

Capital for Opportunity and Change

Sustainable Agriculture and Food Systems Program Research and Development Project Ethnic Produce: Crop Diversification for Maine Farmers to Reach New Markets



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- 1. CEI Ethnic Produce Report and Presentation (Prepared by students in USM's MBA Practicum, covering crop selection, initial pricing research, and market demand in Maine supported by a population forecast)
- 2. Boston Market Analysis (Prepared by the Williams Agency)
- Initial Report Ethnic Produce: Community Assessment (Prepared by the City of Portland Public Health Division, Minority Health Program). Secondary Report - Market Preference for Specialty Produce (Prepared by Bowdoin College Psi Upsilon Fellows and conducted through the City of Portland's Public Health Division, Minority Health Program)
- 4. Maine Grown World Crops Specialty Produce Marketing Plan (Prepared by Bowdoin College Psi Upsilon Fellows Jesse Newton and Linnea Patterson)
- 5. Seafood Study
- 6. Additional Resources: Pricing research, Produce selection and seed source spreadsheet, Rack card, Profit per acre tool.
- 7. Specialty Crop Block Grant excerpts

Executive Summary

Increased demand for culturally appropriate, locally produced foods presents a compelling opportunity for Maine farmers to diversify crops and generate new sources of farm income. CEI and its collaborators introduced five ethnic, or specialty, crops (fava beans, amaranth, molokhia, African eggplant, and mustard greens) to the local marketplace. Market research informed the selection of high-demand crops compatible with Maine growing conditions and shaped a marketing strategy that optimized access to these vegetables for a rapidly growing niche of consumers. The pilot demonstrated the economic potential of these crops and established the foundation for successful broad-scale replication and export to larger markets in Boston.

The proposed supply chain between Massachusetts markets and Maine farms capitalizes on the booming locavore and environmental awareness movement, and the growing immigrant population in Massachusetts. Over the past 20 years, the number of foreign born residents has doubled to over 1 million people, where they now constitute over 15% of the total population. The corresponding increase in the purchasing power of these immigrant populations, recorded by the American Immigration Council, demonstrates their significant economic impact. The Asian community now exerts \$19.2 billion dollars in annual purchasing power over Massachusetts markets (an increase of 810% since 1990), while Latino residents contribute \$16 billion dollars a year to the state's economy (an increase of 532% since 1990).

Overall, the pilot project season proved the feasibility of growing these ethnic crops in Maine, and highlighted the profitability and pitfalls encountered with each unique crop. The success and profitability of amaranth and mustard greens, even during a severe drought and late start to the season, highlights the promising market potential of these crops. As fava beans, eggplant, and molokhia experienced significant losses during the production process, the realized market viability of these crops remains to be examined.



Research Summary

CEI partnered with the University of Southern Maine, the Williams Agency, and the City of Portland Public Health Division to conduct research in addition to that done internally by staff or supported by Bowdoin College Psi Upsilon Fellows.

- I. Robert Heiser, Assistant Professor of Marketing at the University of Southern Maine, led a team of MBA students (Andrew Magoun, Denis Richard, Chris Teague, and Scott Hamann) to conduct formal market research into the demand for specialty crops among ethnic communities in Portland and Lewiston. Their team provided research and analysis that informed decisions related to seed selection, product pricing, market demand and population forecast, and farmer profitability. The team determined that African eggplant, amaranth, and mustard greens were the most suitable crops for Maine production based on the local farmer familiarity with the crops, their low agricultural and high target market demands, and the likely profit margin gained from the production of these crops. Robert Heiser and his team of MBA students proved to be valuable consultants whose research on consumer preferences, price tolerance, and quality expectations significantly advanced the project. (Refer to Appendix 1 for specific research objectives, practices, and findings). *Research duration: January May 2016.*
- II. The Williams Agency produced a Boston market analysis that provided insights into the scope and nature of the unmet demand for specialty produce in the Boston area by assessing local consumer preferences. Focus groups, surveys, and interviews were utilized to explore the economic potential of the specialty crops, evaluate consumer preferences for price and quantity, and identify entry points for future replication in Boston markets. The key findings of the report emphasized the concern surrounding quality, convenience, and price associated with the consumer group's current source(s) of culturally appropriate food. The report also included extensive discussion of foods that were commonly unavailable, yet in demand, in Boston. The Williams Agency noted Massachusetts customers' interest to "cook ethnic cuisines from other cultures outside of their own and look to online sources and cooking shows for creative ideas." This consumer trend indicates an expanded target market that includes both millennials who crave a variety of 'exotic' produce as well as the growing foodie trend of culinary experimentation. (Refer to Appendix 2 for comprehensive final report). Research duration: April - August 2016. Supported by the Broad Reach Fund.

