2010 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 System (RICES or Extension); collectively referred to as the Land Grant programs. RIAES and RICES 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 our Land Grant portfolio spans 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 are focused around a portfolio of 15 programs that now include: 1) Food Safety; 2) Nutrition, Health and Obesity Prevention; 3) Food Insecurity and Nutrition in Vulnerable Populations(now called Global Food Security and Hunger); 4) Children, 4-H and Families; 5) Sustainable Communities; 6) Vector Borne Diseases and Human Health; 7) Aquaculture Biotechnology (now called Aquaculture and Fisheries); 8) Water Quality (now called Climate Change), 9) Forestry and Wildlife (now called The Environment and Adaptive Agro-Ecosytems); 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 (new program); and 15) College of the Environment and Life Sciences (CELS) Community Access to Research and Extension Services (CARES).

The Station and Extension are integral components of the missions of the College and University. The collaborative relationship with our federal partner, CSREES, 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: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	29.1	0.0	28.6	0.0
Actual	22.0	0.0	22.9	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
- Expert Peer Review

2. Brief Explanation

Program review, including project merit and peer review, are the responsibility of the Director, Associate Director and five Program Leaders.

Projects are awarded through a competitive, outcome-oriented annual request for proposals. Project proposals are peer reviewed by scientists external to URI, a panel of external experts (typically 4) and by the program leaders (internal). They are prioritized based on merit and anticipated outcome, as well as goodness of fit to the program areas, quality of science, integration with extension, and multistate collaboration. Projects normally run 3 years, and funding typically includes support for graduate students, a small operating budget, and travel. Station funds also support a limited number of support staff for research and outreach operations as well as partial support for other research associates and assistants.

Extension programs and projects are evaluated on a yearly basis by the Director. A significant limitation on our Extension programming evaluations is having many statutory employees in RICE. Statutory status in the Rhode Island state system does not allow for re-deployment of the employee. As statutory employees have retired from the State, we have not replaced the employee on Federal formula funds.

In this report, the programs all note that evaluation studies are completed. To that end, the merit process described herein is a primary mechanism for determining program effectiveness. Projects, funded within a program have a lifespan, on the average of 3 years. At the end of the three year period, an investigator must "reapply" for support. If the rationale is compelling and the accomplishments are consistent with the effort, a project is renewed. Hence, the outcomes of a project (either research, extension or integrated) are evaluated constituting a summative evaluation for each of the programs described herein.

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 specifically with non-traditional individuals
- Survey of selected individuals from the general public

Brief explanation.

Each of the Program Leaders and their project managers (or principal investigators) employs a variety of methods and actions to seek stakeholder input. Each of the actions above are used (however, not by all Program Leaders and/or project managers). One of the great advantages of providing programming and seeking input in a small state like Rhode Island is the access that our program leaders, scientists, educators and staff have with stakeholder groups and individuals.

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.

Each of the Program Leaders and their project managers (or principal investigators) employs a variety of methods and actions to identify individual stakeholders and stakeholder groups. All the methods above are used however, not by all Program Leaders and/or project managers. Hence, we use paper, electronic, mass media, and face-to-face methods to identify stakeholders. One of the great advantages of providing programming and services in small state like Rhode Island is the access that individuals and groups have to the University of Rhode Island and the Land Grant Programs. The state is roughly 1,000 sq miles and there are no municipalities, counties, or areas that are more than 40 miles from the University. Equally important, the University and our Land Grant Programs have both a rural (Kingston, main campus) and urban (Providence) presence. These portal locations play a key psychological role for stakeholders. Rhode Islanders know that they have access to the University by virtue of proximity, both real and virtual.

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 Program Leaders and their project managers (or principal investigators) employs a variety of methods for stakeholder input. All the methods above are used however, not by all Program Leaders and/or project managers.

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 from stakeholders is carefully considered by the program managers, principal investigators, Program Leaders and Land Grant administrators. Indeed, the stakeholder input (which reflects stakeholder needs) has been used to frame our Land Grant budgeting, to identify emerging issues, to redirect outreach programs, to redirect research programs, and to guide priorities which ultimately set the action plans (including hiring plans.)

For example, stakeholder input from local fruit and vegetable producers has lead to our hiring a new Extension agent whose efforts are dedicated to the development of sustainable agricultural practices at the local level. (This program is described in the section of this report identified as "Sustainable Communities.")

Brief Explanation of what you learned from your Stakeholders

Stakeholders are readily willing to share items that they want from our institution. (Many stakeholders reflect that the University has changed dramatically in the past 20 years and services that were once available are no longer.) The key to successful relationship building with stakeholders is to not only identify areas of common interest but areas of common action. For instance, what are the researchable problems faced by the "industry"? Is the researchable problem fundable? Is the problem consistent with regional and/or national funding priorities? Likewise, the same holds true for Extension and outreach programming. What are the areas of common action?

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1090129	0	1382721	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	1034857	0	727690	0
Actual Matching	1106230	0	1410061	0
Actual All Other	0	0	0	0
Total Actual Expended	2141087	0	2137751	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	818167	0	423429	0

V. Planned Program Table of Content

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	50%		50%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	50%		50%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	1.8	0.0	0.0	0.0
Actual	2.0	0.0	1.0	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
121094	0	42220	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
124974	0	71746	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.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	906	76450	20	30

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	1	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer Reviewed Publications

Year	Actual
2010	4

Output #2

Output Measure

- Abstracts

Year	Actual
2010	8

Output #3

Output Measure

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

Year	Actual
2010	16

Output #4

Output Measure

- Volunteer Training

Year	Actual
2010	5

Output #5

Output Measure

- Conferences Hosted

Year	Actual
2010	2

Output #6

Output Measure

- School Based Training Sessions (teachers and children)

Year	Actual
2010	0

Output #7

Output Measure

- Website Development and Refinement

Year	Actual
2010	1

Output #8

Output Measure

- Student training

Year	Actual
2010	6

Output #9

Output Measure

- General Consumer

Year	Actual
2010	5

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Commercial growers of fruit and vegetables, food industry producers and school personnel will participate in appropriately directed food safety training (# of people trained)
2	Formulate new approaches to food safety education for consumers, schools and the food industry in Rhode Island
3	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).
4	Develop pigments for time-temperature indicator barcodes for food safety.

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	140	385

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, foodservice workers, food industry personnel and 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 target audiences to address state and federal mandates and volunteer training needs.

Results
Commercial growers, food industry employees and school food service personnel have secured new knowledge and have developed effective strategies based on URI Extension training to ensure consumer safety and prevention of food-based and borne illnesses.

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

Formulate new approaches to food safety education for consumers, schools and the food industry in Rhode Island

Not Reporting on this Outcome Measure

Outcome #3

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	Quantitative Target	Actual
2010	1	3

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).

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. Finally, the MA/RI RCCI staff pilot training was completed and evaluated and two additional states were awarded funds to conduct a final pilot testing of the curriculum training materials.

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

Develop pigments for time-temperature indicator barcodes for food safety.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
We have been working with a California based company, Sira Technologoes, on the development of pigments for a time-temperature indicator bar code system. The system would allow refrigerated food products to me monitored for proper storage temperature throughout the food chain.

What has been done
We have continued the development of thermochomic pigments for use in time temperature indicator bar code system.

Results

We investigated o new sidechain structures. These efforts focused on using different sidechains from those utilized in our initial investigations. The new sidechains are similar on structure to those previously investigated, but were utilized in mixed ratios. The different sidechain lengths lead to improvements in the tunability of the IUA transition temperature and are better for large scale production of the pigments.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

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.)
- Other (No funding)

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies and Data Collection)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

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	25%		25%	
703	Nutrition Education and Behavior	75%		75%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.3	0.0	0.5	0.0
Actual	1.5	0.0	2.7	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
43359	0	106955	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	162216	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

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	150	0	0	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	1	1

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Refine, deliver and evaluate major healthy weight intervention study

Year **Actual**

2010	0

Output #2

Output Measure

- Peer reviewed publications

Year	Actual
2010	1

Output #3

Output Measure

- Abstracts

Year	Actual
2010	2

Output #4

Output Measure

- Workshops

Year	Actual
2010	0

Output #5

Output Measure

- Student Training

Year	Actual
2010	3

Output #6

Output Measure

- Professional Training

Year	Actual
2010	0

Output #7

Output Measure

- Scientific and Professional Presentations

Year	Actual
2010	2

Output #8

Output Measure

- MS Thesis or PhD Dissertation

Year	Actual
2010	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

Outcome #1

1. Outcome Measures

Raise awareness and knowledge of healthy weight issues in the Latino population in Rhode Island (% change from baseline)

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Increase maintenance of healthy weight among intervention participants (% achieving and maintaining healthy weight)

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Young adults (those 18-24 years of age) have been identified as a population of interest by the National Institutes of Health in relation 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 that can cause this increased risk and the biochemical changes can track later into adulthood, intervening with college students is critical to reduce long-term chronic disease risk.

