

Massachusetts (University of Massachusetts)

Plan of Work for 2023-2027

Status: Final (Approved 9/30/2022)

Executive Summary Overview

The Center for Agriculture, Food and the Environment at the University of Massachusetts Amherst integrates research and applied research with public education and outreach in agriculture, food systems, natural resources and human development at the University of Massachusetts Amherst. The Center is the contemporary standard-bearer of the university's land-grant origins and links the university to communities, citizens and businesses throughout the state. The Center is the organizational home of both UMass Extension and the Massachusetts Agricultural Experiment Station. The Center serves as a portal through which individuals, industries, and agencies connect with university scientists and educators.

The Massachusetts Agricultural Experiment Station is the principal agricultural research unit at the University. Each year, the experiment station provides support for more than 100 faculty members and graduate students, primarily within the College of Natural Sciences, who conduct basic and applied research programs that advance science in disciplines related to agriculture, food and natural resources. The Experiment Station receives significant support through federally appropriated formula funds with competitive research grants from federal and state agencies and private sources serving as important additional sources of revenue. The Center for Agriculture, Food, and the Environment connects research supported by the Experiment Station with public outreach and education programs provided by UMass Extension.

The mission of UMass Extension is to improve the health, well-being and security of youth, families and communities; conserve and enhance natural resources; and strengthen agriculture and food systems. We fulfill that mission by utilizing the research and teaching capacity of the University of Massachusetts Amherst 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 addresses public concerns of high priority for the Commonwealth. Part of the national Cooperative Extension System, UMass Extension conducts workshops, conferences, distance education, training events, consultations, and applied research.

An overarching goal for our planned programs is effective integration of basic and applied scientific research with extension outreach, public engagement and education. There is a unique opportunity afforded by having both UMass Extension and the Massachusetts Agricultural Experiment Station situated within the same larger unit. We expect the integration of research to become a guiding principle of the Center for Agriculture, Food and the Environment. We do recognize, however, that there

will remain work best conducted as traditional, scientific research, and outreach education that will have value even without integration with research activities. Nonetheless, the integration of research and extension outreach, in which those aspects of work in a particular area are tightly interwoven, and in which those aspects mutually inform and enrich one another, is a strong model and overarching goal for future programming.

The UMass Amherst Center for Agriculture, Food and the Environment advances environmental quality, agricultural sustainability, sustainability of water resources, efficiency of energy utilization, community viability, positive youth development, and the viability of food systems from production to consumption. The Center brings together the work of staff, faculty in academic departments, and external partners and stakeholders to create programs of research, integrated research and extension and educational outreach that address high-priority public concerns. In addition, the Center provides focused educational services to targeted individuals and groups in ways that advance the Center's vision and goals. The Center facilitates mutually beneficial exchange between citizens and the university and supports community access to academic resources.

Merit and Scientific Peer Review Processes

Massachusetts Agricultural Experiment Station

Proposals for funded research projects proceed through different levels of review. In some cases, prospective faculty investigators collaborate with academic department chairs to propose project ideas. Brief descriptions are sent to the Associate Director of the Massachusetts Agricultural Experiment Station who reviews the basic concept to ensure that it is consistent with the priorities and goals of our Center and of USDA/NIFA. Prospective investigators then develop a detailed research proposal that is reviewed by the faculty member's academic department chair and three external (to UMass) disciplinary peers. Reviewers are asked to complete an assessment form with six areas: justification for research; previous work and outlook; goals, objectives and outputs; outcomes/impacts; methods; and evaluation. Reviewers rate the proposal on a 3-point scale (exemplary, satisfactory or unsatisfactory) in each area and use the same scale to assign an overall rating. Reviewers also make additional, specific comments on how to improve the proposal. The Assistant Director of the Massachusetts Agricultural Experiment Station will request any necessary revisions and make sure they are incorporated into the proposal prior to submission to NIFA.

The Director of the Agricultural Experiment Station also solicits research initiatives in specific disciplinary areas or as supplements to existing projects. A recent example is our Call for Summer Graduate Student Support. These are competitive opportunities for which faculty submit proposals that are reviewed by an internal committee composed of faculty and professional staff. The Assistant Director ensures that there is fidelity to the work as it is described in the proposal and that all expenditures are allowable.

