

2012 University of Massachusetts Combined Research and Extension Plan of Work

Status: Accepted

Date Accepted: 06/08/2011

I. Plan Overview

1. Brief Summary about Plan Of Work

The UMass Amherst Center for Agriculture, the university's central location for research and educational outreach on agriculture, natural resources, and food systems, was founded in 2001. The center is part of the College of Natural Sciences and is home to the Massachusetts Agricultural Experiment Station and UMass Extension. Along with the university's Stockbridge School of Agriculture, the center is the proud bearer of our national land-grant university tradition of agricultural research and education with which the university began, as Massachusetts Agricultural College, in 1863. In addition to campus locations, research and outreach facilities are located in all regions of the Commonwealth and include the UMass Cranberry Station in East Wareham and Cold Spring Orchard Research and Education Center in Belchertown.

The Massachusetts Agricultural Experiment Station (MAES) is a mandated research organization that administers and distributes federal Experiment Station funds. The Experiment Station monitors all agricultural, natural resource and food related research activities in the College of Natural Sciences, encourages new research initiatives, and promotes research endeavors that will attract external funding sources. With funding allocated as a result of the federal Hatch Act of 1887 and the McIntire Stennis Forestry Research Act of 1962, MAES conducts original research and verification of experimental results on the agricultural, food science and forestry industries of Massachusetts. These scientific investigations are focused on increasing farm production efficiency and increasing the economic status of agricultural producers. To comply with federal requirements, at least 25% of the MAES funding is provided in support of "multi-state" projects; these involve collaborative activity with researchers from partnering institutions.

UMass Extension (UMExt), part of the national Cooperative Extension System, provides community-based outreach education and applied research in four areas -- agriculture and landscape, natural resources and environmental conservation, nutrition education and 4-H youth development. Outreach education is provided directly through a variety of methods and materials that are tailored to specific audiences. Web sites and other new technologies make information and learning opportunities more broadly available. Most Extension work is highly collaborative, linking academic faculty and programs at UMass Amherst with research and other public agencies, nongovernmental and professional organizations. In 2009, UMass Extension faculty and program specialists had over 125,000 direct educational contacts with adults and over 65,000 with youth. Indirect educational contacts - such as use of printed or Web-based materials - were over 900,000.

This plan of work identifies integrated research and extension programming in the following nine planned program areas:

- Global Food Security and Hunger
- Climate Change
- Sustainable Energy
- Food Safety
- Childhood Obesity
- Economic Development

- Youth Development
- Environmental Stewardship
- Extension/Experiment Station Administration - Center for Agriculture

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2012	101.4	0.0	28.0	0.0
2013	101.4	0.0	28.0	0.0
2014	101.4	0.0	28.0	0.0
2015	101.4	0.0	28.0	0.0
2016	101.4	0.0	28.0	0.0

II. Merit Review Process

1. The Merit Review Process that will be Employed during the 5-Year POW Cycle

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

2. Brief Explanation

Massachusetts Agricultural Experiment Station - Prior to submittal, a short white paper is submitted to the Director or designee proposing a project and describing how it is relevant to the NIFA priorities and the constituents of the state. If the project is accepted it is then reviewed by the relevant department head for approval. Submitted projects are then evaluated by an internal university panel that consists of one faculty member active in MAES, the Director of the Center for Agriculture/MAES, and the Assistant Director for MAES. Proposed projects are also judged on their relevance to the critical issues identified in the POW. Three peer reviewers selected from amongst MAES stakeholders, at least two of whom are experts in the proposed area of research will be asked to provide written reviews of the scientific merit of the proposed project. Final approval of projects will be made by the Director or Assistant Director of MAES.

UMass Extension

External University Panel - University of Massachusetts Extension has entered into a formal agreement with Extension in Maine, Vermont, and New Hampshire to develop and implement a four-state planning and reporting system. Working in collaboration with three other states in developing our system has also resulted in discussions around state and regional programs, opportunities for multistate work, sharing staff resources and a much better understanding of how each of our unique programs are similar and different than others in New

England. As a result, the four states have agreed to provide merit review for each state as part of our formal partnership. The new system provides access to each state plan of work for all four states, allowing for easy sharing of ideas and opportunities for further collaboration. Further, we've agreed to set up a rotating system of more comprehensive merit review by selecting a different state plan each year for in-depth review by Extension staff from the other three states. With this system, we will be sharing plans with one another continuously, and every four years every state's plan will go through a more rigorous review process by the other three states. The Massachusetts Extension Plan of Work is set to be reviewed by the other three states in 2013.

External Non-University Review Panel - The Massachusetts legislature established a Board of Public Overseers to provide advice and oversight to UMass Extension. This 15 member board, comprised of representatives of constituent organizations, meets quarterly to review and advise UMass Extension and the Chancellor the UMass Amherst. Review of the Plan of Work is a major function of this board.

III. Evaluation of Multis & Joint Activities

1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

The Massachusetts Agricultural Experiment Station (MAES) continually participates with University of Massachusetts Extension (UMExt) in comprehensive stakeholder engagement process that resulted in the specification of nine critical issues that define the conceptual structure for our programs. These nine issues, that also serve as the UMass Extension Planned Programs in the Federal Plan of Work, are strategically important because they reflect the convergence of our USDA mission and the research and teaching capacity of University of Massachusetts while being fundamentally important to the citizen of Massachusetts. The nine critical issues relate to the needs of the people of Massachusetts but they also encompass a host of regional concerns that are not defined, or bound by, the borders of the state of Massachusetts (e.g., food production, water and ecosystem protection, and economic development). They also cut across the matrix of all of the planned programs of MAES. Addressing these issues from a regional or multi-state perspective brings additional practical and intellectual resources to bear and creates the potential for more comprehensive and cost effective programs. The Center for Agriculture is designed to ensure integration of research and educational programs. Integrating research and education programs is the key element in our strategy to address the complex of critical issues identified by our stakeholders. Data on these issues will be provided via statistical web documentation in conjunction with UMExt and the Massachusetts Department of Agriculture. Academic scholarship and traditional process of scientific discovery are crucial for solving problems related to water quality, food production, ecosystem and human health. However, for scientific knowledge to be useful to our constituents, a variety of approaches, technologies, curriculum and other appropriate mechanisms are needed for translating science into practice. In many cases, research and outreach can be integrated within a single programmatic effort, operating seamlessly, rather than as distinct process, in pursuit of an organizationally defined set of goals. Representatives from both the MAES & UMExt have been working with the Massachusetts Department of

Agricultural Resources to promote an important initiative in Massachusetts. We continue to work with our partners in the hopes that some of this past state funding will return. This Center shall continue to provide a broad range of technical and business development services to the commonwealth's agricultural producers so that they may add value to the commonwealth's agricultural economy.

2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?

The development of this POW has been guided by the following values - respect for people, families, and communities; respect for the diversity of people, ideas, and organizations; and a dedication to active citizen involvement. The most pressing challenge for meeting these values is identifying underserved and underrepresented populations that have not traditionally been participants in our programs. The Center for Agriculture is exploring new print and electronic outlets for broadening out the participation in our programs. By collaborating with other states, UMass Extension can increase the range, number, and depth of programmatic offerings to meet a more diverse range of clientele needs. In agricultural programs in particular, producers of specialty crops such as ethnic crops, Christmas trees, maple syrup, honey, and organic products will have increased access to educational products. In many cases the needs of underserved audiences differ substantially from those in the larger population. UMass has planned integrated research and education programs that address a variety of food safety concerns and promote personal health. We have identified specific audiences that are underserved because of their economic status or because of issues related to literacy (reading and English language proficiency). The research component of these programs and the supporting educational materials are specifically designed to meet the needs and address the concerns of these audiences.

