

# National Plant Diagnostic Network

*A critical resource enhancing national biosecurity against plant pests and pathogens*

The National Plant Diagnostic Network (NPDN) enhances agricultural security in the U.S. by protecting the health and productivity of plants in agricultural and natural ecosystems. Since its establishment in 2002, the NPDN has grown into an internationally respected consortium of plant diagnostic laboratories. The NPDN ensures that the U.S. can respond quickly when threatened by plant pests or pathogens. It is structured as a cohesive, distributed system designed to provide rapid detection, identification, and reporting of pests and pathogens of concern to enable appropriate responses by growers and government decision makers.

To accomplish its mission, the NPDN

- invests in diagnostic laboratory infrastructure and training
- maintains an extensive network of first detectors through education and outreach
- communicates with public agencies and stakeholders responsible for responding to and mitigating new outbreaks

Continued investments in basic infrastructure, technology, and human resources are critical to the NPDN's ability to detect and respond to incursions and protect U.S. agriculture. These are not services that can be put together on demand after an outbreak; rather, they must be in place and operational for immediate deployment. The magnitude of pest and pathogen threats to U.S. agriculture and natural ecosystems is increasing due partially to unprecedented levels of international trade in agricultural and forest products, extreme and changing weather patterns, changes in land use, and global travel. Maintaining a strong defense against threats requires continual innovation, investment, training, and adoption of increasingly sensitive pathogen detection and diagnostic tools. Support must increase in step with the threats and the cost of the technologies and trained personnel required to meet and mitigate those threats.



New strains of existing pathogens and pathogens new to the U.S. pose a particularly menacing threat. In the absence of accurate detection and diagnostics, they can increase the probabilities of both false positives and false negatives. False positives can result in unnecessary trade restrictions and costly mitigation measures. False negatives allow costly incursions, possibly even devastating epidemics. Sophisticated diagnostic assays, often based on Next-Generation Sequencing (NGS) technologies, are essential for distinguishing rapidly and accurately existing strains from newly emerged or introduced strains. NPDN infrastructure, thus, must keep pace with technologies that ensure accurate identification to the strain level. This also requires investments in the research underlying these detection assays, the development and validation of these assays, and the training of diagnosticians who execute the assays that support an outbreak response.

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## Solutions

The NPDN, a critical component of our nation's plant biosecurity infrastructure, provides plant disease and pest detection, diagnosis, and timely reporting capabilities across the entire U.S. The constant influx of exotic pathogens and the ever-increasing trade of plants and plant products will continue to challenge the sustainability of U.S. agriculture. These challenges require adequate infrastructure and resources to address these threats. Continued investments in the following are needed:

- Ensure NPDN **has adequate laboratory infrastructure and training programs** to prevent major outbreaks of plant diseases 
- Support effective **linkages among NPDN laboratories for enhanced surge capacity** during outbreaks 
- Provide **at least \$4.26 million in funding for the National Plant Diagnostic Network in FY 2020** through the Food and Agriculture Defense Initiative (USDA National Institute of Food and Agriculture Integrated Programs) 