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UNIVERSITY of  
MASSACHUSETTS  
201 Stockbridge Hall  
Amherst, MA 01003

Office of the Associate Director  
Massachusetts Agricultural Experiment Station

voice: 413.545.2771

July 15, 1999

Mr. Bart Hewitt  
Partnerships/POW  
USDA/CSREES  
Mailstop 2214  
1400 Independence Avenue, SW  
Washington, DC 20250-2214

Dear Bart:

Enclosed, you will find the Massachusetts Plan of Work. It is a collaborative effort on the parts of the Massachusetts Agricultural Experiment Station and Umass Extension. If you need any further information, do not hesitate to contact, Dr. Mark Mount, Trish Manfredi. or myself

Sincerely,

A handwritten signature in cursive script, appearing to read 'Patricia Cromack', is written over the typed name.

Patricia Devine Cromack  
Research and Systems Analyst

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# Massachusetts Plan of Work 2000-2004

## Introduction:

The Massachusetts Agricultural Experiment Station is headquartered in the College of Food and Natural Resources at the University of Massachusetts. UMass Extension is a division of University Outreach in the Provost's Office at the University of Massachusetts.

✓ This Plan of Work is a comprehensive statement of the MAES's intended research activities and the activities of UMass Extension for the next five years, as required by the Agricultural Research, Extension, and Education Reform Act of 1998 (AREERA), and as allowed under the USDA's "Guidelines for Land Grant Institution Plan of Work". This is a joint research and extension plan.

## Point of Contact:

All correspondence regarding the Massachusetts Agricultural Experiment Station portion of this plan should be directed to:

Dr. Mark S. Mount  
Associate Dean & Associate Director  
Massachusetts Agricultural Experiment Station  
201 Stockbridge Hall  
University of Massachusetts  
Amherst MA 01003  
e-mail: [mount@fnr.umass.edu](mailto:mount@fnr.umass.edu)  
Voice: 413.545.2771 FAX: 413.545.5910

All correspondence regarding the UMass Extension portion of this plan should be directed to:

Dr. Patricia Manfredi  
Assistant Director for Federal Relations  
UMass Extension  
213 Stockbridge Hall  
University of Massachusetts  
Amherst, MA 01003  
e-mail: [tmanfredi@umext.umass.edu](mailto:tmanfredi@umext.umass.edu)  
Voice: 413.545.2673 FAX: 413.545.6555

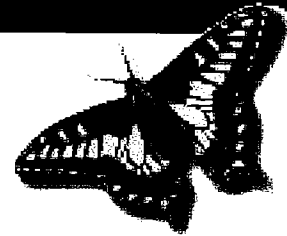
## Adoptions by Reference:

1. We adopt by reference the Northeast Plan of Work for fulfillment of our obligations to the AREERA's multi-state, multi-disciplinary and integrated research activities. Accomplishments reporting on multi-state, multi-disciplinary, and integrated research activities for MAES will be through the annual Northeast impact statements and the Northeast results reports.
2. We adopt by reference the University of Massachusetts' procedure for reporting Civil Rights compliance and Equal Employment Opportunity requirements. These reports will be filed through the University of Massachusetts Office of the President to the U.S. Department of Education.
3. The stakeholder input process described in this 5-Year Plan of work also considers the use of McIntire-Stennis forestry research and animal health and disease research funds.



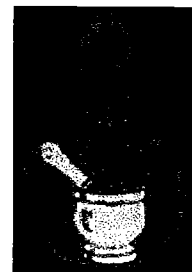
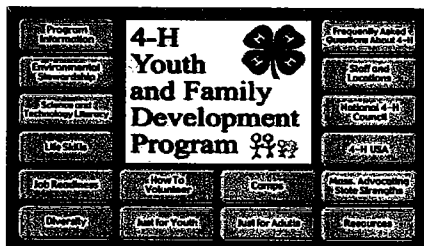
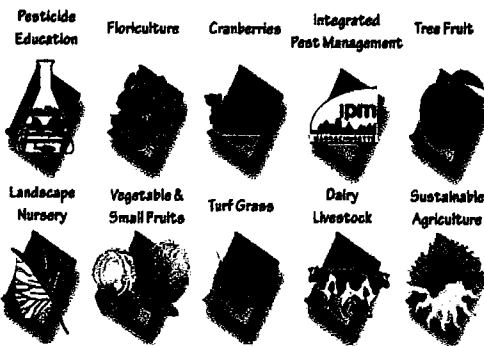
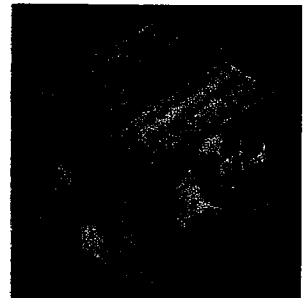
# Massachusetts Agricultural Experiment Station

&



# UMASS EXTENSION

## 2000-2004 Plan of Work



# OVERVIEW

## Massachusetts Agricultural Experiment Station

### Goals

1. An agricultural production system that is highly competitive in the global economy
2. A safe, secure food and fiber system.
3. A healthy, well-nourished population.
4. Greater harmony between agriculture and the environment.
5. Enhanced economic opportunity and quality of life for Americans.

