Working Towards Safer Agriculture in the South: The Southern Plant Diagnostic Network 2002-2006

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Abstract
The Southern Plant Diagnostic Network (SPDN) is a consortium of laboratories and extension professionals at 14 land-grant institutions in the southeast US and the Caribbean and part of the National Plant Diagnostic Network (NPDN). Each of the five NPDN regions is responsible for networking, supporting, and training diagnostic and first detector personnel in their regions, plus each region has primary responsibility for one national component. In the SPDN, this component is Training and Education of First Detectors. The southern region has a high number of new pest and pathogen introductions each year, necessitating constant communication, training and improvement of standardized diagnostic protocols, as well as improvement and standardization of sample data collection. Input from members during annual meetings, regular conference calls with committees, and email and phone communications has led to improvements in the SPDN. The SPDN has trained over 1000 First Detectors, introduced a regional website and newsletter to communicate with members and the public, and has held numerous diagnostician-level training events. The most recent improvement to the SPDN is the development of an Advisory Council. This council represents all of the personnel components that comprise the SPDN, and will be solicited for input on all matters relating to the regional network.

The SPDN is comprised of 14 member institutions:

Auburn University	University of Florida
Clemson University	University of Georgia
Louisiana State University	University of Kentucky
Mississippi State University	University of Puerto Rico
North Carolina State University	University of Tennessee
Texas A&M University	Virginia Polytechnical & State University
University of Arkansas	US Virgin Islands

Advisory Council
An Advisory Council was formed for the SPDN. The following people are the regional representatives on this Council:
State grant PIs: Clayton Hollier (LSU) (*Council Chair*), Richard Cartwright (AR)
Land Grant University Diagnosticians: Tom Creswell (NC), Clarissa Balbalian (MS)(*Council Secretary*)
Plant Pathology Department Heads: John Sherwood (GA), Dennis Gross (TX)
State Plant Regulatory Officials: Gray Haun (TN), Christel Harden (SC)
Entomology Working Group Members: Eric Day (VA), Frank Hale (TN)

Regional Committees:
Diagnostics
Clarissa Balbalian (Chair, MS), Meg Williamson (SC), Jane Lawrence (SC), Jackie Mullen (AL), Jim Jacobi (AL), Larry Barnes (TX), Clayton Hollier (LA), Sherrie Smith (AR), Holly Thornton (GA), Jason Brock (GA), Jan Fowler (GA), Frank Hale (TN), Richard Cullen (FL), Anne Vitorel (FL), Billy Crow (FL), Tim Momol (FL), Tom Creswell (NC), Mary Ann Hansen (VA), Elizabeth Bush (VA), Paul Vincelli (KY), Paul Bachi (KY), Julie Beale (KY), Consuelo Estevez (PR),

Entomology
Steve Bambara (NC), Carlos Bográn (TX), Eric Day (VA), Keith Douce (GA), Frank Hale (TN), Amanda Hodges (FL-SPDN Coordinator), John Hopkins (AR), Blake Layton (MS), Catharine Mannion (FL), John Morse (SC), Blake Newton (KY), Dale Pollet (LA), Charles Ray (AL)

Training
SPDN members Tom Creswell (NCSU), Lyle Buss (UF), Richard Cullen (UF), Amanda Hodges (UF), Carrie Harmon (UF), Larry Halsey (UF), Tim Momol (UF), and Meg Williamson (Clemson) were involved in revising the NPDN First Detector Training. Revised modules were available for use by all extension educators in December 2006 on the NPDN First Detector Information Page (located on the main NPDN portal http://ww.npdn.org/ and edited by the SPDN.

The following regional individuals currently serve on the NPDN Training and Education Subcommittee: Howard Beck (FL), Keith Douce (GA), Larry Halsey (FL), Carrie Harmon (FL), Amanda Hodges (FL), Clayton Hollier (LA), Gerald Holmes (NC), Bob McGovern (FL), Cindy Richardson-Decker (NC), and Tim Momol (FL)

The NPDN is in the process of developing several special topic training modules for First Detector Training. All four modules currently available on the NPDN portal, First Detector Information page, are co-authored by SPDN members. A total of 10-15 special topic modules will be available by February 2007. The SPDN regional pest list is used as a basis for new module development. Several SPDN members have also been involved in reviewing newly developed modules.

Development of a website for online participant and session registration coordinated by SPDN personnel in conjunction with the NPDN Training and Education Subcommittee. Gerald Holmes (NCSU), Howard Beck (UF), Tim Momol (UF) are SPDN members that are completing (April 2007) a NRI grant to transition the six original NPDN modules to an online learning system.

Diagnostics
Diagnostic laboratories across the SPDN processed over 35,000 samples in 2006. Many of those were for high-impact diseases such as *Phytophthora ramorum* (SOD) and *Phakopsora pachyrhizi* (SBR), as part of collaborative work with other agencies such as the PIPE and state departments of agriculture.

