2010 University of Massachusetts Extension Plan of Work

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I. Plan Overview

1. Brief Summary about Plan Of Work

Our Mission

The mission of UMass Extension is to improve the health, well-being and security of youth, families and diverse communities; conserve and enhance natural resources; and strengthen agriculture and food systems. We fulfill our mission by utilizing the research and teaching capacity of the University of Massachusetts Amherst and other state and national institutions to generate and communicate knowledge while creating approaches, methods, and tools for solving problems. UMass Extension links the Massachusetts land grant university with a larger community of people in collaborative partnerships to address issues of fundamental importance to the people of Massachusetts, New England, and the nation.

UMass Extension Goals

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

Improved Human Health and Well-being diverse youth, families, and communities will achieve greater physical and social well-being.

Enhanced Health and Productivity of Natural Resources and Ecosystems - the quality of land, water, plant, animal, and biodiversity resources will be protected and enhanced, and healthy self-sustaining ecosystems maintained.

Stronger local economies - Natural and human resources will be managed or cultivated in ways that engage and support strong local economies.

Our Unique Role and Methods

UMass Extension has the unique capability of bringing the University of Massachusetts Amherst's depth and breadth of knowledge and its academic resources to bear in identifying and solving problems. Our research and teaching programs link different departments and facilitate mutually beneficial collaborations between the University and external organizations, individuals, and businesses. In so doing, UMass Extension makes a vital contribution to the public and to the educational experiences and research opportunities of the university. Utilizing the resources of UMass Amherst and the United States Department of Agriculture’s national network of Extension programs, UMass Extension advances its organizational goals by:

• Engaging university faculty and outside partners in the identification of critical issues and priorities for research and education;

• Engaging partners and collaborators in the delivery of programs that build individual and group skills and strengthen communities;

• Conducting integrated research and education programs as sustained efforts to address critical issues, resulting in tangible outcomes;

• Facilitating interdepartmental and interdisciplinary research and education programs that address critical issues;

• Contributing to the undergraduate and graduate student experience by providing opportunities for community service learning and applied research;

• Serving as a clearinghouse for the dissemination of research-based knowledge, ideas, information and techniques;

• Pioneering innovative educational approaches and technologies; Strengthening the ability of university departments and units to meet their outreach goals by forging partnerships and providing support.

The Scope of Extension Work

The scope of Extension work is influenced by three key domains: the United States Department of Agriculture Emphasis Areas Goals of University of Massachusetts Amherst University Outreach Division, of which Extension is a part Critical issues facing the people and communities of Massachusetts. Extension's departmental structure includes four program units: Agriculture and Landscape Massachusetts 4-H Nutrition Education Program Natural Resources and Environmental Conservation.

A. United States Department of Agriculture (USDA) Areas - USDA has defined Thirteen "National Emphasis Areas" to organize programs for which they provide leadership and support. An increasingly vital goal for Extension programs seek to address several of these areas through interdisciplinary team work among programs, which serves to enrich Extension educational offerings and services by integrating the considerable knowledge, resources, and expertise of all Extension staff and faculty. Agricultural & Food Biosecurity Agricultural Systems Animals & Animal Products Biotechnology & Genomics Economics & Commerce Education Families, Youth & Communities Food, Nutrition & Health International Natural Resources & Environment Pest Management Plants & Plant Products Technology and Engineering

B. UMass Amherst Scholarship - UMass Extension units and programs contribute to our mission as a land grant university not only by engaging in academic scholarship, research, and teaching on critical issue areas impacting all people within the Commonwealth, but also providing educational services and creating programs that benefit people with the fewest resources and advantages. Extension work enriches and expands the scholarship of UMass faculty by providing mechanisms to apply and test research findings and synthesize information in useful ways that cross academic disciplines. Extension uses research-based knowledge to develop and disseminate resources, tools and technologies that communicate to the public on our critical issue areas and assists the community members in addressing and solving problems. Through its on-going efforts, Extension staff may also communicate community concerns to academic units, highlights gaps and limitations of current research, and assist in identifying new audiences and topics for investigation.

To meet the challenge internally, requires UMass Extension to increase efforts to work with faculty in a variety of academic departments as well as students, other Outreach units and University Leadership. Given its University base, it is vital that Extension programs build upon faculty disciplinary expertise, faculty incentives and use emerging technologies to increase Extension’s audiences, including diverse and underserved groups. By developing and disseminating useful knowledge related to our critical issues and aligned issues of community partners, and by exploring and documenting the effectiveness of educational programs, UMass Extension can be positioned to become a university leader in the Scholarship of Engagement. Externally, this involves the development of ongoing work with community organizations, students, youth, volunteers, funders and alumni in ways that expand the audience for and impact of university research and teaching. This "Scholarship of Engagement" is part of a growing national movement that draws attention to the synergistic knowledge, unique strengths, contributions and mutually beneficial advantages that occur when the university and the community work together effectively. Through its public service orientation, Extension staff and programs remain focused on contributing to the welfare of Commonwealth citizens and the environment. By collaborating with both the university community and external organizations, Extension facilitates this two-way exchange of information, identification of needs and perspectives is also of benefit to the university as it informs and enhances the scope and impact of academic endeavors and their perceived value to the public. In addition, it is necessary we employ clear and simple organizational processes that document, disseminate and communicate the underlying logic and usefulness of Extension’s educational content, programs and services to our constituents, USDA and the University.

C. Critical Issues of Massachusetts - Identifying critical issues focuses our programs on matters of importance to the citizens of Massachusetts. Our issues create a framework for planning, reporting and communicating our work so that is more readily understood and valued by a broad array of public stakeholders. The issues are identified at a level that consistent with our long-term organizational goals and they encompass an array of more specific programmatic efforts. Our current set of critical issues was developed though an organizational strategic planning effort in 2006. The process included a comprehensive, statewide public engagement process that obtained input from citizens, stakeholders and scholars. Issues are reviewed yearly to identify key priorities and specific outcomes. At the current time we are engaged in a formal organizational process whereby new and emerging critical issues will be identified. Our current critical issues still serve as the basis for our planned programs. They are:

1. Water Resource Protection - Adequate supplies of clean water are critical to public health and quality of life, food and fiber production, maintenance of healthy terrestrial, wetland and aquatic ecosystems, and economic sustainability of Massachusetts communities. Water resources are affected by a wide range of activities including development, storm water management, agricultural and natural resources based business activities, water withdrawals, and industrial activities. The impacts of various land uses have degraded water quality in lakes, ponds, rivers, streams, estuaries, bays, salt ponds and groundwater, and threaten local and regional economies, including those based on recreational and commercial fisheries. For most water bodies, water quality data are generally lacking or are insufficient for assessing threats to human health and aquatic ecosystems. Increased water consumption, unequal distribution of water supplies, wastewater treatment methods that do not return treated water to source watersheds, and cyclical drought have impacted the quantity of available surface and ground water supplies, forcing some communities to institute water-use regulations. Water withdrawals and other hydrological modifications are threatening the ecological integrity of wetland and aquatic ecosystems. There is a need for greater understanding of the potential threats to the water supply, and the geological and hydrological factors that impact water resources. There is also a need for land use policies that recognize both the vulnerability of those supplies and our reliance on them. Finally, there is a need for the development and implementation of Best Management Practices that will protect water resources

2. Food Production - The capacity to produce food locally is an important component of our quality of life and food security; it fosters sustainable, land-based economic development and reduces transportation-related energy consumption. Maintaining food production capacity includes viable and sustainable agriculture, commercial fishing, shellfish harvesting, maple sugaring, as well as the maintenance of agricultural land whether or not it is currently being used to produce food.

3. Youth Development and Engagement - Americans are concerned about preparing youth for the challenges of the 21st century. While this concern has recently focused on standardized tests, academic achievement is only one component of preparation for citizenship and workforce participation. Young people also need to develop knowledge, skills, and attitudes for good health, environmental stewardship, creative expression, and community service. Young people are best able to achieve these outcomes in environments that offer safety, caring adults, and opportunities for authentic experience. Both in-school and out-of-school time programs must do more to provide optimum conditions for youth development. Educators and youth workers need ongoing professional development and curriculum resources for experiential learning and youth development best practices. Interested community adults need well-designed opportunities to share their expertise and passions with youth. Older youth are also a largely untapped resource for their communities and deserve opportunities to contribute in ways that will enable them to grow up to become better citizens, workers, neighbors, and parents.

4. Nutrition & Health - Healthy lifestyle behaviors such as eating nutritious foods, handling food safely, and being physically active can lead to a longer and more productive life. These behaviors can also prevent the harmful effects of obesity and many chronic diseases. Forming healthy behaviors during childhood is especially important to future health. And for immigrants, offering traditional foods like the fruits and vegetables of their homelands can also help them retain healthy food habits. Rates of overweight and obesity continue to increase for both adults and children in the U.S. Although the causes are complex and not fully understood, effective strategies that help people increase physical activity and choose healthy foods, both at home and away from home, can help. Strangely enough, hunger is another contemporary issue often associated with obesity. Low-income populations frequently turn to calorie-dense but low-nutrient foods when their food resources are limited. These tend to be inexpensive but satisfying. Families need guidance to get the most nutrition from their limited resources in order for their children to grow and thrive successfully. Overweight, obesity and lack of physical activity also increase risks of heart disease, diabetes,

stroke, hypertension, and some types of cancers. Collectively these chronic diseases account for nearly two out of every three deaths in the US and cost many billions of dollars in health care costs, lost productivity, and premature death. But in spite of these costs, these diseases are also among the most preventable through lifestyle changes. To help people make these changes, however, we need to better understand the diverse people with whom we work and the roots of their lifestyle choices. Only then can we effectively provide the education and skills needed to help them choose, prepare, and consume healthful foods in healthful amounts. Food borne illness continues to plague Americans, costing the U.S. economy billions of dollars each year in lost productivity, hospitalization, long-term disability and death. The Centers for Disease Control (CDC) has estimated that food borne diseases cause approximately 76 million illnesses and 5,000 deaths each year. Federal agencies have instituted food safety education and regulatory programs from farm to table. These guidelines are for food producers; food processors; food handlers in retail establishments; food service workers in restaurants, nursing homes, schools and child care settings; and families at home. Despite these efforts, however, the incidence of food borne illness remains a problem. Therefore education is needed to improve food safety knowledge and practices of people involved in all sectors of the food system.

5. Natural Resource-based Economic Development - Massachusetts relies on its forests, soils, waters, and scenic landscapes to provide employment, income, natural resource products, recreational opportunities, tourism and ecosystem services that meet its citizens' needs and drive its local economies. Maintaining a healthy local economy is a major concern for many communities in Massachusetts and the value of their natural resources serves as a major incentive for their conservation. Natural resource-based businesses (agriculture, equine industries, forest based businesses, fishing, shellfish, outdoor recreation and tourism, horticultural green industries, and turf) can have a substantial, positive impact on the health of local economies and are important tools for helping to maintain open space. UMass Extension will support Natural Resource Based Businesses through research, education and informed policy for the benefit of the entire commonwealth.

6. Land Use Management - Massachusetts is the third most densely populated state in the nation, with development proceeding at six-to-ten times the rate of population growth. The sprawl resulting from unplanned growth threatens water resources, natural resource-based enterprises (agriculture, timber harvesting, shellfish harvesting), open space, wildlife habitat, and community character. Sound land-use practices and management of natural resources depend, to a large extent, on well-trained local officials. However, almost half the state’s municipalities do not have professional planning staff. Volunteer boards often struggle with increasing levels of responsibility, liability, time demands and public mistrust, without adequate financial resources or technical support.

7. Ecosystem Protection, Management and Restoration - In addition to traditional resources such as water, fisheries, wildlife and forest products, natural systems are valued for open space, aesthetics and recreational opportunities. Ecosystems also provide benefits that are difficult to measure such as climate regulation, nutrient cycling, biodiversity, and the maintenance of environmental quality. Recognition that many of the products we use every day and the drugs used to treat medical ailments were derived from wild or once wild organisms has heightened awareness of the importance of biodiversity. Protection of biodiversity--the sum total of living organisms and the ecosystems that support them--is increasingly being viewed as both an ethical and economic imperative. Because we know so little about the myriad ecological connections that organize ecosystems into self-sustaining entities, maintaining and restoring the ecological integrity of ecosystems is an essential component of natural resource conservation. With increasing sprawl type of development, ecosystems are threatened by conversion, degradation, and fragmentation. One of the greatest threats to biodiversity and ecosystem integrity, and one of the most difficult to manage, is the impact of exotic pests, diseases and invasive species. The protection and restoration of natural systems and an ecosystems approach to resource management are essential for sustainable human societies.

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	105.0	0.0	0.0	0.0
2011	105.0	0.0	0.0	0.0
2012	105.0	0.0	0.0	0.0
2013	105.0	0.0	0.0	0.0
2014	105.0	0.0	0.0	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

2. Brief Explanation

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 Maine Plan of Work is set to be reviewed by the other three states for this year.

Internal University Review Panel

Academic deans and collaborating department heads from the College of Natural Resources and the Environment and the School of Public Health and Health Sciences review our Plan of Work on an annual basis. The Director of the Agricultural Experiment Station and Vice Provost for University Outreach also participate in this annual review

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?

In 2006, UMass Extensionengaged in a comprehensive stakeholder engagement process that resulted in the specification of seven critical issues that define the conceptual structure for our programs. These seven issues, that also serve as the "Planned Programs" in our Federal Plan of Work, are strategically important for the organization to pursue because they reflect the convergence of our USDA mission, the research and teaching capacity of University of Massachusetts and issues that are fundamentally important to the citizen of Massachusetts. Our seven critical issues 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). 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. Integrated research and education programs are a key element in our strategy to address the complex of critical issues identified by our stakeholders. 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, UMass Extension must develop a variety of approaches, technologies, curriculum and other appropriate mechanisms 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.

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

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. In these areas, UMass Extension has identified specific audiences who 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. Additionally, a key impact specified within our Health Promotion and Disease Prevention planned program is minority and low-income families will improve lifestyle behaviors to reduce health disparities Integrated research and education programs that address the issue of Health Promotion and Disease Prevention will strive to document progress towards this outcome. With regard to other program areas, and in response to a CSREES Civil Rights Review in 2007, UMass Extension will continue to purse the following steps to ensue equal access to all programs: A. Administration Responsibilities: Identify and improve current methods used to balance, monitor and evaluate level and types of program delivery contacts to racial and ethnic groups in Ag and Landscape, Nutrition, NREC, and 4-H. 1. Conduct research, e.g.: Benchmark other states contact approaches; review best practices recommended by CSREES Civil Rights staff. 2. Collect available demographic and census information on ethnic, racial and low socio-economic populations and locations across Massachusetts. Distribute to program directors for consideration and planning. 3. Evaluate effectiveness of existing outreach efforts for reaching and recruiting diverse clientele within each program in conjunction with program directors. 4. With program directors input, develop and recommend a plan for new outreach efforts / expanded program/ services delivery to diverse groups/ communities. B. Program Director Responsibilities: Participate in strategic civil rights planning initiatives for new outreach service and program delivery to diverse audiences. 1. Review demographic and research data thoroughly and apply to program delivery. 2. Be accountable for implementing improvements and initiatives. 3. Organize and submit progress reports requested by Administration as requested. 4. Suggest necessary features and steps involved to implement strategic initiatives to broaden program delivery to new constituencies. 5. Provide leadership/assign staff to develop and expand program delivery. 6. Assess degree of effectiveness of new diversity efforts and correct course as needed within the program over time.