- III. CEI partnered with the Community Health Outreach Workers (CHOW) from the City of Portland's Public Health Division, Minority Health Program, to conduct on-the-ground market research with four relevant community groups (Spanish speaking community, Arabic speaking community, French speaking community, and Somali community). Their report, "Ethnic Produce - Community Assessment," utilized key informant interviews conducted with individuals from the four groups in order "increase access to healthy, culturally appropriate fruits and vegetables to different ethnic communities in Portland, Maine." This research identified the most popular dishes in the community, food purchasing patterns (relative willingness to pay for ethnic foods, average monthly expenditure on ethnic foods), and produce availability (how individuals hear about produce availability, popular stores that sell ethnic food, types of ethnic produce not available locally). *Research duration: February 2016*. Community Health Outreach Workers were contracted again in the summer season to help inform on-shelf marketing strategies. Participants from 6 ethnic communities in Portland completed a questionnaire to evaluate the relevance of the crop to their ethnic community, the correct market appearance (size/color/maturity), typical preparation techniques, and the common name(s) of the produce in their community. (See Appendix 3 for initial and secondary CHOW reports). Research duration: July 2016.
- IV. Psi Upsilon Environmental Fellows from Bowdoin College, Linnea Patterson and Jesse Newton, prepared a formal marketing plan (Maine Grown World Crops Specialty Produce Marketing Plan) in order to synthesize and organize information concerning the progress of the pilot project in a comprehensive document. The marketing plan included the project goals, unique selling proposition, preliminary challenges and recommendations, market segmentation analysis, demographic research, marketing strategies, distribution networks, pricing research, possible advertising venues, and an evaluation and monitoring protocol. (Refer to Appendix 4.) *Research duration: June -August 2016*.
- V. CEI staff Richard Clime and Hugh Cowperthwaite conducted a seafood study to explore the increasing demand for culturally appropriate, locally caught (Maine) fish protein in order to generate new sources of income for Maine fishermen. Market research (primarily conducted in Boston area supermarkets) informed higher demand fish species and product preparations desired by existing ethnic markets. Latino, Brazilian, and Portuguese populations in the Northeast are the largest and fastest growing foreign born populations in Massachusetts and northern New England. Researchers used a tool

produced by the Weldon Cooper Center for Public Service, <u>Racial Dot Map</u>, to identify the top twenty areas in New England that possessed the highest Latino population density. Refer to Appendix 5, a guide developed by researchers to the retail outlets where any produce or seafood targeted to a Latino/Hispanic clientele could be sold and have a higher probability of acceptance from the shoppers. One possible species for Maine fishermen to focus on could be American Plaice (Dabs), a form of flatfish. Based on the research, there appears to be enough volume to serve other states, although a higher price point would be necessary to export to larger markets in the greater Boston area. *Research duration: July - December 2016. Supported by Elmina B Sewall Foundation*.

