NPDN National Plant Diagnostic Network

NPDN News

Volume 5 Issue 4, April 2010

Pennsylvania Plum Pox Virus Eradication Project Receives Achievement Award

Rachel McCarthy, Cornell University, Department of Plant Pathology and Plant-Microbe Biology

USDA's Don Albright, acting PA Agriculture Secretary Russell Redding, producer Jim Lerew, former PA Agriculture Secretaries Dennis Wolff and Sam Hayes, producer John Rice, USDA Deputy Undersecretary Ann Wright, USDA's Paul Eggert and PA Representative Will Tallman plant a peach tree at the Plum Pox Eradication Event on October 29, 2009. Photo courtesy of Pennsylvania Department of Agriculture.

Sweet success! Ten years after *Plum pox virus* (known as plum pox, PPV or sharka) was first identified in Adams County, the state of Pennsylvania was declared PPV-free. No new finds were detected for the last three years and on October 29, 2009, the United States Department of Agriculture's Animal and Plant Health Inspection Service, Plant Protection and Quarantine Unit (USDA-APHIS-PPQ) and Pennsylvania Department of Agriculture (PDA) made the announcement that the disease has been eradicated from Pennsylvania. The eradication was the result of a decade long collaborative effort between growers, industry, PDA, USDA, Pennsylvania State University (PSU) Fruit and Research Extension Center, and Adams County Extension Service.

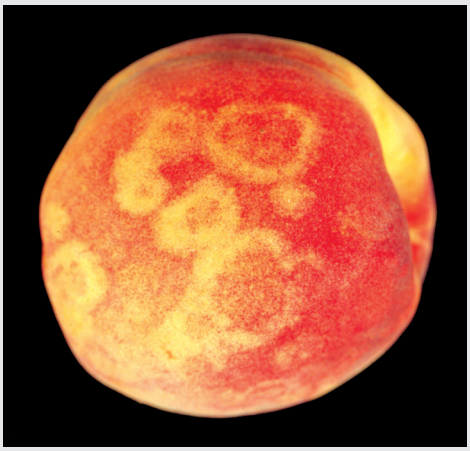
Earlier this month USDA-APHIS-PPQ awarded the Pennsylvania Plum Pox Virus Eradication Project the 2009 Outstanding Achievement Award. This award recognizes efforts that are part of our day-to-day work, but go beyond the scope of our duties each day to exceed expectations.

The first confirmation of *Plum pox virus* in North America was confirmed by the Pennsylvania Department of Agriculture in September of 1999 in an orchard in Adams County Pennsylvania. The USDA and PDA immediately quarantined the Pennsylvania townships where the disease was found. A Scientific Issues Working Group was quickly established made up of expert personnel from USDA's Agriculture Research Service (ARS), Center for Plant Health Science and Technology (CPHST), PPQ, PDA, as well as plant pathologists, horticulturists, entomologists and extension experts

Issue Highlights:

USDA National Institute of Food and Agriculture

from PSU. Because PPV is established throughout Europe, scientists working on the disease in Europe were brought in to augment the US experts' knowledge. The Science Panel held numerous meetings with growers, nurserymen, packing industry professionals and the public to educate them on the biology of the disease, the history, and the potential impact the disease could have if it were to become established in this country.



Symptoms on fruit with PPV may include light rings. Photo by K.D. Hickey, Penn State University.

In just over a month from the initial detection, PSU and Extension personnel produced a documentary to assist in educating the public about the disease. PSU and USDA economists worked up a fair compensation package for growers whose orchards would be destroyed in the eradication efforts. Removals of the orchards began in the spring of 2000; at the same time, new orchards were testing positive for the disease. The Science Panel changed the action plan to include a removal buffer zone to help stay ahead of the spread of the virus.

The project included the following activities and each was essential to the success of the project:

- Sentinel trees were established, maintained, and monitored throughout the removal areas.
- Seedling and sucker surveys were conducted in all positive orchard sites for three years.
- A homeowner survey was developed and conducted within 5 miles of a positive detection site.
- Intensive sampling was performed of non-*Prunus* sp. in and around positive sites to identify potential alternate hosts.
- Aphid studies were conducted to learn what species are present in the PA orchards and whether or not each might be a vector of the disease.

The success of this project not only prevented the disease from becoming established in the US, it did so without disrupting the commerce of the stone fruit industry both in the US and internationally.