What has been done

In the fall of 2009, we completed the cross-sectional phase of the study. We assessed approximately 50 female and male URI students on anthropometrics, biochemical, clinical, and dietary measures. In the spring of 2010, we completed a nutrition intervention with approximately 100 students. We completed anthropometric, biochemical, clinical, and dietary assessments at baseline and post-intervention.

Results

From the cross-sectional study, we found that ~4% of first-year URI students have the metabolic syndrome (having at least 3 criteria), ~6% have two criteria, and ~25% have one criteria. The most common criteria were low HDL-cholesterol and elevated triglycerol concentrations. In the intervention study, we found that those participants who attended more sessions trended to have better dietary quality and better glucose concentrations.

4. Associated Knowledge Areas

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

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 and Data Collection)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Food Insecurity and Nutrition in Vulnerable Populations

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 professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	5.0	0.0	2.0	0.0
Actual	0.3	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**
34039	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.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year	Actual
2010	0

Output #2

Output Measure

- Abstracts

Year	Actual
2010	0

Output #3

Output Measure

- Scientific/Professional presentations

Year	Actual
2010	1

Output #4

Output Measure

- Website Development and Refinement

Year	Actual
2010	1

Output #5

Output Measure

- Public Service Announcements and Social Marketing Campaigns

Year	Actual
2010	1

Output #6

Output Measure

- Video Productions

Year	Actual
2010	0

Output #7

Output Measure

- Curriculum Development and Delivery

Year	Actual
2010	1

Output #8

Output Measure

- Fact Sheets, Bulletins and Newsletters

Year	Actual
2010	16

Output #9

Output Measure

- Student Training

Year	Actual
2010	6

Output #10

Output Measure

- Volunteer Training

Year	Actual
2010	25

Output #11

Output Measure

- Workshops and Programs

Year	Actual
2010	1600

Output #12

Output Measure

- MS Thesis or PhD Dissertation

Year	Actual
2010	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	Quantitative Target	Actual
2010	1000	1431

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Economic conditions have been bleak during FY 2010. In Sept. there were 31,011 more people on SNAP benefits than the previous September. Unemployment has remained high, dipping slightly in September to 11.5%, only because fewer people were looking for jobs. A dramatic change occurred in certain age groups of those receiving SNAP benefits. Over 17,300 people in the 20-29 year age group (22.2%) and over 16,450 in the 30-39 age range (21%) received SNAP benefits in 2010. Strategies for reducing costs and building or maintaining a healthy diet were a major focus for this new group receiving SNAP benefits.

What has been done
For FY 2010, URI SNAP-Ed and EFNEP delivered over 1600 community-based nutrition education workshops resulting in 16,487 direct and indirect contacts. In addition, publications addressing diet quality and food resource management were distributed to over 100,000 program participants. Workshops focused on diet quality, food resource management, food safety and food security. Workshops varied in length ranging from one session to a series of 6 workshops. Program participants ranged from pre-K to seniors, with an emphasis on children and young families.

Results

Evaluation data of EFNEP participants include: 37% of 196 participants more often planned meals in advance; 82% of 137 participants showed improvement in one or more nutrition practices; 70% of 181 participants showed improvement in one or more food resource management practices. Data from SNAP-Ed include a significant increase in vegetable consumption (+.28%) among 440 4th graders in the Providence city schools who participated in a 8 week fruit and vegetable intervention; of 477 third graders participating in Radio Disney/SNAP-Ed workshops, a significant increase in fruit consumption over a 3 week period was shown;

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.)

Brief Explanation

V(I). Planned Program (Evaluation Studies and Data Collection)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

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	30%		0%	
806	Youth Development	70%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	7.0	0.0	0.0	0.0
Actual	4.8	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
248217	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
226576	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 though 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 and creation of a state-wide network of 4-H science enrichment after school programs that serve as a catalystfor improve the science based knowledge, skills and academic motivation among urban elementary and middle school students. Increased outreach to military families in Rhode Island through Operation Military Kids educational program and events

2. Brief description of the target audience

Youth 5-18 years of age
Children of deployed military
Parents of targeted youth
Community-based family-serving agencies and organizations
Volunteers

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2279	4890	3718	750

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Workshops

Year	Actual
2010	56

Output #2

Output Measure

- Volunteer Training (number of new volunteers per year)

Year	Actual
2010	34

Output #3

Output Measure

- 4-H Record Book Submissions

Year	Actual
2010	100

Output #4

Output Measure

- Youth reached through programs

Year	Actual
2010	2588

Output #5

Output Measure

- Number of community/family serving groups and organizations reached

Year	Actual
2010	20

Output #6

Output Measure

- Number of referrals

Year	Actual
2010	0

Output #7

Output Measure

- Community Service (# of projects per year)

Year	Actual
2010	54

Output #8

Output Measure

- Activities and Programs (# per year)

Year	Actual
2010	76

Output #9

Output Measure

- Student Training (# per year)

Year	Actual
2010	7

Output #10

Output Measure

- Website development and refinement

Year	Actual
2010	3

Output #11

Output Measure

- Curriculum development and delivery

Year	Actual
2010	0

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	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.
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	Through connecting to the vast land-grant system of resources and educational opportunities, % of parents and youth-serving adults who will gain knowledge and skills in risk reduction and adopt practices that promote health and safety within the family and community.
7	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	Quantitative Target	Actual
2010	40	39

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. According to the 2007 Kids Count report"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
The Pathways for Success in Science and Technology after-school program is conducted once a week at three schools and one community site on a Saturday. A three week summer day camp plus two field trips to URI Science labs are offered annually, and an annual youth achievement night program is offered for parents. Computer technology through MTL, rocketry, robotics, aquatics ecology and animal science workshops and events are examples of how science education was delivered in FY10. 4-H also partners with the DEM Parks and Recreation to provide 4-H environmental programs at the RI Great Outdoors Pursuit over the summer.

Results
The University of Rhode Island science enrichment programs increased knowledge and skills and positively increased youth attitude toward science and learning. 619 military youth participated in 4-H SET and Healthy Lifestyles workshops through OMK family events, workshops and camps. 4-H OMK-sponsored Hero's Day at RWP Zoo, where 1944 youth participated in hands-on science and tech exhibits. Increased knowledge in animal science was demonstrated through judging/hippology programs.

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	40	60

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. 4-H volunteers are provided with community service opportunities through the 4-H volunteer listserv and connected to citizens and community groups in need. 4-H groups may apply for 4-H Foundation support for their projects. Cumberland Farms "Youth in Action" grants targeted community service through food drives and OMK Letters to soldiers. 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 FY10(average of 30 members per club) resulting in 540 youth participating in one or more community service project or 60% of the FY10 4-H enrollment. Cumberland Farm grants resulted in the collection of 250 of food delivered to 4 food pantries and 5 elementary classes wrote 81 letters to deployed soldiers.

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	Quantitative Target	Actual
2010	25	17

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 you 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 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, Speak Out for Military Kids. 4-H teens demonstrated leadership skills in thier 4-H clubs and at 4-H events and programs.

Results
17% of RI 4-H members participated in district public presentation contests, 4-H Club Officers training, Speak Out for Military Kids Program and 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 at the Eastern States Exposition. 4-H volunteers have reported

increased leadership skills and confidence among their 4-H club officers and teen leaders.

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.

Not Reporting on this Outcome Measure

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.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Through connecting to the vast land-grant system of resources and educational opportunities, % of parents and youth-serving adults who will gain knowledge and skills in risk reduction and adopt practices that promote health and safety within the family and community.

Not Reporting on this Outcome Measure

Outcome #7

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)

Not Reporting on this Outcome Measure

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 and Data Collection)

Evaluation Results

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 professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	0.0	0.0	0.0
Actual	1.5	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
60042	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
77163	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 & Education

Other Agricultural Service Providers

Tourism Councils and Tourism Businesses

Land Trusts

Policy Makers and Municipal Leaders

Grassroots and Community Organizations

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1045	19500	250	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Conduct Community based workshops

Year	Actual
2010	6

Output #2

Output Measure

- Professional training

Year	Actual
2010	12

Output #3

Output Measure

- Public presentations

Year	Actual
2010	13

Output #4

Output Measure

- Website development and refinement

Year	Actual
2010	1

Output #5

Output Measure

- Student Training

Year	Actual
2010	3

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	Consult with grassroots and municipal bodies to identify planning processes and strategies that preserve viable farmland, promote sustainability and economic development
4	Participate in local and regional collaborations to identify strategies that preserve active farmland and promote agricultural sustainability and economic development.