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

All Massachusetts Extension activities will be planned, evaluated and reported within the context of our seven publicly identified critical issues/Federal Planned Programs. UMass Extension has developed an on-line planning system as a part of collaborative effort with three other New England States (NH, VT, ME). This system will facilitate the tracking of time and effort that is devoted to planned programs. All programmatic efforts embedded within our seven planned programs will report outcomes and impacts in a consistent manner. Based upon their focus and priorities, all programmatic efforts will be associated with one or more planned programs. Staff will plan and report progress towards a finite set of impacts that have been identified by our organizational planning teams.

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

Especially within agricultural and natural-resource related program areas, multi-state activities will allow UMass Extension to work collaboratively with communities, industries and other organizations within the geographic, ecological and natural boundaries as defined by the issue or problem, rather than by the borders of any particular state. This will increase the efficacy

of our programs and take advantage of economies of scale. Integrating research and education is essential for Extension success in Massachusetts. The most effective Extension programs will involve 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

- Survey of traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of the general public
- Targeted invitation to traditional stakeholder individuals

Brief explanation.

For our initial five-year plan (2007-2011), UMass Extension initiated an ambitious process to obtain input from a variety of stakeholders and citizens who are interested in and value the work that Extension does. Our Stakeholder Engagement process has helped us to plan and implement programs that are responsive to state and local needs. Stakeholder Engagement involved a variety of activities that are still reflected in our current Plan of Work These include: Web-based stakeholder survey Public Forums Assessment of UMass Faculty Interests Focus Group with State Advisory Board In addition to these activities, UMass Extension recently established a State Advisory Board sub-committee on Planning and Evaluation. The committee is charged with: Providing input, information, and feedback to the Extension Director and assessment/evaluation staff to deepen and broaden the organization's planning and reporting processes and ensure that relevant stakeholder opinion from the constituency areas represented by the Board are included Providing input into a staff-led examination of potential for future advisory structures at the organizational and program levels; and a broad-based stakeholder input process

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

- Open Listening Sessions
- Use Advisory Committees
- Other (Hired Independent Consultants)
- Use Internal Focus Groups
- Use Surveys

Brief explanation.

Internal professional staff members and our advisory boards identified a list of 768 stakeholders who received surveys and were invited to public forum. A team of consultants identified existing and potential faculty partners. State Advisory Board members are appointed by the Governor.

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

- Survey of traditional Stakeholder individuals
- Meeting specifically with non-traditional groups
- Meeting with invited selected individuals from the general public
- Survey specifically with non-traditional individuals

Brief explanation

Web-based Stakeholder Survey

In March 2006, UMass Extension administered a web-based survey to a broad range of citizens and stakeholders in preparation for the development of a 5-year Plan of Work. The goal of the survey was to obtain information that will help Extension plan and implement programs that are responsive to state and local needs. Through an earlier process, Extension administrators and program leaders identified 8 primary topic areas for the stakeholder survey that were based upon our USDA

mission, research and teaching interests of UMass faculty and Extension staff capacity. Extension professional staff, state and federal agency representatives, and members of our state advisory board were asked to provide email contact information for individuals they work with or know of, who possess comprehensive knowledge and a broad perspective in these eight areas. Seven hundred sixty-eight (768) individuals were contacted via email. Due to breadth of their expertise, some respondents were asked to complete more than one survey, yielding a total of 918 survey requests. It is impossible to know with certainty the exact number of individuals who received these requests. A total of 378 surveys were returned, yielding a (conservative estimated) response rate of 41.2%. These individuals were subsequently sent email messages that directed them to a page on our website where the results from the survey were posted.

Public Forums

UMass Extension sponsored two Public Forums in April 2006 to obtain input for our 5-year Plan of Work. At each forum we solicited comments from citizens we work with, or who are interested in and value our work, to help us plan and implement programs that are responsive to state and local needs. At each event we briefly reviewed our Plan of Work development process and presented results from our online stakeholder survey. Individuals were given up to 5 minutes to deliver comments and also asked to submit copies of their comments in writing. Only six individuals attended these forums and submitted comments, which were directed to our planning teams.

Assessment of UMass Faculty Interests

A consulting team was hired by UMass Extension to conduct the initial part of this assessment. The consultants first reviewed 11 Emphasis Areas specified by the US Department of Agriculture and then conducted a web-scan of university departments and faculty websites. Consultants identified a list of faculty whose interests fit within the USDA areas. Approximately 50 faculty were identified, but due to resource constraints, only 26 interviews were interviews conducted. Priority for interviews was given to faculty with whom we had limited prior experience working directly with. The main purpose of the interview was to understand the applied research interests of each faculty member. Faculty who we were not able to interview were sent, via email, a request to complete a brief survey which asked them several questions about their work that engages individuals, communities and groups outside the university. Sixty-seven faculty were contacted and responses were received from twenty-five. A report was issued to summarize information obtained through interviews and surveys of faculty interests. This document has served primarily as an internal resource to UMass Extension planning teams as they developed broad 5-year plans that address critical issues in Massachusetts. In addition to summarizing faculty interests, the document also attempts to summarize ideas faculty have put forth for specific opportunities or approaches that could be enhanced through collaborative efforts with Extension.

Focus Group

In March 2007, UMass Extension conducted a professionally facilitated focus group with our governor- appointed state advisory board (Board of Public Overseers) to deepen our understanding of our stakeholder priorities and the appropriate roles and methods for UMass Extension.

3. A statement of how the input will be considered

- To Set Priorities
- In the Action Plans
- To Identify Emerging Issues

Brief explanation.

Extension Planning Teams were established with knowledge and expertise in our seven (7) Critical Issue areas. Team consisted primarily of professional program staff, with some participation by extension administrators and academic faculty. Each team considered the information obtained through the various elements of the Extension Stakeholder Engagement Process as they developed a broad organizational plan (Issue Plan). These Issue Plans were used as the basis for our planned programs. As

such, they identify priorities or key focus areas within each issue. Once priorities were established, teams identified outcomes related to these priorities. Outcomes are the changes in behavior or knowledge that should occur if the projects that address this issue are to be effective.

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program #1

1. Name of the Planned Program

Administration and Organizational Development (Administrative Plan)

2. Brief summary about Planned Program

The UMass Extension administrative unit provides organizational leadership and direction for all educational programs and projects. It provides oversight for the hiring, supervision of staff and supports staff delivery of educational programs in four program areas: 4-H, Natural Resources and Environmental Conservation, Agriculture and Landscape and Nutrition Education. Extension Administration initiates the required research, participatory decision-making and planning appropriate for the development of policies, work processes and strategic initiatives, and is accountable for the management and cultivation of resources, the improvement of operations, conduct of communications, evaluation of educational programs, reporting, and the conduct of relations with the public and the University community. It holds responsibility for legal, risk and policy compliance and enforcement as directed by the University, the state of Massachusetts and USDA/CSREES in carrying out Extension's identified mission and that of its programs. Extension Administration provides resources and opportunities designed to build the skill and capacity of staff to improve the overall effectiveness of the organization. This plan will help ensure that Extension staff members are fully involved, informed, and aware of their rights, duties and responsibilities and have the support and learning opportunities to meet work assignments. During the five year plan period, Extension will engage in a variety of administrative and organizational efforts designed to fulfill organizational expectations and responsibilities regarding program development and planning, civil rights compliance, and staff development.

3. Program existence : Mature (More then 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
901	Program and Project Design, and Statistics	20%			
902	Administration of Projects and Programs	50%			
903	Communication, Education, and Information Delivery	30%			
	Total	100%			

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

1. Situation and priorities

The main priorities addressed in our Administration and Organizational Development Plan are: Support the organization's educational mission through program support administrative services and multi-state work Provide information, guidance and services 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 its assets Promote ease of access to Extension programs and service delivery for diverse communities and individuals throughout the Commonwealth Staff

Development - building personal/team skills for increased organizational effectiveness (e.g., educational technology, new staff orientation, grant writing, evaluation capacity, volunteer management, faculty and campus partnerships) Civil rights training and compliance Strategic Planning and Program Development - includes fund raising activities, strategic planning and new program/team development and committee participation

2. Scope of the Program

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

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

1. Assumptions made for the Program

Extension retains current levels of administrative staff to support programs and services.

Extension retains level funding from the federal government, the legislature, the University

Extension obtains required levels of support from centralized Outreach administrative units.

2. Ultimate goal(s) of this Program

- Extension staff and faculty, receive administrative support to assist them in developing and delivering quality Extension educational programs and services

- Staff and external partners obtain accurate and timely research and evaluation data and reports on Extension educational programs and activities to guide decision making and policy formation and demonstrate legal compliance and accountability

- Partnering organizations, agencies, non-profits and volunteer groups are linked to Extension through clear legal and liability agreements, management and affirmative action/equal opportunity policies approved by the University and in accordance with Massachusetts and federal laws.

- Staff and external partners receive fiscal accounting services and reports demonstrating that Extension's financial resources are lawfully administered and used for strategic priorities supporting the organization's mission

- Diverse community members have equal access to information about and opportunities to participate in Extension programs and services

- UMass Extension will be more successful in reaching/serving traditionally underserved target audiences protected under federal statute.

- Employment with UMass Extension includes a broad range of professional development opportunities that enhance personal growth, job satisfaction and assist staff in delivering quality Extension educational programs and services to diverse audiences.

- Effective UMass Extension projects with measurable impacts are sustained with public support, notification and engagement.

- Opportunities for emerging projects and initiatives are developed and expanded. Ineffective or outmoded projects and initiatives are discontinued.

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
2010	11.0	0.0	0.0	0.0
2011	11.0	0.0	0.0	0.0
2012	11.0	0.0	0.0	0.0
2013	11.0	0.0	0.0	0.0
2014	11.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Administrative systems and processes include:

Financial Management: includes federal and state grants, gifts, accounts, program budgets, revenue generation/fees, trust accounts, salary administration, etc. in conjunction with the Outreach Business Services Center and the UMass Treasure's Office.

Human Resource Management: includes the hiring, supervision and evaluation of professional and clerical staff and faculty, administration and communication of University HR employment policies and procedures, including performance management, civil rights, grievance and salary administration.

Legal, Risk and Volunteer Management: includes legal, liability, and volunteer policy development and research; consultation with University attorneys, risk officers and state officials; communication and enforcement of University directives and policies; creation of binding agreements (MOA's), negotiations and mediations with collaborating non-profits and governmental agencies; emergency and incident reporting; Criminal History Systems Information (CORI) screening, authorization, and investigations for all Extension youth programs; ES-237 reporting; Volunteer advisory fiscal reporting, administrative systems design and delivery.

Internal and External Relations: includes conduct of public relations with University, state, federal officials, the legislature, the Board of Public Overseers, other state Extension programs within CSREES, stakeholders and collaborating organizations, internal and external audiences in the areas of advocating for strategic initiatives and program delivery.

Program Assessment and Evaluation: includes the design of program assessment instruments, surveys, impact analysis, studies, statistical reports pertaining to Extension programs' delivery, impacts and stakeholder issues.

Marketing and Communications: in conjunction with Outreach Marketing and Communications, includes the development of brochures, newsletters, media, publications, Book Store, web communications, and information systems and data management.

Fundraising and Grant Program Development: includes oversight and coordination of grants, internal and external partnerships

and special fundraising programs, relations with Extension related program foundations, working where appropriate in conjunction with Outreach Development, Advancement, federal and state agencies and the appropriate University offices.

Planning, Evaluation and Reporting: includes general design and support for program planning, evaluation and reporting as well as comprehensive evaluation services for projects with substantial evaluation requirements from external sponsors and general advice and capacity building

Organizational Development systems and processes include:

Extension-wide Staff Development Plan: to identify the staffing levels, expectations, skill sets, conferences, on going courses of study, group training and development initiatives need to enhance staff and program unit capacity to meet issue plan goals and emerging needs of UMass Extension internal and external constituencies. This includes analysis of existing and new staff positions, diversity goals attainment in recruitment, hiring, promotion of staff, and regular needs assessment for each program unit. Measures will be established to evaluate the degree of progress toward issue plan impact indicator achievement.

Individual Development Plans: to identify individual work, skill sets and knowledge needs with each staff members job. IDP's help ensure that each program's staff has the necessary training to meet issue plan goals and delivery quality programs, information or research to its constituents. Such plans will integrate with the University's Performance Management goal setting and review system and will tie in with Extension promotion, merit and succession planning. The Individual Plan will reflect the overall strategy of the program area to meet its goals and mission and will include identification of conference opportunities and course work or credentializing opportunities.

Extension Staff Training and Development Series: will make available, through needs assessment and prioritization, a series of offerings available to all Extension staff, such as customized Equal Opportunity and Diversity sessions, technology, or work process re-design training. The series will more formally utilize the University's Workplace Learning and Development offerings, and will be customized to meet each program's needs in a particular discipline or interest area.

Civil Rights Plan: formation, including administrative goals and action plans for programs, internal reviews, complaint procedures and assignment of EEO staffing responsibilities within Extension as reviewed in an evaluation plan.

Revised Public Notification Plans: including new statements on all program communications, brochures, media releases, printed information, contracts and web publications, updating of mailing lists data collection on minority collaborators, publication of policies in diverse public venues, etc.

Data Collection: by all Extension programs documenting outreach efforts to external constituencies to help ensure access by underserved, diverse communities and individuals in the state. This involves research into appropriate data collection methods (e.g., sampling, county audits;) review of marketing and programming materials, whole population analysis, observations (e.g., agendas, etc.); policy and procedure development on work with collaborators; and creation of a web data collection tool for use by Extension personnel state-wide.

Civil Rights Training Series: for staff, advisories, youth and collaborating organizations. This would include on-line formats such as Civil Rights self-assessment tools.

Access to all Equal Opportunity Policies, Directives and Offices: for staff and all constituencies via web based information sites and printed materials.

Review of Current Program Partnerships: with external groups to ensure EEO compliance, including advisory nominations, compositions, by-laws provisions.

Recruitment, Hiring, and Succession Planning: to ensure EEO considerations are met and integrated with Extension strategic and program issue plans.

Human Resource Policy and Procedures Review: to ensure promotion, separations/retention, recruitment and hiring strategies are aligned with University policies and federal requirements.

Extension-wide Strategic Plan: to align with the Outreach Strategic Plan, federal requirements and the CSREES Plan of Work for 2007-2011. This involves fiscal planning, examination, discussion and decision making on new cross-functional and adaptive program structures for Extension's current four programs. It may require re-definitions of priorities for Extension, new staffing assignments, organizational units and relationships with internal and external partners, faculty and audiences.

Extension Program Strategic Plans: to better define focus areas, revenue generation and resource development strategies, and staffing requirements. These plans will contribute to accountability for and alignment of programs with overall Extension, Outreach and University strategic plans.

