

## **Title: Sustainable Food and Feed Production**

**Project Leader: Masoud Hashemi**

### **Project Overview**

The crops, dairy, livestock, and equine industries are important economic contributors to the Massachusetts economy, both directly, and indirectly through the services and industries they support. Together the dairy and livestock farmers in Massachusetts manage more than 130,000 acres of hay, pasture and corn, contributing to open space that is important to both non-farm residents and tourism. Massachusetts also has a sizable equine industry with a horse population of more than 45,000, with more than 10,000 horse owners. The UMass Extension Sustainable Food and Feed Production Project conducts applied research and provides educational opportunities and technical assistance to dairy farmers, livestock producers and horse owners to increase their knowledge of environmental issues and their ability to reduce the threat of pathogens and nutrient loss from barns, stables, fields and pasture.

### **Activity Summary - 2015**

- Agronomy Research Reports(1)
- Applied research on cover crops for improving soil health and recovery of nutrients (2)
- Applied research on silage corn for feed(2)
- Applied research on Switchgrass for biodiesel (3)
- Consultation and technical assistance for Dairy, Livestock Farms and Equine operations (115)
- Crops, Dairy, Livestock and Equine Newsletter(8)
- On-farm research demonstrations: Best Management Practices for the equine industry(8)
- Presentation at American Society of Agronomy annual meeting (8)
- Publications: the Agronomy Journal and the International Journal of Plant Production (8)
- Serve as Graduate Advisor for Stockbridge School students(4)
- UMass Crops, Dairy, Livestock, Equine website(1)
- Workshop presenting results of on-farm demonstrations and applied research on equine management practices (4)

### ***Total educational contacts***

	Adult Contacts
In Person	1609
Indirect Contacts (Print, Web, etc...)	14700

### **Narrative Summary and Impact**

Crops, Dairy, Livestock, Equine Team were actively involved in conducting applied research, on farm demonstrations, presenting educational workshops, and publishing the results of the applied research. All of research projects focused mainly on improving sustainability of farming through diversified cropping systems and integrated animal and crop production. The applied research falls into three areas of study which can be summarized as: 1) managing cover crops to improve soil health, 2) building resiliency and sustainability in farming systems in Massachusetts as well as the region to address climate change's influence on crop productivity, and 3) minimizing the impact of equine and livestock on environment quality, more specifically on water resources.

The success of Crops, Dairy, Livestock, and Equine Team, UMass Extension can be expressed in several ways.

1) **Funding:** All four graduate students that I am advising have successfully submitted and received funding from Northeast SARE. This is a competitive grant and on average only 30% of applicants receive funding. This could also be used as a testimony to the quality of applied research we are conducting at UMass. The grant reviewers have recognized the benefits to the growers in Northeast region as well as to the environment for approving these grant proposals. Moreover, I have successfully submitted and received funding for two other competitive research projects from Northeast SARE (on average less than 10% receive funding) to build resilience and sustainability in dairy forage systems in New England. Also, I have received funding from Mass DEP/EPA to minimize non-point source pollution from equine facilities. Once again all of these recent grants are testimony to our success in conducting applied research. Certainly our positive reputation in conducting quality applied research, demonstrations, and publications in the past have played a significant role in our success.

2) **Innovations:** We were able to introduce several innovative commodities and methods to help growers improve their income while protecting our environment. A few examples follow:

a) A low cost static aerated composting system for equine facilities to convert their waste into a marketable product.

b) Pasture paradise for horse facilities that have several animals on limited land acreage.

c) Introducing new cover crops to the growers in Massachusetts that can be grown as effective cover crops while harvested as cash crop and/or forage. Two examples are fava beans and small winter grains.

3) **Adoption:** We were able to significantly increase the number of growers in Massachusetts to integrate cover crops into their farming systems.

### **Collaborating Organizations**

- **Blue Star Farm in Palmer. MA.**
- **American Society of Agronomy**