3. How will the planned programs describe the expected outcomes and impacts?

Massachusetts Center for Agriculture activities are planned, evaluated and reported within the context of publicly identified issues that are consistent with NIFA identified priorities. Organizational teams worked initially with the data obtained through the formal stakeholder engagement process to identify priorities and specific outcomes for each program which are updated annually with feedback from various partners and stakeholders. Staff working on specific projects report to a set of indicators that are linked to a specific planned program. UMass Extension has developed an on-line planning system as a part of collaborative effort with three other New England States (NH, VT, ME) that staff use the system to report progress towards planned activities and outcomes

4. How will the planned programs result in improved program effectiveness and/or

The Massachusetts Center for Agriculture will work collaboratively with all interested communities, industries and organizations within a context that is determined by the specific issues or problems that are addressed, rather than by the borders of any particular state. This will increase the scope of potential impacts and leverage additional resources. Continuing to explore new areas for integrating research with education is also essential to the success of the Center's mission, to function as a resource to the people of Massachusetts. Reporting on specific initiatives within each planned program will assist in determining how effectively we are meeting individual and organizational goals. The most effective programs will be able to document concrete benefits while also involving an intimate and mutually reinforcing relationship between issues of public concern and the university-based research that can help address those issues. The extent to which research and practice can become more closely aligned will result in programs that reflect sound policy, incorporate best practices and are responsive to public concerns.

IV. Stakeholder Input

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

- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public

Brief explanation.

The Massachusetts Agricultural Experiment Station and UMass Extension have strong, existing relationships with a variety of organizations representing stakeholders from throughout Massachusetts and the region. Several commodity-based organizations, such as the Massachusetts Tree Fruit Growers, the Cape Cod Cranberry Growers Association, the Golf Course Superintendent's Association of New England and the Massachusetts Vegetable and Berry Growers Association provide research facilities and grants that supplement and help to direct the research and outreach activities of the MAES and UMass Extension. Groups such as the Massachusetts Flower Growers Association, the Massachusetts Arborists Association, the New England Sports Turf Managers Association, the Massachusetts Nursery and Landscape Association, Community In Support of Agriculture (CISA), the New England Small Farms Institute, and the Massachusetts Natural Organic Farmers Association help to set the agenda for research and educational activities. Direct consultations with these groups provide a partnership for identifying and solving problems of mutual concern. This model of including growers and other clients in participatory research to solve problems strengthens the link between the University and citizens, keeps the research relevant to real problems and speeds transfer of solutions to end-users. At its best, research is not targeted at specific sub-populations and the goals put forward in this POW are intended to be far-reaching so that the research undertaken is anticipated to be of value to the entire population of the state and the region. The development of this POW has been guided by the following values - respect for people, families, and communities; respect for the diversity of people, ideas, and organizations; and a dedication to active citizen involvement. To insure that these values are upheld and that the research benefits all members of the broader community it is necessary to make sure that all citizens wishing to participate in the stakeholder process have more than ample opportunity. This requires holding stakeholder meetings, twilight meetings, and listening sessions in urban as well as rural settings. This also requires going beyond traditional outlets when advertising these opportunities.

2(A). A brief statement of the process that will be 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
- Open Listening Sessions

Brief explanation.

The Center for Agriculture has now created a single advisory board for the purpose of recommending to our group what the key issues from within the state are that we can help with. The group of men and women consist of representatives of grassroots organizations, the Commissioner of Agriculture, commodity representatives, representatives from the

departments, the college and the university. The College of Natural Sciences has a 20 member advisory board with representatives from across the spectrum of scientific areas within the Massachusetts Agricultural Experiment Station. Extension has an oversight board called the Board of Public Overseers who meet regularly and provide direction and guidance. There is also a state mandated Cranberry Oversight Committee that makes recommendations for all research and extension activities at the Cranberry Experiment Station. The committee consists of three cranberry growers; the Commissioner of Agriculture, Scott Soares; Massachusetts legislators, currently Representative John Quinn and Senator Teresa Murray; and the Dean of the College of Natural Sciences, Steve Goodwin. These boards meet between two and five times each year and provide direct stakeholder input. They also help to identify new participants for the stakeholder process. There is an annual stakeholders roundtable that is held in conjunction with Farm Bureau. The roundtable includes participation from all of the commodity groups listed above as well as the Massachusetts Department of Agricultural Resources. It is also the policy of the Massachusetts Agricultural Experiment Station to participate in all focus groups and listening sessions that are convened by UMass Extension.

2(B). A brief statement of the process that will be 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
- Meeting specifically with non-traditional groups
- Meeting specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public

Brief explanation.

The Massachusetts Agricultural Experiment Station and UMass Extension have direct consultations with faculty, staff and the dean of the college and with our constituents and commodity groups that establish sustained partnerships for identifying and solving problems of mutual concern. This model of including growers and other clients in the design of participatory research and public education programs to solve problems strengthens the link between the University and citizens, keeps the research and outreach relevant to real problems and speeds transfer of solutions to end-users.

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 Action Plans

Brief explanation.

Most faculty in the College of Natural Sciences combine research, instruction and outreach/extension activities. When faculty and staff interact with stakeholders, they represent both research and extension. Input from stakeholders concerning research needs informs implementation of research projects. Ultimately information gained from

both formal and informal stakeholder processes, informs both research and extension issue identification and the resulting research projects and extension education programs. The identification of emerging issues culminates when faculty propose new research projects. These projects are evaluated through the merit review process that examines their relevance to the plan of work. The priorities for the POW are reexamined every year taking into account the totality of the stakeholder input. In addition, the critical issues identified by UMass Extension are continuously modified based on stakeholder input and this provides a cross-check to insure that the research programs of the Massachusetts Agricultural Experiment Station are directed towards areas that will have the maximum impact on the citizens of the state and the region.

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Global Food Security and Hunger
2	Climate Change
3	Sustainable Energy
4	Food Safety
5	Childhood Obesity
6	Economic Development
7	Youth Development
8	Environmental Stewardship
9	Massachusetts Center for Agriculture Administration

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger

2. Brief summary about Planned Program

Working to expand local food production by meeting the needs of current food producers, encouraging new entry farmers, and educating families about smart eating. By promoting safe and abundant local food, we can help residents move toward good health while protecting the natural resources and character of our communities. The demand for more local food poses questions: How can we grow more? How can we make sure that the food is safe? How do we protect our valued resources along the way - soil, air, water? How do we make sure everyone knows how to take advantage of food resources? How can we work to increase the availability of healthful food in urban areas? To thrive, farmers must have continued access to innovative research, must develop new crops and must produce the foods that will allow access to new markets, such as the states' expanding immigrant populations. Post-harvest efficiencies and renewable energy technologies will also help to reduce costs. Successful farming relies on environmentally sustainable practices. The Center for Agriculture supports this relationship with research funded through the Massachusetts Agricultural Experiment Station on, for example, soil fertility, on maximizing the nutritional quality of crops, on nutrient cycling and on conservation. We provide technical information and public education in farm ecology, new and alternative crop and forage species and advanced management techniques. UMass Extension, in partnership with the Mass. Department of Agricultural Resources, has provided training in Good Agricultural Practices (GAP) for local farmers to assure the safety of our Massachusetts- grown products and for participation in the state's new Commonwealth Quality program. We continue to develop and promote integrated pest management, a set of practices that growers use to protect their crops from destructive pests while reducing use of chemical pesticides. The Center's Extension Nutrition Education Program has project offices in Boston, Worcester, Springfield, Lawrence, Brockton, Fall River, Holyoke and Barnstable. Nutrition education for low-income children and families is designed and implemented in collaboration with schools and community organizations. Our nutrition education programs reached 224,259 youth and adults, last year alone. Many of these project offices employ staff who are members of the communities in which they teach and are therefore familiar with the cultural background and learning styles of participants. The program also works with teachers who provide nutrition education.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

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	0%		5%	
202	Plant Genetic Resources	0%		2%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		1%	
204	Plant Product Quality and Utility (Preharvest)	20%		0%	
205	Plant Management Systems	10%		3%	
206	Basic Plant Biology	0%		9%	
211	Insects, Mites, and Other Arthropods Affecting Plants	0%		16%	
212	Pathogens and Nematodes Affecting Plants	0%		3%	
216	Integrated Pest Management Systems	25%		4%	
301	Reproductive Performance of Animals	0%		25%	
305	Animal Physiological Processes	0%		4%	
307	Animal Management Systems	0%		14%	
601	Economics of Agricultural Production and Farm Management	25%		3%	
603	Market Economics	0%		3%	
604	Marketing and Distribution Practices	20%		6%	
701	Nutrient Composition of Food	0%		1%	
703	Nutrition Education and Behavior	0%		1%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Massachusetts is a small state with a history of innovative agriculture, a dense population, and a significant segment of its residents hungry or at risk of hunger on a daily basis. The demand for locally grown food is increasing from all socioeconomic levels, with urban farmers' markets helping to bring fresh food to underserved areas. At the same time, arable land is increasingly precious. Massachusetts farms, the number of which has increased by 27% in the last five years, average only 85 acres and are largely family-owned. A significant proportion of farm products are sold directly by producers to consumers. Simultaneously, many Massachusetts communities continue to experience land-use pressure with development threatening existing farmland. Accurate and timely research and education is a critical component in growers' ability to create a viable local food production capacity. Research-based nutrition

education is an important element in the ability of low-income families to take advantage of healthful foods.

