V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Supporting Rural Economies

☑ 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			9%	
112	Watershed Protection and Management			2%	
123	Management and Sustainability of Forest Resources			2%	
131	Alternative Uses of Land			1%	
134	Outdoor Recreation			18%	
136	Conservation of Biological Diversity			3%	
311	Animal Diseases			9%	
315	Animal Welfare/Well-Being and Protection			9%	
605	Natural Resource and Environmental Economics			19%	
607	Consumer Economics			3%	
608	Community Resource Planning and Development			13%	
609	Economic Theory and Methods			4%	
610	Domestic Policy Analysis			4%	
723	Hazards to Human Health and Safety			4%	
	Total			100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	6.0	0.0
Actual Paid	0.0	0.0	5.6	0.0
Actual Volunteer	0.0	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**
0	0	312573	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	521519	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	203464	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct scientific research. Publish peer-reviewed journal articles and other publications. Present findings at professional and public meetings and at other venues. Educate undergraduate and graduate students.

2. Brief description of the target audience

Scientists, economists, state and local policymakers, extension specialists, green/horticulture industry, tourism planners, land use commissions, and commercial fishermen

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	21	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of other publications

Year	Actual
2014	31

Output #2

Output Measure

- Assistance to Biotechnology Services and Maine Diagnostic Innovations in development of a rapid point-of-care test for Streptococcus equi.

Year	Actual
2014	1

Output #3

Output Measure

- Generalized code for implementing hierarchical learning classifier systems. The code is derived from the code used to model the lobster fishery; however, it has been made generic so that it can be easily used by other modelers. The code is publicly available on the OpenABM website: https://www.openabm.org.

Year	Actual
2014	1

Output #4

Output Measure

- TV show: Preserving Paradise Mapping Maine?s Future. 30-minute MPBN television special on the SSI Alternative Futures Project. http://www.mpbn.net/Television/LocalTelevisionPrograms/SustainableMaine/Preserv

Year	Actual
2014	1

Output #5

Output Measure

- Extramural funds awarded to researchers in this program area: $2,205,447.

Year	Actual
2014	2205447

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Improve knowledge of, or strategies and tools for, sustaining Maine's rural economies and comunities
2	Adoption of strategies/tools for sustaining Maine's rural economies and communities
3	Enhance sustainability, diversity, and resilency of Maine's rural economies and communities

Outcome #1

1. Outcome Measures

Improve knowledge of, or strategies and tools for, sustaining Maine's rural economies and comunities

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
According to the Maine Farm Bureau, Maine is home to 35,000 horses, with an economic impact of approximately $364 million. Although isolated, Maine is nevertheless on the front lines of national biosecurity due to its extensive sea and land borders and at risk for new outbreaks of diseases in animal populations. The economic impact of such disease outbreaks can be devastating to individual farms, the state, and the nation. Maine is also home to a strong biotechnology sector with a successful track record in development of animal-disease diagnostics. To benefit both the agriculture and biotechnology sectors of Maine's economy, we wish to foster innovation and commercialization of new technologies of animal-disease surveillance.

What has been done
Using Maine as a testing ground, this team of MAFES and UMaine Extension researchers is developing a model of strangles surveillance that could be applicable nationally and internationally towards eventual eradication of the disease worldwide.

Results
The scientists have assessed the technique of guttural pouch endoscopy and catheterization. They have established, and confirmed with local veterinarians, that endoscopic catheterization of the guttural pouch is relatively simple, while introducing the endoscope itself into the guttural pouch is more challenging and requires practice and training. They have also developed protocols for sampling and assessing streptococci in water as a way to conduct surveillance for strangles. Their proposed method for surveillance combines testing of water with follow-up endoscopy. The protocol involves determining sensitivity of water testing by examining water from acutely infected, positive cases and by performing follow-up culture, and if necessary, guttural pouch endoscopy, on clinically normal animals whose water tests positive for strangles.