To view the complete report on the 2009 Achievement Award for the Plum Pox Virus Eradication Project visit http://www.aphis.usda.gov/plant_health/safeguarding/downloads/awardnoms/2009/PPV.pdf.

A Technique for Diagnosing Aphanomyces Root Rot on Alfalfa Seedlings

Julie Beale, Plant Disease Diagnostician, University of Kentucky

This assay, as well as procedures for a soil bioassay to detect root-infecting oomycetes in alfalfa, was described by Paul Vincelli, Brian Eshenaur, Paul Bachi and Bill Nesmith in the *Plant Diagnostics Quarterly* in the early 1990's and has come in handy several times this spring already. It is a variation on the "float incubation" technique used by many of us (NPDN Diagnostic Tip of the Month by G. Ruhl, March 2007; Brock, J.H. and G.H. Beard, A Simplified Technique for Recovering *Pythium* and *Phytophthora* from Infected Plant Tissue).

Aphanomyces euteiches is a soil-borne oomycete that attacks the tender feeder roots of alfalfa seedlings causing weakening and stunting of plants (see *Compendium of Alfalfa Diseases*, 2nd ed., APS Press, St. Paul, MN). Leaves may become chlorotic or slightly reddened, and often curl downward; however, infected plants do not tend to collapse as in damping-off. Established plants are usually not seriously damaged by this root rot pathogen, but seedlings can be severely stunted or killed (Figure 1). Aphanomyces root rot occurs under saturated field conditions, often in low areas that remain wet. Root rots caused by other oomycetes (such as *Phytophthora megasperma* f. sp. *medicaginis*) produce similar symptoms and occur under similar conditions.

Figure 1: Stunted alfalfa seedlings with root necrosis.

It can be difficult to isolate *Aphanomyces* sp. from root tissue, but we have found that a float incubation technique using germinated alfalfa seedlings as baits works well as a rapid diagnostic technique for confirming its presence in symptomatic alfalfa seedling roots. To prepare the bait seedlings, germinate alfalfa seeds (choose any *Aphanomyces*-susceptible variety) in a lightly moistened paper towel rolled up in a plastic bag. Incubated at room temperature, bait seedlings will be ready to use in 2-4 days; if needed, baits can be held in the refrigerator for about a week in the paper towel.

Figure 2: Select necrotic roots and place in incubation plate.

Figure 3: Add bait seedlings and incubate in de-ionized water at room temperature.

Gently wash the roots of stunted alfalfa plants; surface disinfestation with bleach is not necessary and may inhibit sporulation of *Aphanomyces*. Place discolored and rotting alfalfa feeder root pieces (and taproot sections, if symptomatic) into a petri plate along with several of the bait

seedlings and partially cover with de-ionized water (Figures 2 and 3). Incubate at room temperature. Examine plates directly under the compound microscope (instead of removing tissue and placing on a slide). I begin to look for the characteristic sporangia with encysted zoospores at the apex (Figure 4) after about 30 hours, but it may take several days of incubation. Check plates frequently as other organisms may begin to obscure the *Aphanomyces*. The same technique may be used to detect *Phytophthora* root rot in alfalfa seedlings, using *Phytophthora*-susceptible alfalfa baits.

Figure 4: Sporangium and zoospores of *A. euteiches.*

Photos courtesy of Julie Beale and Sara Long, University of Kentucky Plant Disease Diagnostic Laboratory.

Two Day Workshop:

Tree Pests of the Great Plains

July 14-15, 2010
Chadron, NE

Tree Pests of the Great Plains Workshop

Judy O'Mara, Kansas State University, Department of Plant Pathology

This summer the Great Plains Tree Pest Council (GPTPC) and the Great Plains Diagnostic Network (GPDN) will host a two day workshop on the key insects, mites, diseases and disorders that afflict trees and shrubs on the Great Plains. The "hands-on" sessions will cover the key diagnostic concerns of specialists; cankers and wood decays of trees, identification of needle diseases of conifers, and identification of insect borers and defoliators. The workshop will also feature presentations on emerald ash borer and thousand cankers disease.

Registration

Registration is $30 and must be received by June 23, 2010. There are a limited number of seats so register early! The registration includes refreshments at breaks and the Tuesday evening dinner at Fort Robinson. Make checks payable to the "South Dakota State University" and send to:

John Ball
Dept. of Horticulture-Forestry
Rm 201 Northern Plains
Biostress Lab
South Dakota State University
Brookings, SD 57007

Questions?

