

# 2009 University of Vermont Combined Research and Extension Annual Report of Accomplishments and Results

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## I. Report Overview

### 1. Executive Summary

UVM Extension and VT-AES continue to effectively collaborate at all levels to improve the quality of life for all Vermonters. With a global economic downturn affecting all sectors of VT's economies, the work of UVM Extension and VT-AES, targeting VT's underserved, has become more crucial while requiring ever greater efficiencies. During FY09, UVM Extension and VT-AES together applied USDA's \$3.5 million to leverage an additional \$14 million in grants, contracts and fees, and \$7 million from state sources to address community needs. UVM also hired specialists to address VT's critical issues, outlined below. Faculty established 10 new patents in FY09, including 4 products to greatly boost maple syrup production, disease-resistance-associated enzymes and genetic expression vectors, a safe, greener whey-protein based wood adhesive. Hatch funds supported 288 projects during FY09. Of these, 15 were integrated projects.

#### ***Regional and Local Safe Food Systems Development***

UVM recognizes that severe problems exist in our nation under current food systems, including that:

- 67% of U.S. adults age 20 and above are overweight, 34% are obese (CDC, 2008);
- 17 million U.S. household have difficulty obtaining enough food during the year (ERS, 2009); and
- food-borne illnesses affect tens of millions of Americans each year (CDC, 2005).

Increased efforts, through large multistate and federal grants and FTE shifts, helped UVM to focus on creating efficient, safe, and responsive local and regional food and product-based economies and opportunities. VT-AES and UVM Extension faculty are developing useful measures of regional agricultural self-sustainability through local markets. One method quantifies aggregate maximum food needs met, and another method provides commodity-based maxima. Social network analysis is making sense of complex, decentralized organizational communication networks, helping to discern useful and used information sources and correlates to successful communication networks. UVM is investigating transportation networks to improve safe food distribution and farm safety in case of disease outbreaks or terrorist events. Studies have helped local food promoters to understand VT's current limits in meeting food needs, and where gaps are greatest.

#### ***Utilizing Technology to Improve Business Opportunities for VT***

UVM successfully patented on-farm by-products, including whey, a major waste product for cheese farmers across the state. UVM researchers are recycling this by-product into wood stains and glues absent volatile chemicals harmful to humans and the environment. The creation of novel probiotic food and beverage are providing people with healthier food options and providing entrepreneurial opportunities for VT farmers and probiotics food distributors. Use of internet communications options has improved opportunities for developing higher profit margin farming operations, such as organic apple and cold-hardy wine production. UVM has played a large role in the development of the national OrganicA eXtension website. The effort demonstrates the successful integration of 6 UVM Extension and VT-AES personnel.

#### ***Developing Cost-effective Greenhouse Gas Emissions and Water Quality Improvement Practices***

New faculty is working to reduce methane gas emissions produced by on-farm animals. Studies show how changing dairy feed components and pasture practices reduce on-farm methane production and emissions. Research also focuses on adding chemicals to feed and using other microbes to outcompete methane-producing microbes involved in animal digestion. Working internationally, models and *in situ* studies show how balancing farm food with biodiesel crops reduces costs, increases outputs, and reduces reliance on fossil fuels, thereby reducing greenhouse gas emissions. UVM work conducted in Europe has shown benefits to farmers that surpass European Union subsidy payments received.

Through collaborative local and regional partnerships, phosphorus runoff from more than 4,000 small (< 200 acres) dairy farm acres was reduced by eight percent within one year of UVM implementing new practices with 30 small farm operators. As part of the nutrient management plans implemented, soil testing led to changes in practices that reduced fertilizer use and feed costs, due to resulting increased crop yields. UVM received a three-year grant for "pioneering" work on field trials of innovative steel slag technology for treatment of silage leachate. This new technology could benefit the farming community with affordable (minimal energy, land and maintenance requirements) and efficient solutions for agricultural wastewater treatment. VT-AES research is restoring a more positive view of the role nematodes play as indicators of soil health and in regulating soil decomposition. Other UVM studies are providing examples and basic information confirming the need for balance with regard to nonnative earthworms in soils, which can actually harm soil health if not kept in check.

#### ***Helping VT Families Cope with Volatile Economy and Global Events Affecting Them***

As many dairy and other farmers seek to diversify to seasonal crops, and as VT maple production is being negatively impacted by climate change, new sap spout patents by UVM are increasing sap yields by 50 to 100 percent per tree, and annual crop yields by 20 to 50%. The business complement to the sap spout development received 1.5 million advance orders and projected sales of three million units, making the spout its number one selling product. UVM continues to help dairy farms, still the predominant agricultural enterprise in VT, to develop more efficient whole-farm dairy production by addressing health and economic concerns on a number of fronts. UVM is developing new cost-saving mastitis treatments and development of mastitis resistant milking cows. Also, by addressing bedding improvements, farmers have saved money by reducing health costs and increasing milk production.

VT has suffered a high per-capita cost in terms of military personnel deployed overseas. 4H's Operation Military Kids (OMK) builds community connections for kids, empowers teens to share their stories, and helps them educate the community about the realities of the deployment cycle. Community members support kids with special Hero Packs that keep them in touch with deployed parents and babysitting. A mobile technology lab helps kids create cards, movies, emails, and digital art projects to send to parents serving away from home.

### ***Multistate Initiatives***

UVM has made national and international inroads through its multistate efforts in areas related to organic apple production, valuing on-farm biodiesel production, communicating efforts and outcomes within and between states, and profitably conserving forest and farmland. Cold-hardy winegrape production grants involve researchers from throughout the northeast and Quebec. UVM launched the OrganicA website in 2007, and ongoing stakeholder evaluations show that 100% found the organic information useful, with 56% of respondents stating that they have used the information on the website in decision-making; 81% believed that the website will enhance the adoption of organic apple production. UVM conducted cold-hardiness trials for groundcovers popularly used in New England, but for which conflicting data exists. A New England-wide survey of the horticulture industry resulted in data showing an industry value of \$4.7 billion, with over 11,900 firms employing an estimated 156,000 people. Data is being used by regional funders and the survey served as a model for a similar effort by the Association of Professional Landscape Designers.

UVM developed a New England raspberry Pest Management Strategy Plan for EPA and evaluated the maple industry for pest management practices in advance of developing a plan for maple producers.

UVM continues to work in the Middle East to develop integrated pest management strategies for SunnPest, a major cause of wheat and barley damage. Using novel procedures, entomopathogenic fungal isolate persistence has been verified 12 months post-application in several over-wintering sites in the Middle East. Use of this option for reducing SunnPest damage is resulting in lower pesticide use, higher wheat quality, reduced environmental impact and reduced health risks to farmers and consumers. UVM has been working with Rhode Island to develop healthier soil indicators and mechanisms for reducing inputs while increasing soil health.

Results of a multistate health project involving Vermont and Arkansas, built upon 14 years of weight loss research conducted by UVM, demonstrate the copyrighted VTRim program leads to weight loss after 6 months for a majority of participants, regardless of whether they participate using internet only (average loss 10 pounds), internet and in-person meetings (average loss 15 pounds), and in-person meetings only (average loss 21 pounds). The program is now being marketed throughout the nation.

### ***Integrated Initiatives***

A total of \$868,543 was expended by UVM Extension and VT-AES on integrated projects. These include projects that are:

- increasing sap yields for maple producers with vacuum technologies
- reducing phosphorus runoff into waterways through portable wastewater management technology;
- helping Vermonters to identify food-related behaviors associated with healthy weights, including how dinners are produced, the percent of time eating out, and the number of hours TV is watched and monitoring their weight and calorie intake using daily journals;
- conducting studies and sharing research results for organic apple production, cold-hardy winegrape production, horticultural production, and integrated pest management
- providing more Vermont towns with useful planning data and resources, decision-making tools and training
- providing artisanal cheesemakers with new certification programs, courses and events that help them gain skills in cheesemaking, safety, tasting and sensing, and promoting their products;
- developing new markets and value-added products for farmers throughout the state through research, on-farm testing, marketing links and connections with entrepreneurs, and patenting products; and
- analyzing local and regional food systems, food deserts and gaps in self-sustaining food systems for Vermont

UVM Centers of Excellence utilize citizen advisory boards to inform and guide research and outreach agenda

responsive to local, state, and national priorities:

Center for Sustainable Agriculture&mdashan interdisciplinary approach to integrating university and community expertise to promote regional food systems development and sustainable farming systems throughout Vermont and the region;

Center for Rural Studies&mdashconnecting information and technical expertise with communities, businesses and policymakers in researching rural issues and information dissemination;

Proctor Maple Research Center&mdashapplied research in the production of maple sap and syrup;

Vermont Institute of Artisanal Cheese - conducting research and providing workshops on artisanal and raw milk cheese production quality and safety

**What's Next?**

Faculty, staff and community members exemplify VT's spirit of resilience under adverse economic and globally turbulent conditions. Volunteers provided more than 30,000 hours to serve others. UVM continues to steer university research and outreach in useful directions. Through the development of Spires of Excellence, UVM is focusing resources on transdisciplinary research to explore multi-scale biological system dynamics, environmental change and adaptation, food systems, and public policies, integrating ecological economics concepts throughout this work. Novel efforts to describe and focus work in these ways will guide research and outreach efforts to provide timely assistance that meets the increasingly multi-layered and externally influenced needs of VT in our dynamic global environment.

**Total Actual Amount of professional FTEs/SYs for this State**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	34.8	0.0	13.8	0.0
Actual	52.0	0.0	18.6	0.0

**II. Merit Review Process**

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

- External University Panel
- Expert Peer Review

**2. Brief Explanation**

Vermont was reviewed by the external panel from Maine, New Hampshire and Massachusetts. The input was considered by administrative teams in both Extension and AES. A joint meeting was held between Extension and AES to discuss the review and how the points could be incorporated into future programming efforts.

**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 individuals
- Targeted invitation to selected individuals from general public
- Survey of the general public

**Brief explanation.**

UVM Extension has a state advisory board with representatives from across the state. The members of this board were drawn from a cross section of disciplines and program areas in which the organization provides educational opportunities. The members of the board have the responsibility to work with the director to review programs, budget decisions and new initiatives within the organization. The board includes at least one youth member, currently the Vermont Agricultural Ambassador for the State of Vermont that is selected annually. The members represent UVM Extension and not the individual disciplines or program areas from which they were selected for board discussions.

The board members are given weekly updates on the actions of the director and are encouraged to provide feedback to the director on an on-going basis. In addition, the board members are contacted on an as needed basis, collectively or individually to help provide feedback to the director. The board has two regularly scheduled business meetings per year and participates in the annual legislative reception.

In addition to the state advisory board, regional and local focus groups, surveys, discussions with associations, agencies and non-governmental organizations by the director, associate directors, faculty and/or program staff are all used to gather information from clientele regarding programmatic needs. The Center for Rural Studies conducts an annual Vermonter Poll, a phone survey of 600 Vermonters. Faculty and staff work with many partners and program participants who offer input on present and future programming to address identified needs.

**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
- Needs Assessments
- Use Surveys

**Brief explanation.**

UVM Extension and VT-AES have a state advisory board with representatives from across the state. The members of this board are drawn from a cross section of disciplines and program areas in which the organization provides educational opportunities.

Faculty and program staff gather input from participants and partners in program efforts to identify programmatic needs and development steps.

**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
- 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.**

Stakeholder input is gathered with a variety of surveys and evaluation tools (on-line, both pre and exit surveys), input from technical and advisory boards, the Vermonter Poll and the Extension web based reporting system. Feedback from program participants and collaborators are taken into consideration when program revisions are made. As extension staff report work efforts, they include any stakeholder input gathered during that effort.

### 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.**

Nearly all program efforts ask participants about process and meeting their need for information and skills. That input directly influences current and future research and program efforts. Needs assessments were done for Dining with Diabetes and Community Leadership. The Vermonter Poll data was conducted and collected data from over 600 Vermont citizens.

#### **Brief Explanation of what you learned from your Stakeholders**

- Participants who are happy with their current program are anxious to give feedback that can be used to further meet their needs.

- During troubling economic times alternative delivery methods are being explored. Dining with diabetes needs assessment showed that an audience that was not being served was the caregivers and providers of those with diabetes. A pilot was done targeting that audience and was successful. In an effort to reduce delivery costs of the program, the program was developed and delivered via Interactive TV. This was rated equally by participants to traditional workshop settings.

- The Vermonter Poll showed that Promoting Renewable Energy was rated 10, highest on the scale of 1-10 by 46.9% of the Poll respondents. Higher than Water Quality in lake and streams (37.6%) and Thriving in Tough Economic Times (38%).

