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New Hampshire State Plan
Final Report
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Submitted by the
New Hampshire Department of Agriculture, Markets & Food
In cooperation with selected Project Partners

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New Hampshire State Plan Final Report 2012 Specialty Crop Block Grant Program

Activities Performed:

The New Hampshire Dept. of Agriculture, Markets & Food received funding under the 2012 Special Crop Block Grant Program in October 2012. Nine projects were approved for funding. Individual final project reports follow.

Project 1

Project Title: Veggie Bucks: Increased Direct Sales to Low Income Families

Applicant: Cheshire County Conservation District

Final Report

Project Summary

The Veggie Bucks: Increased Direct Sales to Low Income Families pilot project expanded the customer base of NH fruit and vegetable producers at direct sales venues by creating an awareness campaign and offering incentives to those using the SNAP (Supplemental Nutrition Assistance Program) to buy fruits and vegetables at key farmers' markets in Cheshire County. This program was established in partnership with The Farmers' Market of Keene and later used at the Walpole Farmers' Market and Keene Housing Farm to Family Buying Club, and is modeled upon successful efforts in other states. Beyond these key partners, we worked with Healthy Monadnock 2020, Antioch University New England, Southwestern Community Services (SCS), and UNH Cooperative Extension's Nutrition Connections Program.

In Keene, Cheshire County's largest city (population of 22,395), 20 fruit and vegetable growers participate in the city's bi-weekly farmers' market. Another 7 fruit and vegetable growers participated in the Walpole Farmers' Market when it was active. In 2010, over 7,800 individuals in Cheshire County were considered food insecure. Members of food insecure households often consume fewer fruits and vegetables than the rest of the population and, consequently, are at greater risk for nutritional deficiencies, chronic diseases, and overall poor health. Programs like the United States Department of Agriculture's (USDA) Supplemental Nutrition Assistance Program (SNAP), address the main barrier to fruit and vegetable consumption for low-income individuals: price. In 2008, this program provided \$4,280,000 in benefits to individuals in Cheshire County with incomes <130% of the federal poverty line.

Both food insecurity and local farmers' need for direct sales opportunities had been addressed in Cheshire County, and all of NH, until 2010 through Senior and WIC (Women, Infants, and Children) Farmers' Market Nutrition Program (FMNP) coupons. These coupons formed a large percentage of farmers' sales at The Farmers' Market of Keene. When the program was cut in 2010, market vendors selling food products reported a sales loss of at least 20-30% of their

farmers' market sales the following year. Fruit and vegetable growers surveyed reported a 30-50% loss during the same period. The low-income community's demand for fresh fruits and vegetables from our local growers has not declined; however, these customers no longer had a way to make farmers' market purchases more affordable.

Encouraging SNAP Electronic Benefit Transfer (EBT) redemption at farmers' markets is an exciting opportunity to increase food security and recover sales lost from the discontinuation of the FMNP coupons. Cross-country, SNAP EBT redemption rates are very low, except in communities with widespread social outreach campaigns. The Farmers' Market of Keene received an EBT Machine through a grant from UNH Cooperative Extension and the New Hampshire Farmers' Market Association in November 2011. During the program's first year the market saw less than \$200 in SNAP EBT redemptions.

Common barriers to SNAP redemption at farmers' markets include: lack of knowledge or awareness that the market accepts EBT, perception that farmers' markets are expensive, and unfamiliarity with foods sold at the market. To address these barriers, this project created a marketing and social outreach campaign, matched up to \$10 of SNAP dollars redeemed each market visit by SNAP participants, and offered simple recipe cards and nutritional demonstrations at the market in order to better educate consumers.

This project did not build on previously funded projects with the SCBGP.

Project Approach

This program covered a three-year period. In the first year program staff assisted The Farmers' Market of Keene with marketing, administration, outreach and match funds for the Veggie Bucks Program. In the second year, Walpole Farmers Market was added as a partner and assisted with marketing, administration, outreach, and match funds for the Veggie Bucks Program. Both of these farmers markets also received assistance with an educational initiative. In the third year the partnership continued with the Farmers' Market of Keene. It was discontinued with the Walpole Farmers Market because the Market ceased their operation. With this knowledge the Cheshire County Conservation District, with permission from the NH Department of Agriculture, Markets, and Food, decided to pursue a partnership with Keene Housing and expand the program to include their Farm to Family Buying Club. The Farm to Family Buying Club worked with Monadnock Menu farmers from the region to purchase fruits and vegetables.

The following tasks were performed during the grant period:

Task 1: Leveraged and expanded partnerships with service agencies and community groups to implement an outreach campaign to SNAP recipients and encourage their purchase of local fruits and vegetables at market.

Forum of service agencies and community groups to plan Farmers Market activities at Southwestern Community Services was held in 2013 and 2014.

Distribution of brochures and posters through Southwestern Community Services, Healthy Monadnock 2020, The Community Kitchen, and Keene Housing occurred during each year of the grant period. Please see the additional information section for examples of fliers, brochures, signs, and press releases.

Created recipe cards, educational nutrition materials, and tasting and cooking events with a partnership from UNH Nutrition Connections, Antioch University, and Keene State College Dietetic Interns during the duration of the grant period.

Task 2: Engaged 2 master's level students from local university programs focused on sustainable agriculture and food security as interns to aid with the project.

Conducted a survey of SNAP beneficiaries using the Veggie Bucks Program in 2014. Please see the additional information section for a copy of the survey and results.

Task 3: Implemented SNAP match funds Veggie Bucks program at The Farmers' Market of Keene during the entire grant period.

Trained Market staff, interns, and volunteers on the Veggie Bucks program redemption and data recording techniques.

Performed data entry after each market day

Task 4: Implemented SNAP match funds Veggie Bucks program at the Walpole Farmers' Market during 2014. This market ceased operation in 2015. In 2015 we worked to implement SNAP match funds Veggie Bucks program with the Keene Housing Farm to Family Buying Club.

Trained Market/Buying Club Staff, interns and volunteers on Veggie Bucks redemption and data recording techniques.

Performed data entry after each market day

Task 5: Implemented a marketing initiative to make the greater community aware of the Veggie Bucks program.

Printed a banner for Veggie Bucks booth and lawn signs adopted by "market friends."

Wrote press releases, facebook posts, and articles in partners newsletters about the Veggie Bucks Program

Task 6: Designed, publicized, and implemented educational events to assist each farmers' market in raising community support and engaging customers.

Establish one community event for the Farmers' Market of Keene's Veggie Bucks program.

Establish one community event for Walpole Farmers' Market's Veggie Bucks program.

Task 7: Shared strategy, findings, best practices, and program outcomes with other organizations through participation in the newly formed NH Nutrition Incentives Network. Attended quarterly network meetings during 2014 and 2015.

Shared best practices and made plans to expand SNAP incentive programs in the state of NH

As SNAP EBT can be used for all food sold at farmers' markets, the program used selective marketing to increase sales for specialty crop producers. The name "Veggie Bucks" is used to

reinforce the emphasis of using EBT for fruit and vegetable purchases. Banners at the market booths where EBT transactions occur read "Use EBT, Credit or Debit HERE for Fresh Fruit and Vegetables!" The phrase "EBT for Fresh, Local Fruit and Vegetables" was featured on the signs, posters, and brochures. Simple recipe cards created for distribution and cooking demos focused on the preparation of fruits and vegetables. As both The Farmers' Market of Keene and Walpole Farmers' Market are growers-only markets, all of the produce sold through them is grown by New Hampshire farmers.

Goals and Outcomes Achieved

The activities described in the project approach section were completed to achieve the following two goals:

GOAL1: Increase the direct sales of produce at farmers' markets in Cheshire County.

PERFORMANCE MEASURE: Total Veggie Bucks tokens returned by fruit and vegetable farmers to the Market Manager for reimbursement, recorded at the end of each market day.

BASELINE: Total value of SNAP tokens redeemed by fruit and vegetable farmers from May - April 2012-2013. The "year" is defined thus as May is when the summer market begins for both the Keene and Walpole markets.

TARGET: The amount of Veggie Bucks redeemed by fruit and vegetable farmers at each market will increase 200% the first year of their program, 30% over that in the second.

ACTUAL ACCOMPLISHMENT: Our target was to increase the amount of veggie bucks redeemed by fruit and vegetable farmers by 200% in 2013 the first year and 30% in 2014. In 2012 there was not any veggie bucks redeemed and the use of SNAP at the Farmers' Market of Keene was quite low. In 2013 SNAP sales were boosted to \$4,742 and the veggie bucks redeemed reached \$2,793. These totals were a result of 371 SNAP transactions. Another figure of interest is that we had 83 individuals report that it was the first time that they had ever been to the Farmers' Market of Keene. In 2014 SNAP sales at the Farmers Market of Keene rose to \$6,492 and the veggie bucks redeemed reached \$5,901. This is a result of 626 SNAP transactions and 63 SNAP beneficiaries who came to the market for the first time in 2014. This is an increase in Veggie Bucks redemption of 111% from 2013 to 2014. This surpasses our target of 30% growth. There was no growth target outlined for 2015 in the proposal, but our service continued and as of 12/8/15 there were \$3,800 of veggie bucks distributed and \$4,282 in SNAP sales. The Walpole Market had no EBT sales in 2013 and in 2014 there was minimal growth. \$219 of SNAP sales and \$159 veggie bucks redeemed through 15 transactions and 5 customers came to the market for the first time. The Walpole Farmers Market closed in 2015. The Keene Housing Buying Club had eight new SNAP customers and there were \$125 in veggie bucks redeemed during 2015.

GOAL2: Share findings, strategies and best practices with other organizations who could expand the sales opportunities of specialty crop producers to low-income consumers elsewhere.

PERFORMANCE MEASURE: Number of participants engaged in a workshop at the 2015 NH Farm and Forest Expo that go on to implement programs aimed at increasing SNAP redemption at farmers' markets as determined by a follow-up survey one year after the workshop.

BASELINE: Currently, no outreach efforts to disseminate best practices for encouraging EBT redemption at markets exist in this geographic area.

TARGET: Contribute to the implementation of three similar programs in New England.

ACTUAL ACCOMPLISHMENT: As a result of this grant project the Cheshire County Conservation District is a founding member and regional lead of the New Hampshire Nutrition Incentives Network. The network was established in 2013 with the goal of increasing affordable access to locally grown food. Customers are provided with a monetary incentive, called Granite State Market Match (same as Veggie Bucks), which doubles the value of Food Stamp benefits. The NH Nutrition Incentives Network is led by the NH Food Bank in partnership with Wholesome Wave, a national non-profit organization. In 2014, the NH Food Bank took on the role of network administrative lead, with regional representatives leading nutrition incentive programming in five regions. Through this network we have reached our target by contributing to the implementation of 5 similar programs in New Hampshire. This network discussed a workshop at the 2015 NH Farm and Forest Expo but decided that it was not appropriate at this time.

Beneficiaries

The beneficiaries of this project were fruit and vegetable growers and SNAP recipients within Cheshire County. The advantage to specialty crop growers was threefold: reconnection with SNAP-eligible customers who previously used FMNP coupons to purchase fruits and vegetables at farmers' markets, strengthening and expanding market sales due to an increase general visibility of the farmers' markets and their new ability to accept credit and debit cards, and the development of a new customer base of SNAP recipients who have not had the option to shop at farmers' markets before. SNAP recipients received the advantage of having increased access to healthy, affordable food in the center of their community.

Over 150 SNAP recipients reported attending the Farmers Market for the first time to utilize the Veggie Bucks incentive program. These are new customers for the Specialty Crop Farmers participating in the Farmers Markets and buying club. This program is responsible for bringing over \$12,778 of incentives to regional farmers over the course of the grant period. Beyond the incentives or veggie bucks the SNAP sales rose dramatically, going from less than \$500 in 2012 to cumulative sales of \$15,860 over the grant period.