John.Ball@SDState.edu
(605) 688 - 4737

Hotel accommodations

The Best Western West Hills Inn will be holding a block of rooms until June 13, 2010. Please call (877) 432 - 3305.

Black Walnut Thousand Cankers Disease Workshop

Ned Tisserat, University of Colorado, Department of Bioagricultural Sciences and Pest Management

A workshop on thousand cankers disease (TCD) of walnut is scheduled for June 23rd, 2010 in Golden Colorado (near Denver). The purpose of the workshop is to show participants symptoms and signs of TCD in the Denver Metro area and to provide up-to-date information on detection, diagnostics and surveillance methods for this new disease. This workshop is intended for researchers/ extension personnel, diagnosticians, regulatory officials and other professionals interested in walnut production or preservation. The workshop is sponsored by Colorado State University Extension, NPDN, The Colorado Department of Agriculture, Denver, Boulder and Wheat Ridge Parks and Recreation, USDA Forest Service, and USDA-NIFA.

Black Walnut Thousand Cankers Disease Workshop:

June 23, 2010

Jefferson County Fairgrounds
Golden, CO

Tentative Schedule (8:30 AM – 5:00 PM)

8:30 AM	Refreshments and introductions
8:45 AM	Overview of thousand cankers disease (TCD)
10:00 AM	Update on TCD quarantines or other regulatory issues
10:45 AM	Lab workshop on identification of *Pityophthorus juglandis* and *Geosmithia*
	• Morphological features of *Pityophthorus*, other beetles associated with TCD
	○ Other arthropod topics (trapping, attractants)
	• Morphological characteristics of *Geosmithia*
	○ Distinguishing features of *Geosmithia*, growth, etc.
	○ Other fungi associated with TCD (*Fusarium* spp., others)
	○ Other *Geosmithia* species
	○ Isolation and maintenance techniques
12:00 PM	Catered lunch
12:45 PM	Dissection of felled trees and other demonstrations at fairgrounds
2:30 PM	Bus tour to view symptoms of TCD trees in Denver

The number of participants is limited. Those interested in attending the workshop should contact Ned Tisserat (ned.tisserat@colostate.edu) by May 14th. Please indicate the number of people from your institution that would like to attend and the method of arrival (by air to DIA or car). Participants must provide their own transportation and lodging. Additional information on suggested hotel accommodations near DIA will be made available at a later date. We will provide transportation from designated hotels to the workshop.

NPDN-USDA APHIS 2010 Now Offering Advanced Diagnostic Training on Bioinformatics

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

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 training sessions on Bioinformatics this summer. The sessions are offered the weeks of July 12, 2010 and August 23, 2010. They will cover editing sequences, blasting sequences and what

Advanced
Diagnostic Training:

Bioinformatics

week of July 12, 2010
week of August 23, 2010

to do with the sequencing information. 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. If you are interested in participating in any of these workshops please contact Karen Snover-Clift at kls13@cornell.edu.

Education and Training

New Presentation en Español

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

To assist in educating the Spanish speaking population in the southwest we have created a Power Point presentation on the epidemiology of thousand cankers disease of walnut (TCD) entitled, *Mil Ulceras de Nogales*. The presentation is for walnut growers in the central valley of California and combines the work of Ned Tisserat and Whitney Cranshaw, of Colorado State University, and Steve Seybold of the USFS, Pacific Southwest division, at UC Davis. Both teams are doing cutting edge research into the mysterious and sudden spread of this insect-vectored disease from native species in the Southwest US into other *Juglans* species, both native and cultivated. TCD is especially threatening to the two common rootstocks of English walnut, black walnut and the hybrid of black × English walnut, Paradox.

The presentation is also available in English and both links will be accessible from the WPDN website.

OPERATIONS COMMITTEE

Operations Committee

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

The Operations Committe held a conference call on April 22, 2010. The following agenda items were discussed:

- Welcome new at-large members from the regions
- Ops comm meeting - UC Davis: tentative agenda and logistics
- Recent issue concerning HLB detection protocol
- Data sharing update and strategy for future requests
- Lab accreditation
- Other items from the group

The next conference call is scheduled for May 27, 2010 at 2:00 pm ET.

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 April 8, 2010. During this meeting, a number of issues were addressed. Please refer to the website, http://npdn-portal.ceris.purdue.edu/diagnostics, for complete minutes of this meeting (login and password required).

- Basic technique workshop update
- SOP updates
- Surge capacity analysis
- Beltsville trainings
- Committee size approval
- Diagnostician's Cookbook

The next conference call will be held on Thursday, May 6, 2010.