Collaborative Outreach Administrative Department Plans: to better clarify the expectations, procedures, deliverables, costs and coordination efforts with Outreach units so that Extension top priorities are met, thus ensuring high quality program delivery to Extension constituencies. The three Outreach units include the Business Services Center, Marketing and Communication (including the Book Store and Information Technology,) and Outreach Development.

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

Extension	
Direct Methods	**Indirect Methods**
• Other 1 (Administrative systems)	• Other 1 (Administrative systems)

3. Description of targeted audience

University Administrators
Federal and County Extension Program Administrators (USDA/CSREES)
UMass Extension Faculty and Staff
Public Stakeholders

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	200	50	0	0
2011	200	50	0	0
2012	200	50	0	0
2013	200	50	0	0
2014	200	50	0	0

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

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :** 0 **2013 :**0 **2014 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0

V(H). State Defined Outputs

1. Output Target

- Administrative Systems and Procedures

2010 0 **2011** 0 **2012 :**0 **2013** 0 **2014** 0

V(I). State Defined Outcome

O. No	Outcome Name
1	Massachusetts Extensions programs and staff are sustained and advanced, consistent with organizational expectations and stakeholder needs.

Outcome #1

1. Outcome Target

Massachusetts Extensions programs and staff are sustained and advanced, consistent with organizational expectations and stakeholder needs.

2. Outcome Type : Change in Condition Outcome Measure

2010 :0 **2011 :** 0 **2012 :** 0 **2013 :**0 **2014 :**0

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 901 - Program and Project Design, and Statistics
- 902 - Administration of Projects and Programs
- 903 - Communication, Education, and Information Delivery

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

- Organizational restructuring within the University
- Decreases or increases in state and federal funding
- Competition for grant funding
- Natural disasters
- Societal and demographic change
- Evolving information technologies
- Changing legal, risk, political and economic environments
- Degree of support from Outreach administrative services for key Extension needs in marketing, communications, public relations, information technology, fundraising and development
- Changes in partnership agreements with non-profits, foundations, volunteer groups, county Extension programs
- Lack of adequate staffing or ability to hire and retain diverse staff
- Emergence of issues requiring new Extension programs and priorities

- Ability to obtain funding to develop Extension outreach infrastructure and programming for diverse, underserved populations

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

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)
- Other (Fiscal, Legal Liability Audits)
- Case Study

Description

UMass Extension Administration will conduct evaluation studies in the following assessment areas:
Civil Rights compliance,
Staff Performance Management Needs analysis,
Legal & Liability issues re: Partnerships,
Volunteer Management,
Grant and fundraising effectiveness,
Financial projections and performance,
Advisory Group Effectiveness,
Program Participation Diversity and Access,
Multi-state Consortia Collaborations,
Extension Cross-functional Issues Team Effectiveness.

Major prerequisites in the aforementioned areas include on-going structural planning needed to set standards and delineate measurable objectives by involving constituents or staff in participatory needs assessment, goal setting and decision making, as appropriate.

2. Data Collection Methods

- Structured
- Observation
- Other (Focus Groups, Civil Right Review)
- Unstructured
- Case Study
- Portfolio Reviews

Description

Internal Civil Rights Review
Partnership Memoranda of Understanding reviews
Volunteer Management Case File Review
Multi-State Consortia Progress Reports
Needs Assessments
Fiscal Audits
Program Comparison Studies of Performance Reviews Accomplishments with Strategic Plan objectives
Grant Funder Evaluations
Advisory and Partnering Organization Feedback
Records Review
Focus Groups
Pre/post surveys
Formal Measurement of Public Relations and Marketing Effectiveness
Evaluation of degree of Plan of Work Goal Achievement
Assessment of Public Notification Plan effectiveness

V(A). Planned Program (Summary)

Program #2

1. Name of the Planned Program

Ecosystem Management, Protection And Restoration

2. Brief summary about Planned Program

In addition to traditional resources such as water, fisheries, wildlife and forest products, natural systems are valued for open space, aesthetics and recreational opportunities. Ecosystems also provide benefits that are difficult to measure such as climate regulation, nutrient cycling, biodiversity, and the maintenance of environmental quality. Recognition that many of the products we use every day and the drugs used to treat medical ailments were derived from wild or once wild organisms has heightened awareness of the importance of biodiversity. Protection of biodiversity--the sum total of living organisms and the ecosystems that support them--is increasingly being viewed as both an ethical and economic imperative.

Because we know so little about the myriad ecological connections that organize ecosystems into self-sustaining entities, maintaining and restoring the ecological integrity of ecosystems is an essential component of natural resource conservation. With increasing sprawl type of development, ecosystems are threatened by conversion, degradation, and fragmentation. One of the greatest threats to biodiversity and ecosystem integrity, and one of the most difficult to manage, is the impact of exotic pests, diseases and invasive species. The protection and restoration of natural systems and an ecosystems approach to resource management are essential for sustainable human societies.

3. Program existence : Mature (More then 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	20%			
131	Alternative Uses of Land	20%			
133	Pollution Prevention and Mitigation	20%			
135	Aquatic and Terrestrial Wildlife	20%			
136	Conservation of Biological Diversity	20%			
	Total	100%			

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

1. Situation and priorities

UMass Extension is among the many agencies, institutions and organizations that are addressing ecosystem health and protection. Management decisions cannot always wait for a complete understanding of potential impacts without risking the loss of species or communities of species due to inaction. The University can play a critical role in the development and deployment of new approaches and tools based on an evolving understanding of both ecological and human systems.

The University of Massachusetts Amherst possesses a strong academic and research base for addressing various elements of ecosystem management and biodiversity protection. The Department of Natural Resources Conservation contains expertise in wildlife and fisheries conservation, forestry, conservation biology, landscape ecology, forest, wetland, aquatic and coastal ecosystems, and human dimensions of natural resource management. Expertise and research capacity exists in the Department of Landscape Architecture and Regional Planning in the areas of regional land use, watershed and open space planning. The Department of Plant, Soil and Insect Sciences supports research capacity in the area of insect and plant pests/diseases and biological control agents.

UMass Extension has the unique capability of bringing the University's depth and breadth of knowledge and academic resources to bear on critical issues affecting ecosystem health by:

- Engaging University faculty and outside partners in the identification of critical issues and priorities for applied research
- Conducting integrated research and extension programs as sustained efforts to address critical issues
- Using established agricultural, green industry and forestry extension programs to deliver research-based information to individuals whose actions are likely to have a significant impact on Massachusetts ecosystems.

Based on information from our stakeholder input process and an assessment of the University's current research and extension capacity, these are the priorities in Ecosystem Management, Protection and Restoration that we will be addressing over the next five years.

1) Land Protection.

The window of opportunity for effective land conservation in southern New England may be only 10-20 years. After this time, the unprotected landscape is likely to be too fragmented to be of much value for supporting wildlife. Private landowners with an average age of approximately 60 years own 2.2 million acres, over 75% of our state's forests. Within the next 10-20 years much of this land will be passed on or sold.

A team of scientists and Extension educators at the University of Massachusetts, Amherst has developed the Conservation Assessment and Prioritization System (CAPS) to provide an objective, dynamic, and flexible tool and approach for assessing biodiversity value and ecological viability. CAPS is the cutting edge in landscape-based ecological assessment and is unlike any other tools currently available.

The implementation of integrated land protection strategies based on CAPS analyses will facilitate more targeted land conservation to effectively preserve biodiversity and maintain ecosystem integrity over time. Conservation organizations and agencies will be more targeted in their land protection efforts and will integrate efforts at various scales. Educating landowners on estate planning and land protection options, especially those in areas identified by CAPS as high priority, will help maintain the public benefit that is derived from these lands.

2) Minimizing and Mitigating Development Impacts on Ecosystems.

Minimizing the impacts of development projects begins with the identification and protection of high-valued ecosystems and directing development to areas of lesser importance. As a quantitative approach for evaluating ecosystem integrity, CAPS can be used to evaluate and compare various development scenarios, such as alternative alignments for highway or utility projects. CAPS can also be used to quantify the indirect impacts of development projects on the surrounding, undeveloped landscape.

Design and Best Management Practices can be used to minimize or mitigate impacts on ecosystems. These range from "conservation subdivisions" to the use of appropriate stream crossing structures, wildlife passage structures, and appropriate storm water management systems. A properly conducted habitat evaluation can provide important information that can be used to design projects to minimize impacts to habitat and ecosystems.

The University of Massachusetts Amherst has research capacity and expertise in the areas of land use planning and management, conservation subdivisions, wildlife habitat and habitat evaluation, the performance of storm water management

techniques and technology, maintaining river and stream continuity through appropriate road-stream crossing design, and mitigating the impacts of roads and highways on wildlife and ecosystems.

3) Land and Resource Management

Working with people who own and manage both land and the resources supported by the land is a critical element of ecosystem management, protection and restoration. UMass Amherst has substantial research capacity in the management of agricultural land and intensively managed landscapes, as well as forest, freshwater and coastal ecosystems. UMass Extension has long maintained programs that provide information and technical assistance to a variety of audiences that work directly with the land and its resources.

People who manage natural systems with the primary goal of protecting or restoring the health of ecosystems need up-to-date information on ecosystems and ecological processes, as well as tools and approaches for land protection and management to achieve their goals. Other audiences engaged in the management of natural systems for multiple objectives, including the harvesting of resources as well as the protection of environmental quality, need information on sustainable resource management and best management practices. Land managers that are managing land-based production systems (agriculture) and highly managed landscapes (golf courses) need information on practices that limit the unintended consequences of management practices on nearby natural systems.

4) Avoidance, detection, early containment, and management of exotic pests, diseases, and invasive species

Exotic pests, diseases and invasive species are among the most profound threats to ecosystem integrity that we face. The number of invasive species already creating problems in Massachusetts is large and the potential for future problems is significant. Invasive species typically are habitat generalists and aggressive colonizers and outbreaks are difficult to contain and almost impossible to eliminate unless discovered and addressed early in the invasion. Biological control offers hope for the long-term containment of invasive species. However, careful screening of potential bio-control agents is essential lest the agent itself become a threat to ecosystem integrity.

UMass Amherst possesses significant research capacity in the area of insect pests and the development and use of biological control to address the threats caused by these pests. Established agricultural, green industry and forestry extension programs can deliver research-based information to individuals about action that can be taken to avoid, detect and control invasive species.

2. Scope of the Program

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

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

1. Assumptions made for the Program

To deliver outreach activities for this issue, 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. Extension has a valued reputation with these groups.

Relationships exist between Extension field staff and faculty which will be valuable when working on this issue. We assume that faculty not already working with Extension will be willing to engage in applied research that addresses ecosystem management, protection and restoration in Massachusetts and work collaboratively with Extension to create integrated research and extension programs.

Additional staff capacity with particular expertise in invasive species management will be needed to carry out many of the listed activities for this issue. Programming to effectively address the issue of ecosystem management, protection and restoration will also depend on better coordination of efforts within and between Extension programs, as well as an expansion of our relationships with faculty and integration with research.

This issue has great potential for grant funded activities. Collaborative efforts between Extension staff and faculty will result in better opportunities for grants to be funded. Strong interest among our stakeholders and partners in workforce training and preparation is likely to create opportunities for revenue based programming related to this issue.

Through the faculty and staff in the natural resource program and agriculture and landscape program we have expertise to provide accurate information on the nature of this issue. In addition we have well established networks of Extension 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. Extension programs provide unbiased, research based information that will serve as catalyst for change in practices affecting this issue.

Currently a handful of Extension staff work in the area of ecosystem management, protection and restoration. Through their relationships with faculty and external collaborators and participation in professional associations these 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

1. Enhanced Health And Productivity Of Natural Resources And Ecosystems - The quality of land, water, plant, animal, and biodiversity resources will be protected and enhanced, and healthy self-sustaining ecosystems maintained.

2. Stronger Local Economies - Natural and human resources will be managed or cultivated in ways that support strong local economies.

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
2010	7.1	0.0	0.0	0.0
2011	7.1	0.0	0.0	0.0
2012	7.1	0.0	0.0	0.0
2013	7.1	0.0	0.0	0.0
2014	7.1	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Analytic tools and techniques

Applied Research Programs

Diagnostic Service

Facilitated Group Meetings and Conferences

Peer Reviewed Publications

Printed Materials

Single day workshop, class 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**
• Workshop • Education Class • One-on-One Intervention • Demonstrations	• Newsletters • Web sites

3. Description of targeted audience

•Natural Resource Agencies •Regional Planning Authorities •Development and Planning Agencies •Municipalities •Conservation Organizations •Landowners and Land Managers •Business/Industry (Natural resource based businesses, development industry, environmental consultants)

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	15415	28177	0	2800
2011	15415	28177	0	2800
2012	15415	28177	0	2800
2013	15415	28177	0	2800
2014	15415	28177	0	2800

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

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :** 0 **2013 :**0 **2014 :**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	2	2
2011	0	2	0
2012	0	2	0
2013	0	2	0
2014	0	2	0

V(H). State Defined Outputs

1. Output Target

- Analytic tools and techniques

2010 5 **2011** 5 **2012** 5 **2013** 5 **2014** 5

- Applied Research Programs

2010 7 **2011** 7 **2012** 7 **2013** 7 **2014** 7

- Diagnostic Service

2010 21125 **2011** 21125 **2012** 21125 **2013** 21125 **2014** 21125

- Facilitated Group Meetings and Conferences

2010 9 **2011** 9 **2012** 9 **2013** 9 **2014** 9

- Peer Reviewed Publications

2010 2 **2011** 2 **2012** 2 **2013** 2 **2014** 2

- Printed Materials

2010 11 **2011** 11 **2012** 11 **2013** 11 **2014** 11

- Single day workshop, class or event

2010 33 **2011** 33 **2012** 33 **2013** 33 **2014** 33

- Survey or needs assessment

2010 1 **2011** 1 **2012** 1 **2013** 1 **2014** 1

- Websites or other computer-based delivery

2010 12 **2011** 12 **2012** 12 **2013** 12 **2014** 12

- Workshop Series or educational course

2010 2 **2011** 2 **2012** 2 **2013** 2 **2014** 2

V(I). State Defined Outcome

O. No	Outcome Name
1	Participants acquire knowledge, skill and motivation to adopt practices that reduce the risk of exotic pests, diseases and invasive species
2	Participants develop the knowledge and skill to adopt land management practices that protect and enhance natural resources and ecosystems
3	Participants adopt land management practices that protect and enhance natural resources and ecosystems
4	Participants acquire knowledge and skill to effectively address natural resource issues during project review and permitting
5	Participants acquire knowledge and skill to minimize the impact of development projects on natural resources and ecosystems
6	Participants adopt practices that minimize the impact of development projects on natural resources and ecosystems.

Outcome #1

1. Outcome Target

Participants acquire knowledge, skill and motivation to adopt practices that reduce the risk of exotic pests, diseases and invasive species

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 100	**2011 :** 100	**2012 :** 100	**2013 :** 100	**2014 :** 100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity

Outcome #2

1. Outcome Target

Participants develop the knowledge and skill to adopt land management practices that protect and enhance natural resources and ecosystems

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 100	**2011 :** 100	**2012 :** 100	**2013 :** 100	**2014 :** 100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity

Outcome #3

1. Outcome Target

Participants adopt land management practices that protect and enhance natural resources and ecosystems

2. Outcome Type : Change in Action Outcome Measure

2010 : 50	**2011 :** 50	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity

Outcome #4

1. Outcome Target

Participants acquire knowledge and skill to effectively address natural resource issues during project review and permitting

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity

Outcome #5

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity

Outcome #6

1. Outcome Target

Participants adopt practices that minimize the impact of development projects on natural resources and ecosystems.