UMass Extension

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. Annual review of Extension budgets, activities, outcomes and goals is a major function of this board. The Board is composed of individuals from the following organizations:

Massachusetts Farm Bureau Federation

Massachusetts Arborist Association

Massachusetts Audubon Society

Massachusetts Forestry Association

Massachusetts 4-H Foundation

Massachusetts Nutrition Board

Massachusetts Commissioner of Agricultural Resources

University of Massachusetts President's Office

University of Massachusetts Amherst Chancellor's Office

Stakeholder input: Action Taken to Seek Stakeholder Input

The Center for Agriculture, Food and the Environment will continue to solicit input from internal and external stakeholders to identify organizational priorities and help us to structure our organization in ways to better serve constituents. Our plan has different components that are designed to obtain feedback at both broad organizational and more specific programmatic levels and will continue to be implemented over a period of several years. We continue to rely on data obtained from a web-based survey conducted with internal and external stakeholders. The survey obtained information on stakeholder opinions and perceptions of the most significant public issues and concerns in seven areas that reflect the priorities and expertise within the Center. The seven assessed were: Agriculture and Food Systems; Commercial Horticulture; Water Resources; Natural Resource Management; Energy Use; Youth Development; Nutrition

Information obtained from the web-survey is used to guide strategic planning and programmatic efforts. A goal for these planning efforts is to continually create better alignment between externally identified stakeholder needs and internally capacity. Our overall approach and ongoing efforts are guided by the following questions:

How do we engage our existing stakeholders?

How can we continue to identify and engage new stakeholders, partners and collaborators?

How can we best communicate the value and impact of our work?

How can staff place appropriate limits on the range of activities and areas they work in?

Stakeholder input: Methods to Identify Individuals and Groups

Approximately six hundred fifty individuals served as the pool of respondents for our stakeholder survey. Respondents were identified through a review of contact lists maintained by the Center communications office and included approximately 450 internal (UMass campus-based) stakeholders and approximately 200 external stakeholders.

The survey obtained feedback from individuals with some pre-existing connection to the Center, as well as those whose knowledge and connection to our work is less well established. In contrast, we also continue to gather specific programmatic feedback through our formal advisory bodies, and less

formally through interactions with our many collaborators and participant groups. These groups are composed primarily of existing stakeholders with whom we have long-standing or well-established relationships. These individuals and groups already possess clear knowledge and understanding of our organization and programs and frequently have expectations that are more concrete. Our organization continues to use information obtained from the survey in planning activities, meetings and to guide assessment and evaluation efforts.

We have begun developing ways to engage previously underserved or unserved audiences, with attention directed specially at reaching urban audiences. Urban stakeholders currently provide input for existing program areas in Nutrition Education and youth development, however the goal is to expand input and participation to a broader range of extension and research activities.

Stakeholder input: Methods for Collecting Stakeholder Input

The web-based stakeholder survey, internal strategic planning efforts, and facilitated discussions are all mechanisms for engaging stakeholders both internally and externally. Additional formal opportunities to obtain feedback occur when UMass Extension convenes the Extension Board of Public Overseers. Our interactions with the Board, while they include programmatic presentations and organizational updates, are designed largely as opportunities for listening to our stakeholder representatives who provide feedback on budgets, activities, outcomes and goals, and future directions. Significant input is also routinely collected at the level of individual projects and specific programs. These include formal opportunities for collecting feedback on specific programs through focus groups, interviews, stakeholder meetings, written or web-based surveys as well as many informal opportunities that transpire during the course of regular meetings, conferences events and presentations.

There was a transition in leadership for the UMass Extension Board of Public Overseers. The previous Chair, Jack Angley, who represented the Massachusetts Farm Bureau Federation, stepped down. Matt Baron, representing the Massachusetts Forestry Association is the new Chair. New Board Members were nominated to represent the 4-H Foundation. When approved, our Board will have improved input from the youth development perspective.

Stakeholder input: A Statement of How the Input Will Be Considered

The input we obtain from stakeholders is considered in a variety of ways that inform specific programmatic efforts as well as broad organizational priorities and goals. The recent themes emerging from the broader discussions have been how to effectively deliver programs during the pandemic and how to expand access to Extension programs to audiences that have traditionally been underserved. The more focused input we receive from our collaborators and program participants is directed towards helping us to refine existing programs and identify topics for future efforts that better serve our audiences and constituents. This input is combined with internal feedback we gather from staff, program leaders, department heads and aligned faculty. Center administrators meet two times a month and a major focus of these meetings is to consider this input in ways that allow us to effectively integrate research and applied research with public education, outreach and extension.