*Each numbered goal will be highlighted throughout the text and, in many cases, more than one goal will correspond to given areas of research.*

As the University of Massachusetts reexamines its role as a land grant institution, a planning process has been initiated to investigate and better meet the needs and expectations of its many constituents.

The mission of the College of Food and Natural Resources (CFNR) at the University of Massachusetts is to advance knowledge in its core areas by fulfilling its evolving land grant responsibilities and those of the University. To accomplish this, the College offers broad educational opportunities to a wide spectrum of public audiences, conducts applied and basic research that addresses the needs of citizens, businesses, and public agencies and makes numerous outreach opportunities accessible to its constituents. The College is uniquely qualified, equipped and committed to fulfilling its land grant responsibilities by promoting and contributing to economic development, environmental quality and human capacity building through programs in four programmatic cornerstones that provide a foundation for the College's future educational, research, and outreach offerings: Applied Management, the Environment, Planning and Design, and Plant and Animal Systems. These programmatic cornerstones provide the College with a focus for its planning efforts. The basic structure offered by the cornerstones encourages College departments to form working partnerships, collaboratively creating the fundamental building blocks for the future programs.

### Cornerstones:

*Applied Management*<sup>s</sup> - Applied management, the training of professionals in a wide variety of business-related disciplines, is a cornerstone of CFNR. These programs have been brought together to take advantages of commonalities while at the same time maintaining their uniqueness and autonomy. The departments involved share many areas of common interest. Enhanced quality of life, whether in environmental, social consumer or entertainment areas, is a concern of many departments in CFNR. This is especially true for the departments that concentrate on tourism and hospitality, sport and entertainment, retail, and family, consumer, and social needs. As we approach the twenty-first century, the need for business specialists, consumer experts and family

development professionals may be higher than ever before. The state also faces a desperate need for skillful professionals to deal with the failure in the family social systems.

*The Environment*<sup>4,5</sup> - The environment in Massachusetts is the product of millennia of natural forces and relatively recent human interaction with them. The landscape of Massachusetts, although severely altered in the past, is currently 66 percent forested. This is the third most densely populated state, yet forests and open space are the dominant landscape form. These factors, when joined with the Commonwealth's form of strong town governance, have led to a populace strongly interested in the quality of their physical environment. The College's status as the leading environmental educational program in New England is greatly assisted by the local convergence of state and federal agencies responsible for natural resource and environmental research and management. Research branches of the U.S. Fish and Wildlife Service, Forest Service, and National Marine Fisheries Service have active research and education units located on campus.

*Planning and Design*<sup>5</sup> - Massachusetts and New England communities face increasingly complex problems in managing their growth, promoting economic development and providing sustainable and livable environments for their residents. While expertise that focuses on aspects of these issues is found in many locations on the Amherst campus and within the University system, only CFNR provides instructional, research and outreach programs that specifically address the appropriate and achievable balance among competing needs and interests. The College's Department of Landscape Architecture and Regional Planning and the Department of Resource Economics are dominant players in these areas. There are also strong interests and capabilities in the Department of Natural Resources Conservation.

*Plant and Animal Systems*<sup>1,2,3,4,5</sup> - Plant and animal systems will remain a cornerstone of the College in the twenty-first century. CFNR will continue to serve agricultural needs in areas that are beneficial to the Commonwealth's economy<sup>5</sup>. Future growth areas include horticultural products related to increased urbanization, the production of high value specialty crops, and value-added processing of food products. The emphasis in plant and animal systems will continue to be technology-driven. Biotechnology, one of five program areas proposed for this cornerstone, is the application of modern biological or chemical manipulations to increase the value of, enhance, or preserve biological species and products. Plant and Animal Biotechnology programs will utilize genetic resources to increase the efficiency of existing agricultural and food processing enterprises and create new economic opportunities<sup>1,2,5</sup>. Plants resistant to pests and diseases, weeds and stresses will increase productivity and improve the quality of our environment by decreasing the use of agricultural chemicals<sup>1,4</sup>. Efficient production of food, fiber and polymers will be increased by adoption of new techniques in biotechnology<sup>2</sup>. Plants, animals and/or microorganisms will become primary producers of pharmaceutical, biopolymers, food ingredients, flavors and colors, organs for human transplantation and models for the study of diseases<sup>1,2,3,4,5</sup>. Areas that will benefit from an expanded effort in biotechnology include the development of: novel pharmaceutical and food additives; biocontrol technologies; and superior germplasm for disease and insect resistance, enhanced quality, and maintenance of species diversity. Additional areas include the development of downstream processing for the

utilization of waste as well as biotechnology-derived and genetically unique products<sup>2,4</sup>. The other four programs are: production ecology; value-added technologies; food safety and quality; and biopolymers and natural products.

