Northeast SARE PDP State Program Level 2 Cooperative Program with UME, UNH, UVM Annual Report November 1, 2010 – December 31, 2011 Final Outcome Summary for SNE09 and SNE10 Joint Program

Introduction: Tri-State Training as a Regional Approach

Agriculture in the Northeast is rapidly changing. Increasing demand for local foods, water quality issues, global climate change, and higher energy costs are combining to shape what sustainable farms will look like in our region's future. Maine, New Hampshire, and Vermont face very similar challenges in maintaining their capacity to serve the educational needs of agricultural producers in this changing environment. Many specialist and educator positions have been lost in each state due to retirements and budget cuts, leaving reduced capacity and/or programming gaps. Additionally, while there is some programming that crosses state lines, more could be done to facilitate and promote knowledge sharing among different agricultural organizations across the region.

The objective of our tri-state training project was to create regional communities of expertise in emerging high priority topic areas facing farmers in our region, namely *local grain production* and *on-farm energy strategies*. For each topic area, a team of agricultural service providers from each state (Extension, NRCS, crop advisors and farmers) increased their knowledge and capacity by participating in coordinated training events (conferences, field tours, and webinars), pursued individual professional development training objectives, and worked individually with at least two farmers on related on-farm projects. By utilizing a multi-state approach, we fostered collegiality among the trainees and created communities of regional knowledge around these critical agricultural issues. We are continuing this training approach as a model for interstate cooperation among Northern New England educators.

Performance Targets

1) Nine farmer educators (three each from Maine, Vermont, and New Hampshire) work with two vegetable, greenhouse, dairy and/or diversified farmers each to implement energy conservation activities (such as conducting energy audits, installing energy curtains, etc.) and/or assist with alternative energy decisions (e.g. determining whether to install solar hot water, manure digesters, new heating systems, etc.) for their farm operations, saving these farm operations \$2,000 per year in energy costs.

2) Nine farmer educators (three each from Maine, Vermont, and New Hampshire) work with two new or experienced grain growers each to implement new grain production strategies (e.g. new grain crops or topdressing for higher grain protein) on their farms; affecting 4,000 acres of grain grown across the region.

Annual Reporting: For the period of <u>November 1, 2010 to December 31, 2011</u>

Accomplishment of Milestones

During the reporting period, we offered the following training opportunities to our 18 trainees:

- Grains Group Annual Training / Maine Grain Tour, Orono, Maine, July 7-8, 2011.
- Funds to pursue individual professional development plans for both local grains production and on-farm energy strategies trainees.

As a result of the local grains production training in Maine, all (100%) of the seven trainees who participated said they learned new information. In specific, trainees said they learned about:

- Performance of wheat varieties in northern New England.
- Under-seeding perennial forages with small grains.
- The importance of infrastructure needs when developing or regenerating an agricultural industry.
- New and/or potential disease problems in grains.
- Marketing challenges and opportunities of local grain production, including quality parameters of grain for human consumption and farmer cooperatives to purchase grain for livestock feed.

All (100%) said that, as a result of time spent with fellow trainees during the training, they had a better understanding of the efforts across northern New England to address local grain production. These efforts include:

- Bread wheat cultivar evaluations in Maine.
- Nitrogen topdressing trials and quality testing in Vermont.
- Regional contacts of others who are assisting farmers and others in the development of a grain industry in the region.
- Best practices—milling, growing, storing, etc.—being used throughout northern New England.
- The number and diversity of on-farm research trials under investigation throughout the region on grains used for forages, feed or for human consumption.
- How colleagues are working with New England farmers to network and learn more about production, processing and marketing of grains.

Funds were requested by and provided to six trainees (one on-farm energy trainee and five local grains production trainees) to pursue individual professional development plans for both local grain production and on-farm energy strategies trainees. As a result of these funds:

• Four trainees were able to travel to Denmark to learn about grain production systems along with fellow educators, millers, bakers, and farmers. Trainees reported that the trip helped them feel more knowledgeable about small-scale grain production; gave them a venue to learn from farmers about production, storage, and marketing while offering an opportunity to network with farmers, increasing farmer confidence in the specialists trying to assist them; and provided them with information on branding, marketing, and alternative product development. As a result, trainees published a photo journal, wrote articles in the farmer organization newsletters, and invited one farmer/miller they visited—Marie Louise Risgaard—to keynote the 2011 Vermont Grains Conference.

