

2011 University of Rhode Island Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

In this report we describe the activities and impacts of programs associated with the Rhode Island Agricultural Experiment Station (RIAES or Station) and Rhode Island Cooperative Extension (RICE or Extension); collectively referred to as the Land Grant Programs at the University of Rhode Island URI (Land Grant Programs @ URI). RIAES and RICE are collaborative elements within the College of the Environment and Life Sciences (CELS) at the University of Rhode Island. Administrative oversight of RIAES and RICE is provided by the Dean of CELS. Day to day management of the Land Grant programs is provided by the Associate Dean.

The programs and projects supported within the Land Grant @ URI portfolio span a wide range of disciplines, from the natural sciences to the social sciences. Equally important, the solutions that we share with stakeholders are based upon solid university research; research that depends on appropriate, modern infrastructure; the cutting edge tools of science; and multidisciplinary, multistate, problem-based approaches. The Land Grant programs @ URI are focused around a portfolio of 15 programs that currently include: 1) Food Safety; 2) Nutrition, Health and Obesity Prevention; 3) Global Food Security and Hunger; 4) Children, 4-H and Families; 5) Sustainable Communities; 6) Vector Borne Diseases and Human Health; 7) Aquaculture and Fisheries); 8) Climate Change, 9) The Environment and Adaptive Agro-Ecosystems; 10) Community Gardening and Outreach; 11) Health and Well-being of Livestock; 12) Horticulture and the Reduction of Pests and Disease Outbreaks in Plants; 13) Natural and Environmental Economics, Markets and Policy; 14) Sustainable Energy; and 15) CELS CARES (College of the Environment and Life Sciences- Community Access to Research and Extension Services).

The Station and Extension are integral components of the missions of the College and University. The collaborative relationship with our federal partner, NIFA, has enabled our scientists, staff and students to leverage additional resources that provide contemporary knowledge, essential services and innovative programming for all Rhode Islanders.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	30.1	0.0	28.6	0.0
Actual	22.5	0.0	22.0	0.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

- Internal University Panel
- External University Panel
- External Non-University Panel
- Combined External and Internal University Panel
- Expert Peer Review

2. Brief Explanation

RIAES and RICE use a Request for Proposals (RFP) strategy for the initiation of new projects/programs and the continuation of ongoing projects/programs. In short, a RFP solicits proposals in a specific target area (e.g., Equipment; Multistate Projects; Integrated Projects) that complements current areas of agricultural research and outreach or provides opportunities for expanding scope and mission of the Land Grant Programs @ URI. (Stakeholders assist in determining what needs are to be met by the RFP. See Stakeholder Input.) Proposals are reviewed by an internal panel of experts (Program Area Leaders [PALS]; rotating appointments), ad hoc University experts, and by a panel of 3 to 4 experts from outside the institution (external university panel). Proposals are ranked according to an evaluation rubric. Highest ranking proposals are then selected for funding.

III. Stakeholder Input

1. Actions taken to seek stakeholder input that encouraged their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public
- Survey specifically with non-traditional groups
- Survey of selected individuals from the general public

Brief explanation.

Diverse stakeholder input is solicited through robust, multi-level processes which provide opportunities for multiple channels of communication. These levels include: the project (typically sought by a principal investigator[s]), the program (sought by principal investigators or program leaders) and at an administrative level (sought by the Dean/Director). Additionally, at the administrative level, the Dean employs a variety of collaborative external groups including the Agriculture Industry Advisory Group. Hence, input from stakeholders is robust.

Although programs within the Rhode Island Plan of Work utilize different strategies for seeking stakeholder participation and input, the following were all used to encourage stakeholder participation: use of media to announce public meetings and listening sessions; targeted invitation to traditional stakeholder groups; targeted invitation to non-traditional stakeholder groups; targeted invitation to traditional stakeholder individuals; targeted invitation to non-traditional stakeholder individuals; targeted invitation to selected individuals from general public; survey of traditional stakeholder groups; survey of traditional stakeholder individuals; survey of the general public; survey of non-traditional groups; and survey of selected individuals from the general public.

2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

Brief explanation.

Identification of individuals and groups was facilitated using advisory groups, internal focus groups, external focus groups, open listening sessions, needs assessments and use surveys. User groups also assisted in the identification of individuals. Examples of user groups that were solicited to identify stakeholders included the Rhode Island Agricultural Partnership (architect for Rhode Island's Five-Year Strategic Plan [http://www.farmland.org/documents/RI_agriculture_5yr_strategicplan.pdf]), the Rhode Island Department of Environmental Management Division of Agriculture, Rhode Island Nurserymen and Landscaper Association, the Rhode Island Natural History Survey, and municipal officials. One of the benefits of working in the smallest state is access to stakeholders. We're a state that's 1,000 square miles with a little over a million people.

2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Survey of the general public
- Meeting specifically with non-traditional groups
- Survey specifically with non-traditional groups
- Meeting specifically with non-traditional individuals
- Survey specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public

- Survey of selected individuals from the general public

Brief explanation.

Each of the following methods was used to collect stakeholder input: meeting with traditional stakeholder groups; survey of traditional stakeholder groups; meeting with traditional stakeholder individuals; survey of traditional stakeholder individuals; meeting with the general public; survey of the general public; meeting specifically with non-traditional groups; survey specifically with non-traditional groups; meeting specifically with non-traditional individuals; survey specifically with non-traditional individuals; meeting with invited selected individuals from the general public; and survey of selected individuals from the general public. Additionally, the Dean/Director employed an advisory group, the Agricultural Industry Advisory group, to provide input and reflections on the mission of the Land Grant programs and the direction of the programs including state needs.

Importantly, each of the programs described in this report did not use all the methods listed above.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities

Brief explanation.

Input was collected from external audiences and assessed. Emerging issues as well as continuing needs drove priority setting, action plans, budgeting and resource allocation.

Brief Explanation of what you learned from your Stakeholders

The critical element on stakeholder input is sifting wants from needs. Stakeholders are very eager to share reflections; the key strategic feat is separating the reflections into actionable steps.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1083183	0	1518772	0

2. Totaled Actual dollars from Planned Programs Inputs				
Extension			Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	1169963	0	1315557	0
Actual Matching	1213794	0	1548052	0
Actual All Other	0	0	0	0
Total Actual Expended	2383757	0	2863609	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	944191	0	1150471	0

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Food Safety
2	Nutrition, Health and Obesity Prevention
3	Global Food Security and Hunger
4	Children, 4-H and Families
5	Sustainable Communities
6	Vector Borne Diseases and Human Health
7	Aquaculture Biotechnology
8	Climate Change
9	The Environment and Adaptive Agro-Ecosystems
10	Community Gardening and Outreach
11	Health and Well-being of Livestock
12	Horticulture and the Reduction of Pests and Disease Outbreaks in Plants
13	Natural and Environmental Resource Economics, Markets and Policy
14	Sustainable Energy
15	CELS CARES

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Food Safety

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	15%		50%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	85%		50%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	1.8	0.0	0.0	0.0
Actual Paid Professional	2.1	0.0	0.0	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
105542	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
141427	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Continue to implement HACCP training for RI school food service operations
- Provide HACCP and sanitation education programs to a variety of food processors
- Host an annual Food Safety Conference for public and private stakeholders
- Maintain a Good Agricultural Practices (GAP) Program for commercial growers of fruit and vegetables
 - Maintain RI Food Safety Manager courses
 - Develop internet-based training on Food Safety issues
 - Develop Food Safety Curriculum materials for Special Needs students (ages 16-21)
 - Further development of time-temperature barcodes to continuously monitor the temperature of food products.

2. Brief description of the target audience

Food industry and food service workers and managers, food processors, consumers, agricultural producers, home gardeners, school administrators, school-aged children and their caregivers, special needs students, teachers, community volunteers, Master Gardener volunteers.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	962	264081	0	170

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	10	3	13

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer Reviewed Publications

Year	Actual
2011	3

Output #2

Output Measure

- Abstracts

Year	Actual
2011	5

Output #3

Output Measure

- Professional Training Sessions (educators, farmers, food industry and food service personnel)

Year	Actual
2011	16

Output #4

Output Measure

- Volunteer Training

Year	Actual
2011	1

Output #5

Output Measure

- Conferences Hosted

Year	Actual
2011	1

Output #6

Output Measure

- School Based Training Sessions (teachers and children)

Year	Actual
2011	1

Output #7

Output Measure

- Website Development and Refinement

Year	Actual
2011	2

Output #8

Output Measure

- Student training

Year	Actual
2011	2

Output #9

Output Measure

- General Consumer

Year	Actual
2011	9

Output #10

Output Measure

- Print Media

Year	Actual
2011	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Develop, implement and evaluate new health and food safety training and resource materials for targeted audiences such as consumers, educators, food industry personnel and health care providers (# of new programs).
2	Implement the internet based training for Good Manufacturing Practices (GMP) and personal hygiene for processors and warehouses. As a member of a regional team (# of training sessions)
3	Commercial growers of fruit and vegetables, food industry producers PROCESSORS and school personnel FOODSERVICE will participate in appropriately directed food safety (# people trained).
4	Formulate new approaches for food safety education for consumers, school educators and the food industry in residential institutions in Rhode Island. (# People)
5	Revise and adapt food safety education for consumers, school educators and the food industry in Rhode island and within the US (# people).

Outcome #1

1. Outcome Measures

Develop, implement and evaluate new health and food safety training and resource materials for targeted audiences such as consumers, educators, food industry personnel and health care providers (# of new programs).

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	8

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Health and food safety issues concerning a variety of foods keep evolving and information to target audiences require continuous revision and updating. Therefore new training and resource materials need evaluation, development and implementation.

What has been done

URI Food Safety Program personnel, in cooperation with other food safety and health outreach experts throughout the US, have evaluated and developed/ revised training and resource materials related to seafood safety, benefits/risks of seafood and food safety plan development at Residential Child Care Institutions (RCCIs). In addition, websites have been developed and/or revised.

Results

Train the trainer programs for seafood HACCP trainers were completed using the extensively revised curriculum materials. Resources for health care providers regarding risk/benefit of seafood were close to completion including brochures, pamphlets and website. In addition, there was further dissemination of survey results regarding health provider knowledge of seafood safety and seafood benefits/risks. Collaboration with RI Department of Education continued to provide Residential Child Care Institutional facilities with HACCP-based training.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #2

1. Outcome Measures

Implement the internet based training for Good Manufacturing Practices (GMP) and personal hygiene for processors and warehouses. As a member of a regional team (# of training sessions)

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Commercial growers of fruit and vegetables, food industry producers PROCESSORS and school personnel FOODSERVICE will participate in appropriately directed food safety (# people trained).

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	433

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is need for food safety information throughout the diverse RI community of educators, consumers, food service workers, food industry personnel, processors and commercial fruit and vegetable growers. Federal and state regulations mandate specific training that allows the RI food industry to be in compliance. In addition, participation in voluntary food safety programs is rapidly becoming an expectation for business and non-profits.

What has been done

The URI Food Safety Education Program has offered a variety of food safety training programs to numerous professional target audiences to address state and federal mandates and other food safety concerns. All trainings are revised to reflect current regulatory and research information.

Results

The URI Food Safety Education Program has, in collaboration with regional academic partners and RI state agencies, successfully offered 16 professional training sessions that have been highly evaluated.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #4

1. Outcome Measures

Formulate new approaches for food safety education for consumers, school educators and the food industry in residential institutions in Rhode Island. (# People)

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Revise and adapt food safety education for consumers, school educators and the food industry in Rhode island and within the US (# people).

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	105115

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

"Local" food movement has fostered a revival of interest in home food preservation. Issues related to quality and safety in local production and preservation should be addressed.

What has been done

Preservation presentations have been developed and offered to consumers interested in home preservation. Interviews have also been given to the state newspaper regarding food safety issues of concern related to home food preservation. In addition, general food safety presentations were developed.

Results

Workshops have been delivered and have been well received and attended. The specialists are working on expanding these offerings for next year and including "hands-on" classes.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Competing Programmatic Challenges
- Other (No funding)

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

- Workshops and training programs use pre and post assessment vehicles to evaluate change in stakeholder knowledge.
- Behavior change of stakeholders is assessed through longitudinal tracking of participant behaviors compared to behaviors identified prior to participation in programs.
- Extension and research outputs are subject to peer evaluations before publication.
- Citations of published works are quantified through services such as the ISA Web of Science and Google Scholar.

We found that our program recipients ascribed high value to our delivered programs.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Nutrition, Health and Obesity Prevention

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
702	Requirements and Function of Nutrients and Other Food Components	50%		50%	
703	Nutrition Education and Behavior	50%		50%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	0.3	0.0	0.5	0.0
Actual Paid Professional	1.0	0.0	3.6	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
30439	0	168873	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
33420	0	145560	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

For KA 702:

- Data collection

- Fitness testing and body composition analysis
- Survey and questionnaire completion
- Blood analysis and dietary intake calculations

For KA 703:

- Facilitate partnership with Latino communities
- Refine curriculum and teacher training programs
- Test interventional modalities for health maintenance and obesity prevention
- Analyze data and evaluate outcomes

2. Brief description of the target audience

KA 702: Lean and obese adults

KA 703: Latino men and women; low-income school age children and families

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	234	164	0	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	0	1	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Refine, deliver and evaluate major healthy weight intervention study

Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Peer reviewed publications

Year	Actual
2011	0

Output #3

Output Measure

- Abstracts

Year	Actual
2011	2

Output #4

Output Measure

- Workshops

Year	Actual
2011	1

Output #5

Output Measure

- Student Training

Year	Actual
2011	12

Output #6

Output Measure

- Professional Training

Not reporting on this Output for this Annual Report

Output #7

Output Measure

- Scientific and Professional Presentations

Year	Actual
2011	1

Output #8

Output Measure

- MS Thesis or PhD Dissertation

Year	Actual
2011	4

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase understanding of lipoprotein metabolism and metabolic syndrome on human health in young adults.
2	Increase understanding of motivators and barriers of making healthy food choices and the impact these food choices have on lipoprotein metabolism and metabolic syndrome in young adults.
3	Increase understanding and behavior change with regard to decreasing dietary intakes and increasing physical activity level, and the impact of these changes on body fat mass, physical function, and coronary heart disease risk factors in obese older women.
4	To develop and test laboratory techniques, free-living methodologies, and interventions to assess and improve within-meal eating behaviors, in the interest of healthy, effective body weight management and obesity prevention.

Outcome #1

1. Outcome Measures

Increase understanding of lipoprotein metabolism and metabolic syndrome on human health in young adults.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Increase understanding of motivators and barriers of making healthy food choices and the impact these food choices have on lipoprotein metabolism and metabolic syndrome in young adults.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	38

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Young adults (those 18-24 years of age) are a population of interest, as identified by the National Institutes of Health in regards to risk for coronary heart disease. Young adults are presenting with abnormal lipid profiles because of abnormal lipoprotein metabolism more frequently - this results in increased risk of metabolic syndrome and coronary heart disease. Because the lifestyle habits, especially dietary intake, can impact this increased risk, determining what barriers and motivators college students deal with when making food choices is critical for designing successful dietary interventions for this population.

What has been done

In the fall of 2010, we worked with other stakeholders in the project - URI's Dining Services and Student Health Services - to develop the protocol and procedures for focus groups to complete with URI students who were 18-24 years of age and on the URI meal plan. In the spring of 2011, we completed a total of nine focus groups with 38 students (male and female). Issues discussed and identified: barriers and motivators of eating healthy on campus, where students look for nutrition information, what type of nutrition information they want, and what type of messages would promote healthy eating.