The Production Ecology program will focus on development of plant, animal, marine and land use management programs that are ecologically sound sustainable and economically viable<sup>4,5</sup>. The efficient production of plants, animals and marine species and the wise use of forests, land and water resources are necessary to preserve open space, maintain a green living environment, protect water quality and maintain biodiversity. The Production Ecology program views farms, fields, communities, forests and marine systems as complex managed ecosystems involved in the production of food and fiber in a way that results in a quality living environment. Integrated plant and animal production systems will be based on research in biological control of insects and weeds, integrated pest management, long term rotation effects, nutrient cycling and complex crop, pest, animal and environmental interactions. This focus of the Production Ecology program allows linkage with Plant and Animal Biotechnology to develop new plants and animals that will provide new opportunities for the implementation of sustainable production and processing systems<sup>1</sup>.

Value-added Technologies increase the value to food and fiber systems by over \$700 billion dollars annually through new product and process development. By combining education, research, facilities and outreach in production science, the College of Food and Natural Resources is unique in its ability to create value-added technologies by focusing on basic and applied research and consumer interests<sup>2</sup>. The value-added products of Ocean Spray Cranberries reached \$1 billion in sales in 1993. Contributions from Food Science assisted in the development of Cranapple Juice™, one of the first and most successful value-added products of the cranberry industry. Today, cooperative research on sugar infused fruit and the development of craisins, a sweetened dried cranberry, will provide new marketing opportunities for the cranberry industry. Veryfine Products Inc. reports a \$100 million annual increase in sales due, in part, to new products developed in cooperation with the Food Science Department in CFNR using their pilot plant. Other fruit crops important to Massachusetts and the region, along with the dairy industry, will benefit from processing technologies and educational outreach programs. Linkages to plant and animal biotechnology will lead to the production of new ingredients and further the development of new technology oriented food companies<sup>1,5</sup>. Technologies for processing fish waste into value-added products have been developed in the last five years with at least two independent companies coming into being<sup>5</sup>. Agricultural and marine products will offer equally exciting opportunities for adding value through the development of processes and products leading to medicines, health related products, biofuels, packaging, building materials, clothes and food flavors and colors. Clearly, value-added technologies are critical for economic development and the growth of new jobs<sup>5</sup>.

Research in food safety and quality is undergoing dramatic changes due to a new scientific base, new definitions of total quality and heightened consumer awareness. In order to meet these diverse demands, basic research in food, plant, and animal systems must be combined with product safety considerations, from production to consumption, rather than on product safety alone<sup>2</sup>. This entails a systems approach combining production,

processing, storage, marketing and education in order to produce safe, high quality and nutritious foods. Assessment of nutritional risk in elderly, fiber, vitamin and mineral supplementation will add to a healthy, well-nourished population<sup>3</sup>. Microorganisms, natural toxicants, antibiotics, and pesticides all have to be monitored faster and with more precision. This will require the development of biosensors, immunoassays and DNA probes among other techniques. Better food processes must be developed to minimize microbial growth and the formation of potentially harmful reaction products and prevent nutrient degradation<sup>2</sup>. Alternatives may have to be found for antibiotics in animals and pesticides and herbicides in plants, to deal with problems of resistance and environmental contamination<sup>4</sup>. Sound scientific information provides a foundation for rational policy and regulations which promote consumer understanding and meet the needs of society.

Biopolymers and Natural Products program will involve the production, identification, isolation, and modification of plant, animal and marine products, polymers, and extracts necessary to meet industrial, food, feed, and pharmacological demands for compounds with specific biological action, consistency, and/or structure. The biopolymer and natural products program works with the food and ingredient industry, agricultural producers and other professionals in the food system<sup>1,2</sup>. The capacity of the program to tailor biopolymers with specific properties finds a wide range of applications in engineered foods, such as meat substitutes produced from fish and soybeans<sup>2</sup>. Other examples are the use of natural and/or, synthetic polymers designed to release synthetic copies of insect behavior-modifying chemicals for insect control or polymers to extend the shelf life of foods and provide edible packaging<sup>1,2</sup>. The program in natural products is also fundamental to understanding the taste and odor properties of foods, flavors and chemicals that influence sensory perception. Specific applications of this program in the College include the development of plants that are less susceptible to pests because of changes in their defensive array of natural products<sup>1</sup>, the identification and use of natural products to interfere with mate and/or host finding interactions of pests and the development of new foods and ingredients which meet the health needs of the consumer<sup>3,5</sup>. As we look to the future, it is obvious that we will use natural products and biopolymers in the medical field to create desirable biorational insecticides, modify plant growth and develop new foods and food ingredients<sup>1,2,4,5</sup>.

