

Project Title: Plant Disease Diagnostics

Project Leader: Nick Brazee

Project Overview

The first step in effective disease management is an accurate diagnosis. The University of Massachusetts, Amherst recognizes the importance of reliable and prompt identification of plant problems for the turf, floriculture, vegetable, nursery, urban forestry and landscape industries. We serve farmers, horticulturists, landscape contractors, turf managers, arborists, nurseries, and others in agriculture and the green industries. In addition to plant disease and insect diagnostics, we also provide sound management strategies that utilize an integrated pest management approach. This includes cultural and chemical controls, when necessary. An emphasis is made to utilize management strategies that limit the input of insecticides, fungicides, bactericides and fertilizers into the landscape.

Situation & Priorities

Massachusetts has more than 5,100 firms involved in production, retail and landscape services in the agricultural green industries. In 2007 the income generated by these businesses was in excess of \$2.6 billion. More than 68,000 individual are employed by these industries in Massachusetts and an estimated 14,000 additional workers are needed. The long-term sustainability of these businesses is largely dependent on the stewardship and preservation of the natural resources (land, soil and water) upon which they rely. At the same time, healthy agricultural green industries contribute to the economic vitality and the quality and aesthetic character of life in Massachusetts.

Maintaining a healthy local economy, while conserving natural resources, is a major concern for many communities in Massachusetts. UMass Extension supports agricultural green industry professionals through educational programs, informing policy decisions, and generating applied research that is critical for helping businesses in Massachusetts improve their competitiveness while minimizing environmental and human health risks. Businesses and communities both benefit from the development and adoption of technologies that reduce the cost of crop production and management, reduce the risks of contamination, increase marketability, and improve the health of soil, air and water. Thriving agricultural green industries can provide economic development and other critical public benefits while preserving natural resources and community character for current and future generations.

Activity Summary 2017

- Contribute to and update UMass Center for Agriculture websites (Agriculture & Landscape, Greenhouse, Turf, Vegetable, Urban Forestry). Special reports (for white pine), fact sheet updates for tree/shrubs, vegetable, turf and fruit crops. (5)
- Contribute to extension publications including (but not limited to) Landscape Message, HortNotes, VegNotes, Mayflower, and TurfTalk. (60)
- Editor Disease section of New England Vegetable Management Guide. (1)
- Invited Talks to landscape professionals, retail garden center employees, nursery managers, landscape designers. (7)
- New England Grows, Massachusetts Nursery and Landscape Association, and New England Vegetable and Berry Growers Association Conferences. (Facilitated Group Meetings and Conferences) (7)
- Participate in IPM grant by providing diagnostic support to Specialty Crops (25)
- Participate in National Plant Diagnostic Network, Northeast Region by attending annual meeting, participating in exercises, responding to new pest alert notifications, and entering information into national database. (5)
- Participate in UMass Extension's Green School Program. Green School is a comprehensive certificate short course for Green Industry professionals held biennially and taught by UMass Extension specialists and University of Massachusetts faculty. (4)
- Provide pathogen identification, disease diagnosis, and management recommendations (1200)
- Respond to telephone and e-mail inquiries from commercial growers and the general public. Output possibly includes interviews with the media. (400)

Total educational contacts

	Adult Contacts
Direct Contacts	2515
Indirect Contacts (Print, Web, etc...)	19000

Narrative Summary and Impact

In 2017, the UMass Extension Plant Diagnostic Lab continued to fulfill its primary mission of providing fast, reliable diagnosis of plant problems and detailed diagnostic reports outlining environmentally sustainable management techniques. Sample submitters receive education on the specific plant pathogen involved and management tactics tailored to the organisms or organisms found. Diagnostic lab staff participated in many educational outreach programs, which included invited seminars for various trade groups, twilight walks to discuss disease and insect pests, printed and electronic publications, performing site visits for disease identification, editing technical manuals, and updating plant pathology fact sheets on many different CAFE websites. Applied research projects conducted through the Plant Diagnostic Lab focused on major pathogens of concern to landscape

professionals and vegetable growers. Participants in educational outreach opportunities learn about the specific nature of plant problems and environmentally sustainable disease management. Numerous landscape professionals, vegetable growers and turf managers express their gratitude for the service we provide. Many of these individuals often tell us that they could not do their job without the diagnostic and management assistance we provide. Membership in the National Plant Diagnostic Network provides staff with updates on exotic and quarantine pests, presents educational opportunities for professional development, and allows lab staff to educate growers about exotic and/or newly emerging diseases. Diagnostic support to the Vegetable and Fruit IPM grant educates extension staff and growers about the nature of specific plants problems and their management as well as environmentally sustainable techniques for disease management.

Collaborating Organizations

- National Plant Diagnostic Network, Northeast Region
- Massachusetts Nursery and Landscape Association
- New England Grows