

## First Report in US - Grapevine Moth Found in California

Dick Hoenisch, University of California at Davis, Department of Plant Pathology

The European Grapevine Moth (EGVM), *Lobesia botrana*, was found for the first time in North America in September, 2009, in the heart of California's Napa Valley at Oakville and Rutherford.




European grapevine moth female. Photo by Jack Kelley Clark, courtesy of UC Statewide IPM Program.

Grape growers had been noticing damage to clusters, a high incidence of cluster rots, and larvae within the clusters. It was first thought to be one of the common grapevine moths, but then PCR tests with EGVM DNA confirmed the new moth as EGVM. This moth is quite common in Europe and was detected for the first time in the western hemisphere near Santiago, Chile, in 2008.

After careful trapping and delineation by the California Department of Food and Agriculture (CDFA), together with the USDA-PPQ, and the Napa County Ag Commissioner's staff, a quarantined area was announced by the CDFA on March 9, 2010. It includes a large area of the Napa Valley, and smaller areas of neighboring Sonoma and Solano counties. A thorough campaign of eradication is taking place as the grapevines bud out and the overwintering EGVM pupae begin to hatch into adults. The [website from the UCCE office in Napa](#) updates the situation frequently.



EGVM pupa inside partially opened cocoon. Photo by Jack Kelley Clark, courtesy of UC Statewide IPM Program.

For further reading, check out the feature article in the March/April 2010 issue of *Practical Winery and Vineyard* magazine on EGVM... 

### Issue Highlights:

- European Grapevine Moth in CA
- Diagnostic Tip - Detecting Systemic Infections of Downy Mildew in Broccoli
- New Plants Added to *Phytophthora ramorum* List
- e-Learning Module - *Ralstonia solanacearum*
- Navigating the New NPDN Portal
- New Pest Category Report



National Institute of Food and Agriculture

## Diagnostic Updates

### A Diagnostic Tip for Detecting Systemic Infections of Downy Mildew in Broccoli

Cheryl Blomquist, Senior Plant Pathologist CDFA, Plant Pest Diagnostics, Sacramento, CA

This technique for looking at haustoria in downy mildew of broccoli came to me from Steven Koike, Plant Pathology Farm Advisor in Monterey County California via Heather Scheck, Plant Pathologist in Santa Barbara County. Steven said that this technique was described by Marlatt in 1962 (see reference below).

Downy mildew of broccoli and other brassicaceous plants is caused by *Hyaloperonospora parasitica* (*syn. Peronospora parasitica*). Downy mildew can be very severe and kill seedlings, or can be less severe but still cause decreased yield and quality in older plants. On seedlings and older plants, diagnosis of this disease is usually straight forward. *H. parasitica* produces conidia and conidiophores on the leaf underside in angular yellow necrotic patches, sometimes visible when the sample arrives, other times requiring an overnight incubation period in a moist chamber. The conidiophores branch 6-8

times and spores are globose at first but become broadly ellipsoidal in age, 12-22 X 24-27  $\mu\text{m}$  (Rimmer 2007) (Fig. 1). Occasionally, *H. parasitica* can systemically infect the plants without production of visible fungal structures on the outside of the plant. Infected



Fig. 1. Conidiophore with conidia of *Hyaloperonospora parasitica* emerging from a systemically infected piece of cauliflower stem. Photo by Steven Koike.

broccoli florets have gray discolored patches, and when the stem is cut open, dark brown to black vascular streaks are visible due to systemic infection (Fig. 2). In 2009, cases of systemic downy mildew in broccoli, cauliflower,



Fig. 2. Internal discoloration of a lettuce stem systemically infected with downy mildew caused by *Bremia lactucae*. Broccoli has similar symptoms. Photo by Steven Koike.

and lettuce (caused by *Bremia lactucae*) were common in California. Because vascular discoloration can be caused by other reasons than downy mildew, and in these samples there are usually no conidia or conidiophores present, further steps need to be taken to conclude the symptoms are caused by downy mildew. First, incubate the sample in a moist chamber 1-2 days and look for production of conidiophores and conidia. If no conidia and conidiophores are produced after two days, take very thin stem cross sections of the area near the internal discoloration making sure to include the epidermis of the stem to look for haustoria. In my experience the area just under the epidermis of the stem is where the haustoria are most plentiful. To obtain the best sections, I use a new single-edged razor blade shaving the stem and making cross sections under a stereomicroscope. Make sure to only cut a small area of the stem at a time. Do not try to get an entire stem cross section in one piece. It will not be thin enough. Place sections on a glass slide, one at a time, with a drop of

cotton blue stain. Place a coverslip on the sample and search for blue globose haustoria (Davison 1968). Broccoli stem tissue appears hyaline to white and the haustoria and hyphae of the downy mildew will stain blue (Fig. 3). Thin sections yield the best results and are possible with a bit of practice. You may