Results

From the focus groups, we found that the primary motivators were social influences, health, perceived well-being, physical appearance and the environment. The barriers identified by the students were the environment, psychological cues, social influences, and time. These results, as well as the language used by the student participants, will be used in the next phase of the project to develop messages to be used on campus at point-of-sale food sites to encourage the students to purchase healthier options.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components

Outcome #3

1. Outcome Measures

Increase understanding and behavior change with regard to decreasing dietary intakes and increasing physical activity level, and the impact of these changes on body fat mass, physical function, and coronary heart disease risk factors in obese older women.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	32

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Obese older (55-80 years) women are the target population are at particularly high risk of becoming obese and living with an obesity-related disability. The consequences of obesity (BMI ≥ 30 kg/m²) include heart disease, decreased physical functioning and mobility, sarcopenia, and early mortality. Because a primary treatment of obesity should include lifestyle modifications including diet change and increasing physical activity, the full complement of physical activity modalities need to be explored in order to improve the evidence-based approach to prescribing exercise to this high-risk population. Tai Chi is a martial art form that has been shown to improve physical function, and possibly body composition and heart disease risk factors. However, the additive effect of Tai Chi exercise during dietary weight loss has not been explored in the literature.

What has been done

In the spring of 2011, we conducted a 16-week randomized trial on 32 obese (BMI= 34.1 ± 4.0 kg/m²) older (age = 61.5 ± 5.6 yr) women using a pre-post measures design. Subjects were randomly assigned to a weight loss-only (WL) group or to a weight loss plus Tai Chi (TCWL) group. Outcomes included body and muscle composition, physical functioning and mobility, fasting blood lipid profile, muscle strength and quality, and flexibility. All women participated in a behaviorally-based weight loss intervention based on the modified dietary approaches to stop hypertension (DASH) diet with a goal of 5% reduction in body mass. The TCWL group participated in Tai Chi exercise for ~ 45 min/day on three non-consecutive days per week in addition to the dietary intervention.

Results

The final analytic sample consisted of 27 total participants with 13 in the WL group and 14 women in the TCWL group. Adherence to the DASH dietary intervention sessions for the WL group was 86.5% and 78.1% for the TCWL group. Adherence to the Tai Chi exercise was 73.1%. No significant differences between groups existed at baseline. The WL group had a body mass decrease of 3.7 ± 0.9 kg ($p < 0.001$) that was a 4.1 ± 0.9 % decrease from baseline ($p < 0.01$). The TCWL group had a decrease of 2.2 ± 0.9 kg ($p = 0.02$) from baseline that was decrease of 2.6 ± 1.1 % ($p = 0.04$; between-group $p = 0.29$). There was a tendency for a between-group difference in changes in leg strength ($p = 0.062$), grip strength ($p = 0.070$), timed up and go performance ($p = 0.069$), and FFM ($p = 0.056$). Leg strength, grip strength, and FFM seemed to improve to a greater extent in the TCWL group. Timed up and go performance worsened for both the WL and TCWL groups (WL= 1.03 ± 0.21 sec; TCWL= 0.47 ± 0.21 sec). There were significant between-group differences in mid-thigh normal density muscle area (WL: -5.4 ± 2.4 cm² vs. TCWL: -13.2 ± 2.4 cm², $p = 0.031$). The WL group had a significant decrease (-1.71 kg, $p = 0.038$) in their grip strength and fat-free mass (-1.18 kg; $p = 0.002$) as well as fat mass (-2.3 kg; $p = 0.004$). The TCWL group had increases in flexibility (sit and reach test, 5.3 cm; $p = 0.022$) and leg strength (43.3 N; $p = 0.003$) with decreased fat mass (-1.97 kg; $p = 0.011$). The TCWL group also had a significant within group increases (0.24 ± 0.06 N/cm²) in muscle quality ($p < 0.01$). There were no changes in LDL-cholesterol or apo B in either group but increases in HDL cholesterol, triglycerides, and diet quality were seen in both groups, with no between-group differences. These data suggest that Tai Chi added to weight loss may help dietary quality and attenuate the loss of fat-free mass and improve strength with weight loss but does not have a substantial additive effect on body fat mass, blood lipids, or global physical functioning measures in obese older women. These findings are currently being used to help us conduct a Tai Chi and weight loss intervention in two RI senior centers.

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4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior

Outcome #4

1. Outcome Measures

To develop and test laboratory techniques, free-living methodologies, and interventions to assess and improve within-meal eating behaviors, in the interest of healthy, effective body weight management and obesity prevention.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	188

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

This project supports NIFA's strategic goal #5, "Improving the Nation's Nutrition and Health". It complements the Rhode Island plan of work focused on nutrition, health and obesity prevention. Although data from laboratory and epidemiological studies suggest that within-meal eating behaviors are significantly related to energy intake and body weight, methodology to study such eating behaviors is limited, especially outside the lab. Additionally, systematic interventions to improve these behaviors have not been developed and tested. Further, community nutrition assistants who conduct 24-hour dietary recalls nationwide have no consistent training, thus the validity and accuracy of these dietary assessments can not be assured. This is of vital importance, since EFNEP dietary assessments are used to assess key outcomes for their programs. Thus, key stakeholders in year 1 of this project include URI students seeking healthy body weight management, EFNEP paraprofessionals and professionals, and graduate and undergraduate students learning experientially by working on the project.

What has been done

Based on previous work in our labs, we developed an new and innovative intervention to improve within-meal eating behaviors in individuals who carry excess body weight. It was complete by the end of the fall semester, and we tested it in 24 subjects during the spring semester, with outcomes measured before, after, and at a 12-week follow-up. Qualitative interviews were conducted in experimental subjects to assess acceptability of the program. Some graduate students focused on outcomes-related data, while others focused on methodology development, both with the baseline data (cross-sectionally) and post/follow-up data sets. Meanwhile, another graduate student assimilated data from 164 EFNEP 24-hour dietary recalls conducted within RI communities. These have been assessed for their consistency and accuracy, and compared to

national EFNEP dietary data. Some analyses are complete while some are ongoing. Four manuscripts have been drafted and one will be submitted this month.

Results

The intervention, involving weekly one-on-one counseling with homework and practice in-between was well received. All subjects provided positive feedback during interviews. The intervention resulted in significant improvements in all main outcomes, including laboratory-assessed eating behaviors and energy intake. Methodological assessments revealed that while in-lab measures correlated with free-living eating behaviors, free-living methodologies need further development to improve consistency and accuracy. The 24-hour dietary recalls conducted by EFNEP paraprofessionals showed wide variability, indicating a need to improve training for consistency. However, they did not differ significantly from national averages, indicating that EFNEP programs nationwide might benefit from improved training programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The impact of our program on our local communities

- Number of participants and senior centers involved
- Benefits of program participation such as:
 - o Weight loss, improvement of nutrition knowledge as measured by objective and subjective assessments
 - o Body composition and physical function changes (objective measures)
 - o Other qualitative feedback from research participants and quantitative findings for other health and nutrition outcomes
- Exercise and nutritional materials and knowledge generated by this program and distributed to local communities (e.g., handouts, presentations/talks)

Graduate and undergraduate student training

- The number of undergraduate and graduate students trained and mentored
- o Training strategies have been implemented to train and guide graduate and undergraduate students throughout the programs
 - Weekly laboratory group meetings
 - Student research article presentations
 - One on one meeting settings with Drs. Delmonico and Xu
 - Graduate student mentoring of undergraduate students
 - Monitor training effectiveness indications
- o Graduate students
 - Conduct accurate and precise measurements
 - Coordinate the project and mentor undergraduate students to conduct the measurements and other research project related activities
 - Professional presentations in regional or national conferences
 - Student-authored manuscript and abstract submissions to peer-reviewed journals and national/regional conferences
- o Undergraduate students
 - Improved understanding of all aspects of conducting an intervention study
 - Improved understanding of higher risk (i.e. older, obese adults)
 - Conduct accurate measurements (blood pressure, questionnaire administration)
 - Lead group exercise
 - Monitor individual participants progress and solve individual issues with help from other team members or Drs. Delmonico, Lofgren, and Xu
 - Familiar with IRB procedure, e.g., know how to fill out an adverse event reports to the IRB
 - Honors project presentations
 - Analyze research articles and understand basic statistics used in research

The influence on the related scientific field

- Conference presentations and abstracts
- Presentations to NE-1039 research group
- Publications

Data generated by this program for future external funding proposals

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Global Food Security and Hunger

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	50%		0%	
704	Nutrition and Hunger in the Population	50%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	5.0	0.0	2.0	0.0
Actual Paid Professional	0.5	0.0	0.0	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
21617	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
35357	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Assess the diet quality of targeted low-income, vulnerable populations.
- Assess the food security status of targeted low-income, vulnerable populations.
- Assess the food resource management and food safety practices of the target audience.

- Develop and implement assessment tools, curriculum, print materials and social marketing campaigns.
- Evaluate the effectiveness of interventions and materials related to behavior change.
- Facilitate and strengthen community partnerships.
- Seek external funds to support program goals.

2. Brief description of the target audience

Low-income, Food Stamp eligible and participating families, children and older adults.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	6000	100000	7500	100000

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

Patent Applications Submitted

Year: 2011
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year Actual

2011 0

Output #2

Output Measure

- Abstracts

Year	Actual
2011	0

Output #3

Output Measure

- Scientific/Professional presentations

Year	Actual
2011	1

Output #4

Output Measure

- Website Development and Refinement

Year	Actual
2011	1

Output #5

Output Measure

- Public Service Announcements and Social Marketing Campaigns

Year	Actual
2011	1

Output #6

Output Measure

- Video Productions

Year	Actual
2011	0

Output #7

Output Measure

- Curriculum Development and Delivery

Year	Actual
2011	1

Output #8

Output Measure

- Fact Sheets, Bulletins and Newsletters

Year	Actual
2011	16

Output #9

Output Measure

- Student Training

Year	Actual
2011	6

Output #10

Output Measure

- Volunteer Training

Year	Actual
2011	25

Output #11

Output Measure

- Workshops and Programs

Year	Actual
2011	160

Output #12

Output Measure

- MS Thesis or PhD Dissertation

Year	Actual
2011	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	25% of EFNEP and FSNE Families and Older Adults will improve dietary practices from baseline in one or more domains (diet quality, food security, food resource management, or food safety) thus reducing future risk of disease and improving health and quality of life (# representing 25%).

Outcome #1

1. Outcome Measures

25% of EFNEP and FSNE Families and Older Adults will improve dietary practices from baseline in one or more domains (diet quality, food security, food resource management, or food safety) thus reducing future risk of disease and improving health and quality of life (# representing 25%).

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	30

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Advanced nutrition education and improved and appropriate choices are key to an increasingly healthy populace. The EFNEP/SNAP programs have focused on diet quality and food resource management especially during the last fiscal year while unemployment in Rhode Island exceeded 12%. The high unemployment rate resulted in increased poverty which effected food choices and increased food insecurity. Decreased nutrition in children, families and the elderly can result in increased disease and early death.

What has been done

During FY2011, SNAP-Ed delivered 783 community-based nutrition education presentations resulting in 13,255 direct and indirect contacts. We distributed 19,588 program-related materials (recipes, fact sheets, posters, calendars, handouts) and staff addressed 308 point of decision phone inquiries with mail follow-up. EFNEP held 359 workshops which resulted 3582 attendee/person days.

Results

Post-intervention surveys showed over 30% of participants (670 people) noted purchasing and consumption of fresh fruits and vegetables and whole grains increased. Other increases: 71% (242 of 340 people trained) showed improvement in one or more food resource management practices, 79% (223 of 281) showed improvement in one or more nutrition practices, 43% (145 of 334) showed improvement in food safety practices. An intervention for seniors in partnership with Farm Fresh Rhode Island showed the number reporting eating two or more cups of vegetables each day went from 31% at pre-assessment to 56% at exit.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Funding)

Brief Explanation

We live in turbulent times nationally, regionally, locally, and institutionally. Appropriations budgets are being cut dramatically on many fronts, resulting in fewer resources for increasing need areas. As finances and personnel change, it is likely our programs and outcomes will have to shift to accommodate them.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

- Workshops and training programs use pre and post assessment vehicles to evaluate change in stakeholder knowledge.
- Behavior change of stakeholders is assessed through longitudinal tracking of participant behaviors compared to behaviors identified prior to participation in programs.
- Extension outputs are subject to peer evaluations before publication.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Children, 4-H and Families

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	25%		0%	
806	Youth Development	75%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	7.0	0.0	0.0	0.0
Actual Paid Professional	3.7	0.0	0.0	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
196428	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
217352	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•Forge academic connections to strengthen CFF curriculums, provide undergraduate experiential learning opportunities, increase program research base and utilizes evaluation expertise to measure

impacts and improve programs •Connect target audience to CFF educational programs through workshops, web-based training and newsletters, 4-H volunteer training and curriculum guides (train the trainer), community-based agency trainings (train the trainer) •Develop resources and information to connect youth and families to community and land-grant resources (CFF to serve as the portal)
 •Expansion of the 4-H club system into currently underrepresented, urbanized areas of the state, expand the 4-H club system to military youth and their families and creation of a network of 4-H science enrichment after school programs that serve as a catalyst for improve the science based knowledge, skills and academic motivation among elementary and middle school students.

2. Brief description of the target audience

Youth 5-18 years of age, parents of targeted youth, community-based family-serving agencies and organizations, volunteers

3. How was eXtension used?

eXtension was used as a resource for volunteers and staff coordinating animal science programs. a specific example includes using eXtension Horse as a resource on the website for our horse judging/hippology/quiz bowl educational series.

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	3448	202440	7443	3270

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

Patent Applications Submitted

Year: 2011
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Workshops

Year	Actual
2011	84

Output #2

Output Measure

- Volunteer Training (number of new volunteers per year)

Year	Actual
2011	56

Output #3

Output Measure

- 4-H Record Book Submissions

Year	Actual
2011	130

Output #4

Output Measure

- Youth reached through programs

Year	Actual
2011	1309

Output #5

Output Measure

- Number of community/family serving groups and organizations reached

Year	Actual
2011	39

Output #6

Output Measure

- Community Service (# of projects per year)

Year	Actual
2011	57

Output #7

Output Measure

- Activities and Programs (# per year)

Year	Actual
2011	99

Output #8

Output Measure

- Student Training (# per year)

Year	Actual
2011	29

Output #9

Output Measure

- Website development and refinement

Year	Actual
2011	4

Output #10

Output Measure

- Curriculum development and delivery

Year	Actual
2011	13

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Through project work and science and health enrichment programs, (%) 4-H club members and after school group members will demonstrate increased knowledge and skills that can be incorporated into their academic and personal lives.
2	% of enrolled 4-H youth who will demonstrate a commitment and understanding of their community and a sense of connectivity through increased delivery of community service programs to those in need.
3	Through training programs, club leadership activities and adult mentors, % of 4-H members who will develop leadership skills (e.g., public speaking, project leadership), gain confidence in their ability to lead and make a difference in their schools and communities and to incorporate these life skills into their daily lives.
4	# of parents, volunteers and adults serving youth and their families who will gain knowledge and skills that will foster positive youth development and family health and well-being.
5	# of parents who will learn and adopt more effective methods for parental discipline of children and better use of family time.
6	Pre-post measurement of educational activities, workshops to measure increases in knowledge and skills, focus groups and surveys to assess practice change and adoption, analysis of contact information and demographics to measure expansion of programs to currently underrepresented groups (urban, cultural-diverse communities, minorities, etc.) (Number of assessments per year)

Outcome #1

1. Outcome Measures

Through project work and science and health enrichment programs, (%) 4-H club members and after school group members will demonstrate increased knowledge and skills that can be incorporated into their academic and personal lives.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	43

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Out-of-school educational programs provide youth with a safe, supportive environment for developing academic and life skills. Research demonstrates a significant relationship between poverty and academic achievement in school." There is a great concern over the fact that minority children do not excel in math and science classes. URI/HDF CE program targets minority youth in urban area with the delivery of science enrichment programming. Science and Healthy Lifestyles programming is also a major focus of the RI 4-H club system and the Operation: Military Kids educational programming.