Research Priorities

Advanced Pest Management
Plant Varieties and Physiology
Soil Quality and Fertility
Food Science
Food, Nutrition and Health

Outreach Priorities

Sustainable Vegetable Production and Marketing
Sustainable Fruit Production and Marketing
Sustainable Freshwater Aquaculture
Sustainable Cranberry Production
Plant and Soil Diagnostics

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Stakeholders understand that the Massachusetts Center for Agriculture conducts research and provides accurate and timely information necessary to improve the pest management, nutrient management, marketing, and overall production and management abilities of farmers.

Stakeholders will be motivated to adopt changes that will continue to insure the success of Massachusetts agriculture.

Sufficient faculty and staff with the necessary scientific knowledge and educational expertise will be dedicated to the implementation of this plan.

For Massachusetts food producers to take advantage of new and expanding markets and to remain competitive, financial planning and marketing initiatives need to be implemented that compliment research activities.

Faculty and staff work effectively with new farmers are needed to implement this plan - The long-term viability of food production in Massachusetts depends on new generations of people who want to farm and have access to the resources necessary to be successful.

2. Ultimate goal(s) of this Program

Stronger Food Production Systems - Develop and expand systems for environmentally sound and economically viable food production, distribution, access and utilization.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	11.9	0.0	9.6	0.0
2013	11.9	0.0	9.5	0.0
2014	11.9	0.0	9.6	0.0
2015	11.9	0.0	9.6	0.0
2016	11.9	0.0	9.6	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

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

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations 	<ul style="list-style-type: none"> ● Newsletters ● Web sites other than eXtension

3. Description of targeted audience

The primary audience for this plan are Massachusetts growers and food production-related businesses. This includes established producers as well as new, immigrant, part-time, conventional and organic growers. Others audiences include government agencies, non-profit and community based organizations, including food banks and pantries that serve low-income families. The broader scientific

community involved in basic and applied research related to all aspects of food production is another key audience.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
 - Number of patents submitted
 - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Demonstrations
 - Diagnostic Services
 - Facilitated Group Meetings and Conferences
 - Individual Consultations and Site Visits
 - Printed Materials
 - Single day workshop, presentation or event
 - Websites or other computer-based delivery
 - Workshop series or educational course
 - Published Articles (Academic)
 - Applied Research Projects
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Participants acquire knowledge and skills for practices that ensure economically viable food production.
2	Participants adopt practices that ensure economically viable food production
3	Participants acquire knowledge and skills for practices that ensure the environmentally sustainable food production
4	Participants adopt practices that ensure environmentally sustainable food production
5	Participants acquire knowledge and skills to develop and market locally grown or raised food products more effectively
6	Participants develop and market locally grown or raised food products more effectively
7	Accurate research on vegetable pests made available and shared
8	Accurate research on Bee Health made available and shared
9	Accurate research on soil based residuals, reclaimed, wastewater made available and shared

Outcome # 1

1. Outcome Target

Participants acquire knowledge and skills for practices that ensure economically viable food production.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:200 2013:200 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Participants adopt practices that ensure economically viable food production

2. Outcome Type : Change in Action Outcome Measure

2012:80 2013:80 2014:80 2015:80 2016:80

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Participants acquire knowledge and skills for practices that ensure the environmentally sustainable food production

2. Outcome Type : Change in Knowledge Outcome Measure

2012:200 2013:200 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Participants adopt practices that ensure environmentally sustainable food production

2. Outcome Type : Change in Action Outcome Measure

2012:80 2013:80 2014:80 2015:80 2016:80

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Participants acquire knowledge and skills to develop and market locally grown or raised food products more effectively

2. Outcome Type : Change in Knowledge Outcome Measure

2012:100 2013:100 2014:100 2015:100 2016:100

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Participants develop and market locally grown or raised food products more effectively

2. Outcome Type : Change in Action Outcome Measure

2012:40 2013:40 2014:40 2015:40 2016:40

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

1. Outcome Target

Accurate research on vegetable pests made available and shared

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants

4. Associated Institute Type(s)

- 1862 Research

Outcome # 8

1. Outcome Target

Accurate research on Bee Health made available and shared

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants

4. Associated Institute Type(s)

- 1862 Research

Outcome # 9

1. Outcome Target

Accurate research on soil based residuals, reclaimed, wastewater made available and shared

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships

4. Associated Institute Type(s)

- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect 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.)

Description

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Climate Change

2. Brief summary about Planned Program

Research on climate change supported by the Center for Agriculture explores both the effects of climate change on natural systems and agriculture as well as mitigation strategies. The Massachusetts Agricultural Experiment Station is funding research, for example, investigating the growth patterns of Massachusetts forests and whether climate change will cause plant species to migrate northward. Much of the forested land in Massachusetts is family owned, and additional research examines land owner attitudes to determine whether efforts to maintain forest land for its carbon sequestration capacities are likely to be successful. The high degree of "home rule" in Massachusetts' communities is also reflected in efforts to understand the balance between policies that are focused on adapting to the effects of climate change versus those that seek to mitigate climate change. A new climate change initiative will soon begin in the Center for Agriculture that involves the interrelationship between climate change and the state's water resources. Combining science and public education, Extension faculty will conduct research while developing tools and implementing strategic approaches that allow communities to confront threats to water resources. Agricultural program specialists in UMass Extension are working with growers to develop and implement practices that could mitigate effects of climate change. One practice, known as "deep zone tillage," allows crops to survive greater extremes of weather and rainfall than more traditional tillage methods.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
111	Conservation and Efficient Use of Water	25%		0%	
112	Watershed Protection and Management	25%		0%	
131	Alternative Uses of Land	0%		42%	
132	Weather and Climate	50%		0%	
133	Pollution Prevention and Mitigation	0%		4%	
136	Conservation of Biological Diversity	0%		37%	
206	Basic Plant Biology	0%		17%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Climate change is often discussed on a global level, leaving many of the local issues and implications poorly understood. Climate change is predicted to have strong environmental impacts in Massachusetts, affecting decision-making around natural resources, agricultural, landscape practice and environmental questions. Increased temperatures, unusual patterns of snow cover, higher sea levels and changes in precipitation patterns are likely to manifest in our state, and these factors are pivotal to the future availability and quality of water resources and food. The current development of planning tools for climate change at the state level, such as appropriately scaled climate change projections and watershed-based modeling, is very limited.

Research Priorities

Natural System Responses
Climate Monitoring
Mitigation Practices and Policies

Outreach Priorities

Water resources and climate change
Deep zone tillage
Envirothon youth program

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research

- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Stakeholders understand that the Massachusetts Center for Agriculture conducts research and provides accurate and timely information necessary to understand characterization and mechanisms of Plant Responses to Ozone in the US.

Policy response for mitigation, which seeks to reduce greenhouse gases so as to minimize the level of climate change, and adaptation, which seeks to prepare communities for the climate changes that are already entrained.