IV. Expenditure Summary

<b>1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)</b>			
<b>Extension</b>		<b>Research</b>	
<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
1722198	0	1596292	0

<b>2. Totaled Actual dollars from Planned Programs Inputs</b>				
<b>Extension</b>			<b>Research</b>	
	<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
<b>Actual Formula</b>	1560821	0	1944761	0
<b>Actual Matching</b>	4350034	0	1940411	0
<b>Actual All Other</b>	2040953	0	3411211	0
<b>Total Actual Expended</b>	7951808	0	7296383	0

<b>3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from</b>				
<b>Carryover</b>	0	0	0	0

**V. Planned Program Table of Content**

<b>S. No.</b>	<b>PROGRAM NAME</b>
1	Global Food Security and Hunger
2	Climate Change
3	Sustainable Energy
4	Community Development and the Personal and Intellectual Development of Youth
5	Food Safety
6	Childhood Obesity
7	Urban Non Point Source Pollution
8	Health - NOT ACTIVE - DELETE

**V(A). Planned Program (Summary)****Program # 1****1. Name of the Planned Program**

Global Food Security and Hunger

**V(B). Program Knowledge Area(s)****1. Program Knowledge Areas and Percentage**

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
102	Soil, Plant, Water, Nutrient Relationships	1%		5%	
104	Protect Soil from Harmful Effects of Natural Elements	1%		10%	
112	Watershed Protection and Management	0%		10%	
133	Pollution Prevention and Mitigation	4%		5%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		10%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		5%	
204	Plant Product Quality and Utility (Preharvest)	0%		5%	
205	Plant Management Systems	12%		5%	
206	Basic Plant Biology	0%		5%	
216	Integrated Pest Management Systems	5%		5%	
302	Nutrient Utilization in Animals	0%		2%	
305	Animal Physiological Processes	0%		3%	
307	Animal Management Systems	1%		5%	
313	Internal Parasites in Animals	1%		0%	
315	Animal Welfare/Well-Being and Protection	4%		5%	
601	Economics of Agricultural Production and Farm Management	32%		5%	
602	Business Management, Finance, and Taxation	23%		0%	
605	Natural Resource and Environmental Economics	13%		5%	
723	Hazards to Human Health and Safety	3%		5%	
801	Individual and Family Resource Management	0%		5%	
	<b>Total</b>	<b>100%</b>		<b>100%</b>	

**V(C). Planned Program (Inputs)****1. Actual amount of professional FTE/SYs expended this Program**

<b>Year: 2009</b>	<b>Extension</b>		<b>Research</b>	
	<b>1862</b>	<b>1890</b>	<b>1862</b>	<b>1890</b>
Plan	20.0	0.0	10.0	0.0
Actual	20.7	0.0	20.9	0.0

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



Extension		Research	
<b>Smith-Lever 3b &amp; 3c</b> 867283	<b>1890 Extension</b> 0	<b>Hatch</b> 712683	<b>Evans-Allen</b> 0
<b>1862 Matching</b> 2417133	<b>1890 Matching</b> 0	<b>1862 Matching</b> 804550	<b>1890 Matching</b> 0
<b>1862 All Other</b> 1053901	<b>1890 All Other</b> 0	<b>1862 All Other</b> 1007156	<b>1890 All Other</b> 0

**V(D). Planned Program (Activity)****1. Brief description of the Activity**

Ag Business Management  
 Consultation  
 Field day/fair  
 Field site visit  
 Presentation  
 Program Administration  
 Publication - fact sheet  
 Publication - newsletter  
 Website project management  
 Workshop - series  
 Workshop - single session  
 Agricultural Safety  
 Class/course  
 Discussion group  
 Presentation  
 Program Administration  
 Apples and Grapes  
 Consultation  
 Presentation  
 Publication - newsletter  
 Web Page/Internet site  
 Workshop - single session  
 Community Preparedness  
 Discussion group  
 Funding request  
 Publication - newsletter  
 Video produced  
 Web Page/Internet site  
 Workshop - series  
 Workshop - single session  
 Dairy Management  
 Discussion group  
 Publication - newsletter  
 Equine program  
 Conference  
 Consultation  
 Presentation  
 Website project management  
 Farm and Forest Transfers  
 Consultation  
 Workshop - single session

Farm Viability  
  Consultation  
  Discussion group  
  Field site visit  
Farming Alternatives  
  Consultation  
  Presentation  
Forage and Pasture Management Education  
  Consultation  
  Presentation  
  Publication - magazine article  
  Web Page/Internet site  
Local Foods  
  Consumer Publication  
  Discussion group  
  Publication - newsprint article  
  Research  
Maple Program  
  Conference  
  Consultation  
  Consumer Publication  
  Demonstration  
  Electronic Communication/phone  
  Field day/fair  
  Field site visit  
  Funding request  
  Presentation  
  Publication - newsletter  
  TV segment/ATF  
  Web Page/Internet site  
Master Gardener  
  Class/course  
  Display or exhibit  
  Electronic Communication/phone  
  Presentation  
  Program Administration  
  Train the Trainer  
  Workshop - series  
Nutrient Management Program  
  Consultation  
  Field day/fair  
  Field site visit  
  Research  
  Workshop - series  
  Workshop - single session  
Organic Grain Project  
  Publication - fact sheet  
  Publication - newsletter  
  Web Page/Internet site  
  Workshop - single session  
Pest Management Education  
  Consultation  
  Electronic Communication/phone  
  Presentation  
  Publication - fact sheet  
  Publication - newsletter  
  Web Page/Internet site  
  Workshop - single session

Private/Commercial Landowner and Industry Professional Education

- Conference
- Consultation
- Demonstration
- Publication - newsprint article
- Technical Publication
- Tour (s)
- TV segment/ATF
- Web Page/Internet site
- Workshop - single session

Senior Farm Share Nutrition Program

- Trainee delivered programming
- Workshop - single session

Sheep program

- Class/course
- Electronic Communication/phone
- Presentation
- Publication - newsletter
- TV segment/ATF
- Workshop - series
- Workshop - single session

Soil Health

- Field site visit

Sustainable Forests

- Funding request
- Publication - magazine article
- Publication - manual
- Web Page/Internet site
- Workshop - series
- Workshop - single session

UVM Tax School

- Conference
- Publication - manual

Vegetable and berry growers technical support

- Class/course
- Consultation
- Discussion group
- Presentation
- Publication - magazine article
- Publication - newsprint article
- Technical Publication
- Web Page/Internet site

Vermont New Farmer Network

- Discussion group
- Workshop - single session

Vermont Pasture Network

- Conference
- Consultation
- Electronic Communication/phone
- Field site visit
- Publication - newsletter
- Web Page/Internet site
- Workshop - single session

Vermont Tourism and Recreation

- Conference
- Consultation
- Consumer Publication
- Publication - Peer Reviewed

Research  
Web Page/Internet site  
Workshop - single session  
Women's Agricultural Network  
Class/course  
Discussion group  
Funding request  
Publication - newsletter  
Publication - newsprint article  
Web Page/Internet site  
Website project management

## 2. Brief description of the target audience

4-H: Adult Volunteers  
4-H: Youth  
4-H: Youth Volunteers  
Adults  
Age 13 - 18 Youth  
Age 19 - 24 Young Adult  
Age 25 - 60 Adult  
Age 46 - 65 Adult  
Age 6 - 12 School Age  
Age 8 - 18 Youth  
Agriculture/Natural Resources: Watershed Based Organizations  
Agriculture: Apple Growers  
Agriculture: CCA & Crop Consultants  
Agriculture: Crop Producers  
Agriculture: Dairy Producers  
Agriculture: Equine Producers/Owners  
Agriculture: Farm Employees  
Agriculture: Farm Families  
Agriculture: Farm Managers  
Agriculture: Farmers  
Agriculture: Goat & Sheep Producers  
Agriculture: Greenhouse Ornamental Growers  
Agriculture: Home Gardeners  
Agriculture: Industry Professionals  
Agriculture: Livestock producers  
Agriculture: Maple Industry  
Agriculture: Maple Sugar Producers  
Agriculture: Nursery operators  
Agriculture: Ornamentals Industry Professionals  
Agriculture: Service Providers  
Agriculture: Small Fruit & Vegetable Growers  
Agriculture: Veterinarians  
Agriculture: Government Agency Personnel  
Communities: Cities and Towns  
Communities: Educators  
Communities: Local Officials/Leaders  
Communities: Non-Governmental Organizations  
Communities: Schools  
Community leaders and citizens  
Dairy Herd Feed Consultants  
Dairy Professionals  
Dairy Veterinarians  
Extension: Advisors  
Extension: Faculty/Staff

Food Industry: Handlers  
 Forestry: Landscape Industry  
 Forestry: Wood Processors  
 Forestry: Wood Products Businesses  
 Forestry: Woodland Managers/Foresters  
 Forestry: Woodland Owners  
 Policy Makers: Legislators  
 Public: Age 6-12 (Children)  
 Public: Age 65+ (Seniors)  
 Public: College Students  
 Public: General  
 Public: Homeowners  
 Public: Master Gardeners  
 Public: Media Outlets  
 Public: Nonprofit Organizations  
 Public: Small Business Owners/Entrepreneurs  
 Public: Volunteers  
 School Grade: 3  
 Train-the-Trainer recipients:adults  
 USDA personnel  
 WIC Staff

Youth

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	65000	0	3000	0
<b>Actual</b>	48900	398000	2500	0

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

**Patent Applications Submitted**

Year: 2009  
 Plan: 3  
 Actual: 10

**Patents listed**

Maple Check valve with antimicrobial  
 Maple spray defoamer  
 Booster spout (revised)  
 Dual spout  
 2-cistron expression vector for protein over-expression  
 Guanyltransferase for 5'terminal base addition  
 Whey protein based environmentally friendly wood adhesive  
 Microfactory enhanced endophytic activity of biological control fungi  
 MorC  
 Validation of Glycolytic enzymes as drug targets for Cryptosporidium

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

<b>2009</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	3	5	
<b>Actual</b>	4	6	10

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Class/course

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	8	8

**Output #2**

**Output Measure**

- Conference

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	11	13

**Output #3**

**Output Measure**

- Consultation

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	1100	2217

**Output #4**

**Output Measure**

- Consumer Publication

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	1	14

**Output #5**

**Output Measure**

- Demonstration

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	45	3

**Output #6**

**Output Measure**

- Discussion group

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	20	29

**Output #7**

**Output Measure**

- Educational/evaluation instrument
- Not reporting on this Output for this Annual Report

**Output #8**

**Output Measure**

- Electronic Communication/phone

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	4600	2971

**Output #9**

**Output Measure**

- Field day/fair

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	6	6

**Output #10**

**Output Measure**

- Field site visit

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	160	258

**Output #11**

**Output Measure**

- Funding request

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	2	8

**Output #12**

**Output Measure**

- Presentation

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	525	275

**Output #13****Output Measure**

- Publication - Peer Reviewed

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	2	9

**Output #14****Output Measure**

- Publication - curriculum  
Not reporting on this Output for this Annual Report

**Output #15****Output Measure**

- Publication - fact sheet

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	10	35

**Output #16****Output Measure**

- Publication - magazine article

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	15	44

**Output #17****Output Measure**

- Publication - manual

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	1	2

**Output #18****Output Measure**

- Publication - newsletter

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	28	82

**Output #19****Output Measure**

- Publication - newsprint article

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	24	89



**Output #20****Output Measure**

- Research project

Year	Target	Actual
2009	3	9

**Output #21****Output Measure**

- TV segment/ATF

Year	Target	Actual
2009	5	15

**Output #22****Output Measure**

- Technical Publication

Year	Target	Actual
2009	11	22

**Output #23****Output Measure**

- Tour(s)

Year	Target	Actual
2009	2	1

**Output #24****Output Measure**

- Train the Trainer trainings

Year	Target	Actual
2009	12	1

**Output #25****Output Measure**

- Website development and updates

Year	Target	Actual
2009	80	83

**Output #26****Output Measure**

- Workshop - series

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	50	10

**Output #27**

**Output Measure**

- Workshop - single session

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	80	124

**Output #28**

**Output Measure**

- Trainee Delivered Programs

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	44

**Output #29**

**Output Measure**

- Website Project Mgmt

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	1

## V(G). State Defined Outcomes

### V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	extension employees will know what is expected from them in a disaster
2	Increase the number of farmers who will make a change by: growing oil seed crops, using local on-farm vegetable oil or biodiesel, and/or planning an individual or cooperative on-farm vegetable oil or biodiesel facility.
3	Increase in number of dairy farmers who adopt best management practices to improve their weak areas of the farming operation
4	Increase in number of farms completing Dairy Stewardship assessment who adopt at least two sustainable practices
5	Increase in number of maple producers who adopt recommended practices that increase overall system efficiency and syrup quality
6	Increase in number of sheep producers who report a reduced parasite load in animals
7	Increase in number of sheep farms who report decreased lamb mortality
8	Increase in the number of vegetable and berry growers implement changes in production, pest control, and/or management practice resulting in the desired outcome
9	Increase the number of growers implementing IPM practices reducing reliance on pesticides
10	Increase the number of commercial applicators implementing IPM practices
11	Increase the number of farm and forest landowners who implement their estate plan and/or transfer plan
12	Increase the number of farmers who implement at least one cropping practice to improve productivity, forage quality and profitability
13	Increase the number of maple producers adopting a recommended practice increasing their sap yields by 5%
14	Increase the number of maple producers making use of research findings to better estimate best tapping date
15	Increase the number of participants passing the required applicators licensing test
16	Increase the number of maple producers adopting most effective sap collection techniques
17	Increase the number of forest owners who plan for woodlands in their estates
18	Participants will begin growing organic grains as a part of their farming operation

19	Acres of forest land will be opened for tourism and recreation access
20	equine facilities incorporate biosecurity, safety and preventative measures
21	Increase in collaboration with agency and industry personnel to address farm safety
22	Increase in number of Growing Places graduates who make an intentional, informed decision not to start a business after completing the course
23	Increase in number of Growing Places graduates who go on to start a business within 18 months of course completion
24	Increase in number of fair, field days or event attendees who demonstrate an increased understanding of the health risks associated with the failure to wash hands by using safeguards provided (such as hand sanitation stations)
25	Increase in number of farmers who create and implement business plans
26	Increase in number of program participants who make informed decisions about crop insurance
27	Increase in number of tax school participants stating improved accuracy of tax reporting for their clients
28	Increase in number of tax schools participants understanding federal and state tax laws and requirements
29	Increase in number of farmers who use financial reports with another person for business purposes
30	Increase in number of farmers who implement a practice that improves soil quality resulting in improved crop yield and quality
31	Increase the number of businesses who report increases in profitability directly related to tourism
32	Increase in number of farmers that develop a nutrient management plan for their farm
33	Increase the number of farmers who implement at least one change in nutrient management plan practices
34	Increase the number of farmers who implement grazing plans
35	Increase the number of legislators and key decision makers who increase understanding of current local agricultural issues
36	Increase the number of school facilities that implement IPM strategies
37	Increase the number of sheep producers who supply lamb to Vermont Quality Meats
38	Decrease in number of days of beach closures in pilot areas.