The faculty of the CFNR are involved in an impressive array of research projects, including: genetic improvement of plants and animals; conservation of threatened ecosystems; enhancing profitability through value-added processing; optimal planning of community development; and improving the lives of consumers and families. Many of these projects create immediate benefits for citizens, businesses and communities of the Commonwealth by providing new technologies and analyses which improve tourism, human nutrition, environmental protection, biomedicine, agricultural profitability and food processing.



## **OVERVIEW**

### **UMass Extension**

Effective, July 1, 1999, UMass Extension has completed the final administrative elements in the transition to become a formal outreach arm of the University of Massachusetts at Amherst, with administrative reporting lines to the Vice Provost, University Outreach, rather than to the Dean of the College of Food and Natural Resources. This was the first administrative change at the campus level since the Extension system was created.

A strong and integrated programmatic relationship continues with the College of Food and Natural Resources (CFNR). Faculty who have Extension appointments in combination with research and/or teaching appointments continue in the College's academic departments. Professional staff, including off-campus Extension Educators, are now formally members of the appropriate academic departments, as are Extension support staff, including clerical and technical positions. Three of Extension's four program areas, Agroecology, 4-H Youth and Family Development, and Natural Resources/Environmental Conservation, are integral to CFNR academic departments. The fourth program area, Nutrition Education, is part of the department of Nutrition, in the School of Public Health and Health Sciences (SPHHS).

Three of the four program coordinators are now faculty members, rather than professional staff. This change in status has facilitated the integration process within the academic departments, and with the research base.

UMass Extension is now positioned equally with campus Outreach units, including Continuing Education, Economic Development and others, and is taking the leadership to address several major outreach issues, such as reward and recognition systems for faculty involved in outreach, and communications and marketing of outreach to the citizens of the Commonwealth.

While public funding has not increased significantly, University support through the state budget continues to grow through 1999, and while a level-funded state budget is anticipated for FY2000, efforts are underway to advocate for increases for FY2001. In 1999, new professional staff and support staff were hired, primarily in 4-H Youth and Family Development, permitting expansion of programs in the Worcester, Boston and North Shore areas of the Commonwealth. The urban programs lost as a result of the downsizing in 1989, and nearly a decade of reduced state funding have been rebuilt.

As a result, UMass Extension has become very competitive in the grants and contracts arena, to the extent that grants and contracts in FY98 made up 20% of the total UMass Extension budget, and fees and gifts accounted for another 7%. Smith-Lever b&c funding was at 22%, and Smith-Lever 3d at 12%. State, University and county funds totaled 39%. The shift in funding sources reflects UMass Extension's attention to emerging state and local needs, as well as a record of accomplishment.

This five year plan of work is the first plan of work to be developed with the input of the UMass Extension Board of Public Overseers, created in 1997 by the Massachusetts Legislature to give stakeholders in Extension's programs a formal advisory role. The Board, whose members are appointed by the Governor, advise the Chancellor of the University of Massachusetts at Amherst on *overall* goal setting, budget and program delivery. While over 1000 citizens are currently engaged in providing advice to specific Extension programs, this 15-member board has been asked to take a broad and long term view of the needs of four constituency groups served by Extension and help the University identify and secure the resources needed to address those needs. The Board has full support from the campus Provost and Chancellor. Specific details of current and future Stakeholder input are detailed in the Section: Stakeholder Input Processes

Members of the Board represent the following groups and organizations: Massachusetts 4-H Foundation, Massachusetts Farm Bureau Federation, Massachusetts Nutrition Board, University of Massachusetts Outreach Office, Massachusetts Arborists Association, Massachusetts Forestry Association, University of Massachusetts President's Office, Massachusetts State Department of Food and Agriculture, Massachusetts Audobon Society, and Massachusetts 4-H State Advisory Council. The Board is currently developing a plan to expand representation beyond what the initial legislation specified.

UMass Extension continues to be an active member of the New England Extension Consortium, through which institutional support for multi-state activities is formalized through grants programs, conferences, workshops for users, publications and research projects.

## Process for Developing the Plan of Work

Although there is considerable functional integration of research and extension efforts, particularly in the College of Food and Natural Resources, a joint plan of work, which was an option under the GPRA process, had not been previously attempted. For this plan, the leadership of the Agricultural Experiment Station and UMass Extension committed to the development of a joint plan of work. Since AES does not have program areas and teams as does UMass Extension, several preliminary sessions were needed to discuss options. This resulted in a novel approach of convening research and extension faculty and staff on a single day, by Goal, to prepare an initial draft of plans for each goal. Each writing team had access to all Hatch project reports and Extension planning documents. In addition, the Northeast Research and Extension Program Outcomes Framework (<http://www.umass.edu/umext/consortium>) Attachment #5, which was developed by the Northeast Extension and Research Directors at their Winter 1999 meeting, was used to organize the plan. *Measuring Program Outcomes: A Practical Approach*, from the United Way of America, was used to provide a working outline and definitions. It may be found at: <http://www.unitedway.org/outcomes/library.htm>

This process of writing teams had several outcomes, in addition to the draft document. It focused leaders of research and extension on the 'fit' of research efforts to extension programs, as well as conversely. Further, it prompted dialogue to address strengthening the relationship of extension-research efforts.

