

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

#### Program # 6

##### 1. Name of the Planned Program

Economic Development

Reporting on this Program

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

#### 1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		0%	
111	Conservation and Efficient Use of Water	15%		10%	
133	Pollution Prevention and Mitigation	10%		0%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		27%	
204	Plant Product Quality and Utility (Preharvest)	6%		0%	
205	Plant Management Systems	22%		0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	11%		27%	
212	Diseases and Nematodes Affecting Plants	11%		13%	
511	New and Improved Non-Food Products and Processes	0%		13%	
601	Economics of Agricultural Production and Farm Management	10%		0%	
605	Natural Resource and Environmental Economics	0%		2%	
723	Hazards to Human Health and Safety	5%		0%	
801	Individual and Family Resource Management	0%		5%	
802	Human Development and Family Well-Being	0%		3%	
	<b>Total</b>	100%		100%	

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

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

Year: 2014	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	13.0	0.0	3.0	0.0
<b>Actual Paid</b>	5.4	0.0	2.9	0.0

<b>Actual Volunteer</b>	0.0	0.0	0.0	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
618221	0	92254	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
504302	0	414263	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
586021	0	1155191	0

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

**1. Brief description of the Activity**

- Applied Research
- Demonstrations
- Diagnostic Services
- Displays and Exhibits
- Facilitated Group Meetings and Conferences
- Individual Consultations and Site Visits
- Presentation/Poster (Academic)
- Printed Materials
- Published Article (Academic)
- Published Article (news, professional, trade
- Research, Grant, or Policy Report
- Single day workshop, presentation or event
- Websites or Other Computer-based Delivery
- Workshop series or educational course

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

- Farmers
- Landowners
- Resource Managers
- Horticultural Green Industry businesses and personnel
- Professional Organizations and Industry Groups
- Natural Resource Agencies
- Municipalities

**3. How was eXtension used?**

eXtension was not used in this program

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

**1. Standard output measures**

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	7870	1048936	0	0

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

**Patent Applications Submitted**

Year: 2014  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2014	Extension	Research	Total
<b>Actual</b>	0	12	12

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

**Output Target**

**Output #1**

**Output Measure**

- Demonstrations  
 Not reporting on this Output for this Annual Report

**Output #2**

**Output Measure**

- Displays and Exhibits  
 Not reporting on this Output for this Annual Report

**Output #3**

**Output Measure**

- Facilitated Group Meetings and Conferences

**Year                      Actual**

2014 23

**Output #4**

**Output Measure**

- Individual Consultations and Site Visits

<b>Year</b>	<b>Actual</b>
2014	2719

**Output #5**

**Output Measure**

- Printed Materials

<b>Year</b>	<b>Actual</b>
2014	64

**Output #6**

**Output Measure**

- Published Articles (New, Professional and Trade)

<b>Year</b>	<b>Actual</b>
2014	0

**Output #7**

**Output Measure**

- Single day workshop, presentation or event

<b>Year</b>	<b>Actual</b>
2014	30

**Output #8**

**Output Measure**

- Websites or other computer-based delivery

<b>Year</b>	<b>Actual</b>
2014	71

**Output #9**

**Output Measure**

- Workshop series or educational course

<b>Year</b>	<b>Actual</b>
2014	1

**Output #10**

**Output Measure**

- Applied Research Projects

<b>Year</b>	<b>Actual</b>
2014	2

**Output #11**

**Output Measure**

- Diagnostic Services

<b>Year</b>	<b>Actual</b>
2014	1275

**Output #12**

**Output Measure**

- Academic Presentation/Poster  
Not reporting on this Output for this Annual Report

**Output #13**

**Output Measure**

- Peer review publications

<b>Year</b>	<b>Actual</b>
2014	12

**Output #14**

**Output Measure**

- Research, grant or policy report  
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	Participants acquire knowledge and skills that enhance the environmental sustainability of agricultural businesses.
2	Participants adopt practices that enhance the environmental sustainability of agricultural businesses.
3	Participants acquire knowledge and skills that enhance the economic viability of agricultural businesses
4	Participants adopt practices that enhance the economic viability of agricultural businesses
5	Creation and synthesis of knowledge related to the environmentally sustainable and economic viability agricultural businesses

## **Outcome #1**

### **1. Outcome Measures**

Participants acquire knowledge and skills that enhance the environmental sustainability of agricultural businesses.