39	Increase the number of farmers who will make a change by learning how to: grow oil seed crops, harvest oil seed crops, process oil seed crops into oil, produce biofuel, and plan a cooperative on-farm biofuel facility
40	Increase the number of growers who report cost savings from more cost effective and less toxic pest control due to easy access to pest control information sites.
41	Increase in the number of Watershed Alliance (WSA) interns who report increased knowledge and skills related to environmental education and watersheds.
42	Increase in number of farms that implement business plans resulting in increased profitability.
43	Increase number of gardeners and growers who select and grow new crops based on relevant information on climate tolerance, performance and overwintering of perennials
44	Increase number of towns using stormwater management and non-point source pollution prevention best management practices.
45	Increase the number of growers implementing Integrated Pest Management (IPM) practices reducing reliance on pesticides.
46	Increase the number of participants (who average 8 hours each in seminars) who will change a business practice(s)
47	Increased delivery of organic dairy information to dairy farmers across the nation that is accessible, reliable, credible and up-to-date.
48	Increase the number of local retail lawn and garden centers that are sources of information about low input lawn care options
49	Increase in number of Master Gardener participants earning certification
50	Increase in number of community watershed organizations developing pollution prevention outreach effort
51	Increase in number of educators in Watershed Alliance Program increasing knowledge and use of new teaching tools and techniques
52	Increase in number of households adopting low input lawn/garden care practices
53	Increase in number of participants who report making a change in on-farm production, marketing, financial management, legal or human resource aspects of their business
54	Increase in number of schools that continue to participate in Watershed Alliance (WSA) Program in subsequent years
55	Increase in number of students demonstrating increased knowledge of watersheds
56	Increase in number of towns adopting residential domestic NPS surveys to develop pollution prevention education
57	Increase in the number of farmers who improve pasture management practices
58	Increase in the number of student led community service watershed/water quality outreach projects

59	Increase or maintain the number of growers who make informed decisions regarding best integrated pest management (IPM) options to reduce economic, health and/or environmental risks
60	Increase the number of commercial properties reducing landscape inputs
61	Increase the number of home gardeners who increase their knowledge of Integrated Pest Management (IPM) practices
62	Increase the number of people who show improvement in food safety and preservation practices
63	Increase the number of student interns teaching backyard composting
64	Increase in number of Vermont Dairy Herd Improvement Association members that use their records to make herd management decisions that will improve business profitability
65	Increase in number of equine owners who use information to change behaviors in land and manure management of business practices to improve safety, animal health, and/or profitability of equine businesses and clientele
66	Increase in number of farmers who implement a practice that improves pasture health and soil quality for improved forage yields and quality
67	Increase number of 4-H dairy youth project members and 4-H dairy adult leaders who use the Vermont 4-H Dairy Project Manual
68	Increase number of dairy producers that make a facility change(s) to improve either herd health, herd productivity, the environment, community relations, labor efficiency, and/or crop quality/quantity
69	Increase the number of agricultural service providers who will make at least one change to their program and/or the way they work with beginning farmers to address stakeholder needs
70	Increase the number of farmers who implement cover cropping on their farm
71	Increase in number of forest owners, managers and users who make better decisions about forests using stumpage data
72	Increase in the number of forest owners saving money through use of written contracts for timber sales
73	number of farms that understand the consequences of a highly contagious disease outbreak
74	Number of enterprises (already using recommended practices) that use Extension consultation to assess/inform business decisions
75	farmers who implement at least one cropping practice to improve crop and soil productivity, water quality and profitability
76	Number of enterprises that adopt a recommended practice resulting in increased revenues and/or reduced costs
77	Number of farms that plan for and incorporate biosecurity, safety and preventative measures
78	Number of farms that understand the consequences of a highly contagious disease outbreak.

### **Outcome #1**

#### **1. Outcome Measures**

extension employees will know what is expected from them in a disaster

Not Reporting on this Outcome Measure

### **Outcome #2**

#### **1. Outcome Measures**

Increase the number of farmers who will make a change by: growing oil seed crops, using local on-farm vegetable oil or biodiesel, and/or planning an individual or cooperative on-farm vegetable oil or biodiesel facility.

Not Reporting on this Outcome Measure

### **Outcome #3**

#### **1. Outcome Measures**

Increase in number of dairy farmers who adopt best management practices to improve their weak areas of the farming operation

Not Reporting on this Outcome Measure

### **Outcome #4**

#### **1. Outcome Measures**

Increase in number of farms completing Dairy Stewardship assessment who adopt at least two sustainable practices

#### **2. Associated Institution Types**

- 1862 Extension

#### **3a. Outcome Type:**

Change in Action Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	28	37

#### **3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
601	Economics of Agricultural Production and Farm Management

#### Outcome #5

##### 1. Outcome Measures

Increase in number of maple producers who adopt recommended practices that increase overall system efficiency and syrup quality

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	420	1

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

Maple production is an enterprise in which thousands of Vermont landowners help preserve the forest landscape from development, and at the same time inject tens of millions of dollars into the state economy through direct sales and employment. Maple production also contributes to the image of Vermont as a leader in agriculture and environmental quality. To have a profitable and sustainable operation, maple producers must be educated with the latest information.

###### What has been done

The Vermont Maple Conferences are annual - day-long educational programs for maple producers organized by specialists from UVM Extension. Since their inception 6 years ago, total attendance has been just under three thousand producers. One of the major emphases of the conferences has been how to make syrup that meets the high quality standards for Vermont maple. Programming has consisted of classes on keeping lead out of maple products, finishing syrup by correctly using electronic instrumentation, proper packaging and storage, recognizing the cause of off-flavors, and appropriate boiling techniques.

###### Results

Following is a statement from Henry Marckres, chief of consumer protection with the VT Agency of Ag., and chief maple inspector: "The involvement of UVM Extension has made a significant impact in two specific areas of maple... lead content of maple syrup and inspecting and grading maple syrup for quality. Early testing (2000)for lead showed an average of over 300 ppb in Vermont samples...During our last testing (2008) of 100 producers, the average test was below 100 ppb... huge difference in the safety and quality of maple syrup ...significant drop in violations found in retail maple syrup...About 2,000 inspections are performed annually...seen a drop in violations from 150 in 2000, to just 15 in 2008. The education provided to producers has made a great impact on what consumers are buying at retail outlets."

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
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- 204 Plant Product Quality and Utility (Preharvest)
- 601 Economics of Agricultural Production and Farm Management

**Outcome #6**

**1. Outcome Measures**

Increase in number of sheep producers who report a reduced parasite load in animals

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	20	24

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

It is important to Vermonters to maintain a viable agricultural industry. The success of the livestock producers will help insure that. With the recent interest in locally grown food, an opportunity exists for Vermont sheep and other livestock farmers. It is important that producers raise healthy, high quality animals to meet consumer's expectations. However, treating all animals can be an expensive proposition and it also creates internal parasites that become resistant to the chemical used to control them.

**What has been done**

In 2007 and 2008 classes for sheep and goat producers were held demonstrating how to use the FAMACHA system of parasite control. This system was developed in South Africa and it allows producers to identify which animals and when they need to be treated. In 2009 a survey of those who had attended the classes in 2007 & 2008 was done.

**Results**

It was determined that 21 of the 22 people surveyed have adopted the FAMACHA system to control parasites. Sixteen or 80% of the people surveyed are deworming their animals less often than before using the FAMACHA system. Five producers have saved between \$5 and \$40, five have saved between \$41 and \$80, and two producers have saved between \$80 and \$120. The cost savings encourages targeted deworming and improves the health of these herds.

**4. Associated Knowledge Areas**

- | KA Code | Knowledge Area   |
|---------|--|
| 307     | Animal Management Systems                                |
| 601     | Economics of Agricultural Production and Farm Management |

### **Outcome #7**

#### **1. Outcome Measures**

Increase in number of sheep farms who report decreased lamb mortality

Not Reporting on this Outcome Measure

### **Outcome #8**

#### **1. Outcome Measures**

Increase in the number of vegetable and berry growers implement changes in production, pest control, and/or management practice resulting in the desired outcome

Not Reporting on this Outcome Measure

### **Outcome #9**

#### **1. Outcome Measures**

Increase the number of growers implementing IPM practices reducing reliance on pesticides

Not Reporting on this Outcome Measure

### **Outcome #10**

#### **1. Outcome Measures**

Increase the number of commercial applicators implementing IPM practices

Not Reporting on this Outcome Measure

### **Outcome #11**

#### **1. Outcome Measures**

Increase the number of farm and forest landowners who implement their estate plan and/or transfer plan

#### **2. Associated Institution Types**

- 1862 Extension

#### **3a. Outcome Type:**

Change in Action Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	10	3

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

**What has been done**

**Results**

### 4. Associated Knowledge Areas

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

#### Outcome #12

##### 1. Outcome Measures

Increase the number of farmers who implement at least one cropping practice to improve productivity, forage quality and profitability

Not Reporting on this Outcome Measure

#### Outcome #13

##### 1. Outcome Measures

Increase the number of maple producers adopting a recommended practice increasing their sap yields by 5%

Not Reporting on this Outcome Measure

#### Outcome #14

##### 1. Outcome Measures

Increase the number of maple producers making use of research findings to better estimate best tapping date

Not Reporting on this Outcome Measure

#### Outcome #15

##### 1. Outcome Measures

Increase the number of participants passing the required applicators licensing test

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	50	69

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
216	Integrated Pest Management Systems

**Outcome #16**

**1. Outcome Measures**

Increase the number of maple producers adopting most effective sap collection techniques

Not Reporting on this Outcome Measure

**Outcome #17**

**1. Outcome Measures**

Increase the number of forest owners who plan for woodlands in their estates

Not Reporting on this Outcome Measure

**Outcome #18**

**1. Outcome Measures**

Participants will begin growing organic grains as a part of their farming operation

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
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2009

20

5

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
601	Economics of Agricultural Production and Farm Management

**Outcome #19**

**1. Outcome Measures**

Acres of forest land will be opened for tourism and recreation access

Not Reporting on this Outcome Measure

**Outcome #20**

**1. Outcome Measures**

equine facilities incorporate biosecurity, safety and preventative measures

Not Reporting on this Outcome Measure

**Outcome #21**

**1. Outcome Measures**

Increase in collaboration with agency and industry personnel to address farm safety

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	10	10

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
723	Hazards to Human Health and Safety

**Outcome #22**

**1. Outcome Measures**

Increase in number of Growing Places graduates who make an intentional, informed decision not to start a business after completing the course

Not Reporting on this Outcome Measure

**Outcome #23**

**1. Outcome Measures**

Increase in number of Growing Places graduates who go on to start a business within 18 months of course completion

Not Reporting on this Outcome Measure

**Outcome #24**

**1. Outcome Measures**

Increase in number of fair, field days or event attendees who demonstrate an increased understanding of the health risks associated with the failure to wash hands by using safeguards provided (such as hand sanitation stations)

Not Reporting on this Outcome Measure

**Outcome #25**

**1. Outcome Measures**

Increase in number of farmers who create and implement business plans

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
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2009

8

52

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

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

**Outcome #26**

**1. Outcome Measures**

Increase in number of program participants who make informed decisions about crop insurance

Not Reporting on this Outcome Measure

**Outcome #27**

**1. Outcome Measures**

Increase in number of tax school participants stating improved accuracy of tax reporting for their clients

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	260	324

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

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

**Outcome #28**

**1. Outcome Measures**

Increase in number of tax schools participants understanding federal and state tax laws and requirements

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	680	315

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

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

**Outcome #29**

**1. Outcome Measures**

Increase in number of farmers who use financial reports with another person for business purposes

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
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2009 15 6

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
602	Business Management, Finance, and Taxation

**Outcome #30**

**1. Outcome Measures**

Increase in number of farmers who implement a practice that improves soil quality resulting in improved crop yield and quality

Not Reporting on this Outcome Measure

**Outcome #31**

**1. Outcome Measures**

Increase the number of businesses who report increases in profitability directly related to tourism

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	0	10

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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**Outcome #32****1. Outcome Measures**

Increase in number of farmers that develop a nutrient management plan for their farm

Not Reporting on this Outcome Measure

**Outcome #33****1. Outcome Measures**

Increase the number of farmers who implement at least one change in nutrient management plan practices

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	6	32

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

A key value to Vermonters' is protecting the landscape that is 'Vermont' and its natural resources, especially water. Intensive land development, urbanization and agricultural production can result in erosion and stormwater runoff that degrades many Vermont streams and watersheds. The farming community has the complex job of keeping economically viable while protecting the environment. Best management practices that accomplish both do exist and are implemented on farms throughout Vermont.

**What has been done**

Since 2006 the Nutrient Management program has focused on erosion control through improved cover cropping strategies and guiding farmers in developing their own water quality assessments, and nutrient management plans (NMP). Through collaborative efforts there were on-farm research/demonstration sites, more than 24 farm tours and field days, 8 workshop series, 12 single session workshops, and over 1100 consultations. Another two-year project developed site-specific (NMP) for 30 Small Farm Operation (SFO) livestock farms.

**Results**

Results: \*87 farmers have developed a NMP for their farm; 62 implemented at least one recommended practices from their NMP \*32 farmers developed a NMP and adopted a recommended practice to reduce off-site movement of crop nutrients \*62 farmers implemented at least one cropping practice to improve crop and soil productivity, water quality and profitability \*41 farmers developed water quality protection plans; 15 farmers implemented at least one change as outlined in the water quality protection plan \*As a result of cover cropping research and demonstration over 3000 acres of cover crops have been integrated. \*The 30 SFO whose weighted average Total P Index score across 385 fields decreased from 54.6 in 2007 to 50.3 in 2008 (P = 0.03) reducing non-point source P loss by 8%, 1/2 the P reduction in the NMPs.

#### 4. Associated Knowledge Areas

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

##### Outcome #34

###### 1. Outcome Measures

Increase the number of farmers who implement grazing plans

Not Reporting on this Outcome Measure

##### Outcome #35

###### 1. Outcome Measures

Increase the number of legislators and key decision makers who increase understanding of current local agricultural issues

Not Reporting on this Outcome Measure

##### Outcome #36

###### 1. Outcome Measures

Increase the number of school facilities that implement IPM strategies

Not Reporting on this Outcome Measure

##### Outcome #37

###### 1. Outcome Measures

Increase the number of sheep producers who supply lamb to Vermont Quality Meats

Not Reporting on this Outcome Measure

##### Outcome #38

###### 1. Outcome Measures

Decrease in number of days of beach closures in pilot areas.

Not Reporting on this Outcome Measure

**Outcome #39****1. Outcome Measures**

Increase the number of farmers who will make a change by learning how to: grow oil seed crops, harvest oil seed crops, process oil seed crops into oil, produce biofuel, and plan a cooperative on-farm biofuel facility

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	50	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
204	Plant Product Quality and Utility (Preharvest)
601	Economics of Agricultural Production and Farm Management

**Outcome #40****1. Outcome Measures**

Increase the number of growers who report cost savings from more cost effective and less toxic pest control due to easy access to pest control information sites.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	100	80

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
216	Integrated Pest Management Systems

**Outcome #41**

**1. Outcome Measures**

Increase in the number of Watershed Alliance (WSA) interns who report increased knowledge and skills related to environmental education and watersheds.