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
50	50	50	50	50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation

- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

- Changes in base funding available to maintain core capacity within UMass Extension to address this issue
- Departmental, College and University priorities affecting the number and expertise of faculty available to address this issue
- Political transitions that affect the availability of grants and contracts
- Changes in state or federal agency priorities that affect the availability of partners and collaborators
- 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.
- Changes in shellfish markets, propagation, or harvesting techniques
- 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 (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- Retrospective (post program)
- Case Study
- After Only (post program)
- Comparison between locales where the program operates and sites without program intervention

Description

Extension faculty and staff will evaluate the impacts of programs through a variety of methods, including:

•Program evaluations •Follow up surveys of program participants •Research to establish benchmarks and evaluate changes in knowledge, skills, actions taken or environmental conditions due to programming efforts •Participatory research

To the extent possible we will evaluate the changes in conditions or actions taken in response to Extension programs. Where this is not possible we will evaluate the educational outcomes of our programs and use reasonable assumptions and other research findings to estimate the impacts of our programs.

2. Data Collection Methods

- On-Site
- Mail
- Whole population
- Other (web-surveys)
- Sampling
- Case Study

Description

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program #3

1. Name of the Planned Program

Nutrition and Health

2. Brief summary about Planned Program

Healthy lifestyle behaviors such as eating nutritious food, handling food safely, being physically active, and having regular health screenings can lead to a longer and more productive life. These behaviors can also prevent the harmful effects of many chronic diseases. Forming healthy behaviors during childhood is especially important to future health.

Rates of overweight and obesity continue to increase for both adults and children in the U.S. Although the causes are complex and not fully understood, effective strategies that help people increase physical activity and choose healthy foods, both at home and away from home, can help. Overweight, obesity and lack of physical activity also increase risks of heart disease, diabetes, stroke, hypertension, and some types of cancers. Although these diseases are major contributors to health care costs, and leading causes of disability and death in the United States, they are also among the most preventable through lifestyle changes.

Foodborne illness continues to plague Americans, costing the U.S. economy billions of dollars each year in lost productivity, hospitalization, long term disability and death. The Centers for Disease Control (CDC) has estimated that foodborne diseases cause approximately 76 million illnesses and 5,000 deaths each year. Federal agencies have instituted food safety education and regulatory programs from farm to table. The US Department of Agriculture, the US Food and Drug Administration and industry have provided guidelines and a variety of resources for food producers and processors using the Hazard Analysis Critical Control Point (HACCP) system targeted at meat and poultry producers and processors and retail food establishments. Retailers and food handlers in food service settings are often required to undergo manager certification. The Child Nutrition Reauthorization Act of 2004 now requires all schools to implement HACCP plans. Despite these efforts, the incidence of foodborne illness remains a problem. Therefore education is needed to improve food safety knowledge and practices of people involved in all sectors of the food system.

3. Program existence : Mature (More then 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
703	Nutrition Education and Behavior	40%			
704	Nutrition and Hunger in the Population	10%			
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	10%			
724	Healthy Lifestyle	40%			
	Total	100%			

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

1. Situation and priorities

According to the Centers for Disease Control (CDC) and the Massachusetts Nutrition Board (MNB), a coalition of Massachusetts leaders in the field of nutrition and health, nutrition and health issues in Massachusetts, especially compared to Healthy People 2010 Objectives, include the following:

1. Prevent Overweight and Obesity, and Reduce the Prevalence among Adults through Nutrition and Physical Activity Education and Public Policy.

o The Trust for America's Health Reports, providing 2006 data, stated that the overall rate of obesity in Massachusetts is 18.6%.1 This is an 84% increase since 1990. 2 According to the Centers for Disease Control Behavioral Risk Factor Surveillance System (2004), 55% of Massachusetts adults are either overweight or obese, compared to 66% in the US population. Massachusetts residents who are obese include 18% of non-Hispanic white adults, 27% of non-Hispanic black adults, and 21% of Hispanic adults.2

o Overweight and obesity cost Massachusetts an estimated $1.8 billion in 2003 (4.7% of total medical expenses).3

o The Healthy People 2010 goal is to reduce the percentage of obese adults to 15%.4

2. Improve Food Consumption Patterns and Promote Physical Activity to Reduce Risk of Obesity and Chronic Disease.

o Fewer than one-third (28.6%) of adults consume fruits and vegetables five or more times per day (CDC, 2005). These foods are especially important to reducing risks of cancer and heart disease.2

o Most women do not consume adequate amounts of calcium, which may help prevent osteoporosis. 5

o Although Massachusetts has lower rates of food insecurity and hunger than the country as a whole, they do exist for about 8% of Massachusetts households.5

o According to the Centers for Disease Control, only 52.6% of Massachusetts residents engaged in recommended levels of physical activity; 34.1% were insufficient and 13.3% were inactive (2005).6

o The MNB reported that only 17% of adults and 62% of adolescents reported regular engagement in vigorous physical activity (2004). 5

o Besides helping to control weight, regular physical activity reduces the risk of coronary heart disease, hypertension, diabetes, stroke, and some types of cancers. Physical activity also strengthens bones, muscles, and joints, reduces symptoms of anxiety and depression; and is associated with fewer physician visits, hospitalizations, and medications. 6

o The Healthy People 2010 physical activity goal is for at least 80% of adults in the state to engage in some form of leisure time physical activity. 4

3. Lower Risks of Chronic Disease by Teaching Massachusetts Residents about Healthy Eating Physical Activity, and Healthy Lifestyle Behaviors.

o Heart Disease. Although Massachusetts rates of death due to heart disease are lower than those of the country as a whole (462 versus 536 per 100,000 deaths, respectively) heart disease remains the leading cause of death in this state. Rates are highest among African Americans and Whites, but they are also higher in certain geographic areas, including Berkshire and Hampden Counties, with Hampshire and Barnstable Counties close behind. 6

o Cancer. The average annual age-adjusted death rate due to cancer in Massachusetts is 205.4 per 100,000 persons, compared to 199.8 for the Nation, so it is higher than the national average. According to the American Cancer Society, about 33,050 new cases of cancer are diagnosed in MA per year, with about 13,620 cancer deaths. 7 Top sites for cancer in Massachusetts are prostate, breast, lung, and colon.6 Non-Hispanic Blacks had highest rates of mortality among Massachusetts racial/ethnic groups.

o Diabetes. The prevalence of diabetes in Massachusetts is lower than that of most states, however, it averages 6.0% of the total state population and is increasing.10 (In 1994, it was less than 5%). Adjusting for age and gender, racial and ethnic minorities are about twice as likely as whites to develop diabetes, and individuals with income below $15,000 are about three times as likely as those with income of $35,000 or higher to develop diabetes.2 Diabetes can lead to a variety of other health problems including heart disease, stroke, blindness, kidney failure, pregnancy complications, and lower-extremity amputations.6

4. Help Massachusetts Youth to Learn Decision-Making Skills as they Apply to Health.

o The Centers for Disease Control (CDC) states, "During the transition from childhood to adulthood, adolescents establish patterns of behavior and make lifestyle choices that affect both their current and future health. Adolescents and young adults are adversely affected by serious health and safety issues such as motor vehicle crashes, violence, substance use, and sexual behavior. They also struggle to adopt behaviors that could decrease their risk of developing chronic diseases in adulthood—behaviors such as eating nutritiously, engaging in physical activity, and choosing not to use tobacco. Environmental factors such as family, peer group, school, and community characteristics also contribute to the challenges that adolescents face. To have the most positive impact on adolescent health, government agencies, community organizations, schools, and other community members must work together in a comprehensive approach. Providing safe and nurturing environments for our nation's youth can ensure that adolescents will be healthy and productive members of society." 6

o The 2005 Youth Risk Behavior Survey showed high rates of alcohol, marijuana, and cigarette use among Massachusetts youth.8

o More than one in ten (11%) of Massachusetts high school students are overweight (BMI at or above the 95th percentile based on the 2000 CDC Growth Charts). Another 16% are at risk of becoming overweight (BMI at or above the 85th percentile but less than the 95th percentile; Youth Behavior Suveillance System, 2005). Overall 17% of US children aged 2 to19 are overweight; however the rate continues to increase, both in Massachusetts and the nation (See Fig. 1).6

o Many youth, both boys and girls, show signs of disordered eating, with more than one in ten going without eating for 24 hours or more to lose or avoid gaining weight. 8

5. Reduce Health Disparities among Massachusetts Residents.

o Healthy People 2010 has as one of its goals "eliminating racial and ethnic disparities in health." The ethnic minority populations experiencing disparities include: African Americans, Alaska Natives, American Indians, Asian Americans, Hispanic Americans, and Pacific Islanders. Barriers such as lack of access to low-cost healthful foods and health care, language, literacy, educational level, and income increase health risk. Priority health issues include: cardiovascular diseases, diabetes, infant mortality, breast and cervical cancer, HIV/Aids, and immunizations. 4

6. Improve Women's Health

o Chronic conditions such as heart disease, cancer and stroke are the leading cause of death and count for 63% of American women's deaths. 6 Heart disease is the number one cause of death among women; more than 1/3 of U.S. women die of some form of cardiovascular disease. Breast cancer is the second leading cancer killer of American women. The most effective means of reducing the impact of breast cancer is early detection and treatment. 6

o Other areas of concern regarding women's health include: obesity, diabetes, physical inactivity, reproductive health, osteoporosis, and violence. 6

o Health education programs are needed to address these women's health issues.

7. Improve Food Safety in Massachusetts.

The following are Extension priorities for addressing Food Safety in Massachusetts for the next five years:

o Teach Consumers to Prevent Foodborne Illness in Their Homes. Nearly one-fourth (23.5 %) of traceable foodborne illness occurs in private homes, while 45% occurs in restaurants and delicatessens (CDC data, 1997). However, all cases of foodborne illness tend to be underreported, and those occurring in homes are more likely to be underreported than those occurring in restaurants. Several population groups, including older adults, young children, pregnant women, and immunocompromised adults, are at an increased risk for foodborne illness. Our programs will give special attention to these at-risk groups.

o Help Food Producers, especially Fruit and Vegetable Growers, to adopt Good Agricultural Practices (GAPs) A recent multi-state foodborne outbreak of E. coli O157:H7 linked to fresh bagged spinach underscores the need for fruits and vegetable growers to practice GAPs in order to avoid product contamination with foodborne pathogens. This particular outbreak resulted in 199 illnesses including 3 deaths in 26 states as of October 6, 2006 (http://www.cdc.gov/ecoli/2006/september/updates/100606.htm). Several other outbreaks caused by E.coli O157:H7 reported to the CDC since 1995 have been linked to lettuce or leafy greens. In an effort to control obesity and other related health conditions, nutritionists have embarked on encouraging consumers to consumer more fruits and vegetables. Production of safe fruits and vegetables particularly those vegetables that are eaten raw is critical and training growers on how to practice GAPs in order to consistently produce safe produce should be a top priority for food safety educators and agriculturalists. We wish to help Massachusetts fruits and vegetable growers to learn and practice GAPs through training workshops and disseminating educational materials at farmers markets throughout the state. Since more and more consumers are switching to buying local produce/products, we believe that by helping growers to p

2. Scope of the Program

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

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

1. Assumptions made for the Program

This plan is based on the following assumptions:

•USDA funding for EFNEP and FNP nutrition education programs will not diminish. •UMass Outreach and Extension is willing to make strategic investments based on recommendations documented in the health promotion and disease prevention critical issue paper. •UMass Outreach and Extension will support and provide initial funding for the development of broader health education programs. •UMass Outreach and Extension will invest in staff time for the development of broader health education program, including faculty collaborations. •Extension staff and UMass faculty will collaborate to seek new funding. •Extension staff and UMass faculty will develop joint research and outreach projects; this will provide opportunities for graduate students' thesis and field experience. •UMass Outreach and Extension will support collaborations with other Extension programs. •UMass Outreach and Extension are willing to invest in staff development.

2. Ultimate goal(s) of this Program

Improved Human Health and Well-being - Diverse youth, families, and communities will achieve greater physical and social 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
2010	46.9	0.0	0.0	0.0
2011	46.9	0.0	0.0	0.0
2012	46.9	0.0	0.0	0.0
2013	46.9	0.0	0.0	0.0
2014	46.9	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Applied Research Programs

Demonstrations

Displays and Exhibits

Peer Reviewed Presentations

Printed Materials

Published Articles (News, Professional and Trade)

Single day workshop, class 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**
• One-on-One Intervention • Workshop • Group Discussion • Education Class • Demonstrations	• Newsletters • Web sites

3. Description of targeted audience

•Adults •Youth •Women •Minority and underserved populations •Health educators and providers •Teachers •UMass faculty, students and administration •State and local agencies •State legislators

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	10160	58802	55560	38457
2011	10160	58802	55560	38457
2012	10160	58802	55560	38457
2013	10160	58802	55560	38457
2014	10160	58802	55560	38457

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

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :** 0 **2013 :** 0 **2014 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	1	0
2011	0	1	0
2012	0	1	0
2013	0	1	0
2014	0	1	0

V(H). State Defined Outputs

1. Output Target

- Applied Research Programs

  2010 :1 **2011 :**1 **2012 :**1 **2013 :**1 **2014 :**1

- Demonstrations

  2010 :65 **2011 :**65 **2012 :**65 **2013 :**65 **2014 :**65

- Displays and Exhibits

  2010 :1696 **2011 :**1696 **2012 :**1696 **2013 :**1696 **2014 :**1696

- Peer Reviewed Presentations

  2010 :1 **2011 :**1 **2012 :**1 **2013 :**1 **2014 :**1

- Printed Materials

  2010 :4 **2011 :**4 **2012 :**4 **2013 :**4 **2014 :**4

- Published Articles (News, Professional and Trade)

  2010 :10 **2011 :**10 **2012 :**10 **2013 :**10 **2014 :**10

- Single day workshop, class or event

2010 : 941 **2011 :** 941 **2012 :** 941 **2013 :** 941 **2014 :** 941

- Websites or other computer-based delivery

2010 : 5 **2011 :** 5 **2012 :** 5 **2013 :** 5 **2014 :** 5

- Workshop series or educational course

2010 : 1968 **2011 :** 1968 **2012 :** 1968 **2013 :** 1968 **2014 :** 1968

V(I). State Defined Outcome

O. No	Outcome Name
1	Proportion of participants who gain knowledge and skill to improve dietary behaviors
2	Proportion of participants who gain knowledge and skill to improve physical activity behaviors
3	Proportion of participants who improve dietary behaviors
4	Proportion of participants who improve physical activity behaviors
5	Growers implement practices to avoid food-borne illness
6	Growers increase knowledge and skill to implement practices to avoid food-borne illness
7	Participants adopt practices to control food safety risks and hazards
8	Proportion of participants who increase knowledge and skill to control food safety risks and hazards
9	Participants improve physical activity behaviors
10	Participants improve meal planning and preparation behaviors
11	Participants improve food resource management behaviors