VI. Additional research performed by the contributing organizations and personnel cited above plus resources include: Pricing research, Produce selection and seed source spreadsheet, Rack card (in-store marketing), and Profit per acre tool. Pricing research, conducted by Bowdoin College Psi Upsilon Fellows, combined information from reliable web sources, research from the Williams Agency report, and project partner prices to determine a reliable price point for each produce item. The produce selection and seed source spreadsheet, developed by the USM research team, provides further information about each plant species, links to seed sources, and cites U.S. farms currently growing the produce. Rack cards were designed by CEI staff to advertise the produce items at the point of purchase. The Profit per acre tool offers farmers an accessible way to calculate total overhead and variable costs in order to project net annual profit. This product was developed by Robert Heiser's research team and has not been tested in the field. (Refer to Appendix 6 for full reports of the additional resources summarized here).



Methodology

Concept Development and Fundraising
Market Research and Crop Planning
Implementation: Grow and Market Crops
Summarize and Distribute Results

Project Partners

CEI partnered with growers and retailers in order to develop a cohesive supply chain infrastructure and open channels of communication between growers and retailers. The growers were Lakeside Family Farm, Fresh Start Farm with Cultivating Community, and Jordan's Farm, while the retail partners include the Portland Food Co-op, Hannaford Supermarket (Portland and Lewiston locations), and the Good Shepherd Food Bank and affiliated pantries. Partner meetings occurred biweekly from January - April and then as required to address project objectives, provide updates, discuss and inform research, and identify workplan activities. Many of the partners provided their time in-kind.

Other key project members included <u>Frank Mangan</u>, a soil science professor at the University of Massachusetts, Amherst, who has researched the economic potential of fresh produce through ethnic crop trials since the 1990s. Mangan offered invaluable advice in the early stages of planning, and many of his publications can be found in the Reference section. A Grower's Meeting, open to all farmers, was proposed early on but did not ultimately occur due to growing conditions, but Mangan's extensive experience growing non-native specialty crops and knowledge of the ethnic produce market in Massachusetts makes him a critical resource to New England-based farmers.

Research partners were described above.

The collaboration among mechanized farms, small-scale farms, supermarkets, small retailers, and food pantries was designed to allow CEI to collect a wide range of relevant data that would be instrumental to build a foundation for successful broad-scale replication in Massachusetts markets. However, due to a difficult growing season and multiple crop failures across the three farms, a wide range of data collection was not possible. Throughout the project, CEI acted as an intermediary between the producers and retailers to improve project functionality and partner communication.

Evaluation and Monitoring Protocol

In order to demonstrate the economic potential of ethnic crop production in Maine and the degree of scalability for expansion into Boston markets, the project was tracked and evaluated during the production and marketing processes. Quantitative and qualitative data sources were utilized to record and track specific parameters in order to build a cohesive and holistic view of the project's challenges and opportunities. The process was documented using the following metrics: farm size (acres in cultivation), acreage of specific crop, bed spacing, irrigation use, weed control, pest management, environmental conditions (anecdotal), mechanized production, equipment requirements (planting, growing, harvesting), soil condition requirements, soil/bed preparation, germination rate, ease of crop identification, harvesting methods, harvest length, yield/acre, growing season length, crop storage requirements, adequate farm storage, optimal shelf life, and market preference. The initial metrics were collected through oral evaluation with the individual farmers on their farms.

Market Research and Project Facilitation - Boston, Massachusetts

Team trips to Boston, Massachusetts supported the evolution and expansion of this project. Market research concerning target price points and market demographics were integral in order to provide technical assistance to project partners. Additionally, team meetings with Boston collaborators, the Williams Agency and Frank Mangan, fostered communication among team members and allowed opportunities for updates and feedback.