What has been done

Pathways for Success in Science and Technology conducted 3 after-school programs taught by URI student mentors and VIPS staff. 7th grade content included 4-H Science Day Experiment, movie-making technology, 8th graders studied genetics, electricity and rocketry and high school focused on Engineering. 4-H science programming included computer technology, rocketry, robotics, aquatics ecology and animal science workshops and events. A Teen Leadership Project developed agricultural science interactive displays for use at multiple public venues. 4-H continued to partner with the DEM Parks and Recreation to provide 4-H environmental programs at the RI Great Outdoors Pursuit.

Results

Evaluation studies documented increased knowledge and skills and positively increased youth attitude toward science and learning through URI/HDF after-school science enrichment programs. In FY11 increased numbers of military youth participated in 4-H SET and Healthy Lifestyles workshops through OMK family events, workshops and camps. 43% of enrolled animal science 4-Hers demonstrated an increase in knowledge and skills through participation in district, state and regional fairs, hippology, judging and quiz bowl events and educational series. Over 300 youth

and adults were reached through the DEM Great Outdoors Pursuit event.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

% of enrolled 4-H youth who will demonstrate a commitment and understanding of their community and a sense of connectivity through increased delivery of community service programs to those in need.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	68

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many of today's youth lack opportunities to engage in positive out-of-school educational programs under the mentoring of caring adults who guide them in developing valuable life skills while aiding them in creating positive connections to the larger community and assisting them in successfully making the transition to productive, contributing young adults.

What has been done

RI 4-H Clubs and after-school groups are expected to plan and conduct at least one community service project during the 4-H year as part of the Citizenship mission mandate. 4-H volunteers are provided with community service opportunities through the 4-H volunteer listserv and connected to requests from citizens and community groups requiring assistance. 4-H groups apply for financial support (through the RI 4-H Foundation Club Grant program) for community service projects. Beyond serving their communities, 4-H clubs worked with Operation Military Kids writing letters to soldiers and stuffing Hero Packs. 4-H members document their community service hours through their 4-H record books.

Results

50% of active 4-H clubs in RI reported carrying out an average of 2 or more community service projects in FY11(average of 25 members per club) resulting in 475 youth participating in one or

more community service project or 68% of the FY11 4-H club enrollment. 130 4-Hers who submitted record books reported 3244 community service hours. Examples of 4-H clubs who received 4-H Foundation grants included the Aries 4-H club that develop a traveling animal science exhibit and reported reaching 150 people. Rhody Riders 4-H Club held a horse show to benefit the Assateauge Island National Seashore State Park.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3

1. Outcome Measures

Though training programs, club leadership activities and adult mentors, % of 4-H members who will develop leadership skills (e.g., public speaking, project leadership), gain confidence in their ability to lead and make a difference in their schools and communities and to incorporate these life skills into their daily lives.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	43

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many youth are lacking in school and family-center opportunities and support to increase their communications and leadership skills. Youth need a safe and nurturing environment to test their abilities and receive constructive and supportive feedback. Encouragement by caring adults and positive peer support enable youth to develop confidence and incorporate these life skills into their school and community.

What has been done

All 4-H members are encouraged to participate in the RI 4-H Public Presentations programs at the club, district and state level. 4-H volunteers and staff provide training and competitive and non-competitive speaking opportunities are provided. Besides District and State competitions, 4-Hers are encouraged to participate in events to educate the public including 4-H Goes to the Zoo, Washington Co. Fair Farm School and Speak Out for Military Kids. 4-H teens demonstrated leadership skills in their 4-H clubs and at 4-H events and programs.

Results

246 4-H youth or 43% of RI 4-H club members participated in district state public presentation programs, Club Officer training, 4-H Farm School, and other public events promoting 4-H. 4-H teens demonstrated their leadership ability by assuming major roles at 4-H Fairs, animal science workshops and events and the Eastern States Expo. 4-H volunteers reported increased leadership skills and confidence among their 4-H club officers and teen leaders. Through an Ag Leadership Project teens developed a multi-module, interactive exhibit which promoted locally grown products and taught vet science, nutrition poultry science while reaching over 70,000 fair-goers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #4

1. Outcome Measures

of parents, volunteers and adults serving youth and their families who will gain knowledge and skills that will foster positive youth development and family health and well-being.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	653

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The number of RI children and families living in poverty continues to increase. Family structures are stressed by poverty and decreasing community connection creating a weakened environment for child rearing. There is limited access to parent education programs for families and links between service providers and families have either been eliminated as a result of budget cuts or decreased.

What has been done

RI agency personnel and directors who work directly with families were surveyed to identify programming needs for parents and families in their respective geographic areas. Cooperative Extension Specialist from the URI Department of Human Development and Family Studies developed/adapted, implemented and evaluated 13 workshops for the 2011 programmatic year.

Summative evaluations were conducted at workshops to assess quality as well as outcomes.

Results

Direct programs reached 653 families. Summative evaluations collected at the conclusion of each 2 hour workshop yielded the following results: 92% of workshops rated the workshop as great or perfect; 94% rated the presenters great or perfect; 90% indicated the information was practical; 83% reported learning 3 new concepts; 97% rated delivery methods as excellent. Outcome evaluation yielded the following: Compared to parents who have not attended Cooperative Extension Parent/Family workshops, parents who attended parenting workshops engage in significantly more nurturing parenting and less harsh parenting.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #5

1. Outcome Measures

of parents who will learn and adopt more effective methods for parental discipline of children and better use of family time.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	318

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The number of RI children and families living in poverty continues to increase. Family structures are stressed by poverty and decreasing community connection creating a weakened environment for child rearing. There is limited access to parent education programs for families and links between service providers and families has either been eliminated as a result of budget cuts or decreased.

What has been done

RRI agency personnel and directors who work directly with families were surveyed to identify programming needs for parents and families in their respective geographic areas. Cooperative Extension Specialist from the /URI Department of Human Development and Family Studies

developed/adapted, implemented and evaluated 13 workshops for the 2011 programmatic year. Summative evaluations were conducted at workshops to assess quality as well as outcomes.

Results

98% of the 318 parents who participated in the educational parenting workshops rated the workshop as great or perfect; 97% rated the presenter as great or perfect; 92% indicated the information was practical; 86% reported learning 3 new concepts; 98% rated delivery methods as excellent... National research shows that parents who receive education about raising children engage in significantly more nurturing parenting skills and less negative practices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #6

1. Outcome Measures

Pre-post measurement of educational activities, workshops to measure increases in knowledge and skills, focus groups and surveys to assess practice change and adoption, analysis of contact information and demographics to measure expansion of programs to currently underrepresented groups (urban, cultural-diverse communities, minorities, etc.) (Number of assessments per year)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	13

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The number of RI children and families living in poverty continues to increase. Family structures are stressed by poverty and decreasing community connection creating a weakened environment for child rearing. There is limited access to parent education programs for families and links between service providers and families has either been eliminated as a result of budget cuts or decreased.

What has been done

RI agency personnel and directors who work directly with families were surveyed to identify programming needs for parents and families in their respective geographic areas. Cooperative

Extension Specialist from the /URI Department of Human Development and Family Studies developed/adapted, implemented and evaluated 13 workshops for the 2011 programmatic year. Summative evaluations were conducted at workshops to assess quality.

Results

Summative evaluations collected at the conclusion of each 2 hour workshop yielded the following results: 98% workshop great or perfect; 92% practical information: 86% learned 3 new concepts: 98% rated delivery methods as excellent. There were 13 workshops held in 2011. Also there were 10 workshops for early childhood teacher.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Pre-post assessment of knowledge/skills change.

Direct observation and reporting of change in knowledge/skills and behavior change by 4-H Club leaders.

Review of 4-H record books to document community service participation.

Post of assessment 4-H events for program/event evaluation, redirection and revisions.

Summative evaluation used to evaluation learning materials and learning process.

High level of satisfaction was reported by stakeholders.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Sustainable Communities

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management	25%		0%	
602	Business Management, Finance, and Taxation	25%		0%	
605	Natural Resource and Environmental Economics	25%		0%	
608	Community Resource Planning and Development	25%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	0.0	0.0	0.0
Actual Paid Professional	2.4	0.0	0.0	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
79409	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
200794	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Study and promote commercial farm viability
- Promote responsible stewardship of agricultural lands
- Work with municipalities and community members to manage natural and economic resources wisely
- Teach and promote sustainable development techniques and management to communities
- Promote, enhance and expand sustainable tourism in the state of Rhode Island

2. Brief description of the target audience

Farmers/ farm organizations, RI Department of Environmental Management (RI DEM) Division of Agriculture, RI Center for Agricultural Promotion and Education, other agricultural service providers, tourism councils and tourism businesses, land trusts, policy makers and municipal leaders, grassroots and community organizations

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1900	2070	280	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Conduct Community based workshops

Year	Actual
2011	7

Output #2

Output Measure

- Professional training

Year	Actual
2011	12

Output #3

Output Measure

- Public presentations

Year	Actual
2011	15

Output #4

Output Measure

- Website development and refinement

Year	Actual
2011	1

Output #5

Output Measure

- Student Training

Year	Actual
2011	5

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Provide information and training to farmers and rural landowners on estate planning strategies and economic development opportunities.
2	Improve viability of agriculture in the state of Rhode Island and southern New England through farmer education/information and consulting concerning sustainable agricultural practices, value-added products and agri-tourism.
3	Provide information and training to municipal leaders and organizations on management of natural resources and community assets.

Outcome #1

1. Outcome Measures

Provide information and training to farmers and rural landowners on estate planning strategies and economic development opportunities.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Rhode Island has some of the most valuable farmland in the country as well as some of the highest estate taxes. Farmers (or the children of farmers) who have not engaged in thoughtful estate planning often find themselves facing unmanageable taxation and the loss of their family farms. Unfortunately, these farms are often sold to the highest bidders: developers. By providing farmers with sensible, farm-centered estate planning services and information on alternative economic development opportunities, we will be able to help keep farmers farming.

What has been done

The state agricultural extension agent continues to refer appropriate farmers to SEMAP, an organization in Massachusetts that offers estate planning/land transfer services. She has sent half a dozen farmers to that organization to receive assistance in issues specifically related to land transfer. The RI state extension agent also continues to participate in a state planning regarding land preservation to discuss land transfer/estate planning. Estate planning is also an element addressed in the Exploring the Small Farm Dream course co-sponsored by URI Cooperative Extension. The state extension agent has also assisted and partnered with others to write grant proposals around economic development.

Results

As noted last year, solid results in this area can take 5-10 years to see, so we are still at the beginning. However, another group of beginning farmers at the annual Exploring the Small Farm Dream heard that land transfer needs to be considered at the beginning of an agricultural venture as a form of "exit strategy." Several (3) individuals were referred to estate planning specialists by the agricultural extension agent. Additional partnerships are being developed to improve estate planning and economic development in RI.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Improve viability of agriculture in the state of Rhode Island and southern New England through farmer education/information and consulting concerning sustainable agricultural practices, value-added products and agri-tourism.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	21000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Over the past couple years, Rhode Island farmers and agricultural service providers have become increasingly aware that agricultural viability is as dependent upon public support as it is upon their own skill and knowledge. Educating neighbors about what agriculture is--and is not--has become as important a job as educating farmers on production issues. This year, therefore, URI Sustainable Communities has continued last year's effort to take advantage of opportunities to train farmers' neighbors while remaining committed to providing agricultural production and business services.

What has been done

URI Cooperative Extension had some exciting opportunities for education. The state extension agent appeared several times on the Extension-hosted Plant Pro television segment to discuss RI agriculture and participated in Agriculture Day at the Roger William Park Zoo's Party for the Planet. She presented at state and regional agricultural meetings on topics from cover crops to meat production, coordinated the third Exploring the Small Farm Dream Course, and provided consultation services for farmers via telephone, email, and farm visits. The RI Ag Notes, the extension newsletter, is widely-read; and the Sustainable Agriculture website is increasingly

becoming a first stop for farmers in the state.

Results

URI Cooperative Extension received positive feedback from many who saw the Plant Pro segments. Due to the nature of television, it is difficult to quantify the total effect of the program, but the agricultural community feels that public awareness of agriculture's benefits to the state is critical. Evaluations distributed at each educational event verify that attendees are gaining new information and are considering how that information can benefit themselves and their farms. Attendance at URI-sponsored trainings continues to increase, suggesting that the information presented is valuable and timely. We expect to see greater adoption of recommended practices as time goes by.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

Provide information and training to municipal leaders and organizations on management of natural resources and community assets.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Rhode Island's agricultural land is one of the state's most important natural resource and community assets. It is also the most expensive agricultural land in the country, leaving it incredibly vulnerable to development. If we are to have healthy communities--physically,

emotionally, economically--we need to educate our municipal leaders on the necessity for maintaining natural resources and community assets such as our farms. The Rhode Island Agricultural Partnership (consisting of over 2 dozen participating organizations including the state agricultural extension agent), the state Division of Agriculture, the agricultural extension agent, and more have united to help create solutions.

What has been done

A stateside agricultural plan has been developed. The planning process engaged growers, agricultural service providers, retail outlets for farm goods, state planning organizations, universities and nonprofit organizations.

Results

The 5-year Strategic Plan for RI Agriculture was completed. The plan has widespread approval from the state planner and has been adopted.

4. Associated Knowledge Areas

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

We exist in turbulent times nationally, regionally, locally, and institutionally. Appropriations budgets are being cut dramatically on many fronts, resulting in fewer resources for increasing need areas. As finances and personnel change, it is likely our programs and outcomes will have to shift to accommodate them.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

- Workshops and training programs use pre and post assessment vehicles to evaluate change in stakeholder knowledge.
- Behavior change of stakeholders is assessed through longitudinal tracking of participant behaviors compared to behaviors identified prior to participation in programs.
- Google analytics tracking software is used to generate detailed information about website use. Information includes the number of views and downloads per webpage and the numbers and types of visitors

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Vector Borne Diseases and Human Health

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
721	Insects and Other Pests Affecting Humans	50%		50%	
722	Zoonotic Diseases and Parasites Affecting Humans	50%		50%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	0.0	2.0	0.0
Actual Paid Professional	0.5	0.0	1.9	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
52192	0	105656	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
84621	0	122562	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

A retrospective analysis of tick surveillance records collected by URI's CVBD was performed to examine the relationship between moisture status and annual trends in nymphal abundance. Results of

the completed analyses were used to 1) determine if temporal measurements of atmospheric moisture content were correlated with observed levels of tick activity and survival; 2) evaluate if readily available measures of atmospheric moisture can provide near-real time estimates of tick activity; and 3) assess if a multi-sensor approach could be used to relate remotely-sensed MODIS satellite data to moistures conditions affecting tick survival.

