V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%			
205	Plant Management Systems	15%			
206	Basic Plant Biology	5%			
213	Weeds Affecting Plants	5%			
216	Integrated Pest Management Systems	25%			
311	Animal Diseases	5%			
315	Animal Welfare/Well-Being and Protection	5%			
601	Economics of Agricultural Production and Farm Management	10%			
602	Business Management, Finance, and Taxation	10%			
704	Nutrition and Hunger in the Population	10%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	30.6	0.0	0.0	0.0
Actual Paid Professional	33.4	0.0	0.0	0.0
Actual Volunteer	679.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
840927	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
3645703	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1221170	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

¨ Crop Production Activities (Indirect; Applied Research, Media, Internet, Publication, Resulting from Training)
¨ Crop Production Activities (Direct; Club, Conference, Program, Consultation, Scholarship, or Training)
¨ General activities related to Global Food Security and Hunger (Direct; Club, Conference, Program, Consultation, Scholarship, or Training)
¨ General activities related to Global Food Security and Hunger (Indirect; Applied Research, Media, Internet, Publication, Resulting from Training)
¨ Home Horticulture Activities (Indirect; Applied Research, Media, Internet, Publication, Resulting from Training)
¨ Home Horticulture Activities (Direct; Club, Conference, Program, Consultation, Scholarship, or Training)
¨ Livestock Activities (Indirect; Applied Research, Media, Internet, Publication, Resulting from Training)
¨ Livestock Activities (Direct; Club, Conference, Program, Consultation, Scholarship, or Training)
¨ Pest Management Activities (Direct; Club, Conference, Program, Consultation, Scholarship, or Training)
¨ Pest Management Activities (Indirect; Applied Research, Media, Internet, Publication, Resulting from Training)
¨ State pesticide certification acquired (Direct; Club, Conference, Program, Consultation, Scholarship, or Training)

2. Brief description of the target audience

¨ 4-H Volunteers (Adult)
¨ 4-H Youth (Youth)
¨ Agricultural Producers (Adult)
¨ Agricultural Service Providers
¨ Agricultural Workers (Adult)
¨ Apple Growers (Adult)
¨ Beef Producers (Adult)
¨ Blueberry Growers (Adult)
¨ Business Assist Organization Staff (Adult)
¨ Community Leaders (Adult)
¨ Cranberry Growers (Adult)

- Dairy Producers (Adult)
- Elders or Seniors (Adult)
- Extension - staff (Adult)
- Extension Staff (Adult)
- Families (Adult)
- Families (Youth)
- General Public (Adult)
- General Public (Youth)
- Home Gardeners (Adult)
- Home Gardeners (Youth)
- Master Gardener Volunteers (Adult)
- Ornamental Horticulture Industry (Adult)
- Parents (Adult)
- Pesticide Applicator Training Participants (Adult)
- Pesticide Applicators (Adult)
- Potato Growers (Adult)
- Sweet Corn Growers (Adults)
- Teachers (Adult)
- Vegetable Growers (Adult)
- Volunteers (Adult)

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	38665	2399250	6131	284

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2012

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Direct; Club, Conference, Program, Consultation, Scholarship, or Training

Year	Actual
2012	10178

Output #2

Output Measure

- Indirect; Applied Research, Media, Internet, Publication, Resulting from Training

Year	Actual
2012	4148

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Pounds of food donated
2	Monetary value of food produced, gleaned, and donated
3	Organizations/collaborators receiving donated food
4	Participate in livestock disease monitoring programs
5	Improve animal well-being
6	Demonstrate application of life skills
7	Demonstrate application of subject matter knowledge
8	Demonstrate application of leadership skills
9	Demonstrate civic engagement
10	Reduce carbon footprint
11	Reduce waste
12	Adopt sustainable living practices
13	Assess current and projected impacts of climate change
14	Adopt appropriate strategies based on research-based information
15	Form/join citizen networks for citizen action and education
16	Engage positively in their community
17	Train, support and mentor others in leadership roles

18	Demonstrate practices that improve efficiency, reduce inputs, or increase profitability
19	Increase consumption of locally produced foods
20	Adopt integrated pest management strategies
21	Develop integrated farming systems
22	People donating food
23	Participate in livestock quality assurance program
24	Demonstrate practices including managing nutrient sources, recycling/delivery methods that are compatible with crop/soil/production systems
25	Adopt sound business management practices
26	Increase profitability
27	Demonstrate leadership skills
28	Learn appropriate farming techniques
29	Research trials to increase yield in salmon farms

Outcome #1

1. Outcome Measures

Pounds of food donated

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year **Actual**

2012	209895

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #2

1. Outcome Measures

Monetary value of food produced, gleaned, and donated

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	346272

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management

Outcome #3

1. Outcome Measures

Organizations/collaborators receiving donated food

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Participate in livestock disease monitoring programs

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	366

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management

Outcome #5

1. Outcome Measures

Improve animal well-being

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	8218

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Maine Animal Health Lab: Maine, a very rural state, has a growing farm population, a commercial poultry industry, and too few livestock veterinarians. UMaine Extension?s Maine Animal Health Lab (UMAHL) offers diagnostic services to large- and small-scale producers when there is no local veterinarian or when the local vet does not have relevant expertise. We help poultry producers meet regulatory demands through testing, and diagnose animal health issues that may have profound negative economic consequences for an individual producer or an entire industry.

