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THE U.S. SOUTHERN REGION ANIMAL DISEASE AND PEST SURVEILLANCE AND DETECTION NETWORK AND ITS POSSIBLE EXTENSION INTO THE CARIBBEAN AND LATIN AMERICA

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Our agriculture and natural resources are highly vulnerable to attack (whether intentional or accidental) by pests and pathogens because of large acreages, the use of monocultures, and global movement or travel. In 2002, funds were appropriated for Emergency Supplement for Recovery and Response to Terrorist Attacks on the United States. The National Plant Diagnostic Network (NPDN) has designated five plant and animal centers in the United States on the basis of their common agriculture.

Our mission for the southern plant diagnostic network (SPDN) is to promote the health and security of plants by intercepting, preventing, and managing plant diseases and pests that could threaten our agriculture. The Regional Diagnostic Networks will seek to accomplish their missions by working with partners throughout the U.S. to:

(a) enhance diagnostic capabilities and establish a secure, regional network for the detection and diagnosis of plant health problems, and better track the health of crops and/or the spread of pests;
(b) extend and support sound public policies, implement rapid and accurate diagnoses; and
(c) provide leadership and training to key stakeholders, county faculty, and farmers.

This network can enhance the task of safeguarding against harmful exotic organisms through digital diagnostics utilizing a web-based system.

The Distance Diagnostic and Identification System (DDIS) for Extension was developed jointly by extension agents, specialists, and the faculty of UF/IFAS Information Technologies (http://ddis.ifas.ufl.edu/). This system allows users to submit digital samples obtained in the field for rapid diagnosis and identification of pests, plants, diseases, insects, and animals. DDIS provides an environment for agricultural extension agents and specialists to share information on plant insects and diseases.

Through interactions on the Internet, problems can be quickly communicated and assessed. Specialists can perform diagnosis and identification to provide best management practice recommendations to the users and determine quick response strategies. The system creates a digital image library with associated site, crop, and pest or disorder data that could be used in educational programs to assist diagnosis. Efforts are also underway in the southern region to connect all state universities and agriculture labs through a secure computer network and to link to all experts in their fields for these purposes.

To date, all diagnostic clinics in the 12 states of the SPDN, with the University of Florida as the coordinator, are connected, and are transmitting diagnostic data to the National Agricultural Pest Information System (NAPIS) at Purdue, a real time repository for diagnostic data. The DDIS and DDDI (University of Georgia) are just two of the digital diagnostic systems utilized among the 12 southern states. Within the next month, the University of Puerto Rico will also be networked and will be transmitting and receiving diagnostic data.

Educational materials are being developed, based on a plan for a national curriculum for crop biosecurity. The national curriculum topics are based on what a first responder should be able to do and understand:

- NPDN Mission and Biosecurity
- Art and Science of Diagnosis
- Quality and Secure Sample Submission
- Monitoring for High Risk and Unknown Pests
- Digital Imaging for Diagnostics

Initially, training materials will be based on current capabilities, including PowerPoint and narratives. However, future plans for training programs are based on the new learning management systems that will allow for a shared, reformattable set of materials for many types of training venues.

Scenarios for the soybean rust (SBR) pathogen, *Phakopsora pachrizi*, have been conducted in 10 states in the United States. The purpose of these scenarios is to be fully prepared in the event of a SBR introduction, whether intentional or accidental. The scenarios include the diagnosticians from the respective land-grant university and members of the State and Federal regulatory agencies. The mock samples are sent to the diagnosticians in Beltsville, Maryland, for final confirmation. In addition to the scenario training, representatives from the NPDN where SBR is considered to be the most significant threat have been trained at the Ft. Detrick federal quarantine facility for diagnostic protocols. These individuals will obtain security clearance to receive positive control samples to conduct the necessary molecular tests. Scenario training will be developed for all the pathogens on the target list.

In addition to the USDA list of target pathogens, each regional network is in the process of establishing its respective lists of pest and pathogens for its most economically important crops. Training programs will be developed for each of the target pathogens for national prevention and diagnostic programs. As part of the network, a list of experts and reference collections are being developed. This will be an essential component of the network as the digital imaging is developed. Those clinics that do not have the expertise to identify or make a diagnosis can more easily access the experts needed. The goal of the network is to prevent and respond properly to pests and pathogens that threaten our agriculture and economy.

Now that the network has been extended to Puerto Rico, other locations in the Caribbean and elsewhere should be connected as a means of international agricultural protection.