2. Ultimate goal(s) of this Program

A significant increase in knowledge about the interrelationships among climate change, land use and natural systems. Encourage the consideration of climate change among local and regional government agencies and the development of effective mitigation strategies

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	0.4	0.0	1.0	0.0
2013	0.4	0.0	1.5	0.0
2014	0.4	0.0	1.5	0.0
2015	0.4	0.0	1.5	0.0
2016	0.4	0.0	1.5	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Applied Research
- Facilitated Group Meetings and Conferences
- Printed Materials
- Single day workshop, presentation or event
- Websites or Other Computer-based Delivery

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations 	<ul style="list-style-type: none"> ● Newsletters ● Web sites other than eXtension

3. Description of targeted audience

General public, land owners, food producers, municipal officials, state agencies and regulators

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Applied Research Projects
 - Facilitated Group Meetings and Conferences
 - Printed Materials
 - Single day workshop, presentation or event
 - Websites or Other Computer-based Delivery
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Literature review which provided an overview of the wide body of scientific frameworks typically used for climate change mitigation and adaptation as relevant to local, regional, and state land use planners.
2	Participants acquire knowledge and skill to mitigate the negative impacts of climate change on water resources, property, and public safety
3	Participants implement practices to mitigate the negative impacts of climate change on water resources, property, and public safety
4	Accurate research on plant responses to Ozone made available and shared

Outcome # 1

1. Outcome Target

Literature review which provided an overview of the wide body of scientific frameworks typically used for climate change mitigation and adaptation as relevant to local, regional, and state land use planners.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land

4. Associated Institute Type(s)

- 1862 Research

Outcome # 2

1. Outcome Target

Participants acquire knowledge and skill to mitigate the negative impacts of climate change on water resources, property, and public safety

2. Outcome Type : Change in Knowledge Outcome Measure

2012:100 2013:100 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 132 - Weather and Climate

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Participants implement practices to mitigate the negative impacts of climate change on water resources, property, and public safety

2. Outcome Type : Change in Action Outcome Measure

2012:20 2013:40 2014:40 2015:60 2016:60

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 132 - Weather and Climate

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Accurate research on plant responses to Ozone made available and shared

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 132 - Weather and Climate

4. Associated Institute Type(s)

- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes

Description

{NO DATA ENTERED}

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Sustainable Energy

2. Brief summary about Planned Program

The Center for Agriculture is developing research and public education initiatives focused on sustainable energy. The center is developing educational programs on green building techniques and agricultural production practices that will reduce costs and initiate the use of renewable energy sources on farms. The center's Massachusetts Agricultural Experiment Station is supporting faculty research in key areas: bioenergy crops and microorganisms; alternative fuel production processes; renewable energy; and the economics of energy.

Our bio-energy research involves examining several crops for use as biomass fuels. These include: switchgrass, a stress-tolerant grass for cultivation in marginally useful agricultural land; Brassica juncea, sometimes known as mustard greens; and Crambe abyssinica. Both Brassica juncea and Crambe are also possible sources of oilseed, as are sunflower, oilseed rape, and soybean, all under examination for their biodiesel potential.

Significant research on alternative fuel production is focused on increased utilization of waste material from farm and forest production. The center is investigating the conversion of waste material to various forms of energy, including ethanol, biodiesel, and other forms of biomass. Renewable energy research in the use of agricultural land for photovoltaic arrays alongside pasture or crop production will allow farmers to take advantage of electrical utilities' needs to diversify their energy sources while maintaining land use for farming. Center Extension specialists have worked with Massachusetts farmers for the last several years to reintroduce cultivation of shell corn and its use as fuel in biomass furnaces, for use in heating four-season production facilities.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
123	Management and Sustainability of Forest Resources	0%		12%	
402	Engineering Systems and Equipment	0%		13%	
511	New and Improved Non-Food Products and Processes	0%		13%	
605	Natural Resource and Environmental Economics	0%		12%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	100%		0%	
902	Administration of Projects and Programs	0%		25%	
903	Communication, Education, and Information Delivery	0%		25%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The price and availability of energy have significant influence over the success and well being of businesses, families and communities in Massachusetts. Local farms and businesses depend on a sustainable and affordable energy supply. Management decisions about energy will become more important as supplies tighten and prices increase. Efforts to increase the availability of locally grown food (such as extending the traditional growing season) will intensify these concerns and increase the importance of practical energy sources for growers. Sustainable energy is an area of growing concern for the health of our regional economy.

Research Priorities

- Bio-energy crops and microorganisms
- Alternative Fuel Production
- Renewable energy
- Economics of energy

Outreach Priorities

- Renewable energy development for farmers
- Energy use in residential and commercial buildings

2. Scope of the Program

- In-State Extension
- In-State Research

- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Stakeholders understand that the Massachusetts Center for Agriculture conducts research and provides accurate and timely information to assist farmers with the sustainable production of energy crops.

Individuals are motivated to meet more of their own energy needs through conservation, renewable biofuels and other innovations, including wind, solar and hydro.

2. Ultimate goal(s) of this Program

Better tools and methods for energy conservation and the production of energy crops.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	0.6	0.0	2.9	0.0
2013	0.6	0.0	2.0	0.0
2014	0.6	0.0	2.0	0.0
2015	0.6	0.0	2.0	0.0
2016	0.6	0.0	2.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Applied Research
- Facilitated Group Meetings and Conferences
- Printed Materials
- Single day workshop, presentation or event

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations 	<ul style="list-style-type: none"> ● Newsletters ● Web sites other than eXtension

3. Description of targeted audience

Growers, agricultural businesses, real estate developers, building managers, municipalities, public utilities, homeowners

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Applied Research Projects
 - Facilitated Group Meetings and Conferences
 - Printed Materials
 - Single day workshop, presentation or event
 - Websites or Other Computer-based Delivery
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Accurate research on increased use of biomass fuels.
2	Participants acquire knowledge and skill to promote, implement or participate in energy efficiency practices for buildings in Massachusetts
3	Participants implement energy efficiency practices for buildings in Massachusetts
4	Accurate research alternatives for photovoltaic implementation to preserve farmland

Outcome # 1

1. Outcome Target

Accurate research on increased use of biomass fuels.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources

4. Associated Institute Type(s)

- 1862 Research

Outcome # 2

1. Outcome Target

Participants acquire knowledge and skill to promote, implement or participate in energy efficiency practices for buildings in Massachusetts

2. Outcome Type : Change in Knowledge Outcome Measure

2012:100 2013:100 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Participants implement energy efficiency practices for buildings in Massachusetts

2. Outcome Type : Change in Action Outcome Measure

2012:20 2013:40 2014:40 2015:60 2016:80

3. Associated Knowledge Area(s)

- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Accurate research alternatives for photovoltaic implementation to preserve farmland

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 402 - Engineering Systems and Equipment

4. Associated Institute Type(s)

- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Public Policy changes
- Government Regulations

Description

{NO DATA ENTERED}

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Food Safety

2. Brief summary about Planned Program

The Center for Agriculture projects and programs address food safety in a variety of ways. Rather than remediating problems, a common approach is to focus on prevention, specifically in the area of foodborne illness. Food science research projects funded through the Massachusetts Agricultural Experiment Station address tracking, inhibition and control of pathogens and could result in new or improved methods to minimize risk. Investigations also address the need for methods to accompany increasingly rapid food chain delivery modes in order to minimize the amount of food that is distributed and consumed while testing is in process.

Public food safety education involves providing training for specific groups who are responsible for handling food. In addition to an ongoing initiative to train food service workers in a variety of settings, staff recently developed sustainability standards for agricultural commodities and began to provide training, in collaboration with the Massachusetts Department of Agricultural Resources, for farmers in "Good Agricultural Practices (GAP)" that result in reduced risk of contamination for food grown on Massachusetts farms. This training prepares farmers for participation in the state's Commonwealth Quality program as well as for GAP certification.

Food safety instruction is included in general nutrition education provided to low-income families in targeted Massachusetts cities. Participating families, considered at risk for poor nutrition and chronic disease, are also highly vulnerable to foodborne illness.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
311	Animal Diseases	0%		51%	
501	New and Improved Food Processing Technologies	0%		26%	
502	New and Improved Food Products	0%		1%	
511	New and Improved Non-Food Products and Processes	0%		2%	
702	Requirements and Function of Nutrients and Other Food Components	0%		6%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	50%		8%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	50%		6%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Foodborne pathogens account for millions of illnesses in the U.S. each year, with the highest rates occurring among young children, adults with weakened immune systems, older adults, and pregnant women. The estimated annual medical cost of foodborne illness in Massachusetts is over \$200 million. Federal agencies have established guidelines for workers who handle foods in retail businesses, residential facilities, schools and child care settings. USDA and FDA have also established recommendations for "Good Agricultural Practices" to help prevent microbial contamination that can occur on farms where food is produced.