Since UMass Extension delegates much responsibility to program coordinators, and in keeping with the lack of a formal template from CSREES-USDA, the final plan for each goal differs in format from the others. It was decided not to spend time 'fitting' each team's writing style into one mold.

## Stakeholder Input Processes

### *Introduction:*

Stakeholders are an integral part of research and extension at the University of Massachusetts, providing input in both formal and informal ways. There is continuous input and interaction between primary stakeholders and the components of UMass Extension and the Massachusetts Agricultural Experiment Station. The research and extension function are, at times, so integrated that it is difficult to determine where one begins and another stops. Most UMass faculty in the College of Food and Natural Resources (CFNR) have split appointments including research, instruction and extension. With a strong campus focus on outreach, many CFNR and School of Public Health and Health Sciences (SPHHS) faculty are involved with Extension customers, even if they do not hold a formal extension assignment. There is a natural flow of research needs from the 'field' to implementation as a research project, to dissemination of the results back to the primary users. Program teams, particularly Agroecology and Natural Resources and Environmental Conservation, are made up of faculty who have joint appointments, as well as of professional Extension educators who are equally involved in applied research projects. Thus, when faculty and staff interact with stakeholders, they represent both research and extension. Information gained from both from stakeholder processes as well as the informal ones, informs both research and extension issue identification and the resulting research projects and extension education programs.

### *State-wide organizational stakeholder input:*

Oversight for UMass Extension rests with the University of Massachusetts Board of Public Overseers, which was created by the State Legislature in 1997. The Board has been meeting quarterly since March 1998. The early meetings focused on program priorities and budgeting processes. The Board has learned about the eight categories of funding which support four programs in two colleges, over 200 staff members on campus and in 19 field offices, administrative services including communication and marketing, professional development, equipment, diversity, leadership, etc.

The Board has met with University of Massachusetts Chancellor Scott twice and University President Bulger once. The Board, in 1998-1999, had dialogue with Extension Program Coordinators at all meetings to discuss program priorities and funding. The Board is actively involved in the priority setting process.

The Board is appointed by the Governor. Currently, the Board is composed of the following groups and organizations: Massachusetts 4-H Foundation, Massachusetts Farm Bureau Federation, Massachusetts Nutrition Board, University of Massachusetts Outreach Office, Massachusetts Arborists Association, Massachusetts Forestry Association, University of Massachusetts President's Office, Massachusetts State Department of Food and Agriculture, Massachusetts Audubon Society, and Massachusetts 4-H State Advisory Council. The Board is currently developing a plan to expand representation beyond what the initial legislation specified.

UMass Extension undertook a strategic planning process in the mid-1990's, followed by a strategic marketing process, both of which involved significant internal and external listening activities. This approach has continued as program areas update their program plans. For example, as part of the strategic planning process, UMass Extension conducted a state-wide, stratified, random telephone survey, which asked people's opinion on issues related to families and children, nutrition, and agriculture. The responses from 200 people supported trends identified in both primary and secondary data collected by program teams; it provided a comparison between 'the general public' and current customers or primary target constituents.

Other methods of listening used then, and continue to be used by program teams include: written surveys, focus groups, and interviews with users and collaborators. In addition, data from other reports, studies and surveys done by federal, state and local agencies and organizations was reviewed, providing indirect access to potential stakeholders who had already voiced their opinion about issues to a provider.

Over 1,000 volunteers are involved in UMass Extension through active participation on advisory boards and committees across the four program areas. Meeting regularly, these individuals provide issue identification, and recommend priorities.

*Program specific Stakeholder input:*

UMass Extension is organized through four program areas; each approaches stakeholder involvement in ways best suited to their primary customers. Summaries by program area follow.

*Nutrition Education:* Stakeholders play an essential role in issue identification and program planning for the Nutrition Education Program area. In the mid 1990's, UMass Extension conducted a survey of stakeholders throughout the state to assess the quality of NEP programming and identify issues for which future programming was needed. From this, the major direction of the program was determined, as the foundation for the future. Currently, the Nutrition Education Program has four major components, including EFNEP, the Family Nutrition Program, Diet and Health and Food Safety.