- By visiting farms in Pennsylvania using alternative energy strategies, one trainee strengthened her knowledge about methane digesters and how they fit into farm operations within the Northeast, helping her make more informed decisions when funding renewable energy program projects for farmers.
- By attending a national plant pathology conference, one trainee learned more about grain diseases, helping her gear up for field research on two farms looking at corn stubble's effect on Fusarium head blight.

Cumulative Final Reporting: For the period of July 1, 2009 – December 31, 2011

Outcome Summary

Of a result of the Tri-State Training project:

- 85% of local grain and on-farm energy trainees reported an increase in their knowledge about their training topic and 75% reported an expansion of their regional network of colleagues.
- 8 grain trainees worked with 10 farmers on specific projects:
 - Evaluated bread wheat as a rotation crop for potatoes.
 - Evaluated small grains as a forage on dairy operations.
 - Tested topdress organic nitrogen sources for effects on wheat protein and quality.
 - Provided one-on-one technical assistance on post-harvest and storage considerations.
 - Explored grains to extend the grazing season on diversified livestock operations.
 - Assisted with collaborative milling and marketing strategies.
 - Investigated the effect of corn stubble on grain disease (Fusarium head blight).
- 3 on-farm energy trainees worked with 6 farmers on specific projects:
 - Exploration of the feasibility of small-scale high-solid manure digester.
 - Implementation of solar thermal projects hot water on a livestock farm and root zone heating in a greenhouse operation.
 - Implementation of energy conservation of controlled atmosphere storage facilities on orchard operations.
 - Exploration of geothermal heat as an energy source in a greenhouse operation.
 - Economic evaluation of dairy methane digesters.
- 6 grains and 2 on-farm energy trainees provided technical assistance and/or information to 125 farmers.
- 2 on-farm energy trainees conducted methane digester research with 5 dairy farms.
- 1 on-farm energy trainee provided an in-service training about heating greenhouses with wood for 20 agricultural service providers from several agencies.
- 3 grains trainees assisted newly formed grain farmer groups.
- 5 trainees submitted grants to support their projects with farmers (3 SARE Partnership, 1 REAP, and 1 USDA Rural Business/Cooperative Services; 4 of these were funded).
- As a result of their work, trainees reported that famers with whom they work have:
 - Used variety trial result to decide which varieties to plant.
 - Tested the grains they produce for quality and food safety.
 - Planted grains like triticale as cover crops.
 - Experimented with wide row planting with cultivation and seed multiplication techniques.
 - Installed alternative energy system and/or conservation measures to improve their farms' energy efficiency or reduce energy demands.

Beneficiary Outcome Story

Erica Cummings is a research technician with the University of Vermont Extension's Northwest Crops and Soils Team where she conducts field and lab research and farmer education on grains and livestock forages. Erica joined the Tri-State Local Grains Production training group to expand her knowledge of grain production systems and learn more about others' efforts around

the region to support small-scale grain producers.

Erica participated in all conferences and tours offered throughout the three years of the project. As a result of the training, Erica says she's learned more about what grains are being grown in the Northeast, beyond her particular focus on bread wheat varieties. "I learned about the diversity of uses and grains grown in our region. It's not just wheat but also barley, oats, millet, and spelt," she said. "And it's not just about bread; the training helped open the door to the potential of other grain uses from livestock feed to using grains for brewing and distilling."



VT local grains production trainee Erica Cummings discusses harvesting equipment with NH farmer Dorn Cox.

Erica used the training's individual professional development funds to support travel to Quebec and Denmark in pursuit of her goal to improve the baking quality and yields of organic small grains grown in Vermont. "Our trip to Quebec was my first exposure to cereal quality testing," she said. "It really prompted us to start thinking about providing grain testing here for smallscale growers." Following this trip, Erica returned to the Quebec mill where she was trained by laboratory staff on specific grain quality tests and general testing protocols. "It gave me a sense of what I needed to do in setting up our own lab." Erica has since set up and supervises the UVM Extension Cereal Quality Testing Lab where, over the past two years, the lab has performed grain quality tests on 2,000 research grain samples and over 150 samples from farmers.

On a 2010 trip to Denmark, Erica traveled with farmers, millers, and educators where they toured farms, mills, and bakeries. "In Denmark, they have a different bread culture than we do here," she said. "This trip helped me think about how we can change from a predominantly white bread culture to be more accepting of other grains—including other types of bread as well as other culinary uses for grains. It helped me—and the farmers I traveled with—learn how to better market the products we're producing. We learned about how to package flour and other grain products as well as how to tell our story to consumers. I think we are now better able to make connections between our products and consumers."