What has been done
Many of the more than 8,000 Maine farms raise poultry, and increasing numbers are producing eggs or meat birds for sale. Poultry and egg industries in Maine are worth over $75 million per year. Quick diagnosis of avian salmonella or flu is necessary to protect public health, and is required by law for major egg producers. Similarly, milk production in Maine is worth over $126 million, and the sheep industry is worth over $2.0 million, and each industry must meet regulatory testing requirements.

Results
Savings to the poultry industry in Maine is estimated at over $7 million per year through prevention of outbreaks as a result of the Maine Animal Health Lab?s salmonella regulatory testing services. Testing for mastitis in cattle has saved the dairy industry an estimated $10 million per year thanks to early detection and mitigation. Sheep producers have avoided approximately $400,000 per year in costs associated with infectious preventable diseases such as parasites, footrot, and caseous lymphadenitis. Providing quick diagnostic intervention has helped producers maintain healthy livestock and stay in business.

4. Associated Knowledge Areas

KA Code	Knowledge Area
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection

Outcome #6

1. Outcome Measures

Demonstrate application of life skills

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	67

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
315	Animal Welfare/Well-Being and Protection

Outcome #7

1. Outcome Measures

Demonstrate application of subject matter knowledge

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	67

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
206	Basic Plant Biology
216	Integrated Pest Management Systems
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #8

1. Outcome Measures

Demonstrate application of leadership skills

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	63

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation

Outcome #9

1. Outcome Measures

Demonstrate civic engagement

Not Reporting on this Outcome Measure

Outcome #10

1. Outcome Measures

Reduce carbon footprint

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	166

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #11

1. Outcome Measures

Reduce waste

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management

Outcome #12

1. Outcome Measures

Adopt sustainable living practices

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	351

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #13

1. Outcome Measures

Assess current and projected impacts of climate change

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	308

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
602	Business Management, Finance, and Taxation

Outcome #14

1. Outcome Measures

Adopt appropriate strategies based on research-based information

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	8130

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Determining the Value of High Tunnel Technology to Improve Crops in the Northeast: In the Northeast the combination of a short growing season, predation, disease, and weather pose considerable challenges for growers. High tunnel technology offers farmers a new tool to manage crops through increased control of the growing environment. High tunnels have potential to extend the season, help control pests, improve crop quality, and increase the variety of crops that can be grown resulting in higher yield and profits for growers. Growers can benefit from understanding potential and challenges when using high tunnels.

What has been done

Over the past two years, UMaine Extension researchers have worked with 31 farmers using Maine-based high tunnels for production. Benchmark data was collected on construction, costs, management, cropping practices, and yield. Challenges were identified, and the benefits and detriments of high tunnels were compared with open field practices.

Results

This research identified five areas where education will benefit growers when adopting high tunnel technology: site selection and preparation, levels of composting, soil management, irrigation management, and planning for increased labor needs. The study also identified that the major contributor to success is the increased length of time products are available for harvest and sale compared with open field crops. For example, tomatoes were available for 74 days longer when grown in high tunnels compared to the field, including 35 days earlier in the summer when prices are at a premium. The harvest season for peppers was extended 61 days. Results are being disseminated to new and potential users of high tunnels and used in new outreach initiatives throughout the northeast.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
206	Basic Plant Biology
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #15

1. Outcome Measures

Form/join citizen networks for citizen action and education

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	16

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management

Outcome #16

1. Outcome Measures

Engage positively in their community

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	476

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
315	Animal Welfare/Well-Being and Protection
704	Nutrition and Hunger in the Population

Outcome #17

1. Outcome Measures

Train, support and mentor others in leadership roles

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	51

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
315	Animal Welfare/Well-Being and Protection

Outcome #18

1. Outcome Measures

Demonstrate practices that improve efficiency, reduce inputs, or increase profitability

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	1718

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Techniques to Reduce Fuel Consumption and Improve Fertility: With nearly 162,000 acres in production, growing corn silage is a major expense for dairy farmers in New England. Planting corn consumes time and fuel, and it occurs at a time when other crops need to be harvested for maximum quality. Because of the short growing season, corn is usually grown without cover cropping, which leads to increased use of pesticides, higher rates of erosion, and depleted soils. No-till cover cropping offers farmers an efficient alternative that reduces fuel and fertilizer costs and improves soil fertility.