All of the community projects in the Family Nutrition Program (FNP) are planned cooperatively with local stakeholders reflect local issues. Issues are identified through a number of processes. In some locations, a formal needs assessment is conducted. Other processes include informal assessment through communication with learners; literature reviews of national, state and local emerging issues; and planning with stakeholders in which priorities are identified. Implementation of EFNEP in Massachusetts depends on cooperative agreements with stakeholders throughout the state who provide access to groups of limited resource learners. Programs in Diet and Health, and Food Safety are based on national initiatives, as well as target audience input.

Examples of groups, organizations and agencies providing input as stakeholders and users, on both issues, and specific program planning and implementation follows:

**Single Mother/Family Shelters:** 14 in 8 communities, including the Mary Martha Learning Center - Hingham; Florence House Shelter - Worcester, and the Women's Center - New Bedford.

**Young Parents/Mothers Group/Family Support Groups:** 23 in 5 major cities, including Exitos - New Bedford; Club 60, Centros Los Americas - Worcester; Montachusset Opportunity Council - Worcester, and ABCD/Head Start - Boston.

**School Program/Adult Learning Center/Job Training:** 29 in 11 cities, including Mass Job Training - Brockton; Community Academic Remediation Program, (CARP) - Springfield; Mass Career Development Institute (MCDI) - Holyoke; New England Farm Workers - Springfield; the Martin Luther King Jr. Business Empowerment Center - Worcester, and the Mujeres Unidas en Accion - Dorchester.

**Substance Abuse Shelters:** 8 in 5 cities, including Marathon House - Springfield and Faith House Shelter - Worcester.

**Pregnant and Parenting Teens:** 7 in 5 cities, including Access Futures, Health Awareness Services of Central Mass, Inc. - Worcester and Parker School Parent Group - New Bedford.

**Public Schools System** in 6 cities, including Springfield, Holyoke, and Boston.

**Youth - After School/Summer Programs:** 22 in five cities, including Indian Orchard Girls and Boys Club - Springfield; Boys and Girls Club - New Bedford; Friendly House Neighborhood Center - Worcester and Citizens for Citizens, Inc. Summer Recreation Program - Fall River

**Health Centers:** 2 in Boston, Dimock Community Health Center and Boston Medical Center

Correctional Facilities: York Street jail - Day Reporting Program - Springfield

Farmers' Markets: in six cities, including Boston and Worcester.

Networking Collaborations: 9 in 6 cities including Worcester Food Bank; Holyoke Community Housing Program, and Food Pantry - Cambridge.

**Agriculture:** The Agroecology Program area engages the diverse members of the agricultural community (i.e., citizens, community organizations, public officials, and agricultural enterprise representatives) in participatory education using methods such as study circles, discussion groups, and other interactive public forums. The Agroecology Program has relationships with many agriculture advocacy groups, both long-standing and more recent organizations that provide the alternative voice.

For example, Farm Bureau is a very influential policy-setting organization for all of agriculture, with nearly a century of experience. Several commodity-based organizations, such as the Massachusetts Tree Fruit Growers, the Cape Code Cranberry Growers Association, the Golf Course Superintendent's Association of New England and the Massachusetts Vegetable and Berry Growers Association, provide research facilities and grants to Agroecology, as well as working on educational programming direction.

Groups such as the Massachusetts Flower Growers Association, the Massachusetts Arborists Association, the New England Sports Turf Managers Association, and the Massachusetts Nursery and Landscape Association work with Agroecology to set the agenda to provide educational and technical support to ornamental horticultural businesses. The Massachusetts Association of Roadside Stands works on direct marketing of agricultural products, while groups such as Coastal Growers and the Pioneer Valley Growers Association organize wholesale production of vegetables and related agricultural products.

Alternative agricultural groups such as the Community In Support of Agriculture (CISA), the New England Small Farms Institute, and the Massachusetts Natural Organic Farmers Association work with Agroecology to provide service and education to the agricultural community. Other groups, such as the Audubon Society and Mothers & Others, work with Agroecology on environmental and food safety issues.

Consultations on problems provide a two-way conduit, telling Agroecology what problems are facing agriculture and giving clients an opportunity to learn how to solve problems. On-site visits, or specialized services of the Diagnostic Laboratory and the Soil and Tissue Testing Laboratory, can open the door to this type of research/learning opportunity. Over the past five years, this model has been broadened to include growers and other clients in participatory research to solve problems. Such research strengthens the link between the University and citizens, keeps the research relevant to real problems and speeds transfer of solutions to end-users. Another powerful tool, the on-site meeting, is held on sites where such research is in progress, or on sites that use exemplary technology. Clients can discuss practices with each other, which tends to add validity to them.

Annual industry conferences and association meetings contain extensive contributions from Agroecology, in the form of educational sessions and sessions designed to share results from applied research. Agroecology works with various organizations to plan and execute these sessions, and is generally the lead institution among the New England land-grant universities.