2. Brief description of the target audience

The target audience is all Rhode Islanders, especially those at greatest risk of contracting vector borne diseases. This audience includes: community members, grassroots agencies, municipal and state policy makers, home owners and educational institutions.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	500	1500	0	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	0	3	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year	Actual
2011	3

Output #2

Output Measure

- Books and monographs

Year	Actual
2011	0

Output #3

Output Measure

- Abstracts

Year	Actual
2011	3

Output #4

Output Measure

- Conference proceedings

Year	Actual
2011	0

Output #5

Output Measure

- Workshops

Year	Actual
2011	0

Output #6

Output Measure

- Website development and refinement

Year	Actual
2011	1

Output #7

Output Measure

- Public presentations

Year	Actual
2011	0

Output #8

Output Measure

- Public service announcements

Year	Actual
2011	1

Output #9

Output Measure

- Student training

Year	Actual
2011	0

Output #10

Output Measure

- M.S. theses and Ph.D. dissertations

Year	Actual
2011	2

Output #11

Output Measure

- Postdoctoral fellow training

Year	Actual
2011	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Identify areas of high risk for vector borne diseases in Rhode Island
2	Create tick surveillance database
3	Create web-based decision support system to reduce risk to vector borne diseases.
4	Reduce tick abundance community-wide
5	Increase research funding
6	Develop climate-based tick encounter risk prediction model

Outcome #1

1. Outcome Measures

Identify areas of high risk for vector borne diseases in Rhode Island

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Create tick surveillance database

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Create web-based decision support system to reduce risk to vector borne diseases.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Reduce tick abundance community-wide

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Increase research funding

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Develop climate-based tick encounter risk prediction model

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Identifying areas at high risk for tick borne diseases is essential to the populace of the state in reducing encounters with ticks and potentially contracting related diseases.

What has been done

The correlation between relative humidity and incidence of ticks was examined using data collected over a period of 12 years.

Results

Analysis of long-term state surveillance records collected by URI's Center for Vector-Borne Disease allowed for tick samples, sampled at each study site, (early season = round one; late season = round two), identified a significant and positive relationship (coefficient = 0.0344, SE F 0.015, P = 0.040) between the ratio of nymphs collected in round one vs. round two and tick adverse humidity events (TAHEs) (> 8 h) recorded in June (largely round one). This suggested that TAHEs are an indicator of tick mortality and could be used to predict exposure risk during the same year.

4. Associated Knowledge Areas

KA Code	Knowledge Area
721	Insects and Other Pests Affecting Humans
722	Zoonotic Diseases and Parasites Affecting Humans

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Human behavior)

Brief Explanation

Summer conditions, e.g., relative humidity, impact the tick population.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The project has been successful in developing an approach to reduce tick and human contact through monitoring environmental conditions. Information has been disseminated via a website and meetings with relevant agencies.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Aquaculture Biotechnology

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
302	Nutrient Utilization in Animals	30%		30%	
304	Animal Genome	0%		30%	
307	Animal Management Systems	30%		10%	
311	Animal Diseases	40%		30%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	0.8	0.0	2.0	0.0
Actual Paid Professional	0.6	0.0	2.9	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
39915	0	212494	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
10432	0	282687	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The focus of this program is to: 1) investigate causes of diseases of shellfish and the mechanisms of innate immunity, particularly matrix metalloproteinases in hemocytes and 2) research genetic factors controlling muscle growth in rainbow trout, a model species for aquaculture, 3) development of alternative protein sources to reduce the dependence on fish meal in diets for carnivorous species of fish and 4) investigation of new species for land-based aquaculture.

2. Brief description of the target audience

The target audience includes the aquaculture industry, producers and distributors, scientists and researchers, the RI Dept. of Environmental Management and Coastal Resource Management Council, policy makers, and parties interested in entering the field.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	100	150	0	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	0	2	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer Reviewed Publications

Year	Actual
2011	2

Output #2

Output Measure

- Abstracts

Year	Actual
2011	3

Output #3

Output Measure

- Scientific and Professional Presentations

Year	Actual
2011	4

Output #4

Output Measure

- Workshops

Year	Actual
2011	0

Output #5

Output Measure

- Student training

Year	Actual
2011	10

Output #6

Output Measure

- MS theses and PhD dissertations

Year	Actual
2011	3

Output #7

Output Measure

- Postdoctoral fellow training

Year	Actual
2011	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increased aquaculture production in Rhode Island (both of current species and new species. An increase in technology and understanding of basic mechanisms of immunity and muscle growth that will ultimately enhance production.

Outcome #1

1. Outcome Measures

Increased aquaculture production in Rhode Island (both of current species and new species. An increase in technology and understanding of basic mechanisms of immunity and muscle growth that will ultimately enhance production.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Aquaculture is of increasing importance in RI particularly with the decline of many traditional capture fisheries. Development of techniques and approaches for enhancing aquaculture in the state and region are of vital economic importance.

What has been done

Investigation of factors involved in muscle growth of a model commercial species, rainbow trout, has been conducted using transgenic animals. Research on the potential of land-based aquaculture of two new species of finfish was investigated. In the area of immunity, a genomic approach has been launched to assess specific genes that might be involved in the immune response of oysters.

Results

Studies with rainbow trout have revealed that members of the transforming growth factor beta superfamily are involved in muscle development and growth and might be manipulated to enhance muscle mass. Efforts to examine the potential of land-based culture of mahi (Coryphaena hippurus) and scombrids have been initiated. Mahi broodstock have been collected and maintained in a land-based system for six months and have initiated spawning. In the area of immunity, an oyster transcriptome is being developed to screen for genes related to the immune response.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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302	Nutrient Utilization in Animals
304	Animal Genome
307	Animal Management Systems
311	Animal Diseases

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations

Brief Explanation

Funding to continue and expand projects is the greatest limitation. The lack of full approval of transgenic food fish has limited the ability to attract private funds in this area.

Ocean conditions have impacted the ability to collect larger numbers of marine finfish broodstock.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The results of this research have been presented at regional, national and international meetings and published in peer reviewed journals. Additionally, the research topics have provided the basis for undergraduate, MS and PhD projects providing students with a unique opportunity to learn state of the art techniques, conduct independent experiments, prepare reports and communicate with the scientific and lay communities.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Climate Change

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	16%		22%	
112	Watershed Protection and Management	25%		22%	
131	Alternative Uses of Land	25%		22%	
133	Pollution Prevention and Mitigation	34%		34%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	7.0	0.0
Actual Paid Professional	3.3	0.0	2.9	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
219303	0	129043	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
106378	0	236625	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research investigations focused on watershed patterns and processes that affect the fate of nitrogen and environmental flows. Research methods include lab and field studies as well as geospatial analyses.

Extension programs created locally relevant programs focused on land and community management. In cooperation with stakeholders and partner agencies, we will identify needs and build upon successful local programs to create and disseminate new materials, tools and curricula in RI and New England. Our water quality programs will continue development, delivery, training and application of proven water quality management tools and techniques such as:

- Development of curricula and training on best management practices (BMPs) for conventional and alternative and innovative onsite waste water treatment;
- Public outreach and training on stormwater management;
- Development of curricula and training regarding private wells;
- Volunteer Water Quality Monitoring.

2. Brief description of the target audience

Public decision makers / Policy makers / NRCS / local, state and federal agencies

Municipal planners

Private sector firms engaged in watershed management, landscaping, onsite waste water treatment and private wells

A variety of NGOs (land trusts, environmental organizations, etc).

Agricultural producers

The general public

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	6150	9281	606	2555

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	1	2	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer Reviewed Publications

Year	Actual
2011	0

Output #2

Output Measure

- Fact sheets, bulletins and newsletters

Year	Actual
2011	6

Output #3

Output Measure

- Website development and refinement

Year	Actual
2011	4

Output #4

Output Measure

- Training manuals and Instructional CD's developed

Year	Actual
2011	0

Output #5

Output Measure

- Public service announcements, news releases/articles

Year	Actual
2011	0

Output #6

Output Measure

- Books and monographs

Year	Actual
2011	0

Output #7

Output Measure

- Abstracts

Year	Actual
2011	20

Output #8

Output Measure

- Workshops and Conferences hosted or Co-hosted

Year	Actual
2011	49

Output #9

Output Measure

- Presentations and Short Courses

Year	Actual
2011	61

Output #10

Output Measure

- Student training

Year	Actual
2011	67

Output #11

Output Measure

- MS theses and PhD dissertations

Year	Actual
2011	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increased (%) of in the proportion of professionals and the public knowledgeable about maintenance, improvement and challenges of climate variability and climate change related to onsite wastewater treatment.
2	Increased understanding by scientists and decision makers through publications and presentations of the management and risks of watershed nitrogen delivery.
3	Increased (%) development of locally based water resource data for use by communities and the public that can assist in risk assessment and management related to watershed changes, climate variability and climate change.
4	Increase in the proportion of the public and professionals knowledgeable about options for addressing risks related to watershed changes, climate variability and climate change related to storm water management.
5	Increase in targeted households and professionals gaining knowledge of private well management options related to land use, climate variability and climate change, including testing, treatment, siting and protection measures.
6	Increase in targeted households and professionals gaining knowledge of testing, treatment and protection of private well water and management options related to land use, climate variability and climate change. Increase in targeted households and professionals gaining research-based knowledge of testing, treatment and protection of private well water.
7	Modeling for TMDL Development and Watershed Based Planning, Management and Assessment. The export of nitrogen (N) from coastal watersheds can exert profound effects on the function and value of coastal estuaries.
8	Increase in the proportion of the public and professionals knowledgeable about management of storm water and options for addressing risks related to watershed changes, climate variability and climate change related to storm water management.
9	Development of a rapid-response to public concerns about local harmful algae blooms (HAB's). Increased development of locally based water resource data for use by communities and the public that can assist in risk assessment and management related to watershed changes, climate variability and climate change.

Outcome #1

1. Outcome Measures

Increased (%) of in the proportion of professionals and the public knowledgeable about maintenance, improvement and challenges of climate variability and climate change related to onsite wastewater treatment.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Onsite wastewater treatment systems serve approximately 30 percent of the Rhode Island population. Old, failed, or improperly functioning onsite wastewater treatment systems cause nitrogen and bacterial contamination which pose a direct public and environmental health risk. Educating practitioners, regulators, decision makers and system owners about advanced treatment technologies for onsite wastewater as well as management approaches is needed to raise the awareness level and enable a shift to modern state-of-the-science approaches.

What has been done

Thirty-nine training classes for onsite wastewater professionals, regulators, decision makers and system owners were conducted in the NESCI region to raise awareness, improve knowledge and expand skills. Assisted Town of Old Saybrook, CT in developing their alternative wastewater treatment technologies program. Served on and provided technical assistance to RIDEM OWTS Technical Review Committee (reviews technical merit of new technologies seeking approval in state). Developed and delivered conventional OWTS design training class for practitioners and colleagues at Univ. of Virgin Islands, Univ. of Puerto Rico and VI DPNR; this was second class of a 5-year onsite wastewater training plan for wastewater professionals and regulatory assistance for the US Caribbean Islands.

Results

Innovative technologies are being approved and installed at an increased rate throughout most of New England, including 1,240 approvals in RI alone. Over 1,500 onsite wastewater practitioners

were reached and trained in new technologies and better quality installations. Bottomless sand filters have been approved for use in Massachusetts, utilizing the guidelines developed in 2001 for RIDEM by NEOWTC at URI staff. This is the first time that a state has adopted regulatory policy developed in another state. NEOWTC continues to provide technical assistance and training to town of Old Saybrook, CT which helped lead to their recent development of the first ever decentralized wastewater management district project in the state of Connecticut. In March, 2011 we successfully conducted the second year's training class and train-the-trainer event as part of a 5-year US Virgin Islands onsite wastewater training plan.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
112	Watershed Protection and Management
131	Alternative Uses of Land
133	Pollution Prevention and Mitigation

Outcome #2

1. Outcome Measures

Increased understanding by scientists and decision makers through publications and presentations of the management and risks of watershed nitrogen delivery.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Increased (%) development of locally based water resource data for use by communities and the public that can assist in risk assessment and management related to watershed changes, climate variability and climate change.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

URI Watershed Watch. Seasonal droughts, rising nutrient levels, nuisance algae blooms and the spread of invasive aquatic plants have increased awareness that water quantity and quality is a concern for the public and local, state and national decision makers. Agency resources, both staff and financial, to monitor water resources in New England have always been insufficient, while the need increases yearly. Monitoring is long-term, with best decisions based on at least 10 years of data. Detecting trends and threats to local waters is increasingly becoming the responsibility of local communities and watershed organizations.

What has been done

Held 6 classroom and field training sessions for Water Quality (WQ) volunteers. Approximately 400 scientist-led volunteer monitors performed weekly or biweekly ecological monitoring on 270 locations in RI, CT and MA, for 40 local to statewide organizations measuring water clarity, temperature, oxygen content, pH and alkalinity. They process samples for chlorophyll analysis. Sites are 1/3 lakes or ponds, 1/3 rivers and streams, 1/3 estuaries, bays, salt ponds. They also collect samples for lab analyses of nutrients and bacteria. 2 workshops were held to educate residents about aquatic invasive species. Hosted annual NE Lakes Conference to educate and train lake and watershed organization members about lake and watershed ecology. Invited speaker at Natural History and Citizen Science conferences. Provided 24 years of data to WI and FL climatologists researching long-term WQ changes.

Results

Because of Extension-led volunteer monitoring an unparalleled record of water clarity, temperature, oxygen content, nutrients and bacteria levels now exists in all NE states. Nearly 20,000 data points aggregated into site specific monitoring results were posted on the URIWW website and distributed to sponsoring organizations as well as RI DEM & US EPA in this fiscal year alone. Regulatory agencies have used the data to create regulations to protect excellent water quality as well as to document poor water quality, and to help best direct their resources. Extension has used monitoring results to target programs to specific geographic areas. Local groups have used the data to take action to enact local ordinances to promote farm and home owner awareness and action to deal with runoff and erosion. They have formed programs to inspect incoming boats and have prevented infestations from invasive aquatic plants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
131	Alternative Uses of Land
133	Pollution Prevention and Mitigation

Outcome #4

1. Outcome Measures

Increase in the proportion of the public and professionals knowledgeable about options for addressing risks related to watershed changes, climate variability and climate change related to storm water management.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Increase in targeted households and professionals gaining knowledge of private well management options related to land use, climate variability and climate change, including testing, treatment, siting and protection measures.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Increase in targeted households and professionals gaining knowledge of testing, treatment and protection of private well water and management options related to land use, climate variability and climate change. Increase in targeted households and professionals gaining research-based knowledge of testing, treatment and protection of private well water.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

URI Home-A-Syst. Ten percent of Rhode Islanders depend on private wells for drinking water. In New England private wells serve 40 percent of the population. These residents are responsible for the quality of their own drinking water and need to be aware of contaminant risks to their drinking water sources and how to protect against such risks. Changing property laws and

regulations in the region have increased demand for well water testing and educational materials. Education about protecting private sources of drinking water is critical to the health and safety of families relying on private wells. Audiences include private well owners, scientists and researchers, educators, federal, state, and local policymakers and non-profit organizations.