Critical Issues

Child, Family and Community Nutrition and Health

Initiated on: Nov 26, 2019

State: Massachusetts

Term Length: Long-term (>5 years)

Nutrition and health remain critical issues for continuing research and extension nationally and in Massachusetts. We conduct basic and applied research that increases our understanding of the effects of nutrition on health and disease as well as issues related to food access and security. Nutrition education programs are delivered to youth and families with limited resources through a statewide network of extension educators and community collaborators.

The primary goal of our programs focused on nutrition and health is to increase knowledge and skills so that healthy habits related to food consumption, purchasing, planning and resource management, as well as physical activity are established during childhood leading to healthier and more productive lives. We also seek to use research findings to inform policies and programs to strengthen local food systems and increase access to healthy, affordable food.

Science Emphasis Area

Education and Multicultural Alliances, Human Nutrition

Climate Adaptation and Education

Initiated on: Nov 26, 2019

State: Massachusetts

Term Length: Long-term (>5 years)

Massachusetts citizens must anticipate and prepare for a variety of new challenges associated with climate and weather. Cities and towns must plan for and protect infrastructure that are threatened by increasing heat and other unpredictable weather-related events. In addition, Massachusetts growers, foresters, conservationists and policy-makers must be prepared to meet the challenges posed by a changing climate.

The primary long-term outcome for our programs focused on Climate Change is that Massachusetts town, cities, landscapes, farms and natural system are managed in ways that reduce or mitigate the effects or risks associated with future changes in climate or weather. We will conduct research and implement programs designed to help our audiences develop knowledge and skills, and subsequently adopt practices that reduce or mitigate the effects or risks associated with future changes in climate or weather.

Science Emphasis Area

Agroclimate Science, Environmental Systems

Commercial Horticulture and Landscape Management

Initiated on: Nov 26, 2019

State: Massachusetts

Term Length: Long-term (>5 years)

Commercial horticulture provides employment opportunities, income, products and services that support our local economies and meet the diverse needs of our citizens. Managing landscapes involve the use of resources that require extensive guidance and education so as to minimize and mitigate a range of potentially negative environmental impacts. We support research and educational programs that help individuals operate businesses and manage landscapes in ways that are economically sound and environmentally sustainable.

The primary outcome for our programs focused on commercial horticulture and landscape management are to increase the knowledge and skills of citizens, agricultural businesses and others involved in growing plants and managing landscapes in Massachusetts such that they engage in these activities in ways that are both economically profitable and environmentally sustainable.

Science Emphasis Area

Sustainable Agricultural Production Systems

Environmental Stewardship

Initiated on: Nov 26, 2019

State: Massachusetts

Term Length: Long-term (>5 years)

There is a critical need to better understand current threats to water resources, biodiversity and ecosystem integrity. Land use policies that protect natural resources while also understanding our reliance upon them are also essential. The Center plays a critical role in the development and deployment of innovative approaches and tools that are based on our evolving understanding of ecological and human systems. Scientific investigations are closely interwoven with educational resources that advance disciplinary knowledge, inform policy decisions and promote management practices that protect terrestrial, wetland, aquatic and coastal ecosystems.

The primary long-term outcome for our programs focused on Environmental Stewardship is to develop programs and disseminate resources that enable Massachusetts citizens to make informed decisions and take actions to preserve or enhance the quality of our natural resources and ecosystems. We have implemented programs designed to help participants acquire knowledge and skill adopt practices to protect and enhance natural resources and ecosystems.

Science Emphasis Area

Environmental Systems

Extension and Experiment Station Administration

Initiated on: Nov 26, 2019

State: Massachusetts

Term Length: Long-term (>5 years)

The Massachusetts Center for Agriculture, Food and the Environment provides leadership and administrative support services for research and educational programs delivered by the Massachusetts

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

Science Emphasis Area

Agroclimate Science, Bioeconomy, Bioenergy, and Bioproducts, Education and Multicultural Alliances, Environmental Systems, Food Safety, Human Nutrition, Sustainable Agricultural Production Systems, Youth Development

Food Safety and Functionality

Initiated on: Nov 26, 2019

State: Massachusetts

Term Length: Long-term (>5 years)

Food borne pathogens account for millions of illnesses and thousands of deaths in the United States each year. The Center helps growers and businesses meet established guidelines for workers and managers in food retail establishments, residential facilities, schools and childcare settings. The Center also supports research on the molecular and structural properties of food and the development of ingredients that improve food texture, appearance, taste and healthfulness. Through research and education, we are helping to discover the health-promoting properties of food components and identifying new technologies and practices that can detect pathogens and limit the incidence of food borne illness.