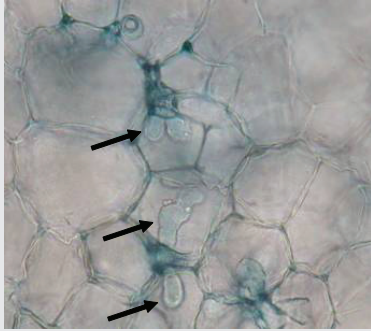


Fig. 3. Black arrows point to the haustoria of *Hyaloperonospora parasitica* in a systemically infected broccoli stem. Tissue was stained with cotton blue. Photo by Cheryl Blomquist.

need to take several sections in different discolored broccoli stems before you observe the haustoria. I was pleasantly surprised and saw visible haustoria in some of my first six sections.

#### References:

- Rimmer, S.R. et. al. eds. 2007. *Compendium of Brassica Diseases*, APS Press, St. Paul, MN.
- Davison, E.M. 1968. Cytochemistry and ultrastructure of hyphae and haustoria of *Peronospora parasitica* (Pers. ex Fr.) Fr. *Annals of Botany* 32:613-621.
- Marlatt, R.B. et al 1962. Systemic infection of lettuce by *Bremia lactucae*. *Phytopathology* 52: 888-890. 🌿

## 10 Plants Added to the *Phytophthora ramorum* Regulated Plant List

APHIS released a Federal Order on February 22, 2010 which identified 10 additional plants for the *Phytophthora ramorum* regulated plant list.

The order goes into effect March 31, 2010, and brings the list of regulated plants to 127 hosts. Nurseries operating under a compliance agreement with APHIS for the original list of hosts may continue to ship those plants including the newly listed plants. Any nursery not operating under a compliance agreement must be properly inspected, sampled, tested and placed under a Compliance Agreement by March 31, 2010 to be able to move plants interstate.

- *Choisya ternate*
- *Cornus kousa*
- *Daphniphyllum glaucescens*
- *Ilex aquifolium*
- *Lithocarpus glaber*
- *Magnolia cavaleri*
- *Magnolia foveolata*
- *Ribes laurifolium*
- *Vaccinium myrtillus*
- *Vaccinium vitis-idaea*

Follow this link to read the [SPRO Letter with the Federal Domestic Quarantine Order and Host List](#). 🌿



*Cornus kousa* flowers. Photo courtesy of the Dow Gardens Archive, Dow Gardens, Bugwood.org.



# Education and Training

## *Ralstonia solanacearum* Race 3 Biovar 2 e-learning Module Released!

Amanda Hodges, PhD  
University of Florida, Entomology and Nematology Department



The National Plant Diagnostic Network (NPDN) is pleased to announce the release of the *Ralstonia solanacearum* race 3 biovar 2 e-learning module.

*R. solanacearum* causes bacterial wilts on a wide range of crops and ornamentals, including potato, tomato, and geranium. It is one of the most damaging plant

has been listed as a Select Agent plant pathogen and is subject to the strictest biosecurity regulations in the United States.

This educational program on *R. solanacearum* is part of a USDA-NRI project titled: "*Ralstonia solanacearum* race 3 biovar 2: Detection, exclusion, and analysis of a select agent pathogen".

Upon completing this module you will:

- Be familiar with R3bv2 status as a select agent in the U.S.
- Be familiar with symptoms on potato, geranium, and tomato.
- Be familiar with current isolation and identification methods.
- Know survival sites for R3bv2 and disease epidemiology.
- Know best management strategies and local resources for obtaining management recommendations.
- Know how to submit samples following USDA-APHIS recommendations.