What has been done

With RI Dept. of Health and state certified testing labs, developed promotional well testing discount postcard that was mailed to more than 60,000 RI households. Will continue to work with state certified labs to revise and offer promotional testing package.

Held 7 private well water workshops for 175 people in communities throughout Rhode Island.

Conducted training for URI's Master Gardener hotline volunteers.

Annually the webpage receives over 4,500 visits, with the factsheet pages being the most frequented.

Planning was done for the regional 2011 Northeast Private Well Water Symposium in Southbury CT, November 14 & 15, 2011 for professionals involved in private well water protection.

Results

Post-workshop evaluations show that participants of private well workshops are taking action to protect their wells. Most notably, 51% of workshop participants had their well water tested. Paper was accepted for publication in the Journal of Extension summarizing outcomes of private well education and training program 2004 - 2009. Evaluation of the promotional well testing discount was conducted and summarized for poster presentation. Eighty households took advantage of promotional discount.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

Outcome #7

1. Outcome Measures

Modeling for TMDL Development and Watershed Based Planning, Management and Assessment. The export of nitrogen (N) from coastal watersheds can exert profound effects on the function and value of coastal estuaries.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The export of nitrogen (N) from coastal watersheds can exert profound effects on the function and value of coastal estuaries. The goal of our research is to characterize the extent of in-stream nitrate removal in low gradient streams and identify stream attributes that relate to elevated nitrate removal rates. As we gain more insight into in-stream nitrate removal, we will be able to contribute to the scientific dialog that seeks to target site-specific nitrate control strategies to locales with high potential for export to coastal waters."

What has been done

Based on feedback from potential users, our 'N-Sink' GIS-based decision support tool was modified and a guidance document was drafted. N-Sink provides maps and estimates risk of N movement from sources to the watershed outlet based on sinks. We collected continuous presence/absence of water data at 18 intermittent streams and collected discharge and in situ N removal capacity data. We assessed the role of woody debris on N cycling in streams with wood blocks incubated in streams in RI and PA and then subjected to experimental mesocosm conditions. We compiled stream and meteorological data at USGS-gauged stations for input into models of S-1042 participants. We collected field data to relate mappable watershed attributes to sustainable flows in rivers.

With the new equipment added to the GC, this single instrument can now quantify rapidly and efficiently several gases of critical environmental significance ? nitrous oxide (N₂O), carbon dioxide (CO₂), methane (CH₄) and hydrogen sulfide (H₂S). The first three gases can be analyzed on one single sample, greatly minimizing sampling and analysis time and supply costs.

Results

The N-Sink tool will be usable by coastal land use managers in effectively managing land for watershed nitrogen. We provide evidence that intermittent headwater streams serve as hotspots for N removal in watersheds. Our woody debris mesocosm experiments indicate the importance of forest in riparian zones for woody debris carbon contribution to N removal from streams. Outcomes of this research will contribute to better watershed management by improving the knowledge base for the selection of locales for individual and public investment of pollution control and restoration, thereby advancing stream/riparian restoration and management practices. In this glaciated area, results for field research and model iterations argue for focusing on protecting and restoring riparian areas that have been demonstrated to be a significant sink for groundwater N. Acquisition of these upgrades to the GC advances CELS work in climate change, sustainable bioenergy, and aquaculture research. It advances NIFA's mission of gaining knowledge for agriculture and the environment; in particular, the analyses we perform will contribute to NIFA's National Priorities of climate change and sustainable energy. CELS faculty's current and future work will be enhanced by the additional gas measurement capability. In addition, our ability to acquire additional external grant funds in the following categories will be improved.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

Outcome #8

1. Outcome Measures

Increase in the proportion of the public and professionals knowledgeable about management of storm water and options for addressing risks related to watershed changes, climate variability and climate change related to storm water management.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

URI Northeast Municipal Officials (NEMO). Stormwater pollution is a major cause of impaired water quality in Rhode Island, leading to swimming beach closures, shellfishing bans, loss of recreational value, and degraded habitat. Most Rhode Island municipalities operate small Municipal Separate Storm Sewer Systems (MS4s), and are required to comply with the EPA Phase II Storm Water Rule under the RIPDES permit program. These MS4s must enact storm water management programs to reduce pollutants that can enter drainage systems during storm events. This represents a significant burden for most municipalities already struggling with few staff, shrinking budgets, and in most cases, limited expertise in education and outreach.

What has been done

RI NEMO provided education and outreach to municipal officials, watershed groups, the public and K-12 teachers on managing storm water. We organized 8 new workshops for municipal officials; developed a new course in rain garden design which included construction of 3 demonstration rain gardens. We created a new display used at farmers' markets around the state, and wrote and/or contributed materials to news outlets resulting in 23 articles on storm water topics appearing in state and local newspapers. We continued to update the state storm water website, RIStormwaterSolutions.org.

"

Results

Storm water workshops for municipal officials reached more than 1,870 storm water managers, design engineers and others. At least 98 percent of RI storm water managers, representing 34 of RI's 39 municipalities and 6 institutions (MS4s) regulated under the Phase II permit program, have been trained in the 2010 RI Storm Water Manual and related topics. Municipalities used URI materials to educate residents and others about actions they can take to prevent storm water pollution, enabling them to develop effective storm water management programs and meet permit requirements.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation

Outcome #9

1. Outcome Measures

Development of a rapid-response to public concerns about local harmful algae blooms (HAB's). Increased development of locally based water resource data for use by communities and the public that can assist in risk assessment and management related to watershed changes, climate variability and climate change.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

We sought the purchase of field and laboratory equipment to build capacity for students, researchers and trained volunteers to monitor inland fresh and brackish water bodies and streams for harmful algae blooms (HAB), dissolved oxygen and temperature, and bacteria indicators. There is growing evidence that HAB's are increasing in extent, frequency and duration. Besides the potential for human health concerns, HAB's cause ecosystem disruption due to low or no oxygen resulting in fish kills and other organism deaths.

What has been done

We purchased several field multi-parameter meters that significantly expanded our capacity to monitor HAB's in the field to simultaneously monitor chlorophyll and cyanobacteria, as well as multiparameter probes for dissolved oxygen and temperature. We purchased a lab instrument to compare field chlorophyll results with. Other lab equipment purchases increased our capacity and sophistication in analyzing water samples, particularly for bacteria, which is a growing human health concern.

Results

A undergrad Coastal Fellow used the new algae sonde to monitor a local pond as well as compare field and lab results from new and older equipment, presenting her results at a poster presentation. We developed a field procedure that trained volunteers can utilize in their local waters. Multi-parameter sondes were used by local groups to obtain more data to improve their decision-making. Increased lab throughput led to increased transmittal of data and information to the public and agency-decision-makers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation

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
- Competing Programmatic Challenges

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Climate change

- Workshops and training programs use pre and post assessment vehicles to evaluate change in stakeholder knowledge.
- Behavior change of stakeholders is assessed through longitudinal tracking of participant behaviors compared to behaviors identified prior to participation in programs.

- Extension and research outputs are subject to peer evaluations before publication.
- Citations of published works are quantified through services such as the ISA Web of Science and Google Scholar.
- Google analytics tracking software is used to generate detailed information about website use. Information includes the number of views and downloads per webpage and the numbers and types of visitors (.gov, .edu, .org, .com) to each portion of the websites.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

The Environment and Adaptive Agro-Ecosystems

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	18%		18%	
123	Management and Sustainability of Forest Resources	18%		28%	
131	Alternative Uses of Land	28%		18%	
135	Aquatic and Terrestrial Wildlife	18%		28%	
136	Conservation of Biological Diversity	18%		8%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	0.5	0.0	1.0	0.0
Actual Paid Professional	2.2	0.0	5.2	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
132604	0	317864	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
77204	0	327314	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Sustaining wildlife through habitat management is a critical issue for RI. Migrating song birds require suitable food sources to complete their migration and coastal lands have undergone extreme changes in vegetation, potentially imperiling migration success and fecundity for many native species. Ruffed Grouse are a of particular concern in southern New England because they are a native gamebird species that is currently too rare to sustain a hunting season and they serve as a "sentinel species" for the response of many species to the success or failure of management of early successional forests. Although vernal ponds in forested watersheds provide essential habitat for a host of organisms, the fecundity of these organisms is highly linked to forest disturbance and management, requiring a careful understanding of the underlying ecology. Invasive plants threaten the integrity of New England habitats and could affect biodiversity within the state.

2. Brief description of the target audience

A mixture of public policy personnel (federal and state agencies as well as town conservation, planning and management officials), local nonprofit groups involved in land management, such as conservancies, interested and involved citizens, and private landowners and high school students through training and participation in the Rhode Island Environthon.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	11590	14075	0	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	0	3	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year	Actual
2011	3

Output #2

Output Measure

- Fact sheets, Bulletins and newsletters

Year	Actual
2011	3

Output #3

Output Measure

- Short courses

Year	Actual
2011	3

Output #4

Output Measure

- Website development and refinement

Year	Actual
2011	4

Output #5

Output Measure

- Books and monographs

Year	Actual
2011	0

Output #6

Output Measure

- Abstracts

Year	Actual
2011	9

Output #7

Output Measure

- Workshops and Conferences hosted

Year	Actual
2011	6

Output #8

Output Measure

- Public presentations

Year	Actual
2011	17

Output #9

Output Measure

- Student training

Year	Actual
2011	23

Output #10

Output Measure

- MS Theses and PhD Dissertations

Year	Actual
2011	9

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Increased (%) forest and conservation geospatial information resources and use by towns, agencies, NGOs and the public
2	Increased understanding by wildlife biologists and managers through publications and talks of how habitat quality and forest management practices affect populations of grouse, migrating song birds, amphibians and other wildlife.
3	Increased understanding by wildlife biologists and other habitat managers through publications and talks on the risks of invasive species, with special emphasis on phragmites.
4	Increased understanding by wildlife biologists, NGOs, local and state officials through publications and talks on people's willingness to support ecosystems and conservation.
5	Increased development of new sub-aqueous soils interpretive approaches and dissemination of these approaches to other scientists and natural resource managers through publications, workshops or talks.
6	This equipment allows for the training of graduate and undergraduate students in industry-standard procedures for freeze-drying of biological samples. The equipment is essential for the processing (i.e., freeze-drying) of a variety of types of biological materials prior to many biochemical analyses that are required to address certain research questions.
7	Increased understanding by wildlife biologists and managers through publications and talks of how habitat quality and management practices affect populations of migrating song birds.
8	Our proposed research would increase understanding of three critical issues: inadequate GIS-based information about the spatial extent of early successional habitat, inadequate use of the Adaptive Management Paradigm to evaluate past and present efforts to expand early successional habitat, and inadequate understanding of how certain forest management activities affect populations of key wildlife species. Our proposed research will directly strengthen outreach programs to promote better targeted and more effective forest management interventions in southern New England.
9	Increased development of new subaqueous soils interpretive approaches and dissemination of these approaches to other scientists and natural resource managers through publications, workshops or talks.
10	Increased (%) forest and conservation geospatial information resources, and increased usage of these resources by government organizations, NGOs and the public.
11	Increased awareness of the effects of human-induced land-cover change and provided insights into the extent and rate of land-cover changes in Rhode Island and the impacts of human activity on characteristics of forest landscape over the last four decades through generated data and maps.
12	Increased US state and federal regulators understanding of avian-wind turbine interactions. This information is also useful to conservation NGOs interested in protecting avian resources in the region.
13	Increased understanding and acceptance by the nursery industry, the general public, professional groups, and research scientists through patents, publications and talks of the occurrence and value of adelgid-resistant eastern hemlocks.

Outcome #1

1. Outcome Measures

Increased (%) forest and conservation geospatial information resources and use by towns, agencies, NGOs and the public

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Increased understanding by wildlife biologists and managers through publications and talks of how habitat quality and forest management practices affect populations of grouse, migrating song birds, amphibians and other wildlife.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Increased understanding by wildlife biologists and other habitat managers through publications and talks on the risks of invasive species, with special emphasis on phragmites.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Increased understanding by wildlife biologists, NGOs, local and state officials through publications and talks on people's willingness to support ecosystems and conservation.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Hayfields and Grassland Birds: Extending Farm Marketing for a New Ecosystem Service Economy. Economic analysis of willing to pay agreements for land conservation or ecosystem services is a key factor for generating management schemes and will enable the public and private sector to assess the potential for green markets.

What has been done

Economics laboratory experiments tested market incentives, matching group size to the number of fields funded (1 or 2 fields) and funding success rate. We tested marketing materials for grassland nesting bird program through direct mail, introducing matching funds as an incentive. We presented results at two national conferences, a state conference (CT), and a state workshop (CT).

Results

Experiments identified the role of funding two fields through a single group or dividing contributors into two groups; this balance affects the success to finance the public good. Direct mail marketing received a greater response with incentives to respond and obtain matching funds.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
135	Aquatic and Terrestrial Wildlife

Outcome #5

1. Outcome Measures

Increased development of new sub-aqueous soils interpretive approaches and dissemination of these approaches to other scientists and natural resource managers through publications, workshops or talks.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

This equipment allows for the training of graduate and undergraduate students in industry-standard procedures for freeze-drying of biological samples. The equipment is essential for the processing (i.e., freeze-drying) of a variety of types of biological materials prior to many biochemical analyses that are required to address certain research questions.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The freeze-dryer equipment is being used for research, teaching, and extension activities related to:

(a) integrative pest management and control of invasive species that address essential components of sustainable agricultural systems that both enhances global food security and ensures an adaptive agro-ecosystem management approach that can respond to major perturbations such as climate change, and

(b) biochemistry and ecology of key components of agro-ecosystems (e.g., earthworms, invasive insect and plant species, birds) that directly address drivers of climate change including how animals influence flux of greenhouse gases, and the effects of elevated greenhouse gases and global warming on quality of prey and hence prey-predator interactions.

What has been done

We purchased a Virtis AdVantage Plus Freeze Dryer Model ES.

Results

We trained key graduate and undergraduate students in the use of this equipment. The equipment was used to freeze-dry biological materials for seven different research projects.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity

Outcome #7

1. Outcome Measures

Increased understanding by wildlife biologists and managers through publications and talks of how habitat quality and management practices affect populations of migrating song birds.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Managing coastal environments for migrating songbirds. Migrating song birds require suitable food sources to complete their migration and coastal lands have undergone extreme changes in vegetation, potentially imperiling migration success and fecundity for many native species.

What has been done

Graduate and undergraduate students and research technicians conducted field experiments that determined (a) how variation in refueling rates of migratory birds at different coastal New England sites is related to fruit resource abundance, (b) the fruit preference of birds during migration, and (c) how body condition of migratory birds affected their movements at stopover sites that differed in the abundance of fruits.

Results

All proposed field experiments were completed. One MSc student successfully defended her thesis in August 2010, whereas one MSc and one PhD student will complete their degrees by December, 2012. McWilliams and colleagues presented results from this research at two scientific conferences and published nine peer-reviewed publications based on this research.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

- 135 Aquatic and Terrestrial Wildlife
- 136 Conservation of Biological Diversity

Outcome #8

1. Outcome Measures

Our proposed research would increase understanding of three critical issues: inadequate GIS-based information about the spatial extent of early successional habitat, inadequate use of the Adaptive Management Paradigm to evaluate past and present efforts to expand early successional habitat, and inadequate understanding of how certain forest management activities affect populations of key wildlife species. Our proposed research will directly strengthen outreach programs to promote better targeted and more effective forest management interventions in southern New England.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Conservation of early successional forests within the eastern United States is an important management concern because these forests and their associated wildlife species are relatively rare and require active management.