Date	Team Members	Purpose		
August 2015	TC	Prep: Meet with Frank Mangan and tour Chelsea Terminal Market		
September 2015	ТС	Prep: Attend Boston Local Food Festival and survey participants (supported by Food Solutions New England)		
October 2015	TC, DW, DU, NW, FM	First team trip to visit stores and meet with Boston collaborators		
March 2016	DW, TC, RC, HC	Attend Boston Seafood Expo and Local Food Trade Show; Visit grocery stores		
July 2016	DW, MS, JN, LP	Inventory of specialty produce and pricing research at various small ethnic markets in the Boston area (Battambang Market, Ankor Wat Market, Arax Market, Chelsea Market Basket, Stop and Compare, Tropical Foods). Meeting with Boston collaborators.		

Technical Assistance

I. Farmer-Facing

The research and analysis done by USM's MBA students on seed selection, product pricing, market demand and population forecasting, and farmer profitability informed decisions that were implemented by the farmers. The seed selection process began with a list of 82 ethnic produce items commonly consumed by the target demographic. CEI and growers worked with the research team to cull this number down to 22 items by excluding plants unsuitable for Maine climate or ones that possessed a long growing season. Further research on seed availability reduced this number to 13; from these items the final five were selected based on their high demand, ease of growth, and potential for profitability. CEI conducted monthly meetings to support, inform, and learn from the farmers throughout the duration of the pilot. CEI acted as the initial middle-man between farmers and retailers, making connections and determining the produce distribution chain. Many of these connections between farmers and retailers had been pre-established, however CEI served as the primary communicator regarding the specific varieties of produce for the pilot as well as the data hub for/from both sources.

II. Retail-Facing

CEI designed and provided rack cards for use at the point of purchase (Hannaford Supermarket locations and Portland Food Co-op) to advertise the ethnic produce items. The rack cards included a tagline (Maine Grown World Crops) and summary of the project, a list of growers and retailer partners, and a brief description and photo of each of the five different specialty crops. The rack card also included a link to a webpage on CEI's website that gave a detailed description of the project, links to project partners' websites, simple recipes for each produce item, and suggestions for product storage. (Refer to Appendix 6 for rack card).

Taste tests were planned to be held at participating Hannaford Supermarkets, however, they were cancelled due to the lack of produce volume.

A combination of web-based pricing research conducted by Bowdoin College Fellows and market research conducted by the Williams Agency was used to determine a reliable price point for each item. The averaged results of this research were shared with the farmers as a general guide for pricing advice and as a tool for comparison. Organic produce values were not used in the calculation of the average wholesale and retail price. (Refer to Appendix 6 for complete pricing research spreadsheet).

Produce (\$/unit)	Proposed Price (Retail)	Proposed Price (Wholesale)	Hannaford Supermarket (Retail)	Portland Food Co-op (Retail)	Lakeside Family Farm (Wholesale)	Fresh Start Farm (Wholesale)
Amaranth (\$/bunch)	2.89	1.60	1.62/lb	2.99	1.50	2.00
African Eggplant (\$/lb)	3.75	2.40				
Mustard Greens (\$/bunch)	1.98	1.58	2.49		1.50	1.75
Fava beans (\$/lb)	2.95	n/a	2.99		2.25	
Molokhia (\$/bunch)	3.25					3.75

Table One: Summary of Pricing Information



Results and Outcomes

Successful Crops and Crop Failures

Amaranth production, grown at Fresh Start and Lakeside Family Farm, was a successful outcome of the pilot project. Alex Redfield, the Farm Manager/Educational Specialist of Fresh Start Farms, described the sale of amaranth as "profitable" due to its cross cultural appeal, high quality, and low requirements for pest management. Fresh Start Farms will continue growing amaranth next year because this pilot project allowed its farmers to experiment with and learn how to grow a new crop in a relatively low risk setting. Alex Redfield suggested this project was a success due to the sales \$750.00 worth of amaranth in two months (11 July - 20 September), even during severe drought conditions and a late growing system. Twenty percent of the amaranth crop grown at Fresh Start Farms was sold to the Portland Food Co-op, where it was reported to sell out consistently when stocked on the shelves. An additional 44% of total amaranth sales went to Rosemont Market, a local food market in Portland. This suggests that CEI correctly identified Portland Food Co-op as a promising location for ethnic crop sales, and could explore the possibility of future ethnic food sales to Rosemont.