Not Reporting on this Outcome Measure

**Outcome #42**

**1. Outcome Measures**

Increase in number of farms that implement business plans resulting in increased profitability.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	20	20

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
801	Individual and Family Resource Management

**Outcome #43**

**1. Outcome Measures**

Increase number of gardeners and growers who select and grow new crops based on relevant information on climate tolerance, performance and overwintering of perennials

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	50	841

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Home gardeners are looking for information on ways to garden more environmentally-friendly and sustainably, for new plants that are hardy and will survive, and for information about how to make them survive. Success will result in greater plant sales for growers (a \$119 million industry in Vermont) and continued gardening by home gardeners who are saving money and being environmentally-friendly with their gardening practices.

**What has been done**

The Flower Show is in its 12th year with an estimated total attendance of 75,000. In 2009 the Flower Show was held in collaboration with the VT Nursery and Landscape Assoc., attended by over 10,000. Dr. Perry, a UVM Extension faculty member served as organizer for the seminar series of 27 seminars over the 3 days, with 2 concurrent sessions daily. An evaluation of the 2009 Flower show attendees asked if they had attended the show in previous years, and if so had they made changes in 3 areas as a result of the information provided in previous years.

**Results**

In 2009 an estimated 440 unique home gardeners attended seminars, 51% averaging 2 seminars, 15% averaging 4 seminars, and 14% averaging attending 7 or more seminars. Seminars were rated 3.8 out of 4, 4 being excellent. Of those attending 85% had been to the show before. One attendee shared, "The seminars are the reason I come to the show. They make the ticket price an incredible value."

Evaluations showed that as a result of attending the show and talks in previous years,

- \* 58% (255) had changed gardening practices,

\* 66% (290) had begun to use more-environmentally friendly techniques and

\* 68% (296) had grown new plants and varieties

Over the 12 years, an estimated 5000 unique gardeners have attended seminars. These gardeners will continue to garden beautifying their homes and communities, supporting an important industry to Vermont while feeling good about choices that save money, protect the environment through judicious use of herbicides, pesticides, and fertilizer, and using practices that limit erosion and water runoff.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
216	Integrated Pest Management Systems

#### Outcome #44

##### 1. Outcome Measures

Increase number of towns using stormwater management and non-point source pollution prevention best management practices.

Not Reporting on this Outcome Measure

#### Outcome #45

##### 1. Outcome Measures

Increase the number of growers implementing Integrated Pest Management (IPM) practices reducing reliance on pesticides.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	160	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
112	Watershed Protection and Management
216	Integrated Pest Management Systems

##### Outcome #46

###### 1. Outcome Measures

Increase the number of participants (who average 8 hours each in seminars) who will change a business practice(s)

Not Reporting on this Outcome Measure

##### Outcome #47

###### 1. Outcome Measures

Increased delivery of organic dairy information to dairy farmers across the nation that is accessible, reliable, credible and up-to-date.

Not Reporting on this Outcome Measure

##### Outcome #48

###### 1. Outcome Measures

Increase the number of local retail lawn and garden centers that are sources of information about low input lawn care options

Not Reporting on this Outcome Measure

##### Outcome #49

###### 1. Outcome Measures

Increase in number of Master Gardener participants earning certification

Not Reporting on this Outcome Measure

##### Outcome #50

###### 1. Outcome Measures

Increase in number of community watershed organizations developing pollution prevention outreach effort

Not Reporting on this Outcome Measure



### **Outcome #51**

#### **1. Outcome Measures**

Increase in number of educators in Watershed Alliance Program increasing knowledge and use of new teaching tools and techniques

Not Reporting on this Outcome Measure

### **Outcome #52**

#### **1. Outcome Measures**

Increase in number of households adopting low input lawn/garden care practices

Not Reporting on this Outcome Measure

### **Outcome #53**

#### **1. Outcome Measures**

Increase in number of participants who report making a change in on-farm production, marketing, financial management, legal or human resource aspects of their business

Not Reporting on this Outcome Measure

### **Outcome #54**

#### **1. Outcome Measures**

Increase in number of schools that continue to participate in Watershed Alliance (WSA) Program in subsequent years

Not Reporting on this Outcome Measure

### **Outcome #55**

#### **1. Outcome Measures**

Increase in number of students demonstrating increased knowledge of watersheds

Not Reporting on this Outcome Measure

### **Outcome #56**

#### **1. Outcome Measures**

Increase in number of towns adopting residential domestic NPS surveys to develop pollution prevention education

Not Reporting on this Outcome Measure

**Outcome #57****1. Outcome Measures**

Increase in the number of farmers who improve pasture management practices

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	40	3

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Fire-sensitive plants may successfully invade pyrogenic landscapes, such as the piney woods of the southeastern US, if they can inhibit fire. Fire disturbance, both in terms of frequency and temperature, can influence the invasion of ecological communities by nonnative species. Non-native plants that modify existing fire regimes may initiate a positive feedback that can facilitate their continued invasion and put the existing native community at risk.

**What has been done**

Models of tree demography, and fire initiation and spread, were developed and run to investigate nonlinear transitions between alternate states using the invasive shrub, Brazilian pepper (*Schinus terebinthifolius*). Investigators explored the potential for nonlinear transitions from pine savannas to *Schinus* stands using individual-based simulation models enabling them to predict *Schinus* dispersal and demography, model dispersal and growth of *Schinus* into pine savannas burned at different frequencies, and predict effects on fire spread.

**Results**

Brazilian pepper can initiate a fire-suppression feedback in a fire-dependent pine savanna ecosystem in southeastern US. A computer model demonstrated that frequent fire may control low-density populations, but that Brazilian pepper may reach a sufficient density during fire-free periods to initiate a positive feedback that reduces the frequency of fire and converts the savanna to an invasive-dominated forest. Scientists found that prescribed burns caused significant (30-45%) mortality of Brazilian pepper at low densities and that savannas with more frequent fires contained less Brazilian pepper. However, high densities of Brazilian pepper reduced fire temperature by up to 200°C, and experienced as much as 80% lower mortality. The biology of an invasive species, with unique characteristics, may therefore overcome a native plant in environments where human interactions, such as fire suppression, occur.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

### Outcome #58

#### 1. Outcome Measures

Increase in the number of student led community service watershed/water quality outreach projects

Not Reporting on this Outcome Measure

### Outcome #59

#### 1. Outcome Measures

Increase or maintain the number of growers who make informed decisions regarding best integrated pest management (IPM) options to reduce economic, health and/or environmental risks

Not Reporting on this Outcome Measure

### Outcome #60

#### 1. Outcome Measures

Increase the number of commercial properties reducing landscape inputs

Not Reporting on this Outcome Measure

### Outcome #61

#### 1. Outcome Measures

Increase the number of home gardeners who increase their knowledge of Integrated Pest Management (IPM) practices

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	175	200

#### 3c. Qualitative Outcome or Impact Statement

##### **Issue (Who cares and Why)**

Gardeners are aware of the potential impacts of pesticides to their health and to the environment. They want to minimize their use of chemicals in the garden to protect their health, the health of their children and pets and the soil and groundwater.

##### **What has been done**

A portion of the 2 hour Master Gardener lecture on plant diseases is spent on pesticide use and pesticide safety and the incorporation of integrated pest management strategies to manage pests and diseases in the home garden and landscape. Basic pesticide labeling and warning statements are discussed with common pesticides used around the home garden used as examples.

**Results**

Home gardeners leave the lecture understanding what a pesticide is, what the risks are to the different pesticides and when to choose to use a pesticide or when to manage a disease or pest in other less toxic ways.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
216	Integrated Pest Management Systems

**Outcome #62**

**1. Outcome Measures**

Increase the number of people who show improvement in food safety and preservation practices

Not Reporting on this Outcome Measure

**Outcome #63**

**1. Outcome Measures**

Increase the number of student interns teaching backyard composting

Not Reporting on this Outcome Measure

**Outcome #64**

**1. Outcome Measures**

Increase in number of Vermont Dairy Herd Improvement Association members that use their records to make herd management decisions that will improve business profitability

Not Reporting on this Outcome Measure

**Outcome #65**

**1. Outcome Measures**

Increase in number of equine owners who use information to change behaviors in land and manure management of business practices to improve safety, animal health, and/or profitability of equine businesses and clientele

Not Reporting on this Outcome Measure

## Outcome #66

### 1. Outcome Measures

Increase in number of farmers who implement a practice that improves pasture health and soil quality for improved forage yields and quality

Not Reporting on this Outcome Measure

## Outcome #67

### 1. Outcome Measures

Increase number of 4-H dairy youth project members and 4-H dairy adult leaders who use the Vermont 4-H Dairy Project Manual

Not Reporting on this Outcome Measure

## Outcome #68

### 1. Outcome Measures

Increase number of dairy producers that make a facility change(s) to improve either herd health, herd productivity, the environment, community relations, labor efficiency, and/or crop quality/quantity

Not Reporting on this Outcome Measure

## Outcome #69

### 1. Outcome Measures

Increase the number of agricultural service providers who will make at least one change to their program and/or the way they work with beginning farmers to address stakeholder needs

### 2. Associated Institution Types

- 1862 Extension

### 3a. Outcome Type:

Change in Action Outcome Measure

### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	20	9

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

**What has been done**

**Results**

#### 4. Associated Knowledge Areas

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

##### Outcome #70

###### 1. Outcome Measures

Increase the number of farmers who implement cover cropping on their farm

Not Reporting on this Outcome Measure

##### Outcome #71

###### 1. Outcome Measures

Increase in number of forest owners, managers and users who make better decisions about forests using stumpage data

Not Reporting on this Outcome Measure

##### Outcome #72

###### 1. Outcome Measures

Increase in the number of forest owners saving money through use of written contracts for timber sales

Not Reporting on this Outcome Measure

##### Outcome #73

###### 1. Outcome Measures

number of farms that understand the consequences of a highly contagious disease outbreak

###### 2. Associated Institution Types

- 1862 Extension

###### 3a. Outcome Type:

Change in Knowledge Outcome Measure

###### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	9

###### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

Vermont farms and communities are vulnerable to a devastating bio-disaster. Maintaining the vibrant and diverse agriculture and food businesses in Vermont is important for food security and the economic vitality of the state. UVM Extension is positioned to help people involved in agriculture and food businesses, as well as their communities, better understand these vulnerabilities and prevent, prepare for, and prevail over any disasters they may face.

**What has been done**

UVM Extension with support from the NE Ctr for Risk Management Education and several local businesses conducted a Prepare to Survive a Bio-disaster workshop series in 3 locations around the state engaging dairy producers, allied industry personnel, and local emergency managers in understanding the problem and how all can work together to prevent or reduce the consequences of a highly contagious disease emergency. 87 individuals participated.

**Results**

Participants identified what information they would want to know when such an event struck and potential proactive response actions.

85% of participants reported a far greater understanding of the impact that a highly contagious disease emergency would have on their livelihood or community. As a result of this workshop series a Community Agro-emergency Planning (CAP) group was formed and continues.

One participant stated, "We all need to work together as one unit for the good of the ag community and the rest of the citizens of not only our towns but Vermont. We need to do it now."

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
723	Hazards to Human Health and Safety

**Outcome #74**

**1. Outcome Measures**

Number of enterprises (already using recommended practices) that use Extension consultation to assess/inform business decisions

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	5

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
602	Business Management, Finance, and Taxation

**Outcome #75**

**1. Outcome Measures**

farmers who implement at least one cropping practice to improve crop and soil productivity, water quality and profitability

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	67

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
133	Pollution Prevention and Mitigation
601	Economics of Agricultural Production and Farm Management

**Outcome #76**

**1. Outcome Measures**

Number of enterprises that adopt a recommended practice resulting in increased revenues and/or reduced costs

**2. Associated Institution Types**

- 1862 Extension



**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	7

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)****What has been done****Results****4. Associated Knowledge Areas**

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

**Outcome #77****1. Outcome Measures**

Number of farms that plan for and incorporate biosecurity, safety and preventative measures

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	5

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Disruptions of transportation networks serving farms potentially affect food security, efficiency and profitability of farm businesses. The discovery of a highly contagious disease (e.g., foot and mouth) anywhere in the U.S. can severely impact dairy producers in VT. Producers and emergency crews must understand links between farms and associated levels of biosecurity risk. This project modeled agricultural transportation for a number of dairy farms, and identified critical links in transportation networks.

**What has been done**

Simulation modeling of contact networks and associated risks were collected to show the risk profile of a subset of dairy herds. 3 service personnel who travel farm to farm traced their routes. Data was used to model transportation networks of several dairy farms, including large conventional dairy, small conventional dairy, and organic dairy. Linkages included inputs (e.g., feed brought onto the farm) and outputs (e.g., raw milk to processor). Transportation outcomes and economic efficiencies were compared between baseline and 'disrupted' scenarios.

**Results**

The mapped contact networks clearly show that disease control zones of only six miles radius are inadequate to account for distances among farms sharing service personnel who have close contact with cattle. This information is supporting outreach and planning activities whereby the private sector, in coordination with state agencies, are developing plans to enable biosecure movement of milk and feed during a bio-disaster, such as foot-and-mouth disease. Such planning is vital to protect the 0.5 billion dollar livestock industry and 1.5 billion dollar tourism industry in Vermont.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
307	Animal Management Systems
315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management
723	Hazards to Human Health and Safety

**Outcome #78**

**1. Outcome Measures**

Number of farms that understand the consequences of a highly contagious disease outbreak.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	9

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Vermont farms and communities are vulnerable to a devastating bio-disaster. Agriculture and food businesses are vulnerable to natural, accidental, and intentional disasters. Maintaining the vibrant and diverse agriculture and food businesses in Vermont is important for food security and the economic vitality of the state.

**What has been done**

University of Vermont Extension with support from the Northeast Center for Risk Management Education and several local businesses conducted a UVM Extension Prepare to Survive a Bio-disaster workshop series in three locations around the state to engage dairy producers, allied industry personnel, and local emergency managers in

understanding the problem and how all can work together to prevent or reduce the consequences of a highly contagious disease emergency like foot-and-mouth disease. 87 individuals participated.

### Results

As a result of this workshop series a Community Agro-emergency Planning (CAP) group was formed and continues to meet participating in and advising planning and preparedness efforts in the state. 85% of the participants reported a far greater understanding of the impact that a highly contagious disease emergency would have on their livelihood or community. One participant stated, "We all need to work together as one unit for the good of the ag community and the rest of the citizens of not only our towns but Vermont. We need to do it now."

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation
723	Hazards to Human Health and Safety

## 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
- Other (Staffing changes)

### Brief Explanation

A reduction in positions eliminated the Beef and Dairy management specialist decreasing the programmatic effort in these areas.