*Agroecology proposal for future stakeholder input:*

Currently, the University of Massachusetts College of Food and Natural Resources is considering a proposal for a Center for Agriculture to bring approximately 60 faculty and professionals together functionally. The range of disciplines in agriculture is spread across seven departments, and the needs of agriculture; for producers, communities, consumers is complex. Massachusetts is a very urban state with 6 million people, yet 64% of the population live within 10 miles of a farm and 22% live within a mile of a farm. There is a need for a more

integrated approach to addressing issues facing agriculture in the Commonwealth. The concept underlying the Center is a single point of entry for stakeholders and users to access the land grant resources of the University of Massachusetts, and thereby the national system.

Such a Center will continue the integration of research and extension by providing a University-approved structure (Centers are approved by the Faculty Senate) which will permit the academic recognition of faculty for outreach and extension (promotion/tenure). Each faculty and professional staff affiliated with the Center for Agriculture would belong to at least one multi-disciplinary, issue-based team, while remaining administratively part of their academic department. The initial set of teams would be formed around single commodities or service areas. Also, issues that may be the focus of a team for example may include integrated pest management, waste management, and pesticide education. Teams will provide a programmatic focus.

Teams will interact with stakeholders to determine needs, develop strategies and acquire funding to support activities, develop research projects to solve problems, and present outreach programs to address needs. Further, teams assess stakeholder needs relative to formal education and interact with appropriate individuals and units to share those needs.

Advisory Committees of stakeholders are central to the Center for Agriculture. Both team committees and an overall Center Advisory Council are envisioned.

*Team Advisory Committees:* appropriate groups of stakeholders would be identified by teams. Often, such identified groups are characterized by their participation in an association. Where no association can be identified, secondary stakeholders will be sought. Among the responsibilities of a team advisory committee would be:

- Review and assess programmatic efforts of teams and needs of the respective industry
- Assist team with setting priorities and advocate for those priorities
- Maintain communication between the team and stakeholders

*Advisory Council on Agriculture:* The proposal calls for the majority of the Advisory Council to be elected from team advisory committees on an annual basis, i.e. a single member from each team advisory committee. These members in general, would represent primary stakeholders. The Advisory Council also includes Massachusetts' representative(s) of the Council on Agricultural Research, Extension, & Teaching (CARET) and an individual from the Massachusetts Department of Food & Agriculture appointed by the Commissioner of Food & Agriculture. Additional Advisory Council members would include individuals from other agriculturally related or interested organizations, particularly those that provide the alternative voice in agriculture - such as the Audubon Society, CISA, and other sustainable agriculture groups. Council responsibilities proposed include:

- Provide a continuing dialog with the University of Massachusetts Administration relative to agriculture.
- Regularly assess the needs of the agricultural industries
- Review the allocation of staffing and resources relative to agriculture and advise regarding future allocations.
- Review agriculture activities to determine if they are appropriate.

*4-H Youth and Family Development:* Over the past three to five years, several techniques were implemented to determine critical issues facing the 4-H Youth and Family Development program area. Internally, staff participated in a SWOT (strengths, weaknesses, opportunities and threats) analysis to determine issues facing the program. A random sample of key volunteers such as 4-H Foundation directors, state 4-H Advisory Council members, and campus administration were surveyed to gain input about the program and issues. A literature search also identified key issues facing youth, families and communities in Massachusetts. Evaluations of programs and events were scanned to identify general areas of concern.

To obtain external input, youth and adults were randomly surveyed at a New England wide event for their input which corresponded with a random telephone survey of Massachusetts households to determine peoples' knowledge of the total organization as well as the 4-H program. Information was also obtained from focus groups of youth conducted by the National 4-H Council.

Currently and over the next five years, similar techniques as described above will be employed to update current 4HYFD strategic marketing plan. In 1999, a focus group of Massachusetts 4-H Foundation Directors, a survey of key volunteers, and a survey staff were used to determine the most critical issues. During 2000, a survey for assessing the needs of teens both within and outside the 4-H YFD program will be designed and implemented. In the state, regional focus groups of traditional volunteers and key collaborators will be conducted to better understand their needs. Each of the five content teams will develop a five-year strategic plan identifying key areas of concern within their subject matter areas. Massachusetts will also participate in the National 4-H Impact Assessment Study by randomly surveying participants within out-of-school programs.

To solicit external input, the program will conduct an extensive literature review to determine cutting issues facing children, youth and families. The Program Area will implement a plan for assessing the needs of underserved populations. Some strategies being considered include conducting focus groups with "at risk" adults and youth, and interviewing key collaborators of local, regional and statewide youth serving organizations, such as Boys and Girls Clubs, and public schools. Community groups such as the "Y", and Enlace, a Latino Family Center in Holyoke, along with teen centers, will be included.