What has been done

The research on the spatial extent of early successional habitat in RI concluded that the extent of shrubland habitat in RI is still decreasing, and that the populations of many wildlife species depending on this habitat are at risk. The research on private involvement in forest management concluded that the RI Coverts program has been effective in motivating private landowners to play an important role in creating wildlife habitat. The research on American Woodcock provided new insights on the impact of forest management on this important and charismatic early successional species.

Results

This research involved the continued training of one Ph.D. student (Roger Masse), two MESM

students (Jenna Turner and Danielle Birmingham) and two undergraduate students (Amanda Padula, Wes Shean) in field biology skills, laboratory analysis skills and computer-intensive analysis of data. The GIS analyses are completed. A third successful field season was completed on the woodcock project. During the last year of the project, we will be focusing on evaluating past and present management efforts to expand early successional habitats for wildlife species at risk.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity

Outcome #9

1. Outcome Measures

Increased development of new subaqueous soils interpretive approaches and dissemination of these approaches to other scientists and natural resource managers through publications, workshops or talks.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Hydropedology: Genesis, Properties, and Distribution of Hydromorphic Soils. Developing subaqueous soil use and management interpretations is critical to providing coastal managers with tools to make decisions. Of particular interest are water quality, aquaculture and restoration of commercially important shellfish populations, effects of dredging, the role of subaqueous soils in the regional and global carbon cycle, and submerged aquatic vegetation health and restoration.

What has been done

In this project, we are testing various subaqueous soil types to determine the most productive areas for shellfish aquaculture, evaluating which aquaculture methods may be the best approach depending on the soil type, and determining where we can dredge the estuarine subaqueous soils for navigation purposes and not significantly change the biological community. Through our associated outreach efforts, we are coordinating with coastal managers, regulators, and aquaculture specialists to insure that the results from our studies are delivered directly to the stakeholders.

Results

Significant differences were found in growth and survival of oysters relative to the soil type. Similar studies will be completed in the 2nd year of the study. Differences in growth between on-bottom and bag-and rack aquaculture approaches are still being assessed. Sedimentation rates were significantly different among sites. Based on the literature, sedimentation rates were sufficient to support oyster growth but not too high so as to cover the bivalves and inhibit growth. Effects of dredging on soil ecology are still being assessed. One of the three days of the NEGSP field tour was focused on our subaqueous soils research.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
135	Aquatic and Terrestrial Wildlife

Outcome #10

1. Outcome Measures

Increased (%) forest and conservation geospatial information resources, and increased usage of these resources by government organizations, NGOs and the public.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Geospatial research and technology play an important role in providing decision support for land use decision-making. New GIS, GPS and remote sensing tools are continually being made available to assist local decision makers visualize existing and future land use patterns, and model the various impacts of these patterns. Policy makers and professionals need information on which to base their land use decisions, including options for land preservation, identification of sensitive areas, and the management and protection of open space areas.

What has been done

New training programs developed in collaboration with a regional, multi-state partnership. 228,459 data files (823 GB) downloaded from RREA-supported geospatial data clearinghouses. Represented RI in the Northeast LiDAR Project to acquire elevation data for coastal New England counties. Developed with land trusts a standard protocol for baseline habitat inventory and establishment of land management plans. Over 80 online map services now available. GPS equipment loans supported forest health, invasive species conservation work.

Results

URI RREA personnel served in a variety of leadership and supporting roles for initiatives that have far-reaching impacts on the state and region. The URI RREA Program is the sole provider of instructor-led geospatial technology training opportunities in Rhode Island and provides a unique opportunity for trainees to learn about the management of forest resources while learning new technical skills. Working with local partners (e.g., The Nature Conservancy, Rhode Island Natural History Survey) and regional collaborators (e.g., University of Connecticut) has greatly helped the URI RREA Program to simultaneously grow its effectiveness and reach.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity

Outcome #11

1. Outcome Measures

Increased awareness of the effects of human-induced land-cover change and provided insights into the extent and rate of land-cover changes in Rhode Island and the impacts of human activity on characteristics of forest landscape over the last four decades through generated data and maps.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The incursion of residential and commercial development into terrestrial habitats has resulted in measurable changes to the composition and configuration of landscape patterns. There is a need to document and reveal the facts of land-use and land-cover change and related societal and environmental impacts which are critical to improve our understanding of human interaction with the environment and provide a scientific foundation for the evaluation of sustainability, vulnerability and resilience of land systems and their use.

What has been done

We developed land cover data and maps of the state in 1972, 1985, 1999 and 2010 by extracted information from classification of Landsat imageries. The land cover categories were defined according to the USGS land use and land cover classification system with modifications to meet the project needs. We conducted change analysis between each time period and documented the changes of land cover types.

Results

We concluded that deciduous forest and urban land are the most common land cover categories of the state as of 2010 that cover 67,865 and 62,952 hectares, respectively. Mixed forest was the class with the most significant change between 1972 and 2010 showing a 161% increase. Urban land cover increased 73% in the past 4 decades. Deciduous forest declined in total area. Overall forested lands declined 18% from 162,519 hectares in 1972 to 132,702 hectares in 2010.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity

Outcome #12

1. Outcome Measures

Increased US state and federal regulators understanding of avian-wind turbine interactions. This information is also useful to conservation NGOs interested in protecting avian resources in the region.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Rhode Island is attempting to be the first state in the US with offshore wind, with 15% of the state's energy coming from renewable sources by 2020. Federal agencies require an impact assessment of this energy development on natural resources, including avian populations. In fact, potential bird-wind turbine issues are one of the major factors slowing development of the Cape Wind project in MA. This study summarizes existing information on avian movement ecology in offshore areas that will be of interest to regulators and decision makers

What has been done

Completed literature review of North American and European studies. Integrated this information into documents circulated to regulatory agencies at State (RI CRMC) and federal (DOE, BOEM). Created a website to make this information readily available to interested parties.

Results

Completed the literature review. In addition, two MESM students completed their projects summarizing this information and making it available on a public-access website, which regulators and decision makers can view.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

Outcome #13

1. Outcome Measures

Increased understanding and acceptance by the nursery industry, the general public, professional groups, and research scientists through patents, publications and talks of the occurrence and value of adelgid-resistant eastern hemlocks.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The hemlock woolly adelgid is an invasive pest that kills eastern hemlocks. Some rare naturally-occurring eastern hemlock trees may possess some degree of resistance to the adelgid. If this possibility is borne out, these trees could play an important role in combating the threat posed by this pest.

What has been done

We have carried out a series of experiments intended to test the potential for adelgid resistance in propagated and grafted cuttings from these trees. We have also spoken at symposiums about the potential for adelgid resistance and the need to consider this possibility as part of a comprehensive management plan.

Results

We have shown that adelgid resistance does persist in propagated cuttings from putatively-resistant parent trees, and moved towards developing grafting techniques suitable for large-scale production of the most promising plants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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123	Management and Sustainability of Forest Resources
136	Conservation of Biological Diversity

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
- Competing Programmatic Challenges

Brief Explanation

We exist in turbulent times nationally, regionally, locally, and institutionally. Appropriations budgets are being cut dramatically on many fronts, resulting in fewer resources for increasing need areas. As finances and personnel change, it is likely our programs and outcomes will have to shift to accommodate them.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

- Workshops and training programs use pre and post assessment vehicles to evaluate change in stakeholder knowledge.
- Google analytics tracking software is used to generate detailed information about website use. Information includes the number of views and downloads per webpage and the numbers and types of visitors (.gov, .edu, .org, .com) to each portion of the websites.
- Extension and research outputs are subject to peer evaluations before publication.
- Citations of published works are quantified through services such as the ISA Web of Science and Google Scholar.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Community Gardening and Outreach

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
112	Watershed Protection and Management	35%		35%	
205	Plant Management Systems	35%		35%	
806	Youth Development	30%		30%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual Paid Professional	2.1	0.0	0.0	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
121185	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
80234	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Outreach efforts to community decision makers, agricultural, residential and engineering/regulatory community was conducted.
- Outreach efforts to school children and to the urban population center in the state were conducted.
- Demonstration sites were established for use in such research and Extension programs.
- Development and dissemination of publications, fact sheets, and web sites.

2. Brief description of the target audience

The target audience included: community and Public decision makers (local, state and federal agencies), as well as residential and engineering/regulatory community members, municipal planners and various NGOs (land trusts, environmental organizations). Additionally, we targeted the general public and agricultural producers, as well as school aged children, urban populations, and private sector firms engaged in watershed management, landscaping, onsite wastewater treatment and private wells.

3. How was eXtension used?

eXtension is used to access information related to the KAs.

Staff and volunteers answer requests for information referred to them by eXtension.

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	120900	250000	4746	100000

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	2	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year	Actual
2011	0

Output #2

Output Measure

- Fact sheets, bulletins and newsletters

Year	Actual
2011	10

Output #3

Output Measure

- Public service announcements, news releases/articles

Year	Actual
2011	22

Output #4

Output Measure

- Website development and refinement

Year	Actual
2011	3

Output #5

Output Measure

- Books and monographs

Year	Actual
2011	0

Output #6

Output Measure

- Abstracts

Year	Actual
2011	0

Output #7

Output Measure

- Workshops or Conferences hosted or co-hosted

Year	Actual
2011	25

Output #8

Output Measure

- Presentations and short courses

Year	Actual
2011	89

Output #9

Output Measure

- Student training

Year	Actual
2011	12

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase in target audiences (households) gaining research-based knowledge of landscape management practices that minimize contamination of surface and groundwater with pesticides and fertilizers.
2	The successful Master Gardener Volunteer Program will be maintained and enhanced to expand the impact of URI Extension and free up Extension staff time by recruiting, training, supporting, managing, recognizing and retaining volunteers.
3	Master Gardener volunteers work with URI staff and students to establish and maintain demonstration gardens that serve as teaching centers for Rhode Islanders interested in growing their own food. Produce from the demonstration gardens is donated to local food banks.
4	Through participating in the Learning Landscape and other hands on youth environmental education programs, students in grades K-5 will demonstrate increased knowledge and skills about the environment, horticulture and science. Teachers' trainings offer supplemental environmental science tools for formal and informal educators.
5	URI will continue to enhance the Master Composter training program to extend the educational reach of the University by recruiting, training and managing volunteers to education and encourage Rhode Island citizens to compost. In addition to the core training, compost workshops will be added throughout the year for the general public.

Outcome #1

1. Outcome Measures

Increase in target audiences (households) gaining research-based knowledge of landscape management practices that minimize contamination of surface and groundwater with pesticides and fertilizers.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

The successful Master Gardener Volunteer Program will be maintained and enhanced to expand the impact of URI Extension and free up Extension staff time by recruiting, training, supporting, managing, recognizing and retaining volunteers.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

URI is better able to extend science-based information to address community environmental, economic, social and aesthetic challenges.

What has been done

The Master Gardener training program was conducted from January - May, 2011. The University and the volunteer association developed and implemented an advanced training program, strengthened volunteer recognition activities and community outreach efforts.

Results

The active Master Gardener base (currently 350 volunteers) is stable and grows by 5% annually. Active Master Gardeners volunteer at least 38,000 hours annually conducting education for URI.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
205	Plant Management Systems

Outcome #3

1. Outcome Measures

Master Gardener volunteers work with URI staff and students to establish and maintain demonstration gardens that serve as teaching centers for Rhode Islanders interested in growing their own food. Produce from the demonstration gardens is donated to local food banks.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Food security and lack of access to healthy food continues to be a problem for many individuals and families in Rhode Island. Educating Rhode Islanders in how to grow food in backyard and community gardens is one way to address this need.

What has been done

Master Gardeners have developed a demonstration vegetable garden at URI's East Farm to showcase sustainable vegetable gardening techniques and practices. A second demonstration vegetable garden and a series of sustainable landscapes have been established at the Roger Williams Park Botanical Center in Providence. A rose garden provides a demonstration of how to grow beautiful roses without pesticides and with minimal irrigation.

Results

The demonstration gardens and educational programs conducted at the gardens have helped to improve the lives of Rhode Island citizens through encouragement of healthy lifestyles and nutrition and environmental and economic sustainability.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
205	Plant Management Systems
806	Youth Development

Outcome #4

1. Outcome Measures

Through participating in the Learning Landscape and other hands on youth environmental education programs, students in grades K-5 will demonstrate increased knowledge and skills about the environment, horticulture and science. Teachers' trainings offer supplemental environmental science tools for formal and informal educators.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many youth, especially in poorer urban communities, lack access to nature and have few opportunities for hands-on science education to supplement classroom learning. The Learning Landscape, Eco-Exploration and other youth education programs offer field trip opportunities trips to the URI Botanical Gardens or the Roger Williams Park Botanical Center. The programs are aligned with RI educational grade span expectations for life and earth sciences as well as for written and oral communications and environmental stewardship.

What has been done

Half day field trips were offered in the fall, winter and spring as well as during school vacation weeks. Students used all of their senses to explore the plants and wildlife that inhabit southern New England. Topics such as ecosystems and adaptations, seed diversity, native mammals and birds worms and decomposers, energy and more were presented in a fun and age-appropriate format. Students brought their experiences back to the classroom with seeds planted in a recycled pot, nature journals and follow-up worksheets. Teachers' trainings provided techniques

for educating about stormwater pollution through the use of watershed models and hands-on curriculum. Public outreach events exposed children to stewardship ideals, as well as science and horticultural topics.

Results

Children from urban areas without access to gardens, nature or wildlife had the opportunity to learn about the natural world while reinforcing skill development underway in their classroom curriculum.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #5

1. Outcome Measures

URI will continue to enhance the Master Composter training program to extend the educational reach of the University by recruiting, training and managing volunteers to education and encourage Rhode Island citizens to compost. In addition to the core training, compost workshops will be added throughout the year for the general public.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Organic materials which could be composted in backyards make up almost 30% of the waste stream. Transporting and landfilling these materials is expensive from both an economic and environmental standpoint.

What has been done

URI Master Composters, that have successfully completed the core training, volunteered year-round by staffing information booths, phone and email consultations, assisted with community compost sites and gave public presentations.

Results

The program currently manages 65 active volunteers who have volunteered at least 3,000 hours over the course of one year. Compost workshops have been attended by over 300 participants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
205	Plant Management Systems

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
- Competing Programmatic Challenges

Brief Explanation

Use and management of inputs to the working landscape were impacted by weather. Ability to deliver programs was impacted by funding as fee-based programs and grants are used to supplement federal dollars.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Evaluation studies vary in terms of time and program area. Evaluations were conducted for each presentation, program, class and workshop to assess changes in attitude and behavior as a result of extension programs.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Health and Well-being of Livestock

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals	0%		40%	
302	Nutrient Utilization in Animals	0%		10%	
305	Animal Physiological Processes	0%		20%	
311	Animal Diseases	100%		30%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	0.3	0.0	1.3	0.0
Actual Paid Professional	0.7	0.0	1.4	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
21178	0	141735	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
24420	0	144419	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The research foci of this program were to: 1) examine the role of selenium and vitamin E on immune system function in livestock and 2) investigate cellular and molecular regulation of spermatogenesis and how it relates to in vivo male fertility in livestock.