Research Priorities

Formations, growth and inhibition of bacterial pathogens
 Physiology and control and Rapid detection of food pathogens
 Bioactive food research for health and food safety

Outreach Priorities

Development and training for Good Agricultural Practices
 Food safety public education for targeted groups
 Food Safety education for low-income families

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research

- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Adequate funding for food safety research will be maintained and educational materials to promote food safety will be effectively disseminated. Partner organizations will continue to collaborate with UMass on statewide food safety initiatives

2. Ultimate goal(s) of this Program

Food safety risks and hazards will be effectively controlled and the negative impacts of food borne illness will be minimized

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	1.2	0.0	6.7	0.0
2013	1.2	0.0	7.0	0.0
2014	1.2	0.0	7.0	0.0
2015	1.2	0.0	7.0	0.0
2016	1.2	0.0	7.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Workshop series or educational course
 Websites or Other Computer-based Delivery

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> • Education Class • Workshop 	<ul style="list-style-type: none"> • Web sites other than eXtension

3. Description of targeted audience

Food growers/producers
Food Processors
Food Retailers
Food Service Managers
Residential care facility staff
School cafeteria workers
General public
Cosmetic and Pharmaceutical industries
Farmers Markets

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Workshop series or educational course
- Displays and Exhibits
- Websites or Other Computer-based delivery

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Participants acquire knowledge and skill for practices to avoid food borne illness
2	Participants implement practices to avoid food borne illness
3	Participants acquire knowledge and skill for practices to control food safety risks and hazards
4	Participants adopt practices to control food safety risks and hazards

Outcome # 1

1. Outcome Target

Participants acquire knowledge and skill for practices to avoid food borne illness

2. Outcome Type : Change in Knowledge Outcome Measure

2012:120 2013:200 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Participants implement practices to avoid food borne illness

2. Outcome Type : Change in Action Outcome Measure

2012:40 2013:60 2014:60 2015:80 2016:80

3. Associated Knowledge Area(s)

- 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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Participants acquire knowledge and skill for practices to control food safety risks and hazards

2. Outcome Type : Change in Knowledge Outcome Measure

2012:120 2013:200 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Participants adopt practices to control food safety risks and hazards

2. Outcome Type : Change in Action Outcome Measure

2012:40 2013:60 2014:60 2015:80 2016:80

3. Associated Knowledge Area(s)

- 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

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

{NO DATA ENTERED}

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Childhood Obesity

2. Brief summary about Planned Program

The Center for Agriculture's federally funded Extension Nutrition Education Program has strong presence throughout the state with project offices in Boston, Worcester, Springfield, Lawrence, Brockton, Fall River, Holyoke and Barnstable. Nutrition education activities for low-income children and families are designed and implemented in collaboration with schools and community organizations. Our nutrition education programs reached 224,259 youth and adults, last year alone. Many of these project offices employ staff who are members of the communities in which they teach and are therefore familiar with the cultural background and learning styles of participants. The program also works with school teachers who provide nutrition education. The curriculum focuses on making well-informed choices for both food and physical activity that become part of daily routines and help participants to avoid obesity and overweight in the future.

Research in this area has focused on educational program development for low-income families, resulting in the "SPIN" teen curriculum and "Choices: Steps Toward Health," designed to improve the eating and physical activity habits of adults. Research funded by the Massachusetts Agricultural Experiment Station is being conducted into a food-based approach, such as a role for dietary conjugated linoleic acid (CLA), in helping to reduce the incidence of childhood obesity and overweight children.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

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	0%		92%	
703	Nutrition Education and Behavior	50%		8%	
704	Nutrition and Hunger in the Population	15%		0%	
724	Healthy Lifestyle	35%		0%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Childhood obesity is increasingly a problem in Massachusetts and across the nation. It was recently determined that more than one-third of the 2-5 year old children in Massachusetts who participate in the WIC (a needs-based nutrition program) are either currently overweight or at risk for future weight problems. Overweight and obesity increase risks of type 2 diabetes and other health problems, including certain cancers. In a recent study, 80% of Massachusetts' pediatric clinicians estimated that up to 9% of their young overweight patients have type 2 diabetes. Many school age children in Massachusetts subsist on a diet heavy in carbohydrates and fats and do not consume the recommended five or more servings of vegetables and fruits each day. Many of the same children are unlikely to be getting adequate amounts of daily physical activity. These are the critical factors influencing childhood weight gain. Childhood overweight and obesity have both human and financial costs. A financial analysis estimated the total obesity-related medical costs in Massachusetts to be \$1.8 billion in 2003.

Research Priorities

Changing the health trajectory for older adults through effective diet and activity
 Food based approaches for prevention of childhood obesity

Outreach Priorities

Nutrition education for low-income families

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

USDA funding for nutrition education programs will be sustained
 The MA Center for Agriculture continues to make strategic investments in programs that address youth obesity
 The MA Center for Agriculture will support the development of health education programs.
 UMass faculty will collaborate with the Center for Agriculture to seek new funding sources
 The MA Center for Agriculture will develop joint research and outreach projects that provide opportunities for graduate students' thesis and field experience.

2. Ultimate goal(s) of this Program

Individuals and families make informed, science-based decisions about food and physical activity that affect their long term health and well-being

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	42.0	0.0	1.0	0.0
2013	42.0	0.0	1.0	0.0
2014	42.0	0.0	1.0	0.0
2015	42.0	0.0	1.0	0.0
2016	42.0	0.0	1.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Demonstrations
- Displays and Exhibits
- Printed Materials
- Single day workshop, presentation or event
- Workshop series or educational course

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Education Class ● Workshop ● Demonstrations 	<ul style="list-style-type: none"> ● Newsletters ● Web sites other than eXtension

3. Description of targeted audience

Youth and families from limited-resource communities, specifically those who are eligible for federal food assistance (Supplemental Nutrition Assistance Program); school teachers, social service organizations

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Demonstrations
- Displays and Exhibits
- Printed Materials
- Single day workshop, presentation or event
- Workshop series or educational course

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Participants gain knowledge and skill to improve physical activity behaviors
2	Participants improve physical activity behaviors
3	Participants gain knowledge and skill to improve dietary behaviors
4	Participants improve dietary behaviors
5	Accurate research on bioprocessed soy phenolics
6	Accurate research on Food Security, Food Practices, and Health Risks among pregnant and postpartum Cambodian women living in MA
7	Accurate research on Sensory, nutrition, education promoting locally grown fruits and vegetables among western MA headstart children

Outcome # 1

1. Outcome Target

Participants gain knowledge and skill to improve physical activity behaviors

2. Outcome Type : Change in Knowledge Outcome Measure

2012:5000 2013:3000 2014:3000 2015:3000 2016:3000

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Participants improve physical activity behaviors

2. Outcome Type : Change in Action Outcome Measure

2012:2500 2013:1500 2014:1500 2015:1500 2016:1500

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Participants gain knowledge and skill to improve dietary behaviors

2. Outcome Type : Change in Knowledge Outcome Measure

2012:5000 2013:3000 2014:3000 2015:3000 2016:3000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Participants improve dietary behaviors

2. Outcome Type : Change in Action Outcome Measure

2012:2500 2013:1500 2014:1500 2015:1500 2016:1500

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Accurate research on bioprocessed soy phenolics

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 501 - New and Improved Food Processing Technologies

4. Associated Institute Type(s)

- 1862 Research

Outcome # 6

1. Outcome Target

Accurate research on Food Security, Food Practices, and Health Risks among pregnant and postpartum Cambodian women living in MA

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0	2013:0	2014:0	2015:0	2016:0
---------------	---------------	---------------	---------------	---------------

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

1. Outcome Target

Accurate research on Sensory, nutrition, education promoting locally grown fruits and vegetables among western MA headstart children

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0	2013:0	2014:0	2015:0	2016:0
---------------	---------------	---------------	---------------	---------------

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

4. Associated Institute Type(s)

- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Appropriations changes

- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Description

{NO DATA ENTERED}

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Economic Development

2. Brief summary about Planned Program

The Center for Agriculture has strong working relationships with the professional communities in the environmental horticulture industries - nursery, turf, floriculture, arboriculture and frequently collaborates with industry groups. The key emphasis in this work is to support and encourage these businesses to provide their services in an environmentally sensitive manner while remaining profitable. Issues such as water use, pest management, invasive plants and pests, soil conservation, and reduced use of chemicals are addressed for the benefit of the businesses, their communities and the natural resources on which they depend. A current on-campus construction project will result in new high-quality greenhouse and laboratory facilities to enhance the research and teaching programs in these areas.

