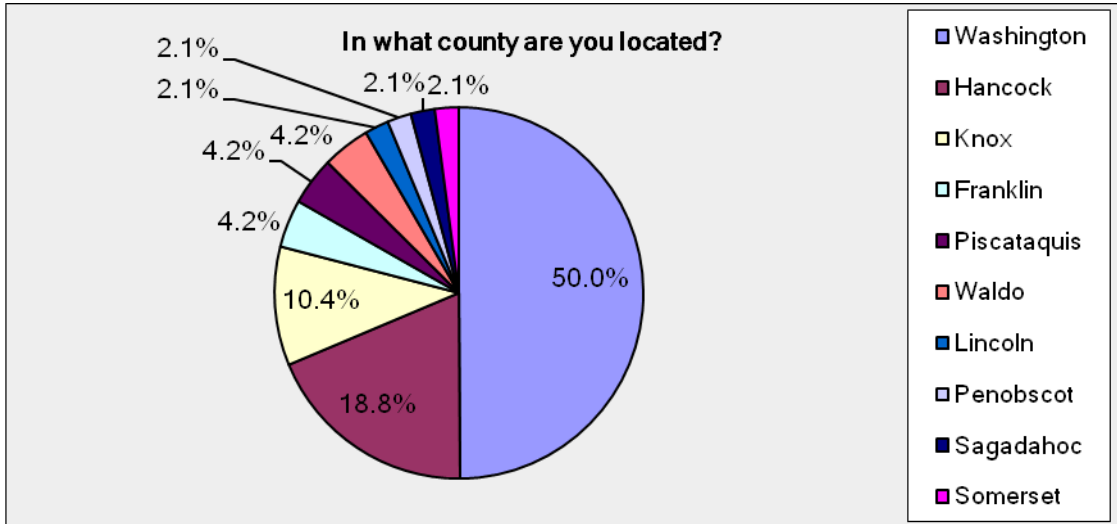
Table 20 (Appendix). Wild Blueberry Farmers and Acreage in Maine

	Farmers	% of Maine Blueberry Farmers	Acres	% of Maine Blueberry Acres
Maine	577	100	44,462	100
Washington County	259	44.8%	28,560	64.2%
Hancock County	124	21.5%	11,056	24.9%

Source: 2007 Census of Agriculture

The highest response rate was from Washington County, which accounted for 50% of all respondents. Hancock County and Knox County had the next highest response rates. There were no respondents from Androscoggin, Aroostook, Cumberland, Kennebec, Oxford, or York. See Figure 6 for response distribution by county.

Figure 6 (Appendix). Response rate by county



Harvest

Survey respondents were asked about their average annual harvest in pounds. Table 21 below shows that the average annual harvest for Maine respondents was 58,076 pounds, totaling 2.26 million pounds. The average annual harvest for Hancock and Washington Counties respondents was 72,425 pounds, totaling just less than 2 million pounds. The average annual harvest for all Maine respondents is almost 3 percent of the 2011 Maine total.

Table 21 (Appendix). Average Annual Harvest

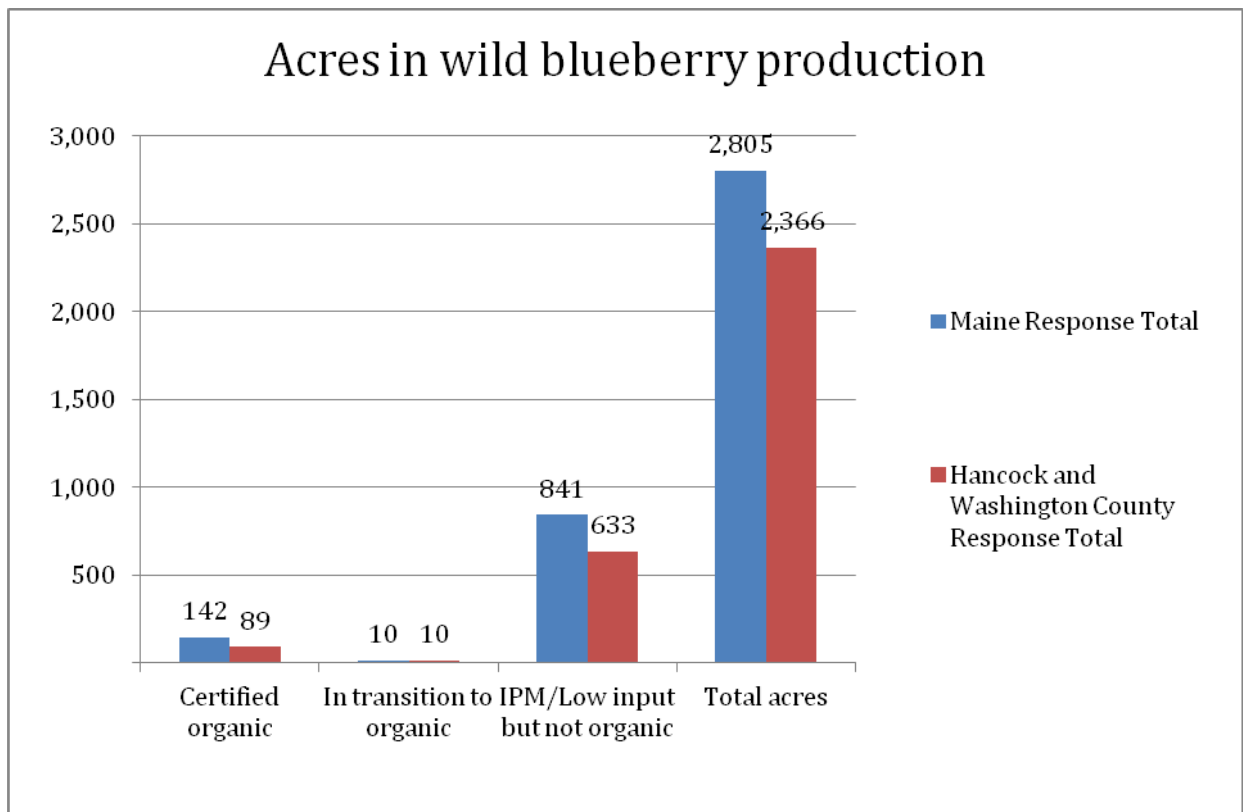
Average annual harvest in pounds		
	Response Average	Response Total
All Maine Responses	58,076.28	2,264,975
Hancock and Washington Counties	72,425.93	1,955,500
2011 Maine Total*	n/a	83,100,000

*Source: 1924-1989 Maine Department of Agriculture (1924 to 1928 includes imported berries), 1990 to 2010. New England Agricultural Statistics Service.

Acres in Wild Blueberry Production

Figure 7 below shows the total acreage in wild blueberry production, as well as the numbers of acres that are certified organic, in transition to organic, and IPM/low input but not organic. More than half of all wild blueberry acres managed by the Maine survey respondents are conventional, with less than a third being IPM/low input but not organic.

Figure 7 (Appendix). Acres in Wild Blueberry Production



Plans to expand

The 27.5% of all Maine respondents interested in expanding report an additional 143 acres that could become active in wild blueberry production in the next 1-5 years. Of the additional 143 acres, 131 acres would be added in Washington and Hancock Counties. Table 22 below shows that of the possible expanded acreage, the vast majority would be IPM/low input but not organic.

Table 22 (Appendix). Anticipated Expanded Wild Blueberry Acres

Anticipated Expanded Wild Blueberry Acres		
	Maine	Washington and Hancock County
Certified organic	27	33
In transition to organic	0	0
IPM/Low input but not organic	82	57

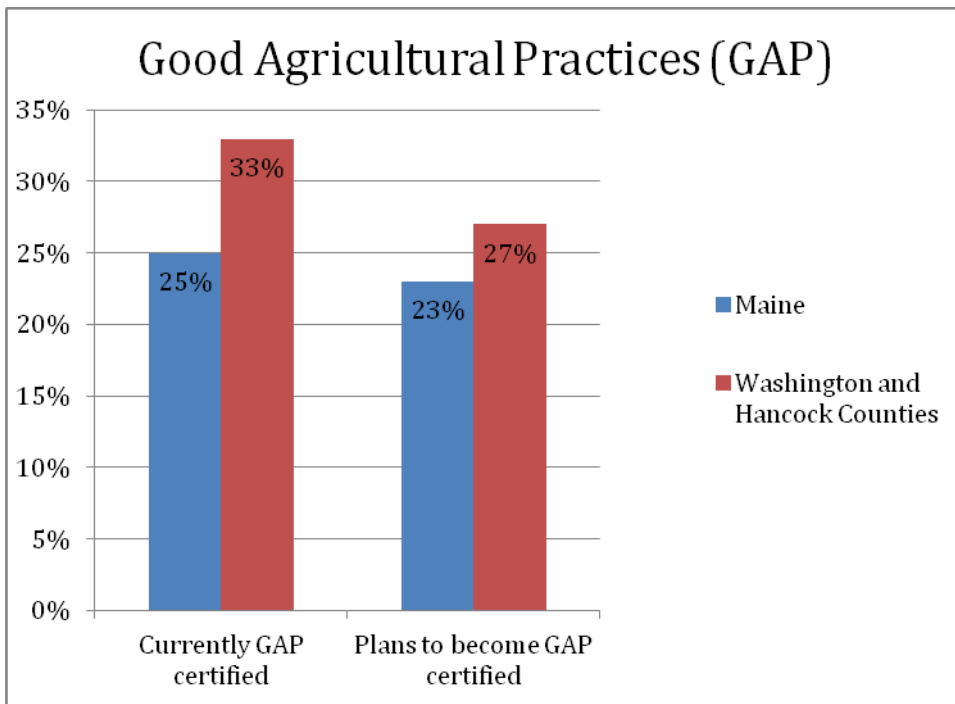
Acreage at risk

Only 10% of Maine respondents are at risk of losing acreage because they do not own the land. In Washington and Hancock County, 12% are at risk of losing acreage due to lack of ownership.