Lessons Learned

This project has been a great experience for the Conservation District and partners. Some farmers were not excited to embrace the veggie bucks program when we first introduced it but after the first year of the project the partnering farms became very supportive of the project and are hoping to see it continue to grow in our region. As a result of this project the Conservation District and Farmers' Market of Keene have stronger relationships with service providers in the region that work with low-income populations. We hope to continue to build on these relationships in future years to expand the program.

This grant has allowed us to build on the Veggie Bucks program in the region with outside funding to pilot the program with Picadilly Farm, a Community Supported Agriculture (CSA)

Farm in Winchester NH. We hope to continue this partnership in 2016 and work with additional farm stands and csas. We have had multiple farmers express interest and we will be following up with them in the winter of 2016.

Starting the Buying Club pilot in partnership with Keene Housing was an unexpected outcome of this grant. During our work on this project we realized that one of the biggest barriers for low income populations shopping at a farmers market is lack of transportation. For this reason we worked with Monadnock Menus, a local aggregation and distribution service, to bring fresh fruits and vegetables to a low income housing site where SNAP recipients could participate in the Veggie Bucks program. We hoped to have a half dozen families participate in this pilot and found that forty five families had interest to register online and join the buying club. This was an exciting outcome and we are looking for funding to continue this pilot in 2016.

The greatest positive outcome of this grant was our role in the formation of the NH Nutrition Incentive Network that is led by the NH Food Bank with support from Wholesome Wave. This network will have a lasting impact on specialty crop farmers in NH by fostering growth of nutrition incentive programs in the state. The network is actively seeking funding opportunities at the federal, state, and local level, is a learning community for best management practices, and is offering statewide branding and marketing. All of these support services will contribute to the long-term sustainability of the work. As a result of this, moving forward in 2016 our program will be called Granite State Market Match.

Our greatest challenge was staff turnover at the farmers market resulting in a struggle to ensure there was adequate training for staff and volunteers on data collection and entry.

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Additional Information

In attached appendix, Project 1

Project 2

Project Title: NH Farmers Market Summer TV Campaign on Comcast and Xfinity

Applicant: NH Farmers' Market Association

Final Report (previously submitted)

Project Summary: The New Hampshire Farmers Market Assoc.(NHFMA) purchased a series of cable television spots on Comcast promoting NH farmers markets during the summer of 2013. This built on a TV spot already developed by the NH Department of Agriculture. Individual farmers markets have limited the financial ability to advertise on cable television. The NHFMA

was able to promote farmers markets across our state combining this grant program and the sponsorship from two other NH agricultural organizations.

Comcast cable and Xfinity internet is a very prominent media outlet in our state. The NHFMA is convinced that advertising farmers markets on Comcast and Xfinity was an excellent way to reach out to consumers in our state. The TV spots were aired at a peak time during the summer season when consumer interest in farmers markets is strong.

TV spots during the summer featuring NH farmers markets enabled our organization to further its mission to educate consumers on the benefits of a healthy lifestyle acquired through locally grown agricultural products and understand the social, environmental and economic benefits of this lifestyle to themselves as well as farmers.

Project Approach

The NHFMA worked closely with Warren Bailey at Comcast to first edit an existing TV spot that had been developed by the NH Department of Agriculture. Our organization's name and website information was added to the bottom of the screen which scrolled thru the entire spot. NH Farmers' Market Association partnered the NH Farm Bureau Federation and the NH Vegetable and Berry Growers Association names were added to the end of the spot. This editing was at no cost to our organization. A contract for a proposed time schedule of TV spots was signed in May of 2013. A total of 1600 TV commercials were contracted to be aired in July and August. 100,000 NHFMA display ads were to be placed on Xfinity.com These TV spots featuring NH farmers markets were run from July to August, 2013. The spots were aired on the following cable channels: The Food Network, HGTV, CNN, Discovery Channel, ESPN, National Geographic Channel and the Travel Channel. A total of 1,080 commercials were scheduled to be aired in key zones across the state including, Manchester, Concord, Seacoast, Nashua, with a bonus schedule of 600 ads in Keene and Laconia. In addition 120,000 display ads were scheduled on Xfinity internet. The NH Farm Bureau Communicator publication ran a story on the Cable TV campaign May/June edition. This publication has a readership of over 3,000 NHFB members.

The NH Farm Bureau Federation and the NH Vegetable and Berry Growers Association were significant contributors to this project. Each organization funded \$1,000 toward the total cost of the project. The NHFMA matched 20% of the project funding with sponsorship from two large agricultural organizations in our state since there is some benefit to non specialty crop vendors at farmers markets.

Goals and Outcomes Achieved

Cable TV spots promoting NH farmers markets were aired in high performing programming July 8, 2013-August 25th, 2013. The campaign was aired on highly rated shows such as "Naked and Afraid" on the Discovery Channel, "Mysteries at the Museum" on National Geographic, "Anderson Cooper 360" on CNN, "House Hunters on HGTV" and "Say Yes to the Dress" on TLC and the Food Network. Viewer profiles of these networks align to our targeted farmers market

customer. A total of 1,087 ads were aired at a cost of \$8,888.46. A bonus schedule of 663 in kind commercials were aired at no charge. The value of these ads was \$19,862.

During July 15, 2013-July 30th, 2013, 126,516 impressions were delivered on Xfinity.com of the NHFMA display ad. This ad allowed Xfinity internet users to click thru to our website at www.nhfma.org. The Xfinity.com flash results showed that 735 people viewed our display ad on Xfinity internet. The cost of the display ads was \$1,200. The value of the Xfinity impressions is \$2,400.

The NHFMA measured the success of the TV exposure by tracking visits to our website by using Google Analytics when the TV spots were broadcasted and comparing that data to the same time period in the previous year. The NHFMA expected visits to the website to increase by at least 15%. This would be a similar increase to our previous TV campaign project on WMUR-TV in 2011. Visits to [www.nhfma](http://www.nhfma.org) increased by 32.57 percent from 2012 when no TV campaign was in place. This exceeded our expectations.

Banner videos of the NHFMA display ad were placed on Xfinity.com. A total of 126,516 impressions were delivered from July 15, 2013-July 30th, 2013. This is an increase of 6,515 display ads above the number of scheduled ads. It was determined from the click thru rate that 735 subscribers viewed our farmers market ad and clicked thru to our website.

A consumer survey was done at targeted markets. Surveys were planned at three NH farmers markets. The Bedford, Concord, and Milford Farmers markets agreed to participate in rapid assessment consumer surveys at their markets before and after the cable TV campaign. Nada Haddad, UNH Cooperative Extension reviewed the questions to be asked consumers at the market. Questions were presented to customers on a display board, customers were able to place a small sticker on their answer so that results could be quickly tabulated without formal tally of the responses. This is a quick and fun way to interact with customers at the market without interfering with their shopping experience. All the markets performed the survey once but not all followed up with a second survey after the campaign had aired. This may be due to lack of volunteers at the market to conduct the survey later in the season as the markets reach their peak in September. It was also difficult to ask customers at the market to do the same survey in a short amount of time.

Data was tabulated from the surveys that were completed. There is consistent data from all three markets on the demographics of market shoppers. The majority of customers who participated in the rapid assessment survey were women between the ages of 51-65 years old, travelling less than ten miles to the market, and spending between ten and twenty dollars on a weekly basis at the market. They initially found out about the market by word of mouth, signage and their local newspaper. They keep informed about the market by word of mouth and newspaper ads.

A survey with the same questions was posted on the NHFMA Facebook page using Constant Contact. The first internet survey had 62 participants. The second posting of the survey had

only 5 participants. The results of the first survey gave data regarding demographics which is similar to the rapid assessment surveys. The majority of participants were women, primarily in the 36-50 and 51-65 year old age ranges, driving less than ten miles to the market. Equal numbers of participants spent between 10-20 dollars and 20-50 dollars at the market(80% of participants total).The participants shop weekly at the market. In the internet survey 78.6% of participants used social media to keep in informed about the market. This may make sense since the survey was posted on Facebook. The results of the 2nd internet survey which was done after the campaign had aired are inconclusive due to a lack of participants.

In both the rapid assessment surveys done at market and the internet based consumer survey the number of customers who hear about their markets by television or keep informed about their market was relatively zero.

Beneficiaries

There are currently 71 farmers markets during the summer season in New Hampshire in 2013. There are over 4000 farms in New Hampshire. Farmers in our state are increasingly using direct marketing to sell their products. These venues include farm stand, pick your own operations, greenhouse/nursery and farmers markets. In 2011 the NASS(National Agricultural Statistics Service) USDA began to include marketing practices of farmers in the New England Fruits and Vegetables, 2011 Crop report. It was reported that 22 percent of farmers in NH used farmers markets as a marketing practice. Farmers markets bring the farm to the community offering consumers the opportunity to interact directly with producers. Farmers markets offer a sense of community and re-energize cities and towns.

Lessons Learned

This project required sufficient time for obtaining sponsorship, editing, planning of the spots, finalizing the contract and analyzing data from Google Analytics. It was learned that performing the consumer surveys at the market require personnel to conduct the surveys. Many farmers markets in our state rely on volunteers to help manage the market. These volunteers do not always have time for projects of this kind.

The online survey although relatively easy to set up on Constant Contact was only posted on Facebook. It may have provided more data if it was posted on different media which might attract a more broad variety of farmers market customers and also encourage them to participate in the survey. It provided some demographic information and information on how customers keep informed about the market. The rapid assessment surveys performed show that customers at NH farmers markets currently rely on word of mouth to keep informed about their market. The online survey suggests that some customers may be using social media as well. More information is needed to assess how we can best target our key demographic of farmers market customers.

The number of summer farmers markets in New Hampshire may be showing a slight decline in recent years; 89 markets in 2010 an 85 markets in 2011, 75 markets in 2012 and 71 markets in 2013. However winter farmers markets have grown to 30 in the 2012-2013 season. An

important goal in our state is to sustain the existing farmers markets in operation. Maintaining the market base is more difficult to measure than when farmers markets were developing.

The NHFMA partnered with The NH Farm Bureau Federation and the NH Fruit and Vegetable Growers Association to make this campaign a success. These are two long standing New Hampshire agricultural organizations with similar missions representing a wide variety of farmers in our state.

The New Hampshire Farmers Market Association(NHFMA) increased public awareness of farmers markets across our state by airing a successful cable television campaign during the peak of the summer season. This benefits farmers markets in our state which are not currently using television to reach consumers in their area.

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Project 3

Project Title: Hillsborough County Local Foods Initiative

Applicant: Hillsborough County Conservation District

Final Report (previously submitted)

Project Summary

The Hillsborough County Conservation District (HCCD) determined there was a need to enhance opportunities for local farm sustainability. The ultimate goal of this project was to determine if a Greater Manchester Area Food Hub could become a significant and sustainable opportunity for our regional food system. Farmers are challenged by the lack of distribution, processing, and marketing infrastructure that would give them wider market access to larger volume customers. Becoming a part of a regional food hub would help farmers meet those challenges. While NH farmers are successfully selling directly to the local consumer market, expansion of the local foods movement beyond direct retail could provide our farmers with new economic opportunities and the ability to expand access to local foods. This project sought to determine the institutional capacity to purchase locally sourced foods and a farmers' ability to help meet that demand.

This project was timely because the USDA came out with a Know Your Farmer, Know Your Food initiative in 2012, which recognized how important local foods are, and strongly supported the promotion of a regional food distribution system. Senator Debbie Stabenow reported, "helping family farmers sell locally by increasing support for farmers' markets and spurring the creation of food hubs to connect farmers to schools and other community-based consumers" is of utmost importance. According to the 2007 US Census for Agriculture, NH ranks #1 in states' percentage of farms with direct sales, and Hillsborough County ranks 37th among counties nationwide for direct to consumer sales. Many farms are unable to remain sustainable

combined with the number of small producers, the timing and importance of this project will report concrete data that will support the development of additional market opportunities such as a food hub, to enable producers to join together and reach ultimate sustainability.

