


The Western Plant Diagnostic Network (WPDN) is a regional member of the larger National Plant Diagnostic Network (NPDN). WPDN members include land-grant institutions and state departments of agriculture in ten western States and two U.S. territories in the Pacific. The WPDN region produces over 50% of the value of fruit, nut, and vegetable production in the country, and is home to some of the most active ports for international trade in the U.S. Hence, disease diagnostic in the region is of high economic importance and key to the nation's biosecurity. The region covered by WPDN is perhaps the most diverse in the nation with respect to climate and agriculture. With over 400 different commodities, the climate in the region ranges from the Tropical Pacific Islands to Arctic Alaska, and from the arid and semi-arid environments of the inland West and Southwest, to the humid North Pacific Coast. The Regional Center is located at the University of California, Davis in partnership with the California Department of Food and Agriculture. However, to address the large diversity of the region, the WPDN relies on two additional sub-regional expert laboratories in the University of Hawaii/Hawaii Department of Agriculture and in Oregon State University. This poster highlights the diversity of diagnostic work and extension service performed by WPDN member labs throughout the region.

### Diagnosing insect outbreaks in Alaska arctic trees

The University of Alaska, Fairbanks, Cooperative Extension Service (CES) received reports from the public concerning an insect that was defoliating deciduous trees and shrubs at an alarming rate in 2009. CES quickly determined that an outbreak of Geometrid moths was responsible. This early identification was key in developing appropriate control strategies and keeping the public informed of the outbreak status.

by Gino Graziano



### Testing for fungicide resistance in Washington

*Pythium* and *Phytophthora* species are potentially devastating pathogens affecting major Washington agricultural commodities. Unfortunately some populations have developed resistance to the commonly-used metalaxyl fungicide. Washington State University Plant Clinic provides metalaxyl fungicide resistance testing for *Pythium* and *Phytophthora* from soil or infected plant material. Growers can use this information to make informed crop management decisions that take into account fungicide resistance.

by Rachel Bomberger



### Protecting small farm agriculture in Guam

Although no large scale commercial agriculture occurs on Guam, a wide variety of tropical fruits and vegetables are grown on small farms. University of Guam extension services diagnoses invasive species, a major problem impacting agricultural production and natural resources in the island.

by Aubrey Moore and Bob Schlub



### Detection and Delimiting Surveys in Hawaii

The University of Hawaii's Agrosecurity Laboratory works closely with State and Federal partners to conduct statewide plant pest and pathogen surveys and diagnostics. Major foci include coconut rhinoceros beetle, huanglongbing, seed potato certification, and surveys for regulated plant pests and pathogens not known to occur in Hawaii.

by Michael Melzer and Darcy Oishi



### Identifying invasive pests in American Samoa

American Samoa is the southernmost territory of the United States. The American Samoa Community College Plant Clinic has detected a number of introduced exotic pests that threaten the islands' biosecurity. One of them is the introduced phantasma scale, *Fiorinia phantasma* (in the photo), which has a wide host range, including fruit trees such as breadfruit, an important local staple.

by Mark Schmaedick



### Emerging Diseases of Cannabis Crop in Nevada

In the last two years, the Nevada Department of Agriculture Plant Pathology Laboratory (NDA-PPL) detected more than 10 diseases in hemp caused by oomycetes, fungi, phytoplasmas, and viruses. Some were so destructive that an entire crop failed (see photo). NDA-PPL has become a valuable diagnostic resource for Nevada hemp growers.


by Shouhua Wang



### Taxonomic advances from California nursery pests

A new phloem boring and leaf mining species of Nepticulidae in the genus *Etainia*, was identified by California Department of Food and Agriculture Entomologist Dr. Marc Epstein on nursery stock of strawberry tree (*Arbutus unedo*) in Marin and Sonoma counties in California. The new species is being described by Dr. Epstein and a team of microlepidopterists from the U.S. and Europe.


by Marc Epstein



### Wide range of diagnostic capacity in Arizona

The School of Plant Sciences at the University of Arizona, Tucson offers a wide range of diagnostics for plant pathogen detection and disease management in Arizona. Some of the diseases studied include the brown wood rot of lemon trees, which produces leaf yellowing and twig dieback (A); whitefly-transmitted viruses of cotton and vegetables (B); and wilt of lettuce caused by *Fusarium oxysporum* f.sp. *Lactucae* (C).