GAP Certification

A higher proportion of respondents in Washington and Hancock County are Good Agricultural Practices (GAP) certified or are planning to become GAP certified when compared with Maine respondents. About 25% of Maine respondents and 33% of Washington and Hancock County respondents are already GAP certified.

Figure 8 (Appendix). GAP and plans to become GAP certified



Wholesale Markets

Percentage and Volume Going to Wholesale Markets

Overall, 65% of Maine respondents currently sell to wholesale markets, with a total volume of 1,327,800 pounds of wild blueberries a year, of which 1,150,950 pounds are sold from Washington and Hancock Counties.

Percentage and Volume that Might Go to Wholesale Markets

Within the State of Maine, respondents who do not currently sell wholesale indicate an interest in selling 28,545 pounds of wild blueberries wholesale, of which 6,200 pounds would be sold from Washington and Hancock Counties, in addition to what is currently sold wholesale.

Table 23 (Appendix). Wholesale volumes

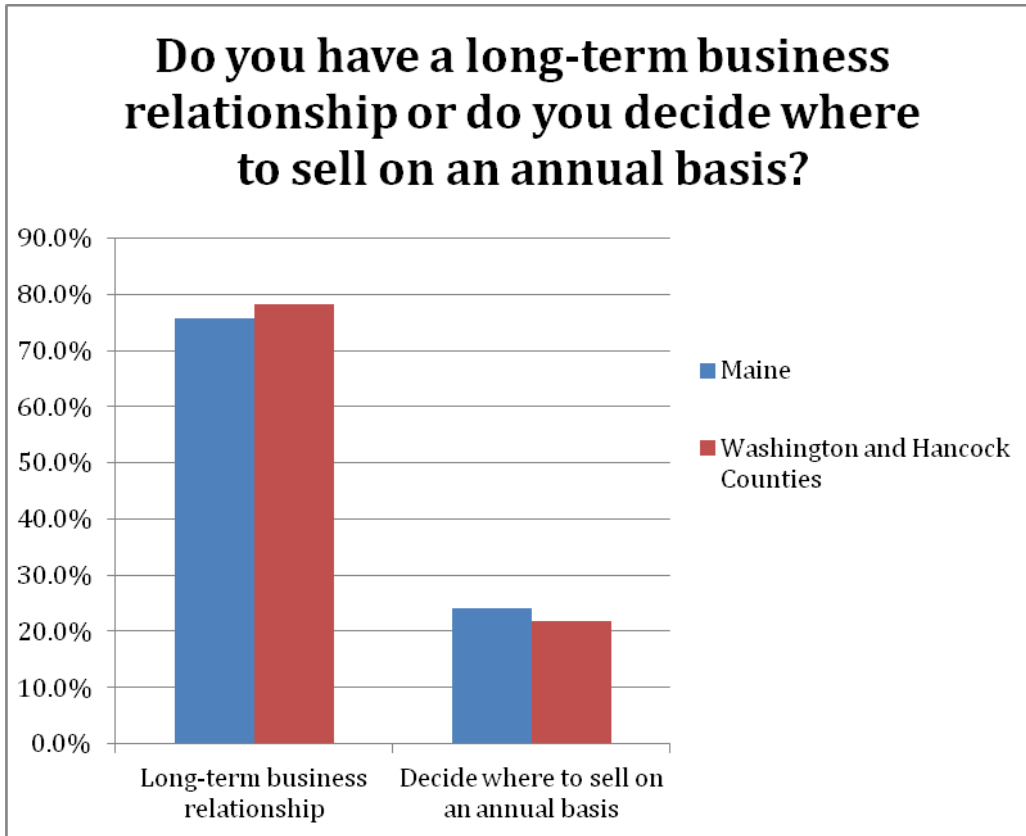
	Total pounds already going to wholesale	Total potential wholesale
Maine	1,327,800 lbs.	28,545 lbs.
Washington and Hancock Counties	1,150,950 lbs.	6,200 lbs.

From the survey respondents from all of Maine, the total volume of wild blueberries that could potentially be sold wholesale is 1,356,345 pounds.

Long-Term Business Relationships

In Maine and in Washington and Hancock Counties, the vast majority of respondents (just under 80%) typically have long-term business relationships with wholesale buyers, while fewer than 30 percent decide where to sell on an annual basis.

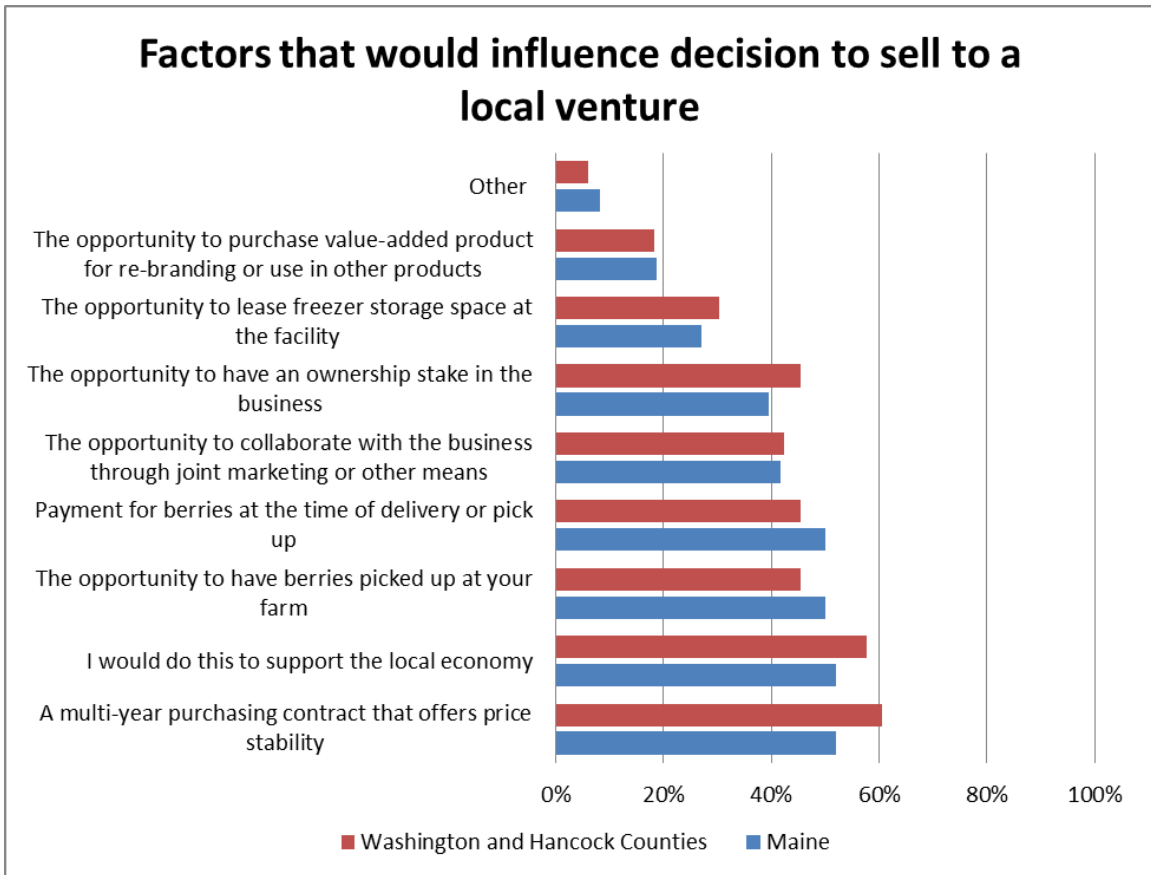
Figure 9 (Appendix). Business Practices



Factors that Would Influence the Decision to Sell to a Local Venture

Survey respondents were asked about all the factors that would influence their decision to sell to a local value added business at competitive wholesale prices. Figure 10 shows the responses for Maine respondents as well as those respondents from Washington and Hancock Counties. More than half of Maine respondents were interested in a multi-year purchasing contract that offers price stability, the ability to support the local economy, the opportunity to have berries picked up at their farm, and payment for berries at the time of pick up or delivery. Respondents from Washington and Hancock Counties were interested in those aspects, but also the opportunity to have an ownership stake in the business.