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2014	9953

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

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

Pesticides are vital tools for controlling pests and maintaining an adequate food supply. If used improperly, pesticides can also threaten human health and the natural environment. Inexperienced applicators, accidents, inadequate protection and equipment are areas of concern that increase the potential for negative personal and environmental impacts from pesticide exposure. The Pesticide Education Project educates pesticide users about safe application, state regulation and proper use of pesticides in Massachusetts.

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

Approximately 3600 pesticide exam study manuals were distributed by the UMass Extension Bookstore to approximately 1300 individuals preparing for the state administered pesticide exams. The Pesticide Education program conducted twenty two-day workshops to help individuals prepared for the Massachusetts state pesticide license exams. The program also offered 14 pesticide re-certification training workshops to individuals that currently have pesticide licenses and certifications.

#### **Results**

Individuals who participated in our Pesticide Education workshops continue to pass the MA state exam at a higher rate than those who did not take the workshop. Seventy-four percent of the individuals who took the workshop passed the exam compared to a passing rate of 62% for non-participants. This represents a 17% difference in the passing rate between the two groups. Of the 1052 individuals who completed evaluations, 65% indicated that they increased their knowledge, "very much" and 58% indicated that they would "very much" use the information/techniques that they learned.

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
133	Pollution Prevention and Mitigation
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Diseases and Nematodes Affecting Plants

#### Outcome #2

##### 1. Outcome Measures

Participants adopt practices that enhance the environmental sustainability of agricultural businesses.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

<b>Year</b>	<b>Actual</b>
2014	2013

##### 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
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Diseases and Nematodes Affecting Plants

### **Outcome #3**

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

Participants acquire knowledge and skills that enhance the economic viability of agricultural businesses

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2014	130

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

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

The greenhouse industry consists of wholesale growers and retailers, as well diversified farms that are adding greenhouse crops. Plant production is also the basis for many associated horticultural industries. These companies have significant economic and environmental impacts for Massachusetts. Sustainable greenhouse management requires solutions to problems of energy, pest management, trained labor, water quality, production practices and plant nutrition for a diverse range of crops and complex agricultural and environmental issues.

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

Activities included: grower consultations; educational workshops and conferences; articles, publications and newsletters; maintaining up-to-date information on websites; email message updates and the development and dissemination of education videos on a variety of greenhouse production subjects via youtube.

##### **Results**

Based on workshop evaluations, 20 growers are better able to diagnose diseases using on-site test kits 55 growers learned about managing aphids, thrips and mites in greenhouses and how to better use plant growth regulators and used that information to make important business decisions. 45 growers intend to use learned information regarding biological control in their greenhouses. Forty growers received one-to-one assistance with diagnosing a problem with their greenhouse crop and followed advice. One hundred thirty eight growers earned pesticide re-certification credit.

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

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

#### **Outcome #4**

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

Participants adopt practices that enhance the economic viability of agricultural businesses

Not Reporting on this Outcome Measure

#### **Outcome #5**

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

Creation and synthesis of knowledge related to the environmentally sustainable and economic viability agricultural businesses

Not Reporting on this Outcome Measure

#### **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**

#### **V(I). Planned Program (Evaluation Studies)**

##### **Evaluation Results**

Individuals who participated in our Pesticide Education workshops continue to pass the MA state exam at a higher rate than those who did not take the workshop. Seventy-four percent of the individuals who took the workshop passed the exam compared to a passing rate of 62% for non-participants. This represents a 17% difference in the passing rate between the two groups. Of the 1052 individuals who completed evaluations, 65% indicated that they increased their knowledge, "very much" and 58% indicated that they would "very much" use the information/techniques that they learned.

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**Key Items of Evaluation**