Finally, under the leadership of Dr. Heather Darby, Erica worked with farmer Ben Gleason on a NE-SARE Partnership grant to look at the effects of top-dressing organic nitrogen on hard red winter wheat yield and quality. The project helped to address the challenge of how to increase protein levels in bread wheat to achieve higher and consistent quality of these grains to meet bread-baking standards.

Appendices

- A. Beneficiary Form
- B. Success Stories: Highlights of Two Trainees—Carl Majewski and Sarah Smith

<u>Links</u>

 Picasa Photo Album: 2011 Grains Group Annual Training / Maine Grain Tour (photo credits to Debra Heleba, University of Vermont). https://plus.google.com/photos/118336706559270554975/albums/5628508587874365 921?authkey=CP7Qneum5tDMsQE

BENEFICIARY FORM

Northeast SARE Professional Development Program Annual Report: 11/1/2010-12/31/2011

Tri-State Training Program (Maine, New Hampshire, Vermont)

Institution

Activity	Beneficiary Number					
	Extension	USDA	Non- Profit	Industry	Farmers	Other
Grains Group Annual Training / Maine Grain Tour, Orono, Maine, July 7-8, 2011	7				1	
Individual Professional Development Funds	4				1	1

Success Story – Local Grain Production

Carl Majewski is an Extension Educator with University of New Hampshire Cooperative Extension with expertise in field crop and forage production. Carl joined the Local Grains Production training group to develop the expertise in grains to respond to increasing interest among farmers and others in his area of Cheshire County. As a result of the Local Grains Production training, Carl has already accomplished the following milestones:



- Attended the 2009 annual local grains production training in Randolph Center, VT; 2010 annual local grains production training in Burlington, VT; and local grains tour (2010).
- Developed Individual Professional Development Plan in which he identified learning more about small grains either as a specialty food crop and/or as feed/forage for dairy cattle or other livestock.
- Used Individual PD funds to attend the annual meeting of the Northeast Branch of the American Society of Agronomy where he learned about using small grains in cropping systems for this region, both as food and as animal feed, especially dairy and livestock operations.
- Included new knowledge in educational programming—Carl provided information on using triticale as a forage crop at a series of crop meetings, attended by 78 people from dairy and livestock farms in three different locations across New Hampshire and has organized a session on "Growing better beer in the Granite State" at the 2011 New Hampshire Farm & Forest Exposition.
- Submitted and was awarded a NE-SARE Partnership Grant titled "Evaluating small grains for late season and early spring forage." In this project, Carl is working with two dairy farmers to look at grains at a cover crop and forage that will increase soil quality and reduce the need for purchased feed. He will establish four different species of small grains on two farms and evaluate yield, quality, and winter hardiness under managed grazing and doublecropped with corn.

Success Story – On-Farm Energy Strategies

Sarah Smith is a Forest Industry Specialist with University of New Hampshire Cooperative Extension. She joined the Energy training group with the goal of increasing awareness of the diversity of uses for wood biomass energy systems for agricultural uses including greenhouses. She has brought the forest industry perspective to the team. While she does not directly work with farmers, she sought to work with the rest of the training group members to identify farmers with an interest in renewable energy systems. As a result of the Energy training, Sarah has accomplished the following milestones:



- Attended the 2009 annual on-farm energy training in Fairlee, VT.
- Worked with fellow Energy trainee Brian Krug to provide an inservice training for agricultural educators and professionals in December 2009 entitled 'Heating Greenhouses with Wood', in which trips to Pleasant View Greenhouse (which is heated using a wood chip boiler) and a commercial logging operation were visited. Twenty agricultural professionals from several agencies attended.
- Included new knowledge in educational programming— Sarah provided information on wood heating systems in greenhouses at several events for agricultural producers and landowners:
 - 'Making the most of wood heat in greenhouses', New England Energy Conference in March 2010; Sarah shared the stage with a producer and discussed the availability of wood for biomass heating systems; 35 people attended.
 - Sarah has spoken to landowner and forester groups about the potential to partner with agricultural producers for wood chip heating systems. In January 2010, she spoke to 80 people at the Massachusetts Landowners Association annual meeting and in February 2010, she spoke to 130 people at the Granite State Society of American Foresters. In both cases, she spoke about emerging wood market opportunities and presented Pleasant View's wood chip heating plant as a case study.