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	Quantitative Target	Actual
2010	1	170

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 participated in a Land Preservation Summit held in RI to discuss land transfer/estate planning. Estate planning was 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
Solid results in this area can take 5-10 years to see, so we are still at the beginning. However, fifteen beginning farmers at the 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." At least two other 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	Quantitative Target	Actual
2010	1	20000

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 taken 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 worked with the host of the Local "Rhode Show" television program to film a segment on 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 second 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 airing of the Rhode Show. 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

Consult with grassroots and municipal bodies to identify planning processes and strategies that preserve viable farmland, promote sustainability and economic development

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	375

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

The Rhode Island Agricultural Partnership hired American Farmland Trust to develop a 5-year strategic plan for RI agriculture to be included in the State Guide Plan. Three farmer listening sessions were held to determine the greatest needs of farmers; land access/preservation was a high priority. The state extension agent worked with the State Conservation Committee to host a Tax Assessor Training for all the town assessors to encourage use of the Farm, Forest, Open Space values when taxing agricultural, forestry, and open space properties. URI helped host a presentation by Mike Hamm, a leader in the impact of agriculture and local foods on local communities.

Results

American Farmland Trust is completing the final draft of the 5-year Strategic Plan for RI Agriculture with an expected roll-out date of May 2011. The plan has widespread approval from the state planner and the new director of the Department of Environmental Management; adoption is expected. A survey following the tax assessor training showed very positive results. Of the five municipalities that were not previously using those recommended values, two will recommend change in protocol to use the recommended values. Of the remaining three, two are currently using values that are lower than the recommended values. These activities are helping keep our land resources valued, open, and productive.

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 #4

1. **Outcome Measures**

Participate in local and regional collaborations to identify strategies that preserve active farmland and promote agricultural sustainability and economic development.

Not Reporting on this Outcome Measure

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

{No Data Entered}

V(I). Planned Program (Evaluation Studies and Data Collection)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

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 professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	0.0	2.0	0.0
Actual	1.2	0.0	0.2	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
51159	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	82980	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

- Use surveillance data accumulated over a dozen years to develop new tools to pinpoint risk, both spatially and seasonally.
-

Use computer models to view disease patterns in Rhode Island and to develop models for disease risk.

- Determine landscape patterns that present the greatest risk for encountering a tick bite.
- Formulate landscape plans to reduce the chances of encounters between ticks and people.
- Create a web-based decision support system. Using this system, people will be able to compile a customized risk index and then follow links that will help them devise short- and long-term disease prevention action plans.
- Reduce tick abundance community-wide by using USDA-designed 4-posters, which are devices that attract deer with corn dispensed in small amounts.
- Study the salivary glands of ticks to find compounds from ticks with potential pharmacological value, formulate novel vaccination strategies to prevent tick-transmitted infections, develop biomolecular assays for tick-borne pathogens, elucidate transmission dynamics of pathogens among tick vectors and vertebrate hosts, and discover and evaluate natural enemies of ticks.

2. Brief description of the target audience

The target audience will be diverse and will represent all Rhode Islanders, especially those at greatestrisk of contracting vector borne diseases.This audience will include:

Community members

Grassroots agencies

Municipal and State Policy Makers

Home owners

Educational Institutions

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2012	45000	275	10000

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

Patent Applications Submitted

Year: 2010

Actual: 2

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	2	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year	Actual
2010	2

Output #2

Output Measure

- Books and monographs

Year	Actual
2010	0

Output #3

Output Measure

- Abstracts

Year	Actual
2010	0

Output #4

Output Measure

- Conference proceedings

Year	Actual
2010	0

Output #5

Output Measure

- Workshops

Year	Actual
2010	0

Output #6

Output Measure

- Website development and refinement

Year	Actual
2010	168

Output #7

Output Measure

- Public presentations

Year	Actual
2010	31

Output #8

Output Measure

- Public service announcements

Year	Actual
2010	3

Output #9

Output Measure

- Student training

Year	Actual
2010	9

Output #10

Output Measure

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

Year	Actual
2010	4

Output #11

Output Measure

- Postdoctoral fellow training

Year	Actual
2010	2

Output #12

Output Measure

- Fact sheets, bulletins and newsletters

Year	Actual
2010	12

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	Characterize the salivary glands of ticks to identify compounds of potential pharmacological value
6	Formulate novel vaccination strategies to prevent tick-transmitted diseases
7	Elucidate transmission dynamics of pathogens among tick vectors
8	Increase research funding

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Knowledge of areas for high risk of contracting vector borne diseases is essential for informing the public of this danger and taking remedial actions.

What has been done
The abundance of ticks carrying pathogens has been identified in the state.

Results
Information on the prevalence of ticks, their activity and means of contending with this have been placed on a highly visible website: www.tickencounter.org.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Create tick surveillance database

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Relative humidity (RH)is a factor in determining tick activity. If the levels of RH and tick activity can be correlated it would provide the basis for a web based system to determine the risk of tick exposure and potentially contracting vector borne diseases.

What has been done
A network of 12 relative humidity (RH) data measurement and logger instruments were established in corresponding field sampling sites. Weekly nymphal tick abundance samples and RH logger readings were collected, for a second summer to assess whether a correlation exists and finetuned RH measurements can be utilized to predict tick activity.

Results
Nymphal tick abundance samples and hourly RH measurements were collected in three state-managed study areas during the summers of 2009 and 2010. A total of 1140 nymphal ticks were collected during the 2009
summer field-work campaign. Overall, average RH at time of sampling was 84.38%. A total of 683 nymphal ticks were collected during the 2010 summer field-work campaign. Overall, average RH at time of sampling
was 75.35%. Analysis of data indicates that cumulative hours of sub-82% RH threshold was found to be the most significant factor observed in both years for tick activity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
721	Insects and Other Pests Affecting Humans

722 Zoonotic Diseases and Parasites Affecting Humans

Outcome #4

1. Outcome Measures

Reduce tick abundance community-wide

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A reduction in ticks decreases the potential for residents to contract tick borne diseases.

What has been done
Extensive information has been placed on the website providing methods for both local and area-wide reduction of tick populations including the use of "four posters" for treating deer, perimeter spraying, eliminating tick habitat and mouse targeted devices.

Results
The website has provided a convenient and easily accesible source of information on reducing tick populations and the risks associated with ticks.

4. Associated Knowledge Areas

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

Outcome #5

1. **Outcome Measures**

Characterize the salivary glands of ticks to identify compounds of potential pharmacological value

Not Reporting on this Outcome Measure

Outcome #6

1. **Outcome Measures**

Formulate novel vaccination strategies to prevent tick-transmitted diseases

Not Reporting on this Outcome Measure

Outcome #7

1. **Outcome Measures**

Elucidate transmission dynamics of pathogens among tick vectors

Not Reporting on this Outcome Measure

Outcome #8

1. **Outcome Measures**

Increase research funding

Not Reporting on this Outcome Measure

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

Constraints to the current federal budget could impact the availability of funding for this and related projects in the future. Increased outdoor activities in suburban environments has increased the potential for tick bites and associated diseases. The goal of this project to increase awareness and provide an index for assessing tick activity.

V(I). Planned Program (Evaluation Studies and Data Collection)

Evaluation Results

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	0%		10%	
304	Animal Genome	0%		30%	
307	Animal Management Systems	50%		10%	
311	Animal Diseases	50%		50%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.8	0.0	2.0	0.0
Actual	0.1	0.0	2.5	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
12375	0	88690	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	133043	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.

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.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	100	700	10	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	2	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer Reviewed Publications

Year	Actual
2010	2

Output #2

Output Measure

- Abstracts

Year	Actual
2010	3

Output #3

Output Measure

- Scientific and Professional Presentations

Year	Actual
2010	3

Output #4

Output Measure

- Workshops

Year	Actual
2010	0

Output #5

Output Measure

- Student training

Year	Actual
2010	3

Output #6

Output Measure

- MS theses and PhD dissertations

Year	Actual
2010	2

Output #7

Output Measure

- Postdoctoral fellow training

Year	Actual
2010	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 Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Rhode Island is the "Ocean State" and has significant potential for finfish and shellfish aquaculture. Any increases in efficiency of production will enhance the potential for economically viable aquaculture in the state.

What has been done
In shellfish the role of matrix metalloproteinases (MMPs) is being examined. MMPs serve a critical role in numerous physiological and pathological processes in mammals including immunity and inflammation. However, little is known about the role of matrix metalloproteinases in invertebrates. In finfish, the role of follistatin in regulating muscle growth in trout is being investigated. If muscle growth can be enhanced by manipulation of this protein it could increase economic gain to the producer.

Results
Investigations have shown that oyster MMPs are involved in innate immunity by being one of the molecules involved in migration of hemocytes through the tissues in response to bacterial or parasitic infection. In fish fish our research has demonstrated that overexpression of follistatin stimulates muscle growth leading to increased muscle mass in trout. The effects of this molecule on other characteristics of the fish are being investigated.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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

Brief Explanation

Changes in appropriations and in funding priorities have made it more difficult to secure funds in all areas of agriculture research. This holds true for aquaculture.