Mustard greens, grown at Lakeside Family Farm and Fresh Start Farms, resulted in varied levels of success. Hannaford distributed the large volume of mustard greens grown by Lakeside (1,980 units) to 21 Hannaford locations across Maine. Thirty two percent of the revenue stream stemmed from the Forest Avenue, Portland location; this suggests an established consumer base and relatively high demand that could be expanded. Hannaford will continue to sell mustard greens in the future. The Westbrook Hannaford location generated the second largest revenue stream, which coincides with the sale of molokhia, amaranth, and mustard greens from Fresh Start Farms to Westbrook Food Pantries. This could indicate an area already familiar with ethnic produce and open to future expansion. Mustard greens grown at Fresh Start Farms were not as successful, primarily due to the difficulties associated with pest control during the production phase.

Overall, fava bean and eggplant production was not successful. While the first harvest of fava beans from Lakeside Family Farm yielded a respectable crop size of a few hundred pounds, subsequent fungal rot prevented further harvests. Additionally, the black spots that appear on ripe fava beans reduced consumer interest and lowered willingness to pay for this product. The fava beans grown at Jordan's Farm were not successful due to the drought conditions and seed size. The two eggplant varieties grown at Jordan's Farm, African and White eggplant, also suffered during the dry season and failed to produce a first crop. The first fava bean crop from Lakeside Family Farm, as well as previous literature and observed market trends, suggests that

the fava bean and eggplant crop failures were due to field and production loss, rather than a lack of market viability or potential.

The popularity of ethnic crops in targeted Boston markets, specifically amaranth and molokhia, is demonstrated by the experience of several CEI employees. These employees, during a site visit to Tropical Foods, a pioneering food retailer located in Dorchester, MA, encountered molokhia and amaranth in a premiere location at the front of the store. This optimal marketing placement highlighted the produce, and interactions with customers revealed a high demand for these two products. One customer was heard to exclaim how she had been looking for, but unable to find, these products in local stores, and another immediately called a friend to let her know that Tropical Foods was selling amaranth and molokhia. Although the molokhia from Fresh Start Farms did not yield a large crop, this experience highlights the evident demand for the produce.

Additional Notes on Specific Crops

African Eggplant: African eggplants were grown by Jordan's Farm, albeit with minimal success. Penny Jordan (Farm Manager) mentioned how the "drought conditions created a very challenging growing season" that delayed eggplant planting and further stressed the plants. Therefore, the failure of this specialty crop was not due to low consumer demand or inefficient marketing, but rather the unusually dry growing season and drought conditions. Fresh Start Farms was unable to yield their first crop of African eggplant, likely due to seed exposure. When they attempted to acquire more seeds from a different source, none were available.

Fava Bean: The marketing research performed by the MBA student team successfully identified crops suitable for Maine's growing conditions. However, this report was unable to address the real life crop complications that were experienced by Lakeside Family Farm and Jordan's Farm. The fava bean seeds planted at these farms were too large to fit into the largest disk size of the planters. Lakeside Family Farm manually planted the majority of the seeds in order to have consistent seeding without large gaps in the rows caused by the jammed planter. This method of planting would be cost prohibitive for future commercial production. Jordan's Farm struggled with similar issues, but without the resource capability necessary to manually plant the beans, fava bean seeding was minimal and sporadic. However, Penny Jordan suggested that her brother had retrofitted their planter in a way that could seed the unusually large fava beans.

An unexpected challenge associated with fava beans was the aesthetic quality of the bean. Large and mature fava beans naturally have black spots that indicate a level of ripeness ready for the market. Consumer interest was extremely low for these products due to the "moldy" appearance, and some fava bean shipments were sent back to the farm due to the retailer's lack of knowledge concerning the maturity of fava beans.