Project Approach

The *first task* was to create and distribute a survey. The purpose of the surveys was to perform a needs assessment on the viability of developing a food hub in Hillsborough County based on the current situation. To that end, questions focused on current production and demand for local products, knowledge gaps, and desired outcomes. While the ultimate goal was to assess the specific needs of Hillsborough County, the survey was opened to participants throughout the state of NH in order to increase the number of survey respondents for more robust data.

Three different surveys were created; one went to producers of specialty crops only (farms that fall into a category other than producing specialty crops were not included), the second to institutions (schools, hospitals, nursing homes, retirement homes, colleges, universities, etc.) and third to food pantries (to try and reach the socially disadvantaged population). A contact list was compiled of target respondents (farmers and institutions) throughout the state. The surveys were distributed via email using Survey Monkey. Food pantries were contacted via the HCCD Gleaning Coordinator.

Survey questions for farmers/producers were developed utilizing the findings previously presented in the Manchester Food Hub Planning Grant report. Questions focused on current production and distribution, current certifications (and barriers to certification), and capability for future growth.

Overall interest in participating in a food hub was assessed as well as concerns and potential benefits. Information about the preferred types of services, business practices, and organization of potential food hubs was also collected. Institutions surveyed included hospitals, nursing homes, colleges/schools, and childcare centers. Questions focused on current demand for and purchasing practices of local foods, current limitations on using more local foods, and current restrictions on requirements for foods purchased by the institution (e.g., certifications). Information about desired products, benefits, and practices was collected, and overall interest in participating in a food hub was gauged. Food pantries were addressed in a separate survey designed to address their specific needs. Questions focused on desire for local products, ability to accept and/or purchase local foods, and limitations. All three respondent groups were also asked what and why the best location would be for a food hub. All of the respondents' answers were compiled and analyzed.

The surveys were distributed via Survey Monkey, beginning on 10/5/2014. Data was collected through 11/9/2014. The response rate was low, which is consistent with similar email studies done previously. After the initial wave of emails was sent out, the survey link was distributed using NH Food System listserv. This resulted in additional responses, contributing to the totals.

Of the respondents, Hillsborough County was the best represented in NH, with 35% of farmers (17/48), 31% of institutions (23/73), and 46% of food pantries (23/50) listing addresses in cities

and towns within Hillsborough County. Most common towns for farmers/producers were Goffstown, Lyndeborough, and Wilton. Most common for institutions and food pantries were Manchester, Nashua, and Peterborough.

65.9% of the farmers surveyed produced fresh vegetables and 34.1% produced fruits. Hence, the survey was limited to only those who qualify as specialty crop producers.

Complete findings from the survey are displayed in full detail in the Final Report (see attached *NH Farm to Institution Food Hub Viability Project: Hillsborough County Local Foods Initiative* for complete details).

In the second task, we held one large event, entitled Food Hubs: Bringing Communities Together on November 6, 2014. The purpose of the event was to bring together specialty crop producers and institutions to facilitate discussions and understand the challenges and benefits that farmers and institutions face when participating in a food hub and in supplying and utilizing local food. We had three dynamic industry specific keynote speakers lead the event. Ted Brady, State Director for USDA Rural Development discussed the potential funding for food hub work within New Hampshire as well as the economic benefits of the establishment of a food hub. Jaimee Rondeau, Marketing Team Leader and Community Liasion for Whole Foods Market, Nashua spoke about the role of Whole Foods Market (WFM) for small farmers and the potential for WFM to play a role in buying from a food hub. Josh Jennings, farmer at Meadow's Mirth Farm and Three Rivers Alliance elaborated on how his virtual marketplace is providing a new market for farmers as well as giving the ability to chefs to purchase local produce at large volumes through their mobile application.

The event was extremely successful attracting over 60 in attendance. Attendees consisted of specialty crop producers, institutional representatives and like-minded NH conservation organizations. In addition to the three speakers, local food work updates were given by key organizational representatives in attendance who have now been identified as key partners in beginning work on completing the next steps in the continuation of the development of a Manchester Area food hub. Finally breakout sessions occurred where a SWOT analysis was done, more detailed information was gathered to supplement the data received through the surveys. Overall, interest was high, and we determined there is a need to work towards creating a centrally located food hub in NH.

The third task was to pull together all of the findings from the surveys to the Food Hub event and create a final report of findings, recommendations and next steps. (Please see attached *NH Farm to Institution Food Hub Viability Project: Hillsborough County Local Foods Initiative* for full report.)

Goals and Outcomes Achieved

Goal 1: Increase economic opportunities for local specialty crop producers by determining the institutional capacity to purchase locally sourced specialty crop

foods and the farmers' ability to meet that demand. We hope to reach **25% of institutions and 25% of farmers.**

Outcome 1: We received survey feedback from **23% of the farmers and 100% of the institutions** responded from combined promotion between our efforts and assistance from NH Food System listserv.

Goal 2: Hold a successful meeting including representation from specialty crop producers and institutions interested in learning more about the concept of food hubs, market expansion opportunities and for the institutions ways to incorporate more locally grown food into their budgets and offerings.

Outcome 2: Over **60 people** attended the conference, *Food Hubs: Bringing Communities Together*. **15% were specialty crop producers and 19% were from institutions.**

After the conclusion of the event, an evaluation was emailed out via Survey Monkey. We received responses from **32%** of the attendees. Highlights included hearing directly from a producer (Josh Jennings) on how he has expanded his markets to include institutions. Second, hearing about the funding opportunities available for the establishment of food hubs at USDA Rural Development was helpful. Third, hearing the process Whole Foods Market goes through to work with local producers was interesting. Finally, seeing the interest on the part of so many stakeholders and hearing who would buy from a local food hub was inspiring. **64%** of the respondents would be very likely to participate in a local food hub. **58%** are more interested in food hubs after attending the conference.

Beneficiaries

The groups that benefitted from the completion of this project's accomplishments included specialty crop producers, institutions and local food conservation organizations. Full participation included **48 farmers, 73 institutions, 50 food pantries and 36 conservation organizations.** Surveys were distributed to **321** individuals.

Lessons Learned

The Hillsborough County Local Foods Initiative provided new insights into the feasibility of a food hub within the state of New Hampshire. Major findings from both the survey and the conference indicate that there is substantial interest in establishing a food hub within New Hampshire from farmers, institutions, and food pantries. Additionally, the project team identified a series of gaps in current distribution and regulatory requirements that could be mitigated by the establishment of a food hub. For instance, the majority of institutions and food pantries surveyed buy directly from growers, however, only a small percentage of farmers (17.1%) sell directly to institutions. Another gap was that many institutions require either GHP or GAP certification, but only a small percentage of farmers are certified. However, approximately a quarter of farmers surveyed indicated that they would be interested in receiving GAP training.

All target groups were able to identify benefits from the establishment of a food hub including opportunities for consumer education, food processing services, assistance with marketing, and certification. All target groups also identified barriers to the success of the food hub including reduced autonomy for farmers, small profit margins for farmers, high prices for institutions, and financial sustainability of the food hub.

Most respondents in both the surveys and in the SWOT exercise were concerned about the location of the food hub and stated that a central location would be key to the success of the food hub. Many groups suggested that a centralized, primary hub with satellite locations would be the ideal model for a food hub within the state.

The general attitude from all of the respondents was supportive of establishing a food hub. Although conditions appear favorable, there is still additional information that is needed prior to implementing a food hub. The project team recommends that an advisory board be convened to address the outstanding questions and concerns around establishing a food hub. Stakeholders across the state must be engaged and food hub experts will need to be consulted. In the interim, a program could be set up to help farmers obtain GHP/GAP certification to better enable them to sell to institutions.

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Additional Information

In attached Appendix Project 3

Project 4

Project Title: Mobile Flash Freeze Technology for NH Specialty Crop Producers

Applicant: Merrimack County Conservation District

Final Report

Project Summary

The Merrimack County Conservation District (MCCD) offered a mobile flash freeze unit to extend the availability of specialty crops into the winter and to provide training and resources on the best practices on flash freeze technology.

The initial purpose of this project was to assist specialty crop producers in season extension. Following the interest in the flash freeze technology brought to Vermont and Missouri (through

a Specialty Crop Block Grant), NH producers wanted to see how flash freeze technology could help them expand markets and freeze food quickly and efficiently while maintaining the quality of the food. Institutional buyers, such as schools and restaurants, want locally procured specialty crops, such as berries, year-round but farmers' abilities to provide such food is limited due to lack of access to flash freeze equipment and lack of storage capabilities, which some of the institutional buyers have available.

This project was previously built on a SCBG funded in Missouri. MCCD talked often with the Missouri Department of Agriculture and Missouri Cooperative Extension to gain knowledge of how their project was working and not working. MCCD learned from them to try to create a successful project.

Project Approach

In this project, MCCD purchased a flash freeze unit and commercial kitchen trailer. Along with the availability of the trailer, training was provided on best practices, finding markets, and planning for season extension. The initial approach was to learn from other similar projects in the country, namely in Vermont and Missouri. Unfortunately, these projects were not as successful as hoped and working with these projects caused some delays on our part.

Outreach and users of the flash freeze unit were limited to specialty crops solely. Even though there was interest in the flash freeze unit by non-specialty crop producers, the flash freeze unit was only used for specialty crops, such as berries, broccoli, kale, Swiss chard, and green beans. With more interest garnered for the unit, MCCD will continue to limit the use to specialty crop producers for the unforeseeable future.

The significant role of project partners in the project consisted of gathering information on the best flash freeze unit to purchase (namely Red Manse Farm in Loudon and Yankee Farmers' Market in Warner), assistance in meeting state health codes and certifications (City of Concord Health Department and the NH Department of Health & Human Services), assistance in best practices from the other two states doing this work (Missouri & Vermont); and outreach assistance from NH Farm to School; Plymouth State University Center for Rural Partnerships; NH Farm to Restaurant; Sullivan County Conservation District; Small & Beginner Farmers of NH; and the County of Merrimack. Outreach assistance included connecting MCCD with interested farms and institutions, workshop collaboration, and outreach in newsletters.

Significant accomplishments from the work plan include the following:

- a. Significant results: The most significant result is the launching of this innovative project in New Hampshire. As experienced in other states, the best model to use is still being worked out, but the unit is available, being used, has many people interested in using it this upcoming season, and more outreach events are occurring to promote the use of flash freeze technology to extend seasonality in specialty crop availability.
- b. Significant accomplishments include: training at least 17 farmers on the proper use of the unit; collaboration with NH School to Farm, NH Small & Beginner Farmers, PSU Center for Rural Partnerships, and NH Farm to Restaurant in order to expand the use of

the unit; the incorporation of flash frozen foods in schools and institutions in Merrimack County.

- c. **Conclusions and recommendations:** Shared equipment is a difficult endeavor for organizations to undertake. It requires significant administrative capacity (which this writer believes the Vermont and Missouri programs lacked), significant outreach to potential users, and time to allow the program to work. MCCD is still working with farmers and institutions to get the best and greatest use of this equipment and the SCBG allowed that to happen, but two years was too short of a time to get this project up and running. This program still has potential but needs additional time to meet the expected numbers, both in people benefiting and dollars earned. Most importantly, an organization needs to have a strong administrative capacity to work with producers/ institutions/ schedule, and insure shared equipment such as this.
- d. **Unexpected Developments:** It was unexpected by MCCD that launching a program such as this would prove so difficult. When MCCD began looking at this program in 2011/2012, significant interest in this technology was occurring in Vermont. The Vermont program then failed and MCCD looked at their model in order to create a successful program. Missouri's program also encountered similar issues. These difficulties caused MCCD to move the program along slowly but deliberately. The other unexpected development was that farmers need to build in time to flash freeze their produce and this is not a commonplace activity. Farmers were interested in testing it out and adding the use of this technology to improve their winter CSAs, but the unit is still not used at its greatest potential as MCCD works with farmers and institutions to include the use of this equipment in its normal operations.

