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.

Situation & Priorities:

Priorities in this project are integrating cover crops for various purposes including fertility enhancement for crop production, improving soil health which ultimately reduce cost of crop production, maintain environment quality and sustain farming in New England.

Other priority is introducing new crops to increase sustainability of farming in Massachusetts. Currently, cultivation of fava beans as double cropping and production of barley for malting purpose are under investigation.

Activity Summary - 2014

- Agronomy Research Reports(1)
- Applied research on cover crops for improving soil health and recovery of nutrients (4)
- 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 (150)
- Crops, Dairy, Livestock and Equine Newsletter(4)
- Instructor – Pasture Management (STOCKSCH 211, 3 credits)(1)
- Instructor - Soil and Crop Mgmt (PLSOILIN 350, 3 credits)(1)
Activity Summary – 2014 cont.

- On-farm research demonstrations: Best Management Practices for the equine industry (6)
- Presentation at American Society of Agronomy annual meeting (6)
- Publications: the Agronomy Journal and the International Journal of Plant Production (4)
- Serve as Graduate Advisor for Stockbridge School students (7)
- UMass Crops, Dairy, Livestock, Equine website (1)
- Workshop presenting results of on-farm demonstrations and applied research on equine management practices (3)

Total educational contacts

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Narrative Summary and Impact

The focus of this project has been on protecting environment including soil, water and air through implementations of various on-farm demonstration, graduate students research, as well as educational workshops throughout the state. Various cover crops were used to recover unused nutrients, add nitrogen to the soil by nitrogen fixation, suppress weeds and therefore eliminate or minimize herbicide application, nutrient recycling in the soil, increasing organic matter to improve soil health. In order to persuade growers to vastly grow cover crops, this project offered dual purpose cover crops which while improve soil health but also provide some incentives for growers. Harvesting cover crops as high quality forage for dairy producers and harvesting fresh pods of fava beans for freshmarket while residue serving as significant source of nitrogen were two outcomes of this project. Small acreage horse facilities are potentially a threat to the environment. This project provides several on-farm demonstration and educational workshops to highlight some important best management practices for equine facilities.

Collaborating Organizations

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