2. Brief description of the target audience

The target audiences for the proposed research were livestock farmers in the Northeast and nationwide, the livestock artificial insemination industry, and 4H- youth.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	50	100	0	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	1	1	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year

Actual

2011 2

Output #2

Output Measure

- Student training

Year	Actual
2011	15

Output #3

Output Measure

- Scientific and Professional Presentations

Year	Actual
2011	3

Output #4

Output Measure

- Public presentations

Year	Actual
2011	0

Output #5

Output Measure

- Abstracts

Year	Actual
2011	0

Output #6

Output Measure

- Fact sheets, bulletins and newsletters

Year	Actual
2011	0

Output #7

Output Measure

- MS Theses and PhD Dissertations

Year	Actual
2011	3

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Development of fertility assays for use in AI industry
2	Modification of animal feeds which will result in the improvement of immune status and disease resistance

Outcome #1

1. Outcome Measures

Development of fertility assays for use in AI industry

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Male fertility is a limiting factor to livestock production and current tests to detect subfertile sires are inadequate. In the post-genomic era, research in RNA regulation is needed to further our understanding of livestock spermatozoa function to develop more accurate fertility assays.

What has been done

Bovine round spermatid and spermatozoa transcriptome were analyzed by RNA-Sequencing (RNA-Seq). Resulting sequences were aligned to the bovine genome and novel full length messenger RNAs (mRNA) in round spermatids and spermatozoa were identified.

Results

Methods have been developed to isolate sufficient RNA for analysis of spermatids and spermatazoa. Total RNA quantities isolated from cryopreserved bull semen were compared to assess the relationship to fertility (Sire Conception Rate), DNA fragmentation, and sperm head morphology characteristics.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
305	Animal Physiological Processes

Outcome #2

1. Outcome Measures

Modification of animal feeds which will result in the improvement of immune status and disease resistance

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Gastrointestinal nematode infections are a serious problem for small ruminant producers in the Northeast. The Barber Pole worm, in particular, has caused massive economic losses in the south and is starting to make its presence felt in New England.

The goal of this project is to improve the parasite control practices of farmers in Rhode Island through parasite control workshops supported by farm visits.

What has been done

Investigations were underway to examine the anthelmintic potential of the condensed tannins in cranberries and the effect of vitamin E supplementation on the host response to parasite infection. Three workshops followed by hands-on reinforcement of best management practices during on-farm visits have been conducted to assist producers in reducing anthelmintic use by implementing some or all of the following practices: use of the FAMACHA system, body condition scoring (BCS), fecal egg counts (FEC) for selective deworming, mixed species grazing and pasture rotation.

Results

The abomasal worm burden was significantly greater in the control group, which was reflected in a modest increase in fecal egg count in control lambs. Pending analyses will examine abomasal histology, serum α -tocopherol and immunoglobulin concentration. These results indicate that: 1) oral supplementation of vitamin E (10 IU/kg body weight/day) decreased the worm burden as compared to control (5.3 IU/kg body weight/day) of animals experimentally infected with the gastrointestinal nematode *Haemonchus contortus*, and 2) The anthelmintic efficacy of cranberry extract was determined utilizing a *C. elegans* nematode model. To date, three workshops focused on small ruminant parasite control, attended by 26 producers, have been held.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
311	Animal Diseases

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Competing Programmatic Challenges

Brief Explanation

As with any research program, recent cutbacks in funding have the potential to impact the continuation of this research.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The results of this research have been presented at regional, national and international meetings and published in peer reviewed journals. Additionally, the research topics have provided the basis for undergraduate, MS and PhD projects providing students with a unique opportunity to learn state of the art techniques, conduct independent experiments, prepare reports and communicate with the scientific and lay communities.

Workshops with farmers in the state have directly resulted in greater awareness and the means of assessing infection of livestock with helminth parasites at early stages. Additionally, farmers have expressed willingness to consider adoption of management practices and novel treatment methods for these parasites.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 12

1. Name of the Planned Program

Horticulture and the Reduction of Pests and Disease Outbreaks in Plants

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
103	Management of Saline and Sodic Soils and Salinity	15%		15%	
202	Plant Genetic Resources	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	5%		5%	
205	Plant Management Systems	15%		15%	
211	Insects, Mites, and Other Arthropods Affecting Plants	15%		15%	
212	Pathogens and Nematodes Affecting Plants	15%		15%	
215	Biological Control of Pests Affecting Plants	15%		15%	
216	Integrated Pest Management Systems	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	5.0	0.0	8.0	0.0
Actual Paid Professional	1.8	0.0	2.3	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
64381	0	111534	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
138934	0	143492	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Identify, select or breed species and cultivars of plants which are better adapted for use in the landscapes and environment of Rhode Island and the Northeastern US.
- Develop and deliver training for green industry professionals and gardeners emphasizing the use of plants that require less water, labor, nutrients, and pesticides.
- Expand markets for resource-conserving products.
- Reduce pest-induced damage to horticultural and forest plants, while maintaining environmental quality by minimizing the use of agrochemicals.
- Develop novel non-chemical methods of controlling invasive plant species.

2. Brief description of the target audience

We have active partnerships with agricultural producers of turf grass and ornamental plants, administered by a joint advisory committee of the Plant Sciences department, the RI Nursery and Landscape Association (RINLA) and the New England Sod Producers Association. We have research and demonstration projects on several nurseries and we work closely with RINLA to determine research needs and to design educational programs. We have similar working relations with the RI Golf Course Superintendents Association. We also target consumers through educational outreach programs designed to promote acceptance of local products.

Producer and commodity groups: The Rhode Island Nursery and Landscape Association (RINLA) represents nurserymen, landscapers, tree farms and arborists. The Rhode Island Greenhouse Growers Association represents greenhouse growers and vegetable producers. The Rhode Island Fruit Growers Association represents orchards and small fruit growers. The RI Farm Bureau acts as an umbrella for RI agriculture with national links. Contacts are also maintained with regional commodity groups such as the New England Nursery Association and New England Floriculture, Inc. Given the size of the industry, there are numerous direct contacts between the Director, Station faculty and professionals (research and outreach) and industry representatives. RINLA has made major contributions to the University, including support for new hires, scholarships, and the development of a formal garden demonstrating sustainable plantings (see a virtual tour of this facility at riaes.cels.uri.edu/explore). The principle commodity groups representing turf grass production and management in Rhode Island are the Rhode Island Golf Course Superintendents Association (RIGCSA), the New England Sod Producers Association (NESPA), and the New England Regional Turfgrass Foundation (NERTF). We have strong working relationships with many of the individual golf course superintendents and sod producers throughout Rhode Island. Through our

various education and certification programs, we provide annual educational and re- certification programs for growers, creating an excellent forum for exchange of information from this vital stakeholder group.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	25000	10000	0	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	2	2	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year	Actual
2011	0

Output #2

Output Measure

- Books and monographs

Year	Actual
2011	0

Output #3

Output Measure

- Abstracts

Year	Actual
2011	0

Output #4

Output Measure

- Conference proceedings

Year	Actual
2011	0

Output #5

Output Measure

- Technical documents, fact sheets and bulletins

Year	Actual
2011	0

Output #6

Output Measure

- Workshops

Year	Actual
2011	20

Output #7

Output Measure

- Website development and refinement

Year	Actual
2011	3

Output #8

Output Measure

- Public presentations

Year	Actual
2011	40

Output #9

Output Measure

- Student training

Year	Actual
2011	25

Output #10

Output Measure

- Development of tools and germplasm for use in breeding grasses and ornamental plants with traits important for the development of sustainable landscapes

Year	Actual
2011	0

Output #11

Output Measure

- Release of biological control agents benefiting traditional agriculture, landscape horticulture and the environment of southern New England

Year	Actual
2011	0

Output #12

Output Measure

- MS Theses and PhD Dissertations

Year	Actual
2011	0

Output #13

Output Measure

- Professional training

Year	Actual
-------------	---------------

2011 150

Output #14

Output Measure

- Professional/scientific presentations

Year	Actual
2011	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Identify and improve sustainable trees, shrubs, and grasses, with an emphasis on native species (#)
2	Through ongoing curricula development, workshop offerings to the general public and provision of certification opportunities for green industry professionals, the integration of native plants, landscape restoration principles, invasive plant management and low impact development practices will be promoted to increase business and consumer demand for ecological sustainable landscape services and general practice.
3	Growers in RI propagate and market plants native plants. Consumers (state agencies, municipalities and residential landscape managers) seek out native plants for use in landscape

Outcome #1

1. Outcome Measures

Identify and improve sustainable trees, shrubs, and grasses, with an emphasis on native species (#)

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Through ongoing curricula development, workshop offerings to the general public and provision of certification opportunities for green industry professionals, the integration of native plants, landscape restoration principles, invasive plant management and low impact development practices will be promoted to increase business and consumer demand for ecological sustainable landscape services and general practice.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nonnative, invasive species plant species disrupt native ecosystems yet citizens and professionals continue to use these species in the managed landscape. In addition, vegetated buffer strips along coastal areas provide numerous environmental benefits. Education and certification programs are needed to show landowners and landscape management companies how the benefits of vegetated buffer zones can be provided in coastal landscapes.

What has been done

A list of invasive plants and native alternatives has been developed for the coastal region and an invasive management and landscape restoration certification program has been developed and implemented. A Native Plant Design Manual has been written and numerous workshops, presentations and training programs have been conducted.

Results

A climate of cooperation and trust has been developed between green industry professionals, the state coastal management agency and URI Extension. Over 275 invasive managers have been certified and are being hired to remove invasives and install native plants in the coastal buffer zone. Awareness of the impact of invasives and the value of native plants and plant community has increased. Nearly 150 green industry professionals, URI Master Gardeners and members of the general public have been trained through the Residential Rain Garden Training Program, which was initiated in 2011 to provide information on the siting, sizing, design and installation of residential-scale rain gardens in accordance with the latest regulatory stormwater guidance.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

Growers in RI propagate and market plants native plants. Consumers (state agencies, municipalities and residential landscape managers) seek out native plants for use in landscape

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Each year, Rhode Island environmental organizations and state agencies oversee habitat restoration projects throughout the state. Native plants are an integral component of the restoration, but are often sourced from states other than Rhode Island, and are not adapted to the local climate. This is due to the limited availability of native plants grown in Rhode Island. Additionally, consumers are increasingly interested in gardening with native plants and seek nurseries within the state who sell plants native to Rhode Island (URI Gardening Hotline 2010).

Many local nurseries express an interest in growing natives, but lack the necessary knowledge.

What has been done

The Rhody Native project coordinators, including an extension educator, a botanist and a university professor have worked with five local nurseries to develop a hands-on training program specific to grower needs. Over the course of two annual training programs, thirty-five growers have been trained to produce locally-sourced native plants fit for habitat restoration and landscape plantings. Growers have been trained in the environmental and economic benefits of native plants, identification techniques and native plant propagation and cultivation utilizing university-owned seed beds. Each grower received a training manual and access to an online database and Rhody Native plant tags. After the program, nurseries had access to a supplemental supply of liner stock grown by Master Gardeners and URI students to facilitate the adoption of a new growing practice. Personal consultations assisted growers in implementing new growing practices, with final surveys completed one year post training.

Results

As a result of this project, nurseries each produced 2,500 plants, resulting in the availability of 37,500 plants to meet demands for native plants. Restoration projects scheduled for the 2011 growing season required a total of 70,000 plants. Native plants grown as a result of the Rhody Native project included a combination of 20 grass and perennial species, and 30 tree and shrub species, resulting in a total of 50 native plants, all grown from locally collected seed and stem cuttings. A concurrent consumer education campaign helped to increase the demand for Rhody Native plants for landscape plantings.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Weather impacts the production of nursery grown plants. A weak economy limited ability of consumers to buy native plants.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Workshops and training programs used pre and post assessment vehicles to evaluate change in stakeholder knowledge.

- Behavior change of stakeholders was assessed through longitudinal tracking of participant behaviors compared to behaviors identified prior to participation in programs.
 - Google analytics tracking software was used to generate detailed information about website use. Information included the number of views and downloads per webpage and the numbers and types of visitors (.gov, .edu, .org, .com) to each portion of the websites.
- Landscape managers gained new business opportunities through the Invasive Management Certification Program and Rhody Native Program

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 13

1. Name of the Planned Program

Natural and Environmental Resource Economics, Markets and Policy

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
605	Natural Resource and Environmental Economics	100%		100%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	2.0	0.0
Actual Paid Professional	0.0	0.0	1.6	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	67584	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	25503	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•Evaluate the impacts of ecolabeling on consumer demand for frozen seafood. •Determine the impacts of consumer concerns of PCB contamination of farmed salmon on US import demand for farmed salmon. •Evaluate the impact of farmed shrimp on the US market and how shrimp aquaculture is changing prices. •Investigate the impact of homogeneous resource modeling in a heterogeneous fishery

by synthesizing a stochastic production frontier model with the estimation classification algorithm.

•Model spatial decisions of fishermen in the Northeast Atlantic herring fleet. •Run experiments using the game theoretic model.

2. Brief description of the target audience

The target audience includes fishers, environmental economists, and policy makers.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2011	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: 2011

Actual: {No Data}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	0	4	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year

Actual

2011 0

Output #2

Output Measure

- Books and monographs

Year	Actual
2011	0

Output #3

Output Measure

- Abstracts

Year	Actual
2011	0

Output #4

Output Measure

- Conference proceedings

Year	Actual
2011	0

Output #5

Output Measure

- M.S. theses and Ph.D. dissertations

Year	Actual
2011	0

Output #6

Output Measure

- Professional/scientific presentations

Year	Actual
2011	0

Output #7

Output Measure

- Student training

Year	Actual
2011	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase understanding of scientists and decision makers through publications and presentations of the the outcomes of game theoretical models to identify fisheries where political intervention is likely based on the degree of heterogeneity among harvesters.
2	Increase understanding of private and public sector and scientists of economic and market factors in fisheries and aquaculture management through publications and presentations.
3	Increase the understanding of private and public sector and scientists of economic and market factors in fisheries and aquaculture management through publications and presentations.
4	Increase the understanding of scientists and decision makers through publications and presentations of the outcomes of game theoretical models to identify fisheries where political intervention is likely based on the degree of heterogeneity among harvesters.

Outcome #1

1. Outcome Measures

Increase understanding of scientists and decision makers through publications and presentations of the the outcomes of game theoretical models to identify fisheries where political intervention is likely based on the degree of heterogeneity among harvesters.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Increase understanding of private and public sector and scientists of economic and market factors in fisheries and aquaculture management through publications and presentations.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Increase the understanding of private and public sector and scientists of economic and market factors in fisheries and aquaculture management through publications and presentations.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

"Marketing, Trade, and Management of Fisheries and Aquaculture Resources. Effective management of our fisheries resources is critical to maintaining the health of our oceans and sustaining our recreational and commercial fishing communities. Insights from the work will generate new understanding of how to incorporate economic and market factors into fisheries and aquaculture management for the public and private sectors."

What has been done

Outputs were disseminated through the web, presentations and professional trade magazines. The website targets educational materials on ecolabeling of seafood products to producers, members of the supply chain, policy makers and the environmental community. The website was augmented to include additional literature in the online searchable database related to aquaculture certification. Materials were added to the news sections of the website. A presentation was given at the 2011 Baird Symposium and a media interview was given in the publication Seafood Business.

