Plant Disease Diagnostics FY25

Project: Plant Disease Diagnostics
University of Massachusetts
NIFA REVIEW as of 01/05/2026

Project Director

Nicholas Brazee

Primary Critical Issue

Sustainable Agriculture and Food Systems

Fiscal Year

2025

Project Start & End Date

10/01/2020

Organization

University of Massachusetts

Organization Project Number

Accession Number

7002099

Funding Source

Extension Capacity Fund (Smith-Lever 3(b) and 3(c))

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

The decline and death of plants from disease, insects and environmental stresses has many detrimental effects. These adverse effects range from economical to environmental and span from agricultural to forest settings. For example, pathogen outbreaks at commercial farms result in reduced earnings, lower vegetable yields, increased pesticide usage, and greater reliance on crops grown outside the region. Additionally, the introduction of invasive insects of trees can result in widespread mortality, dramatically transforming residential landscapes and having major ecological impacts on forests.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

In FY25, the UMass Plant Diagnostic Lab continued to fulfill its primary mission of providing

reliable and accurate diagnoses of plant problems caused by diseases, insects and environmental stresses. As always, the lab provides detailed diagnostic reports outlining the biology and ecology of the pathogen/insect pest, when present, and environmentally sustainable management techniques. Sample submitters receive education on the specific plant pathogen or insect pest involved and management tactics tailored to the organisms found, age of the plant and specific site conditions.

Briefly describe how your target audience benefited from your project's activities.

Numerous landscape professionals, vegetable growers, greenhouse managers and turfgrass supervisors express their gratitude for the services we provide. Many of these individuals often tell us that they could not do their job without the diagnostic and management assistance we provide. Participants in educational outreach programs learn about the specific nature of plant problems and environmentally sustainable disease management. They apply this knowledge and techniques in their business to meet the needs of their clients.

Briefly describe how the broader public benefited from your project's activities.

Stakeholders from the broader public regularly utilize the services and outreach materials provided by the diagnostic laboratory. They frequently utilize our online material, including newsletters and fact sheets, to better educate themselves on the identity of pests and pathogens in their landscape and control measures available to them. Through education and outreach, the broader public is better informed and aware of pests and pathogens of concern in the region. Furthermore, when they utilize the diagnostic capabilities of the lab, they often adopt an integrated pest management approach with aims to reduce pesticide inputs into the landscape.

Comments (optional)

- Online Articles and Newsletters

Brazee, NJ. HortNotes, November 2024, Pseudocercospora leaf blotch of lilac (*Syringa vulgaris*), https://www.umass.edu/agriculture-food-environment/landscape/newsletters/hort-notes/hort-notes-2024-vol-359

Brazee, NJ. HortNotes, December 2024: Didymascella leaf blight of Green Giant arborvitae, https://www.umass.edu/agriculture-food-environment/landscape/newsletters/hort-notes/hort-notes-2024-vol-3510

Brazee, NJ. HortNotes, February/March 2025: Salt Damage to Woody Plants, https://www.umass.edu/agriculture-food-environment/landscape/newsletters/hort-notes/hort-

notes-2025-vol-361

Brazee, NJ. HortNotes April 2025: Winter injury on Evergreen Shrubs, https://www.umass.edu/agriculture-food-environment/landscape/newsletters/hort-notes/hort-notes-2025-vol-362

Brazee, NJ. UMass Extension Landscape Message: 20 unique newsletters reviewing weather conditions, pest/pathogen activity from the Pioneer Valley region along with descriptions of notable samples from the UMass Plant Diagnostic Laboratory, https://ag.umass.edu/landscape/landscape-message-archive

Madeiras, AM, and Brenes-Arguedas, T. NPDN Communicator, February 2025, Results of the 2023 Plant Diagnostic Laboratory Self-Rating Survey https://us2.campaign-archive.com/?u=9b01dc0962542185a4f639a9b&id=da00dfe692

Madeiras, AM. Greenhouse Update, April 2025, Phosphorus deficiency in tomatoes https://www.umass.edu/agriculture-food-environment/greenhouse-floriculture/greenhouse-updates-april-16-2025

Madeiras, AM. HortNotes, May 2025, Garden Sanitation vs. Pollinator Protection https://www.umass.edu/agriculture-food-environment/landscape/newsletters/hort-notes/hort-notes-2025-vol-363#Q&A