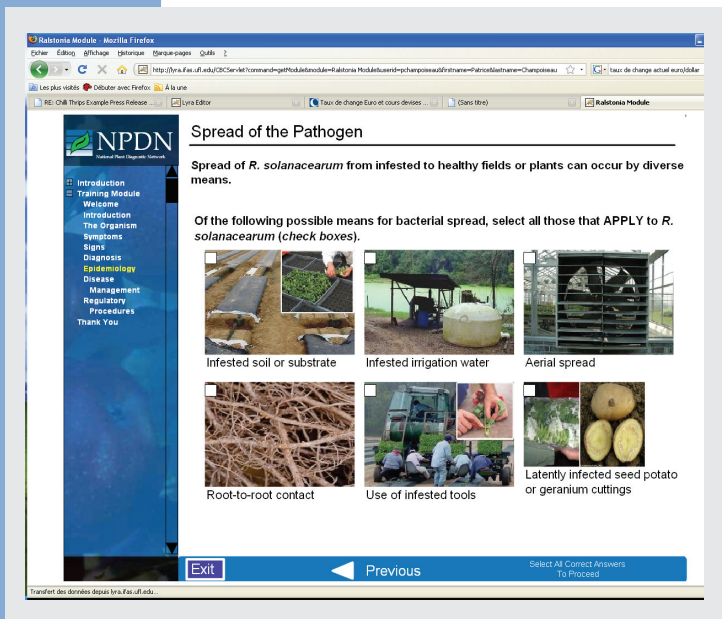
How to access the module?

In order to view the *Ralstonia solanacearum* race 3 biovar 2 e-learning module, go to the NPDN Training and Educational Site at <http://cbc.at.ufl.edu/> and click on 'take the online modules'.

**If you have an account set up with the NPDN, use your login and password to view this module. If you do not have an account, you will need to create one in order to view this module along with others on the site. The website contains simple instructions for creating your account.**

**Get a Module Certificate of Completion!**

The *Ralstonia solanacearum* race 3 biovar 2 e-learning module includes a post-test. A 'certificate of completion' for this module will be available for download once the module has been completed at the 70% level or higher.



pathogenic bacteria worldwide, responsible for the loss of several billion US dollars annually. One subgroup of *R. solanacearum* called race 3 biovar 2 (R3bv2) is not present in the United States, but is of high risk of introduction through infected geranium cuttings imported from off-shore production sites. If introduced, R3bv2 could seriously affect the potato industry. It

### Module Credits:

Author: Patrice G. Champoiseau (University of Florida/IFAS).  
Technical Authoring/Tool Design: Howard Beck (University of Florida/IFAS).

Specialist and Diagnostic Reviewers: Caitilyn Allen (University of Wisconsin-Madison), Carrie L. Harmon and Amanda Hodges (SPDN, University of Florida/IFAS), Jeffrey B. Jones and Timur M. Momol (University of Florida/IFAS), Gail Ruhl (Purdue University).

Financial support: This project is supported by the National Research Initiative of the USDA Cooperative State Research, Education, and Extension Services, award number 2007-55605-17843.

Learn more about this project at: [http://plantpath.ifas.ufl.edu/rsol/NRI\\_Project/Projectsummary.html](http://plantpath.ifas.ufl.edu/rsol/NRI_Project/Projectsummary.html)

**Published online: March 2010.**

### Cite this module as follows:

Champoiseau, P. G. (2010) *Ralstonia solanacearum* race 3 biovar 2. E-learning Module. Published online, March 2010. NPDN Training and Educational Site: <http://cbc.at.ufl.edu/>. Accessed Month DD, YYYY.

Please direct questions regarding the NPDN e-learning program to Amanda Hodges at [achodges@ufl.edu](mailto:achodges@ufl.edu). 🌿

## NPDN-USDA APHIS 2010 Now Offering Advanced Diagnostic Training for Citrus Greening-Huanglongbing (HLB).

Karen L. Snover-Clift, Cornell University  
Laurene Levy, USDA-APHIS-PPQ-CHPST-NPGBL

The NPDN Diagnostics Subcommittee and members of USDA-APHIS-PPQ-CHPST-National Plant Germplasm and Biotechnology Laboratory (NPGBL) are offering a training session on Citrus Greening, also known as Huanglongbing or HLB. The training will require 3 full days and will be held April 27-29, 2010.



Photo by T. R. Gottwald.

Participants of this meeting are expected to cover their travel, lodging and meal expenses. There is no registration charge for the meeting or for meeting materials. These expenses are covered by our colleagues at USDA-APHIS-PPQ-CPHST-NGBTL. Please contact Karen Snover-Clift at [kls13@cornell.edu](mailto:kls13@cornell.edu) for more information on this training session. 🌿

## Getting the Most Out of the NPDN Website: Navigating the New Portal

Karen Scott, Cornell University, Department of Plant Pathology and Plant-Microbe Biology

The National Plant Diagnostic Network (NPDN), with the combined effort of the Web and IT committees, launched the new national web site ([www.npdn.org](http://www.npdn.org)) in early December 2009. The new portal is being housed at Purdue University in West Lafayette, Indiana.