What has been done
A four-year project to improve corn silage production and forage quality was conducted jointly with Extension researchers in Maine, Massachusetts, and Vermont. The research project, partially funded by USDA/SARE, worked with dairy producers to study timing and efficiency of corn planting with no-till practices, yields of shorter season corn varieties, the value of cover crops, and alternative manure management techniques.

Results
As a direct result of our research and corresponding outreach, 33 producers have adopted no-till and cover crop strategies on 3,947 acres. The no-till strategy saved producers an average of 5.7 gallons of fuel/acre equating to $23 per acre, and 2.75 hour/acre in labor, a net benefit of $194,196. Based on our information and techniques, an additional 9,473 acres of no-till corn was grown in Maine and Vermont in 2012 for a net benefit of approximately $478,000. Growers noted improved soil, better moisture retention, improved feed quality, and reduced fertility needs. Further, survey results and Natural Resource Conservation Service data indicated that acreage in cover crops increased from 9,701 acres in 2008 to 15,882 acres in 2012, at an average cost of $30 per acre. Project data indicated fall cover crops supply at least 30 pounds of nitrogen per acre to the succeeding crop. With nitrogen costs a nearly $1/pound, the cover crop expense is

covered by the nitrogen savings alone, without even considering benefits to soil and water quality.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #19

1. Outcome Measures

Increase consumption of locally produced foods

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	285

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #20

1. Outcome Measures

Adopt integrated pest management strategies

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	27587

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Spotted Wing Drosophila (SWD): Maine's 60,000 acres of wild blueberries are inextricably tied to the state's identity. This $69 million crop, along with elderberries, raspberries, strawberries, grapes, and peaches, is under immediate threat by the SWD, an invasive pest that has spread quickly throughout the state since first being detected in 2011. The SWD lays its eggs in fruit prior to ripening and the larvae hatch and ruin the ripe fruit. All soft fruits are risk. So far, the only way to control the tiny flies is by frequent applications of pesticides, a very costly proposition for commercial growers.

What has been done
UMaine Extension and Experiment Station researchers have engaged in emergency efforts to track and map infiltration of the SWD in Maine. Detection trials are being conducted on a variety of crops using different baits in an effort to understand the biology, habits, and movement of the fly. Research results and mitigation recommendations are rapidly being communicated to growers.

Results
Ongoing efforts to understand and counteract the potential economic devastation represented by the Spotted Wing Drosophila encapsulates the research and Extension mission of the University of Maine. Field research that involves farmers and resulting information bulletins that report on the latest findings has helped initiate actions that have helped growers mitigate disaster thus far, while helping develop the next steps in our research and Extension agenda. During 2013 we will focus on improving trap attractants to refine our understanding of the extent of the invasion; evaluate the correlation between the date of first capture and the first insecticide application to protect the crop; evaluate organic and non-organic insecticide efficacy to control SWD; evaluate mass trapping as a means of non-insecticidal control; and further work with growers in applying best practices for control.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #21

1. Outcome Measures

Develop integrated farming systems

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	350

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A Multi-state Effort to Improve Support for Farmers Who Raise Poultry: With high demand for local foods, many Maine farmers have integrated poultry enterprises in their operations to address this market demand and increase farm income. Poultry enterprises require relatively little capitalization and complement many types of farms. When surveyed in 2008, 92 percent of Extension educators in New England felt that they were not effectively serving poultry producers and 81 percent wanted more knowledge and skills in poultry science.

What has been done
Starting in 2010 UMaine Extension provided a 3-year training course to Extension educators and other agricultural service providers in six New England states. Partially funded through a grant from USDA/SARE, our Applied Poultry Science trained agriculture professionals in the basics of poultry production, poultry health, and the business of poultry.

Results
Twenty-five Extension and agricultural service providers participated in the three-year project and are initially working with approximately 100 producers. The training has increased the capacity of farms to expand production, improve the quality of their eggs and meat, expand existing markets or develop new ones, improve bird health, develop a biosecurity plan, and cut costs to increase profits. It is estimated that the value of their assistance and advice for each grower with whom they interacted was at least $5,000 in extra annual income or savings. The ongoing value of this

work will ultimately reach many of the approximately 6,400 New England farms that raise poultry.

4. Associated Knowledge Areas

KA Code	Knowledge Area
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management

Outcome #22

1. Outcome Measures

People donating food

Not Reporting on this Outcome Measure

Outcome #23

1. Outcome Measures

Participate in livestock quality assurance program

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	538

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection

Outcome #24

1. Outcome Measures

Demonstrate practices including managing nutrient sources, recycling/delivery methods that are compatible with crop/soil/production systems

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	239

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Maine-grown Organic Bread Wheat, Facilitating a New Market: As a result of an exploding demand for organic bread by Maine consumers, locally grown bread-quality wheat is a significant new economic opportunity for northern New England farmers. There is a need for research-based understanding of how to grow wheat that meets the quality standards of the high-value organic bread flour market.