Figure 10 (Appendix). Factors that would influence decision to sell to a local venture



Freezer Storage Space Possibly Needed

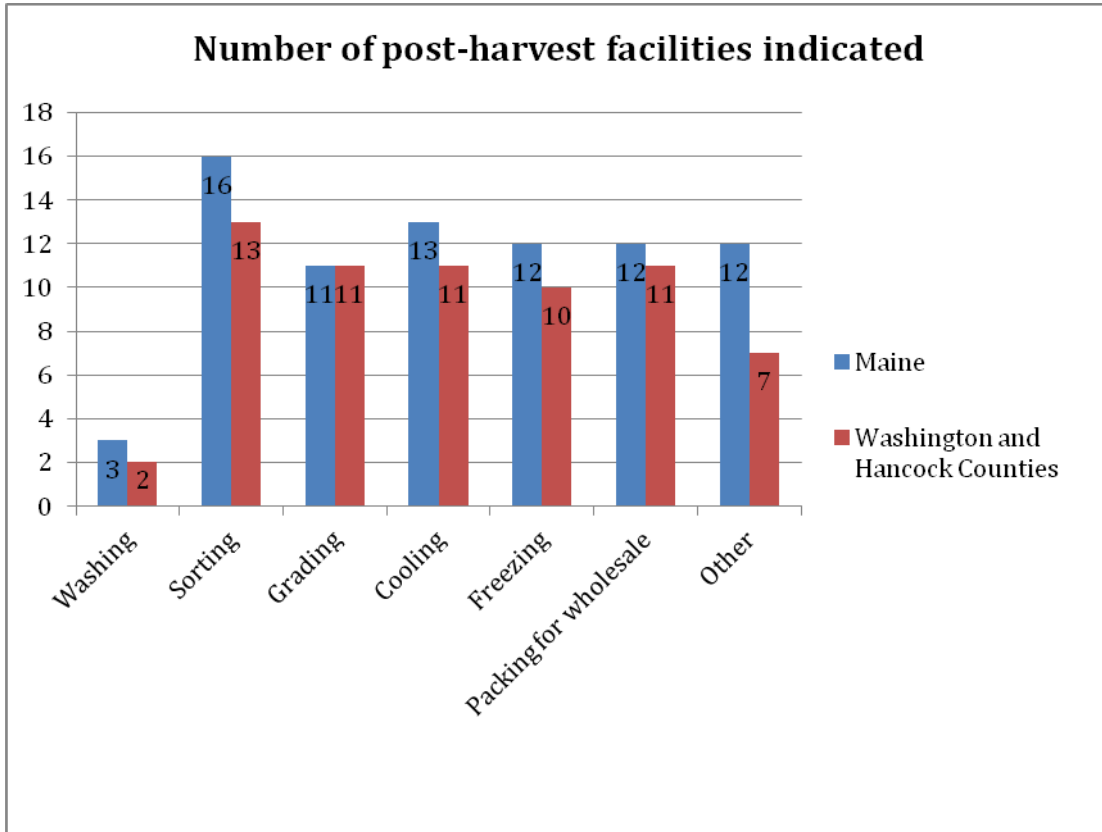
Those interested in the opportunity to lease freezer storage space at a potential facility listed the volumes they would be interested in.

10 cubic feet
5 to 10 cubic yards
10000
22000
100,000 lbs.
1 or 2 pallets
10 pallet spaces
40" x 40" x 90" or about 100 cubic feet
10-20 pallets
2-3 pallets

Post-harvest Facilities – Existing facilities in Hancock/Washington Counties

Respondents did indicate having a variety of post-harvest facilities specifically in sorting, grading, cooling, freezing and packing for wholesale. Few respondents (3 in Maine, 2 in Washington and Hancock Counties) had washing facilities.

Figure 11 (Appendix). Post-harvest facilities



“Other” answers included:

- Processing / drying
- Shipping
- Fresh packed pints, quarts, 10 lbs.
- Fustic minimum
- Winnowing
- Allen's Blueberry company provides pickers, ETC

Conclusions

Based on the findings of this survey, the Maine survey respondents indicated there were 1,327,800 pounds of wild blueberries already going to wholesale, plus a potential for an additional 28,545 pounds to go to wholesale, for a total potential wholesale volume of 1,356,345 pounds. This is a starting point.

Given that the State of Maine produces 83 million pounds of wild blueberries on average each year, and the respondents to this survey account for 9 percent of the 577 wild blueberry farmers in the state, and 9 percent of the 383 wild blueberry farmers in Washington and Hancock Counties, there are many more wild blueberry farmers to engage in this potential venture.

Table 24 (Appendix). Potential volume available for a wholesale enterprise.

	Total pounds already going to wholesale	Total potential additional wholesale	Combined current wholesale and potential wholesale volume
Maine	1,327,800	28,545	1,356,345
Washington and Hancock Counties	1,150,950	6,200	1,157,150

Appendix C: Demand Interview Questions and Contacts

Questions for Potential Buyers of Juice

Grocers/Natural Food Stores

1. First, would you be interested in a line of Maine wild blueberry juice or concentrate?
2. Would you be more interested if it was organic? Domestic fair trade? Branded?
3. Are you interested in a 100% wild blueberry juice or would you be more interested in a blended product? (“blended product” is wild blueberry juice mixed with other juices)
4. Who makes the buying decisions for your store? Does your store buy independently or does the chain make the buying decisions?
5. Can you estimate the volume that would meet your needs on a weekly or monthly basis? Are there any seasonal influences on your customer’s demand?
6. What kind of container would you and your customers prefer? Glass, plastic, etc.? What sizes would be desirable to your customers? Single serving? Half gallon?
7. How much shelf life would you want it to have? Other food safety requirements?
8. What would you consider a fair price? What would be too low a price? What price would be a reach but you would still pay? What price is absolutely out of the question? Ask about volume/scale?
9. What are your payment terms? (COD, 30 days, 60 days, consignment)
10. Do you charge fees (slotting or other) for shelf space in your store?
11. How frequently would you want to take delivery of a blueberry juice product? How would you like to take delivery? What other requirements would you have?
12. Do you have processing and/or storage facilities? Would you want to keep the juice stored or would you want just in time delivery?
13. Would this enterprise be allowed to promote their products in your store? How often? What types of promotional materials would you allow or recommend? What kind of marketing materials would work best for this product based on your experience? What would your store do to promote these products?
14. Would you have any interest in a 100% wild Maine blueberry pulp or puree?

Wholesalers/Distributors

1. What kind of establishments do you supply?
2. What is the geographic area that you serve?
3. Would you be interested in carrying a line of Maine wild blueberry juice and/or concentrate? Domestic fair trade? Branded?
4. Are you interested in a 100% wild blueberry juice or would you be more interested in a blended product?
5. Can you estimate the volume that would meet your needs on a weekly or monthly basis?
6. What kind of container would you and your clients prefer? Glass, plastic, etc.? What sizes would be desirable to your customers? Single serving? Half gallon?
7. How much shelf life would you want it to have? Other food safety requirements?
8. What would you consider a fair price? What would be too low a price? What price would be a reach but you would still pay? What price is absolutely out of the question?
9. What are your payment terms? (COD, 30 days, 60 days, consignment)
10. How frequently would you want to take delivery of a blueberry juice product? How would you like to take delivery? What other requirements would you have?
11. Do you have processing and/or storage facilities? Would you want to keep the juice stored or would you want just in time delivery?
12. Do you have a transportation network that you use and where are your typical pickups?
13. How would you promote these products? How would this enterprise help promote these products? What types of promotional materials would you allow or recommend? What kind of marketing materials would work best for this product based on your experience?
14. Are there other distributors we should talk to that would be well suited to carry this product?
15. Would you have any interest in a 100% wild Maine blueberry pulp or puree?

Institutional Buyers – Colleges/Universities/Hospitals

1. Would you be interested in carrying a line of Maine wild blueberry juice or concentrate? Domestic fair trade? Branded?
2. Are you interested in a 100% wild blueberry juice or would you be more interested in a blended product?
3. Do you make purchases independently or as part of a larger organization?
4. Can you estimate the volume that would meet your needs on a weekly or monthly basis?
5. What kind of container would you and your customers prefer? Glass, plastic, etc.? What sizes would be desirable to your customers? Single serving? Half gallon?
6. How much shelf life would you want the product to have? Other food safety requirements?
7. What would you consider a fair price? What would be too low a price? What price would be a reach but you would still pay? What price is absolutely out of the question?
8. Do you have processing and/or storage facilities? Would you want to keep the juice stored or would you want just in time delivery?
9. How would you like to take delivery? What other requirements would you have?
10. What type of insurance coverage or other requirements would this enterprise have to meet to sell to you?
11. Would you have any interest in a 100% wild Maine blueberry pulp or puree?

Questions around Pulp, Puree, Concentrate - Ingredients

1. What products do you make for which these ingredients would be appropriate?
2. Do you have any products on the drawing board that would be enhanced by a wild Maine blueberry pulp or puree ingredient?
3. Do you currently use any wild blueberry ingredients in your offerings?
4. Do you use puree or pulp or concentrate? Conventional or organic? Is your purchasing seasonal?
1. Would you be interested in purchasing a Maine wild blueberry puree, pulp or concentrate? Are you interested in a conventional or organic product? Domestic fair trade? Branded? in what form does the blueberry "input" arrive? How would your operations be enhanced if it came to you with further processing - what would this added process be?
5. Do you make purchases independently or as part of a larger organization?
6. Can you estimate the volume that would meet your needs on a weekly or monthly basis?
7. What kind of container would you and your customers prefer? Glass, plastic, etc.? What sizes would be desirable to your customers? Single serving? Half gallon?
8. How much shelf life would you want it to have? Other food safety requirements do you have?
9. What would you consider a fair price? What would be too low a price? What price would be a reach but you would still pay? What price is absolutely out of the question?
10. How would you like to take delivery? What other requirements would you have?
11. Would you store product or would you require just in time delivery?
12. What type of insurance coverage or other requirements would this enterprise have to meet to sell to you?
13. Would you have any interest in a 100% wild Maine blueberry juice or concentrate?