The site has been redesigned with a new look and continues to be the main source of information for the network with pages for both public access and restricted users. Some of the documents that are available include program committee activities and meeting minutes, progress reports, NPDN policies, employment opportunities, and the NPDN newsletters. Chairmen of the program area committees have been trained on the process of keeping their pages up to date with current information.

First detector information, on line training opportunities, and individual diagnostic labs by state are all conveniently accessible from the NPDN home page. The home page also links to each of the regional sites which traditionally house information specific to that region.

*Continued on page 9...*

## Update - Regional Sites

- The process of developing and moving the regional sites to the new portal has begun
- The current target date for the regional sites is set for late summer or early fall
- These sites will continue to be maintained by the regions

### OPERATIONS COMMITTEE

#### Operations Committee

Carrie Harmon, Committee Secretary  
University of Florida, Department of Plant Pathology

The Operations Committee held a conference call on March 25, 2010. The following agenda items were discussed:

- Lab accreditation update
- 2010-11 Plans of work and RFA
- Strategic plan updates and status of assignments
- Industry members as at-large representatives to NPDN Ops Comm

- Late blight data sharing
- Ops Com meeting in May
- National meeting 2011 query
- Moving Exec Comm and Ops Comm call times from 3:00 pm to 2:00 pm to accommodate teaching schedules

The next Operations Committee conference call will be held on Thursday, April 22, 2010.

### DIAGNOSTICS COMMITTEE

#### Diagnostics Committee

Karen L. Snover-Clift, Committee Chair  
Cornell University, Department of Plant Pathology and Plant-Microbe Biology

Since the last newsletter, the Diagnostics Committee held a conference call on March 11, 2010. During this meeting, a number of issues were addressed. Please refer to the Diagnostics page, at [www.npdn.org](http://www.npdn.org) (login and password required), for complete minutes of this meeting.

- Basic technique workshop update
- Diagnostician's Cookbook, NPDN review
- SOP updates Surge capacity analysis
- Beltsville trainings
- Committee size approval
- Save tentative dates for IT-Diagnosticians meeting
- New Pest Category report available from the National Repository

The next conference call will be held on Thursday, April 8, 2010.

### EXERCISE COMMITTEE

#### Exercise Subcommittee

Sharon Dobesh, Committee Chair  
Kansas State University, Department of Plant Pathology

The Exercise Committee conducted a conference call on Tuesday, March 23, 2010. The following agenda items were discussed:

- Update on merging SOP's for diagnosticians and exercises
- Oregon exercise update
- APHIS exercises
- Upcoming NPDN exercises scheduled
- ETKnet
- Other business

The next conference call is scheduled for Tuesday, March 23, 2:00 PM EST.



### National Database Subcommittee

Karen L. Snover-Clift, Committee Chair  
Cornell University, Department of Plant Pathology  
and Plant-Microbe Biology

Since the last newsletter, the National Database Committee held a conference call on March 10, 2010. The committee continues to work on reviewing the massive NPDN Pest and Host lists and revising guidelines for uploading documents that will clarify how sample diagnoses should be transmitted to the National Repository at Purdue University. During

this meeting a number of issues were addressed. Please refer to the National Database page on the website, [www.npdn.org](http://www.npdn.org) (login and password required), for complete minutes of this meeting.

- Discussion of change submissions
- Save tentative dates for the IT-Diagnosticians meeting
- Discussion of fungi pest codes beginning with scientific names P

The next meeting will be held on April 14, 2010.

### Training and Education Committee

Amanda Hodges, Committee Chair  
University of Florida, Entomology & Nematology  
Department

The Training and Education Subcommittee held a conference call on March 15, 2010. The following agenda items were discussed on the call:

- E-learning access issues
- CCA Certification – all six main modules and Chilli Thrips module approved
- Number of Committee Members as it relates to the new NPDN Governance Document

- Training & Education Matrix
- Election of New Training & Education Subcommittee Chair (i.e. this relates to the NPDN Governance Document)
- e-learning updates: see above
- NACAA Booth Updates: need to update the booth, the NPDN map, and the quiz
- Other Business

The next call is scheduled for Monday, April 19, 2010.

Visit the NPDN homepage at [www.npdn.org](http://www.npdn.org) for more information on specific Program Area Committees.