Goals and Outcomes Achieved

The goal of increased specialty crop sales was met though our target numbers were not met. We only had 18 specialty crop producers use the equipment, but most of that use was experimental. Only one producer met the target of an increase in sales of \$2,000 or more. Two institutions that used the flash freeze unit froze over \$2,000.

It is anticipated that these targets will be reached but in the 4th or 5th year of the program versus in two years.

The following goals and outcomes were achieved:

- Flash freeze unit and commercial kitchen trailer purchased and available for use by farmers and institutional buyers.
- Five official trainings and several one-on-one trainings on the use of the trailer.
- Food from six specialty crop producers in Merrimack County and 12 from other counties was flash frozen and five institutional buyers used the freezer to freeze specialty crops that they purchased for use throughout the season.
- Food from six specialty crop producers was flash frozen and four institutional buyers used the freezer to freeze specialty crops that they purchased for use throughout the season.

- Worked with the City of Concord and the State of New Hampshire on proper certification of the trailer and flash freezer.
- Experimented on the best items to flash freeze.
- Researched other flash freeze programs, which have had a turbulent history and have been largely unsuccessful.
- Created a long-term plan for project success so that this equipment will be used and used in a greater capacity in future years.

Beneficiaries

The beneficiaries of this project have been primarily small vegetable and berry producers in Merrimack County and school food service departments in Merrimack County. The farms that have benefitted were mostly small, organic specialty crop producers who were using the equipment to flash freeze for CSAs. Schools and one food pantry has used it to flash freeze locally purchased berries purchased for use throughout the year.

Training on the flash freeze unit has been provided at state-wide events at NH Farm & Forest in February, 2015, at the Sullivan County Conservation District in May, 2015, at Friends of Forgotten Children to food pantry employees and volunteers twice in 2014 & 2015, and in one-on-one trainings with farmers, schools, food pantries, and technical service providers.

Other beneficiaries are the consumers of specialty crops in New Hampshire.

The number of beneficiaries affected by the project's accomplishments are as follows:

- a. Six specialty crop producers in Merrimack County;
- b. 12 additional specialty crop producers in other NH counties;
- c. Three schools, on food pantry, and one county government used the flash freeze unit for season extension;
- d. Approximately 550 consumers benefited from the flash frozen specialty crop foods.

Lessons Learned

The biggest lesson learned in this project is that the focus of season extension for specialty crops using flash freezing should either focus on or give equal treatment to the institutional buyers of the flash frozen products. The number one user of the flash freeze equipment were institutional buyers, mostly schools, who wanted to have fresh produce for their students during the school year. They would purchase the food and have their food service personnel freeze the food for future use. The District often worked with the schools to access the specialty crop, especially blueberries.

In order for a project like this to work, it is in our experience that teaching farmers to flash freeze food is only a small part, versus a major component, of the project. Building markets for flash frozen food will be the major task moving forward.

In the next year of this project, outside this grant, the focus will be to work with area restaurants that purchase local to further assist farmers in building the markets for flash frozen

food. The District will also be working with the Small & Beginner Farmers to work on planning for season extension and selling flash frozen food.

Other than working with institutional markets, CSAs seem to be the best use of the flash freeze unit. Farmers with winter CSAs used the flash freeze unit so that more produce would be available for their customers in the winter months.

Another lesson learned is that the trailer is just too big for some small farms to deal with and that accessibility is a challenge to be dealt with. Also, a vacuum sealer would be a very important additional piece of equipment to make this type of program more successful.

Contact Person

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Project 5

Project Title: Tooling-Up for Success: Understanding Appropriate-Scale Equipment and Tool Effectiveness for Specialty Crop Production in New Hampshire.

Applicant: Northeast Organic Farming Association (NOFA) – New Hampshire

Final Report

Project Summary

Specialty crops play an increasingly important role in New Hampshire's food production and State economy, including the large and growing volume of direct sales in New Hampshire. Specialty crops also play a prominent role in the fact that the number of farms in New Hampshire is increasing. However, many specialty crop growers face challenges in understanding tools and equipment that will increase production and economic efficiency in the field.

The Tooling-Up for Success project worked with national, statewide, and local partners to educate these specialty crop growers in New Hampshire on appropriately-scaled tools and equipment to help them overcome financial and production-related barriers. The trainings targeted both beginning and experienced growers and provided information on tools and equipment specific to planting, maintaining, and harvesting specialty crops to enable farmers increase crop production efficiencies and farm profits.

Partners for this project included the National Center for Appropriate technology (NCAT), Small and Beginning Farmers of New Hampshire, Cheshire County Conservation District, Cooperative Extension, and Ground Works of Vermont.

The Tooling Up for Success project did not specifically build on a previously funded Specialty Crop Block Grant. However, many participants of NOFA-NH's SCBG NH Grows mentioned a

need to learn more about Specialty Crop Tools and Equipment in their workshop evaluations. It was this producer-voiced interest that encouraged NOFA-NH to undertake the Tooling Up for Success SCBG.

Project Approach

As laid out in the Work Plan of the project proposal, NOFA-NH Project Coordinator, Christine Pressman, and NCAT Specialist, Andy Pressman, conducted field days, and conference workshops from 2013 through 2015 as well as publishing one article, all of which were designed to educate specialty crop growers. The workshops included planning activities, hands-on lessons, and take-home resources and publications. In 2014, NOFA-NH held six workshops. In 2015, NOFA NH held four workshops and published one article. A list and descriptions of the workshops follows below.

The trainings were targeted to increase the competitiveness of specialty crops. The workshops focused on tools and equipment that can be used on specialty crop farms. Participants have had hands-on opportunities to experience new techniques, tools and equipment to determine if they will fit into the production systems that exist on their specialty crop farms. Participants also learned a variety of ways to access new equipment – whether it is through traditional loan models, making your own, or through rental programs offered through organizations such as conservation districts and/or the Small and Beginner Farmer of New Hampshire.

Participants were able to learn about the tools and equipment necessary on a variety of different specialty crop farms – from the small scale, hand-powered tools used at Foggy Hill Farm, to the draft implements used at Hillside Springs farm, and the tractor pulled equipment used at Picadilly Farm. Exposure to this range of tools and equipment allows new and beginning farmers to make informed decisions about how best to scale up their operations and increase profitability by improving production efficiencies.

Each workshop identified appropriate-scaled tools and equipment that will improve the profitability of specialty crop farms in New Hampshire. The workshops were designed to meet the needs of specialty crop producers, they were marketed only to specialty crop producers, and specialty crops producers were eligible to receive scholarships to attend the NOFA-NH Winter Conferences.

NOFA-NH utilized marketing and registration forms to ensure only Specialty Crop producers attended the workshops. This effort was validated through the post-workshop evaluations in which all respondents stated that they were either currently specialty crop producers or were interested in becoming specialty crop producers.

Workshops

Cultivating Tool & Equipment Efficiencies for Specialty Crop Production

NOFA-NH Winter Conference, Feb 1 & 2, 2014

Presenter: Andrew Pressman, National Center for Appropriate Technology (NCAT)

For this workshop, Mr. Pressman provided information and resources on appropriately-scaled tools and equipment to empower specialty crop growers to make financial decisions that will increase crop production efficiencies and farm profits. Attendees explored: the relationship between tools and equipment; and the impact of tools and equipment on a farm's bottom line and on scaling-up. Mr. Pressman also led the attendees through evaluating the need for increased labor versus additional equipment. Mr. Pressman provided valuable information on tool and equipment safety, quality components of hand tools, evaluating used farm equipment, and routine maintenance.

Intro to Small Engines

NOFA-NH Winter Conference, Feb 1 & 2, 2014

Presenter: Jon Magee, The Farmer's Library

Mr. Magee introduced how combustion engines work, as well as troubleshooting common problems incurred by the small engines that specialty crop growers typically rely upon, and typical maintenance routines. Attendees learned that routine maintenance of small engines, such as string cutters, is a means to avoid costly problems in the field. This workshop featured a round-table component that ended with a discussion of tools for specialty crop growers, workspace, and other general concerns.

Harvesting Honey and Winter Hive Management

August 17, 2014, Gilsum, NH

Presenter: John Solomonides, NH Honey Bee and Tree Farm

New Hampshire Beekeepers face many risks in preparing a hive for the long winter, including finding the right balance between providing enough honey stores for the hive to survive throughout the winter and harvesting excess honey for consumption or sale. In this workshop, Mr. Solomonides focused on the fall honey harvest and successful methods for overwintering honeybee colonies commercial apiaries. Mr. Solomonides is a disabled veteran who trains and hires disabled veterans at NH Honey Bee and Tree Farm. He demonstrated techniques for extracting honey, and allowed participants to gain hands-on experience with extraction equipment. Mr. Solomonides also led a discussion on successful winter hive management – providing pointers that could help save commercial colonies and directly impact a farm's profit margin.

Protecting Your Body: Self Care and Ergonomics for Specialty Crop Growers

Peterborough, NH, August 24, 2014

Presenter: Lydia Sivel-Irons, the Flexible Farmer

Ms. Sivel-Irons focused this workshop on ergonomics and body use for specialty crop growers. The presenter worked with farmers to develop more efficient and safer production systems as related to body movement and use of tools and equipment. Ms. Sivel-Irons demonstrated techniques that not only protected specialty crop growers from repetitive and chronic injuries, but also efficiency techniques that could improve a farm's profit margin.

Draft Power for Specialty Crops Workshop

Gilsum, NH, September 7, 2014

Presenters: Kim Peavey and Frank Hunter, Hillside Springs Farm

Specialty crop producers Ms. Peavey and Mr. Hunter led this free workshop. They use only draft-horse power on their farm. Ms. Peavey and Mr. Hunter led a hands-on workshop for both beginning and experienced farmers interested in learning how to incorporate draft horses into their operation. The presenters also led a discussion about how to obtain or make appropriate draft-powered equipment for specialty crop growers.

DIY Tractor Operation, Safety, and Basic Maintenance

Exeter, NH, October 19-29, 2014

Presenter: Shane LaBrake, Farmer and Ag Consultant

Mr. LaBrake introduced attendees to the internal combustion engine and the importance of regular maintenance. He followed that with a session on tractor safety. Participants gained a better understanding of engines and tractor safety by evaluating differences between new and older tractors. The first day of this workshop concluded with a hands-on opportunity to learn how to safely connect attachments to PTOs.

For the second day of this workshop, Mr. LaBrake taught the attendees about tractor maintenance. Participants learned basic routine procedures from changing the fluids and filters to servicing the battery. Mr. LaBrake addressed the specific seasonal needs of specialty crop producers as well as their concerns with maintaining appropriate implements.

Cultivating Tools and Equipment Efficiencies for Specialty Crop Production

NOFA NH Winter Conference, January 31, 2015

Presenter: Andy Pressman, NCAT Specialist

Mr. Pressman based this workshop on the success of the one he offered at the 2014 NOFA NH Winter Conference. Again, he provided information and resources on appropriately-scaled tools and equipment to empower specialty crop growers to make financial decisions that will increase crop production efficiencies and farm profits. Mr. Pressman also led the attendees through evaluating the need for increased labor versus additional equipment. Mr. Pressman provided valuable information on tool and equipment safety, quality components of hand tools, evaluating used farm equipment, and routine maintenance. Mr. Pressman included information on new and existing specialty crop tool sharing programs offered throughout New Hampshire.