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

### 1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- Case Study
- null

## 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**

Climate Change

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
213	Weeds Affecting Plants	0%		100%	
	<b>Total</b>	0%		100%	

**V(C). Planned Program (Inputs)**

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

Year: 2009	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

2. Brief description of the target audience

Climate change investigators, ecologists, residents and growers of the Southeastern US and beyond the US borders into subtropical and tropical Central and South America.

**V(E). Planned Program (Outputs)**

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
<b>Actual</b>	100	0	0	0

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

**Patent Applications Submitted**

Year: 2009

Plan:

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2009	Extension	Research	Total
<b>Plan</b>			
<b>Actual</b>	0	1	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

**Outcome #1**

**1. Outcome Measures**

{No Data Entered}

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

**Brief Explanation**

{No Data Entered}

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

**1. Evaluation Studies Planned**

**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**

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
402	Engineering Systems and Equipment	20%		80%	
601	Economics of Agricultural Production and Farm Management	80%		20%	
<b>Total</b>		100%		100%	

**V(C). Planned Program (Inputs)**

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

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Actual	0.8	0.0	7.4	0.0

Actual	0.8	0.0	7.4	0.0
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2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
18807	0	330412	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
52415	0	172516	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
55448	0	238344	0

**V(D). Planned Program (Activity)**

1. Brief description of the Activity

On-farm vegetable and biodiesel project

- Research
- Workshop - single session

2. Brief description of the target audience



Adults  
 Agriculture: Farmers  
 Agriculture: Service Providers

- Agriculture:Government Agency Personnel

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
<b>Actual</b>	208	0	0	0

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

**Patent Applications Submitted**

Year: 2009

Plan:

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2009	Extension	Research	Total
<b>Plan</b>			
<b>Actual</b>	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Research

Year	Target	Actual
2009	{No Data Entered}	6

**Output #2**

**Output Measure**

- Workshop - single session

Year	Target	Actual
2009	{No Data Entered}	5

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	number of farmers who will make a change by learning how to: grow and produce energy crops and transform into energy products
2	number of farmers who will produce energy crops and/or implement the use of renewable energy

**Outcome #1**

**1. Outcome Measures**

number of farmers who will make a change by learning how to: grow and produce energy crops and transform into energy products

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	75

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
402	Engineering Systems and Equipment
601	Economics of Agricultural Production and Farm Management

**Outcome #2**

**1. Outcome Measures**

number of farmers who will produce energy crops and/or implement the use of renewable energy

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
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2009 {No Data Entered} 40

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Agricultural ecosystems produce food, fiber, and non-marketed ecosystem services (ES). Agriculture also typically involves high negative external costs associated with, for example, fossil fuel use.

**What has been done**

Researchers estimated, via fieldscale ecological monitoring and economic value-transfer methods, the market and non-market ES value of a combined food and energy (CFE) agro-ecosystem that simultaneously produces food, fodder, and bioenergy. Such novel CFE agro-ecosystems can provide a significantly increased net crop, energy, and on-marketed ecosystem services. compared with conventional agriculture, and require markedly less fossil-based inputs.

**Results**

Extrapolated to the European scale, the value of non-market ecosystem services from the combined food and energy agro-ecosystem exceeds current European farm subsidy payments. Such integrated food and bioenergy systems can thus provide environmental value for money for European Union farming and nonfarming communities. This same research can be applied to US farms to determine the value of combined food and energy farming.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
402	Engineering Systems and Equipment
601	Economics of Agricultural Production and Farm Management

**V(H). Planned Program (External Factors)****External factors which affected outcomes****Brief Explanation**

{No Data Entered}

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

## 1. Evaluation Studies Planned

**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**

Community Development and the Personal and Intellectual Development of Youth

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
124	Urban Forestry	1%		0%	
601	Economics of Agricultural Production and Farm Management	0%		17%	
603	Market Economics	0%		1%	
604	Marketing and Distribution Practices	0%		1%	
605	Natural Resource and Environmental Economics	0%		20%	
608	Community Resource Planning and Development	17%		30%	
609	Economic Theory and Methods	0%		1%	
723	Hazards to Human Health and Safety	7%		0%	
724	Healthy Lifestyle	0%		5%	
801	Individual and Family Resource Management	0%		5%	
802	Human Development and Family Well-Being	14%		0%	
805	Community Institutions, Health, and Social Services	19%		10%	
806	Youth Development	41%		0%	
903	Communication, Education, and Information Delivery	1%		10%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Inputs)**

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

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	10.3	0.0	1.6	0.0
Actual	25.4	0.0	4.0	0.0

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

Extension		Research	
<b>Smith-Lever 3b &amp; 3c</b> 459032	<b>1890 Extension</b> 0	<b>Hatch</b> 410350	<b>Evans-Allen</b> 0
<b>1862 Matching</b> 1279330	<b>1890 Matching</b> 0	<b>1862 Matching</b> 447202	<b>1890 Matching</b> 0
<b>1862 All Other</b> 785723	<b>1890 All Other</b> 0	<b>1862 All Other</b> 502333	<b>1890 All Other</b> 0

## V(D). Planned Program (Activity)

### 1. Brief description of the Activity

**4-H Lifeskills Development Program:** Help youth acquire Life Skills in the following areas: Decision Making; Critical Thinking; Problem-Solving; Communication; Goal-Setting; and Skills for Everyday Living to succeed as adults. **Delivery Methods:** 6-8 sequential learning hours using experiential learning techniques for in- school, afterschool, or out-of-school settings.

**S.E.T. Activities:** 4-H SET will begin to show how science and engineering issues affect youths' lives and prepare a future generation of scientists and engineers. The 4-H SET program will present 4-H with a new opportunity to connect to the LGU's SET research community and integrate with current youth workforce development initiatives.

**COPE:** Parent education for parents of minor children who have filed for separation, divorce, dissolving of a civil union, parentage, changes in rights and responsibilities concerning their children. This is a court mandated program.

**Downtown Business District Analysis:** This program provides the community with analytical techniques that can be put to work immediately in economic revitalization efforts. The process requires input from local residents so that recommendations reflect both market conditions as well as the preferences of the community. **Delivery Methods:** Group meetings and discussion groups in community.

**Community Leadership:** Assessing, addressing and expanding community capacity through leadership and public policy education efforts including building--and education members and clientele of--coalitions and collaborative.

**EnviroQuest:** Help youth acquire Life Skills in the following areas: Decision Making; Critical Thinking; Problem-Solving; Communication; Goal-Setting; and Skills for Everyday Living to succeed as adults. **Delivery Methods:** 6-8 sequential learning hours using experiential learning techniques for in-school, afterschool, or out-of-school settings.

**Migrant Education Recruitment Program (MEP):** To ensure that children of migrant farm workers, and qualifying youth under age 22, are aware of the educational support services available to them. **Delivery Methods:** Outreach to schools, agricultural employers, and social service agencies throughout the state.

**Vermont AgrAbility Project:** To make recommendations that can be used by farmers with disabilities to maintain employment, through development of accommodations. **Delivery Methods:** Process involves recruitment of eligible individuals through referrals. Intake information is recorded on farms provided by the National AgrAbility Project. Site visits are the primary means of contact.

**Rural and Agricultural VocRehab Program:** To assist individuals with disabilities living in rural areas and those in agricultural professions or self-employed by providing them with a variety of services tailored to their needs in order to maintain or obtain their selected employment outcome. **Delivery Methods:** Process involves recruitment of eligible individuals through referrals, assessment, writing up a plan of action, and providing services for eligible individuals. Printed materials and individual technical assistance are offered to strengthen the capacity of individuals to maintain or to prepare for meaningful work.

**Take Charge (TC/RC):** Helping community adult members to gain the skills necessary to be confident enough to take part in town government by ultimately competing for town government leadership positions. **Delivery Methods:** Meetings, discussion groups.

**Town Government Project:** Local town officers, decision makers and officials receive education and tools to improve job performance and management, addressing topics from new legislation to handling difficult customers. **Delivery methods:** Each one-day conference is held annually, at multiple sites.

**Vermont Urban and Community Forestry program :** A joint initiative between the University of Vermont Extension and the Department of Forests, Parks and Recreation. The mission of the program is to promote the stewardship of the urban and

rural landscapes to enhance the quality of life in Vermont communities. The program provides educational, technical and financial assistance in the management of trees and forests, in and around the built landscape. **Delivery Methods:** Classes, meetings, various media, community volunteer projects.

**AES efforts:**

- Community Development and planning
- On farm/community energy generation and secondary revenue generation
- Community and technology for rural community development
- Community market development and local foods distribution
- Communication methods and research studies for non-profit and profit organizations
- Agritourism
- Public land management
- Development of environmentally safe, non food product development (adhesives, plastics and road deicer) from whey
- Development of Artisan cheese markets
- Distinctiveness/marketing of regional foods

**2. Brief description of the target audience**

- 4-H: Adult Volunteers
- 4-H: Camp Directors
- 4-H: Youth
- 4-H: Youth Volunteers
- Adults
- Age 0 - 1 Infant
- Age 1 - 5 Pre-School
- Age 13 - 18 Youth
- Age 25 - 60 Adult
- Age 6 - 12 School Age
- Age 8 - 18 Youth
- Agriculture: Crop Producers
- Agriculture: Dairy Processors
- Agriculture: Dairy Producers
- Agriculture: Equine Producers/Owners
- Agriculture: Farm Employees
- Agriculture: Farm Families
- Agriculture: Farm Managers
- Agriculture: Farmers
- Agriculture: Farmers w/disabilities
- Agriculture: Goat & Sheep Producers
- Agriculture: Greenhouse Ornamental Growers
- Agriculture: Industry Professionals
- Agriculture: Maple Sugar Producers
- Agriculture: Non-Dairy Producers
- Agriculture: Nursery operators
- Agriculture: Service Providers
- Agriculture: Small Fruit & Vegetable Growers
- Agriculture: Veterinarians
- Agriculture:Dairy Goat, Meat Goat and Dairy Sheep Producers
- Agriculture:Government Agency Personnel
- Communities: Cities and Towns
- Communities: Community Action Agencies
- Communities: Educators
- Communities: Local Officials/Leaders
- Communities: Non-Governmental Organizations
- Communities: Schools
- Communities: Town Health Officers

Community leaders and citizens  
 Extension: Faculty/Staff  
 Food Industry: Food Service Workers  
 Forestry: Loggers  
 Forestry: Wood Processors  
 Forestry: Wood Products Businesses  
 Migrant In School Youth  
 Migrant Out of School Youth  
 Policy Makers: Legislators  
 Public: Adult Caregivers  
 Public: Age 3-21  
 Public: Age 55+  
 Public: College Students  
 Public: Families  
 Public: General  
 Public: Master Gardeners  
 Public: Media Outlets  
 Public: Nonprofit Organizations  
 Public: Parents  
 Public: People with Limited Resources  
 Public: Small Business Owners/Entrepreneurs  
 Public: Volunteers  
 Public: VT SOUL Tree Stewards  
 School Grade: 11  
 Train-the-Trainer recipients:adults  
 USDA personnel

Youth

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	7000	0	2500	0
<b>Actual</b>	16900	139000	5500	10400

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

**Patent Applications Submitted**

Year: 2009  
 Plan: 3  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2009	Extension	Research	Total
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<b>Plan</b>	1	5	
<b>Actual</b>	1	4	5

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- 4-H Afterschool  
Not reporting on this Output for this Annual Report

**Output #2**

**Output Measure**

- 4-H Club

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	880	447

**Output #3**

**Output Measure**

- 4-H Day Camp  
Not reporting on this Output for this Annual Report

**Output #4**

**Output Measure**

- 4-H Overnight camp  
Not reporting on this Output for this Annual Report

**Output #5**

**Output Measure**

- 4-H School enrichment

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	15	12

**Output #6**

**Output Measure**

- 4-H Short-term/special interest

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	23	131

**Output #7**

**Output Measure**

- Class/course

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	5	6

**Output #8**

**Output Measure**

- Conference

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	6	8

**Output #9**

**Output Measure**

- Consultations

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	240	970

**Output #10**

**Output Measure**

- Discussion group

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	40	164

**Output #11**

**Output Measure**

- Field site visit

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	140	1555

**Output #12**

**Output Measure**

- Funding request

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	1	11

**Output #13**

**Output Measure**

- Presentations

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	20	136

**Output #14****Output Measure**

- Publication - fact sheet

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	3	1

**Output #15****Output Measure**

- Publication - newsletter

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	5	96

**Output #16****Output Measure**

- Publication - newsprint article

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	20	11

**Output #17****Output Measure**

- Radio Spots/program (educational)

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	6	8

**Output #18****Output Measure**

- TV segment/ATF

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	3	8

**Output #19****Output Measure**

- Train the Trainer sessions

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	60	116

**Output #20****Output Measure**

- Web Page

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	1	1

**Output #21**

**Output Measure**

- Workshop - series

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	1	10

**Output #22**

**Output Measure**

- Workshop - single session

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	9	54

**Output #23**

**Output Measure**

- Consumer Publication

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	2

**Output #24**

**Output Measure**

- Display or Exhibit

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	9

**Output #25**

**Output Measure**

- Field Day/Fair

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	2

**Output #26**

**Output Measure**

- Publication - curriculum

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	1

## V(G). State Defined Outcomes

### V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	85% of Certificate of Eligibility reviewed by the Dept. of Education will be 100% accurate and reflect eligible migrant students
2	Increase number of programs led or supported by trained volunteer Site Staff
3	Increase number of youth serving as Foundation trustees who indicate a positive experience
4	increase number of Take Charge/ReCharge participants are satisfied with the process used as a means meeting community planning needs
5	Increase number of communities establishing or expanding community tree program
6	increase in number of farm and rural residents with disabilities successfully served (ie case is closed) which is defined as having increased satisfaction with actual or potential employment and maintained or increased income
7	Increase number of 4-H club members who participate as pages in state level government, as a result of their 4-H experiences.
8	Increase in number of TOEC participants who report increased skills in leadership and decision making.
9	Increase number of 4-H staff self-reporting an increase in their ability to work with youth and adults to implement 4-H lifeskill development opportunities
10	Increase student enrollment in the Vermont Migrant Education Program
11	Increase the number of committee members implementing or enhancing broad-based decision-making skills
12	Increase the number of program participants serving as leaders on Committees
13	Increase the number of schools that offer financial literacy education
14	Increase the number of volunteers self reporting an increase in their ability to implement a 4-H lifeskill development for youth
15	Increase the number of youth who set and reach goals identified at the beginning of the 4-H year
16	Increase the number of clubs doing at least 6 hours of community service
17	Youth have greater opportunities to access and learn financial planning skills
18	increase in number of youth reached with lifeskills development programming self-report an increase in mastery for targeted life skill area: Decision making; critical thinking; problem solving; communication; goal setting or skills for everyday living.