Results

Outcomes include greater understanding of differences between consumers' perceptions of farmed seafood and documented environmental impacts and consumers' perceptions of capture fisheries and documented impacts of that industry. Rhode Island consumers were found to prefer certified vs. noncertified aquaculture products, although there is a stronger preference for wild seafood. Survey data show that consumers believe that there is quality difference in wild vs. farmed seafood, largely related to their perceptions of freshness and also prefer local, wild fish. However fresh farmed fish is favored over wild frozen fish. These results are disseminated by the URI Seafood Initiative leading to targeted information campaigns.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

Outcome #4

1. Outcome Measures

Increase the understanding of scientists and decision makers through publications and presentations of the outcomes of game theoretical models to identify fisheries where political intervention is likely based on the degree of heterogeneity among harvesters.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

"Analysis of Conservation and Allocation Decisions in Fishery Governance. American commercial fisheries management measures have often been unsuccessful at rebuilding many stocks. We hypothesize this is because some harvesters, especially those with large, highly capitalized operations, are engaging in political action to make the management measures more lax than necessary. Our current model will help identify fisheries that will be better managed by other processes, which are less susceptible to political influence."

What has been done

No Report Required. Inactive

Results

No Report Required. Inactive

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

- Extension and research outputs are subject to peer evaluations before publication.
- Citations of published works are quantified through services such as the ISA Web of Science and Google Scholar.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 14

1. Name of the Planned Program

Sustainable Energy

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
132	Weather and Climate	15%		0%	
133	Pollution Prevention and Mitigation	15%		0%	
141	Air Resource Protection and Management	20%		0%	
511	New and Improved Non-Food Products and Processes	0%		100%	
605	Natural Resource and Environmental Economics	20%		0%	
608	Community Resource Planning and Development	20%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	0.0	1.0	0.0
Actual Paid Professional	1.5	0.0	0.3	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
85770	0	60774	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
63221	0	119890	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Energy audit and GHG inventory in selected municipalities/businesses
- Feasibility and implementation of energy efficiency and renewable energy technologies
- Municipal energy training:
 - Training for municipal officials and employees
 - Climate Showcase Community conferences
- Residential Energy Education:
 - Participants pledge 10% energy savings
- Public Energy Education - workshops, newspaper columns, presentations, canvassing
 - Trained volunteers conduct locally-based education and outreach
- Outreach Activities:
 - Sustainable energy page on local websites
 - Community workshops
 - Traditional and web media

2. Brief description of the target audience

- Municipal officials
 - Building and utility managers
 - Financial administrators
 - Mayors/town managers
- Municipal employees

- Residential energy consumers

- School systems

- Small businesses

- ESCOs
- Ocean State Clean Cities Coalition

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	3322	106800	42	0

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

Patent Applications Submitted

Year: 2011
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	2	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Fact sheets, Bulletins and newsletters

Year	Actual
2011	27

Output #2

Output Measure

- Short courses

Year	Actual
2011	3

Output #3

Output Measure

- Website development and refinement

Year	Actual
2011	8

Output #4

Output Measure

- Workshops and Conferences hosted

Year	Actual
2011	36

Output #5

Output Measure

- Public presentations

Year	Actual
2011	28

Output #6

Output Measure

- Student training

Year	Actual
2011	55

Output #7

Output Measure

- Certifications

Year	Actual
2011	63

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Build and leverage partnerships across multiple stakeholder groups
2	Increase stakeholder awareness of energy conservation benefits (municipalities, small business, consumers)
3	Build capacity within local municipalities to address energy management and GHG emission reduction
4	Link funded activities to broader climate management issues.
5	Increase energy conservation behaviors by municipal, residential and small business stakeholders
6	Develop replicable project and program models for sustainable energy education and management
7	Design and install demonstration renewable energy projects as part of overall energy management system
8	The Master Energy Training was conducted to educate RI residents, small businesses and municipalities so that they can make informed decisions that will reduce their consumption of fossil fuels and their carbon footprint through energy conservation, efficiency and use of clean energy resources.
9	Through the Energy Fellows Program, we will provide URI undergraduate and graduate students with the opportunity to gain invaluable experience addressing real-world energy issues.
10	The URI extension energy team will work with four RI municipalities to implement projects that achieve cost-effective, persistent greenhouse gas reductions and serve as models for communities across the country.
11	NIFA energy programs at URI are coordinated with the DOE-funded Ocean State Clean Cities Coalition to provide a broader array of program and services for RI stakeholders concerned about energy issues.
12	Through the Renewable Energy Siting Partnership, a URI team of skilled professionals in the fields of energy, research and planning will develop tools, guidelines and data analysis that can be used by Rhode Island's cities and towns to site and manage this new activity. Additionally, the RESP project will make state and municipal energy information accessible to the public through the creation of a comprehensive online energy database.
13	Through a partnership with Rhode Island Department of Transportation we will capitalize on the wealth of both experience and funding available at the state and federal levels to accelerate and facilitate reduction of diesel pollution from work performed on projects managed by RIDOT.

Outcome #1

1. Outcome Measures

Build and leverage partnerships across multiple stakeholder groups

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Increase stakeholder awareness of energy conservation benefits (municipalities, small business, consumers)

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Build capacity within local municipalities to address energy management and GHG emission reduction

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Link funded activities to broader climate management issues.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Increase energy conservation behaviors by municipal, residential and small business stakeholders

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Develop replicable project and program models for sustainable energy education and management

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Design and install demonstration renewable energy projects as part of overall energy management system

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

The Master Energy Training was conducted to educate RI residents, small businesses and municipalities so that they can make informed decisions that will reduce their consumption of fossil fuels and their carbon footprint through energy conservation, efficiency and use of clean energy resources.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Energy prices in Rhode Island are among the highest in the country. RI also faces major consequences from rising GHG emissions (rising sea level and extreme weather events). RI residents, businesses and municipalities and early adopters need specific information on energy conservation, efficiency and renewable energy alternatives.

What has been done

The Master Energy Training Program was offered once in Spring 2011.

Results

The training increased awareness of opportunities to use energy more efficiently at home and at work in order to save energy, save money and reduce greenhouse gas emissions. 42 people participated the program in Spring 2011.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate
133	Pollution Prevention and Mitigation
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #9

1. Outcome Measures

Through the Energy Fellows Program, we will provide URI undergraduate and graduate students with the opportunity to gain invaluable experience addressing real-world energy issues.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Rhode Island has a growing green economy; however, there is a lack of trained workforce in the energy field. RI companies are looking for individuals who have experience and training in the energy field. Graduating students are looking to enter the workforce with marketable skills and experience.

What has been done

Energy Fellows have been engaged in a variety of energy projects led by the URI Outreach Center, URI faculty and partner organizations around the state. They have received general energy education as well as project-specific training that will prepare them for future careers in the energy field.

Results

Energy Fellows have been engaged in a variety of energy projects led by the URI Outreach Center, URI faculty and partner organizations around the state. They have received general energy education as well as project-specific training that will prepare them for future careers in the energy field.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate
133	Pollution Prevention and Mitigation

Outcome #10

1. Outcome Measures

The URI extension energy team will work with four RI municipalities to implement projects that achieve cost-effective, persistent greenhouse gas reductions and serve as models for communities across the country.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Buildings account for 45 percent of carbon emissions and 70 percent of electricity consumption in the US. Benchmarking building energy performance against other buildings with similar building and operating characteristics allows municipalities to assess energy management goals over time

and identify strategic opportunities for savings. Municipalities are in need of technical assistance and training in identifying and implementing sustainable energy projects.

What has been done

The URI energy team has presented baseline energy consumption reports to the four communities, developed an outline for an energy management guide, drafted municipal energy web page content and identified replicable showcase projects.

Results

The URI energy team has presented baseline energy consumption reports to the four communities, developed an outline for an energy management guide, drafted municipal energy web page content and identified replicable showcase projects.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate
133	Pollution Prevention and Mitigation
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development

Outcome #11

1. Outcome Measures

NIFA energy programs at URI are coordinated with the DOE-funded Ocean State Clean Cities Coalition to provide a broader array of program and services for RI stakeholders concerned about energy issues.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Ocean State Clean Cities Program provides resources and programs to reduce U.S. dependence on fossil fuels, particularly in the transportation arena. The wealth of information and services available through OSCC provides a valuable addition to energy services and information available to RI citizens.

What has been done

Seven outreach events have been conducted on various alternative fuel programs. The OSCC web site is incorporated into URI's Outreach Center web site and a newsletter reaches over 790 stakeholders four times/year. Active stakeholder committees are working on biodiesel and electric vehicle infrastructure and opportunities to expand use of CNG vehicles are underway.

Results

An active coalition of stakeholders is working collaboratively to explore all opportunities to reduce reliance on petroleum for transportation. Metrics are being gathered to allow quantitative assessment of progress.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate
133	Pollution Prevention and Mitigation
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #12

1. Outcome Measures

Through the Renewable Energy Siting Partnership, a URI team of skilled professionals in the fields of energy, research and planning will develop tools, guidelines and data analysis that can be used by Rhode Island's cities and towns to site and manage this new activity. Additionally, the RESP project will make state and municipal energy information accessible to the public through the creation of a comprehensive online energy database.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
-------------	---------------

2011

0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The State of Rhode Island and many of its communities are considering investing in renewable energy infrastructure. URI has been invited by the state to provide technical expertise about the effects renewable energy may have on the people, wildlife and natural resources of Rhode Island.

What has been done

Our team of researchers has completed resource assessments for available landfill solar and hydropower potential in the state. We have developed publicly accessible GIS interactive mapping tools to allow communities to assess the viability and possible impacts of siting renewable energy facilities. We have designed and developed a website to house the mapping products as well as a comprehensive clearinghouse of Rhode Island-specific energy data. We have also undertaken a complementary and integrated program for stakeholder involvement to engage the public in our work.

Results

We have held 8 open public meetings and 8 municipal working group meetings. We organized and facilitated a hydropower focus group meeting to discuss synergy between restoration and development efforts. We are submitting our research for peer review through a Technical Advisory Committee process. We are beta-testing our website and populating the database with energy information this month.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate
133	Pollution Prevention and Mitigation
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #13

1. Outcome Measures

Through a partnership with Rhode Island Department of Transportation we will capitalize on the wealth of both experience and funding available at the state and federal levels to accelerate and facilitate reduction of diesel pollution from work performed on projects managed by RIDOT.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Cleaning up diesel pollution to improve air quality is an important goal throughout New England states where respiratory disease has reached historic levels. Diesel engines produce significant air pollution including fine particulate matter (PM), nitrogen oxides (NOx) and more than 40 different types of Hazardous Air Pollutants (HAPs). Diesel emissions have been linked to a myriad of health problems ranging from shortness of breath to cancer and cardiac arrest. Construction equipment engines typically produce more diesel emissions than other diesel engines because their engines are larger and are not regulated as strictly.

What has been done

1) a review and analysis of available technologies and best practices in use; 2) immediate implementation of a carefully monitored pilot project to reduce diesel emissions from a RIDOT-funded construction project in a highly populated urban area; 3) extrapolation of the costs and benefits of the pilot project to the DOT program in RI, along with development of RI-specific contract specifications; and 4) preparation of a final report summarizing lessons learned and providing a road map for diesel emissions reduction from DOT construction projects in RI.

Results

To date a list of 14 vehicles assigned to the RIDOT "Water Front Drive Project" has been provided by the RIDOT Contractor Cardi Construction. The 14 vehicles have had the vehicle identification numbers and engine family numbers verified. All 14 vehicles have been post data logged each for a four week period to determine duty cycle. Each vehicle has also been post Opacity tested. The appropriate retrofit technology for each vehicle has been identified. A retrofit plan has been submitted to RIDOT. A bid process is under way to solicit bids to purchase and install the appropriate technology that RIDOT deems necessary.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate
133	Pollution Prevention and Mitigation

605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Workshops and training programs use pre and post assessment vehicles to evaluate change in stakeholder knowledge.

- Behavior change of stakeholders is assessed through longitudinal tracking of participant behaviors compared to behaviors identified prior to participation in programs.
 - Google analytics tracking software is used to generate detailed information about website use. Information includes the number of views and downloads per webpage and the numbers and types of visitors (.gov, .edu, .org, .com) to each portion of the websites.
- Municipal energy use is benchmark in order to evaluate effectiveness of extension efforts to reduce energy use.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 15

1. Name of the Planned Program

CELS CARES

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
902	Administration of Projects and Programs	100%		100%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	2.0	0.0	2.0	0.0
Actual Paid Professional	0.0	0.0	0.0	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	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

RIAES and RICE developed a request for application (RFA) process that encouraged innovative, integrated proposals that meet the needs of state stakeholders. Proposals were then evaluated by internal university teams and external peers. Infrastructure needs (including equipment) were also addressed by this program.

2. Brief description of the target audience

Academic faculty, university staff, graduate students, undergraduate students, university administrators, RIAES scientists, RICE personnel

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	100	1000	0	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Proposal submissions

Year	Actual
2011	6

Output #2

Output Measure

- Proposals funded

Year	Actual
2011	6

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	New knowledge generated
2	Research and extension infrastructure built and adequately supported
3	Number of integrated research and extension projects increase
4	Cultures of research and extension merge

Outcome #1

1. Outcome Measures

New knowledge generated

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

CELS CARES is a peer-reviewed mechanism to identify meritorious proposals to support RI research and outreach activities.

What has been done

We solicited proposals that integrated research and outreach as well as proposals that supported the purchase scientific equipment and instrumentation.

Results

Proposals were funded. New knowledge generated was reported in the planned program areas of this Annual Report of Results and Accomplishments.

4. Associated Knowledge Areas

KA Code	Knowledge Area
902	Administration of Projects and Programs

Outcome #2

1. Outcome Measures

Research and extension infrastructure built and adequately supported

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Infrastructure is essential to provide the platform from which to provide research and extension services.

What has been done

Funding for students, personnel, supplies, travel, equipment and instrumentation were competitively provided to research and extension faculty.

Results

Research and extension infrastructure was supported through CELS CARES. The infrastructure was also used as leverage to secure additional competitive external funding (4:1).

4. Associated Knowledge Areas

KA Code	Knowledge Area
902	Administration of Projects and Programs

Outcome #3

1. Outcome Measures

Number of integrated research and extension projects increase

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Moving scientific results from the bench to the end user requires a thoughtful and defined process.

What has been done

We have developed a process that combines research and extension to best meet the needs of stakeholders.

Results

The number of projects that clearly integrate research and extension have increased.

4. Associated Knowledge Areas

KA Code	Knowledge Area
902	Administration of Projects and Programs

Outcome #4

1. Outcome Measures

Cultures of research and extension merge

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Research and the creation of new knowledge must have a robust mechanism to move the knowledge into the public domain.

What has been done

Defining a process for integrating research and extension is essential to moving knowledge from the creators to the users.

Results

As a result of the process that we have developed, research and extension is merging. This merging benefits end-users and stakeholders.

4. Associated Knowledge Areas

KA Code	Knowledge Area
902	Administration of Projects and Programs

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
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The tumultuous economy has had a negative effect on hiring new faculty and staff. Uncertain state budgets and budget cuts continue to have a negative effect on service delivery.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Pre-program and post-program testing indicated high stakeholder satisfaction with programming. Several training sessions on CELS CARES initiatives provided stakeholders with on-going education on administrative processes.

Key Items of Evaluation