

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

**Program # 6**

**1. Name of the Planned Program**

Water Resource Protection

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	25%			
133	Pollution Prevention and Mitigation	50%			
307	Animal Management Systems	25%			
	<b>Total</b>	100%			

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

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	4.6	0.0	0.0	0.0
Actual	1.3	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
46845	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
80066	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
227266	0	0	0

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

1. Brief description of the Activity

Applied Research Programs

Demonstrations

Facilitated Group Meetings and Conferences

Individual Consultations and Site Visits

Peer Reviewed Presentations

Peer Reviewed Publications

Printed Materials

Single day workshop, class or event

Survey or needs assessment

Websites or other computer-based delivery

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

- Farmers
- Horticultural Green Industry businesses and personnel (landscape, lawn care, golf, athletic field, public and private school and facilities, municipalities and other publicly owned properties)
- Land owners and Land Managers
- Natural Resource Farmers
- Natural Resource Agencies
- Municipalities
- Environmental Protection Groups and Organizations
- Professional Organizations and Industry Groups
- Business/Industry

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

**1. Standard output measures**

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	1335	5906	0	400
<b>Actual</b>	560	8650	0	0

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

**Patent Applications Submitted**

Year: 2010  
 Plan: 0  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2010	Extension	Research	Total
Plan	3	0	
Actual	0	2	2

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

**Output Target**

**Output #1**

**Output Measure**

- Applied Research Programs

Year	Target	Actual
2010	11	17

**Output #2**

**Output Measure**

- Demonstrations

Year	Target	Actual
2010	90	4

**Output #3**

**Output Measure**

- Facilitated Group Meetings and Conferences  
Not reporting on this Output for this Annual Report

**Output #4**

**Output Measure**

- Individual Consultations and Site Visits

Year	Target	Actual
2010	45	50

**Output #5**

**Output Measure**

- Peer Reviewed Presentations

Year	Target	Actual
2010	2	3

**Output #6**

**Output Measure**

- Peer Reviewed Publications

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	3	2

**Output #7**

**Output Measure**

- Printed Materials

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	40	32

**Output #8**

**Output Measure**

- Single day workshop, class or event

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	14	8

**Output #9**

**Output Measure**

- Survey or needs assessment  
Not reporting on this Output for this Annual Report

**Output #10**

**Output Measure**

- Websites or other computer-based delivery

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	2	1

**Output #11**

**Output Measure**

- Research, Grant, or Policy Report

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	{No Data Entered}	1

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

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

O. No.	OUTCOME NAME
1	Participants acquire knowledge and skill in practices that prevent and reduce water pollution, and protect and restore water resources
2	Participants acquire the knowledge to implement best management practices to protect and restore water resources
3	Participants implement best management practices to protect and restore water resources
4	Participants acquire the knowledge and skill to ensure adequate supplies of high quality drinking water
5	Participants acquire knowledge and skill related to water resources, ecosystem health, biodiversity, stormwater, land use, and climate change science and policy
6	Participants acquire knowledge and skill to minimize the impact of development projects on water resources
7	Participants acquire knowledge and skills to effectively address water resource issues during project review and permitting

**Outcome #1**

**1. Outcome Measures**

Participants acquire knowledge and skill in practices that prevent and reduce water pollution, and protect and restore water resources

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

Participants acquire the knowledge to implement best management practices to protect and restore water resources

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2010	100	100

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

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
133	Pollution Prevention and Mitigation
307	Animal Management Systems

### **Outcome #3**

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

Participants implement best management practices to protect and restore water resources

#### **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>
2010	50	16

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

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

Dairy and livestock farmers together manage more than 130,000 acres of hay, pasture and corn. Massachusetts also has a sizable equine industry with more than 10,000 horse owners. We provide educational opportunities for these groups to increase their knowledge of environmental issues and their ability to reduce threats to water that result from pathogens and nutrient loss from barns, stables, fields and pastures.

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

We established on-farm research to demonstrate that well-established cover crops are effective in taking-up residual soil nitrate from applied manure and after crops are harvested. The project included corn hybrid selection and nitrogen sufficiency testing. In addition to our work with farmers, we helped horse owners effectively manage nutrients, manure and mud and provided assistance to equine operations in establishing productive, environmentally sustainable pastures.

##### **Results**

Farmers have transitioned to pasture-based operation based on our recommendations and educational activities while horse owners have adopted nutrient management, mud management and pasture management practices that minimize non-point source pollution. The use of cover crops is also increasing which reduces the amount of Nitrogen leaching into soil and maintains the quality of water resources.

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
133	Pollution Prevention and Mitigation

307      Animal Management Systems

**Outcome #4**

**1. Outcome Measures**

Participants acquire the knowledge and skill to ensure adequate supplies of high quality drinking water

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

Participants acquire knowledge and skill related to water resources, ecosystem health, biodiversity, stormwater, land use, and climate change science and policy

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

Participants acquire knowledge and skill to minimize the impact of development projects on water resources

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

Participants acquire knowledge and skills to effectively address water resource issues during project review and permitting

Not Reporting on this Outcome Measure

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

### **External factors which affected outcomes**

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

### **Brief Explanation**

## **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**

{No Data Entered}

### **Key Items of Evaluation**

{No Data Entered}