Both currently and within the next five years, internal stakeholders include those who have been directly involved with the 4-H YFD program such as staff, 4-H YFD youth and teen volunteers, the Massachusetts 4-H Foundation, the Massachusetts State Advisory Council members, and various collaborators of our program such as public schools, libraries, fair associations, and other youth serving organizations. External stakeholders would include those who are not familiar and/or directly involved in the program. These groups would include both youth and adult members of the general public, underserved populations, and other youth-serving agencies and organizations who do not know the program. The five year goal is to increase the awareness and knowledge of these external groups of the program, in order to build effective relationships.

Currently in 4HYFD, internal stakeholders are directly involved in the review of new publications for the program such as our risk management manual and the update of our record keeping and resume learning tools. They participate on search committees, and help to plan local, regional and statewide events. A major goal over the next five years is to increase the involvement of young people on both planning and search committees and in the review of materials, and to find ways to engage our newest program participants, such as urban youth and adults, in the implementation of the 4HYFD program.

#### *Natural Resources and Environmental Conservation*

The Advisory Committee for the Natural Resources and Environmental Conservation (NREC) program includes representatives of key stakeholder groups. Currently there are 23 members of this advisory committee representing the following stakeholder groups:



- Agricultural interests
- Forest landowners
- Professional foresters
- Natural resource professionals
- State and Federal environmental agencies
- Municipal officials
- Conservation organizations
- Private environmental consultants
- Regional planners.

The advisory committee meets annually to review and comment on the NREC accomplishments and plan of work for the coming year(s). Special advisory committee meetings are scheduled as needed, to provide input during strategic planning. In addition to the NREC advisory committee, some program initiatives also have advisory committees to facilitate stakeholder input and involvement that are specific by topic, or geographic parameters of the initiatives.

#### *Cranberry Oversight Committee*

This is a legislatively mandated stakeholder group appointed by the Governor. There are 7 Cranberry Oversight Committee members who recommend and/or direct all research and extension activities at the Cranberry Experiment Station. The committee consists of three cranberry growers (representing Ocean Spray Cooperative); the Commissioner of Agriculture, currently Jay Healy; Massachusetts legislators, currently Representative John Quinn and Senator Teresa Murry; and the Dean of the University of Massachusetts, College of Food and Natural Resources, Robert Helgesen.

## **How Research and Extension Activities will address Critical Issues**

The manner in which research and extension, including research and extension activities funded through other than formula funds, will cooperate to address the critical issues in the state, including activities to be carried out separately, sequentially or jointly.

As indicated in the Overview, this plan is an attempt to present a comprehensive, integrated approach to research and extension efforts in Massachusetts. As noted previously, there is a considerable history of collaborative research and extension efforts, fostered primarily by long-standing joint extension-research appointments in the College of Food and Natural Resources, and more recently, in the School of Public Health and Health Sciences.

Faculty and Extension educators, with varying combination of research, extension and instruction assignments, work in teams to address the critical issues facing the Commonwealth and its constituents. The details are described elsewhere in this plan by each of the five REE goals.

As described in other sections of this plan, under consideration is a Center for Agriculture, which would further focus attention on the complex agricultural issues facing the Commonwealth. Over 60 faculty and staff from more than seven academic departments, will be part of the team. This will create a unique synergy of research and extension, in an inter-disciplinary framework. The Center Director will work with an Agricultural Advisory Council of stakeholders to create and implement an integrated research and extension agenda.

The tables of fiscal and human resources that are included with each goal, demonstrate the diverse funding portfolio supporting research and extension. For example, in FY98, over 20% of the Extension budget was derived from external contracts, and other seven percent through gifts, donations and fees.

## **Education and Outreach programs underway to convey research results, including multi-county cooperation.**

Since the 1950's, UMass Extension programs have formally functioned across county lines. (there are 14 counties in Massachusetts, two of which are the islands of Martha's Vineyard and Nantucket). Extension educators in agriculture, community development and natural resources, as well as consumer and family sciences, were hired to work in a multi-county region. Since the late 1980s', the majority of Extension Educators have multi-county and/or state-wide assignments.

In the mid-1990's, the state legislature began to legislate county government out of existence, with nearly half the counties abolished as of 1999, and the remainder slated to terminate in the next few years. Thus, UMass Extension programs are planned and conducted without regard to county boundaries in the governmental sense. Several geographic areas still function in regard to county lines, due to the geographic nature of the area, such as "the Berkshires", due to the mountains that separate it from the 'valley'; Barnstable County, which is all of Cape Cod, accessible by bridges; and the islands, accessible by ferry and plane.

Therefore, all of the programs described in this plan by goal, are disseminated in a multi-county fashion.

Additionally, since UMass Extension is formally a part of the UMass Outreach, rather than reporting to one college, more linkages are being made with other University outreach units, such as Continuing Education, and the Office of Economic Development. UMass Extension has been instrumental in bringing outreach efforts, including research, together for increasing collaborative efforts in two cities in the Western part of the state, Springfield and Holyoke, and is about to do the same in Boston.