The Massachusetts Agricultural Experiment Station funds a strong portfolio in animal health and reproduction research conducted by faculty and staff of the university's Department of Veterinary and Animal Sciences. Tree fruit scientists at the university are pursuing research to continue progress in use of dwarf fruit tree varieties. In addition to other benefits, these trees can require 70% less pesticide than fullsize trees. In addition, ongoing research on turf management issues is conducted at the university's Joseph Troll Turf Research Center in South Deerfield.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
133	Pollution Prevention and Mitigation	10%		0%	
204	Plant Product Quality and Utility (Preharvest)	10%		0%	
205	Plant Management Systems	10%		0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	10%		11%	
212	Pathogens and Nematodes Affecting Plants	10%		0%	
216	Integrated Pest Management Systems	10%		0%	
304	Animal Genome	0%		15%	
305	Animal Physiological Processes	0%		5%	
311	Animal Diseases	0%		15%	
312	External Parasites and Pests of Animals	0%		41%	
601	Economics of Agricultural Production and Farm Management	40%		0%	
605	Natural Resource and Environmental Economics	0%		6%	
801	Individual and Family Resource Management	0%		5%	
802	Human Development and Family Well-Being	0%		2%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

A vibrant and productive Massachusetts agricultural sector includes various business activities aside from food production. Nursery businesses, landscaping services, tree care, turf management, greenhouses, retailers, livestock and horse-related businesses all make meaningful contributions to our state's economy by creating jobs, supporting local communities and providing valued services. Like all types of agriculture, these enterprises are environmentally based and their long-term success depends upon maintaining up-to-date and effective practices to conserve and enhance soil, water and other natural resources. They also have stakes in maintaining positive community relationships and supporting the unique characters of their regions. A skilled workforce, access to ongoing sources of training and professional development, and timely, non-biased accurate information on a range of topics are critical to success of these businesses.

The size of this agricultural economic sector is significant. There are estimated to be 5,100 such firms in Massachusetts not including the livestock and horse owners. In 2009, they generated \$2.6 billion

in income and employed 68,000 people. An additional 14,000 employees are needed.

Research Priorities

- Animal health
- Animal reproduction
- Livestock and pasture management
- Turf management
- Landscape management and nursery production
- Tree fruit production

Outreach Priorities

- Sustainable greenhouse management
- Sustainable landscape management and nursery production
- Sustainable turf management
- Sustainable livestock and equine pasture management

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- Staffing Levels will remain relatively stable
- The MA Center for Agriculture will work effectively with partner organizations to achieve this plan
- The rate of development in Massachusetts will remain the same or continue to increase
- There will continue to be faculty capacity to partner with in developing applied research projects
- Agricultural green industry businesses will help maintain open space and public benefit in the face of increasing real estate values

2. Ultimate goal(s) of this Program

Agricultural, dairy, livestock and equine industrial sectors will provides economic development and other critical public benefits while preserving natural resources and community character for current and future generations

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890

Year	Extension		Research	
	1862	1890	1862	1890
2012	13.4	0.0	2.6	0.0
2013	13.4	0.0	2.5	0.0
2014	13.4	0.0	2.5	0.0
2015	13.4	0.0	2.5	0.0
2016	13.4	0.0	2.5	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- 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. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Education Class ● Workshop ● Demonstrations 	<ul style="list-style-type: none"> ● Newsletters ● Web sites other than eXtension

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
 - Number of patents submitted
 - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Demonstrations
 - Displays and Exhibits
 - Facilitated Group Meetings and Conferences
 - Individual Consultations and Site Visits
 - Printed Materials
 - Published Articles (New, Professional and Trade)
 - Single day workshop, presentation or event
 - Websites or other computer-based delivery
 - Workshop series or educational course
 - Applied Research Projects
 - Diagnostic Services
 - Academic Presentation/Poster
 - Published Articles (Academic)
 - Research, grant or policy report
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

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	Accurate research on immunosuppression by tick saliva and vaccine development
6	Accurate research on Animal Genome Research acquired and shared

Outcome # 1

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2012:1500 2013:1500 2014:1500 2015:1500 2016:1500

3. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation
- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2012:200 2013:200 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation
- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2012:1500 2013:1500 2014:1500 2015:1500 2016:1500

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Participants adopt practices that enhance the economic viability of agricultural businesses

2. Outcome Type : Change in Action Outcome Measure

2012:200 2013:200 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Accurate research on immunosuppression by tick saliva and vaccine development

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 312 - External Parasites and Pests of Animals

4. Associated Institute Type(s)

- 1862 Research

Outcome # 6

1. Outcome Target

Accurate research on Animal Genome Research acquired and shared

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 304 - Animal Genome

4. Associated Institute Type(s)

- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Description

The value of real estate still makes development a very appealing option for those who own land and are involved in agricultural green industries

The cost of doing business in Massachusetts is an ever increasing factor in the success of

agricultural business in MA

The price of energy and other inputs will play a significant role in economic development. Higher prices will mean higher production costs,

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Youth Development

2. Brief summary about Planned Program

The Center for Agriculture is home to the 4-H Youth Development Program in which small groups of young people work together with the guidance of an adult volunteer leader, under the supervision of UMass Extension staff, to explore an area of common interest. Currently, clubs are focused on a wide variety of topics including science, engineering, technology, and animal agriculture. Other methods and models are employed to create positive youth development experiences for ages 5 to 18 including school enrichment programs, camping, and programs with collaborating youth serving agencies.

All youth development programs and projects created by UMass Extension include consistent elements that emphasize life skills and preparation for active citizenship. From communication skills to recordkeeping, from teamwork to valuing diversity, life skills education helps participating youth become competent, caring, well-informed and engaged members of their communities.

Last year, over 1,700 adult volunteers and collaborators, each carefully screened by UMass Extension staff, led these efforts for over 26,000 youth participants.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	20%		0%	
806	Youth Development	80%		0%	
	Total	100%		0%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Concerns about adequately preparing young people for the economic, scientific and civic challenges of the 21st century is widespread. Youth development research has documented that youth are best able to reach their full potential in environments that offer safety, caring adults, and opportunities for authentic experience. Adults, educators and youth workers need ongoing professional development and curriculum resources in order to share their energy and expertise with youth in ways that support their positive growth

as citizens, workers, neighbors and parents. Positive youth development experiences are frequently accompanied by decreases in alcohol use, tobacco use, and violence and increases in positive attitudes and behaviors. According to the Tufts Study on Positive Youth Development, these experiences are likely to support youth to excel in school, lead their peers and contribute to their communities.

Research Priorities

Well-being and functioning of diverse, rural low-income families:

Outreach Priorities

- Life Skills
- Community service
- Science, Engineering & Technology
- Youth Mentoring
- Urban programs targeting at-risk youth
- Support for Military Families

2. Scope of the Program

- In-State Extension
- Multistate Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- Staffing levels are stable
- There is support for staff development
- The University and Extension recognize an organization-wide commitment to youth development
 - Resources are available for faculty involvement in youth programs for the purpose of providing subject matter, outreach and teaching
 - Staff will incorporate strategies and tactics of the 4-H strategic plan into their plan of work
- University and Extension support collaborations across program areas
 - Extension continues its partnerships with Massachusetts 4-H Foundations, Essex County 4-H Foundation and 4-H camps
 - Volunteers and collaborators provide continued support and participation within the 4-H volunteer network
 - Staff measure program impacts.