Tools for Specialty Crop Production

Foggy Hill Farm, Jaffrey, NH, May 1, 2015

Presenter: Andy Pressman, NCAT Specialist

For this workshop, Mr. Pressman led a group activity to help participants identify what is the weak link in their farm's production system. Participants then were introduced to appropriately-scaled tools that can increase their farm's efficiencies. A discussion was led on various ways to access new tools and equipment – from creating your own, borrowing money, and renting tools from organizations such as Small and Beginning Farmers of New Hampshire. Participants had an opportunity to try tools including Jang seeders, bed shapers, different types of cultivating hand tools and flame weeders.

Managing Weeds and Cover Crops

Picadilly Farm, June 9, 2015

Presenters: Andy Pressman, NCAT Specialist, Carl Majewski and George Hamilton of UNH Cooperative Extension, and Amanda Littleton of Cheshire County Conservation District, Jenny and Bruce Wooster of Picadilly Farm

Jenny and Bruce Wooster of Picadilly Farm hosted a discussion on managing weeds and the implements they use for cultivating 20+ acres of organic vegetables. Also demonstrated was a roller crimper on cover crops. The roller crimper is available to rent through the CCCD. Carl Majewski and George Hamilton of UNH Cooperative Extension discussed the importance of cover crops and the potential for using cover crops in no-till vegetable production. Andy Pressman (National Center for Appropriate Technology) addressed cultivation strategies and equipment use in organic farming systems. Amanda Littleton of Cheshire County Conservation District shared information on equipment rental, including the roller crimper.

DIY Tractor Operation, Safety, and Basic Maintenance

Stonewall Farm, Keene, NH

August 30-31, 2015

This popular workshop was offered in Cheshire County. The responses to the workshop were one hundred percent positive. One specialty crop grower noted that this was the first hands-on tractor maintenance that she had ever heard of. She knew she needed to learn more about safety and maintenance but had never found the right teacher. All participants reported that as a result of the workshop they would be able to do more of the routine maintenance on their own tractors. One hundred percent of the participants reported an increased awareness of how to operate a tractor safely, and those with employees reported that they were confident they could better train their employees on tractor safety as a result of this workshop.

Goals and Outcomes Achieved

Performance measures were based on participant evaluations with the goal being to provide New Hampshire Specialty Crop Growers with the skill set they need to identify, obtain, and maintain appropriately-scaled equipment.

Based upon pre and post workshop evaluations the majority of participants reported:

- 100% of DIY Tractor series participants gave the highest score to obtaining an increased knowledge of tractor safety.

- 95% reported increased knowledge of how to maintain hand tool, tractor, and implements.
- 100% of participants who attended the workshops on Cultivating Tools and Equipment Efficiencies for Specialty Crop Production, and Tools for Specialty Crop Production reported an increased ability to compare the financial relationship between investing in labor versus machinery.
- 100% of participants at Tools for Specialty Crop Production and Managing Weeds and Cover Crops reported gaining a better understanding of the various options for obtaining farm equipment.

While the grant proposal targeted 260 workshop attendees, we quickly found that smaller-sized workshops provided more meaningful benefit to attendees. All in all, 150 attendees participated in workshops. Each workshop met the minimum number of attendees set by the presenters for the workshop to be held. Based on the overwhelmingly positive evaluation responses, the smaller-sized workshops benefited the attendees in the workshops. Increased access to the tools, equipment and techniques garnered through a smaller group size allowed for increased understanding and for more satisfying question-answer sessions.

Beneficiaries

The Tooling-Up for Success project was designed for beginning and advanced specialty crop growers in New Hampshire. Outreach efforts also targeted other farm enterprises that can benefit from diversifying into specialty crop production. As a result, farmers in New Hampshire gained a better understanding of how the use of tools and equipment can increase a farm's viability.

Over 150 specialty crop producers attended the workshops throughout the grant period. In addition, NOFA-NH and NCAT provided information generated from the trainings and the farmers involved on each of the organization's websites. This provides a much greater impact of the project as farmers in New Hampshire and nationally will be able to access the information. For example, NCAT's largest project, the National Sustainable Agriculture Information Service, also known as ATTRA, received 3.3 million unique visitors to the website in 2011.

Lessons Learned

The workshops were planned and implemented according to the proposed Work Plan. The workshops were carried out in a timely and cost-effective manner. The workshops received positive feedback from participants as well as from presenters.

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Project 6

Project Title: Grow for the Green: Commercial Production of Specialty Crops
Applicant: Small & Beginner Farmers of New Hampshire
Final Report

Project Summary

Small & Beginner Farmers of NH partnered with UNH Cooperative Extension Forestry & Wildlife Program (UNHCE F&WP), Merrimack and Cheshire County Conservation Districts (MCCD/CCCD), NH Timberland Owners Association (NHTOA) and Owen Farm Learning Center to present a series of seven workshops, four on-site farm consultations and two multi-farm tours. Our goal was to help beginning and small farmers develop agricultural, mechanical and business skills needed to transition into commercial production.

Participants learned how to build affordable, safe and effective processing and storage equipment; improved their business planning and marketing skills and developed skills in the commercial production of highly popular Shiitake mushrooms.

Research conducted by UNHCE and CCCD has caused both organizations to identify the need for affordable equipment and business skill development as being of “highest priority” to NH farmers.

Participants in our first Specialty Crop Block Grant, *Snow Peas for Snow Country*, echoed these results. Content of this project addressed issues and needs expressed during *Snow Peas for Snow Country*, on our e-mail discussion list, in our county meetings and casual conversation and at non-SBFNH agricultural events. We shaped this project around those specific concerns, using the opportunity to explore cutting-edge resources identified by our members.

Project Approach

The workshops and tours were hands-on, experiential and/or focused on specific skills beginning farmers need to take the next step in growing their businesses. At the time the project began most of our members had been engaged in homestead or small scale farming. They were ready to take the next step in getting serious about their agricultural and business objectives.

We exceeded all of the goals in our work plan and were able to add two popular day-long multi-farm tours of an innovative DIY approach to cooling to the project. The seven workshops, on-site consultations and two tours were weighted towards practical skills, at least in part thanks to resources uncovered in the course of our SCBG 2011 project. We were fortunate in finding terrific speakers and consultants for the business development workshops.

Participants learned how to build washers to speed up and improve processing of greens and root vegetables; explored the costs and challenges of building a traditional cooler/freezer; gained hands-on experience in Shiitake inoculation; learned the basics of innovative and productive permaculture and toured five farms to learn varying approaches to installation of a low cost cooler alternative.

Business planning skills included a nuts-and-bolts school in organizing a CSA; the basics of utilizing a wholistic approach to farm analysis and planning and individual farm planning consultations.

Throughout the project we used the workshops, newsletters, online e-mail discussion group and even our publicity flyers and press releases to provide specific information about safe, low cost equipment options, with a focus on do-it-yourself construction. We used the same approach in educating growers about business management, marketing, tax and accounting practices. Articles, flyers and press releases described the concepts, objectives, specific skills to be mastered.

We could not have achieved and exceeded our project goals without the teamwork of our partners at UNHCE, CCCD and MCCD, NHTOA and Owen Farm Learning Center, all of whom provided consultation, advice and publicity. Members and local growers offered their time, information and advice and allowed us to use their farms for workshops and tours.

Goals and Outcomes Achieved

We met or exceeded each of our expected measurable outcomes, as follows:

Goal One: Develop and present two DIY Equipment workshops (bubble/barrel washer and DIY cooler/freezer)

Target: 12 or more participants; 15 or more participants will go home with washers; 12 or more participants will complete the questionnaires, with at least 20% increase in knowledge.

Outcome: Twenty-one people attended the DIY Cooler/Freezer workshop, far exceeding our goal. People told us as they registered how lack of affordable cooling facilities hindered the growth of their operation. NH growers are also concerned with meeting the challenge of FSMA. They know adequate cooling of products will be a key factor. All participants completed the evaluation forms and all indicated a significant increase in cooling knowledge.

Almost 30 people attended the Bubble-Barrel washer workshop, with over 90% completing enthusiastic evaluations. Several attendees have gone on to purchase barrel washer kits, build their own washers and greatly increase their production. We sold all of the bubble washer kits, with growers reporting cleaner greens, happier workers and increased production.

Goal Two: Develop and present two Shiitake mushroom production workshops.

Target: 15 or more participants per workshop; at least 10 participants will complete the evaluations, with at least 20% gain in knowledge; 15 will inoculate two logs.

Outcome: Both Shiitake workshops were attended by close to 20 participants, many of whom sidled up to the Project Manager during the events to express thanks for the workshop. Everyone went home with two logs, nearly every attendee filled out an evaluation indicating a leap upward in his or her skills. Of the 18-20 participants in each workshop, at least 15

completed evaluations (sample attached), with an average reported gain in knowledge of 45-46%.

Goal Three: Two CSA Schools, to help participants assess if a CSA is right for their farms, provide specific steps in starting one, outline the hallmarks of a successful CSA, including recordkeeping-how, how much, scheduling, ordering, delivery and pick up, pricing, marketing and online ordering.

Target: We expect to achieve a goal of at least 30 participants in each, with increase in knowledge of 20%.

Outcome: Due to a massive blizzard which shut down the state (the Governor closed the roads), we were unable to hold one of the CSA Schools. We replaced the cancelled two-hour workshop with a well attended (45 persons) daylong workshop on permaculture production of specialty crops that received rave reviews.

The CSA School we did put on was presented by one of our most popular speakers who provided a day of specific, nuts-and-bolts information on creation and growth of a successful CSA covering all the above-mentioned topics. 35 participants (out of 38 attendees) completed evaluations similar to the one used in the Shiitake workshops. Reported increase in knowledge averaged 30%.

Goal Four: Twelve articles in SBFNH newsletter detailing project-related information. Focus will be on describing the event and communicating as much of the content as space allows.

Target: At least eight substantive articles during the project, read by at least 500 people per article.

Outcome: Each of the nine events in our project had at least one, usually two articles preceding the event, plus a feature in the issue following the event. Post-event articles provided as much specific information as possible within the parameters of an 800-word newsletter story. Our mailing list of nearly 300 reaches at least twice as many readers. In addition, we handed out copies at our large NH Farm and Forest Expo and other agricultural events throughout the course of the project.

Goal Five: SBFNH will post and maintain on its website issues of each newsletter for members' use and a final report detailing workshop information for non-member growers and other interested users.

Target: We expect 400 people will read the articles and report online.

Outcome: We are unable to measure this goal directly due to the departure of our webmaster. We did, however, consult with knowledgeable web developers and researched industry standards in setting our goals. Based on this research and past professional experience we are confident we met this goal. All newsletters related to the project are posted in the Members' Area of our website. The editor plans to index all back issues make information more accessible.

Beneficiaries

We reached over 2,800 farmers with skills-based information through this two-and-a-half-year project via workshops, farm tours and consultations, newsletters, meetings, agricultural events and our website.

We used flyers and newsletters as educational tools at agricultural events such as the NH Farm and Forest Expo, NOFA-NH Winter Conference, SBFNH County meetings and in feed and grain stores and agricultural service providers' offices statewide. At the Farm and Forest Expo we reached several hundred members of the general public, many of whom took newsletters and informational flyers.

The biggest beneficiaries, however, were our farmers, over 200 of whom participated in various project activities. In addition to receiving enthusiastic evaluations, we've been heartened to have dozens of attendees make a point of telling us after the events how they used the information and tools gained to increase their operations' production, safety and efficiency. At least one farm in NH's impoverished North Country went into full scale commercial production of Shiitake mushrooms as a result of attending one of the inoculation workshops.

Several farms report successful installation of a Cool-Bot unit following the farm tours. The four farms benefitting from the on-site consultations have changed their management approach greatly. Every farm that received or purchased a bubble or barrel washer kit experienced a huge boost in productivity.