Amaranth: The primary challenge growers faced during the production process was the small seed size of amaranth. Lakeside Family Farm struggled to mechanically plant amaranth seeds with their planter. This resulted in inconsistent planting, as the seeds simply fell out of the planter and sprayed in an unorganized manner. A possible solution to this issue, if amaranth was to be grown on a commercial scale in the future, would be to pellet the seeds to increase their size. Also, pesticides that are typically used to control broadleaf weeds in vegetable systems are often designed to target plants in the same family as amaranth, such as redroot pigweed (or 'wild' amaranth to distinguish from the domesticated variety). Practically, this means that the grower will very likely kill the desired amaranth along with the targeted weeds. Lakeside Family Farm was not able to spray at all which led to significant weed problems in their production system. Finally, it can be challenging simply to distinguish wild amaranth from the domesticated variety.

Limitations

Produce Identification: Due to the fact that many of these crops are consumed in different countries, information concerning the specific variety of the crop as well as a common name, recognizable to the target demographic, were difficult to determine. The MBA research team noted this challenge in their report to CEI as "extremely difficult" and referenced the lack of differentiation between the existing multiple varieties of "African eggplant" as an example of this limitation. The CHOW report on market preference, conducted in July of 2016 (Appendix 3, second report), attempted to resolve this challenge by asking the survey respondents to select the most familiar names from a list, but a greater sample size would have been necessary to draw conclusive information.

Drought conditions: A U.S. drought monitoring tool, created by the National Drought Mitigation Center, reported "severe drought" conditions across southern Maine during the pilot season. Jordan's Farm, Lakeside Family Farm, and Fresh Start Farm were all located within this region. The 2016 growing season of these farms was therefore heavily affected beginning in April and continuing for the duration of the summer. The severity of water shortages in Cumberland County (Jordan's Farm), and particularly York County, resulted in the convening of the Maine Drought Task Force for the first time since since 2002. Farms in Western and Central Maine, including Androscoggin (Fresh Start Farms), Franklin and Oxford Counties, also struggled with abnormally dry conditions. Walt Whitman, the commissioner of the Maine Department of Agriculture, described, in the Lewiston-Auburn Journal, the situation for farmers without irrigation as, on the "cusp of critical."

Penny Jordan, the Head Farm Manager at Jordan's farm, emphasized the role that the summer drought played in the success of the pilot project crops. Jordan stressed that this summer was "the most challenging season [she] has experienced" and that the pilot project in itself was not a challenge, rather the season posed the main problem. When asked the reason for any specialty crop failure, Jordan simply noted "Drought!!"

Farmer availability: Summer encompasses the growing season and is, therefore, the busiest time of the year for farmers. This, unfortunately, made consistent communication with CEI and pilot project data tracking extremely difficult. Communication with the farms was imperative once the produce was harvested and delivered to store locations in order to receive updates on product distribution, volume, price, and successful marketing strategies. CEI received sporadic and anecdotal updates in the month of July concerning crop progression from some farmers, but a formal conversation was not possible due to farmer availability throughout the months of July and August. In the future, CEI could make more frequent site visits to the farms to collect data in real time and to lessen the burden on the farmers. Penny Jordan, the Farm Manager for Jordan's Farm, suggested meeting times set at night for future iteration of the project to better work with farmer schedules. Matt Chin of the Good Shepherd Food Bank suggested that we break down the larger project team into sub-committees, who meet as needed according to their role.

Website and public feedback: The "<u>Maine Grown World Crops</u>" site on CEI's webpage received 65 unique visits, primarily linked from CEI's e-newsletter. Marketing efforts through rack cards did not prove effective. In lieu of directly surveying end-customer satisfaction (due to low produce volume), CEI relied on project partner debriefs and feedback as a proxy.