by Judith Brown, Alex Hu, and Barry Pryor



### Protecting New Mexico from stem and bulb nematodes

The New Mexico State University Plant Clinic, recently detected the stem and bulb nematode, *Ditylenchus dipsaci*, in garlic bulbs submitted by a home gardener. This nematode is known to cause serious disease losses in onions, garlic and alfalfa, and is a regulatory pest worldwide. If this nematode were to infect onions in New Mexico, it could result in 100% crop loss with an estimated value of over \$100 million annually.

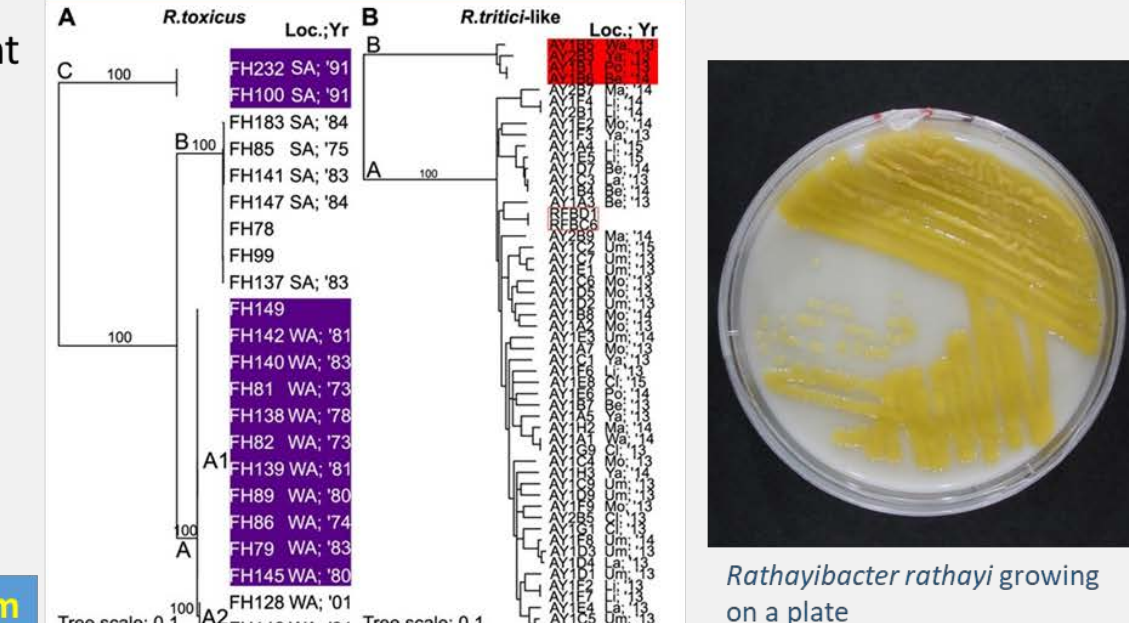
by Phillip Lujan, Natalie Goldberg and Jason French

### Collaborating to understand pests in Oregon

The Oregon State University Plant Clinic collaborates with basic researchers to answer both fundamental and applied questions. One collaboration described the phylogenetic relation between *Rathayibacter toxicus* (a Select Agent) compared with an indigenous, new species of *Rathayibacter* native to Oregon


by Melodie Putnam



### Providing an early warning system in Idaho

The University of Idaho NPDN Plant Diagnostic Lab at Parma operate a spore trap network which provides Idaho potato growers early warning of the presence of important diseases such as late blight (*Phytophthora infestans*) and early blight (*Alternaria solani*).

by James Woodall and Alexandra Drozozca



### Identifying new pests in Utah

The Utah State University Plant Pest Diagnostic Lab uses many techniques for pathogen and insect identification. The lab has identified numerous diseases and insects new in UT, such as the Tobacco streak virus on squash; *Candidatus Liberibacter solanacearum* on potato, tomato and pepper; spotted wing drosophila; and brown marmorated stinkbug. Occasionally samples are submitted for a suspected disease problem but are herbicide damage (in photo).

by Claudia Nischwitz