Demand Interview Contacts

Organization	Contact	Phone	Notes
American Cruise Lines	Stephan Christiansen	1-800-366-6740	Interested in BEFV
Animal House		207-563-5595	Does not use blueberries
Associated Buyers	Phil	603-664-2424	Interested in BEFV
Atlantic Brewing Company	Doug Maffucci	207-288-2337	Interested in BEFV
Brooklyn's Bakery		207-282-2552	Does not use blueberries
Cellar Door Winery	Bettina Doulton	207-236-2654	Interested in BEFV
Crown O'Maine	Marada Cook	207-877-7444	Interested in BEFV
Eastern Maine Medical Center	Valerie Langbein	207-973-8241	Interested in BEFV
Giffords Ice Cream	Joel Violet	1-800-950-2604	Not interested in BEFV
Hannaford	Nate Sprague	207-883-7670	Interested in BEFV
Herb Barber & Sons	Van Barber	716-326-4692 or 800-388-5384	Interested in BEFV
Jordon Pond House	John Wight	207-276-3610 ext 15	Interested in BEFV
Maine Coast Herbals	Mary Joan Mondello	207-737-8717 or 207-379-2509	Interested in BEFV
Maine Distilleries	Chris Dowe	207-865-4828	Interested in BEFV
Maine Medicinals	Edie Johnston	207-737-8717	Interested in BEFV & in collaboration in general
Maine Root Soda	Mark Seiler	512-517-3158	Interested in BEFV
National Park Concession	Martha Blanchard	207-288-1204	Interested in BEFV
Native Maine Specialty Foods	Troy Andrews	207-856-1101	Interested in BEFV
Pine State Trading Company	Michelle Paradis	1-800-873-3825	Interested in BEFV
Sea Hagg Distillery	Ron Vars	603-379-2274	Interested in BEFV

Appendix D: Processor Interview Questions and Contacts

Blueberry East Food Ventures Processor Questions

Introduction

Hi, I'm _____ from Yellow Wood Associates. We're working with the Blueberry East Food Ventures group of wild Maine organic and conventional blueberry growers facilitated by the Maine Coast Heritage Trust to determine the best way to add value to wild Maine blueberries. This group is exploring the feasibility of starting a business that would benefit small to mid-size wild blueberry growers in eastern Maine by offering a fair price for their berries and the possibility of an ownership share in the enterprise. The focus of the business will be on producing and marketing a 100% Maine grown wild blueberry juice along with wild blueberry puree, concentrate and pulp for wholesale markets. We are considering an organic and a conventional line of products. I'm contacting you to learn more about your processing capabilities and capacities. We are investigating existing processing ventures to learn if there are ways to use existing processing capacity rather than investing in a new processing facility.

Do you have any questions I can answer?

Part 1: Their Processing

1. Tell me more about the processing that you're currently doing.
2. What raw materials are you processing? Into what final products? (Juice? Concentrate? Pulp? Puree?)
3. Conventional and/or organic?
4. Do you produce product(s) for retail or wholesale? If so, what are they?
5. What kinds of machinery and equipment are you using in your facility?

Part 2: Interest in Custom Processing

1. Do you process your own product only or do you have experience providing custom processing services to others?

If no, would you consider partnering with BEFV to custom process one or more of the products they need processed?

If no, Interview is complete.

If yes, continue.

If yes, continue to Part 3.

2. How much, if any, excess capacity do you have and when?
3. What are your busiest months?
4. When do you think you would be able to accommodate custom processing for BEFV? How much volume would you be able to process?
5. Could you pick up raw berries or would they need to be delivered to you?
6. Can you freeze and store berries prior to processing?
7. What equipment would you need that you don't already have to process the BEFV products? (Go through all the steps and see what they have and what they would need)
8. Can you give us an idea of what you would charge for processing?
9. Would you consider providing other services? IQF? Refrigerated transportation, packing in wholesale sizes, packing in retail sizes, bottling, custom labeling? What kinds of packaging do you currently offer? Would you consider others? Do you have cooling, freezing storage capacity? Could you provide shipping? Distribution? Transportation of raw materials?
What would you charge for these services?

Part 3: Already Doing Custom Processing

10. When you do processing, do you take ownership of the berries or do you process them and send back the finished product to the grower?
11. Do you have the capacity to pick up raw berries or would they need to be delivered to you?
12. What proportion of your clients reserve processing time in advance? How far in advance?
13. What is the current waiting time for processing services in the busy months?
14. What do you charge for processing?
15. What other services, in addition to processing, do you provide? IQF, refrigerated transportation, packing in wholesale sizes, packing in retail sizes, bottling, custom labeling, other? What kinds of packaging do you offer? Do you have cooling, freezing, storage capacity? Could you provide shipping? Distribution? Transportation of raw materials?
What are the prices for each of these services?
16. What kinds of food safety policies do you abide by? GAP? HAACP?
17. Is there anyone else that we should speak with?

Processor Interview Contacts

Organization	Contact	Phone
Coastal Farms Food Processing	Jan Anderson	207-505-5710
Cobscook Bay Resource Center	Will Hopkins	207-853-6607
Foggy Hill Farm	Josh Dickson	207-299-7911
Gladstones Under the Sun	Rosemary Gladstone	207-669-6046
Wild Wescogus Berries	Marie Emerson	207-483-3884
Cobscook Community Learning Center	Alan Furth	207-733-2233

Appendix E: Funding Sources.

FEDERAL RESOURCES

USDA Rural Development

Rural Development Grant Assistance

Program assistance is provided in many ways, including direct or guaranteed loans, grants, technical assistance, research and educational materials. Visit the following sites for information and/or assistance.

Rural Business Enterprise Grant (RBEG Program):

http://www.rurdev.usda.gov/BCP_rbeg.html

The RBEG program provides grants for rural projects that finance and facilitate development of small and emerging rural businesses help fund distance learning networks, and help fund employment related adult education programs. To assist with business development, RBEGs may fund a broad array of activities.

Rural Business Opportunity Grants (RBOG):

http://www.rurdev.usda.gov/BCP_RBOG.html

Grant funds must be used for projects in rural areas and they can be used for:

- Community economic development
- Technology-based economic development
- Feasibility studies and business plans
- Leadership and entrepreneur training
- Rural business incubators
- Long-term business strategic planning

Small Socially-Disadvantaged Producer Grant (SSDPG):

http://www.rurdev.usda.gov/BCP_SSDPG.html

The primary objective of the SSDPG program is to provide technical assistance to small, socially-disadvantaged agricultural producers through eligible cooperatives and cooperative development centers. Grants are awarded on a competitive basis. Each fiscal year, applications for the SSDPG program are solicited through a Notice of Funding Availability (NOFA) published in the Federal Register.

Value-Added Producer Grants (VAPG):

http://www.rurdev.usda.gov/BCP_VAPG.html

The primary objective of the VAPG program is to help agricultural producers

enter into value-added activities related to the processing and/or marketing of bio-based value-added products. Generating new products, creating and expanding marketing opportunities, and increasing producer income are the end goals of this program. You may receive priority if you are a beginning farmer or rancher, a socially-disadvantaged farmer or rancher, a small or medium-sized farm or ranch structured as a family farm, a farmer or rancher cooperative, or are proposing a mid-tier value chain, as defined in the Program Regulation. Grants are awarded on a competitive basis.

[Rural Cooperative Development Grant Program \(RCDG\):](http://www.rurdev.usda.gov/BCP_RCDG.html)

http://www.rurdev.usda.gov/BCP_RCDG.html

The primary objective of the RCDG program is to improve the economic condition of rural areas by assisting individuals or entities in the startup, expansion or operational improvement of rural cooperatives and other business entities. Grants are awarded competitively on an annual basis to Rural Cooperative Development Centers who in turn provide technical assistance to individuals and entities.

For more information contact:
Virginia Manuel, State Director
967 Illinois Avenue Suite 4
Bangor, ME 04401-2767
Voice: (207) 990-9160
Fax: (207) 990-9165
www.rurdev.usda.gov/me/

USDA National Institute of Food and Agriculture

Community Food Projects Competitive Grants Program (CFPCGP)

Community Food Projects should be designed to (1): (A) meet the food needs of low-income people; (B) increase the self-reliance of communities in providing for their own food needs; and (C) promote comprehensive responses to local food, farm, and nutrition issues; and/or (2) meet specific state, local, or neighborhood food and agriculture needs for (A) infrastructure improvement and development; (B) planning for long-term solutions; or (C) the creation of innovative marketing activities that mutually benefit agricultural producers and low-income consumers.