19	Increase in number of youths involved in Urban Community Forestry
20	Increase number of clubs with SET related projects
21	Number of individuals (youth and volunteers) increasing knowledge and/or skills in content and careers (across subject areas ranging from animal science to environmental science to technology)
22	Increase the number of apprentices who achieve preset professional development goals within 3 years
23	Increase the number of apprentices who plan and implement a program evaluation.
24	Increase the number of apprentices who report the results of their program evaluation.
25	Number of individuals applying science process skills, including incorporation of science learning in community service, enrollment in SET-related post-secondary education, and/or entrepreneurship/career success
26	Number of individuals demonstrating improved behavior in science learning, such as effective participation in school classes, independent study, career exploration, or volunteer experiences
27	increase the number of participants who self report increase of skills in leadership and decision making.
28	increasing number of elected/appointed village, town or city officials that use information gained at TOEC in leadership and decision making
29	Number of SOUL participants who advocate for their communities public tree resource
30	number of Take Charge/ReCharge participants are satisfied with the process used as a means of meeting community planning needs
31	Number of participants report using skills learned in community setting

## **Outcome #1**

### **1. Outcome Measures**

85% of Certificate of Eligibility reviewed by the Dept. of Education will be 100% accurate and reflect eligible migrant students

Not Reporting on this Outcome Measure

## **Outcome #2**

### **1. Outcome Measures**

Increase number of programs led or supported by trained volunteer Site Staff

Not Reporting on this Outcome Measure

**Outcome #3**

**1. Outcome Measures**

Increase number of youth serving as Foundation trustees who indicate a positive experience

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	30	9

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development

**Outcome #4**

**1. Outcome Measures**

increase number of Take Charge/ReCharge participants are satisfied with the process used as a means meeting community planning needs

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	54	42

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development

**Outcome #5**

**1. Outcome Measures**

Increase number of communities establishing or expanding community tree program

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	10	2

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
124	Urban Forestry
608	Community Resource Planning and Development



**Outcome #6****1. Outcome Measures**

increase in number of farm and rural residents with disabilities successfully served (ie case is closed) which is defined as having increased satisfaction with actual or potential employment and maintained or increased income

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	55	79

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Many people with disabilities can and want to work. Not being able to live a productive life can be extremely debilitating. Many of these people would have to be supported by other programs if they were unable to regain or maintain employment. This is a huge savings to any economic barometer you would wish to look at, and it can give these folks the sense of personal accomplishment and pride. The Rural and Agricultural VocRehab Program (RAVR) and the VT AgrAbility Project are able to help these folks.

**What has been done**

For 40 years, the RAVR has been cooperatively funded and conducted through a unique arrangement of UVM Extension and the Vermont Division of VocRehab. Meetings with consumers are one-on-one at their homes and farms to discuss services, health conditions and impediments to successful employment. They explore worksite modifications and adaptations with immediate impact. They enable consumers to continue working in their established careers, or recognize transferable skills to seek other employment.

**Results**

The number of rural and farm individuals who have received services is estimated to be in excess of 3,000. The RAVR program works with over 200 clients, with approximately 75 completed rehabs annually. The VT AgrAbility Project has been successful in being awarded several National AgrAbility grants which continues to exceed their goal of 45 farmers a year, nearly doubling in year two. Following are two examples of cases closed: 1) \$2,500 for a year of farm labor to help maintain an established berry and vegetable farm while the owner operator underwent treatment for a brain tumor. This middle aged farmer has returned to his farm, and is selling produce to his regular customers. 2) \*\$1,950 to provide woodworking tools for a 42 year old man recovering from a stroke, now working as a carpenter.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
723	Hazards to Human Health and Safety
805	Community Institutions, Health, and Social Services

**Outcome #7**

**1. Outcome Measures**

Increase number of 4-H club members who participate as pages in state level government, as a result of their 4-H experiences.

Not Reporting on this Outcome Measure

**Outcome #8**

**1. Outcome Measures**

Increase in number of TOEC participants who report increased skills in leadership and decision making.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	350	46

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development
805	Community Institutions, Health, and Social Services

**Outcome #9**

**1. Outcome Measures**

Increase number of 4-H staff self-reporting an increase in their ability to work with youth and adults to implement 4-H lifeskill development opportunities

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	11	8

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

What has been done

Results

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development

**Outcome #10**

**1. Outcome Measures**

Increase student enrollment in the Vermont Migrant Education Program

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	35	453

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Education, English language skills, as well as other academic and basic life skills greatly impact one's ability to succeed in life. Migrant farm workers have the highest dropout rate of any minority group in the US school systems. Migrant workers are a vital workforce for Vermont farmers, meeting both seasonal and temporary workforce needs. Extension's Migrant Education Program (MEP) serves children and youth under the age of 22 with educational support services.

**What has been done**

With a multi-tiered statewide recruitment plan, UVM Extension MEP Recruitment staff locate eligible migrant families and individuals so they can receive the supplemental educational support and services the Vermont MEP offers. Every public school in VT is required to distribute our Agricultural Employment Survey to each new student and then return the form to UVM Extension MEP ID&R Team for review. Through frequent farm visits relationships are built with farmers and Migrant farm workers are located and if possible enrolled in the program.

**Results**

In 2009 alone, 400 farm visits and 250 school visits were done resulting in 453 students enrolled in the Vermont MEP giving the migrant youth and their family's access to educational support and services they likely would not have otherwise.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
805	Community Institutions, Health, and Social Services
806	Youth Development

**Outcome #11**

**1. Outcome Measures**

Increase the number of committee members implementing or enhancing broad-based decision-making skills

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	27	23

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development

**Outcome #12**

**1. Outcome Measures**

Increase the number of program participants serving as leaders on Committees

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	6	7

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development
805	Community Institutions, Health, and Social Services

**Outcome #13**

**1. Outcome Measures**

Increase the number of schools that offer financial literacy education

Not Reporting on this Outcome Measure

**Outcome #14**

**1. Outcome Measures**

Increase the number of volunteers self reporting an increase in their ability to implement a 4-H lifeskill development for youth

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	670	188

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

What has been done

Results

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development

**Outcome #15**

**1. Outcome Measures**

Increase the number of youth who set and reach goals identified at the beginning of the 4-H year

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	1200	426

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The Tufts Study on Positive Youth Development has indicated that 4-H youth are more likely than participants in other youth development programs to have higher levels of giving back (citizenship) to communities and also higher aspirations of going on to college (goal setting). Every County in Vermont has 4-H programming occurring. Through these opportunities, youth gain a sense of belonging, sense of mastery, sense of independence, and an opportunity to help others (sense of generosity). (Kress and her references)

**What has been done**

Last year 10% of UVM 4-H club members age 12 and older completed a life skill assessment. Through a range of 4-H program offerings, including trainings for volunteers (191 volunteers self reported increased skills) who by donating almost 14,000 hours helped reach 6,286 youth in FY09.

**Results**

The evaluations concluded that 4-H youth made statistically significant gains in life skill development, particularly in the area of goal setting and problem solving.

- \* 81 clubs reported doing at least 6 hours of community service.
- \* 407 youth set and reached goals they identified at the beginning of the year, tracked through record books.
- \* 632 youth self reported mastery of at least one life skill

In a 4Her's words, "In 4-H I have learned how to be a leader and the importance of teamwork and self motivation. I have also found that reaching the goals that I set for myself makes me feel like I have accomplished something of value." Jared-age 18

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #16**

**1. Outcome Measures**

Increase the number of clubs doing at least 6 hours of community service

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	70	81

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #17**

**1. Outcome Measures**

Youth have greater opportunities to access and learn financial planning skills

Not Reporting on this Outcome Measure

**Outcome #18**

**1. Outcome Measures**

increase in number of youth reached with lifeskills development programming self-report an increase in mastery for targeted life skill area: Decision making: critical thinking; problem solving; communication;goal setting or skills for everyday living.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	1900	632

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development

**Outcome #19**

**1. Outcome Measures**

Increase in number of youths involved in Urban Community Forestry

Not Reporting on this Outcome Measure



**Outcome #20**

**1. Outcome Measures**

Increase number of clubs with SET related projects

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	69	56

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development

**Outcome #21**

**1. Outcome Measures**

Number of individuals (youth and volunteers) increasing knowledge and/or skills in content and careers (across subject areas ranging from animal science to environmental science to technology)

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	3000	444

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #22**

**1. Outcome Measures**

Increase the number of apprentices who achieve preset professional development goals within 3 years

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	5	3

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development
903	Communication, Education, and Information Delivery

**Outcome #23**

**1. Outcome Measures**

Increase the number of apprentices who plan and implement a program evaluation.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	4	5

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development
903	Communication, Education, and Information Delivery

**Outcome #24**

**1. Outcome Measures**

Increase the number of apprentices who report the results of their program evaluation.

Not Reporting on this Outcome Measure

**Outcome #25**

**1. Outcome Measures**

Number of individuals applying science process skills, including incorporation of science learning in community service, enrollment in SET-related post-secondary education, and/or entrepreneurship/career success

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	2880	125

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

What has been done

Results

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development

**Outcome #26**

**1. Outcome Measures**

Number of individuals demonstrating improved behavior in science learning, such as effective participation in school classes, independent study, career exploration, or volunteer experiences

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	2880	2118

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

American Youth are losing ground in Science, Engineering and Technology (SET) compared to peers in other nations. Too many young Americans do not have the science, engineering and technology career skills necessary to succeed and meet our country's needs in the future. With 4-H and the Cooperative Extension System's direct connection to the research and resources of the nation's 106 land-grant universities and colleges, the 4-H SET program has become a 5-year national priority.

**What has been done**

56 4-H club programs reported doing SET related activities. There were 4 SET related school enrichment activities and 10 Special interest programs including programs on Embryology, GPS, Computer technology, Electricity, Engineering and Aerospace projects.

**Results**

In 2009, data collected through observation by leaders/teachers, showed that 2,192 students demonstrated improved behavior in science learning. Observers note such things as gains in decision making, scientific process, wise use of resources, leadership, observing, predicting, collecting data and inventing solutions. In one middle school, who has used the 4-H science curriculum and tools such as the "What Makes a Great Science Experience Checklist" for going on 3 years, has seen its NECAP math scores go from below state average at 61% to 11% above in 2008. One middle school teacher stated, "I know the science curriculum that Vermont 4-H has provided has added to our science and math successes."

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #27**

**1. Outcome Measures**

increase the number of participants who self report increase of skills in leadership and decision making.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	200	46

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
805	Community Institutions, Health, and Social Services
806	Youth Development

**Outcome #28**

**1. Outcome Measures**

increasing number of elected/appointed village, town or city officials that use information gained at TOEC in leadership and decision making

Not Reporting on this Outcome Measure

**Outcome #29**

**1. Outcome Measures**

Number of SOUL participants who advocate for their communities public tree resource

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	37

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
124	Urban Forestry

**Outcome #30**

**1. Outcome Measures**

number of Take Charge/ReCharge participants are satisfied with the process used as a means of meeting community planning needs

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	42

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development

**Outcome #31**

**1. Outcome Measures**

Number of participants report using skills learned in community setting

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	2

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

##### 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

Financial literacy project was not implemented due to lead faculty member retirement.

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

###### 1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

###### Evaluation Results

###### Key Items of Evaluation



**V(A). Planned Program (Summary)**

**Program # 5**

**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	28%		50%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	67%		49%	
724	Healthy Lifestyle	5%		1%	
<b>Total</b>		100%		100%	

**V(C). Planned Program (Inputs)**

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

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Actual	0.3	0.0	7.6	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
5399	0	181241	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
15045	0	160024	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1960	0	473625	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

- Food Preservation, Safety and Sanitation
- Class/course
- Consultation
- Electronic Communication/phone
- Field day/fair
- Radio Spots/program (educational)

- Train the Trainer
- Web Page/Internet site
- Workshop - series
- Workshop - single session

Germ City  
Train the Trainer

**2. Brief description of the target audience**

- 4-H: Adult Volunteers
- Adults
- Age 6 - 12 School Age
- Food Industry: Food Service Workers
- Public: Families with Limited Resources

- Public: Volunteers

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
<b>Actual</b>	370	0	800	0

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

**Patent Applications Submitted**

Year: 2009  
Plan:  
Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2009	Extension	Research	Total
<b>Plan</b>			
<b>Actual</b>	0	2	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Class/course

**Year**

**Target**

**Actual**

2009	{No Data Entered}	3
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**Output #2****Output Measure**

- Consultation

Year	Target	Actual
2009	{No Data Entered}	69

**Output #3****Output Measure**

- Field day/fair

Year	Target	Actual
2009	{No Data Entered}	2

**Output #4****Output Measure**

- Train the Trainer

Year	Target	Actual
2009	{No Data Entered}	5

**Output #5****Output Measure**

- Web page/Internet site

Year	Target	Actual
2009	{No Data Entered}	1

**Output #6****Output Measure**

- Workshop series

Year	Target	Actual
2009	{No Data Entered}	4

**Output #7****Output Measure**

- Workshop single session

Year	Target	Actual
2009	{No Data Entered}	3

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of food managers certified in food safety and sanitation
2	Number of people who show improvement in food safety and preservation

**Outcome #1**

**1. Outcome Measures**

Number of food managers certified in food safety and sanitation

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	24

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

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

**Outcome #2**

**1. Outcome Measures**

Number of people who show improvement in food safety and preservation

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
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2009 {No Data Entered} 14

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Apples are an important component of New England's diversified agriculture. Although there is strong interest in organic apple production, there are very few certified organic orchards because of insect and horticultural challenges plus disease challenges associated with the predominant cultivar grown in the New England region (i.e., 'McIntosh'). There is a need to evaluate 'new' apple cultivars and research and integrate apple ecosystem dynamics into organic production systems to determine sustainability and profitability

**What has been done**

2 orchard systems that represent the way growers are changing to new apple cultivars were planted/top-grafted with five cultivars identified by growers as important to the future of the apple industry. The orchards received organic certification in 2008. Data was collected during "orchard establishment years" (first 3 years): During the third growing season, traditionally a time when growers allow some fruit to develop, fruit and the total kg yield per tree were recorded for each orchard. The economics of the two organic systems were compared by calculating the Net Present Value (NPV) of cash inflows and outflows.