Additionally working with Maine Biotechnology Services and Diagnostic Innovations, the scientists have optimized the point-of-care prototype to a sensitivity of approximately 50-500 cfu of S equi, which is within the clinically useful range.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Adoption of strategies/tools for sustaining Maine's rural economies and communities

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The quality of rural life both affects and is affected by the movement of people into and out of rural communities, the evolution of agriculture and industry, local social organization, and public policy. As part of multistate project NE1049, MAFES economists are understand the emerging opportunities and threats to the economic structure of rural communities arising from the potential shifts in local and regional food systems. To identify and analyze policies and strategies contributing to the viability and resiliency of communities in responding to economic and policy changes and to natural and human-made shocks. Maine has the third-largest maple industry in the United States. According to the USDA, maple syrup is produced in 10 states ? Connecticut, Maine, Massachusetts, Michigan, New Hampshire, New York, Ohio, Pennsylvania, Vermont, and Wisconsin.

What has been done
As part of multistate project NE1049, MAFES and UM Extension economists are investigating the emerging opportunities and threats to the economic structure of rural communities arising from the potential shifts in local and regional food systems. They are also attempting to identify and

analyze policies and strategies contributing to the viability and resiliency of communities in responding to economic and policy changes and to natural and human-made shocks.

Results
The results of their analysis of the incidence and importance of microenterprises to Maine?s employment base was published in the Maine Development Foundation?s 2014 ?Measures of Growth? report, which is distributed to economic development officials, Extension educators, policy officials, and legislators in Maine. Their research on the number of businesses reached annually by UMaine Cooperative Extension and the number of workers employed in those businesses annually helped document the economic importance of Cooperative Extension and their business clientele to the Maine economy. These findings were shared with the chancellor of the University of Maine System, University of Maine senior administrators, legislators, Extension County Executive Committees, and other Maine policy officials.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
609	Economic Theory and Methods

Outcome #3

1. Outcome Measures

Enhance sustainability, diversity, and resilency of Maine's rural economies and communities

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Northeast fisheries crisis and regulatory responses aimed to rebuild depleted stocks have resulted in severe social, economic, and cultural impacts on Maine's fishing communities. Understanding the vulnerability and resilience of these communities is critical for predicting and mitigating the likely impacts of future policies.

What has been done
This project assessed vulnerability and resilience in Maine fishing communities through interviews, a rapid assessment, site visits, and focus groups, producing 18 fishing community profiles that provide social and economic ?baseline? information necessary for understanding future impacts of social-environmental change on fishing communities. The researchers also conducted mixed methods social science research to examine several efforts aimed at broadening participation in science and management, including extended peer communities, collaborative fisheries research, sustainability science, and fisheries co-management.

Results
The project produced oral history interviews that document, and protect for future generations through their archival, the lived experience and knowledge of Maine fishermen. This project provided recommendations to fishery managers, fishing communities, and other stakeholders for improving resilience in Maine?s fishing communities. The researchers also published their findings on co-management and collective action in the groundfish, lobster, and sea urchin fisheries. They have documented several case studies of cooperative fisheries research in the Northeast U.S., including strategies helpful for collaboration such as boundary spanners, boundary management, and transparency. They also implemented a trans-disciplinary, sustainability science research approach to understand tidal power development in eastern Maine, in collaboration with fishing community members, regulatory agencies, and tidal energy industry representatives. These studies have provided recommendations for enabling and improving broader participation in science and management that will help enhance the sustainability of coastal Maine communities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Evaluations are currently conducted at the project and program levels. At the project level, all projects are reviewed by an internal research council and external peer reviewers when initiated and again at completion by the research council. During the research council final evaluation, the focus is on determining if terminating projects met their stated objectives, secured extramural funding, and produced peer-reviewed publications. For FY14, 3 projects went through the review process in this program area. As for other measures of successful research programs, faculty in this program area published 21 peer-reviewed articles and secured more than $2,200,000 in extramural funding. Researchers use a variety of methods to evaluate their own research projects including evaluations retrospectively, before-after, and during the life of the project; case studies; and comparisons between treatment/intervention and nontreatment/nonintervention.
At the program level, external NIFA review teams are asked to review the research programs of schools/departments. These teams provide input on the impact and productivity of research programs supported through the station. The station is working to develop a standard program-level evaluation process, which will be used to evaluate each station program area. Our current plans include an approach based on use of expert panels as recommended by the federal Government Accounting Office with individual program evaluations occurring every four to five years on a staggered time table.

Key Items of Evaluation

For FY14, 3 projects went through the review process in this program area. As for other measures of successful research programs, faculty in this program area published 21 peer-reviewed articles and secured more than $2,200,000 in extramural funding.