What has been done
UMaine Extension is leading a multi-state project to produce high-quality organic bread wheat that produces viable yields in climate zones of the Northeast. Our researchers are working with farmers, millers, and bakers to study key production issues, create tools to assess profitability and risk, produce a region-specific guide, and provide peer-learning opportunities. Our outreach efforts include interactions with experienced organic bread wheat producers in Canada and Denmark.

Results
This project is building the capacity to create a strong, local, organic food grain economy by developing research-based information and local expertise in organic production and by fostering a vibrant network of New England-based producers and food entrepreneurs. Since 2008, farmers in Maine and Vermont have increased production of organic wheat from 300 acres to just under 1,700 acres in 2012, and they are well-positioned to meet further increases in demand. In a recent survey, 80 percent of these farmers reported that they have made new market contacts. Seventy percent have changed at least one production or marketing practice which has helped

them expand markets, improve product quality, increase sales, increase yields, or reduce production costs. Producers estimated the economic value of these changes to be over $10,000 per year on 10 acres or more of grain. Participants in the peer-learning trip to Denmark estimated they will gain in sum more than $400,000 from putting knowledge gained to work in New England.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #25

1. Outcome Measures

Adopt sound business management practices

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	950

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #26

1. Outcome Measures

Increase profitability

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	483

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #27

1. Outcome Measures

Demonstrate leadership skills

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	255

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #28

1. Outcome Measures

Learn appropriate farming techniques

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	75

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Learning to be a Farmer in Maine & New Resources for Beginning Farmers: The U.S. Secretary of Agriculture has set a goal of recruiting 100,000 new farmers across the country to replace those who are aging and may retire soon. Despite the complexity of transferring farm ownership and high capital costs for new farming operation, market trends are encouraging. Increased demand for local foods from consumers, food service businesses, and institutions is expanding the potential for success. New farmers are starting smaller, more intensively managed farms. However to succeed over the long term, new farmers need comprehensive business and agricultural education, high quality mentoring, and positive support networks.

What has been done

UMaine Extension worked with farm service providers from state agencies to develop a new farmer training workshop series that addresses a wide range of business and farm management topics. Co-sponsored by the Androscoggin Valley Soil and Water Conservation District, the Natural Resource Conservation Service, and the Maine Department of Agriculture, the series was offered during 2012 and attended by 75 new and beginning farmers from southern and central Maine. Also, based on the expressed value of networking during the series we created an online Beginning Farmer Resource Network of Maine to offer further support over the long term to new farmers that will lead to their long-term farming success.

Results

Our curriculum successfully taught key knowledge and skills that will assist new farmers in being successful. Our evaluations show that 88 percent of participants reported a high level of satisfaction with the depth and breadth of information presented, and its potential for helping them succeed as new farmers in Maine. Further, informal interactions with participants since the series have documented positive impacts on individual farms, such as expanded operations and incomes streams that have allowed for a proportionate expansion of farm labor ? in a short time our new farmers are not just making a living, but they are becoming job creators! Our training model is being exported to other regional Extension offices, increasing our capacity to reach new farmers and improve their ability to successfully manage new farm enterprises.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #29

1. Outcome Measures

Research trials to increase yield in salmon farms

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Research Trials To Benefit the Aquaculture Industry: As they grow, salmon convert from a freshwater environment to saltwater, a process called smolting. This is a relatively individual process, so in pens of commercially produced salmon, don?t smolt at the same time. The result is that the salmonid industry ends up with very unevenly sized fish going into the next phase of production. The size disparity has a negative impact on aquacultural production and harvesting.

What has been done
Working with a Maine-based biotech company, UMaine Extension conducted research trials for a new dietary supplement to determine its effectiveness to even out the timing of the smolting process and increase growth for aquaculture-raised salmon. The trials were necessary to bring the product to market.

Results
The trials were successful and the product has been introduced to the international market. Using the supplement can benefit the whole industry, allowing an increase of production between 5 and 10 percent ($3 to $ million per year in Maine alone) giving aquaculturalists another tool to increase yield and make their industry more profitable. As well, the collaborating Maine biotech company realized a first-year profit of approximately $150,000 due to this trial, a profit that has been used to expand jobs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
311	Animal Diseases
601	Economics of Agricultural Production and Farm Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Government Regulations
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Evaluation initiatives measured behavioral changes that contribute to sustainable community and economic development in Maine. Methods included:
Post activity assessments
Online survey
Observations

Key Items of Evaluation