EDUCATION COMMITTEE

Training and Education Committee

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

The Training and Education Subcommittee held a conference call on April 19, 2010. The following agenda items were discussed on the call:

- NPDN First Detector educational booths - (American Public Gardeners Association, June 1-2, http://www.publicgardens.org/) and NACAA (National Association of County Agricultural Agents, July 11-15, http://www.nacaa.com/) meetings - staffing
- Design of the educational booth panels
- Target goal: panel content ready to send to NPDN T&E subcommittee by Wednesday, April 28, 2010. Plan to send to Ray Hammerschmidt by April 30, 2010.
- Amanda suggested corresponding via e-mail during May, and following up with a NPDN subcommittee conference call in June due to numerous meetings in May. All agreed.

Next Conference Call: June 21, 2010 at 1pm ET

NATIONAL DATABASE

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 April 14, 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 (login and password required), for complete minutes of this meeting.

- Discussion of change submissions
- Discussion of fungi pest codes beginning with scientific names P, Q, and R

The next meeting will be held on May 5, 2010.

Visit the NPDN homepage at www.npdn.org for more information on specific Program Area Committees.

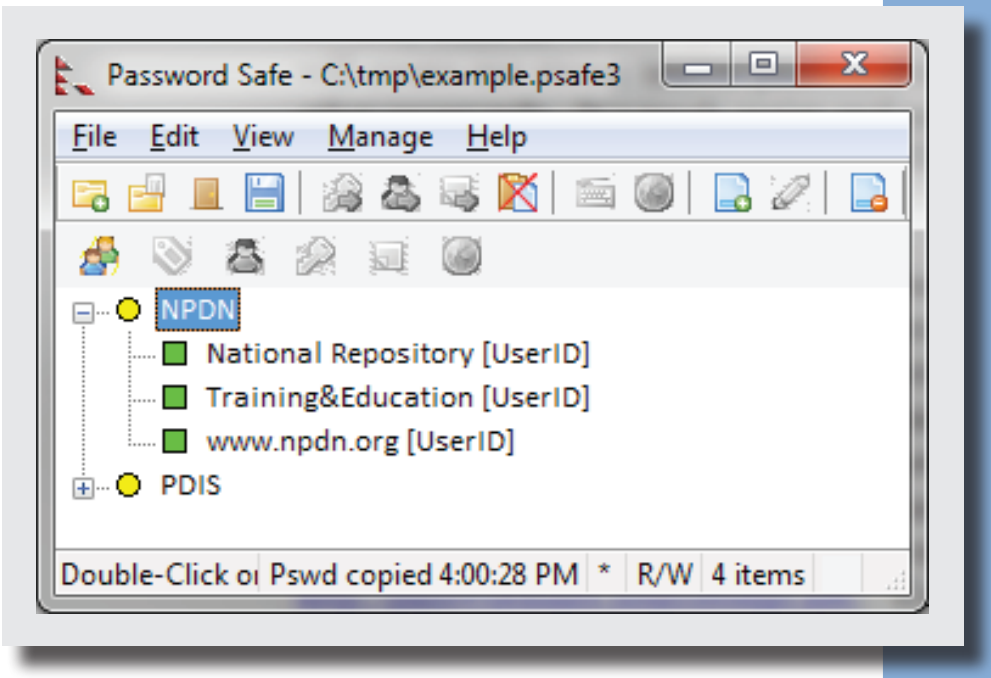
Announcements ~ Membership information ~ Committee reports and meeting minutes ~ Documents and SOPs

IT News

IT Security Tip - Password Management

Michael Hill, CISSP CERIS - Purdue University

Are you like me and have way too many passwords to remember? Are you writing all of your passwords down and storing them in a locked location? Do you ever leave passwords out in the open where they could be compromised? One easy way to avoid all of this hassle and vulnerability is to use a password management tool.



Password Safe is a free open source password management tool that will allow you to securely store all of your passwords in one electronic safe that is fully encrypted. Users create one strong master password to the safe which will provide access to all of the other passwords. It's much easier and safer to remember one strong password versus 50-100 easy passwords.

Utilizing this tool will allow users to abandon writing down passwords and reduce the likelihood of passwords being compromised. This tool even provides advanced features such as a strong password generator for whenever you need to reset one of your existing passwords.

If you are interested in trying out Password Safe, it can be downloaded at http://passwordsafe.sourceforge.net/. You should check with your local IT support staff first before installing this software.