Outcome #1

1. Outcome Target

Proportion of participants who gain knowledge and skill to improve dietary behaviors

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle

Outcome #2

1. Outcome Target

Proportion of participants who gain knowledge and skill to improve physical activity behaviors

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

Outcome #3

1. Outcome Target

Proportion of participants who improve dietary behaviors

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
50	50	50	50	50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle

Outcome #4

1. Outcome Target

Proportion of participants who improve physical activity behaviors

2. Outcome Type : Change in Action Outcome Measure

2010	2011	2012	2013	2014
:50	: 50	: 50	:50	:50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

Outcome #5

1. Outcome Target

Growers implement practices to avoid food-borne illness

2. Outcome Type : Change in Action Outcome Measure

2010	2011	2012	2013	2014
:50	: 50	: 50	:50	:50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #6

1. Outcome Target

Growers increase knowledge and skill to implement practices to avoid food-borne illness

2. Outcome Type : Change in Knowledge Outcome Measure

2010	2011	2012	2013	2014
:100	: 100	: 100	:100	:100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #7

1. Outcome Target

Participants adopt practices to control food safety risks and hazards

2. Outcome Type : Change in Action Outcome Measure

2010	2011	2012	2013	2014
:50	: 50	: 50	:50	:50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #8

1. Outcome Target

Proportion of participants who increase knowledge and skill to control food safety risks and hazards

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	2011 :	2012 :	2013 :	2014 :
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #9

1. Outcome Target

Participants improve physical activity behaviors

2. Outcome Type : Change in Action Outcome Measure

2010 :	2011 :	2012 :	2013 :	2014 :
50	50	50	50	50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

Outcome #10

1. Outcome Target

Participants improve meal planning and preparation behaviors

2. Outcome Type : Change in Action Outcome Measure

2010 :	2011 :	2012 :	2013 :	2014 :
50	50	50	50	50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

Outcome #11

1. Outcome Target

Participants improve food resource management behaviors

2. Outcome Type : Change in Action Outcome Measure

2010 :	2011 :	2012 :	2013 :	2014 :
50	50	50	50	50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

•Extension chooses not to invest in this issue. •State and federal funding diminish. •Grants are not funded. •Staff levels are insufficient to provide these services. •Faculty and staff over-extended with current work load. •Collaborations and networking fail (i.e., we are not able to recruit partners).

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

1. Evaluation Studies Planned

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

Description

•Tests •Pre- and post-surveys •Self-report •Qualitative data collection (interviews or focus groups)

2. Data Collection Methods

- Whole population
- On-Site
- Structured

Description

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program #4

1. Name of the Planned Program

Land Use Management

2. Brief summary about Planned Program

Massachusetts is the third most densely populated state in the nation. In the 2000 U.S. Census, MA had about 810 persons per square mile, while New Jersey had nearly 1135, with Rhode Island in between. The Brookings Institution forecasts that the U.S. population will hit 400 million by 2043, if current immigration increases, birth rates and birth/death ratios continue roughly in the same proportions. The rate of land consumption for residential development is steadily increasing, far out of proportion to its population growth; the MA Audubon Losing Ground studies showed that in the early 2000's, MA was losing about 40 acres a day of active agricultural, horticultural and forestry land to development. The recent Pioneer /Rappaport Institute studies on regulatory barriers to affordable housing in MA demonstrate that more than half of the land in the study area is zoned for 1 and 2 acre single family house lots. Not surprisingly, MA has been among the top four states in median housing costs for at least 25 years.

There is a high environmental price to be paid for this heavy consumption of land. Negatively impacted are water resources, air quality, natural resource-based enterprises, open space, wildlife habitat, and community character. These effects in turn impede long term sustainability and often compel inefficient, reactive capital investment by government.

Planning for growth in ways that are not haphazard, and that can provide for both good environmental and good social outcomes, is challenging, and requires a level of policy vision that has not always been applied to our use of land. Key questions abound: at what point does the viability of ecosystems? How much open space is needed, at the cost of the density of development that can support public transit? How do our existing land use control practices and tools need to be improved to achieve more environmentally and socially sound outcomes? Is development along the radial pattern of the highways the best approach, or should we seek a more solid in-fill pattern? How can we best include the smaller homes and multi-family structures that are needed to house the region's workforce, given regulatory barriers to doing so? Should all state investment in roads, sewer and water systems, stormwater management facilities & other infrastructure be confined to sharply defined growth areas that are already the most disturbed in the region or state, or should they be reconfigured in circumferential patterns?

All of this should be a key part of the Commonwealth's strategic attempts to rein in poorly conceived growth. The overriding concept for addressing these issues is to employ a comprehensive research, educational and outreach strategy that will bring about improvements at the local, regional and state level, as well as participation by the full network of stakeholders. The Land Use Management initiatives of the Natural Resources and Environmental Conservation Department of Extension will engage in research, outreach, facilitation and education activities that improve existing planning, regulatory and design practices.

These efforts will involve the exploration of innovations in land use, resource conservation and sustainable development. Private protective approaches involving landowners and organizations will also be analyzed for their impact and added to the tool kit, with outreach to landowners interested in fully or partially protecting their land. Because UMASS Extension/NREC has the ability to be a facilitator, educator and outreach coordinator not only to individuals, but to communities and organizations who have the ability to affect change, it can effectively work with constituents and audiences to bring about impacts that will have lasting effects. This will involve the development of new tools, the training of relevant audiences, and the evolution of new methods of delivery and the assessment of the effectiveness of these activities.

3. Program existence : Mature (More then 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
131	Alternative Uses of Land	40%			
605	Natural Resource and Environmental Economics	20%			
608	Community Resource Planning and Development	40%			
	Total	100%			

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

1. Situation and priorities

Currently in Massachusetts:

- The state is fragmented into 351 local units (towns and cities) with full governance responsibility, but whose borders were rational ones only prior to the advent of the 20th century. Today, those municipal bounds are obsolete in many ways, in the age of the automobile, digital communications, regional & statewide (and greater) economies and the vast geographic burden of environmental problems. Almost half of the municipalities do not have professional planning staff; their volunteer boards struggle with increasing levels of responsibility, liability and public pressure.

- The state's planning, zoning & subdivision statutes are among the most dysfunctional in the nation in terms of their ability to enable effective regional and local planning, protect natural resources and to appropriately direct development to areas already built and served by infrastructure. A uniquely broad set of exemptions within those statutes often makes it difficult for real planning control to be exerted.

- Highly land consumptive development patterns and widespread exclusionary zoning have contributed (along with other factors) to a housing affordability dilemma in the state, a practice that is perceived in some quarters as being in competition with land and water resource protection.

The policy challenge confronting Massachusetts is how to move communities, the state government, regional agencies, land protection organizations and private landowners, toward initiatives & commitments that are likely to bring about substantial changes in the manner in which Massachusetts develops. Respondents to Extension surveys on Land Use Management, including state and municipal board members and employees and non-profit practitioners indicate that, among public regulatory strategies, there should be significant improvements to: statewide land use statutes, subdivision control regulations, master plans, zoning laws and related regulations.

The University of Massachusetts Amherst possesses a strong academic and research base for addressing many elements of land use planning. Expertise and research capacity exist in the Department of Landscape Architecture and Regional Planning in the areas of regional land use, watershed and open space planning. Programs such as the Center for Rural Massachusetts and the Citizen Planner Training Collaborative combine research and land use education in the field. In addition, UMass Extension can draw on the research expertise of other departments and campus centers such as the Department of Natural Resources Conservation, the Center for Public Policy and the Department of Resource Economics. UMass Extension has also built strong collaborative relationships off campus with the professional and municipal planning community, with state planners and legislators, and foundations.

Based on information from our stakeholder input process and an assessment of the University's current research and extension capacity, UMass Extension will be addressing the following priorities in Land Use Management over the next five years:

1) Promote Land Use tools that foster sustainable development

Contributing to the development of more advanced Massachusetts planning philosophies and resultant programs, as well as to improved land use statutes, will be a priority statewide. At the local level, contributing to the improvement of subdivision control regulations, zoning bylaws master plans, and other pertinent regulations, should be important in strategic attempts to rein in haphazard growth. Sometimes this can be achieved by means of clustering towns in a sub-regional approach, possibly in partnership with regional planning agencies and/or private regional organizations. The University and Extension have the expertise and capabilities to bring much needed education, outreach, technical assistance and other forms of direction and help to state government, municipalities, non-profits and educational groups to help address these issues.

2) Promote integration of natural resource protection into land use planning and economic development

While natural resource protection is an intrinsic aspect of sustainability, the land use planning and environmental communities often see themselves as being separate from one another. Open space, habitat and watershed protection and planning, greenways, and agricultural and forestry protection need to be integrated within all planning approaches. This requires working on the state, regional and local level with regulatory and non-regulatory tools. It also assumes collaboration across different program areas within UMass Extension. Through applied research, special projects and outreach, Extension/NREC is in a strong position to fill this void in the education of stakeholders at every level.

3) Promote public participation in land conservation and management

Land conservation is paramount in Massachusetts, as the problems associated with land loss are approaching a point where they may become irreversible. Land conservation can be achieved in many ways within compact development patterns or by removing land from development. UMass Extension programs have developed tools for targeted land conservation that effectively preserve biodiversity and maintain ecosystem integrity. This can be partnered with expertise in legal conservation and management tools available to landowners and municipalities. Educational efforts must focus on the public perception that land conservation deprives landowners and communities of value and income.

2. Scope of the Program

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

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

1. Assumptions made for the Program

Overriding Assumptions: it is assumed that Extension land use-related personnel will:

•Engage in carefully crafted outreach and research that utilizes the knowledge of both stakeholders and secondary sources, to increase understanding of fundamental issues, and broadens the stakeholder list as necessary. •Periodically update the slate and status of key issues by establishing effective, ongoing communications mechanisms. •Formulate and periodically adjust goals and objectives that are attainable and closely correlated with the identified issues and needs. •Emphasize the education and training of stakeholders in all sectors.

Critical Massachusetts Planning Issue Assumptions:

•The present statutes for zoning, planning and subdivision control foster unsustainable development patterns & practices.
•There is a perception in some policy sectors that improved planning authority and more sustainable environmental practices are incompatible with the urgent needs of affordable housing, when, in reality, the two sets of issues share such basic dilemmas as the dominance of large lot/exclusionary zoning. •It is as important to consider & evaluate planning & development issues

on a logical regional basis as it is certain that implementation actions will be executed on a local basis.

2. Ultimate goal(s) of this Program

Enhanced Health And Productivity Of Natural Resources And Ecosystems - The quality of land, water, plant, animal, and biodiversity resources will be protected and enhanced, and healthy self-sustaining ecosystems maintained.

Stronger Local Economies - Natural and human resources will be managed or cultivated in ways that support strong local economies

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
2010	2.4	0.0	0.0	0.0
2011	2.4	0.0	0.0	0.0
2012	2.4	0.0	0.0	0.0
2013	2.4	0.0	0.0	0.0
2014	2.4	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Facilitated Group Meetings and Conferences

Printed Materials

Published Articles (News, Professional and Trade)

Single day workshop, class 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
• Education Class • Workshop • One-on-One Intervention • Group Discussion • Demonstrations	• Web sites • Newsletters

3. Description of targeted audience

Local government officials
State and Federal legislators
State and Federal agencies/commissions
Working landscape stakeholders

Development and design communities
Large landowners
Non-profit conservation, land use planning and community development organizations and interested professional organizations
Educators and outreach professionals and trainers
Consultants and professional practitioners in land use, community planning, natural and cultural resource preservation, community development
Regional organizations
Other stakeholders, private citizens, students, schools

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	1040	11930	0	0
2011	1040	11930	0	0
2012	1040	11930	0	0
2013	1040	11930	0	0
2014	1040	11930	0	0

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

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :** 0 **2013 :**0 **2014 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0

V(H). State Defined Outputs

1. Output Target

- Facilitated Group Meetings and Conferences

2010 :4 **2011 :**4 **2012 :**4 **2013 :**4 **2014 :**4

- Printed Materials

2010 :5 **2011 :**5 **2012 :**5 **2013 :**5 **2014 :**5

- Published Articles (News, Professional and Trade)

2010	2011	2012	2013	2014
4	4	4	4	4

- Single day workshop, class or event

2010	2011	2012	2013	2014
35	35	35	35	35

- Websites or other computer-based delivery

2010	2011	2012	2013	2014
2	2	2	2	2

- Workshop series or educational course

2010	2011	2012	2013	2014
10	10	10	10	10

V(I). State Defined Outcome

O. No	Outcome Name
1	Participants promote, implement or participate in strategic land conservation programs that protect natural resources and ecosystems
2	Participants acquire knowledge and skill to promote, implement or participate in strategic land conservation programs that protect natural resources and ecosystems
3	Participants acquire knowledge and skill to develop legally sound land use decisions
4	Participants acquire knowledge and skill to promote, implement or adopt Land Use plans and programs that accommodate development in a manner that protects natural resources and ecosystems
5	Local land use officials and professional planning practitioners have the knowledge, skills and motivation to promote sustainability and equity through planning and regulation
6	Municipal board members with increased confidence and competence in administering land use regulations.
7	Municipal land use boards are committed to legal and procedural standards and increased transparency.
8	Participants develop the knowledge and skills to adhere to principles of sustainability and smart growth

Outcome #1

1. Outcome Target

Participants promote, implement or participate in strategic land conservation programs that protect natural resources and ecosystems

2. Outcome Type : Change in Action Outcome Measure

2010 : 50	**2011 :** 50	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

Outcome #2

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 100	**2011 :** 100	**2012 :** 100	**2013 :** 100	**2014 :** 100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

Outcome #3

1. Outcome Target

Participants acquire knowledge and skill to develop legally sound land use decisions

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 100	**2011 :** 100	**2012 :** 100	**2013 :** 100	**2014 :** 100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

Outcome #4

1. Outcome Target

Participants acquire knowledge and skill to promote, implement or adopt Land Use plans and programs that accommodate

development in a manner that protects natural resources and ecosystems

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

Outcome #5

1. Outcome Target

Local land use officials and professional planning practitioners have the knowledge, skills and motivation to promote sustainability and equity through planning and regulation

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

Outcome #6

1. Outcome Target

Municipal board members with increased confidence and competence in administering land use regulations.

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
50	50	50	50	50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

Outcome #7

1. Outcome Target

Municipal land use boards are committed to legal and procedural standards and increased transparency.