For more information visit: http://nifa.usda.gov/funding/rfas/community_food.html

Agriculture and Food Research Initiative (AFRI)

The Agriculture and Food Research Initiative (AFRI) at the National Institute of Food and Agriculture (NIFA) is charged with funding research, education, and extension grants and integrated research, extension, and education grants that address key problems of National, regional, and multi-state importance in sustaining all components of agriculture, including farm efficiency and profitability, ranching, renewable energy, forestry (both urban and agroforestry), aquaculture, rural communities and entrepreneurship, human nutrition, food safety, biotechnology, and conventional breeding. Providing this support requires that AFRI advances fundamental sciences in support of agriculture and coordinates opportunities to build on these discoveries. This will necessitate efforts in education and extension that deliver science-based knowledge to people, allowing them to make informed practical decisions.

Section 7406 of the Food, Conservation, and Energy Act of 2008 (Pub. L. 110-246) (i.e., the 2008 Farm Bill) amends subsection (b) of the Competitive, Special, and Facilities Research Grant Act (7 U.S.C. 450i(b)) to authorize the Secretary of Agriculture to establish a new competitive grant program to provide funding for fundamental and applied research, extension, and education to address food and agricultural sciences. AFRI supersedes the National Research Initiative. AFRI Grants shall be awarded to address priorities in United States agriculture in the following areas:

- A) Plant health and production and plant products;
- B) Animal health and production and animal products;
- C) Food safety, nutrition, and health;
- D) Renewable energy, natural resources, and environment;
- E) Agriculture systems and technology; and
- F) Agriculture economics and rural communities.

For more information visit: <http://www.nifa.usda.gov/funding/afri/afri.html>

Northeast SARE

Partnership Grants

Partnership Grants are reserved for agricultural service providers--extension staff, nonprofits, consultants, state departments of agriculture, and others working in the agricultural community--who want to conduct on-farm demonstrations, research, marketing, and other projects with farmers as active cooperators. For more information visit:

<http://www.nesare.org/Grants/Get-a-Grant/Partnership-Grant>

Sustainable Community Grants

Sustainable Community Grants make a direct connection between community revitalization and farming. Projects must address specific key issues such as farm finance, marketing, land use, water use, enterprise development, value-added product development, or other delineated topic areas. To apply, you must be affiliated with Cooperative Extension, a municipality, a state department of agriculture, a college or university, a community organization, or other institutional entity. For more information visit:

<http://www.nesare.org/Grants/Get-a-Grant/Sustainable-Community-Grant>

Farmer Grants

Farmer Grants are for commercial producers who have an innovative idea they want to test using a field trial, on-farm demonstration, marketing initiative, or other technique. A technical advisor--often an extension agent, crop consultant, or other service professional--must also be involved. Projects should seek results other farmers can use, and all projects must have the potential to add to our knowledge about effective sustainable practices. Proposal deadlines are in early winter with awards announced in March. If the current application is not yet available (see the "for applicants" box to the right), you should feel free to browse this section until the new application is posted, usually in July. For more information visit: <http://www.nesare.org/Grants/Get-a-Grant/Farmer-Grant>

STATE RESOURCES

Maine Department of Agriculture

Maine Farms for the Future Business Development & Investment Support Program

The Maine Farms for the Future Program (FFF) is a competitive grants program offering business planning assistance and implementation funds to Maine farms. FFF exists because the State of Maine recognizes that farmers are innovators who often lack the time or resources to research ideas, analyze markets and crunch all of the numbers before launching new enterprises or production systems on their farms. The program's goal is to help you, the farmer, work through the details to develop and implement a successful business plan.

The Maine Farms for the Future Program offers two types of grants:

- The “Phase 1” grant is an investment of public funds to help farmers research and write a business plan focused on their specific ideas for change and innovation on their farm. The grant funds enable you to “look before you leap.” Phase 1 farmers use grant funds to hire private consultants, attend conferences, conduct market research, obtain special skills or training, and travel to other farms to analyze the feasibility of their ideas. Phase 1 farms are provided the technical assistance of a professional business counselor who helps them fine-tune your market research and financial analyses.
- The “Phase 2” grant is an investment of public funds to implement the project(s) described in the Phase 1 Business Plan. Phase 2 grants require a 75 percent match and are capped at \$25,000. The grant requires the farm to sign an agreement to prevent non-farm development and protect the farm for seven years. There also is an opportunity to be recommended for a low-interest (2 percent) loan rate through the Agricultural Marketing Loan Fund administered by the Finance Authority of Maine.

Phase 1 and Phase 2 farms are selected by an independent Review Panel, appointed by the Maine Department of Agriculture, Conservation and Forestry commissioner and comprised of professionals from the agricultural sector, including bankers, farmers, policymakers, as well as a former agriculture commissioner.

For more information, please contact:

Stephanie Gilbert, FFF Program administrator, (207) 287-7520;
email: stephanie.gilbert@maine.gov

Kimbalie Lawrence, research assistant, (207) 287-3491; email: kimbalie.lawrence@maine.gov

Agricultural Marketing Loan Fund Program Description

The Agricultural Marketing Loan Fund (AMLF) provides low cost financing to help farmers, food processors and aquaculture operations adopt new and innovative equipment and

facilities in order to improve and enhance the manufacturing, marketability and production of Maine products.

Funds may be used for the design, construction or improvement of commodity and storage buildings and packing and marketing facilities, or for the construction, renovation or acquisition of land, buildings, equipment, docks, wharves, piers, or vessels, located in the State of Maine and used in connection with an agricultural enterprise, including, but not limited to: land acquisition (when the land purchase is: (a) for the purchase of land in connection with development of new cranberry acreage; (b) for the purchase of land for irrigation reservoirs or to provide direct access to water for irrigation; (c) for the purchase of land necessary for the start-up of a new agricultural enterprise; or, (d) for the expansion of an existing agricultural enterprise when the land acquisition is necessary to comply with land use regulations); land improvements; purchase and remodeling of existing buildings; building construction, additions or renovations; leasehold improvements; purchase and installation of machinery and equipment (both traditional, new and innovative).

Funds may **not** be used for working capital, to finance or refinance projects commenced prior to issuance of a commitment for the AMLF loan, for non-project related equipment, for the refinancing or acquisition of projects for which a loan from the Potato Marketing Improvement Fund was obtained and it may not be used for interim financing during the construction of projects.

Staff of the Maine Department of Agriculture and the Finance Authority of Maine may be contacted here:

Agricultural Marketing Loan Fund Program Specialist

Maine Department of Agriculture Food & Rural Resources

28 State House Station, Augusta, ME 04333

TEL: (207) 287-7620

FAX: (207) 287-5576

E-mail: amlf@maine.gov

Finance Authority of Maine

5 Community Drive, P.O. Box 949, Augusta, ME 04332-0949

TEL: (207) 623-3263

FAX: (207) 623-0095

Website: www.famemaine.com

Maine Office of Community Development

Community Development Block Grant

Special Projects Matching Fund

The Special Project Matching Fund (SPMF) provides matching funds to projects that are not funded through the normal CDBG application process. SPMF funds will be used for alternative OCD grant activities and partnerships that are consistent with the furtherance of community or economic development activities and CDBG National Objectives in the State of Maine. Submission of applications is by invitation of the Office of Community Development.

For more information contact:

Deborah Johnson, Director

Phone: 207-624-9817

deborah.johnson@maine.gov

Maine Community Foundation

Community Building Grant Program (Including the County & Regional Funds)

The Community Building Grant Program seeks to support organizations and programs that recognize and build on a community's strengths and assets. Awards are made by the Maine Community Foundation's county and regional committees and a statewide committee that reviews proposals both from counties without county committees and organizations whose projects are statewide in scope.

The Community Building Grant Program will only support projects that clearly meet all three of the following core criteria:

- **Use of existing community resources:** The proposed project uses the skills, services, materials, and/or time that people and organizations in the community can and will provide.
- **Ability to strengthen community life:** The proposed project makes the community stronger by helping it address current or future challenges.
- **Sustainability:** The proposed project will continue to affect the community after community foundation funding has been exhausted. This is because the project is designed to have long-term impact and/or because there are realistic plans to acquire future funding.

To be considered for funding, proposed projects must also meet one or more of the following priorities:

- **Develop community relationships:** The proposed project uses new partnerships or collaboration between the applicant and other community organizations. These new partners will help plan and develop the project.
- **Involve community members:** The proposed project engages community members who will benefit from the project. These community members are included in the planning, implementation, and/or evaluation of the project.
- **Advance community leadership:** The proposed project fosters the development of community leaders. It includes opportunities for community members to improve or practice new leadership skills.

For more information, visit: <http://www.mainecef.org/CommunityBuilding.aspx>

Maine Charity Foundation Fund

As Maine's first community foundation, the Maine Charity Foundation was established in 1921 to receive and hold individual charitable funds and distribute the income for charitable purposes in the State. In September of 1993, administration of the Maine Charity Foundation was transferred to the Maine Community Foundation.

