

Massachusetts Agricultural Experiment Station & Center for Agriculture

BACKGROUND

The Hatch Act provides basic capacity funding for State Agricultural Experiment Stations. The act requires that states provide a 100% match from non-federal resources (many states provide a greater match). Hatch Act funding is distributed by USDA’s National Institute of Food and Agriculture to eligible institutions under a statutory formula.

Congress has provided small increases in recent years, but this has barely slowed the steady, decades-long erosion of this vital program.

The land-grant system strongly supports Hatch Act funding at \$240 million in FY 2011.

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VALUE OF HATCH ACT FUNDS

In Massachusetts (FY 2009), each dollar we receive under the Hatch Act is leveraged by \$1.16 in state funding:

Funds Leveraged by Our Pro Rata Share of Hatch Act Appropriation

	FY 2009 ¹	FY 2010 ²	FY 2011 ³
Federal (Hatch)	\$2,376,729	\$2,376,729	\$2,757,005
State ⁴	\$2,739,689	\$2,739,689	\$2,850,000
Total	\$5,116,418	\$5,116,418	\$5,607,005

NOTES: (1) FY 2009 Federal funds are actual amounts; (2) FY 2010 is estimated; (3) FY 2011 assumes a \$240 million appropriation (as requested by the Association of Public and Land-grant Universities).

(4) The Federal funds in addition to leveraging matching State funds also provide seed money to leverage more than \$8.8 million from other grant funds & contracts.

ADDITIONAL PROGRAM DATA

- 16% provides graduate student assistantships for research relevant to MA.
- 65% funds provides technical support, materials and supplies for faculty research projects relevant to the needs in Massachusetts agriculture.
- 19% funds UMass farms, equipment, and laboratories for agricultural research.

BENEFITS OF HATCH FUNDS

As shown above, if Congress increases the FY 2011 Hatch Act appropriation to \$240 million, our pro rata share would be ≈ \$2,757,005. We would use the increase for:

- Food production initiatives bringing new innovations to farmers in MA.
- Advanced Integrated Pest Management for all agricultural crops.
- Production of ethnic crops for varied population groups in MA.
- GAP (Good Agricultural Practices) for integrated vegetable farms such as community Supported Agriculture and other direct market farms.
- Improved nutrition and safety of locally produced and consumed foods.
- Appropriate renewable energy technologies for increased farm viability.

OTHER PROGRAM HIGHLIGHTS

Massachusetts is the foremost state in direct marketing of produce. Working along with our Extension partners we are collecting information on food production and food safety issues related to direct marketing of vegetable and other produce. A summary of Hatch supported projects appears below.

Sustainable Food Systems

- Relationships between soil fertility and crop nutrient density (nutritional quality).
- Development of new crop opportunities for ethnic markets.
- Development of advanced Integrated Pest Management for apples.
- Parasitic Wasps for control of cabbageworm, an invasive pest on Brassica crops.
- Biological control of Hemlock Woolly Adelgid that threatens this tree species.
- Biological control of weeds and insects, and molecular identification of insect pests.
- Alternative management systems for plant parasitic nematodes.
- Intensification of pasture management with beef and dairy cattle.
- Pasture species and varieties for varied soil and climates in the Northeast.
- Integrated feed production, and nutrient cycling and conservation on dairy farms.



- Sustainable solutions to problems affecting honey bee health.
- Efficacy of organic insecticides to control beetles on eggplant and cucumber.
- Interactions of ground herbivory on cucumber beetle with pollinators, mycorrhizal fungi on the roots, and plant characteristics affecting cucumber yield.
- Chemical ecology to reduce pesticide use and increase sustainability in cranberry.
- Insect viruses to control insect pests with resistance to chemical pesticides.
- Managing growth stress for improved yields of medicinal and aromatic plant compounds.
- Selection of adapted rootstocks for improved fruit production.
- Multistate wine grape cultivar evaluation.
- Chemistry, bioavailability and toxicity of constituents in residues and treated soils.
- Field indicators to characterize frequency, depth and duration of water table fluctuations for classifying wetland (hydric) soils.
- Improving fertilization outcomes from frozen sperm used in animal breeding.
- Ovarian influences on survival of embryos in ruminant animals.
- Molecular techniques for managing animal diseases.
- Private strategies, public policies, price, product quality, country-of-origin-labeling and traceability determinants of food system performance.

Improved Health & Food Safety

- Improving oxidative stability of lipids to increase omega-3 fatty acids and shelf-life in food helping reduce rancid flavors and aromas and increase fat soluble vitamins.
- Improving activity of antimicrobial compounds for cleaning contaminated surfaces.
- Developing functional foods and encapsulation techniques designed to protect and release targeted nutrients for improved absorption, nutrition and health.
- Improved techniques for rapid detection of bacterial contaminated meat and shellfish.
- Methods to reduce the occurrence of emetic (vomiting) & diarrheal food borne diseases.
- the mechanism of conjugated linoleic acid's (CLA) benefit on improving bone mass.
- Developing new DNA based treatments for human and animal zoonotic diseases.
- Nutrition programs emphasizing 'farm to table' and 'more than a meal for seniors'.
- Role of bioactive and antioxidant photochemicals and botanicals in fat cell development associated with obesity and related chronic diseases.
- Interactions of the individual, family, community and policy on mental and physical health of diverse low-income families.
- Economics of individual and collective preparedness for unpredictable global threats to people, food and the environment.

Renewable Energy/Biofuels

- Applied & basic research through TIMBR (The Inst. for Massachusetts Biofuels Research).
- Switchgrass, a warm season perennial grass for bioenergy, carbon sequestration, and agricultural land preservation; production systems for heat (pellets) and electricity.
- Building model networks among dairy, vegetable and floriculture farms to grow and use shelled corn for greenhouse heat.
- Oilseed crops: sunflower, oilseed rape, Crambe and soybean for biodiesel and feed.
- Improved conversion of agricultural wastes to ethanol by fermentation microorganisms.
- Investigations into how hyperthermophilic (heat adapted) microorganisms convert polysaccharides (e.g. cellulose) into hydrogen gas.
- Sustainable use of woody biomass as a renewable alternative to gasoline.
- Use of farm and forest wastes for production of biochar and bio-oil.
- Photovoltaic arrays in dual land-use installations.
- Economic assessment of change in trade arrangements, bioterrorism threats and renewable fuels requirements on the U.S. grain and oilseed sector.