

Applying *Phytophthora ramorum* Inoculum
A New Method That Simulates Overhead

Epidemiology and microevolution of
during a controlled disease outbreak
production facility

Steaming Inactivates *Phytophthora ramorum*
Causal Agent of Sudden Oak Death
from Infested Nursery Stock

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Monitoring Using a Sentinel Plant System to Assess
Aerial Spread of *Phytophthora ramorum* From
Plants in a Quarantine Research Facility

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Use of Foliar Chemical Treatments to Induce
Rhododendrons Inoculated with *Phytophthora ramorum*

Inactivation of plant pathogens in irrigation water
using a novel UV disinfection system

Bassam A. Younis · Laura Mahoney ·
Wolfgang Schweigkofler · Karen Suslow

Solarization
A Simple and Low Cost Method for Disinfecting Horticultural Soil

by Karen Suslow¹ and Kathy Kosta²



Remediation of *Phytophthora ramorum*-infested soil with *Trichoderma asperellum* isolate 04-22 under ornamental nursery conditions

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NORS-DUC Governance

Facility oversight is directed by an Executive Committee comprised of appointed representatives from USDA, Dominican University of California, and the National Plant Board. The Executive Committee works closely with the Steering Committee, to establish overall priorities and provide general direction and management.

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SUPPORTING PARTNERS

Regulatory agencies, nursery industry and organizations serving in NORS-DUC governance.

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DOMINICAN UNIVERSITY of CALIFORNIA
NORS-DUC

MISSION
 To identify, prioritize, facilitate, and conduct research related to pests and diseases of nursery stock while safeguarding plant health and the environment

- Who we are**
- National Ornamentals Research Site at Dominican University of California in San Rafael
 - State-of-the-art research facility, a collaboration between DUC, USDA, and CDFA
 - Applied research focusing on horticultural industry and plant disease management

- What we do**
- Conduct collaborative research on quarantine pests and pathogens in an open nursery- like environment with project partners from
 - Universities
 - Private Companies
 - Research Centers
 - Study the epidemiology of invasive quarantine pests and pathogens of significant economic impact to the national nursery industry such as
 - Phytophthora ramorum* (causal agent of Sudden Oak Death)
 - Calonectria pseudonaviculara* (causal agent of Boxwood Blight)
 - Invasive insects and mites



- ### With Our Collaborators We Develop
- Reliable monitoring and control strategies
 - Effective remediation options for soil, water, and infested plants
 - Fast and efficient diagnostic tools for early detection and screening for pathogens
 - Approaches for focal point water sampling and testing in nurseries
 - Validate Best Management Practices for prevention of invasive pests and pathogens into nursery operations

- ### We Provide
- Nursery research plots for experimental studies
 - Research collaboration to virtual teams and stakeholders
 - Expertise in field design and layout of research plots
 - Practical solutions for the nursery growers
 - In-house training on Best Management Practices for the growers
 - Valuable data and research output to our stakeholders

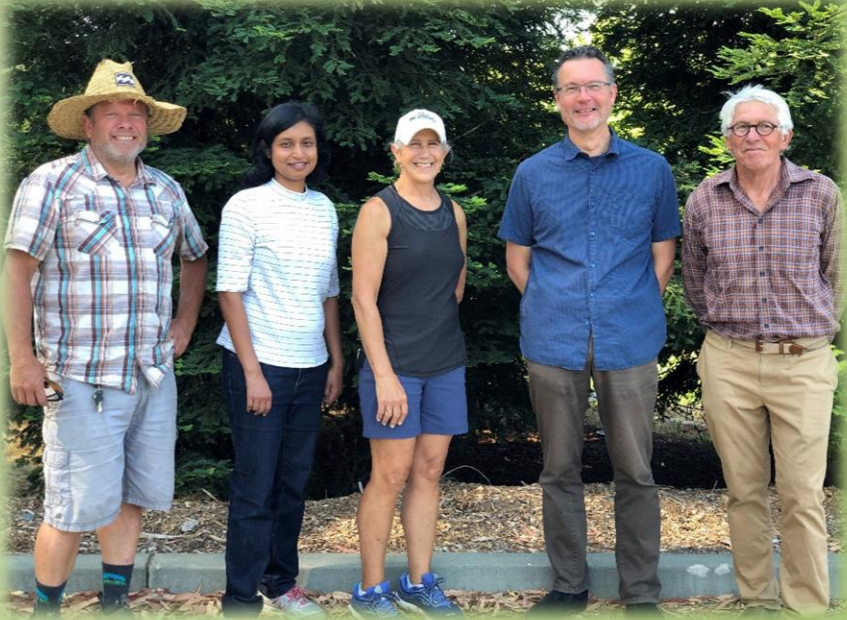
We Manage

Two research sites with total area of 2170 m ²	12 research plots, each plot contains a 3.4 X 9 m lined nursery bed	3.4 X 9 m nursery bed can be split in half	Greenhouse facility
Secure drainage and water treatment system	Flexible irrigation methods for soil and plant-based studies	Variety of sanitation methods for disinfection of nursery beds	Research lab facility for microbiological and molecular analysis
Efficient buffer plant system to prevent cross contamination	Strong Outreach program and other educational campaigns	Student training program	

How we benefit the nursery industry

- Reduce *Phytophthora ramorum* spread through infested nursery stock shipments
- Research on water contamination, potential pathways, and pathogen movement
- Validate BMPs for nursery stock production
- Effective outreach to the stakeholders
- Apply steaming, solarization, and bio-control options to manage *P. ramorum* and other soil-borne plant pathogens
- Monitor the presence and distribution of potential plant pathogens
- Collection of epidemiological data on new and emerging pests and pathogens of ornamentals

NORS-DUC helps safeguard nursery production and the native environs



NORS-DUC Team

How you can work with us: Two ways