Priorities

The following funding priorities have been identified by the fund's advisory committee:

- Start-up money for an organization or project
- Projects that involve the disabled or economically disadvantaged, as long as the project is not supported by a national campaign or public money
- Libraries
- Symphonies
- Hospice care
- Projects that are related to the Friendship, Maine area
- Discrete projects as opposed to general operating support
- Small requests from social service organizations for "bricks and mortar" or purchase of necessary equipment

For more information visit: <http://www.mainecef.org/mainecharityfound.aspx>

LOCAL RESOURCES

Sunrise County Economic Council

TIF Loan Program

Washington County Government offers grants and a revolving loan program through the tax increment financing (TIF) district it established for the Unorganized Territories (UTs) in Washington County with deferred property taxes from the Stetson I & II wind-farms outside of Danforth. A portion of the wind-farm property taxes returns to Washington County each year for use in economic development for the 34 Unorganized Territories.

The TIF Program includes a nature-based tourism fund, a revolving loan fund, an economic development planning fund, and a capital project fund. For- and non-profit businesses, individuals and other organizations may apply for funding through these programs. Applications are reviewed on a rolling basis and then referred to the County Commissioners for final approval.

Sunrise County Economic Council, in its role as economic development agency for Washington County Government, administers the UT TIF Grant and Loan Programs. Please go to www.washingtoncountymaine.com/tif for more information, application forms and guidelines.

You may also contact TIF Administrator Ken Daye, who will assist you with the TIF process. Ken may be reached by email at: kdaye@sunrisecounty.org, or by phone at either 207-255-0983/259-5004, and by cell at 207-949-0336.

Sunrise Loan Fund

Sunrise County Economic Council (SCEC) has worked with economic and community development partners to create flexible financing options for Washington County businesses through its Sunrise Loan Fund (SLF). Within the SLF, we have several individual loan products. While specifics may vary, all products are intended to provide gap-financing to Washington County business projects leading to and supporting job creation or retention.

The SLF was established by SCEC with support and technical assistance from a variety of sources, including the U.S. Department of Agriculture Rural Development, Finance Authority of Maine, private foundations and others. We also manage loan programs for other organizations and entities. SCEC is responsible for meeting all program regulations that pertain to each individual product and each loan fund has specific terms and conditions.

SLF loans can be made to small-businesses as classified by the Small Business Administration (www.sba.gov).

Eligible uses may vary depending on the funding source. Loans may be made for real estate purchases if SCEC's collateral position is adequate, job creation and retention is sufficient, and all other financing options have been exhausted.

Generally, a business plan is required. But if you have never written one, and don't know where to start, help is available! Visit "Writing a Business Plan" or "Need Someone to Talk to?" for more information. You can also give us a call at 207-255-0983 or 207-259-5004 and we will set up an appointment with the Loan Officer.

To Apply:

Please download our Sunrise Loan Fund Application and Personal Financial Statement. If you have questions about SCEC's business financing options, or need help completing your application, please contact Loan Officer Harold Clossey at 207-255-0983/259-5004 or by email at hclossey@sunrisecounty.org.

Drop Off At One of These Locations:

- The Machias CareerCenter building at 53 Prescott Drive, Suite 3.
- Calais office at Washington County Community College on 1 College Drive.

Mail:

Attn Loan Officer
Sunrise County Economic Council
53 Prescott Drive, Suite 3
Machias, ME 04654
Phone: 207-255-0983 or 207-259-5004
Fax: 207-255-4987

Appendix F: Equipment and Cost Information

The below information was collected by Charles Hitchings as part of previous work completed on behalf of Blueberry East Food Ventures (not by Yellow Wood Associates).

December 9, 2009



Charlie Hitchings
Spring River Farm
685 Blackwoods Rd.
Cherryfield, ME 04622

Goodnature
3860 California Rd.
Orchard Park, NY 14127, USA
Toll Free: 1-800-875-3381

Dear Charlie:

We are pleased to provide you with a proposal for a fresh juice processing line utilizing our **Squeezebox Series Press**. This system produces the best quality juices with the highest possible yields. The equipment is tested at the factory and is ready to operate at your site after a few simple connections. The system consists of the following:

1	Stainless Steel Elevator 10' x 12" with foodgrade belt & 2" flights	\$8,895.00
1	EG 400/50 Crop Chopper Stainless Steel construction. Available in 5 HP or 7.5 HP. Processes up to 6 tons of fruit per hour. Includes 2 screens.	\$9,700.00
1	PF 150 Pomace Feed System Integrated system with SS hopper, 35 GPM progressive cavity pump and powder coated frame for support & grinder mount.	\$13,500.00
1	SX200 Squeezebox Juice output of 150-200 GPH contingent on fruit.	\$34,000.00
1	MFP Series Micro Flash Pasteurizer (144 GPH) Budgetary Pricing, Actual price contingent on features and options.	\$35,000.00

Terms:

1. 50% deposit confirms order. Balance due before shipping.
2. Anticipated ship-date: 10 weeks from receipt of deposit.
3. This proposal is valid for 30 days from date above.
4. Prices are F.O.B. Buffalo, NY, USA.
5. State Sales Tax will be added for Arizona, California, & Nevada, unless Tax Exempt Certificate is provided.

Respectfully Submitted,

Pete Whitehead
Goodnature

GENERAL TERMS AND CONDITIONS OF SALE AND WARRANTY

EFFECTIVE DATE: This proposal, upon its execution by Buyer and its written acceptance by Goodnature Products Inc. ("Seller"), shall become the agreement (the "Agreement") of the parties hereto, effective as of the date of such acceptance by Seller.

PRICES: Prices shown on this proposal are Seller's prices in effect on the date the proposal is made and are valid for 30 days from the date of this proposal, unless otherwise specified.

TAXES AND DUTIES: In addition to the price billed by Seller as aforesaid, Buyer agrees to pay the following and to reimburse Seller for same to the extent paid by Seller:

- a. All applicable sale, use or other taxes (notwithstanding their designation as excise, gross receipts, privilege or similar taxes) imposed by any governmental body upon the transaction described herein.
- b. All additional costs arising from any duties and any federal, state or local laws imposed as processing or any other taxes on the raw material or manufactured product for which Seller may be liable.

TITLE: Title to the equipment and all other property covered by this proposal, and all replacements, substitutions, repairs and additions thereto, and all proceeds of the foregoing, shall remain in Seller's name until full payment of the purchase price and all other amounts due Seller hereunder have been made. Buyer shall indemnify and hold Seller harmless from and against all claims of parties claiming under or through Buyer with respect to the equipment and such property.

FREIGHT: All shipments are F.O.B. point of manufacture unless otherwise specified. All transportation and handling charges from F.O.B. point of manufacture shall be at Buyer's expense, and all risk of loss shall be upon Buyer following delivery at point of manufacture.

INSTALLATION & TRAINING: Unless otherwise specifically provided herein, the Buyer shall have full responsibility for the installation and the initial starting up of the equipment, and Seller shall not be responsible for any damages to the equipment or to other property, or any personal injury, or any consequential damages, arising out of or in connection therewith, and Buyer shall indemnify and hold Seller harmless with respect to all such damages or claims arising out of or in connection with such installation. Any materials not specifically listed in this Agreement shall be furnished by Buyer and Seller makes no representations or warranties with respect thereto. For certain equipment, the Seller recommends installation and start up to be performed under the supervision of Seller's representative. Installation and training by Goodnature Products can be provided at additional cost and is strongly recommended for successful installation. Training is provided at no extra charge at our Buffalo, N.Y. test facility. On site training is available at the service and installation rates indicated below:

Travel Time per service technician \$40/hr portal to portal
Service Time on location \$80/hr

All travel and out of pocket expenses including but not limited to auto, parking, airfare, meals, etc. shall be billed at cost only.

In the event that training and installation is scheduled or is part of this quotation, it is the Purchaser's responsibility to uncrate and rig into place all machinery as outlined on the approved plot plan. The Purchaser must also provide all utilities (air, water, electrical, gas, oil etc.) to the equipment as outlined in the installation plot plan prior to the arrival of technician. It is the Purchaser's responsibility to identify and define physical access to the installation area i.e. door openings, etc. It is the Purchaser's responsibility to provide willing and able personnel on site to assist in installation if being provided by Goodnature Products. Any delays and additional costs caused by the Purchaser's failure to provide the above will be billed in accordance with the rates above.

INSOLVENCY: If the Buyer should be insolvent or cease doing business or be the subject to any proceeding under any bankruptcy, insolvency, reorganization or arrangement statute or law, such act shall at the option of Seller be deemed a default under this contract, and Seller may elect to cease performing and cancel this contract with respect to any equipment not delivered or received prior to the election. All of the foregoing shall be without prejudice to recovery by Seller of damages for work performed and for loss of profits and material and equipment delivered.