Lessons Learned

Perhaps the greatest lesson we've learned in our Specialty Crop project experience is to think beyond individual activities to achieve a cohesive whole in our planning. This project followed logically from information gleaned in our first Specialty Crop project. As a result, we've learned to use participant feedback to identify areas of need and effective means of meeting those needs. Answering questions such as "What lessons did you learn?" has caused us to look for these logical connections so one activity builds upon the next.

We have learned UNHCE and CCCD are quite correct: affordable equipment and down-to-earth business skills are an ongoing need for NH's specialty crop growers. It's been gratifying to see farmers put their knowledge into action after the events, to know we've been a part of effecting positive change in their operations.

Content related lessons include the area of cooling. Proper cooling improves harvest efficiency, extends product shelf life, makes the product safer (less time in that temperature danger zone) and will be essential in meeting FSMA standards. But access to affordable, adequate cooling is a serious barrier to NH growers.

Our first DIY Cooler/Freezer workshop, featuring what was once a cutting-edge cooling and freezing operation, demonstrated to all present how unfeasible such a setup is for most small farmers—too expensive to install, maintain and run.

Our farmers found the Cool-Bot setups on the two farm tours more to their liking--an effective, affordable technology. They were excited at the prospect of bringing this technology to their farms and several have done so already, with great results.

The implementation of FSMA will make issues of field heat reduction, fast and effective cooling and safe processing of vegetables issues of continuing concerns. Competition from stores increasing their stock of local foods, greater consumer awareness of farmers' markets and more small farms moving into production means NH's small and beginning farmers will need to

remain nimble in their marketing, recordkeeping, inventory control and production skills. This project has shown us the benefit of skills-based training in these areas.

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Additional Information

In attached appendix, Project 6

Project 7

Project Title: Lakes Region Local Food Guide

Applicant: University of New Hampshire Cooperative Extension, Belknap County

Final Report (previously submitted)

Project Summary

Lakes Region farms generate over \$4 million in sales each year from specialty crops alone (fruits, vegetables, greenhouse and nursery crops), yet there has not been a comprehensive, one-stop guide that informs residents and visitors of the products and services these businesses provide¹. This project sought to develop and publish a guide, The Lakes Region Local Food Guide, which includes information such as a farm directory (with addresses, business hours, and websites), farm products offered for sale, market outlets (farmers' markets, local grocery stores, and farm stands), crop seasonality, CSA listings, and "pick your own" locations. The publication targets the Lakes Region in Belknap and Carroll counties.

The main objective of this project was to raise awareness about local agriculture while promoting community health, wellness, and the local economy. The Guide would allow specialty crop growers to reduce advertising costs and increase their farm revenue, while helping consumers easily find local food products. In addition, the Lakes Region Local Food Guide could promote local agricultural tourism opportunities to the greater than 100,000 visitors to the Lakes Region each summer.

Project Approach

A project committee was established during the early stages of the project. Five individuals representing local food groups and organizations such as Prescott Farm Environmental Education Center, UNH Cooperative Extension, and Lakes Region Food Network came together to offer ideas, content, feedback, and assist with distribution efforts. The Lakes Region Food Network, a local grassroots organization, was pivotal in completing this project.

¹ http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_County_Level/NH

During the planning stages, the project coordinator and members of the project committee met with the graphic designer hired to design the Guide. Two meetings were held to discuss ideas and draw a consensus as to the content that should be included in the Guide, as well as who would be responsible for gathering content. The designer sketched a layout and theme, and these drafts were shared with committee members for feedback.

The project coordinator solicited contact information of farms in the Lakes Region, using UNH Cooperative Extension contacts, as well as farmer contacts of project committee members. Since it was important that the Guide be a comprehensive listing of the farms in the Lakes Region, this effort took longer than first anticipated. Producers were contacted by email, in-person, and through the mail. Only farms that offered their contact information are listed in the Guide. This meant following up with some producers several times to ensure that their farm was listed in the Guide. In early July 2013, all listings had been compiled in such a way that it was time to view a first draft of the Guide.

Fifteen percent of listings were for non-specialty crops. As a result, the project committee raised program income for this portion of the project cost that would not be covered by the Specialty Crop Block Grant. Committee members solicited donations through letters, phone calls, and in-person conversations with local businesses and organizations in the Lakes Region of New Hampshire.

Drafts of the final Guide were shared with project committee members for feedback to ensure the completed Guide was free from mechanical and qualitative errors. UNH Cooperative Extension staff outside of the project committee were also asked to review the Guide. Staff members included those with an expertise in nutrition and community and economic development.

At the end of August 2013, the Guide was sent to the printer, a slight delay from the original Work Plan. Five-thousand copies of the Guide were available for distribution in early September. While most farmers' markets and farmstands were closing for the growing season, members of the project committee worked diligently to distribute the Guides throughout the Lakes Region for winter farmers' market opportunities and fall/winter CSA farms. The majority of the Guides were distributed in the spring of 2014. By April 2014, it was clear that more copies were needed to keep distribution up through the 2014 growing season. Another 2,500 copies were printed and distributed in May 2014.

While the feedback of the Guide had been very positive from both farmers and consumers, it was important to understand just how successful the Guide was in meeting the objectives of the project. During the summer of 2014, an electronic survey was developed to measure the impact of the Guide. All farms that had a listing in the Guide were sent this survey. In the fall of 2014, data was evaluated, and will be taken into consideration as plans for the next Food Guide are underway for 2015. Farmers were asked if they had any visitors to their place of business that referenced the Guide. They were also asked if they distributed copies of the Guide in their business venues.

Program income was raised to cover costs of the project associated with non-specialty crops listed in the Guide. Fifteen percent of farms listed in the Guide were for non-specialty crops. This portion of the total project cost was raised from sponsorship funds in the community. All funds were expended for this project (grant and program income).

Goals and Outcomes Achieved

Two measurable outcomes were established for this project:

Outcome #1: Increase the profitability of Lakes Region specialty crop producers that market their products through direct sales.

In order to achieve this goal, it was important to obtain complete farm information. It was also important to obtain a comprehensive listing of the farms in the Lakes Region to ensure that the profitability of all Lakes Region farms would increase, and no one farm would be left out. The project coordinator designed a farm submission form, seeking the feedback from the project committee to ensure accuracy and completeness. Project committee members sent submission forms to farmer contacts in the Lakes Region, asked to share with neighbor farms, and those that did not respond were sent subsequent forms from other means of communication, such as mail and in-person. It is acknowledged that despite these efforts, some farms were missed as they did not return efforts to communicate with them or project committee members were unaware of their existence.

In order to measure whether the Guide had an impact on the farms, a survey was designed and sent to all farms that were listed in the Guide. Thirty-two percent of farms listed in the Guide responded to this survey. Farmers were asked if any of their customers referenced the Guide or commented on the Guide to them. Fifty-two percent of respondents indicated that customers did reference the Guide at their establishment. Of these respondents, 9% of the farms heard acknowledgements from more than 10 of their customers. Twenty-seven percent of the farms indicated that their sales increased due to the Guide.

It is acknowledged that not all data would be captured, as customers that were referred by the Guide may not speak to the farmer or farm employee when visiting the farm or farmers market. Hence, 45% of respondents indicated that they did not know if the Guide benefitted their farm. Tracking this information in the future will be important, and the project committee is currently studying ways to track the consumer that uses the Guide, and whether they become a one-time or repeat customer to one or more Lakes Region farms.

Outcome #2: Increase the number of consumers that are accessing local specialty crops. The number of Guides printed and distributed was recorded. Distribution was controlled by project committee members. Members distributed Guides to area health clubs, banks, restaurants, hotels and resorts, hospitals, medical and dental offices, schools, Extension workshops for low-income families, local food and nutrition events, farmers markets, and farmstands. Some farms commented that they either did not receive copies to give out, or ran out and did not receive additional Guides to distribute. This task was found to be time-consuming, and will need more

attention in the next project year to ensure that Guides are distributed throughout the Lakes Region throughout the growing season. A total of 7,250 Guides were distributed as of November 2014. The majority of Guides were distributed in the Laconia and Gilford areas, with few available to the Carroll County communities of Wolfeboro, Tuftonboro, and Moultonborough.

It is the goal of the project's partners to increase the number of people that are accessing local food, especially low income families. In looking forward, it would be beneficial to know the demographic of the user, and for project committee members to distribute the Guides in places that will be sure to reach low-income families.

Beneficiaries

Groups that benefitted from the publicity of the Guide were Lakes Region Local Food Network and the Barnstead Farm and Garden Network. These two groups were asked to provide a brief summary of the mission and goals of their organization, in an effort to highlight local food initiatives in the Lakes Region of New Hampshire.

Sixty-two farm businesses were listed in the Guide. From the survey sent to farms listed in the guide, 20 of them responded that customers specifically found them through the Guide. Guides were not distributed with a specific demographic in mind, however there were instances where they were specifically distributed to a low-income cooking class in Laconia, NH a local public health organizational event, and to families who host inner-city children through The Fresh Air Fund. These events provided the opportunity for consumers and public health professionals to learn where they and their clientele can access local food products in their communities in an effort to improve their health and that of their families.

Lessons Learned

This project received many complements and positive feedback from both farmers and consumers. It also demonstrated that there is indeed a need for this type of publication in the Lakes Region of New Hampshire. In looking forward to the next issue of the Guide, some challenges that need to be overcome include:

- Distribution was a challenge, and a bigger task than originally thought. The methods used for distribution need to be re-examined. A strategy will need to be devised for where Guides will be placed, who will place them, and how often. Several farms commented that they either ran out of Guides, or never received copies to give out.
- It is important to have comprehensive farm listings, as we are not selling advertising space. Despite efforts to contact farmers numerous times, some farmers just would not respond to our request for their information, despite the fact that this was free advertising for them. It is still the feeling by the project committee that we will not sell advertising space, highlighting a farm over others, in future issues.
- It will be necessary to continue to measure if the Guide improves profitability of farmers, as well as the demographic of the population that is accessing local food. In order to ensure that the project funds are being used to meet the goals of the project, it will be necessary to continue to measure these important goals.

- All project committee members have other commitments to full or part-time jobs, their businesses, and other civic organizations. This project can be time consuming, particularly in the distribution phase and in soliciting donations. It is important to continue to offer updated issues of the Guide, but the committee will need to look at how to do this while not creating more work for already busy people. For these reasons, a new issue of the Guide will be published every two to three years. Furthermore, it will be important to enlist the help of the farmers themselves, with distribution in their communities, providing content such as photos and educational information, as well as soliciting funds for future issues.

Despite these challenges, on a whole, this project had a successful start. Farmers and consumers were genuinely pleased with the appearance of the Guide. It was attractive and eye-catching, and despite a higher cost due to the format and material used, it was worth it to provide this showpiece to the public, highlighting Lakes Region agriculture.

“I don't have evidence, but think the guide is a huge benefit for customers and businesses alike.” --member of the public

“I found the guide to be informative, arranged perfect and would provide them to our customers.” -- Belknap County farmer

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Additional Information

Additional Information

The Guide can be found online at:

<http://www.youblisher.com/p/852263-/>

Project 8

Project Title: Innovative and Efficient Method to Interact with and Serve New Hampshire's Specialty Crops Agricultural Community

Applicant : UNH Cooperative Extension, Dr. Cheryl A. Smith, Extension Professor/Specialist; Plant Health and Dr. Brian A. Krug, Assistant Extension Professor/Specialist; Greenhouse Floriculture Crops

Final Report

Project Summary

The Innovative and Efficient Method to Interact With and Serve New Hampshire's Specialty Crops Agricultural Community project (iPad Project) enabled UNH Cooperative Extension (UNHCE) Food and Agriculture staff to serve New Hampshire's specialty crop community more quickly, efficiently and effectively. Digital imagery and real-time video conferencing utilizing Internet data plans allowed field specialists to communicate with Durham-based specialists to quickly resolve plant and crop issues. Digital communication resulted in savings of time and money for CE staff travel, and reductions in potential crop losses due to plant pests, and pathogens due to timely diagnosis and resulting recommendations. CE staff have integrated iPad usage into many components of problem solving, outreach education, and record keeping. An electronic version of a regional IPM greenhouse guide was developed in collaboration with the University of Vermont Entomology Laboratory. In addition there were unplanned outcomes from the project: one sample submission app for disease samples, and one web-based disease management resource were developed.