2. Ultimate goal(s) of this Program

Massachusetts youth grow into physically and emotionally healthy individuals who are actively engaged, members of the community.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	13.1	0.0	0.0	0.0

Year	Extension		Research	
	1862	1890	1862	1890
2013	13.1	0.0	0.0	0.0
2014	13.1	0.0	0.0	0.0
2015	13.1	0.0	0.0	0.0
2016	13.1	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

4-H Clubs

- Community Service Project
- Curricula/Instructional materials
- Facilitated Group Meetings and Conferences
- Printed Materials
- Single day workshop, presentation or event
- Websites or Other Computer-based Delivery

Workshop series or educational course

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> • Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations 	<ul style="list-style-type: none"> • Newsletters • Web sites other than eXtension

3. Description of targeted audience

- Youth from all backgrounds
- Adults from all backgrounds (volunteers, parents, collaborating organization staff)
- Youth Serving Organizations and Programs from diverse communities (including K-12, Home Schooled youth, and Camps)
 - Community Coalitions
 - UMass Amherst Faculty
 - Faculty from other colleges and universities

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
 - Number of patents submitted
 - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- 4-H Clubs
 - Community Service Projects
 - Curricula/Instructional Materials
 - Facilitated Group Meetings and Conferences
 - Printed Materials
 - Single day workshop, presentation or event
 - Websites or other computer-based delivery
 - Workshop series or educational course
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Youth acquire skills that will help them succeed academically and in the workplace
2	Youth demonstrate skills that will help them succeed academically and in the workplace
3	Youth are effective team members, communicators, and leaders
4	Youth increase knowledge and skill and interest in science, engineering and technology
5	Military youth feel supported
6	Adults acquire knowledge of the effects of deployment on military youth
7	Youth engage in community service
8	Youth acquire citizenship skills

Outcome # 1

1. Outcome Target

Youth acquire skills that will help them succeed academically and in the workplace

2. Outcome Type : Change in Knowledge Outcome Measure

2012:500 2013:500 2014:500 2015:500 2016:500

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Youth demonstrate skills that will help them succeed academically and in the workplace

2. Outcome Type : Change in Action Outcome Measure

2012:200 2013:200 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Youth are effective team members, communicators, and leaders

2. Outcome Type : Change in Action Outcome Measure

2012:200 2013:200 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Youth increase knowledge and skill and interest in science, engineering and technology

2. Outcome Type : Change in Knowledge Outcome Measure

2012:100 2013:100 2014:100 2015:100 2016:100

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Military youth feel supported

2. Outcome Type : Change in Knowledge Outcome Measure

2012:40 2013:40 2014:40 2015:40 2016:40

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Adults acquire knowledge of the effects of deployment on military youth

2. Outcome Type : Change in Knowledge Outcome Measure

2012:100 2013:100 2014:100 2015:100 2016:100

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

1. Outcome Target

Youth engage in community service

2. Outcome Type : Change in Action Outcome Measure

2012:1000 2013:1000 2014:1000 2015:1000 2016:1000

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 8

1. Outcome Target

Youth acquire citizenship skills

2. Outcome Type : Change in Knowledge Outcome Measure

2012:500

2013:500

2014:500

2015:500

2016:500

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect 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.)

Description

- Decreasing state and federal funding
- Competition for grant funding
- Discontinued or reduced funding from the Massachusetts 4-H Foundation.
- Faculty and staff over-extended with current work load.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Environmental Stewardship

2. Brief summary about Planned Program

The Center for Agriculture is working to develop and deploy new approaches and tools for environmental stewardship based on an evolving scientific understanding of both ecological and human systems. Our work in this area is multifaceted and broad, with research and public education informing each other. Projects draw upon academic expertise while leveraging the resources and networks of agency and community partners in collaborative efforts that increase scientific knowledge while solving environmental problems.

Projects are focused on developing specific educational opportunities - including networks, workshops, and web sites, on creating new analytic tools for enhancing environmental stewardship and on providing environmental services such as soil and plant diagnostics and pesticide applicator training. The center frequently engages community collaborators as equal partners in projects intended to facilitate communication and linkages among individuals, groups, and agencies. The common goal is to strengthen the environmental stewardship capacity within communities. Research initiatives funded by the Massachusetts Agricultural Experiment Station focus on issues affecting native species and habitats such as the threats to our forests from hemlock woolly adelgid and Asian Longhorned beetle, both invasive insects from Asia. Additional work is focused on human interactions (environmental decision making, communication, and volunteer cooperation) as well as the nature and function of open space within our communities.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

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	0%		30%	
112	Watershed Protection and Management	0%		5%	
123	Management and Sustainability of Forest Resources	20%		0%	
124	Urban Forestry	0%		6%	
131	Alternative Uses of Land	10%		0%	
133	Pollution Prevention and Mitigation	10%		0%	
135	Aquatic and Terrestrial Wildlife	15%		0%	
136	Conservation of Biological Diversity	15%		0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	0%		20%	
212	Pathogens and Nematodes Affecting Plants	0%		39%	
605	Natural Resource and Environmental Economics	5%		0%	
608	Community Resource Planning and Development	5%		0%	
723	Hazards to Human Health and Safety	15%		0%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	5%		0%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

In Massachusetts, we increasingly view stewardship of our natural environment as both an economic and an ethical imperative. The Commonwealth has more than six million residents and a land mass of only 10,555 square miles, 625 people per square mile (compared, for example, to Wisconsin, with 105 people per square mile). The state is 63% forest and much of the control and influence over environmental matters rests with public and private groups at the local level of towns and cities. From both economic and ethical perspectives, Massachusetts cannot wait for a perfect understanding of the various threats to biodiversity and ecosystem integrity before implementing programs and policies that address the increasing vulnerability of our state's natural resources.

Research Priorities

Wildlife Management
Forest and Land Conservation
Aquatic Ecosystems
Environmental Policy

Outreach Priorities

Educating Municipal Officials
Fish, wildlife, and biodiversity conservation
Forest conservation
Land protection and community preservation
Pesticide education
Integrated pest management for housing and schools

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- We will rely on strong relationships that currently exist with many target audiences such as agricultural, landscape and other resource based businesses, conservation organizations, state and federal agencies, and municipal boards.
 - Faculty not already working with the MA Center for Agriculture will be willing to engage in applied research and education that addresses environmental stewardship
 - Staff with expertise in invasive species management will be needed to carry out many of the listed activities for this issue.
 - Collaborative efforts between extension and experiment station staff and faculty will result in better opportunities for grants to be funded.
 - We will have well established networks of professional staff, faculty and other university resources in agriculture and the green industry, forestry, wildlife and fisheries conservation in New England and across the country.
 - Public attitudes in Massachusetts will continue to attribute a high value to the protection of land and biodiversity.
 - Given the strong regulations in Massachusetts protecting wetlands and endangered species, people will be motivated to change practices that concern this issue.
 - Staff will continue to develop necessary knowledge and skills to operate on the cutting edge of this issue.

2. Ultimate goal(s) of this Program

The quality of land, water, plant, animal, and biodiversity resources will be protected and enhanced, and healthy self-sustaining ecosystems maintained

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	10.6	0.0	2.6	0.0
2013	10.6	0.0	2.6	0.0
2014	10.6	0.0	2.6	0.0
2015	10.6	0.0	2.6	0.0
2016	10.6	0.0	2.6	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Analytic Tools and Techniques
- Applied Research
- Diagnostic Services
- Displays and Exhibits
- Facilitated Group Meetings and Conferences
- Printed Materials
- Published Article (Academic)
- Published Article (news, professional, trade)
- Research, Grant, or Policy Report
- Single day workshop, presentation or event
- Survey or needs assessment
- Websites or Other Computer-based Delivery
- Workshop series or educational course

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> • Education Class • Workshop 	<ul style="list-style-type: none"> • Newsletters • Web sites other than eXtension

3. Description of targeted audience

- Natural Resource Agencies
- Regional Planning Authorities
- Development and Planning Agencies

Municipalities
Conservation Organizations
Landowners and Land Managers
Business/Industry