WARRANTY:

a. **Obligations of Seller:** During the warranty period, Seller shall repair, or at Seller's option replace parts determined by Seller to be defective in material or workmanship. The warranty period is one (1) year from the date of delivery to Buyer F.O.B. point of manufacture, provided Buyer gives Goodnature Products Inc. immediate written notice of the alleged defect and a reasonable opportunity to inspect same. The foregoing shall be the sole obligation of Seller under this warranty with respect to the equipment and other property included in this Agreement. With respect to equipment, materials, parts and accessories manufactured by others, Seller's sole obligation shall be to use reasonable efforts to obtain for Buyer the full benefit of the manufacturers' warranties.

b. **Warranty Exclusions:** Press Bags have a 30-Day Warranty against defect in material or workmanship. Repair or replacement of parts required because of misuse, improper care or storage, negligence, alteration, accident, use of incompatible supplies or lack of specified maintenance are excluded from Seller's warranty obligations.

c. **DISCLAIMER OF WARRANTIES:** THE FOREGOING WARRANTY EXPRESSIONS ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND EXISTENCE OF ANY SUCH OTHER WARRANTY IS HEREBY DENIED.

d. **Limitation of Liability and Remedies:** The liability of Seller for breach of any warranty obligation hereunder is limited to: (I) the repair or replacement of the equipment on which the liability is based; or (II) at Seller's option, the refund to Buyer of the amount paid by Buyer to Seller for said equipment. All other liability of Seller with respect to this Agreement, or from the manufacture, installation, maintenance, repair or use of any equipment covered by or furnished under this Agreement, whether in contract or in tort, or otherwise, is limited to the amount paid by Buyer to Seller pursuant to the terms hereon: **SELLER SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER. THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE.**

e. **Returns:** Any equipment or parts to be returned to the Seller must be authorized in advance by the Seller and a returned goods authorization number must accompany the merchandise.

f. **Breach:** Any breach by Seller with respect to any item or unit of equipment shall be deemed a breach with respect to that item or unit only.

g. **Infringement:** Seller will not be liable for the infringement of any patent by the Buyer's use of any equipment or materials delivered hereunder.

h. **Restocking:** A standard 15% restocking charge applies to all standard catalog items. Custom designed or manufactured items are not returnable and sales of such items are not rescindable except as granted by Seller in writing.

DELIVERY: Delivery and shipment dates indicated herein, or on quotations, or on acknowledgments of orders, are estimated but not guaranteed and Seller shall not be liable for any delay in delivery. Where shipment is deferred at Buyer's request beyond the date of completion, the order will be subject to invoicing, payment, and storage charges from date of completion. Seller will not be liable for failure to deliver the goods specified, where such failure to deliver is due to contingencies beyond Seller's control, including strikes, lockouts and differences with workmen, when these events affect either Seller or its suppliers of material, or individuals or corporations upon whom it is dependent for transportation of supplies and delivery of its manufactured goods, and also including war, insurrection, embargoes, fire, flood, injuries to works where the goods or raw materials are manufactured, government regulations of fuel, transportation, labor or production, and inability for whatever reason to secure necessary labor, materials, or supplies. In case of curtailment of production for any of the above causes, Seller reserves the right to deliver pro rata the goods which it produces to all customers from whom it may have orders, and to invoice Buyer for partial shipment accordingly, and Buyer shall make payment on the purchase price in amounts as so invoiced.

CANCELLATION: Buyer may not cancel any order except upon written notice to Seller and on payment of a reasonable and proper sum to compensate Seller for expenses incurred in the engineering and/or manufacture of said order to the date of cancellation and for Seller's reasonably anticipated profit in connection with such order.

GOVERNING LAW: This Agreement shall be deemed to have been entered into in the state of New York and shall be governed and interpreted in accordance with the laws of the state of New York, including the Uniform Commercial Code as enacted by the state of New York. All disputes will be settled in Buffalo, New York.

CONFIDENTIALITY: Technical information and drawings supplied by Seller in connection herewith shall remain confidential and must remain so for 10 years.

ENGINEERING SERVICES: In the event that the Buyer purchases the Seller's engineering services with respect to this proposal and does not purchase equipment from the Seller, the Buyer agrees to hold the Seller harmless from any and all loss, cost, damage, liability, claim, action, expense (including attorney's fees) arising out of or in connection with the use of engineering services supplied by the Seller.

NON-ASSIGNMENT: This Agreement, or any part thereof, is not assignable by Buyer without the prior written consent of Seller.

ENTIRE AGREEMENT: This Agreement and the Seller's price lists as revised from time to time shall constitute the entire Agreement between Buyer and Seller irrespective of inconsistent or additional terms and conditions in Buyer's purchase orders or other documents submitted to Seller whether or not same have been executed or otherwise accepted by Seller. Except as specifically set forth herein, all other agreements, proposals, and understandings with respect to the subject matter of this Agreement are merged herein, and there are no promises, terms, conditions, or obligations with respect thereto other than those contained herein and in Seller's currently published price lists as revised from time to time by Seller. Any and all representations, promises, warranties or statements by Seller's agents that differ in any way from the terms and conditions of this Agreement shall be of no force or effect. This Agreement may be amended only by a written instrument executed by all parties.

Macintosh HD:Users:Melissa:Dropbox:November 2012:Blueberries:BEFV Report Draft_B.docx



December 9, 2009

Charlie Hitchings
Spring River Farm
685 Blackwoods Rd.
Cherryfield, ME 04622

Goodnature 3860 California Rd. Orchard Park, NY 14127, USA Toll Free: 1-800-875-3381

Dear Charlie

We propose to furnish you with pricing for the following juice equipment:

1	X-6 Six-Layer Press	\$18,600.00
	Epoxy coated hydraulic unit with SS juice pan and food-grade poly press racks. Grinder mounts above stainless steel hopper. This hopper is positioned above the six-layer press assembly. Output of up to 30 - 60 gallons per hour, contingent on fruit. Standard Electrical 110V, 15 Amps, Single Phase	
1	EG-260 Grinder	\$3,950.00
	Stainless Steel construction. Includes 3 shredder blades 1 HP Motor. Standard Electrical 110V, 15 Amps, Single Phase	
	Optional 2 HP Motor with Variable Frequency Drive for Grinder	\$950.00

Terms:

1. 50% deposit confirms order. Balance due before shipping.
 2. Anticipated ship-date: 8 - 10 weeks from receipt of deposit.
 3. This proposal is valid for 30 days from date above.
 4. Prices are F.O.B. Buffalo, NY, USA.
 5. State Sales Tax will be added for Arizona, California, & Nevada, unless Tax Exempt Certificate is provided.
-

Respectfully Submitted,

Pete Whitehead
Goodnature

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Document4

Bematek Purchase Proposal



Typical Mixer Head Set-up



*Mixer used during 4/20/11
Test with Mary Emerson,
Wild Blueberry Land*

Model: LZ-250-VB
Application: Blueberry East Food Venture – Size Reduction

Prepared For: **Blue Sky Produce**

243 Tory Hill Road
Phillips, ME 04966

Tel: Lynn Thurston
207-684-2172
E-mail: hope@tdstelme.net

CC: Mary Emerson, Charlie Hichings, Melissa Lee

Prepared By

Mr. David Ekstrom
General Manager
(978) 744-5816

*Bematek Systems,
Inc.*
96 Swampscott Rd. #7
Salem, MA 01970

Purchase Proposal 11032
 Bematek Model LZ-250-VB
 July 12, 2011

Blue Sky Produce
 Phillips, ME

Application: Blueberry East Food Venture – Size Reduction

I: New Equipment Description

	<u>Unit Price US\$</u>
Bematek Model #LZ-250-VB Multi-Stage Mixer/Lacurator	\$26,515.00
<ul style="list-style-type: none"> • PATENTED Multi-Shear Mixing Head • Sanitary EASY-CLEAN Design • 316L Stainless Steel Wetted Parts Construction • 7 ½ HP Premium Efficiency Inverter Ready Motor Drive • 2" Tri-Clamp Inlet and 1 1/2" Tri-Clamp Outlet • Double Mechanical (CSM Liquid Flush Seal Assembly with seal flush control. 	

II: Customer Preferred Options

A. ELECTRIC VARIABLE SPEED MOTOR DRIVE (3/60/230 or 460 VAC Input)	\$5,935.00
Intergrated with lacurator base, feed hopper, and system mounted on Stainless Steel Casters	

TOTAL: \$32,450.00

III: Additional Important Information

AVAILABILITY: T/B/D based upon your planning.

FOB PLANT, FREIGHT COLLECT: Salem, Massachusetts

STANDARD TRIAL PROGRAM PAYMENT TERMS: Deposit and First Month Trial Fee – Due prior to shipment.

**10% per month trial fee (\$3,245.00) plus
 15% Refundable Restoration Deposit (\$9,735.00)**

BUYOUT DURING TRIAL: 75% of paid trial fees will be credited to purchase along with 100% of the deposit.

START-UP & TRAINING: Bematek is pleased to offer start-up and training assistance at your location in Maine.

Bematek will make every effort to hold the above prices, which are contingent upon market fluctuations in material costs.