V(I). Planned Program (Evaluation Studies and Data Collection)

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Water Quality

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	10%		10%	
112	Watershed Protection and Management	50%		50%	
131	Alternative Uses of Land	15%		15%	
133	Pollution Prevention and Mitigation	25%		25%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	7.0	0.0
Actual	2.4	0.0	3.2	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
213256	0	87685	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
114838	0	209962	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 investigationsfocus on watershed patterns and processes that affect the fate of nitrogen. Research methods include lab and field studies as well as geospatial analyses.

Extension programs create 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:

Develop 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 (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

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	3739	5491	394	76

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	1	2	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer Reviewed Publications

Year	Actual
2010	3

Output #2

Output Measure

- Fact sheets, bulletins and newsletters

Year	Actual
2010	18

Output #3

Output Measure

- Website development and refinement

Year	Actual
2010	4

Output #4

Output Measure

- Training manuals and Instructional CDS developed

Year	Actual
2010	0

Output #5

Output Measure

- Public service announcements, news releases/articles

Year	Actual
2010	0

Output #6

Output Measure

- Books and monographs

Year	Actual
2010	1

Output #7

Output Measure

- Abstracts

Year	Actual
2010	18

Output #8

Output Measure

- Workshops and Conferences hosted or Co-hosted

Year	Actual
2010	44

Output #9

Output Measure

- Presentations and Short Courses

Year	Actual
2010	43

Output #10

Output Measure

- Student training

Year	Actual
2010	50

Output #11

Output Measure

- MS theses and PhD dissertations

Year	Actual
2010	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 methods to maintain and improve 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.
4	Increased in the proportion of the public and professionals knowledgeable about management of storm water.
5	Increase in targeted households and professionals gaining knowledge of testing, treatment and protection of private well water.
6	Increase knowledge of scientists and decision makers through presentations and publications on the use of tracers for detecting sources of bacterial contamination of surface waters

Outcome #1

1. Outcome Measures

Increased (%) of in the proportion of professionals and the public knowledgeable about methods to maintain and improve onsite wastewater treatment.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	5	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 poses a direct public and environmental health risk. Educating practitioners, regulators, decision makers, and system owners about advanced treatment technologies for onsite wastewater and about management approaches is needed to help raise the awareness level, and enable a shift to modern state-of-the-science approaches.

What has been done
Forty-two 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. A peer reviewed onsite wastewater system installer's training curriculum was finalized and published. Assisted with a statewide wastewater management database (RIWIS) to encourage inspections, cesspool removal and repair of failing and substandard systems in water supply zones. Worked with colleagues at Univ. of Virgin Islands, Univ. of Puerto Rico and VI DPNR; developed a 5 year onsite wastewater training for wastewater professionals and regulatory asssitance plan for the US Caribbean Islands; 1st training event completed in St Croix, USVI ,March 2010.

Results
Innovative technologies are being approved and installed at an increased rate throughout most of New England, including nearly 1000 approvals in RI alone. Over 1500 onsite wastewater practitioners were reached and trained in new technologies and better quality installations.

Thirteen Rhode Island communities are now utilizing the RIWIS, a free web-accessed wastewater management database and system tracking program developed jointly through a partnership between Carmody Data Systems, Inc. and URI NEMO and NEOWTC. NEOWTC provided technical asssitance 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 2010 we sucessfully conducted the first 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.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
"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. 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

We collected field data (transect, flow and water quality data on several points of the Beaver River, a river with several USGS-gauged stations) for use with the MIKE-SHE distributed model to examine the effects of land use change on stream flow regimes.For our field-based research, we monitored stream nitrate-N, chloride, and discharge on a monthly basis at 19 reaches within a total of seven streams in four Rhode Island watersheds. We used woody debris blocks, natural woody debris and clay blocks in a series of laboratory mesocosm experiments to assess the impact of woody debris on in-stream denitrification. Our modeling approach (N Tracker) uses readily available county scale geospatial data to track the pathway and fate of N from source areas through critical hydrologic and geomorphic attributes of stream reach ecosystem N sinks in lower order watersheds, including wetland riparian zones, reservoirs, and particular features within streams.

Results

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. Our results suggest that the velocities, depth and length of Rhode Island headwater streams combine to reduce their roles as significant N sinks. 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. Headwater streams with retention features such as impoundments and streams that are connected to ponds and swamps may also have increased chances of N removal and deserve further study.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Increased (%) development of locally based water resource data for use by communities and the public.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	10	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 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
Approximately 400 scientist-led volunteer monitors perform weekly or biweekly monitoring on 250 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. They collect samples for lab analyses of nutrients and bacteria. Some monitor stream flow and count aquatic macroinvertebrates. The URIWW Analytical Lab passed its rigorous triennial lab certification inspection ensuring its data validity. Additionally, workshops were held to educate residents about aquatic invasive species.

Results
Because of Extension-led volunteer monitoring an unparallelled 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

Outcome #4

1. Outcome Measures

Increased in the proportion of the public and professionals knowledgeable about management of storm water.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	5	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
URI 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. All 39 of Rhode Island municipalities and six institutions operate small Municipal Separate Storm Sewer Systems (MS4s), and are required to comply with the EPA Phase II Storm Water Rule under the Rhode Island Pollutant Discharge Elimination System (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 stormwater management. RI NEMO organized and conducted four new workshops, 5 presentations, 5 displays and held a statewide conference, each with supporting educational materials. Workshops covered: Stormwater Design and Installation,MS4 General Permit for Public education and Involvement measures and institutionalizing stormwater education. Presentations and displays on residential stormwater management practices used watershed model and/or rain barrels at venues around the state. Draft standards were developed for restoring compacted soils, stormdrain marking was conducted with URI students in 2 towns, and a website for stakeholders was expanded.

Results

Stormwater workshops for municipal officials reached more than 375 stormwater managers, design engineers and others involved in land use. At least 95 percent of RI stormwater managers, representing at least 43 of the 45 municipalities and institutions (MS4s) regulated under the Phase II permit program, have been trained in the updated RI Storm Water Design and Installation Standards Manual and the draft manual was substantially revised to address input received. Municipalities used or adapted URI materials to educate residents and business owners about actions they can take to prevent stormwater pollution. Two communities distributed a business self-inspection checklist to all commercial property owners with impervious cover greater than 2 acres. Municipalities also continued to update local codes using model ordinances developed by URI and DEM. As a result, the number certifying adoption of local stormwater management ordinances increasing to 43% from 38% in 2009 and from 13% in 2008.

4. Associated Knowledge Areas

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

Outcome #5

1. Outcome Measures

Increase in targeted households and professionals gaining knowledge of testing, treatment and protection of private well water.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	15	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 policy makers, and non-profit organizations.

What has been done

In conjunction with the RI Department of Health and University of New England's Health Literacy Institute, URI developed a private well testing booklet and mailed to more than 60,000 RI households.
Held 7 private well water workshops for 176 people in communities throughout Rhode Island.
Shared private well workshop materials for revisions in Maine. Revised program website to reflect what was learned during booklet development. Annually the webpage receives over 4,500 visits, with the factsheet pages being the most frequented.
Held 2009 Northeast Private Well Water Symposium in Portland Maine, November 16 & 17, 2009 for over 100 professionals involved in private well water protection.

Results

Post workshop evaluations show that participants of private well workshops are taking action to protect their private well, most notably, 51% of workshop participants had their well water tested. Paper submitted (in review) to the Journal of Extension summarizes outcomes of private well education and training program 2004 - 2009. A post-workshop questionnaire for the 2009 NE Private Well Symposium (55% return) was designed to capture the following information and measured against the following objectives: 1. 98% of the survey respondents strongly agreed or agreed that the symposium provided an effective avenue for exchanging ideas about private well water issues. 2. 98% percent of the survey respondents strongly agreed or agreed that they gained a significant increase in knowledge in at least one of the symposium topic areas. 3. 87% percent of survey respondents strongly agreed or agreed that they anticipate contacting at least one expert/colleague they identified through the event within the year. 4. 90% percent of survey respondents strongly agreed or agreed that they will integrate knowledge gained from the symposium into their educational efforts within one year. 5. 100% of survey respondents strongly agreed or agreed that this event should be held regularly.The evaluation results serve as a needs assessment for future program planning.

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation

Outcome #6

1. Outcome Measures

Increase knowledge of scientists and decision makers through presentations and publications on the use of tracers for detecting sources of bacterial contamination of surface waters

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Improperly functioning OWTS can be significant sources of nutrient and microbial pollutants to ground and surface waters. Understanding the microbial ecology and biogeochemistry of OWTS, and the fate of contaminants associated with their malfunction is crucial to maximizing their performance and minimizing their impact.

What has been done
Two short courses on microbiology of OWTS in RI and VT were taught. Three presentations on the fate of pathogenic microorganisms in conventional OWTS were given at the World Environmental and Water Resources Conference in Providence, RI were given. Two peer-reviewed papers were published: one on field performance of an advanced OWTS technology and the other on fate of microbial pathogens in conventional OWTS. An undergraduate student worked as a lab assistant in these projects. We have also been a resource to outreach personnel within the URI Water Quality program.