**Results**

Yield in the top-grafted orchard (Orchard 2) was much greater than in Orchard 1 due to the larger tree size. Two key limiting factors were identified to tree health - organic nutrient management and ground cover management. Apple diseases were also a major concern. Results reinforce the importance of assessing the surrounding orchard ecosystem for disease sources. Abandoned, decayed apple trees near the two orchard systems were providing high levels of disease inoculum which impacted both disease management decisions and disease incidence in the orchards. A comprehensive organic apple extension program was launched with the OrganicA website which includes sections on horticulture, organic IPM, and case studies of organic apple growers. The website has received over 11,000 visits.

**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
724	Healthy Lifestyle

**V(H). Planned Program (External Factors)****External factors which affected outcomes**

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (Staff changes)

**Brief Explanation**

Retirement of Food Safety faculty member reduced program availability.

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

## 1. Evaluation Studies Planned

- After Only (post program)
- Other (Observation)

## **Evaluation Results**

## **Key Items of Evaluation**

**V(A). Planned Program (Summary)**

**Program # 6**

**1. Name of the Planned Program**

Childhood Obesity

**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	100%		100%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Inputs)**

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

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Actual	2.5	0.0	15.2	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
142613	0	310075	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
397467	0	356119	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
81618	0	1189753	0

**V(D). Planned Program (Activity)**

1. Brief description of the Activity

Brighten my Life w/Fruits and Vegetables  
 Educational/evaluation instrument  
 Presentation  
 Program Administration  
 Diabetes Education  
 Educational/evaluation instrument  
 Program Administration  
 Publication - curriculum  
 Publication - newsprint article  
 Radio Spots/program (educational)  
 TV segment/ATF



- Web Page/Internet site
- Workshop - series
- Food, Culture, and Reading
- Funding request
- Publication - curriculum
- Train the Trainer
- Web Page/Internet site
- Healthy Eating
- Consultation
- Publication - newsprint article
- Radio Spots/program (educational)
- TV segment/ATF
- Workshop - single session

**2. Brief description of the target audience**

- Adults
- Age 19 - 24 Young Adult
- Age 6 - 12 School Age
- Age 60 - Senior
- Communities: Educators
- Community leaders and citizens
- Extension: Faculty/Staff
- Policy Makers: Legislators
- Public: Adult Caregivers
- Public: Age 55+
- Public: Daycare Providers
- Public: General
- Train-the-Trainer recipients:adults
- USDA personnel

- WIC Staff

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
<b>Actual</b>	1030	1340	450	660

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

**Patent Applications Submitted**

Year: 2009  
 Plan:  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

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2009	Extension	Research	Total
Plan			
Actual	0	2	0

## V(F). State Defined Outputs

**Output Target****Output #1****Output Measure**

- Consultation

Year	Target	Actual
2009	{No Data Entered}	215

**Output #2****Output Measure**

- Evaluation

Year	Target	Actual
2009	{No Data Entered}	2

**Output #3****Output Measure**

- Funding request

Year	Target	Actual
2009	{No Data Entered}	1

**Output #4****Output Measure**

- Presentation

Year	Target	Actual
2009	{No Data Entered}	1

**Output #5****Output Measure**

- Curriculum

Year	Target	Actual
2009	{No Data Entered}	1

**Output #6****Output Measure**

- Publication - Newsprint article

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	73

**Output #7**

**Output Measure**

- Radio spots/program

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	4

**Output #8**

**Output Measure**

- TV Segment

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	3

**Output #9**

**Output Measure**

- Train the trainer workshops

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	2

**Output #10**

**Output Measure**

- Workshop series

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	9

**Output #11**

**Output Measure**

- Workshop single session

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	11

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

O. No.	OUTCOME NAME
1	A greater variety of produce available at home.
2	Increase in number of parents/caregivers who have more positive feelings about feeding their toddlers than they did prior to the intervention.
3	number of participants who increase the quality and/or quantity of fruits and vegetables
4	people that show an improvement in healthful eating practices
5	Number of people who better balance energy expended with energy intake

**Outcome #1**

**1. Outcome Measures**

A greater variety of produce available at home.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	940

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #2**

**1. Outcome Measures**

Increase in number of parents/caregivers who have more positive feelings about feeding their toddlers than they did prior to the intervention.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	120

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Poverty, hunger, and food insecurity are all factors that can contribute to poor health and poor nutrition. Often times it is the quality of food that is sacrificed in an effort to make ends meet. Research has shown the consumption of fruits and vegetables consumed by infants and toddlers typically decreases as they transition from their first foods into family meals.

**What has been done**

Partnering with the Vermont WIC Program parents with six month old babies were enrolled in this intervention over a six month time period in 2006, and then followed until the children reached their second birthdays. The Theory of Planned Behavior provided the theoretical framework. Trainings, targeted support materials, as well as S.M.A.R.T. goal setting were developed and implemented for WIC staff. A cohort design was used while keeping the fruit and vegetable message content similar, was used with program delivery to participants.

**Results**

An analysis of parent data (750 surveys) showed an overall increase in parental use of strategies to feed fruits and vegetables to their toddlers, and an intention to do even better in the future. 120 parents/caregivers have more positive feelings about feeding their toddlers than prior to the intervention, Although WIC families continued to experience barriers to increasing the amount of fruits and vegetables offered to toddlers, including cost, participating parents, as a group, significantly increased the number of servings of vegetables offered to their toddlers as part of a meal or snack. We conclude that there may be real benefits to providing nutrition counseling/education focused on one topic, in this case fruits and vegetables, for an extended time.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #3****1. Outcome Measures**

number of participants who increase the quality and/or quantity of fruits and vegetables

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	{No Data Entered}	370

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)****What has been done****Results**

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

#### Outcome #4

##### 1. Outcome Measures

people that show an improvement in healthful eating practices

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	31

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

Diabetes prevalence is increasing nationally and in Vermont. By comparing Behavioral Risk Factor Surveillance System (BRFSS) average data from 2006-2008 with data from 1999-2001 for Vermont adults over age 65, the total diagnosed diabetes prevalence has increased from 24.9 to 28.3 percent in this short time frame. As the population ages and experiences the effects from overweight and obesity, diabetes prevalence is expected to rise. Due to limited resources other modes of delivery to reach audiences are needed.

###### What has been done

As a pilot we offered our Dining with Diabetes program (DWD) over Vermont Interactive Television (VIT) and targeted caregivers of people with diabetes. We adapted program materials, produced food demonstration videos instead of cooking on site, and created various learning activities. Out of 121 participants at 11 VIT sites, approximately 87% of our attendees were caregivers, and 13% were people living with diabetes. Sixty participants completed both pre and post surveys distributed during the first and last class sessions.

###### Results

Responses show that the pilot done over VIT was considered quite favorably. Attending a course taught over VIT was rated equally to attending a face-to-face class. Of the 60 caregivers who completed the survey they indicated they planned meals for a total of 149 people, shopped for a total of 163, and prepared meals for a total of 189 people. 31 of the caregivers indicated on the post survey they had already changed behaviors using the information learned. One participant shared that after surgery he was self monitoring what he could eat, his doctor was impressed. When a dietary staff person asked if he didn't want carrot cake he told her "no, just bring me a piece of fresh fruit." In the future, we plan on using VIT and possibly other methods to deliver this important Diabetes education program.

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #5****1. Outcome Measures**

Number of people who better balance energy expended with energy intake

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	100

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Obesity is reaching epidemic levels. Hours spent watching TV likewise has risen. Investigators hypothesize a connection exists between TV viewing and obesity as a result of cessation of other activities, increased food consumption, and reduced resting metabolism. Previous studies have found weak, positive or no associations. This study examined the effects of reduced TV viewing on energy intake and expenditure in overweight or obese adults using principles from behavioral economics to determine the relationship.

**What has been done**

Adults were recruited for a 6-week randomized controlled trial. After a 3-week observation-only baseline phase, participants were stratified by BMI and randomized to an observation-only control group or an intervention group for 3 weeks. Based on viewing habits established during the observation period, each person in the intervention group was given a weekly limit of TV time. Once the limit was reached, a monitor automatically shut the TV off until the next week. The control group had no limits on TV viewing and continued to watch TV as before.

**Results**

The study found that watching less TV doesn't necessarily lead to more exercise or better eating habits, but it does result in subtle but meaningful changes in overall activity levels. The intervention group significantly increased energy expenditure compared with controls. Both groups reduced their EI for intervention and control group participants, although the difference was not statistically significant. The intervention group showed a greater reduction in BMI. There was no change in sleep. While the intervention group burned off an additional 120 calories a day compared with the previous three weeks, the control group became even more sedentary, moving about 100 calories less than before. The additional activity that resulted from less television time is the equivalent of walking about eight miles a week.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior



## **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

### **Brief Explanation**

Poverty is the number one predictor of hunger and food insecurity. Recent data indicates that approximately 71,000 Vermonters (12% of the total population), of which approximately 19,000 are children live in poverty. An additional 109,000 (18% of the total population) have a gross annual income between 100-199% of the federal poverty level and are considered low-income. Lack of affordable housing, jobs, and transportation coupled with the rising costs of food and fuel may force many Vermont families to further sacrifice the quantity or quality of foods they eat in exchange for other necessities.

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

### **1. Evaluation Studies Planned**

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)

### **Evaluation Results**

Interactive Television was piloted as a delivery method with caregivers and individuals with diabetes. Participants in the class completed both pre and post surveys distributed during the first and last class of the sessions. It was rated equally to a face to face class.

Consumption of fruits and vegetables by children in the Vermont WIC Program decreases as they transition from their first foods into family meals. University of Vermont Extension partnered with the Vermont WIC Program to address this problem. Parents with six month old babies in the Vermont WIC program were enrolled in this intervention over a six month time period in 2006, and then followed until the children reached their second birthdays. An analysis of parent data (750 surveys) showed an overall increase in parental use of strategies to feed fruits and vegetables to their toddlers, and an intention to do even better in the future. Although WIC families continued to experience barriers to increasing the amount of fruits and vegetables offered to toddlers, including cost, participating parents, as a group, significantly increased the number of servings of vegetables offered to their toddlers as part of a meal or snack

### **Key Items of Evaluation**

Interactive Television (IT) is a valid delivery method even for a program typically taught with hands on cooking. Videos were used in IT in the place of actual on-site cooking. Participants rated it equally to face to face class. More participants were reached and more individuals were affected by the participation of caregivers as a new audience in the program.

**V(A). Planned Program (Summary)**

**Program # 7**

**1. Name of the Planned Program**

Urban Non Point Source Pollution

**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	100%		0%	
	<b>Total</b>	100%		0%	

**V(C). Planned Program (Inputs)**

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

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Actual	2.2	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
67687	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
188644	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
62303	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

Urban Watershed and Water Quality  
 Consultation  
 Demonstration  
 Presentation  
 Research  
 Technical Publication  
 Web Page/Internet site  
 Workshop - series  
 Workshop - single session  
 Watershed & Water Quality Programs  
 Consultation

- Demonstration
- Educational/evaluation instrument
- Presentation
- Publication - curriculum
- Publication - fact sheet
- Publication - newsletter
- Tour (s)
- Train the Trainer
- Website project management
- Workshop - series

- Workshop - single session

**2. Brief description of the target audience**

- Adults
- Age 13 - 18 Youth
- Age 19 - 24 Young Adult
- Age 25 - 45 Adult
- Age 25 - 60 Adult
- Age 6 - 12 School Age
- Age 60 - Senior
- Age 8 - 18 Youth
- Agriculture/Natural Resources: Watershed Based Organizations
- Agriculture: Home Gardeners
- Agriculture: Service Providers
- Communities: Cities and Towns
- Communities: Educators
- Communities: Local Officials/Leaders
- Communities: Non-Governmental Organizations
- Communities: Schools
- Community leaders and citizens
- Environmental Professionals: Environmental Managers
- Extension: Faculty/Staff
- Public: College Students
- Public: Families
- Public: General
- Public: Homeowners
- Public: Master Gardeners
- Public: Nonprofit Organizations
- Public: Small Business Owners/Entrepreneurs
- Train-the-Trainer recipients:adults

- Youth

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
<b>Actual</b>	2150	8700	1730	0

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

**Patent Applications Submitted**

Year: 2009

Plan:

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2009	Extension	Research	Total
Plan			
Actual	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Consultation

Year	Target	Actual
2009	{No Data Entered}	78

**Output #2**

**Output Measure**

- Demonstration

Year	Target	Actual
2009	{No Data Entered}	55

**Output #3**

**Output Measure**

- Presentation

Year	Target	Actual
2009	{No Data Entered}	33

**Output #4**

**Output Measure**

- Publication - newsletter

Year	Target	Actual
2009	{No Data Entered}	10

**Output #5****Output Measure**

- Tours

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	2

**Output #6****Output Measure**

- Train the Trainer

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	5

**Output #7****Output Measure**

- Webpage/internet site

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	2

**Output #8****Output Measure**

- Workshop series

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	40

**Output #9****Output Measure**

- Workshop - single session

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	{No Data Entered}	60

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

<b>O. No.</b>	<b>OUTCOME NAME</b>
1	number of households using lawn care inputs in designated no-input buffer zones
2	number of towns adopting residential domestic NPS surveys to develop pollution prevention education
3	number of student led community service watershed/water quality outreach projects
4	Number of non-residential properties (business, institutional residential commons) under one or more low input/ no phosphorous lawn care practices
5	Number of requests for technical assistance for educational watershed stewardship projects or implementation of water quality improvement projects
6	Number of residential households adopting low input/no phosphorous lawn care practices
7	Number of retail lawn and garden centers providing information on low input/no phosphorous lawn care options to customers
8	Number of schools that demonstrate an increase in, or institutionalization of, integrated watershed education into returning educators curriculum
9	Number of towns/municipalities using one or more bioengineering methods for shoreline stabilization to decrease erosion and sedimentation
10	number of towns using stormwater management and non-point source pollution prevention best management practices.