Madeiras, AM. Focus on Fungicides: Elumin, Vegetable Notes, May 2025 https://www.umass.edu/agriculture-food-environment/vegetable/newsletters/vegetable-notes/vegetable-notes-2025-vol-377

Madeiras, AM. HortNotes June 2025, Winter Injury on Boxwood https://www.umass.edu/agriculture-food-environment/landscape/newsletters/hort-notes/hort-notes-2025-vol-364

Madeiras, AM. Focus on Fungicides: QoIs. Vegetable Notes, June 2025 https://www.umass.edu/agriculture-food-environment/vegetable/newsletters/vegetable-notes/vegetable-notes-2025-vol-379

Madeiras, AM. Clubroot of brassicas. Vegetable Notes, June 2025 https://www.umass.edu/agriculture-food-environment/vegetable/newsletters/vegetable-notes/vegetable-notes-2025-vol-379

Madeiras, AM. HortNotes, August 2025, Septoria leaf spot on tomatoes https://www.umass.edu/agriculture-food-environment/landscape/newsletters/hort-notes/hort-notes-2025-vol-366

Madeiras, AM (table only) IN: Beckerman, J. Vegetable Notes, August 2025, Fungicide Mobility https://www.umass.edu/agriculture-food-environment/vegetable/newsletters/vegetable-notes/vegetable-notes-2025-vol-3720#a1

Madeiras, AM, and Scheufele, S. Vegetable Notes, September 2025, Focus on Fungicides: Polyoxin D Zinc Salts https://www.umass.edu/agriculture-food-environment/vegetable/newsletters/vegetable-notes/vegetable-notes-2025-vol-3721

- New and Updated Disease Fact Sheets

Beech Leaf Disease: https://www.umass.edu/agriculture-food-environment/landscape/fact-sheets/beech-leaf-disease

Target Canker of Hardwoods: https://www.umass.edu/agriculture-food-environment/landscape/fact-sheets/target-canker-of-hardwoods

Cedar-Quince Rust: https://www.umass.edu/agriculture-food-environment/landscape/fact-sheets/cedar-quince-rust

Root and Butt Rot caused by *Kretzschmaria deusta*: https://www.umass.edu/agriculture-food-environment/landscape/fact-sheets/root-butt-rot-caused-by-kretzschmaria-deusta

Birch Anthracnose: https://www.umass.edu/agriculture-food-environment/landscape/fact-sheets/birch-anthracnose

Trunk Rot caused by *Climacodon septentrionalis*: https://www.umass.edu/agriculture-food-environment/landscape/fact-sheets/trunk-rot-caused-by-climacodon-septentrionalis

Armillaria Root and Butt Rot: https://www.umass.edu/agriculture-food-environment/landscape/fact-sheets/armillaria-root-butt-rot

Root and Butt Rot caused by *Bondarzewia berkeleyi*: https://www.umass.edu/agriculture-food-environment/landscape/fact-sheets/root-butt-rot-caused-by-bondarzewia-berkeleyi-berkeleys-polypore

- Extension Events and Invited Presentations

Brazee, NJ. Review of Diseases of Trees & Shrubs from the 2024 Growing Season & internal decay assessment demonstration using sonic and electrical resistance tomography

11/04/2024, Falmouth, MA, Harrison–McPhee, Inc. company retreat (*30 in attendance*)

Brazee, NJ. Tree & Shrub Diseases: Part 1

11/14/2024, Remote presentation, UMass Extension Green School (*99 in attendance*)

Brazee, NJ. What is Tree Pathology?

11/19/2024, Remote presentation, Cape Cod Technical High School (*15 in attendance*)

Brazee, NJ. Tree & Shrub Diseases: Part 2

11/21/2024, Remote presentation, UMass Extension Green School (*99 in attendance*)

Brazee, NJ. Tree & Shrub Disease Management

12/17/2024, Remote presentation, UMass Extension Green School (*99 in attendance*)

Brazee NJ. UMass Plant Diagnostic Lab: The Year in Review

01/08/2025, Sturbridge, MA, Massachusetts Tree Wardens and Foresters' Association Annual Meeting (*200 in attendance*)

Brazee NJ. UMass Plant Diagnostic Lab: The Year in Review

01/14/2025, Hyannis, MA, LandsCape Cod Annual Conference (*125 in attendance*)

Brazee NJ. Survival of the Fittest, Tree Health in the Concrete Jungle

02/07/2025, Boylston, MA, Tower Hill Botanic Garden Urban Tree Symposium (*55 in attendance*)

Brazee NJ. Tree and Shrub Diseases: What's Coming Down the Pike?