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
 - Number of patents submitted
 - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Analytic Tools and Techniques
 - Diagnostic Services
 - Facilitated Group Meetings and Conferences
 - Printed Materials
 - Published Articles (News, Professional and Trade)
 - Single day workshop, presentation or event
 - Survey or needs assessment
 - Websites or other computer-based delivery
 - Workshop series or educational course
 - Applied Research Projects
 - Displays and Exhibits
 - Published Articles (Academic)
 - Research, Grant or Policy Report
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Accurate research to promote Water Quality made available and shared
2	Accurate Research on understanding and assessing the functions of open space in the landscape
3	Participants acquire knowledge and skill to promote, implement or participate in practices or programs that protect natural resources and ecosystems
4	Participants promote, implement or participate in practices or programs that protect natural resources and ecosystems
5	Participants acquire the knowledge and skills to implement pest management practices that minimize the impact on human health and the environment
6	Participants implement pest management practices that minimize the impact on human health and the environment
7	Participants acquire the knowledge and skills to implement sustainable land use and development practices
8	Participants implement sustainable land use and development practices
9	Accurate research on biological control of arthropod pests and weeds done and shared
10	Accurate research on emerging pests of annual bluegrass on golf courses

Outcome # 1

1. Outcome Target

Accurate research to promote Water Quality made available and shared

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management

4. Associated Institute Type(s)

- 1862 Research

Outcome # 2

1. Outcome Target

Accurate Research on understanding and assessing the functions of open space in the landscape

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 124 - Urban Forestry

4. Associated Institute Type(s)

- 1862 Research

Outcome # 3

1. Outcome Target

Participants acquire knowledge and skill to promote, implement or participate in practices or programs that protect natural resources and ecosystems

2. Outcome Type : Change in Knowledge Outcome Measure

2012:500 2013:500 2014:500 2015:500 2016:500

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 123 - Management and Sustainability of Forest Resources
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Participants promote, implement or participate in practices or programs that protect natural resources and ecosystems

2. Outcome Type : Change in Action Outcome Measure

2012:200 2013:200 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 123 - Management and Sustainability of Forest Resources
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Participants acquire the knowledge and skills to implement pest management practices that minimize the impact on human health and the environment

2. Outcome Type : Change in Knowledge Outcome Measure

2012:200 2013:200 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation
- 605 - Natural Resource and Environmental Economics
- 723 - Hazards to Human Health and Safety
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Participants implement pest management practices that minimize the impact on human health and the environment

2. Outcome Type : Change in Action Outcome Measure

2012:200 2013:200 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation
- 605 - Natural Resource and Environmental Economics
- 723 - Hazards to Human Health and Safety
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

1. Outcome Target

Participants acquire the knowledge and skills to implement sustainable land use and development practices

2. Outcome Type : Change in Knowledge Outcome Measure

2012:700 2013:700 2014:700 2015:700 2016:700

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 131 - Alternative Uses of Land
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 8

1. Outcome Target

Participants implement sustainable land use and development practices

2. Outcome Type : Change in Action Outcome Measure

2012:250 2013:250 2014:250 2015:250 2016:250

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 131 - Alternative Uses of Land
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 9

1. Outcome Target

Accurate research on biological control of arthropod pests and weeds done and shared

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants

4. Associated Institute Type(s)

- 1862 Research

Outcome # 10

1. Outcome Target

Accurate research on emerging pests of annual bluegrass on golf courses

2. Outcome Type : Change in Knowledge Outcome Measure

2012:0 2013:0 2014:0 2015:0 2016:0

3. Associated Knowledge Area(s)

- 212 - Pathogens and Nematodes Affecting Plants

4. Associated Institute Type(s)

- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

- Changes in base funding available to maintain core capacity to address this program
- Departmental, College and University priorities affecting the number and expertise of faculty available to address this program

- Political transitions that affect the availability of grants and contracts
- Changes in state or federal agency priorities that affect the availability of partners and collaborator
- Changes in economic conditions that alter the pattern of land development in Southern New England
- Changes in tax policy that either reduces or increases economic pressures affecting working landscapes
- Economic viability of working forestry and wood products industry in Massachusetts affecting both the rates of land conversion and the ability to manage conservation land
- Changes in the demand for forest products, including markets for lumber, firewood, and biomass energy that could change the extent and nature of timber harvesting in Massachusetts.
- Occurrence of new exotic pests, diseases, or invasive species with exceptionally high environmental or economic impacts
- Changes in local, state and federal regulations
- Unforeseen changes in technology that significantly affects our ability to manage ecosystems or communicate with target audiences

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Massachusetts Center for Agriculture Administration

2. Brief summary about Planned Program

The Massachusetts Center for Agriculture provides leadership and administrative support services for research and educational programs delivered by the Massachusetts Agricultural Experiment Station and UMass Extension. The Center coordinates faculty research initiatives and provides oversight and supervision in the following priority areas childhood obesity, youth development, climate change, economic development, environmental stewardship, sustainable energy, food safety and food security and hunger. Center administration initiates the required, participatory decision-making and planning needed for the development of policies, processes and strategic initiatives, is accountable for the management and cultivation of resources, is responsible for evaluating the effectiveness of educational programs and for communicating with the public and the university community.

3. Program existence : New (One year or less)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds :Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

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

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Massachusetts Center for Agriculture Administration provides resources and mechanisms to coordinate diverse initiatives, build the skill and capacity of staff and improve the overall effectiveness of the organization. This plan will help ensure that faculty and staff are fully aware of the scope and extent of organizational efforts and have the support and learning opportunities to meet identified goals. During the five-year plan period, administration will engage in a variety of efforts to fulfill organizational responsibilities, comply with federal regulations and advance the success and vitality of the organization.

Priorities for Massachusetts Center for Agriculture Administration are:

* Support the Center's research, outreach and educational mission through program support and administrative services

- * Provide information, guidance and resources to staff, faculty, policy makers, internal and external stakeholders
- * Maintain, communicate and follow mandated laws, regulations, policies and reporting procedures from the state, the federal government and the university
- * Effectively and strategically lead and manage the organization's fiscal and staffing resources and cultivate assets
- * Promote ease of access to center programs and services for diverse communities and individuals throughout Massachusetts
- * Staff Development - build personal and team skills for increased organizational effectiveness
- * Strategic Planning and Program Development

2. Scope of the Program

- In-State Extension
- In-State Research
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- * The Center for Agriculture retains current capacity to support programs and services
- * The Center continues to successfully engage academic faculty in diverse research, integrated research/extension and educational initiatives
- * Funding for The Center from federal, state and university sources is sustained at current levels

2. Ultimate goal(s) of this Program

- * Staff and faculty receive support to assist them in developing and delivering quality research and educational programs
- * Faculty, staff and external partners obtain accurate and timely information to guide program decisions and document the investment of fiscal resources
- * Diverse community members have equal access to information and educational opportunities
- * Research and education projects with measurable impacts are sustained through broad public input and support
- * Opportunities for new, innovative projects and initiatives are developed and expanded

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	8.0	0.0	1.5	0.0
2013	8.0	0.0	1.5	0.0
2014	8.0	0.0	1.5	0.0
2015	8.0	0.0	1.5	0.0

Year	Extension		Research	
	1862	1890	1862	1890
2016	8.0	0.0	1.5	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Administration of Extension and Experiment Station Projects and Programs
 Administration and oversight at UMass farms facilities
 Website and Other Computer-based delivery
 Printed Material
 Planning and Integration

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> Other 1 (Administration) 	<ul style="list-style-type: none"> Newsletters Web sites other than eXtension

3. Description of targeted audience

University Administrators
 Faculty
 Staff
 Growers
 Food Industry
 Agriculturists

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
 - Number of patents submitted
 - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Administrative Initiatives, Systems and Procedures
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Massachusetts Center for Agriculture projects and initiatives are sustained and advanced, consistent with organizational expectations and stakeholder needs

Outcome # 1

1. Outcome Target

Massachusetts Center for Agriculture projects and initiatives are sustained and advanced, consistent with organizational expectations and stakeholder needs

2. Outcome Type : Change in Action Outcome Measure

2012:0	2013:0	2014:0	2015:0	2016:0
---------------	---------------	---------------	---------------	---------------

3. Associated Knowledge Area(s)

- 902 - Administration of Projects and Programs

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect 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.)

Description

The transition of Extension back into the college and consolidation of the Experiment Station and Extension under the Center for Agriculture continues. We have great enthusiasm that being partnered again under the same college, we will help move agribusiness, youth issues, food safety and security, energy and environmental issues forward in Massachusetts.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

{NO DATA ENTERED}