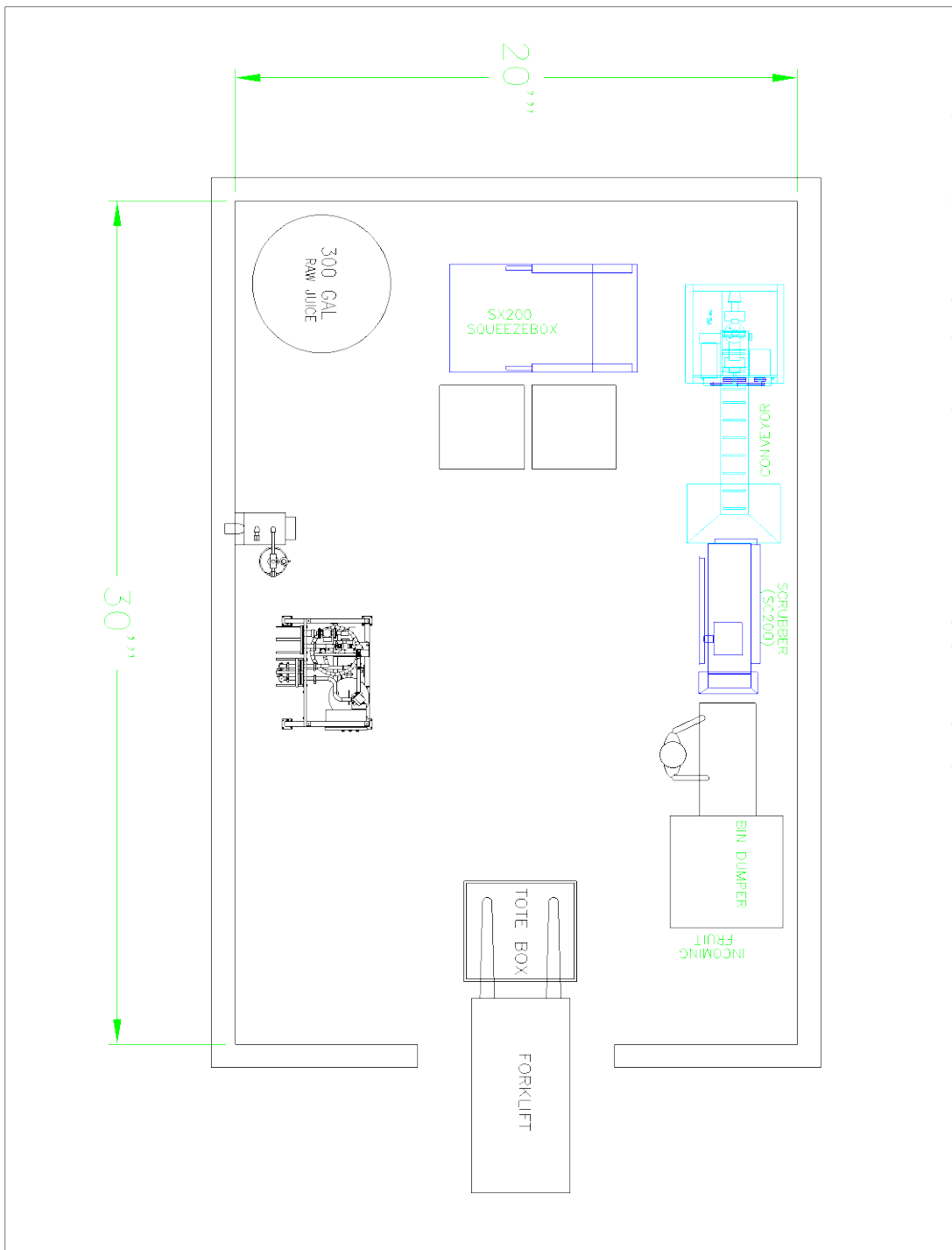
FACTORY TESTED WITH ONE YEAR WARRANTY

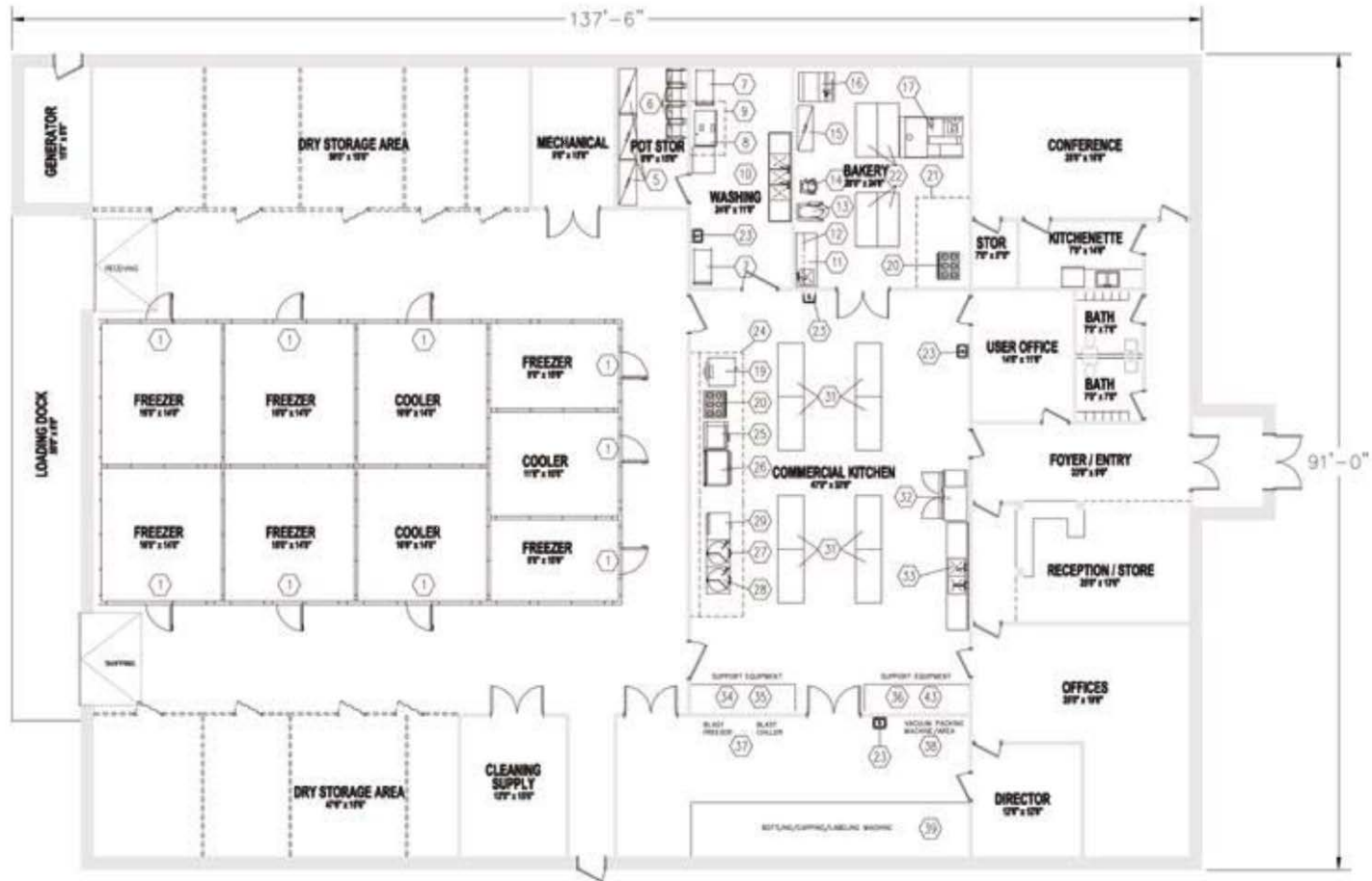
Thank you for the opportunity to present this proposal!

Cordially submitted by:

David R. Ekstrom
David Ekstrom, General Manager

Bematek Systems, Inc. • 96 Swampscott Rd #7, Salem, MA 01970 • Phone: (978) 744-5816 • Fax: (978) 744-2531
 E-mail: bematek@bematek.com • Website: www.bematek.com





Equipment Schedule:

Item	Quantity	Description
1	1 lot	Walk-in Cooler/Freezer
2	25	Cooler/Freezer Shelving (Not Shown)
3	20	Dunnage Rack (Not Shown)
4	25	Dry Storage Shelving (Not Shown)
5	3	Pot/Pan Storage Rack
6	4	Sheet Pan Rack
7	2	Utility Cart
8	1	Pot Washer
9	1	Condensate Hood
10	1	Pot Sink, 3-Compartment
11	1	Work Table With Sink
12	2	Wall Shelf
13	1	Mixer, 60-Quart
14	1	Mixer, 30-Quart
15	1	Shelving Unit
16	1	Proofing
17	1	Rotating Rack Oven
18	0	Spare Number
19	1	Convection Oven, Double
20	2	Range, 6-Burner
21	1	Exhaust Hood
22	4	Baker's Table
23	6	Hand Sink
24	1	Exhaust Hood/UDS System
25	1	Steamer
26	1	Tilting Skillet, 40-Gallon
27	1	Tilting Kettle, 40-Gallon
28	1	Tilting Kettle, 60-Gallon
29	1	Steam Generator
30	1	Floor Trough (Not Shown)
31	8	Work Table
32	1	Refrigerator, 2-Section, Roll-in
33	1	Work Table With Sinks
34	1	Food Processor (Not Shown)
35	1	Food Cutter (Not Shown)
36	1	Slicer (Not Shown)
37	1	Blast Chiller/Blast Freezer (Not Shown)
38	1	Vacuum Packing Machine (Not Shown)
39	1	Filling Machine (Not Shown)
40	1	Mop Sink (Not Shown)



YELLOW WOOD

a s s o c i a t e s , i n c .

228 North Main Street
St. Albans, VT 05478
www.yellowwood.org

p: 802.524.6141
f: 802.524.6643
yellowwood@yellowwood.org