The primary long-term outcome for our programs focused on Food Safety is that Massachusetts is to ensure the safety and the quality of food grown, processed, prepared and consumed in Massachusetts, and to reduce the incidence of food borne illness. We have implemented programs designed to help participants increase knowledge and skill and to subsequently adopt practices to avoid food borne illness and control other food safety risks and hazard. Our primary audiences include food producers, food processors and consumers.

Science Emphasis Area

Food Safety

Sustainable Agriculture and Food Systems

Initiated on: Nov 26, 2019

State: Massachusetts

Term Length: Long-term (>5 years)

Massachusetts is a leader in sustainable, local food production and consumption. Our level of involvement with direct sales, organic production, specialty crops, value-added products and

community-supported farms reflect a commitment to local agriculture and sustainable food systems. At the same time, many residents of the state, especially those with low incomes, have difficulty accessing fresh, local food. We address agriculture and food systems in Massachusetts and the region through research and public education focusing on new production techniques, urban agriculture and other strategies that expand our food production capacity and protect natural resources to ensure a healthy, fresh and secure food system.

The primary long-term outcome for our programs is that agricultural production and food systems in Massachusetts are increasingly diverse, environmentally sound and economically vibrant. We will implement programs designed to help our audiences develop knowledge and skills and adopt practices that ensure the environmental sustainability, accessibility and economic viability of food production in Massachusetts.

Science Emphasis Area

Sustainable Agricultural Production Systems

Sustainable Energy

Initiated on: Nov 26, 2019

State: Massachusetts

Term Length: Intermediate (1-5 years)

The supply and demand for energy has significant implications for the vitality and the sustainability of our regional economy. The cost of energy influences industrial practices, agricultural production, small business and individual consumers. We are an important resource for stimulating innovation in energy conservation and alternative and renewable energy sources. Many activities and initiative focused on sustainable energy have become consolidated within the UMass Clean Energy Extension Program. The purpose of the program is to provide a resource to reduce market barriers and accelerate the adoption of clean energy for Massachusetts cities and towns, businesses, institutions, farms, low income and multi-unit housing, and others. The program works closely with businesses to assist them in entering or diversify into clean energy markets. We work in collaboration with state energy and agricultural agencies to support the appropriate development of solar energy on farmland, and help citizens understand complex rules and regulations pertaining to government sponsored energy-based programs and incentives.

The primary long-term outcome for our programs focused on Sustainable Energy is that Massachusetts businesses, towns and citizens adopt practices that conserve energy and increasingly utilize alternative, environmentally-friendly and renewable sources of energy. Our programs are also designed and delivered to assist our audiences to adopt practices that increase energy efficiency and the use of renewable energy sources.

Science Emphasis Area

Bioeconomy, Bioenergy, and Bioproducts, Environmental Systems

Youth Development

Initiated on: Nov 26, 2019

State: Massachusetts

Term Length: Long-term (>5 years)

Massachusetts citizens are concerned with preparing youth for the challenges of today and into the future. Young people can only reach their full potential in environments that offer safety, caring adults, and authentic experiences. A statewide network of more than 1,000 4-H volunteers provide leadership training, life-skills development, recreation, and community service opportunities for youth during out of school time that are engaging and educational. Longstanding clubs and camps are complemented by innovative programs that respond to a national 4-H mandate for educational enrichment in science and technology.

The primary long-term outcome for our programs focused on Youth Development is to ensure that diverse youth cultivate a set of skills and experiences that are critical for future success and active citizenship. This is achieved through the support and active participation of adult volunteers and collaborating organizations. We will implement programs designed to help youth become effective team members, communicators, and leaders. Over time, these skills will help participating youth to be successful academically, in the workplace and as active members of their community.

Science Emphasis Area

Youth Development