Results
We reached nearly 100 wastewater scientists and professionals directly through presentations and short courses. Both regional and global audiences were reached. Through the publication of our research in internationally- read venues we have advanced scientific and technical understanding of the functioning of OWTS in terms of nutrient and pathogen removal. As a result of our field work, local communities and state regulators will be conducting large-scale testing of an advanced OWTS technology. In addition,the results of our work on source tracking of human fecal contamination will be made available to community members and state regulators at an upcoming regional scientific meeting.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

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

{No Data Entered}

V(I). Planned Program (Evaluation Studies and Data Collection)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Forestry and Wildlife

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	15%		15%	
123	Management and Sustainability of Forest Resources	25%		25%	
131	Alternative Uses of Land	30%		30%	
135	Aquatic and Terrestrial Wildlife	10%		10%	
136	Conservation of Biological Diversity	20%		20%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.5	0.0	1.0	0.0
Actual	0.8	0.0	6.0	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
47627	0	172921	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
43531	0	325324	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 includes an assessment of the impacts of urbanization on seasonal woodland ponds along a disturbance gradient, with special emphasis on impacts of groundwater withdrawal on pond hydrology and amphibian habitat suitability. Economic analyses of willingness to pay for land conservation or ecosystem services generates new knowledge in relationship to people's willingness to support ecosystems and conservation and to assess the potential for green markets. Investigations on habitat quality in early successional forests explore how management practices affect populations of grouse, woodcock and associated wildlife species. Research on changes in body composition and blood metabolites evaluates the quality of available forest habitats and food sources for migrating song birds at stop over sites in Coastal New England and will provide insights for managing coastal habitats for enhancing biodiversity. Development of subaqueous soils interpretive approaches improves decisions on such issues as eelgrass restoration, dredging and aquaculture. Extension work raises the awareness of forest owners, local decision makers, NGOs and state officials about the values and management of RI's forest resource and to provide our audience with the tools and educational materials to make informed decisions that protect and enhance the state's forests. We provide data and training to planners, conservation groups, and land trusts at the municipal level to increase awareness of vital natural resources and critical habitats, including forest resources throughout 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.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year	Actual
2010	3

Output #2

Output Measure

- Fact sheets, Bulletins and newsletters

Year	Actual
2010	3

Output #3

Output Measure

- Short courses

Year	Actual
2010	3

Output #4

Output Measure

- Website development and refinement

Year	Actual
2010	4

Output #5

Output Measure

- Books and monographs

Year	Actual
2010	0

Output #6

Output Measure

- Abstracts

Year	Actual
2010	9

Output #7

Output Measure

- Workshops and Conferences hosted

Year	Actual
2010	6

Output #8

Output Measure

- Public presentations

Year	Actual
2010	17

Output #9

Output Measure

- Student training

Year	Actual
2010	23

Output #10

Output Measure

- MS Theses and PhD Dissertations

Year	Actual
2010	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	Development and dissemination of new subaqueous soils interpretive approaches through publications, workshops or talks.

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Geospatial research and technology can play an enormously important role in providing decision support for land use decision making. In particular, new GIS, GPS and remote sensing tools are continually being made available which are poised to assist local decision makers to both visualize existing and future land use patterns, and model the various impacts of these patterns. Local governments also play an important role in forest and wildlife management within Rhode Island. 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
Three introductory GIS classes conducted; assisting with the 2010 Rhode Island Land and Water Conservation Summit. 395,158 data files, constituting 832 GB, were downloaded from the geospatial data distribution websites. Over sixty online map services made available for GIS professionals and general public. GPS equipment loans continued to support conservation work such as evaluating forest health, monitoring invasive species.

Results
Geospatial data were used to support a diversity of projects in Rhode Island and beyond; measuring the extent of early successional forest and supporting land conservation efforts by land trusts. The training repertoire was expanded to offer classes on free and low-cost software to support better informed land-use decisions. Updated resource profiles were developed for each of Rhode Island's 39 municipalities to support the development of customized online maps.

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 #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.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Although seasonal 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.

What has been done
We monitored surface and ground water levels and water chemistry in control ponds and two sets of wellfield ponds in southern RI. We compared the hydrologic response and characteristics of the control ponds to those of the well field ponds to assess the potential impact of ground water withdrawals on seasonal pond water levels hydroperiod. One Master?s thesis will be completed in May 2011.

Results

We have produced a protocol for evaluating the potential impact of groundwater withdrawals on seasonal ponds. Hydrologic data including surface water level and ground water level monitoring allow classification of the pond regarding degree of impact form pumping. This information is coupled with the results of a drawdown model to predict the degree of impact on the pond and the potential for degradation of breeding habitat.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity

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 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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 analyses of willing to pay for land 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 were conducted to test market incentives for 4 different methods of revenue-raising approaches to selling public goods. We also marketed habitat services of farms for grassland nesting birds in Rhode Island and Vermont through direct mail and web advertising, using these incentive mechanisms. We presented results at two conferences and a workshop, nationally and internationally.

Results
Experiments identified the role of balancing the size of a contributing group and its values with the cost of a public good provided; this balance affects the success of incentive mechanisms to finance the public good. Direct mail marketing is proving challenging in state-wide efforts; higher success has been achieved in marketing to households in the specific community where farms are located.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land

Outcome #5

1. Outcome Measures

Development and dissemination of new subaqueous soils interpretive approaches through publications, workshops or talks.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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 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
Through experimental mesocosms with dredge materials from four different soil types within four estuaries and a series of experimental plots we studied oyster aquaculture, hard-shell clam growth, and eelgrass restoration relationships relative to soil type; calculated soil organic carbon pools and examined the distribution of heavy metals in these soils.

Results
Subaqueous soils vary in the suitability of their dredge materials for land application; some soils can create acid sulfate conditions in the subaerial environment. Subaqueous soils also varied in their potential to grow shellfish to a marketable size faster and with higher survival rates. Eelgrass transplanted were difficult to re-establish regardless of soil types and restoration; success did not correspond to current eelgrass density. Relatively high soil sulfide and organic matter contents were acting as direct or indirect stressors to eelgrass success. Subaqueous soils in estuaries sequester carbon with carbon pools equal or greater, than most adjacent subaerial soils. Nearly all of the soils had elevated heavy metal levels with highest levels were adjacent to locations of surface water inputs draining an urbanizing area.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources

V(H). Planned Program (External Factors)

External factors which affected outcomes
- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies and Data Collection)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

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%		0%	
205	Plant Management Systems	40%		0%	
806	Youth Development	25%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual	4.8	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
154445	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
152674	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

• The Master Gardener volunteer training program was continued and enhanced including development of an advanced training program for active volunteers

• Extension personnel delivered information on sustainable horticulture through media, workshops and the Master Gardener training program. Master Gardener volunteers extended the University's educational reach by running workshops, staffing booths, testing soil, answering questions by phone and email, developing demonstration gardens, holding garden tours and conducting a range of other educational activiites.
• A Master Composter and Recycler Training Program provided a cadre of volunteers to educate the public about sustainable waste management and recycling.
• The Master Gardener and Master Composter volunteers adopted environmentally sound technologies and practices themselves.
• Outreach to school children and to the urban population center in the state was provided through programming at the RWP Botanical Center in Providence.
• An Invasive Certification Course was developed and conducted to certify green industry professionals in invasive management and landscape restoration techniques.
• A landscape management guidance manual was developed for coastal residential projects.
• Factsheets, websites, television and print media were used to disseminate information to the general public.

2. Brief description of the target audience

Community and Public decision makers (local, state and federal agencies)

Members of the general public (serious and casual gardeners, homeowners, environmentalists, teachers)

Landscape installation and maintenance companies, landscape designers and other members of the green industries

School aged children

Urban populations

Municipal Planners

Various NGOs (land trusts, environmental organizations)

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	573000	250000	9931	100

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

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	1	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year	Actual
2010	1

Output #2

Output Measure

- Fact sheets, bulletins and newsletters

Year	Actual
2010	7

Output #3

Output Measure

- Public service announcements, news releases/articles

Year	Actual
2010	21

Output #4

Output Measure

- Website development and refinement

Year	Actual
2010	7

Output #5

Output Measure

- Books and monographs

Year	Actual
2010	1

Output #6

Output Measure

- Abstracts

  Not reporting on this Output for this Annual Report

Output #7

Output Measure

- Workshops or Conferences hosted or co-hosted

Year	Actual
2010	27

Output #8

Output Measure

- Presentations and short courses

Year	Actual
2010	74

Output #9

Output Measure

- Student training

Year	Actual
2010	12

Output #10

Output Measure

- Number of volunteers trained

Year	Actual
2010	290

Output #11

Output Measure

- Number of Phone and Email Consultations

Year	Actual
2010	9321

Output #12

Output Measure

- Number of demonstration gardens

Year	Actual
2010	9

Output #13

Output Measure

- Youth reached through programs

Year	Actual
2010	9931

Output #14

Output Measure

- Number of Certifications

Year	Actual
2010	226

Output #15

Output Measure

- Curricula developed and delivered

Year	Actual
2010	33

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increased use and development (%) of locally based water quality and watershed data by community decision makers
2	Development of new models
3	Increased (%) of BMP approaches adopted by target audiences
4	Increased adoption (%) of improved landscape management practices by targeted population
5	A successful Master Gardener Volunteer Program will be maintained and enhanced to expand the impact of URI Extension and Outreach's programs and free up Extension Educators time by recruiting, training, supporting, managing, recognizing and retaining volunteers.
6	RI citizens will access URI's educational resources on horticulture including factsheets, URIMGA websites and other Master Gardener or URI materials and implement practices that protect the environment, increase their profitability, and/or improve their quality of life.
7	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.
8	URI's Master Composter training program will extend the educational reach of the University by recruiting, training and managing volunteers to education and encourage Rhode Island citizens to compost.
9	Curricula development, training programs and provision of certification opportunities provide to green industry professionals opportunities and strategies to integrate native plants, landscape restoration, invasive plant management and low impact development into their businesses.
10	Participation in the Learning Landscape and other hands on youth environmental education programs provide students in grades K-5 with increased knowledge and skills about the environment, horticulture and science. Teachers' trainings offer supplemental environmental science tools for formal and informal educators.