2. Outcome Type : Change in Action Outcome Measure

2010 :50	**2011 :** 50	**2012 :** 50	**2013 :**50	**2014 :**50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

Outcome #8

1. Outcome Target

Participants develop the knowledge and skills to adhere to principles of sustainability and smart growth

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :100	**2011 :** 100	**2012 :** 100	**2013 :**100	**2014 :**100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 608 - Community Resource Planning and Development

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

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

1. Evaluation Studies Planned

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

Description

A general plan for evaluating the degree of success in addressing this issue could include the following:

•Monitoring new laws and regulations •Evaluating knowledge gains of municipal board members •Assessing the contributions of regional planning agency and land trust websites •Measuring knowledge gains made by large landowners •Recording conservation restrictions •Regional planning agency, land trust and conservation organization websites can be scrutinized for anecdotal data •Stakeholder participation can be used to measure progress •Reviewing of existing state records and websites

2. Data Collection Methods

- Case Study
- Whole population
- Observation
- Mail

Description
{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program #5

1. Name of the Planned Program

Natural Resource-Based Economic Development

2. Brief summary about Planned Program

Massachusetts relies on its forests, soils, waters, and scenic landscapes to provide employment, income, natural resource products, recreational opportunities, tourism and ecosystem services that meet its citizens' needs and drive its local economies. Maintaining a healthy local economy is a major concern for many communities in Massachusetts and the value of their natural resources serves as a major incentive for their conservation. Natural resource-based businesses (agriculture, equine industries, forest based businesses, fishing, shellfish, outdoor recreation and tourism, horticultural green industries, and turf) can have a substantial, positive impact on the health of local economies and are important tools for helping to maintain open space. UMass Extension will support Natural Resource Based Businesses through research, education and informed policy for the benefit of the entire commonwealth.

3. Program existence : Mature (More then 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%			
204	Plant Product Quality and Utility (Preharvest)	10%			
205	Plant Management Systems	10%			
216	Integrated Pest Management Systems	25%			
601	Economics of Agricultural Production and Farm Management	25%			
605	Natural Resource and Environmental Economics	20%			
	Total	100%			

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

1. Situation and priorities

Massachusetts is a diverse and rapidly developing state, rich in natural resources. According to the MA Department of

Agricultural Services, Massachusetts has 6,100 farms with a total of 518,570 acres. Massachusetts Forests provide ecosystem services including climate regulation, freshwater supply, stormwater mitigation, nutrient regulation, biodiversity, soil retention and aesthetics valued at $2.9 billion according to Mass Audubon (2003). Other natural resource based businesses contribute to the economic vitality and the quality and esthetic character of life in Massachusetts. According to UMass Extension, nearly 4,000 golf courses and athletic fields in Massachusetts encompass nearly 60,000 acres of land while Ornamental Horticultural has 4,250 businesses encompassing about 79,000 acres.

Everyday, Massachusetts loses over 40 acres of open space (MA Audubon, 2003). Farmland in Massachusetts, for example, has decreased 10% from 1997 through 2002. In addition, Massachusetts is home to some of the most archaic land use laws in the country which can encourage suburban sprawl that has a negative impact on natural resource based businesses. There are 46,554 non-industrial, private landowners in MA with land of 10 acres or more who own 2.2 million acres, accounting for 86% of the state's forests (UMass 2006). The average age of these forest land owners is approximately 60 years (Kittredge). A significant portion of this land will be transferring ownership or generations over the coming years. Finally, a range of competing interests threaten to limit access to our rich aquaculture resources.

Natural Resource Based Economic Development provides an opportunity to preserve community character, while providing economic development and other critical public benefits to current and future generations. The University of Massachusetts serves a primary role in delivering education to target audiences, informing policy decisions, and generating applied research critical to the health of natural resource based businesses in Massachusetts and their associated public benefits.

UMass Extension has identified the following priorities for addressing Natural Resource-based Economic Development (NRBED) in Massachusetts:

1) Land and water (marine and inland) resources are permanently protected to ensure the future of NRBED and the many public benefits they provide.

The loss of working farms and forests is a high priority threat to NRBED and the public benefits that these lands provide. It is critical that prime land and water resources in Massachusetts are preserved to sustain diverse types of economically viable Natural Resource Based Businesses now and in the future. Without an appropriate amount and type of land and water resources, the future of these businesses is highly uncertain. Natural Resource-based Businesses are also diverse producers of public benefit, i.e. products, open space, clean water and scenic backdrops. NRBED can help conserve open spaces by providing income to those landowners who are responsible for the carrying costs of the property.

2) Natural Resource-Based Businesses are economically viable. They will need to develop and maintain operations resilient to changing economic, ecologic and social conditions of Massachusetts.

3) Natural Resource-Based Businesses are ecologically sustainable. Massachusetts is the third most densely populated state in the nation. The citizens of the Commonwealth depend on the full range of public benefits that our natural resources provide, including clean water, clean air, and carbon sequestration. Reducing environmental impacts will also help ensure that future generations will have healthy, productive land and water to work.

4) Increased economic growth of Natural Resource-Based Businesses in areas where they are best suited based on environmental, economic, social and political factors. NRBED is most critical in areas of the state in which economic development is needed and natural resources lend themselves to sustaining, establishing or expanding these businesses. Even though Natural Resource Based Businesses may occur to different degrees in all regions of the state, the benefits of these businesses are felt throughout the Commonwealth by providing products of necessity, ecosystem services, safe and healthy food, and scenic landscapes.

5) Helping Natural Resource Based-Businesses in Massachusetts to meet a greater amount of the Commonwealth's product

needs. According to the MA Department of Agriculture, the Commonwealth currently produces 32% of its own food needs (1% in poultry, 1.3% in meat, 11.2% in eggs, 14.6% in dairy, 33.1% in vegetables, 64.9% in fruits, 196.3% in seafood and aquaculture). Despite being the 8th most forested state in the country (proportionally), Massachusetts only meets 2% of its wood needs (Harvard Forest 2002). Increasing in-state production will help maximize benefit to local economies by encouraging value-added production and vertical integration of businesses. In state production can also bring fresher, healthier products to consumers.

2. Scope of the Program

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

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

1. Assumptions made for the Program

•Staffing Levels will remain relatively stable •UMass Extension will work 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 •Economically viable natural resource-based businesses help maintain open space and public benefit in the face of increasing real estate values

2. Ultimate goal(s) of this Program

Stronger Local Economies - Natural and human resources will be managed or cultivated in ways that support strong local economies

Enhanced Health And Productivity Of Natural Resources And Ecosystems - 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
2010	8.5	0.0	0.0	0.0
2011	8.5	0.0	0.0	0.0
2012	8.5	0.0	0.0	0.0
2013	8.5	0.0	0.0	0.0
2014	8.5	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Applied Research Programs

Demonstrations

Displays and Exhibits

Facilitated Group Meetings and Conferences

Individual Consultations and Site Visits

Printed Materials

Published Articles (News, Professional and Trade)

Single day workshop, class 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**
• One-on-One Intervention • Education Class • Group Discussion • Demonstrations • Workshop	• Web sites • Newsletters

3. Description of targeted audience

•Farmers •Landowners •Resource Managers •Horticultural Green Industry businesses and personnel •Professional Organizations and Industry Groups •Natural Resource Agencies •Municipalities •Land Trusts and Conservation Groups

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	16568	1160856	0	0
2011	16568	1160856	0	0
2012	16568	1160856	0	0
2013	16568	1160856	0	0
2014	16568	1160856	0	0

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

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :** 0 **2013 :**0 **2014 :**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	1	0
2011	0	1	0
2012	0	1	0
2013	0	1	0
2014	0	1	0

V(H). State Defined Outputs

1. Output Target

- Applied Research Programs

  2010 :15 **2011** :15 **2012** :15 **2013** :15 **2014** :15

- Demonstrations

  2010 :5 **2011** :5 **2012** :5 **2013** :5 **2014** :5

- Displays and Exhibits

  2010 :1 **2011** :1 **2012** :1 **2013** :1 **2014** :1

- Facilitated Group Meetings and Conferences

  2010 :93 **2011** :93 **2012** :93 **2013** :93 **2014** :93

- Individual Consultations and Site Visits

  2010 :430 **2011** :430 **2012** :430 **2013** :430 **2014** :430

- Printed Materials

  2010 :29 **2011** :29 **2012** :29 **2013** :29 **2014** :29

- Published Articles (News, Professional and Trade)

  2010 :16 **2011** :16 **2012** :16 **2013** :16 **2014** :16

- Single day workshop, class or event

  2010 :3 **2011** :3 **2012** :3 **2013** :3 **2014** :3

- Survey or needs assessment

  2010 :2 **2011** :2 **2012** :2 **2013** :2 **2014** :2

- Websites or other computer-based delivery

  2010 :110 **2011** :110 **2012** :110 **2013** :110 **2014** :110

- Workshop series or educational course

  2010 :48 **2011** :48 **2012** :48 **2013** :48 **2014** :48

V(I). State Defined Outcome

O. No	Outcome Name
1	Participants acquire knowledge and skill in sustainable resource management practices for operating Natural Resources-based businesses
2	Participants acquire knowledge and skill for practices that increase the economic viability of natural resource-based businesses
3	Participants adopt practices that enhance the environmental sustainability of Natural Resources-based businesses
4	Participants acquire knowledge and skills to adopt practices that enhance the environmental sustainability of Natural Resources-based businesses
5	Participants acquire knowledge and skill in sustainable practices for operating agricultural businesses
6	Participants adopt practices that ensure economic viability of agricultural-based businesses.
7	Participants adopt practices that increase the economic viability of natural resource-based businesses

Outcome #1

1. Outcome Target

Participants acquire knowledge and skill in sustainable resource management practices for operating Natural Resources-based businesses

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 605 - Natural Resource and Environmental Economics

Outcome #2

1. Outcome Target

Participants acquire knowledge and skill for practices that increase the economic viability of natural resource-based businesses

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 601 - Economics of Agricultural Production and Farm Management
- 605 - Natural Resource and Environmental Economics

Outcome #3

1. Outcome Target

Participants adopt practices that enhance the environmental sustainability of Natural Resources-based businesses

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
50	50	50	50	50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 605 - Natural Resource and Environmental Economics

Outcome #4

1. Outcome Target

Participants acquire knowledge and skills to adopt practices that enhance the environmental sustainability of Natural Resources-based businesses

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 100	**2011 :** 100	**2012 :** 100	**2013 :** 100	**2014 :** 100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 605 - Natural Resource and Environmental Economics

Outcome #5

1. Outcome Target

Participants acquire knowledge and skill in sustainable practices for operating agricultural businesses

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 100	**2011 :** 100	**2012 :** 100	**2013 :** 100	**2014 :** 100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation
- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 605 - Natural Resource and Environmental Economics

Outcome #6

1. Outcome Target

Participants adopt practices that ensure economic viability of agricultural-based businesses.

2. Outcome Type : Change in Action Outcome Measure

2010 : 50	**2011 :** 50	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation
- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems

- 601 - Economics of Agricultural Production and Farm Management
- 605 - Natural Resource and Environmental Economics

Outcome #7

1. Outcome Target

Participants adopt practices that increase the economic viability of natural resource-based businesses

2. Outcome Type : Change in Action Outcome Measure

2010 :50 **2011 :** 50 **2012 :** 50 **2013 :**50 **2014 :**50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 601 - Economics of Agricultural Production and Farm Management
- 605 - Natural Resource and Environmental Economics

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

•The rate of real estate values are increasing significantly. This makes development a very appealing option for those who own land and that may be involved in a natural resource-business or support one through their resources. Assessments based on development potential instead of current use add to the tremendous pressure to develop. The countries most archaic land use laws only aid in the change of land use. •The cost of doing business in Massachusetts is an ever increasing factor in the success of Natural Resource Based Businesses. An understanding of labor and other costs associated with doing business in MA is important to the implementation of an effective NRBED program. Sound business practices, public policy and other external factors need to be addressed to assure success in the implementation of the NRBED Issue based programs •Massachusetts has distinct regional differences in population, wealth, and political influence, giving those areas with high populations and wealth greater political influence. These areas may not overlap with regions in which NRBED is targeted. This means political support for these activities could be difficult. •The price of energy (oil, natural gas, electricity, etc…) will play a significant role in NRBED. Higher energy prices will mean higher production costs, but may also encourage more use of local resources to avoid high shipping costs. •A general lack of understanding on the part of the commonwealth's citizens about what is involved in natural resource based economic development and its benefits to the Commonwealth can make it difficult to gain political support and can cause local conflict as there is an increasing rural-sub-urban interface.

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

1. Evaluation Studies Planned

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

Description

Evaluation of NRBED programs can happen at several levels, including: business, community, and statewide levels. At the

university level, it is possible to evaluate the number of applied research projects and the level of student involvement.

Evaluation will be done using several methods, including: program evaluations, follow-up surveys of program participants, research to establish benchmarks and evaluate changes in knowledge, skills, actions taken or environmental conditions due to programming efforts, and participatory research.

2. Data Collection Methods

- On-Site
- Mail
- Whole population

Description
{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program #6

1. Name of the Planned Program

Water Resource Protection

2. Brief summary about Planned Program

Adequate supplies of clean water are critical to public health and quality of life, food and fiber production, maintenance of healthy terrestrial, wetland and aquatic ecosystems, and economic sustainability of Massachusetts communities. Water resources are affected by a wide range of activities including development, storm water management, agricultural and natural resources based business activities, water withdrawals, and industrial activities.

The impacts of various land uses have degraded water quality in lakes, ponds, rivers, streams, estuaries, bays, salt ponds and groundwater, and threaten local and regional economies, including those based on recreational and commercial fisheries. For most water bodies, water quality data are generally lacking or are insufficient for assessing threats to human health and aquatic ecosystems.

Increased water consumption, unequal distribution of water supplies, wastewater treatment methods that do not return treated water to source watersheds, and cyclical drought have impacted the quantity of available surface and ground water supplies, forcing some communities to institute water-use regulations. Water withdrawals and other hydrological modifications are threatening the ecological integrity of wetland and aquatic ecosystems. There is a need for greater understanding of the potential threats to the water supply, and the geological and hydrological factors that impact water resources. There is also a need for land use policies that recognize both the vulnerability of those supplies and our reliance on them. Finally, there is a need for the development and implementation of Best Management Practices that will protect water resources.

3. Program existence : Mature (More then 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	20%			
112	Watershed Protection and Management	30%			
133	Pollution Prevention and Mitigation	20%			
135	Aquatic and Terrestrial Wildlife	20%			
608	Community Resource Planning and Development	10%			
	Total	100%			

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

1. Situation and priorities

Water is a primordial resource that must be protected to provide clean drinking water, support viable terrestrial, wetland and aquatic ecosystems, serve as an essential resource for businesses, and provide recreational opportunities. Historically in our region, water supply has been adequate, and point source pollution is now mostly under control. Increases in human population and changes in lifestyles, however, are creating new problems around water quantity and quality. Water withdrawals result in dry river beds and water consumption advisories, and polluted storm water has become a major concern for surface water bodies and wetlands. New pollutants are also discovered that need to be mitigated.

It is ultimately the state's responsibility to ensure safe and adequate water supply. In turn, the state relies on University-based research to investigate new threats, new treatment technologies, restoration principles, best management practices and effective policy steps to guide decision-makers. UMass Extension can bridge the gap between academic research and practices to apply that research. Municipal and regional government needs direction and practical examples to solve local water resource problems. Natural resources-based businesses need guidance to conduct business in an economically viable, environmentally conscious way. Other entities (agencies, non-profit organizations) need information to help educate the public on what steps they can take to protect the water resources they use.