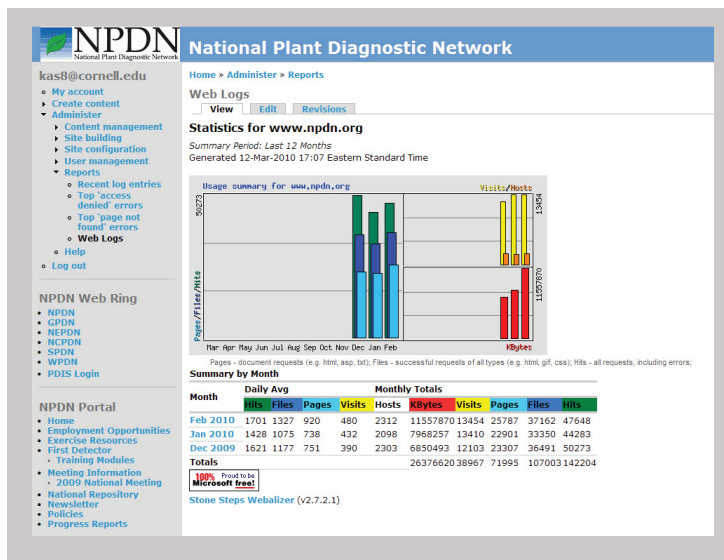
*Announcements ~ Membership information ~ Committee reports and meeting minutes ~ Documents and SOPs*



Continued from page 6...

An exciting new feature of the website is the ability for administrators to monitor site usage. The reports will show what pages are visited most often and when the site is most active. A "hit" counter keeps track of most accessed documents.

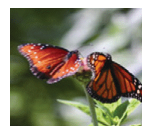
While the site is fully operational at this time, we are continuing to explore new features such as interactive maps, rotating banner images and off site back up capabilities to help facilitate minimal down time. 🌱



## New Pest Category Report

Michael Hill, CISSP

NPDN Project Administrator/Programmer Analyst,  
CERIS - Purdue University



## National Repository CERIS

A new feature has been added to make it easier for diagnosticians to complete their accomplishments summary reports. This feature allows users to summarize data in the NPDN National Repository by pest category. Instructions on creating a pest category report are provided below:

1. Login to the National Repository at <https://npdn.ceris.purdue.edu> (username and password required)
2. Click on Reports, then click on "Lab Sample Data"
3. Enter sample date range, select the laboratory (if you have more than one to choose from) and click "Search Database" to begin search
4. After search completes, click on "Record Summary" to bring up display options in new window
5. Select "Pest Category" from box on left and move to box on right
6. Remove other two options from box on right (host and pest/pathogen)
7. Click "Display Report" to generate a report similar to the one shown above


NPDN Sample Record Summary					
Date of Search:	03/12/10 at 01:54 PM EST				
Records Found:	0				
Summary Options:	Pest Category				
<b>Search Criteria</b>					
Diagnostic Lab(s):	XXXX - NPDN Diagnostic Lab				
Sample Dates:	07/01/2009 to 04/01/2010				
Pest Category	Confirmed	Suspected	Inconclusive	Not Detected	Total
Abiotics	0	0	0	0	0
Arthropods	0	0	0	0	0
Nematode	0	0	0	0	0
Other	0	0	0	0	0
Pathogen	0	0	0	0	0
Plants/Weeds	0	0	0	0	0
<b>Report Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
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Please contact Mike Hill by e-mail at [npdn@ceris.purdue.edu](mailto:npdn@ceris.purdue.edu) or by phone at (765)494-9854 if you need any assistance or need to request an account to the NPDN National Repository. 🌱

# Regional Updates



## GPDN Webinar Series

The 2010 GPDN Webinar Series features speakers from universities and government agencies across the country. Featured topics include invasive pests, disease updates, and emergency response and modeling of disease occurrences. All webinars will be recorded and can later be viewed at [www.gpdn.org/](http://www.gpdn.org/). Just click on the recording link following the talk title on the GPDN homepage. 

# Upcoming Events

## National Events

**May 18-20, 2010**  
NPDN Diagnostician Basic  
Technique Workshop  
Penn State University  
State College, PA

**August 7-11, 2010**  
APS Annual Meeting  
Nashville, TN

**September 20-24, 2010**  
17th Ornamental Workshop on Disease  
and Insects  
Hendersonville, NC

**November 6-8, 2011**  
NPDN National Meeting  
San Francisco, CA

## Regional Events

**April 6-7, 2010**  
NCPDN Regional Meeting  
St. Paul, MN



## NPDN News

NPDN News is now being delivered from [NPDN-News-L@cornell.edu](mailto:NPDN-News-L@cornell.edu). Visit [www.npdn.org/newsletter](http://www.npdn.org/newsletter) for instructions on how to subscribe or unsubscribe, view or download PDF files at a higher resolution or browse past newsletter issues.

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United States Department of Agriculture  
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