Regional Updates

NEPDN
Northeast Plant Diagnostic Network

NYSDAM Sponsors Joint Annual Meetings

Earlier this month the New York State Department of Agriculture and Markets (NYSDAM) hosted the Eastern Plant Board, the Horticultural Inspection Society, and the Eastern Region Cooperative Agricultural Pest Survey (CAPS), for their annual meetings in Albany, NY. The three day concurrent meetings featured independent and joint sessions, group lunches and tours. Highlights included presentations on thousand cankers disease and *Phytophthora ramorum*; updates on Asian longhorned beetle and emerald ash borer. Customs and Border Protection presented an

Overview of Pest Risk Activities with some surprising and alarming statistics. APHIS PPQ presented on budgets, the Farm Bill enhancements, and Farm Bill, Section 10201 ("Plant Pest and Disease Management and Disaster Prevention").

For more information visit the National Plant Board homepage at http://nationalplantboard.org/meetings/index.html.

Thousand Cankers Disease of Walnut Exterior Quarantine Issued in Missouri

New emergency rule prevents the introduction into Missouri of a newly described destructive pest complex known as thousand cankers disease of walnut, consisting of an insect pest, the walnut twig beetle, *Pityophthorus juglandis*, and a fungal pathogen, *Geosmithia morbida*.

Thousand cankers disease is particularly lethal to black walnut (*Juglans nigra*), which is of tremendous economic importance in Missouri. The Missouri Department of Conservation has estimated that TCD could cause over $36 million in statewide wood products losses annually, over $35 million in statewide nut production losses, and over $65 million in statewide urban street tree losses. Furthermore, this economic impact assessment estimated that over a twenty (20)-year span after introduction, TCD could cause over $851 million in economic losses to the state. Missouri is the nation's leader in black walnut nut production and is home to the world's largest black walnut nut meat producer. Missouri is also one of the largest producers of black walnut wood products.

Read the complete announcement at http://mda.mo.gov/plants/pests/TCDEmergencyRule.pdf

USDA Confirms New Citrus Disease in Florida

On April 8, 2010 the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) confirmed the presence of *Guignardia citricarpa*, or citrus black spot, in Florida.

During a routine grove survey, the Florida Department of Agriculture and Consumer Services' (FDACS') Division of Plant Industry (DPI) collected a suspect sample from a commercial orange grove in Collier County. After conducting polymerase chain reaction testing of the submitted tissue and DNA samples from Florida, APHIS' National Plant Germplasm and Biotechnology Laboratory and Molecular Diagnostics Laboratory in Beltsville, MD, confirmed the presence of *G. citricarpa* in the samples, thereby corroborating with FDACS-DPI's plant pathology laboratory's initial diagnostic results.

The full APHIS news release is available at http://www.aphis.usda.gov/newsroom/content/2010/04/printable/fla_citrus_disease.pdf.

New Pest in Alaska and Washington - The Green Alder Sawfly

The green alder sawfly (*Monsoma pulveratum*) was positively identified from Alaska, a new U.S. record,

in 2009. The first North American records are from Newfoundland, Canada in the early-mid 1990's. Green alder sawfly is native to Europe, North Africa and the Near East, where its preferred host is European black alder (*Alnus glutinosa*). In south central Alaska, assessments of riparian thin-leaf alder (*Alnus tenuifolia*) defoliation events began in 1997 following the introduction of the woolly alder sawfly (*Eriocampa ovata*). Green alder sawfly larvae initially turned up in these surveys in 2007. A review of collection records revealed that the first specimen in Alaska was taken in Palmer in 2004. By the time of identification, green alder sawfly was found actively defoliating thin-leaf alder in Anchorage, Kenai, Seward, and in the Matanuska-Susitna River Valley. Green alder sawfly adults have been recently collected in Fairbanks. In 2010, the sawfly has been found on the Columbia River in Washington state.

A late instar green alder sawfly.

The official Pest Alert is available at https://www.wpdn.org/common/news_events/green_alder_sawfly/MonsomaPestAlert.pdf.

Upcoming Events

National Events

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

June 23, 2010
Black Walnut Thousand Cankers Workshop
Golden, CO

July 14-15, 2010
Tree Pest of the Great Plains
Chadron, NE

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

December 12-15, 2010
ESA Annual Meeting
San Diego, CA

USDA United States Department of Agriculture
National Institute of Food and Agriculture

NPDN National Plant Diagnostic Network

Rachel McCarthy, Editor
NEPDN
Cornell University