**Outcome #1**

**1. Outcome Measures**

number of households using lawn care inputs in designated no-input buffer zones

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	16

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management

**Outcome #2**

**1. Outcome Measures**

number of towns adopting residential domestic NPS surveys to develop pollution prevention education

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	6

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management

**Outcome #3**

**1. Outcome Measures**

number of student led community service watershed/water quality outreach projects

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	7

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management

**Outcome #4**

**1. Outcome Measures**

Number of non-residential properties (business, institutional residential commons) under one or more low input/ no phosphorous lawn care practices

**2. Associated Institution Types**



- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	78

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management

**Outcome #5**

**1. Outcome Measures**

Number of requests for technical assistance for educational watershed stewardship projects or implementation of water quality improvement projects

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	30

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

#### Outcome #6

##### 1. Outcome Measures

Number of residential households adopting low input/no phosphorous lawn care practices

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	30

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

Lake Champlain is a critical economic factor for Vermont but stormwater from urban areas degrades Lake Champlain and many Vermont watersheds. Stormwater is a major source of non-point source (NPS) pollution. Because individual properties are sources of stormwater and NPS pollutants, successful control and reduction depends on the actions of thousands of property managers, from homeowners to municipal governments. Training and technical support by UVM Extension helps build aware and engaged urban communities that reduce NPS pollution at the source.

###### What has been done

UVM Extension is limited in its ability to work directly with large numbers of individual home owners statewide to reduce NPS pollution on a property by property basis. Instead, to increase effectiveness and efficiency, we worked with partner organizations, such as lake associations, watershed groups and businesses to provide the public awareness and education needed to change homeowner practices and reduce stormwater impairment. Influencing the leadership of these organizations to support these efforts was key to program success.

###### Results

A 2009 assessment of the Green Lawn Coalition lawn care retailer education program showed that a) quantities of non-farm phosphate fertilizer sold nearly halved, from 294.25 tons in 2003 to 161.2 tons in 2007; b) the number of phosphorous free lawn care products registered for sale in the state increased dramatically, from 80 in 2003 to 221 in 2008. Following a student-led outreach effort, over 60% (71/118) of lakeshore households at Lake St Catherine's, VT were aware of the link between lawn care practices and water quality and more than 25% (30/118) had adopted at least one pollution prevention practice leading to estimated annual load reductions of 45.4 tons sediment and 61 pounds of phosphorus/yr.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

**Outcome #7**

**1. Outcome Measures**

Number of retail lawn and garden centers providing information on low input/no phosphorous lawn care options to customers

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	163

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management

**Outcome #8**

**1. Outcome Measures**

Number of schools that demonstrate an increase in, or institutionalization of, integrated watershed education into returning educators curriculum

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	14

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management

**Outcome #9**

**1. Outcome Measures**

Number of towns/municipalities using one or more bioengineering methods for shoreline stabilization to decrease erosion and sedimentation

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	2

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management

**Outcome #10**

**1. Outcome Measures**

number of towns using stormwater management and non-point source pollution prevention best management practices.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	{No Data Entered}	25

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Lake Champlain is a critical economic factor for Vermont but stormwater from urban areas degrades Lake Champlain and many Vermont watersheds. Urban stormwater is a major source of non-point source (NPS) pollution, primarily sediments, bacteria, toxic chemicals and phosphorous, that impairs our waterways. Because individual properties are the sources of stormwater and NPS pollutants, successful control and reduction depends on the actions of thousands of property managers, from homeowners to commercial lawn care providers to municipal governments.

**What has been done**

We identified the individuals responsible for making decisions on property management for commercial and municipal properties and targeted these individuals for NPS pollution prevention education efforts. We used multiple delivery methods, based on audience and desired outcomes, to inform these individuals about the social, environmental and financial benefits of low input property management for pollution prevention.

**Results**

Those adopting the recommended practices changed policy and regulations making significant gains in reducing NPS pollution in some communities.

\*The largest employer in the state installed a rain garden to treat parking lot storm water; \*Woodstock, VT added a LID ordinance to its zoning regulations; \*Business property managers in 3 towns adopted low input practices; \*In two towns low input practices are active on an estimated 50% of business/institutional lawn area; \*Three towns built bioengineered shoreline stabilization structures in 2008, and three additional towns changed zoning regulations and coastal construction guidelines to require bioengineered methods; \*In (2008) four of seven school districts in the Lake Champlain basin and two of five municipalities changed to low input, no phosphorous grounds care practices

**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.)
- Public Policy changes
- Government Regulations
- Competing Programmatic Challenges

**Brief Explanation**

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

1. Evaluation Studies Planned

**Evaluation Results**

{No Data Entered}

**Key Items of Evaluation**

{No Data Entered}

**V(A). Planned Program (Summary)**

**Program # 8**

**1. Name of the Planned Program**

Health - NOT ACTIVE - DELETE

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies				
502	New and Improved Food Products				
503	Quality Maintenance in Storing and Marketing Food Products				
511	New and Improved Non-Food Products and Processes				
512	Quality Maintenance in Storing and Marketing Non-Food Products				
607	Consumer Economics				
703	Nutrition Education and Behavior				
704	Nutrition and Hunger in the Population				
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				
802	Human Development and Family Well-Being				
	<b>Total</b>				

**V(C). Planned Program (Inputs)**

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

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	2.7	0.0	2.0	0.0
Actual	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
0	0	0	0
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
0	0	0	0
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
0	0	0	0

**V(D). Planned Program (Activity)****1. Brief description of the Activity**

Program efforts in this planned program fit in various other planned programs and have been respectively reported in other planned programs.

**2. Brief description of the target audience****V(E). Planned Program (Outputs)****1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	1000	0	100	0
<b>Actual</b>	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Year: 2009

Plan: 3

Actual: {No Data Entered}

**Patents listed**

{No Data Entered}

**3. Publications (Standard General Output Measure)****Number of Peer Reviewed Publications**

2009	Extension	Research	Total
<b>Plan</b>	1	5	
<b>Actual</b>	{No Data Entered}	{No Data Entered}	{No Data Entered}

**V(F). State Defined Outputs**



## **Output Target**

### **Output #1**

#### **Output Measure**

- Class/course  
Not reporting on this Output for this Annual Report

### **Output #2**

#### **Output Measure**

- Consultations  
Not reporting on this Output for this Annual Report

### **Output #3**

#### **Output Measure**

- Consumer Publication  
Not reporting on this Output for this Annual Report

### **Output #4**

#### **Output Measure**

- Educational/evaluation instrument  
Not reporting on this Output for this Annual Report

### **Output #5**

#### **Output Measure**

- Field day/fair  
Not reporting on this Output for this Annual Report

### **Output #6**

#### **Output Measure**

- Field site visit  
Not reporting on this Output for this Annual Report

### **Output #7**

#### **Output Measure**

- Funding request  
Not reporting on this Output for this Annual Report

### **Output #8**

#### **Output Measure**

- Presentations  
Not reporting on this Output for this Annual Report

### **Output #9**

#### **Output Measure**

- Publication - curriculum  
Not reporting on this Output for this Annual Report

### **Output #10**

#### **Output Measure**

- Publication - newsprint article  
Not reporting on this Output for this Annual Report

### **Output #11**

#### **Output Measure**

- Radio Spots/program (educational)  
Not reporting on this Output for this Annual Report

### **Output #12**

#### **Output Measure**

- Train the Trainer  
Not reporting on this Output for this Annual Report

### **Output #13**

#### **Output Measure**

- Trainee delivered programming  
Not reporting on this Output for this Annual Report

### **Output #14**

#### **Output Measure**

- Workshop - series  
Not reporting on this Output for this Annual Report

### **Output #15**

#### **Output Measure**

- Workshop - single session  
Not reporting on this Output for this Annual Report

## V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content	
O. No.	OUTCOME NAME
1	Increase the number of participants who increase the quality and/or quantity of fruits and vegetables
2	Increase in number of people who expand or change their preferences for or attitudes about healthy foods
3	Increase in number of people who improve food planning and shopping behaviors.
4	Increase in number of food managers certified in food safety and sanitation (Action)
5	Increase in number of school food service workers using food safety 'best practices' when receiving, storing, handling, preparing and serving food
6	Increase in number of schools implementing Hazard Analysis Critical Control Point based food safety programs
7	Increase in number of people who show an improvement in healthful eating practices.
8	Increase the number of people who show improvement in food safety and preservation practices.
9	A greater variety of produce available at home.
10	An increased preference for at least one fruit or vegetable
11	Increase the number of home gardeners who implement one or more good agricultural practices to minimize microbial food safety hazards such as using potable water and composted manure. (Action)
12	Increase the number of parents undergoing family transition through parentage, divorce or separation who understand the impact of these changes on their children.
13	Increase the number of parents who intend to apply knowledge and skills learned to influence their behavior with their children.
14	increase in number of food service workers using food safety 'best practices' when receiving, storing, handling, preparing and serving food
15	increase in number of food managers certified in food safety and sanitation
16	Number of parents/caregivers who have more positive feelings about feeding their toddlers than they did prior to the intervention.

**Outcome #1**

**1. Outcome Measures**

Increase the number of participants who increase the quality and/or quantity of fruits and vegetables

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	560	370

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

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

**Outcome #2**

**1. Outcome Measures**

Increase in number of people who expand or change their preferences for or attitudes about healthy foods

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	50	6

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

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

**Outcome #3**

**1. Outcome Measures**

Increase in number of people who improve food planning and shopping behaviors.

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

Increase in number of food managers certified in food safety and sanitation (Action)

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	75	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
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

#### Outcome #5

##### 1. Outcome Measures

Increase in number of school food service workers using food safety 'best practices' when receiving, storing, handling, preparing and serving food

Not Reporting on this Outcome Measure

#### Outcome #6

##### 1. Outcome Measures

Increase in number of schools implementing Hazard Analysis Critical Control Point based food safety programs

Not Reporting on this Outcome Measure

#### Outcome #7

##### 1. Outcome Measures

Increase in number of people who show an improvement in healthful eating practices.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	299	31

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

Diabetes prevalence is increasing nationally and in Vermont. By comparing Behavioral Risk Factor Surveillance System (BRFSS) average data from 2006-2008 with data from 1999-2001 for Vermont adults over age 65, the total diagnosed diabetes prevalence has increased from 24.9 to 28.3 percent in this short time frame. As the population ages and experiences the effects from overweight and obesity, diabetes prevalence is expected to rise. Due to limited resources other modes of delivery to reach audiences are needed.

###### What has been done

As a pilot we offered our Dining with Diabetes program (DWD) over Vermont Interactive Television (VIT) for 4 sessions and targeted caregivers of people with diabetes. We adapted program materials, produced food demonstration videos instead of cooking on site, and created various learning activities. Out of 121 participants at 11 VIT sites, approximately 87% of our attendees were caregivers, and 13% were people living with diabetes. Sixty participants completed both pre and post surveys distributed during the first and last class sessions.

**Results**

Responses show that the pilot done over VIT was considered quite favorably. Attending a course taught over VIT was rated equally to attending a face-to-face class. Of the 60 caregivers who completed the survey they indicated they planned meals for a total of 149 people, shopped for a total of 163, and prepared meals for a total of 189 people. 31 of the caregivers indicated on the post survey they had already changed behaviors using the information learned. One participant shared that after surgery he was self monitoring what he could eat, his doctor was impressed. When a dietary staff person asked if he didn't want carrot cake he told her "no, just bring me a piece of fresh fruit." In the future, we plan on using VIT and possibly other methods to deliver this important Diabetes education program.

**4. Associated Knowledge Areas**

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

**Outcome #8**

**1. Outcome Measures**

Increase the number of people who show improvement in food safety and preservation practices.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	139	14

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

712 Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #9**

**1. Outcome Measures**

A greater variety of produce available at home.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	450	940

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

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

**Outcome #10**

**1. Outcome Measures**

An increased preference for at least one fruit or vegetable

Not Reporting on this Outcome Measure

**Outcome #11**

**1. Outcome Measures**

Increase the number of home gardeners who implement one or more good agricultural practices to minimize microbial food safety hazards such as using potable water and composted manure. (Action)

Not Reporting on this Outcome Measure



## **Outcome #12**

### **1. Outcome Measures**

Increase the number of parents undergoing family transition through parentage, divorce or separation who understand the impact of these changes on their children.

Not Reporting on this Outcome Measure

## **Outcome #13**

### **1. Outcome Measures**

Increase the number of parents who intend to apply knowledge and skills learned to influence their behavior with their children.

Not Reporting on this Outcome Measure

## **Outcome #14**

### **1. Outcome Measures**

increase in number of food service workers using food safety 'best practices' when receiving, storing, handling, preparing and serving food

Not Reporting on this Outcome Measure

## **Outcome #15**

### **1. Outcome Measures**

increase in number of food managers certified in food safety and sanitation

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	50	24

### **3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
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 #16

##### 1. Outcome Measures

Number of parents/caregivers who have more positive feelings about feeding their toddlers than they did prior to the intervention.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	120

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

Poverty, hunger, and food insecurity are all factors that can contribute to poor health and poor nutrition. Often times it is the quality of food that is sacrificed in an effort to make ends meet. Research has shown the consumption of fruits and vegetables consumed by infants and toddlers typically decreases as they transition from their first foods into family meals.

###### What has been done

Partnering with the Vermont WIC Program parents with six month old babies were enrolled in this intervention over a six month time period in 2006, and then followed until the children reached their second birthdays. The Theory of Planned Behavior provided the theoretical framework. Trainings, targeted support materials, as well as S.M.A.R.T. goal setting were developed and implemented for WIC staff. A cohort design was used while keeping the fruit and vegetable message content similar, was used with program delivery to participants.

###### Results

An analysis of parent data (750 surveys) showed an overall increase in parental use of strategies to feed fruits and vegetables to their toddlers, and an intention to do even better in the future. 120 parents/caregivers have more positive feelings about feeding their toddlers than prior to the intervention, Although WIC families continued to experience barriers to increasing the amount of fruits and vegetables offered to toddlers, including cost, participating parents, as a group, significantly increased the number of servings of vegetables offered to their toddlers as part of a meal or snack. We conclude that there may be real benefits to providing nutrition counseling/education focused on one topic, in this case fruits and vegetables, for an extended time.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
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**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

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

**Brief Explanation**

{No Data Entered}

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

1. Evaluation Studies Planned

- Retrospective (post program)
- Before-After (before and after program)
- Time series (multiple points before and after program)
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

**Evaluation Results**

{No Data Entered}

**Key Items of Evaluation**

{No Data Entered}