Outcome #1

1. **Outcome Measures**

   Increased use and development (%) of locally based water quality and watershed data by community decision makers

   Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

   Development of new models

   Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

   Increased (%) of BMP approaches adopted by target audiences

   Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

   Increased adoption (%) of improved landscape management practices by targeted population

   Not Reporting on this Outcome Measure

Outcome #5

1. **Outcome Measures**

   A successful Master Gardener Volunteer Program will be maintained and enhanced to expand the impact of URI Extension and Outreach's programs and free up Extension Educators 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	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The URI Outreach Center Director, the State Master Gardener Coordinator and other Outreach Center staff develop programs to address environmental, economic, social and aesthetic challenges. To expand our capability to deliver these programs, URI staff must learn skills that enable them to recruit, train, support, manage, recognize and retain volunteers.

What has been done
The Master Gardener training program was conducted from January - May, 2010. 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 hours volunteered 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
806	Youth Development

Outcome #6

1. Outcome Measures

RI citizens will access URI's educational resources on horticulture including factsheets, URIMGA websites and other Master Gardener or URI materials and implement practices that protect the environment, increase their profitability, and/or improve their quality of life.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Rhode Island is one of the most densely populated states in the country. Managed landscapes, including residential and other development in suburban areas, can have a significant impact on the environment including water quality and quantity, solid waste management & biodiversity. We use the popularity of gardening as an avenue for communicating a wealth of information on environmental issues and to provide guidelines for home practices to minimize pollution or otherwise protect the environment.

What has been done
Trained Master Gardener volunteers provide phone and email consultations, run educational workshops and special events, staff information booth, provide soil testing, create and maintain demonstration gardens, give public presentations and disseminate URI factsheets.

Results
The Master Gardener Program has increased the ability of Rhode Island's citizens to enjoy the benefits of sustainable gardening while sustaining the economic, aesthetic and environmental quality of the State.

4. Associated Knowledge Areas

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

Outcome #7

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	3

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 has 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 #8

1. Outcome Measures

URI's Master Composter training program will extend the educational reach of the University by recruiting, training and managing volunteers to education and encourage Rhode Island citizens to compost.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	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
Over 50 volunteers have been trained to serve as Master Composter volunteers, extending the reach and impact of URI educators. The volunteers have answered over 3100 phone calls and email questions and delivered 15 presentations and conducted 4 workshops.

Results
Awareness of the benefits of composting have increased and more people are composting their organic materials at home thus saving the environmental and financial costs of hauling and landfilling this material.

4. Associated Knowledge Areas

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

Outcome #9

1. Outcome Measures

Curricula development, training programs and provision of certification opportunities provide to green industry professionals opportunities and strategies to integrate native plants, landscape restoration, invasive plant management and low impact development into their businesses.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	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 but are often lacking. Education and certification programs are needed to show landowners and landscape 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 175 invasive managers have been certified and are being hired to remove invasives and restore native plants in the coastal buffer zone. Awareness of the impact of invasives and the value of native plants and plant community has increased.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

205 Plant Management Systems

Outcome #10

1. Outcome Measures

Participation in the Learning Landscape and other hands on youth environmental education programs provide students in grades K-5 with 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	Quantitative Target	Actual
2010	{No Data Entered}	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 are offered in the fall, winter and spring as well as during school vacation weeks. Students use 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 are presented in a fun and age-appropriate format. Students bring their experiences back to the classroom with seeds planted in a recycled pot and their own nature journals. Teacher trainings are conducted.

Results
Students gained knowledge about life and earth sciences. Students also were provided with opportunities to develop their written and oral communication skills as well as learning about the meaning and value of environmental stewardship.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
205	Plant Management Systems
806	Youth 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
- Competing Programmatic Challenges

Brief Explanation

V(I). Planned Program (Evaluation Studies and Data Collection)

Evaluation Results

Pre and post evaluations are conducted for all training programs to quantify change in knowledge, attitude and behaviors. In addition, URI staff used the ADDIE model of program design and assessment to update the master gardener training program. Through surveys of class participants and the piloting of more hands-on adult education teaching methods (case studies and class discussion as opposed to straight lectures), it was determined that these methods should be used more often. By employing small group break-out sessions and class discussions, adult learners felt more connected to the course and were more likely to change their knowledge, attitudes and behavior.

Key Items of Evaluation

Application of the ADDIE and Logic model to the Master Gardener course provided valuable insights into how to achieve greater impact on knowledge, attitudes and behavior.

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%		30%	
302	Nutrient Utilization in Animals	0%		20%	
305	Animal Physiological Processes	0%		20%	
311	Animal Diseases	0%		30%	
	Total	0%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.3	0.0	1.3	0.0
Actual	0.0	0.0	1.4	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	43804	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	117198	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 are to: 1) examine the role of selenium and vitamin E on immune system function in livestock, 2) explore the use of cranberry extracts as anti-helminths and 3) investigate

cellular and molecular regulation of spermatogenesis and 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 are: livestock farmers in the Northeast and nationwide, the livestock artificial insemination industry and 4H- youth.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	50	700	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	2	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year	Actual
2010	2

Output #2

Output Measure

- Student training

Year	Actual
2010	12

Output #3

Output Measure

- Scientific and Professional Presentations

Year	Actual
2010	6

Output #4

Output Measure

- Public presentations

Year	Actual
2010	0

Output #5

Output Measure

- Abstracts

Year	Actual
2010	4

Output #6

Output Measure

- Fact sheets, bulletins and newsletters

Year	Actual
2010	0

Output #7

Output Measure

- MS Theses and PhD Dissertations

Year	Actual
2010	1

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 Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Reproduction, especially through artificial insemination, is a cornerstone of livestock production. Recent advances in molecular techniques allow us to investigate aspects of reproduction in ways that will lead to improved methods and therefore success.

What has been done
The CREM (cyclic-AMP response element modulator) transcription factor is a key regulator of gene expression during sperm production. Different messenger RNA isoforms of CREM, generated by alternative mRNA
splicing, control the level and timing of protein translation. We have sequenced the predominant full-length CREM mRNA sequences for the boar and bull using RT-PCR and rapid amplification cDNA ends (RACE).
Quantitative RT-PCR was used to compare the expression level of CREM isoforms with one of three different promoter exons.

Results
We have identified that differential CREMr isoforms are expressed in immature and adult boar and bull testis. The novel porcine CREM sequence has high sequence homology to the previously reported human sequence but does demonstrate species-specificity. The adult boar and bull testis express CREM isoforms for each promoter exon. The CREM92r is the most highly expressed CREM isoform in adult germ cells based on qPCR analysis. The CREMr1 mRNA was also amplified as a minor product in
adult testis. Immature boar testis express activator isoforms CREMr1 and CREMr. Our results confirm in livestock that several different CREM isoforms function during spermatogenesis but are developmentally expressed. These findings stress the need for characterization of CREM isoform profiles in transcriptome analysis for individual species of interest, in order to establish which

isoforms are normally present and to allow assays to differentiate between normal and irregular gene expression patterns that could contribute to infertility in livestock.

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	Quantitative Target	Actual
2010	1	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Parasitic infection is one of the primary causes of lamb neonatal mortality. Reducing mortality will result in economic gain to lamb/sheep producers.