Failure to utilize Frank Mangan or Cooperative Extension for technical support: Frank Mangan, a professor of Soil Sciences at the University of Massachusetts, Amherst, is a national expert on ethnic produce from farm to consumer. His collaboration with farmers, distributors, retailers and ethnic communities in the Northeast has led to numerous agricultural field studies and projects, most notably the Ethnic Crops Program at University of Massachusetts, Amherst. These studies have led to numerous academic papers and national journal articles on ethnic produce sustainability and its demand for the growing multiracial and ethnic communities in the U.S. Cooperative Extension, a national research-based educational organization, coordinates outreach to farmers in order to offer advice on farm management, new crop opportunities, and innovative technologies to help farmers become more profitable. These two sources of extensive crop testing expertise were not fully utilized during the pilot project, a missed opportunity to potentially enhance the quality of the project.

Seasonality and timing of Boston market research: The Williams Agency conducted market research in the spring on crops primarily available in the summer and fall. Therefore, the targeted crops were not in stores and fresh prices were unavailable to guide the pricing recommendations. The Williams Agency noted, "Given the small window of investigation, the main challenge was that the target products were not necessarily in season. When fresh items were not available, frozen or canned substitutes were checked."

Exclusion of distribution considerations: By intent, the pilot project specifically excluded distribution in order to focus solely on growing capacity and marketing conditions. The project team chose farms that self-distribute to existing clients. Supply chain infrastructure such as distribution capacity is frequently cited as a barrier to the expansion of Maine's local food economy. Certainly, distribution would need to be carefully considered in future.

Partner Feedback

Through exit interviews with the farmers and retailers, CEI identified the following key production and marketing barriers that project partners faced:

- I. The difficult growing season due to severe drought conditions
 - A. Jordan's Farm attributed all specialty crop failure to the Maine summer drought.
- II. Challenges specific to selected produce
 - A. Black spots on mature fava beans, small seed size of amaranth, large seed size of fava beans.
- III. Convergence of farmer, retailer, and CEI summer schedules
 - A. Farmer partners suggested night meeting times to better accommodate farm schedules.
 - B. Overall consensus that meetings did not feel relevant to all partners. Suggestion that the project should be broken down into smaller core groups (potentially production, market, and distribution).
- IV. Effective communication and marketing to target customer base in large retail settings
 - A. Hannaford's local merchandising specialist suggested there would be more flexibility in a smaller retail store with less competition from other signage and products, which corresponds with Williams Agency findings.
 - B. In-store demonstrations of the products were suggested to peak consumer interest.

- V. Low produce supply left retailers hesitant to conclude eventual market potential of specialty produce
 - A. Hannaford supermarkets received only 48 units of fava beans, compared to 1,980 units of mustard greens. Therefore, the results of the project are insufficient to support future market growth or potential; however, Hannaford indicated that they will continue to sell mustard greens.
 - B. The low levels of production resulted in insignificant increases in the quantity of ethnic produce introduced to the market at Hannaford Supermarkets. Fava bean sales increased from 0 to 16 units and mustard greens increased from 600 to 624 and 0 to 72 units at a Portland and Gorham Hannaford location (Forest Avenue and Main Street). This small increase in produce quantity left the Hannaford marketing specialist to conclude "there was not a significant volume compared to other non-specialty crops."
- VI. Low levels of production created a challenging environment for data analysis by CEI.
 - A. Market potential is difficult to capture with inconsistent produce delivery. However, there was evidence of an overall positive response to the specialty crops and profitable market potential.

Key Business Opportunities - Williams Agency

The Williams Agency identified several retail stores in the Boston area that are popular locations to shop for ethnic produce. These retail stores are primarily small to medium sized; further research from the Williams Agency suggests that these retailers want to serve the communities in which they are located and provide culturally desired produce at an affordable price. Their findings indicated that these types of stores "are willing to pilot any ethnic produce as well as use surveys to capture and analyze customer crop preference." The identified retailers were: Chinese supermarkets, America's Food Basket, Baby Nat's Fruitland, Daily Table, Save-A-Lot Food Stores, and Stop and Shop Supermarkets.