02/25/2025, Walpole, MA, Massachusetts Arborist Association Dinner Meeting (*150 in attendance*)

Brazee, NJ. Beech Leaf Disease in Massachusetts: From Bad to Worse

02/27/2025, Remote presentation, Ecological Landscape Association Annual Meeting (*30 in attendance*)

Brazee NJ. Kick 'em When They're Down: Diseases of Storm-Damaged Trees

03/04/2025, Remote presentation, UMass Community Tree Conference (*125 in attendance*)

Brazee NJ. Tree and Shrub Diseases in the Managed Landscape

03/13/2025, Nashua, NH, SavATree Liquid University (*60 in attendance*)

Brazee NJ. Woody Plant Diseases in the Landscape: Predictions for the Upcoming Growing Season
03/25/2024, Sturbridge, MA, UMass Extension Spring Kick-Off (*80 in attendance*)

Brazee NJ. Foliar Diseases: From Minor to Menacing

03/27/2025, Springfield, MA, ArborExpo Annual Conference (*125 in attendance*)

Brazee NJ. What is a Plant Pathologist?

03/31/2025, Easthampton, MA, Mountain View Elementary School (*20 in attendance*)

Brazee NJ. Spring 2025 Tree and Shrub Disease Update

04/16/2025, Remote presentation, Invited webinar for Hartney Greymont, Inc. (*30 in attendance*)

Brazee NJ. Review of Important Root and Trunk Rot Pathogens of Trees

05/14/2025, Remote presentation, Invited webinar for Hartney Greymont, Inc. (*30 in attendance*)

Brazee NJ. Tree Disease Walk

06/04/2025, Boston, MA, Arnold Arboretum Adult Education Series (*20 in attendance*)

Madeiras, AM. Fungicide Modes of Action

11/04/2024, Remote Presentation, UMass Extension Pesticide Education Program (*80 in attendance*)

Madeiras, AM. Basic Plant Pathology

11/07/2024, Remote Presentation, UMass Extension Green School (*130 in attendance*)

Madeiras, AM. Turf Diseases

11/14/2024, Remote Presentation, UMass Extension Green School (*29 in attendance*)

Madeiras, AM. In-House Diagnostics

11/20/2024, Remote Presentation, UMass Extension Greenhouse Winter Program (*28 in attendance*)

Madeiras, AM. Basic Plant Pathology

01/08/2025, Remote Presentation, UMass Extension Turf Winter School (*70 in attendance*)

Madeiras, AM. Turf Disease IPM

01/15/2025, Remote Presentation, UMass Extension Turf Winter School (*70 in attendance*)

Madeiras, AM. How Do You Know it's a Disease?

02/05/2025, Marlborough, MA, Site One University (*450 in attendance*)

Madeiras, AM. Biofungicides for Greenhouse Disease Management

02/18/2025, New Haven, CT, UConn Greenhouse Education Program (*22 in attendance*)

Madeiras, AM. UMass Extension and Plant Disease Diagnostics

03/27/2025, University of Massachusetts, Amherst, MA, Stockbridge School 505 Plant Pathology (*63 in attendance*)

Madeiras, AM. UMass Extension and Plant Disease Diagnostics

04/28/2025, University of Massachusetts, Amherst, MA, Stockbridge School 335 Principles and Practice of Greenhouse Cultivation (*18 in attendance*)

Madeiras, AM. Introduction to the UMass Extension Plant Diagnostic Lab

05/06/2025, Remote Presentation, UMass Extension Urban Agriculture Mentor Farm Program (*4 in attendance*)

Madeiras, AM. Basic Plant Pathology

07/07/2025, University of Massachusetts, Amherst, MA, Research and Extension Experiences for Undergraduates (REEU) (*8 in attendance*)

Madeiras, AM. Diagnostics and Laboratory Experience

07/08/2025, University of Massachusetts, Amherst, MA, Research and Extension Experiences for Undergraduates (REEU) (*8 in attendance*)