What has been done
Work has continued to characterize the effect of vitamin E supplementation on parasite infection in lambs. In addition, two experiments were conducted to assess lymphocyte function in lambs receiving weekly injections of alpha-tocopherol (70 IU/ kg BW) or placebo from birth through seven months of age; the first monitored the effects of vitamin E supplementation on lymphocyte surface receptor expression and the second measured the effect of vitamin E supplementation on antibody production and lymphocyte proliferation

Results
There was no effect of vitamin E supplementation on total IgG or anti-tetanus IgG production however the vitamin E supplemented lambs produced a stronger, more rapid, and longer-lived response to vaccination against a novel antigen, Brucella abortus. These results indicate that vitamin E may enhance the ability of lambs to immunogenically respond to a challenge with a

novel antigen i.e. a response unimpeded by the presence of circulating maternal antibodies. There was no effect of vitamin E supplementation on lymphocyte proliferation. Vitamin E supplementation decreased expression of gamma/delta T lymphocytes in lambs, as measured by flow cytometry. Gamma/delta T lymphocytes are important in cell-mediated immune responses although their mechanism of action remains unclear. Finally, there was no effect of parenteral vitamin E supplementation on a naturally acquired parasite infection in lambs.

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

Changes in funding allocations and priorities have made it more difficult to examine problems of significance to agriculture in all areas. Reproduction and nutrition are affected by this trend.

V(I). Planned Program (Evaluation Studies and Data Collection)

Evaluation Results

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 professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	5.0	0.0	8.0	0.0
Actual	2.5	0.0	3.4	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**
25513	0	99703	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
332435	0	154557	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 (seea 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

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

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	475	18500	87	345

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	5	7	12

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year	Actual
2010	14

Output #2

Output Measure

- Books and monographs

Year	Actual

2010	0

Output #3

Output Measure

- Abstracts

Year	Actual
2010	7

Output #4

Output Measure

- Conference proceedings

Year	Actual
2010	0

Output #5

Output Measure

- Technical documents, fact sheets and bulletins

Year	Actual
2010	8

Output #6

Output Measure

- Workshops

Year	Actual
2010	6

Output #7

Output Measure

- Website development and refinement

Year	Actual
2010	1

Output #8

Output Measure

- Public presentations

Year	Actual
2010	6

Output #9

Output Measure

- Student training

Year	Actual
2010	11

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
2010	0

Output #11

Output Measure

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

Year	Actual
2010	1

Output #12

Output Measure

- MS Theses and PhD Dissertations

Year	Actual
2010	5

Output #13

Output Measure

- Professional training

Year	Actual
2010	2

Output #14

Output Measure

- Professional/scientific presentations

Year	Actual
2010	5

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	Increase availability and local production of sustainable ornamental trees and shrubs, and turf and roadside grasses (%)
3	Better understand the biology of plants and their pests, including the identification of gene functions for select traits on select crop species (# genes identified)
4	Increase use of sustainable plants and IPM practices by CE-trained green industry professionals and the gardening public (%)
5	Reduce damage caused by pests through our biological control efforts, or through environmentally sensitive pesticide applications influenced by our IPM and pesticide applicator-training programs (% reduction)
6	Reduce needs for water, nutrients, or labor for select ornamental plants and grasses (%)
7	Improve landscape quality in high-stress areas through improved management practices and development of stress-tolerant plants (% adoption of BMP)
8	Increase profit from production, resulting from more efficient marketing and reduced production costs as well as alternative uses for agricultural crops (%)
9	Enhance public understanding of pest management practices in New England

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	2	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Low input and sustainable trees and shrubs are an important component of the RI and regional landscape industry. Proper selection and use of plant materials reduces pesticide use and labor inputs. The regional nursery and landscape industries request new plant materials for evaluation and marketing to consumers. URI maintains evaluation plants of trees and shrubs which industry reps use. Several nurseries send trees each year for evaluation.

What has been done
Several new trees and shrub accessions were added in the reporting period. Annual reports were prepared and sent to collaborating nurseries.

Results
OVER 300 industry professionals were educated on the plants being monitored at URI. More than 25 participated in workshops. Several hundred cuttings and seeds were distributed to area nurseries for evaluation and production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
103	Management of Saline and Sodic Soils and Salinity
202	Plant Genetic Resources
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

Outcome #2

1. **Outcome Measures**

Increase availability and local production of sustainable ornamental trees and shrubs, and turf and roadside grasses (%)

Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

Better understand the biology of plants and their pests, including the identification of gene functions for select traits on select crop species (# genes identified)

Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

Increase use of sustainable plants and IPM practices by CE-trained green industry professionals and the gardening public (%)

Not Reporting on this Outcome Measure

Outcome #5

1. **Outcome Measures**

Reduce damage caused by pests through our biological control efforts, or through environmentally sensitive pesticide applications influenced by our IPM and pesticide applicator-training programs (% reduction)

2. **Associated Institution Types**

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	2	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Growers, land managers and other groups throughout New England need techniques to control invasive plants and introduced insects. Developing environmentally sensitive and economically viable approaches to managing these serious problems is a top priority for public and private land managers. In particular, biological control could make a significant contribution to managing P. rapae as well as mile-a-minute vine and black swallowwort.

What has been done
Rhode Island is one of several states coordinating biological control programs again mile-a-minute vine, p. rapae and black swallowort. Several states participate in a regional survey, coordinated through U.Mass and results and impacts will be summarized by our colleagues.

Results
Our results indicate that, contrary to previous thought, C. rubecula has not completely displaced C. glomerata in southern New England and despite both parasitoid species; our growers continue to have problems with P. rapae. Our research offers major contributions toward the long-term goal of biological control of these invasive plants and the beneficial environmental impacts that would result from their successful control.

About two weeks after release of Rhinoncomimus latipes weevils against mile-a-minute vine, we saw significant damage to the release quadrat and within about 3 meters of the release quadrat. On Sept. 17th we detected weevil damage to mile-a-minute vine as far as 30 meters from the release quadrat.

4. Associated Knowledge Areas

KA Code	Knowledge Area
103	Management of Saline and Sodic Soils and Salinity
202	Plant Genetic Resources
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
215	Biological Control of Pests Affecting Plants

Outcome #6

1. Outcome Measures

Reduce needs for water, nutrients, or labor for select ornamental plants and grasses (%)

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Improve landscape quality in high-stress areas through improved management practices and development of stress-tolerant plants (% adoption of BMP)

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

Increase profit from production, resulting from more efficient marketing and reduced production costs as well as alternative uses for agricultural crops (%)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	20	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
103	Management of Saline and Sodic Soils and Salinity
202	Plant Genetic Resources
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants

215 Biological Control of Pests Affecting Plants

Outcome #9

1. Outcome Measures

Enhance public understanding of pest management practices in New England

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	20	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Various sectors of the public (growers, backyard gardeners, public and private land managers) rely on the URI IPM program for the latest scientific information about insect, disease and invasive problems and how to best manage these challenges. Provision of timely and accurate information has enormous economic and environmental value.

What has been done
URI IPM faculty and staff have conducted workshops, made public presentations, staffed booths at festivals, released parasitoides and held twilight educational meetings.

Results
Growers, RINLA members, general public attended workshops and trainings and received information that allowed them to protect their gardens, crops and ornamental plants from damage.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest 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

V(I). Planned Program (Evaluation Studies and Data Collection)

Evaluation Results

Workshops post evaluations indicated information highly useful

Sweet corn growers switched to Bt corn rather than using additional insecticides

Damage from winter moth egg hatch avoided by early pest alerts from URI

Weevil releases against mile-a-minute weed highly successful - substantial feeding damage in release sites and a significant reduction in seed clusters at one site. Weevils appear to have established.

Two species of parasitoids of lily leaf beetle are established in test sites in RI and have spread over 10 miles beyond release site.

In MA, lily leaf beetle infestations have significantly declined in area of original parasitoid release.

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	25%		25%	
606	International Trade and Development	25%		25%	
609	Economic Theory and Methods	25%		25%	
610	Domestic Policy Analysis	25%		25%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	2.0	0.0
Actual	0.1	0.0	2.6	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
57770	0	85712	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	153035	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.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	350	600	3	10

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	4	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Peer reviewed publications

Year	Actual
2010	3

Output #2

Output Measure

- Books and monographs

Year	Actual
2010	0

Output #3

Output Measure

- Abstracts

Year	Actual
2010	2

Output #4

Output Measure

- Conference proceedings

Year	Actual
2010	1

Output #5

Output Measure

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

Year	Actual
2010	3

Output #6

Output Measure

- Professional/scientific presentations

Year	Actual
2010	7

Output #7

Output Measure

- Student training

Year	Actual
2010	3

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	M.S. and Ph. D. degree conferrals (#)
2	Expand seafood markets by development of new marketing ideas.
3	Identification of market niches for seafood
4	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.
5	Increase understanding of private and public sector and scientists of economic and market factors in fisheries and aquaculture management through publications and presentations.

Outcome #1

1. **Outcome Measures**

   M.S. and Ph. D. degree conferrals (#)

   Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

   Expand seafood markets by development of new marketing ideas.

   Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

   Identification of market niches for seafood

   Not Reporting on this Outcome Measure

Outcome #4

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 #5

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.