The Williams Agency indicated top crops to pursue based on interaction with target Boston market consumers. Culantro was consistently chosen as the most desired, and top selling, ethnic crop. Fresh Fava Beans, Scotch Bonnet Peppers, and Ajices Dulces were also desired ethnic crops. A special variety of corn, targeted to the Cape Verdean community, was mentioned multiple times in the report, and was additionally noted as a profitable opportunity by Alex Redfield.

The Williams Agency offered recommendations for future collaborations with distributors. They mentioned the desire of both distributors and retailers to get the variety right in a way that aligns with a community's culture and values. One distributor, Alpha Foods, has

worked with and invested in farmers directly to produce high-value ethnic crops (long beans, Thai eggplant). This distributor is willing to advise CEI affiliated farmers in crop planning, and market at least some of the target products, including Amaranth (red), Culantro, African eggplant (white), Sweet Potatoes (purple), and mustard green. Another retailer, Tropical Foods, also has experience working directly with growers in Massachusetts to produce amaranth for Caribbean customers and, therefore, would be an ideal partner during future expansion into the Boston market.

The creation of marketing and consumer educational materials was recommended as a key programmatic opportunity to increase the success of ethnic produce introduction to new markets. These materials would educate consumers about the seasonality and timing of different crops and increase awareness about crop value and availability. The Williams Agency suggested recipe cards or a seasonal ethnic produce calendar as two possible options.

Next Steps

CEI's immediate next step is to make all of the resources and materials developed during this pilot season available to the Department of Agriculture, Conservation, and Forestry as well as any interested parties. The report and all related research will be available for download on CEI's <u>website</u> in early 2017, concurrent with the 2017 Agricultural Trades Show January 10-12. CEI, with Cultivating Community, will also present on this project at Ag Trades.

CEI's hypothesis in developing this pilot project was that there is quantifiable local and regional market demand for new specialty crops ("world crops," "ethnic crops") that can be met by Maine farmers. While the growing season was challenging, the project team added evidence to support this hypothesis, built valuable connections between organizations, and helped developed expertise for particular farmers. CEI hopes that by making the project material available other businesses and organizations will continue to build out the market.

CEI prepared a Specialty Crop Block Grant proposal that did not get funded but does provide one possible template for the 2017 growing season. (Please see appendix 7, which includes excerpts from the application.) CEI supported a Boston-based Local Food Promotion Program grant application, also unsuccessful, with the intent to supply one crop to specific Boston retailers in 2017; nonetheless USDA's <u>LFPP</u> could be an excellent funding option. CEI is not at this point planning to pursue additional funding; the door is open to any interested party to move the work forward in a way that is relevant and appropriate. However, while CEI while won't continue this market development initiative per se, it will continue to support the viability and development of the ethnic produce value chain through direct business support, business advising and financing, and connection to markets. The team believes there is great and ever-growing opportunity in this niche market that has yet to be fully explored or tapped.

Cultivating Community continues its pioneering work through a grant from USDA's Risk Management Agency and other sources. Cultivating Community is supporting and expanding production by individual growers in its Farmer Training program to further explore the profitability and market potential of these crops. Its farmers are fully committed to increasing production of molokhia, eggplant, and amaranth and are now trying to identify and establish sustainable seed sources going forward.

CEI suggests focused crop and production method testing, research into cost-effective distribution channels, and recruitment of additional growers as valuable next steps. One market strategy might be to identify a particular neighborhood or community and start by providing one crop consistently at scale to retailers in that community. Another might be to network the farms like Fresh Start Farms across New England and as a group meet market demand for one or more crops in season. Additional specific recommendations can be found in the research reports. CEI will continue to be a resource and field inquiries about this work into the near future. CEI's experience was extremely positive as lead and the strong level of interest and support from multiple parties for the work of the project is very encouraging. It is hoped that the market channels for these crops continue to be explored.



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