Our experience at UMass shows that there is much research capacity in our various colleges and that Extension can partner with existing faculty to devise solutions to water resource problems. One effective approach is for faculty and Extension staff to develop programs that are targeted to, shared, or developed in collaboration with other groups, such as municipal departments or state/federal agencies, that deal directly with the public

UMass Extension has identified the following priorities for addressing Water Resource Protection in Massachusetts:

1) Minimizing Land Use Impacts on Water Resources

Of great concern is how land use affects the quantity and quality of water resources. New development can be planned and conducted to minimize storm runoff, water withdrawals, and serious damage to fish and wildlife habitat

2) Water Resource Protection in Land Management

Public and private land managers and businesses dependent on natural resources (such as agriculture, the horticultural green industry, forestry and others) have a direct impact on water resources. They must use practices that prevent and reduce water pollution, and protect and restore water resources.

3) Water Resource Protection through Land Conservation

To protect water resources in the long term, land acquisition and other conservation programs must include water resource protection as an important element.

4) Adequate Supplies of High-quality Drinking Water

Water suppliers must ensure adequate supplies of high quality drinking water (through land acquisition, proper land management, distribution oversight, etc.)

5) Minimizing Impacts of Large Water Users on Aquatic Ecosystems

Water suppliers, dam operators, and industrial water users adopt practices that protect aquatic and wetland ecosystems. This includes groundwater and surface water withdrawals, river water level regulation, changes in water temperature due to water impoundment and discharges of cooling water, and the disruption of fish and other aquatic organism passage.

2. Scope of the Program

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

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

1. Assumptions made for the Program

To deliver outreach activities for this issue, we will rely on strong relationships that currently exist with many targeted audiences such as agricultural, landscape and other natural resource based businesses, state and municipal entities and others. Extension has a valued reputation with these groups. Relationships also exist between Extension field staff and faculty which will be valuable when working on this issue. Other relationships can also be formed with additional collaborators to address this issue.

Through the faculty and staff in the natural resource program and agriculture and landscape program we have expertise to provide accurate information on the nature of this issue. In addition we have well established networks of Extension and other university resources in agriculture and the green industry in New England and across the country. Currently many Extension staff work to some degree in the area of water protection with their existing clientele groups, regulatory agencies, municipal entities and citizens. These staff members are willing to continue to develop necessary skills and abilities to work with this issue. Continued and enhanced support of the programs, faculty and staff currently addressing these issues is critical.

UMass Extension will continue to work with the Water Resources Research Center (WRRC) to facilitate collaboration and multidisciplinary approaches to research and outreach education that addresses water resource protection.

Faculty not already working with Extension are willing to engage in applied research that addresses water resource issues in Massachusetts and work collaboratively with Extension to create integrated research and extension programs.

Additional staff capacity with particular expertise in water resource protection and the will be needed to carry out many of the listed activities for this issue. Programming to effectively address the issue of water resource protection will also depend on better communication and coordination of efforts within and between Extension programs, as well as stronger relationships with faculty and integration with research.

This issue has potential for grant funded activities. There is an opportunity for funding to be obtained through Extension

research and teaching grants that engage faculty and for Extension to facilitate grant funding. Collaborative efforts will result in better opportunities for grants to be funded. Strong interest among our stakeholders and partners in workforce training and preparation is likely to create opportunities for revenue based programming related to this issue.

As the state continues to move toward the direction of increasing regulations to protect water resources, people will be motivated to change practices that concern this issue. For example, if water use is restricted, all water users will be affected which creates "teachable" windows of opportunity. If there is a drought, again all water users will be affected and be motivated to learn and change practices. Extension programs provide unbiased, research based information that will serve as catalyst for change in practices affecting water use.

2. Ultimate goal(s) of this Program

Enhanced Health And Productivity Of Natural Resources And Ecosystems - The quality of land, water, plant, animal, and biodiversity resources will be protected and enhanced, and healthy self-sustaining ecosystems maintained.

Improved Human Health And Well-Being - Diverse youth, families, and communities will achieve greater physical and social 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
2010	4.6	0.0	0.0	0.0
2011	4.6	0.0	0.0	0.0
2012	4.6	0.0	0.0	0.0
2013	4.6	0.0	0.0	0.0
2014	4.6	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Applied Research Programs

Demonstrations

Facilitated Group Meetings and Conferences

Individual Consultations and Site Visits

Peer Reviewed Presentations

Peer Reviewed Publications

Printed Materials

Single day workshop, class or event

Survey or needs assessment

Websites or other computer-based delivery

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

Extension	
Direct Methods	**Indirect Methods**
• Education Class • Workshop • One-on-One Intervention • Group Discussion • Demonstrations	• Newsletters • Web sites

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	1335	5906	0	400
2011	1335	5906	0	400
2012	1335	5906	0	400
2013	1335	5906	0	400
2014	1335	5906	0	400

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

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :**0 **2013 :**0 **2014 :**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	3	3
2011	0	3	3
2012	0	3	3
2013	0	3	3
2014	0	3	3

V(H). State Defined Outputs

1. Output Target

- Applied Research Programs

2010	2011	2012	2013	2014
11	11	11	11	11

- Demonstrations

2010	2011	2012	2013	2014
90	90	90	90	90

- Facilitated Group Meetings and Conferences

2010	2011	2012	2013	2014
5	5	5	5	5

- Individual Consultations and Site Visits

2010	2011	2012	2013	2014
45	45	45	45	45

- Peer Reviewed Presentations

2010	2011	2012	2013	2014
2	2	2	2	2

- Peer Reviewed Publications

2010	2011	2012	2013	2014
3	3	3	3	3

- Printed Materials

2010	2011	2012	2013	2014
40	40	40	40	40

- Single day workshop, class or event

2010	2011	2012	2013	2014
14	14	14	14	14

- Survey or needs assessment

2010	2011	2012	2013	2014
1	1	1	1	1

- Websites or other computer-based delivery

2010	2011	2012	2013	2014
2	2	2	2	2

V(I). State Defined Outcome

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

Outcome #1

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife

Outcome #2

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation

Outcome #3

1. Outcome Target

Participants implement best management practices to protect and restore water resources

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
50	50	50	50	50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation

Outcome #4

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #5

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife

Outcome #6

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation
- 608 - Community Resource Planning and Development

Outcome #7

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	2011 :	2012 :	2013 :	2014 :
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 608 - Community Resource Planning and Development

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

{NO DATA ENTERED}

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

1. Evaluation Studies Planned

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

Description

Evaluation of NRBED programs can happen at several levels, including: business, community, and statewide levels. At the university level, it is possible to evaluate the number of applied research projects and the level of student involvement.

Evaluation will be done using several methods, including: program evaluations, follow-up surveys of program participants, research to establish benchmarks and evaluate changes in knowledge, skills, actions taken or environmental conditions due to programming efforts, and participatory research.

2. Data Collection Methods

- On-Site
- Mail
- Whole population

Description

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program #7

1. Name of the Planned Program

Youth Development and Engagement

2. Brief summary about Planned Program

Americans are concerned about preparing youth for the challenges of the 21st century. While this concern has recently focused on standardized tests, academic achievement is only one component of preparation for citizenship and workforce participation. Young people also need to develop knowledge, skills, and attitudes for good health, environmental stewardship, creative expression, and community service.

Young people are best able to achieve these outcomes in environments that offer safety, caring adults, and opportunities for authentic experience. Both in-school and out-of-school time programs must do more to provide optimum conditions for youth development. Educators and youth workers need ongoing professional development and curriculum resources for experiential learning and youth development best practices. Interested community adults need well-designed opportunities to share their expertise and passions with youth. Older youth are also a largely untapped resource for their communities and deserve opportunities to contribute in ways that will enable them to grow up to become better citizens, workers, neighbors, and parents.

3. Program existence : Mature (More then 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	10%			
806	Youth Development	90%			
	Total	100%			

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

1. Situation and priorities

Positive youth development experiences are connected to decreases in negative behaviors such as alcohol use, tobacco use and violence, and increases in positive attitudes and behaviors. According to a report commissioned by the Nellie Mae Education Foundation (2004), youth who participated in programming during the afterschool hours exhibited a greater interest in learning and achieved higher academic performance. The report also stated that programming did not have to be school-based. It could be of any format, such as 4-H clubs, community groups, Boys & Girls Clubs, etc., as long as programs were well-run, of high quality and actively involved youth participants. Youth development programs can approach enhancing youth experiences in a variety of ways including mentoring, academic achievement-oriented programs and civic engagement.

For any approach to be effective, it must be grounded in positive youth development principles. These principles suggest that all youth must have a combination of the following: access to resources that promote optimal physical and mental health; nurturing

relationships with adults and positive relationships with peers; safe places for living, learning and working; educational and economic opportunity; and structured activities and the opportunity for community service and civic participation (MA Department of Public Health, 2003). According to a National report entitled Eight Essential Elements for 4-H, (1999) effective youth programs must also ensure inclusive environments for all youth, as well as opportunities for mastery and active participation in determining one's future.

UMass Extension includes both university-based and community-based program elements as a means to strengthen the University's outreach to youth with the following program emphases:

Life Skills – From communication skills, to recordkeeping, from teamwork to valuing diversity, Massachusetts youth need a wide variety of life skills to grow into competent, caring, capable, engaged, and well-informed citizens prepared to work and live in the 21st century. Through community service, a Massachusetts 4-H program emphasis area youth will become better engaged citizens. This civic engagement offers youth the opportunity to view life in a different way and better understand the skill set that is needed to enable them to become our future leaders. UMass Extension has been working in the area of youth development for over 100 years. Staff have demonstrated that they have the knowledge and skills to work effectively with adults who work or volunteer with youth. They understand youth development best practices. They are members of various collaborations, many in urban communities. They are beginning to build a presence on the UMass campus. With the current level of staffing, however, and the realization that additional staffing may not be forthcoming, training other adults who work or volunteer in the field is a key strategy.

Science, Technology, Engineering, and Math – An area of great need that has been identified by the National Association of State Universities and Land-Grant Colleges, National 4-H Council, and UMass Extension 4-H is in the areas of Science, Technology, Engineering, and Math education (STEM) and its impact on preparing a globally competitive workforce. Through its extensive volunteer and Extension staff network throughout the state, the Massachusetts 4-H Program is uniquely positioned in Massachusetts to assist in delivering quality educational STEM programs in out-of-school time settings. National 4-H's Curriculum System provide a rich and diverse set of juried research, curricula and evaluative methodologies developed by faculty throughout the national CSREES system. Hands-on, real world experiences delivered in both informal and formal settings are appealing to many parents and youth and have a proven track record in promoting self-efficacy, community awareness and responsibility in youth participating in its programs.

- Animal Science - Animal science activities account for approximately 75% of the entire 4-H program in Massachusetts, engaging over 2,250 youth annually. 4-H youth who participate in animal projects are often asked to represent the state at national conferences, and many win awards. Building upon the strength of our existing programs, the Massachusetts 4-H Animal Science Program is also expanding into urban areas in an effort to increase the involvement of urban youth in the study of animal science.

- Environmental Science and Stewardship - The concept of scientific stewardship of natural resources is at the heart of the land grant mission, and youth programs have always played a part in this outreach. Currently, our major environmental science and stewardship efforts are the Massachusetts Envirothon/CNRE collaboration and the Beachcomber trailer. Results from our recent stakeholder survey underscore the public's expectation of a UMass and Extension presence in environmental education. These environmental education programs for youth draw on a strong teaching base at UMass Amherst, particularly in the College of Natural Resources and Environment and the School of Education. Demonstrated faculty/staff interest includes urban forestry and water resources, and community-based and project-based science education. Staff engaged in environmental youth development efforts have also cultivated strong collaborations outside the University and with environmental agencies and NGOs. Current environmental stewardship programs are leaders in the area of youth development outcomes measurement for UMass Extension. These programs are also experienced and well positioned in terms of outreach to diverse, urban audiences. Research for Extension's 07-11 plan also uncovered potential to link with nutrition, agriculture, and youth development goals through gardening programs.

Healthy Living - The rates of childhood overweight and obesity have tripled in the past two decades. Childhood overweight is

associated with social and psychological problems as well as physical problems. Overweight children are more likely to become overweight and obese adults. Overweight among adults, as well as poor diet and physical inactivity, is strongly associated with risks of heart disease, cancer, stroke, and diabetes. Lifestyle habits often begin in childhood, so teaching healthy eating and physical activity habits to youth can influence their behaviors over their lifetimes.

Cancer, diabetes, heart disease and stroke, all of which are associated with poor diet and physical inactivity, collectively account for nearly two out of every three deaths in the United States. A recent study reported that diet and physical activity levels are contributing nearly as many deaths as smoking. Changes in behavior necessary to mitigate this devastating toll require a greater understanding of the roots of that behavior, as well as education in skills necessary to choose, prepare, and consume healthful foods in healthful amounts.

2. Scope of the Program

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

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

1. Assumptions made for the Program

•University Outreach and Extension are willing to make strategic investments based on critical issues •Staffing levels are stable •There is support for staff development •University Outreach 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 Outreach and Extension support collaborations with other Extension programs on youth development •Extension continues it 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

Improved Human Health and Well-Being - Diverse youth, families, and communities will achieve greater physical and social 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
2010	14.0	0.0	0.0	0.0
2011	14.0	0.0	0.0	0.0
2012	14.0	0.0	0.0	0.0
2013	14.0	0.0	0.0	0.0
2014	14.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

4-H Clubs

Curricula

Facilitated Group Meetings and Conferences

Printed Materials

Single day workshop, class 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**
• One-on-One Intervention • Workshop • Demonstrations • Group Discussion • Education Class	• Newsletters • Web sites

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)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	3500	10000	20000	0
2011	3500	10000	20000	0
2012	3500	10000	20000	0
2013	3500	10000	20000	0
2014	3500	10000	20000	0

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

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :** 0 **2013 :**0 **2014 :**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0

V(H). State Defined Outputs

1. Output Target

- 4-H Clubs

  2010 :350 **2011** :350 **2012** :350 **2013** :350 **2014** :350

- Curricula

  2010 :3 **2011** :3 **2012** :3 **2013** :3 **2014** :3

- Facilitated Group Meetings and Conferences

  2010 :11 **2011** :11 **2012** :11 **2013** :11 **2014** :11

- Printed Materials

  2010 :16 **2011** :16 **2012** :16 **2013** :16 **2014** :16

- Single day workshop, class or event

  2010 :76 **2011** :76 **2012** :76 **2013** :76 **2014** :76

- Websites or other computer-based delivery

  2010 :1 **2011** :1 **2012** :1 **2013** :1 **2014** :1

- Workshop series or educational course

  2010 :50 **2011** :50 **2012** :50 **2013** :50 **2014** :50

V(I). State Defined Outcome

O. No	Outcome Name
1	Youth adopt behaviors that will help them succeed academically and in the workplace
2	Youth employ technology more effectively
3	Youth demonstrate greater communication skills
4	Adults acquire knowledge of the effects of deployment on military youth
5	Military youth feel supported
6	Youth are effective team members, communicators, and leaders
7	Youth engage in community service
8	Youth engage in community service learning
9	Youth acquire knowledge and skill to practice competent, applied science