All labs have the ability to send and receive digital micrographs for web-enabled diagnostics. Many labs have real-time web-enabled microscopy capability. The SPDN Diagnostic Committee developed a smaller working group, the Lab Infrastructure Committee, to develop a list of minimum lab capabilities and required lab equipment for use in preparing budgets, grant applications, and administrative discussions concerning lab capability.

Regional Pest List Updates
Maintenance of a website for updating the arthropod and plant pathogen pests of concern for the southern region is currently coordinated by Keith Douce and Joe LaForest, UGA, of the Bugwood Network. http://www.bugwood.org/spdn/ The regional pest list is dynamic and modified by the entomology and plant pathology specialists in the region. The pest list is searchable and also contains valuable information on the number and type of image per pest. Images submitted to the Bugwood Network may be used for extension, non-profit educational use, such as for NPDN First Detector training modules.

Communication
Website: The SPDN website was given a face-lift in 2006 to increase ease of use. The website will be migrated to the NPDN portal in 2007.
Newsletter: The SPDN regional newsletter has gone national – it is now distributed to all registered First Detectors and educators across the country. SPDN-specific news is distributed via the SPDN section of the monthly NPDN member newsletter.

Soybean rust has become an important, annual disease with national impact. Much of the detection in the South is watched by those further north, making the SPDN labs an integral part of the early-warning system, PIPE.
Photo: CL Harmon

UF held a Virus Inclusion-Body workshop for diagnosticians In 2006.
Photo: RJ McGovern

By popular demand, **Kentucky** has held a very successful real-time PCR training for diagnosticians for four years in a row.
Photo: P. Vincelli00

Thirty-three participants were accommodated at a hands-on, 4-day intensive taxonomic training focusing on beetles held in May of 2006 at Virginia Tech University. Participants worked to key specimens with the assistance of expert specialists available for questions. The 2006 Coleoptera Workshop was the second successful regional workshops planned by the SPDN Entomology Subcommittee.

The SPDN hub lab at the UF Plant Disease Clinic has obtained specialized training in real-time PCR, as well as pest-specific training. Richard Cullen, diagnostician, is pictured here.
Photo: RJ McGovern.

University of **Arkansas** personnel trained hundreds of First Detectors to identify leaf miners, soybean rust, agricultural biosecurity, and plant disease identification.

The **Louisiana** laboratory was improved by the addition of microscopes and PCR capability for pathogens and insects.

Texas A&M University participated in an NPDN and a full-scale APHIS exercise in citrus diseases. This exercise brought university, state, and federal partners together to develop and carry out a plan for detection and response.

Tennessee developed and installed a new online sample database so county faculty and specialists can submit and keep track of new and completed samples and test results.

Soybean rust, sudden oak death, and other high-impact disease samples were processed in the **Mississippi** State University laboratory, which is the only pest diagnostic service available to the residents of Mississippi.

Auburn University, **Alabama**, laboratory personnel purchased a data management system (PClinic), real-time PCR equipment, and a new microscope for identifying entomological samples, increasing laboratory capabilities.

Virginia Tech leveraged SPDN funds with University funds to enlarge the laboratory, creating separation for "clean" and "dirty" lab spaces.

The **North Carolina** State University laboratory processed hundreds of samples in partnership wit the Legume Pest Information platform for Extension (PIPE).

The Clemson University plant Problem Clinic, **South Carolina**, was able to purchase equipment to use in a brand-new laboratory space, increasing the lab's capability in PCR and other diagnostic services.

University of **Georgia** personnel updated the CIIDS diagnostic database interface for GA, AL, LA, and TX. The GA Nematode Assay System was connected to the SPDN database in 2006.

University of **Florida** diagnostic personnel received provisional approval for successful test panel completion for *Phytophthora ramorum*, increasing the services available to the SPDN member institutions.

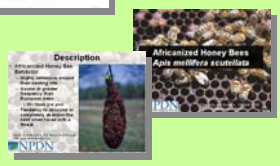
Diagnosticians in **Puerto Rico** were involved in the detection of several new diseases and insects on the island and worked in conjunction with their regulatory partners.

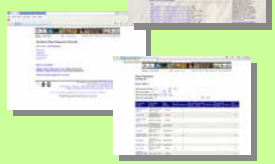
SPDN First Detector Training.

The SPDN has conducted over 100 sessions that reached over 1,200 **First Detectors** since 2003.

The SPDN website at http://spdn.ifas.ufl.edu provides up-to-date information on new pests of concern, meetings, and contacts in the South.

The SPDN produces several means of communication with the region, the national network, and the public at large. As the hub of the national NPDN Training and Education program for First Detectors, personnel at the hub are involved in the guidance and maintenance of the NPDN Training website and the NPDN First Detector newsletter, *Network News*. Modules and materials specializing in regional pests, and work with personnel on the regional pest lists housed by the Bugwood Network distill regional materials into products that can be used regionally and nationally.





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