Prior to the iPad Project, diagnosis of plant or crop problems for samples sent to the UNH Plant Diagnostic Lab (UNH-PDL) or the UNH Arthropod Identification Center UNH-AIC) could take an average of 3-7 days (time to send physical samples, identify the problem, and communicate the results and recommendations). Although the capability to send digital images via email for diagnosis existed prior to the iPad Project, the images were often of poor quality, and delays in email correspondence often occurred. While on site visits, field specialists took high-quality images and emailed them to state UNHCE state specialists, other field specialists or specialists outside NH. Many of the images were submitted via the Diagnostic App (often with a phone call to alert the UNH-PDL that a 'sample' was coming). High image quality and the ability to include video allowed for improved turn-around time, and more accurate diagnosis. In many instances, a physical sample was still required for a confirmed diagnosis, but initial recommendations could usually be made with the digital image, thus avoiding delays in treatment.

The ability to communicate in real-time via video conferencing (Skype or FaceTime) allowed CE state specialists to be 'on-site' with field specialists, and often with the specialty crop producer, as well. The state specialist was able to ask questions about the crop and problem while looking at the plants in the field or greenhouse, and usually make at least a preliminary diagnosis and recommendation without the delay of sending emails.

Extension Agricultural staff incorporated use of the iPads into over 260 farm visits, record keeping, outreach education and professional development. Utilization of iPads during farm visits allowed UNHCE staff to rapidly diagnose problems while on-site via photos emailed to Durham-based state specialists, or other experts; or via live video calls where questions and information could be exchanged directly with the producer(s). Extensive libraries of reference materials (fact sheets, commodity management guides, pesticide labels, etc.) enabled CE staff to access large volumes of information to develop recommendations for specific crop issues. Photos, written notes, GPS coordinates, etc. were incorporated into electronic records for future reference. Photos and data were frequently utilized for outreach education and as personal references (professional development) for CE staff. Staff have indicated that the iPads

have enabled them to provide information/training to producers much more rapidly than in the past, and to diagnose problems more quickly.

Over 1,500 miles, over \$850 and over 30 hours have been saved in travel costs and time for site visits by State Specialists from Durham through the submission and diagnosis of 'digital samples' and face-to-face video calls.

A useful, popular and out-of-print greenhouse IPM Guide has been developed into an iBook and downloadable and printable PDF. The digital/electronic version of "Greenhouse Manager's Guide to Integrated Pest Management in Northern New England" has been updated to include current information and resources, including additional, high-quality photos. The guide will be available via PDF download and via Apple iBook download. Both versions will be free of charge.

The project did not build on any previously funded project with the SCBGP or SCBGP-FB.

Project Approach

This project spanned a two-year, eight-month period. During the initial phase fourteen 64-gb iPads were purchased for UNHCE Agriculture and Food state and field specialists working with specialty crop producers. Staff received introductory training on set-up, activation and use of the iPads for diagnosis of plant and crop problems.

Staff receiving iPads were informed that the use of the iPads must be limited to interactions with specialty crop producers/operations, such as vegetable and fruit growers, greenhouse operations, nursery and Christmas tree farms, etc. Staff were encouraged to review the USDA Definition of Specialty Crops. Additional training included sharing tips and techniques staff had learned in the first 6-12 months of use. In the second phase the iPads were utilized during farm visits for diagnosis of plant problems and as a reference and education tool for the producers, as well as a record-keeping tool for the field and state specialists. Unplanned outcomes included the development of one sample submission app for disease samples, and one web-based disease management resource. With permission from the NH Department of Agriculture, Markets, and Foods, the PI subcontracted the development of the electronic version of the "Greenhouse Manager's Guide to Integrated Pest Management in Northern New England". The subcontractor worked closely with the PI and staff from the Vermont Entomology Laboratory to update information in the printed version, add new photos, and new information.

Goals/outcomes:

Goal 1: UNHCE Agricultural staff working with specialty crop producers learn how to use iPads and how to incorporate their use for diagnosing plant and crop problems.

- Two half-day trainings sessions built skills in 1) Using iPads in the field for photos, videos, email, and video chats, and how to integrate the iPad into the diagnostic process 2) The basics of crop diagnosis.

- All staff indicated increased skills in diagnosis and using iPads.

- One additional session focused on problem solving and sharing tips, techniques, and Apps staff had found useful in assisting specialty crop producers.

- Numerous techniques/tips and useful apps were shared:
 - how to take screen shots of the iPad screen
 - use of LeafSnap and TreePros HD Apps for plant identification
 - use of various conversion Apps (metric, etc.)

Goal 2: UNHCE Agricultural staff will incorporate the use of iPads into site visits with specialty crop producers.

- CE Agricultural staff reported that they utilized the iPads while on over 260 site visits to agricultural producers. All staff have indicated the iPads have enabled them to provide information/training to producers much more rapidly than in the past, and to diagnose problems more quickly.

During site visits iPads were used:

- As a library of reference materials (fact sheets, commodity management guides, pesticide labels, etc.).
- To look-up web-based information for the growers.
- To take photos of hand-written notes so client can be given a hard copy of the notes, while Extension staff retains an electronic copy. Or to take notes on the iPad and then email the notes to the producer before leaving the site.
- To retrieve client's soil test results from the UNHCE soil test database and discuss the results.
- As a map on farm visits to get an overview of the farm and discuss larger-scale planning. In several instances, measurement tools (Google Earth, or the Geo measure App.) were used to 'measure' fields or rows to determine total area to be fertilized or treated with pesticides.
- As a library of photos for aid with diagnosis and visual education for the client. (Many Field and State Specialists are using the geo-location feature to reference photos to a particular farm. Photos were sometimes used to compare before and after treatments, planting, etc.).
- To calculate pesticide tank mixes via Tank Mix app.
- As GPS tools for directions to new farms, and routes between farms.

Goal 3: Increase efficiency in resolving time-critical problems identified on farms, in greenhouses, at nurseries, and at landscape operations (pest/disease/weed identification and management).

The estimates of reduction in time it took to diagnose problems were based on past history of diagnosis of similar problems. In the past, diagnosis usually required a physical sample be sent in for laboratory diagnosis. Before incorporating the iPads into field visits, most field agents did not have a means to take high-quality images that could instantly be sent either via email or through real-time video to specialists.

During site visits iPads were used:

- To take photos of problems and email them to State Specialists who were usually able to respond either during the site visit or within hours.

Examples:

- During a site visit photos were emailed to the state plant health specialist. The field specialist then called the state specialist who then directed the field specialist where to take plant samples from the field and gave a preliminary diagnosis of Phytophthora blight. The samples collected were of high quality, and allowed for rapid and accurate diagnosis of the problem. The grower was able to order fungicides so that when the disease was confirmed via microscopic examination, she was ready to apply the necessary fungicide. The usual delays associated with poor or non-representative samples or not having the needed fungicide on-hand were avoided. (Estimated time saving of 5 days for the reduced time between diagnosis and ordering/application of appropriate fungicide; in addition, severely affected plants were removed from the field at the time the samples were taken, reducing the impact of potential spread of the disease).
- During a site visit photos of diseased cucumbers were emailed to the state plant health specialist, who was out-of-state at the time, for confirmation for downy mildew. The symptoms were typical of downy mildew, with good images of the pathogen on the lower leaf surface. The state specialist responded with a phone call to the grower to immediately begin application of downy mildew specific fungicides, especially on later plantings. The field specialist was also called. The producer was able to save most of the later cucumber plantings. (Estimated time saving of 3 days for diagnosis if a physical sample had been sent)
- During site visits photos of problems were taken and submitted via the Sample Submission App, to the UNH-PDL and the state plant health specialist. Digital sample submission (full information normally filled out on a physical submission form and photo) enabled the plant health specialist to make a preliminary diagnosis and provide management recommendations, even if the plant health specialist was not physically in the UNH-PDL. As a result, the impacts and subsequent financial losses from pathogen and insect pests were reduced. Or, unnecessary pesticide applications or crop destruction were avoided. (40 samples were submitted via the App during the project period)

Examples:

- A digital sample of potato leaves showing necrosis was received in early July. The symptom detail and pattern was not typical of late blight. Details on the submission form did not lead to a conclusion of late blight. The field specialist and grower were contacted via phone and were advised to send in a physical sample for testing, but in the meantime were advised to NOT apply late blight-specific fungicides, and to NOT consider early vine-kill of the crop. The physical sample tested negative for the late blight pathogen. As a result, the producer saved the cost, time and ecological impact (possible fungicide resistance development) of applying a fungicide. And, was able to grow the crop to maturity.
- A digital sample of potato leaves showing necrosis was received in late July. The plant health specialist was out-of state. Although the producer suspected late blight and black

leg, the symptom details and patterns were not typical of either disease. Details on the submission form indicated a pesticide had been applied during hot weather, and the symptoms were due to phytotoxicity. As a result, the producer did not destroy portions of the crop, nor apply fungicides, and, was able to grow the crop to maturity.

- A digital sample of garlic was received in August. The producer and field specialist were not sure why much of the crop was looking poorly. The symptoms and visible fungal structures in the photos suggested white mold. The producer was advised to NOT use any of the garlic as seed for the next crop. The preliminary diagnosis was confirmed on the physical sample. As a result, the producer avoided spreading the disease and the loss of the following year's crop. The producer and field specialist also learned how to recognize the symptoms and signs of the disease and pathogen.

Goal 4: Reduction in travel time/costs for UNHCE specialists.

During site visits, iPads were used for face-to-face video calls with state specialists to solve plant problems in 'real-time', often while the producer was present to ask and answer questions. The 'virtual' visits saved an estimated

Example:

- During a 'face-to-face' Skype call from a farm, the state and field specialists were able to 'examine' the tomato crop in a greenhouse, have a conversation with the grower while looking at the problem plants, and diagnose the problem as a nutritional deficiency in less than thirty minutes. The grower saved the cost of sending a sample for diagnosis, applying unnecessary and ineffective pesticides, and avoided the loss of crop quality as a result of low fertility. Extension saved \$115 and four hours round-trip drive time.

Using the above example (and others), it can be estimated that the 'virtual' visits saved five to ten physical visits per year by the five State Specialists who regularly do site visits to solve plant problems (based on 1-2 site visits by each Specialist. In reality, Specialists usually do twice that number of visits). The reduction in visits can be extrapolated to a savings of \$575 - \$3,000 (depending on mileage), and 20-100 hours travel time (depending on distance traveled).

Unplanned outcome:

The PI (Cheryl Smith) collaborated with Plant Diagnosticians and App development Specialists ([IN³ Applications](#)) to develop a Sample Submission App for use with iPhones phones and iPads. The App incorporates fillable fields for information included on sample submission forms for the Diagnostic Labs, and allows submission of up to 5 photos. (at least one photo is required) In six states samples could be submitted by anyone, while in NH and Kentucky sample submission was limited to Extension Staff. A total of 40 samples were submitted to the UNH-PDL through the use of the /Sample Submission App. This App allows rapid receipt of a sample with all accompanying information so preliminary diagnosis can begin upon receipt.

UNHCE Agricultural staff also 'discovered' additional uses for the iPads:

- As a mobile-friendly marketing tool in presentations to fruit and vegetable growers and maple producers on how to improve their web marketing.
- To store crop scouting observations chronologically and by location for later use (to write summaries, articles, etc.).
- To send weekly Crop Weather Reports to USDA-NASS.