Outcome #1

1. Outcome Target

Youth adopt behaviors that will help them succeed academically and in the workplace

2. Outcome Type : Change in Action Outcome Measure

2010 : 50	**2011 :** 50	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #2

1. Outcome Target

Youth employ technology more effectively

2. Outcome Type : Change in Action Outcome Measure

2010 : 50	**2011 :** 50	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #3

1. Outcome Target

Youth demonstrate greater communication skills

2. Outcome Type : Change in Action Outcome Measure

2010 : 50	**2011 :** 50	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #4

1. Outcome Target

Adults acquire knowledge of the effects of deployment on military youth

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 100	**2011 :** 100	**2012 :** 100	**2013 :** 100	**2014 :** 100

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #5

1. Outcome Target

Military youth feel supported

2. Outcome Type : Change in Action Outcome Measure

2010 :50	**2011** : 50	**2012** : 50	**2013** :50	**2014** :50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #6

1. Outcome Target

Youth are effective team members, communicators, and leaders

2. Outcome Type : Change in Action Outcome Measure

2010 :50	**2011** : 50	**2012** : 50	**2013** :50	**2014** :50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #7

1. Outcome Target

Youth engage in community service

2. Outcome Type : Change in Action Outcome Measure

2010 :50	**2011** : 50	**2012** : 50	**2013** :50	**2014** :50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #8

1. Outcome Target

Youth engage in community service learning

2. Outcome Type : Change in Action Outcome Measure

2010 :50	**2011** : 50	**2012** : 50	**2013** :50	**2014** :50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #9

1. Outcome Target

Youth acquire knowledge and skill to practice competent, applied science

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :100 **2011 :** 100 **2012 :** 100 **2013 :**100 **2014 :**100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

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

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

1. Evaluation Studies Planned

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

Description

•Focus groups •Pre/post surveys •Self-reports •4-H Records •School records •Anecdotal responses

2. Data Collection Methods

- Whole population
- Sampling
- On-Site

Description

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program #8

1. Name of the Planned Program

Food Production

2. Brief summary about Planned Program

The capacity to produce food locally is an important component of our quality of life and food security; it fosters sustainable, land-based economic development and reduces transportation-related energy consumption. Maintaining food production capacity includes viable and sustainable agriculture, commercial fishing, shellfish harvesting, maple sugaring, as well as the maintenance of agricultural land whether or not it is currently being used to produce food.

3. Program existence : Mature (More then 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
204	Plant Product Quality and Utility (Preharvest)	15%			
205	Plant Management Systems	15%			
216	Integrated Pest Management Systems	20%			
601	Economics of Agricultural Production and Farm Management	20%			
604	Marketing and Distribution Practices	15%			
723	Hazards to Human Health and Safety	15%			
	Total	100%			

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

1. Situation and priorities

Since 1997, the overall number, acreage and cash receipts of Massachusetts farms have declined (by 17%, 10% and 21% respectively). Of the remaining farms (more than 6,000), 80% are still family owned and most of these fit the definition of ‘small farms’ as expressed by the US Department Agriculture. Massachusetts is the third most densely populated state and loses about 40 acres per day to development. Given this pressure on farmland, it is not surprising that Massachusetts ranks forth in the United States for farmland value at $9, 234 per acre and also for net income per acre at $327.

Farmers in Massachusetts invest nearly $212 million statewide on farm inputs such as feed, seed, livestock, fertilizer, electricity and fuel. Agriculture generates $21 million in income tax revenue annually in Massachusetts. Massachusetts farms employ nearly 5,000 year-round and more than 9,000 seasonal workers and paid $81.6 million in wages in 1997.

The average farm in Massachusetts is only 85 acres. Farmers therefore need to manage for high returns on their investment per acre. Aside from traditional agricultural products, Massachusetts farmers have expanded their offerings to include farmstead-made cheeses, maple syrup, wine, cranberries and exotic livestock, which together present tremendous, statewide financial growth potential.

Aquaculture in Massachusetts is comprised predominantly of the cultivation of shellfish. Overall, nine species of shellfish and 15 species of finfish are cultivated in the state. According to the 2002 USDA Census of Agriculture, aquaculture ranked tenth within Massachusetts in terms of revenue with nearly $9.5 million in sales of products cultivated at 140 farms.

Farms and other food production operations can add significantly to the quality of life in Massachusetts and New England. The most obvious contribution is to open space through their scenic and historic vistas, but it is also well known that regular consumption of fruits, vegetables, meat, and dairy products leads to better human health.

Within this context, the UMass Extension Program will focus its research and outreach capacities in the area of Food Production on the following priorities over the next five years:

1) Maintain and Improve Environmental Quality through Integrated Crop and Animal Management

For farmers and other food producers to stay in business, it is necessary that they maintain long-term environmental sustainability by striving to expand species diversity and better understand farm ecology. UMass Extension can provide access to current research information on new and alternative species and varieties, advanced horticultural management techniques, pest-ecology, and pest-management procedures. Important studies of pest ecology and control techniques provide approaches to pest management that optimize pest control, reduce chemical use, and increase crop and animal quality.

2) Provide Resources to Maintain or Improve the Economic Sustainability of Agriculture

We are facing intense global competition for the products that are grown or produced in Massachusetts. Improved production efficiency, new marketing opportunities, and constant evaluation of profitability are needed to ensure survival. Farmers and other food producers must have ready access to current research information on marketing, post-harvest efficiencies, packaging and business management strategies. In addition, research programs in the physiological management of crops and animals can give food producers the tools that are necessary to increase production efficiency while enhancing crop and animal quality.

3) Increase Purchases and Consumption of Locally Grown Foods by Individuals, Communities, and Institutions

It is clear that a diversity of fresh, high-quality foods (fruits, vegetables, meat, dairy and poultry products, shellfish, syrup) that are available to the consumer results in higher levels of consumption. Such products also provide a buffer from competing globally imported products. New varieties, new crops, and improved production, handling, and local marketing practices will give food producers a means of enhancing crop and animal quality and therefore consumption. For example, commercial wine and table grape production offers Massachusetts farmers a high-value crop with unique, local appeal. Existing vineyards primarily sit along New England’s southeastern coast, but this activity may be expandable to inland Massachusetts. Enhanced understanding of grape production in a cooler climate, along with its relationship to wine quality, will give critical information to farmers exploring the possibility of expanding into this profitable aspect of agriculture. UMass Extension will collaborate with a variety of stakeholders to expand farm-to-institutions (e.g., food banks, colleges, schools) opportunities for use of locally grown food products.

2. Scope of the Program

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

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

1. Assumptions made for the Program

This plan is based on a general set of facts that will help to ensure success.

1. Extension staff has the knowledge, skills, and abilities to address the majority of these issues. Extension staff and College faculty continue to develop new information that will further enhance and refine this knowledge. Farmers and other stakeholders understand that Extension provides accurate and timely information necessary to improve the pest management, nutrient management, marketing, and overall farm management abilities of farmers

2. Farmers and other stakeholders are or will be motivated to adopt changes that will continue to insure the success of Massachusetts agriculture.

3. Positions are needed to fully implement the plan

A. Faculty/Staff with farm Management and Marketing expertise are needed to implement this plan. In order for farmers to take advantage of new and expanding markets and to remain competitive, financial planning and marketing initiatives need to be implemented and coordinated to ensure success. This person will work closely with other government agencies (e.g. Mass. DAR) and non-profits (e.g. CISA, Red Tomato) to coordinate activities. The focus of this position would be to implement farm management planning and marketing activities that compliment current research and extension activities by UMass Extension. This position would also support the farm to institution/school/college marketing development.

B. Faculty/Staff to work with new farmers are needed to implement this plan. The long-term viability of agriculture in Massachusetts depends on new generations of people who want to farm and have access to the resources necessary to be successful. There are clearly people in the state and region who are interested in farming commercially and there are many resources that UMass Extension provides that can be utilized by these new farmers. This position will work directly with people starting out in farming and coordinate the extension of existing resources to these individuals. This person will coordinate with other entities (e.g. Mass DAR, FSA, NRSC, New England Small Farm Institute, and the New Entry Sustainable Farming Project) to assist people with all aspects of commercial farming. This person will also contribute to the sustainable agriculture undergraduate curriculum at UMass to target educational programs to new and prospective farmers.

2. Ultimate goal(s) of this Program

•Stronger Agriculture and Food Systems - Develop and expand systems for environmentally sound and economically viable food production, distribution, access and utilization. •Stronger Local Economies - Natural and human resources will be managed or cultivated in ways that support strong local economies.

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
2010	10.7	0.0	0.0	0.0
2011	10.7	0.0	0.0	0.0
2012	10.7	0.0	0.0	0.0
2013	10.7	0.0	0.0	0.0
2014	10.7	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Applied Research Programs

Demonstrations

Diagnostic Services

Facilitated Group Meetings and Conferences

Individual Consultations and Site Visits

Peer Reviewed Presentations

Peer Reviewed Publications

Printed Materials

Published Articles (News, Professional and Trade)

Single day workshop, class 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**
• Group Discussion • One-on-One Intervention • Workshop • Education Class • Demonstrations	• Web sites • Newsletters

3. Description of targeted audience

The primary audience for this plan is food producers and food production organizations. This not only includes those that are well-established, but also those that are new, immigrant, and part-time. Both conventional and organic farmers are included. Others audiences include government agencies (including schools and institutions), non-profits, community based organizations such as food pantries and food banks that provide food to low-income families, and the public (including low income and urban).

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	4872	35695	0	0
2011	4872	35695	0	0
2012	4872	35695	0	0
2013	4872	35695	0	0
2014	4872	35695	0	0

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

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :** 0 **2013 :** 0 **2014 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	3	3
2011	0	3	3
2012	0	3	3
2013	0	3	3
2014	0	3	3

V(H). State Defined Outputs

1. Output Target

- Applied Research Programs

  2010 :33 **2011** 33 **2012 :**33 **2013 :**33 **2014 :**33

- Demonstrations

  2010 :44 **2011** 44 **2012 :**44 **2013 :**44 **2014 :**44

- Diagnostic Services

  2010 :1 **2011** 1 **2012 :**1 **2013 :**1 **2014 :**1

- Facilitated Group Meetings and Conferences

  2010 :4 **2011** 4 **2012 :**4 **2013 :**4 **2014 :**4

- Individual Consultations and Site Visits

2010 :100	**2011** :100	**2012** :100	**2013** :100	**2014** :100

- Peer Reviewed Presentations

2010 :10	**2011** :10	**2012** :10	**2013** :10	**2014** :10

- Peer Reviewed Publications

2010 :3	**2011** :3	**2012** :3	**2013** :3	**2014** :3

- Printed Materials

2010 :87	**2011** :87	**2012** :87	**2013** :87	**2014** :87

- Published Articles (News, Professional and Trade)

2010 :4	**2011** :4	**2012** :4	**2013** :4	**2014** :4

- Single day workshop, class or event

2010 :23	**2011** :23	**2012** :23	**2013** :23	**2014** :23

- Websites or other computer-based delivery

2010 :5	**2011** :5	**2012** :5	**2013** :5	**2014** :5

- Workshop series or educational course

2010 :6	**2011** :6	**2012** :6	**2013** :6	**2014** :6

V(I). State Defined Outcome

O. No	Outcome Name
1	Participants develop and market locally grown products more effectively
2	Participants promote, implement or adopt best management practices for Food Production
3	Participants acquire knowledge and skill to promote, implement or adopt best management practices for Food Production
4	Participants adopt practices that lower the risk from and exposure to pesticides and fertilizers used in food production
5	Participants adopt practices that ensure the economic viability of Food Production
6	Participants adopt practices that ensure the environmental sustainability of Food Production
7	Participants acquire knowledge and skill for sustainable resource and crop management practices
8	Participants adopt sustainable resource and crop management practices
9	Participants grow and successfully market new ethnic crops, specialty crops or biofuel crops
10	Participants acquire knowledge and skill to grow and successfully market new ethnic crops, specialty crops or biofuel crops

Outcome #1

1. Outcome Target

Participants develop and market locally grown products more effectively

2. Outcome Type : Change in Action Outcome Measure

2010 : 50	**2011 :** 50	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

Outcome #2

1. Outcome Target

Participants promote, implement or adopt best management practices for Food Production

2. Outcome Type : Change in Action Outcome Measure

2010 : 50	**2011 :** 50	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

•1862 Extension

4. 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

Outcome #3

1. Outcome Target

Participants acquire knowledge and skill to promote, implement or adopt best management practices for Food Production

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 100	**2011 :** 100	**2012 :** 100	**2013 :** 100	**2014 :** 100

3. Associated Institute Type(s)

•1862 Extension

4. 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
- 723 - Hazards to Human Health and Safety

Outcome #4

1. Outcome Target

Participants adopt practices that lower the risk from and exposure to pesticides and fertilizers used in food production

2. Outcome Type : Change in Action Outcome Measure

2010 :50	**2011** : 50	**2012** : 50	**2013** :50	**2014** :50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 216 - Integrated Pest Management Systems
- 723 - Hazards to Human Health and Safety

Outcome #5

1. Outcome Target

Participants adopt practices that ensure the economic viability of Food Production

2. Outcome Type : Change in Action Outcome Measure

2010 :50	**2011** : 50	**2012** : 50	**2013** :50	**2014** :50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #6

1. Outcome Target

Participants adopt practices that ensure the environmental sustainability of Food Production

2. Outcome Type : Change in Action Outcome Measure

2010 :50	**2011** : 50	**2012** : 50	**2013** :50	**2014** :50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 216 - Integrated Pest Management Systems

Outcome #7

1. Outcome Target

Participants acquire knowledge and skill for sustainable resource and crop management practices

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 100	**2011 :** 100	**2012 :** 100	**2013 :** 100	**2014 :** 100

3. Associated Institute Type(s)

•1862 Extension

4. 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

Outcome #8

1. Outcome Target

Participants adopt sustainable resource and crop management practices

2. Outcome Type : Change in Action Outcome Measure

2010 : 50	**2011 :** 50	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

•1862 Extension

4. 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

Outcome #9

1. Outcome Target

Participants grow and successfully market new ethnic crops, specialty crops or biofuel crops

2. Outcome Type : Change in Action Outcome Measure

2010 : 50	**2011 :** 50	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

Outcome #10

1. Outcome Target

Participants acquire knowledge and skill to grow and successfully market new ethnic crops, specialty crops or biofuel crops

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	2011 :	2012 :	2013 :	2014 :
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

{NO DATA ENTERED}

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

1. Evaluation Studies Planned

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

Description

Extension staff will use grower feedback, surveys, attendance at meetings, subscriptions to newsletters and Guides, web site hits, and other measures to assess changes in the environmental sustainability, marketing improvements, and profitability of farmers. Within the designated geographic area, develop an assessment tool to (a) determine current number of farm stands that provide an x amount of food for local food pantries, food banks, etc; (b) determine usage of food vouchers at local farm stands and farmer's markets; (c) determine current numbers of low-income families that access local farm stands and farmer's markets. Replicate same assessment tool one year later to determine if changes have occurred.

2. Data Collection Methods

- Mail
- Other (Web Survey)
- Observation
- Case Study
- Sampling

Description

{NO DATA ENTERED}