2. **Associated Institution Types**

   - 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	1

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
1) A study of the global interaction of effective governance with sustainable seafood production and its interaction with international trade; 2) a study of U.S. import demand for swordfish and the effects of international trade restrictions to protect the ocean environment on swordfish trade; 3) use of scanner data to evaluate the market benefits of ecolabeling of seafood products; and 4) the relevance of corporate social responsibility as a rationale for promotion of the market for sustainable seafood.

Results
Output from this project is actively being used by environmental NGOs, policy makers, and industry, in their evaluations of market-based approaches and policy approaches toward achieving sustainable seafood production through improved fisheries management and best practices in aquaculture. Outputs from the analyses highlight the economic benefits and costs of achieving sustainability, balanced with social and environmental considerations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
606	International Trade and Development
609	Economic Theory and Methods
610	Domestic Policy Analysis

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 and Data Collection)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

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
605	Natural Resource and Environmental Economics	33%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	33%		0%	
903	Communication, Education, and Information Delivery	34%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Actual	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

A **Master Energy Training Program** will be developed and 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.

Educational resourceson energy including factsheets, websites, workshops and other educational forums will be developed for RI so that stakeholders can access the information and use it to implement practices that protect the environment, increase their profitability, and/or improve their quality of life.

Through participating in hands-on **youth environmental education** programs, students in grades K-12 will demonstrate increased knowledge and skills about the environment, energy and science.

EPA Climate Showcase Communities - By benchmarking energy use, providing energy audits and training and technical assistance programs, RI municipalities will reduce energy use and GHG emissions.

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.

Energy Fellows have been engaged in a variety of energy projects led by the URI Outreach Center as well as by external partners 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.

2. Brief description of the target audience

Energy stakeholder groups including the residential sector; large and small commercial and industrial energy users and low income population

Public sector energy entities at the state and regional level

State and local policy and decisionmakers

Municipalities

School Departments

Youth

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	250	1181	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Factsheets and bulletins

Year	Actual
2010	4

Output #2

Output Measure

- Website development and refinement

Year	Actual
2010	2

Output #3

Output Measure

- Workshops and conferences hosted

Year	Actual

2010	8

Output #4

Output Measure

- Public presentations

Year	Actual
2010	31

Output #5

Output Measure

- Students trained

Year	Actual
2010	45

Output #6

Output Measure

- Direct contact - Adults

Year	Actual
2010	250

Output #7

Output Measure

- Indirect contact - adults

Year	Actual
2010	1182

Output #8

Output Measure

- Direct contact youth

Year	Actual
2010	2881

Output #9

Output Measure

- Volunteers trained

Year	Actual
2010	68

Output #10

Output Measure

- Curricula developed

Year	Actual
2010	3

Output #11

Output Measure

- Certifications awarded

Year	Actual
2010	68

Output #12

Output Measure

- Telephone and email consultations

Year	Actual
2010	67

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	A Master Energy Training Program will be developed and 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	Educational resources on energy including factsheets, websites, workshops and other educational forums will be developed for RI so that stakeholders can access the information and use it to implement practices that protect the environment, increase their profitability, and/or improve their quality of life.
3	Participating in hands-on youth environmental education programs, students in grades K-12 will increase knowledge and skills about the environment, energy and science.
4	Municipal energy program: By benchmarking energy use, providing energy audits and training and technical assistance programs, RI municipalities will reduce energy use and GHG emissions.
5	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.
6	Through URI's Sustainable Energy Program a cross-disciplinary team of URI graduate and undergraduate student fellows work in partnership with national, state and local governments, energy providers and the business community to develop locally-based solutions to global energy issues. The program provides students with an extraordinary opportunity to address the challenges of energy supply.

Outcome #1

1. Outcome Measures

A Master Energy Training Program will be developed and 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	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

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

What has been done
The Master Energy Training Program was run twice during FY2010 in late Fall 2009 and Spring 2010.

Results
In FY 2010, 68 attended the program. Participants increased their knowledge about sustainable energy and steps they could take to reduce energy use.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

903 Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Educational resources on energy including factsheets, websites, workshops and other educational forums will be developed for RI so that stakeholders can access the information and use it to implement practices that protect the environment, increase their profitability, and/or improve their quality of life.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
RI stakeholders who lack the time, funds or interest to attend a multi-session training course need access to impartial information on energy so that they can make informed choices.

What has been done
A website has been developed which provides a wealth of energy information for various stakeholders groups. Links are provided to other energy resources and information from energy workshops and events is posted.

Results
Energy website - 1182 visitors, 7630 page views, 2540 visits, 2.89 pages per visit. Staff gave 10 public presentations on sustainable energy. The Energy Fellows developed 2 educational brochures, one on geothermal heat pump systems and one on home energy-saving tips.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
803	Sociological and Technological Change Affecting Individuals, Families, and

	Communities
903	Communication, Education, and Information Delivery

Outcome #3

1. Outcome Measures

Participating in hands-on youth environmental education programs, students in grades K-12 will increase knowledge and skills about the environment, energy and science.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Teaching youth about energy - where it comes from, consequences of our current production and use patterns and the environmental and economic costs, is essential to our energy future, which is currently dependent on fossil fuels.

What has been done
A unit on energy has been incorporated into the Learning Landscape and EcoExploration Environmental Education programs. A semester long program on biofuels and energy was developed and conducted for a high school science class.

Results
In Spring 2010, 12 high school students were engaged in a 14 week biofuels curriculum. As part of the curriculum, each student researched and presented on a specific type of biofuel. 2881 children k-5 learned about energy.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
803	Sociological and Technological Change Affecting Individuals, Families, and

	Communities
903	Communication, Education, and Information Delivery

Outcome #4

1. Outcome Measures

Municipal energy program: By benchmarking energy use, providing energy audits and training and technical assistance programs, RI municipalities will reduce energy use and GHG emissions.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	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 United States. 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.

What has been done
Energy use information is being compiled and entered into Portfolio Manager for 14 municipalities in RI.

Results
Communities have a benchmark of how much energy they use and how the energy consumption in their buildings stack up against other similar facilities. This information is the first step towards developing a plan to reduce energy consumption, save money and reduce greenhouse gas emissions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

803	Sociological and Technological Change Affecting Individuals, Families, and Communities
903	Communication, Education, and Information Delivery

Outcome #5

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
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	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
Through workshops, presentations and a website the public is educated regarding ways to promote fuel efficiency practices and influence current driver trends.
Through regular meetings and workshops, stakeholders are educated about alternative fuel and vehicle related legislation and regulations.
Positive, frequent media coverage is generated on alternative fuels and alternative fuel vehicles.

Results
Stakeholders have increased knowledge about alternative fuels and alternative fuel vehicles.
More RI public fleets, private fleets and individuals are using alternative fuels.

4. Associated Knowledge Areas

KA Code	Knowledge Area

605	Natural Resource and Environmental Economics
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
903	Communication, Education, and Information Delivery

Outcome #6

1. Outcome Measures

Through URI's Sustainable Energy Program a cross-disciplinary team of URI graduate and undergraduate student fellows work in partnership with national, state and local governments, energy providers and the business community to develop locally-based solutions to global energy issues. The program provides students with an extraordinary opportunity to address the challenges of energy supply.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Energy issues encompass some of the most pressing environmental, economic and social challenges facing the world today. Private and public sector companies and agencies managing the myriad of problems inherent in developing a clean, sustainable energy system need well-trained employees.

What has been done
URI has established the Energy Fellows Program to provide both students from a range of disciplines with an overview of the energy challenges and then an opportunity to develop a deeper skill set through an experiential learning project.

Results
During FY2010, 33 undergraduate and graduate students from 12 different majors and 5 colleges were engaged in the URI Energy Fellows program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
903	Communication, Education, and Information Delivery

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 and Data Collection)

Evaluation Results

Pre and post evaluations are conducted.

Student employment opportunities are tracked.

Key Items of Evaluation

Well trained students with hands-on experience with energy projects are able to find well paid employment after graduation.

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 professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	2.0	0.0	2.0	0.0
Actual	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

The experiment station and extension developed a request for application (RFA) process that encouraged innovative, integrated proposals that meet the needs of state stakeholders. Proposals are then evaluated by internal university teams and external peers.Infrastructure needs are also addressed by this program.

2. Brief description of the target audience

Academic faculty, university staff, graduate students, undergraduate students, university administrators

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Proposal submissions

Year	Actual
2010	21

Output #2

Output Measure

- Proposals funded

Year	Actual

2010 14

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	Quantitative Target	Actual
2010	1	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.

Results
Proposals were funded and new knowledge generated was reported in the program areas of this Annual Report of 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	Quantitative Target	Actual
2010	1	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Infrastructure is essential to provide the platform from which to privde research and extension services.

What has been done
Funding for students, personnel, supplies and travel 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	Quantitative Target	Actual
2010	0	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Moving scientific information from the bench to the end user requires a thoughtful and defi8ned 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	Quantitative Target	Actual
2010	0	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 is to the benefit of the end user and stakeholder.

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

{No Data Entered}

V(I). Planned Program (Evaluation Studies and Data Collection)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}