Beneficiaries

The primary beneficiaries of the iPad Project were NH specialty crop producers. UNHCE state and field specialists also benefited from the project. The time to diagnose plant and crop problems was reduced in many cases. In some cases, a faster diagnosis resulted in more timely application of pesticides thus reducing crop losses. In other cases, a faster diagnosis resulted a saving of time and money by avoiding unnecessary pesticide applications. Or, a fast, preliminary diagnosis avoided unnecessary crop destruction. UNHCE staff learned the procedures for diagnosing plant and crop problems, how to take high quality photos and how to recognize and identify particular problems in the field. Producers also benefited from the ability to store information and images on the iPads. Field and state specialists could access the information and use it for on-site, face-to-face training. Images and video taken in the field were also used for training sessions during meetings and workshops. The record-keeping capability of the iPads enabled CE staff to access information and images regarding particular fields, crops, producers, etc. and use the information to develop recommendations, seasonal reports, etc.

Greenhouse growers and Extension staff throughout New England and nationally, are also beneficiaries of the unplanned development of the Disease Advisor App as a reference for selecting disease control products. Greenhouse growers, crop advisors and Extension staff are also beneficiaries of the revised, reformatted electronic version of "Greenhouse Manager's Guide to Integrated Pest Management in Northern New England".

Number of beneficiaries affected by the project's accomplishments:

- The iPads were used on over 260 site visits (contacting/working with over 350 specialty crop producers).
- Fourteen (14) UNHCE State and Field Specialists received iPads, training in their use and then incorporated them into field visits and outreach.

Potential economic impact of the project:

It is difficult to estimate the economic impact (in reduction in losses due to diseases or insects).

- \$2,000: An estimate based on losses to a greenhouse crop of tomatoes that may have been pulled as seedlings and replanted (thought to be a root rot by the grower but was diagnosed as a nutritional problem via 'virtual visit).
- \$30,000 (based on NASS crop values for NH): Estimated savings in future losses to a garlic production field (1/2 Acre). Loss was avoided by the rapid virtual diagnosis (and following physical sample diagnosis) of white mold. The grower removed and destroyed the crop, did not use the seed for future, crops and did not replant garlic into the same field.

Lessons Learned

One of the primary lessons learned during this project is the power and the challenge of technology. The use of mobile electronics as tools for agriculture seems to be ever evolving, and nearly endless. New application tools (Apps) are made available nearly every day, and existing Apps are updated and improved regularly. One challenge to the use of electronic/digital technology is regional limits in cellular data reception. Some areas of NH (particularly Grafton and Coos Counties) have poor cellular reception. As a result, Skype sessions, on-site data/reference searches, and on-site email were not possible in some locations. The adjustment made in these cases was to take photos, and email them once the field specialist entered an area with better cell reception. Until cellular reception improves in these areas, face-to-face video sessions are not possible. Another challenge is the lack of cross-platform software to develop electronic/digital 'E-books'. Electronic books created with Apple's iBook Author cannot be read by smart phones with an android operating system. Nor can the iBook's be easily converted to another format. All considered, the project was successful, rewarding, and has opened opportunities for additional collaborations in the development of electronic resources.

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Additional Information

In attached appendix, Project 8

Project 9

Project Title: *Continuation of the Buy Local Agriculture Campaign Partnership with NH Division of Travel & Tourism Development*

Applicant: NH Dept. of Agriculture, Markets & Food

Final Report (previously submitted)

Project Summary

The New Hampshire public continues to be interested in and willing to buy local products. The emphasis in this project was on activities that promote Specialty Crops, but partner funding allowed the entire industry to participate in the campaign. Our work is making it easier for consumers to identify New Hampshire products and their sources. Our partnership with NH Division of Travel & Tourism Development (NHDTTD) has been successful in connecting the consumer to New Hampshire agriculture on many levels.

The New Hampshire's Own logo, which was updated last year (see below) is gaining recognition. Through funding from the 2012 SCBG program this campaign was continued which helped producers showcase their products to a growing customer base.

Project Approach

Activities performed since December 2013 include meeting with NH Division of Travel & Tourism Development partners to identify activities to be conducted in the continuation of the Buy Local Agriculture Campaign. Through this process, activities selected included television advertising, brochure development and distribution and internet advertising. These activities have been successful throughout the entire campaign with the creative aspects being adjusted as the campaign has moved forward. As outlined in the Measureable Outcomes section below, we have had tremendous success increasing public awareness of New Hampshire agriculture and agricultural products, predominantly Specialty Crops, through these combined activities. For example, we showed a 33% increase in visits to our website and an 88% increase in followers on Facebook. All activities were conducted in partnership with the NH Division of Travel & Tourism Development and their marketing contractor. This campaign is industry-wide and funds from non-Specialty Crop Block Grant sources cover the participation of non-Specialty Crop commodities. Specialty Crop Funds have been matched almost dollar for dollar with non-Specialty Crop funds from project partners which more than covers the inclusion of non-Specialty Crop commodities (specifically dairy and livestock).

The program features the central logo:



Goals and Outcomes Achieved

The overall goal of the **Continuation of the Buy Local Agriculture Campaign** partnership with NH Division of Travel & Tourism Development is to continue to build awareness of NH agriculture and agricultural products and to increase sales of these products.

This was accomplished with targeted television, internet and social media advertising.

Television advertising was placed on New Hampshire station, WMUR-TV from August –October, 2014. Companion ads also appeared on the network's website. The ads drove visitors to the www.agriculture.nh.gov website (see attached internet ad examples in Appendix Project 9 file).

Additionally work has begun on creating new, updated TV spots which will be done and ready for airing next year (using 2013 SCBG funds).

Additional internet advertising was conducted on the social media site, Facebook. The ads featured a timely event or seasonal product and encouraged viewers to “like” the NHDAMF Face Book page. (see attached Facebook ads in Appendix, Project 9)

Measurable Outcomes Achieved

- **10 percent increase in NHDAMF website visits as a result of the consumer campaign which will drive consumers to specific website(s) for information (baseline of 135,000 page views per year at time of application).** Our website visits have been growing. From January-December 2013 the website showed 201,477 page views (33% increase). From January- mid-December 2014 there were 314,635 page views. We can now also measure unique visitors and from January –December 2013 we had 64, 771 for the year. Measured via AWStats (changed from Web Trends).
- **Establishment of 2 additional farmers’ markets (70 markets at the time of application).** During the 2014 summer market season there were 70 markets that officially signed on to our market directory. We know there were at least six additional markets that never submitted a registration form to the NH Dept. of Agriculture, Markets & Food. Summer market numbers have remained somewhat static during the last couple of years. It is not unusual for market coordinators, who are often market vendors who volunteer to oversee market organization, to change from one year to the next and new contact information is not passed on to us, making it difficult to track down market activity. Also, while overall numbers have remained relatively unchanged, there have been new markets coming into operation while others have closed or merged together, creating larger, stronger markets.

The winter markets continue to be exciting and draw consumers. Also, Cooperative Extension educators have been working with New Hampshire growers on varieties and production practices to provide products for sale at winter markets. There were 27 “winter” markets operating around the state from November to May, 2013-2014, representing a slight decrease from 2012-13 (3%). It’s hard to say whether the winter market numbers will hold at approximately 30. Not all growers have the capability of producing for the winter markets. There are 23 winter markets signed on to our directory so far this season (2014-15), including several new market locations and we do expect the list to grow as markets finalize their plans. The winter markets are very popular with shoppers and we continue to encourage their operation establishment and promote them in an online directory of winter markets. (See appendices).

- **10 percent increase in Facebook likes on the NH Dept. of Agriculture, Markets & Food Facebook page (4784 at the time of application).** Facebook likes are currently at 21,580 (88% increase), representing a very successful response to the ads we have placed on Facebook. The ads promote timely agricultural topics and encourage viewers to follow

the department on Facebook, where we have found a high rate of engagement by those who follow the page. Additionally, our following on Twitter continues to increase, reaching a different audience

- **New publications will be distributed to 20,000 consumers.** The “Experience Rural New Hampshire” brochure was reprinted for 2014. This is a listing of farm and rural events and activities, featuring gardens, fairs, seasonal festivals, etc. About 50% of the brochure is specialty crop related but the publication was paid for entirely with non-SCBG partner funds. 20,000 brochures were printed and are still being distributed. About half have been distributed and the publication has dates through March 2015.

Beneficiaries

The continuation of this effort will result in greater demand and increased sales of products at all venues, creating a positive environment for business development and expansion and generating a positive economic impact.

Consumers will benefit from new understanding of local agriculture and local products and the industry’s impact on New Hampshire, socially, physically and economically. Consumers will benefit from the ability to identify local products to help them make choices and purchases. Dollars spent locally, circulate in the local economy, benefiting the local community as a whole.

People/operations impacted:

- 97 farmers markets (summer and winter) with approximately 500 total vendors (NH Farmers’ Market Association and NH Dept. of Agriculture, Markets & Food, 2014)
- 138 commercial apple growers marketing through harvest your own, farm stand operations and some farmers’ markets (US Census of Agriculture, 2012)
- Over 900 vegetable and berry growers marketing through farm stands, harvest your own and farmers markets (US Census of Agriculture, 2012)
- 529 greenhouse, nursery and related businesses marketing through on-site retail outlets, farm stands and farmers’ markets (US Census of Agriculture, 2012)
- 491 commercial maple producers (US Census of Agriculture, 2012)
- 284 registered beekeepers with colonies of honeybees (NH Dept. of Agriculture, Markets & Food 2012)
- 223 Christmas Tree growers (US Census of Agriculture, 2012)
- 22 NH professional wineries (NH Winery Association, 2014)

Lessons Learned

New Hampshire’s Agricultural products, including specialty crops, are desired by consumers. Our project has helped shoppers identify NH products and studies have shown consumers will select NH products when they are known to them. This project increases public awareness of the availability of local agricultural products and will create new opportunities and new markets for NH agricultural businesses.

The Buy Local New Hampshire Agriculture Campaign continues to be successful on multiple levels. First it has allowed NHDAMF to establish a unique partnership with New Hampshire's state tourism office which has continued beyond the scope of this individual project to the benefit of both agencies. Second, the marketing activities conducted in this campaign seem to have been successful in building awareness and demand for NH agricultural products. The interest in local food and agricultural products is booming. Farm numbers are also increasing in New Hampshire according to the recently completed 2012 Census of Agriculture while farm numbers declined, as a whole, across the country. This would point to more farmers starting up to meet the growing demand for local products.

We believe this project has been a major factor in building awareness of our local agricultural industry and encouraging consumers to buy local products. Our project will continue with additional SCBG funds and we will continue to measure our impact.

Our television spots are effective at reaching the NH audience. We could only advertise on one station this year due to an issue with contracting with another major network. Also, because it was an election year, the cost/ad to air on this local station was much higher than normal, meaning that we could not afford as much air time as in the past. It appears the reduced television exposure had a negative impact on our total audience reach, compared to the previous year, as indicated by the number of unique visits to our websites during the time the ads were running. We'll use this information when planning for future ad placement.

The interest in New Hampshire food and agriculture is certainly displayed via Facebook and other internet venues. Our ads have a high "click-through" rate, where viewers actually click on the ad to see more information about New Hampshire Agriculture. This further reinforces that our efforts are well-placed and effective. Facebook advertising has become an important additional component to the marketing campaign. Likes/followers numbers have increased greatly since the advertising effort began in September 2011 from approximately 1200 followers to over 21,000 today. We are also using Twitter in the communications mix and post to both Facebook and Twitter in tandem, to reach selected audiences. Twitter follower numbers have also increased. Social media will continue to be a major avenue for outreach to both the consumer and the producer and will continue to be a component of the Buy Local New Hampshire Agriculture Campaign moving forward.

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Additional Information

See Appendix Project 9

