

Plant Protection and Quarantine

Center for Plant Health Science and Technology

The Center for Plant Health Science and Technology (CPHST) provides scientific support for PPQ regulatory decisions and operations, and is the main component of PPQ's Science and Technology core functional area, which also includes the National Clean Plant Network. CPHST is responsible for ensuring that PPQ has the information, tools and technology to make the most scientifically valid regulatory and policy decisions possible. In addition, CPHST ensures PPQ's operations have the most scientifically viable and practical tools for pest exclusion, detection, and management. Currently, CPHST comprises approximately 230 scientists, analysts, and support staff at 7 principal laboratories, with satellite locations throughout the United States and in Guatemala. The Office of the Executive Director is headquartered on North Carolina State University's Centennial Campus in Raleigh, NC.

Laboratories and Programs Major Activities

CPHST AQI Lab, Miami, FL and Raleigh, NC

- Develops inspection methods and phytosanitary treatment technologies for commodities.
- Evaluates commodity treatment efficacy and technology, certifies and audits treatment facilities, and develops treatment data systems.
- Supports biological control methods and analytical chemistry needs.
- Coordinates imported fire ant methods and routine chemical analyses through the Biloxi Station.

CPHST Beltsville Lab, Beltsville, MD

- Develops and validates new molecular diagnostic methods for high consequence plant pathogens, and provides training to U.S. and international diagnosticians.
- Conducts molecular diagnostic tests for plant pathogens for PPQ regulatory programs.

CPHST Fort Collins Lab, Fort Collins, CO

- Coordinates and supports the development of digital pest identification tools.
- Develops biological, chemical, and cultural control methods for invasive weeds.
- Supports the Cooperative Agricultural Pest Survey through development of protocols and manuals and spatial technology support.
- Develops methods for agricultural waste decontamination and disposal.

CPHST Mission Lab, Edinburg, TX

- Develops and conducts molecular diagnostics for arthropods and gastropods for identification and pathway analysis.
- Supports technology needs for fruit fly eradication programs.
- Develops methods for pest management and biological control programs for insect pests, particularly citrus pests.

CPHST Otis Lab, Buzzards Bay, MA

- Develops phytosanitary treatments for commodities.
- Develops and evaluates pest surveillance and management methods.
- Develops methods for biological control programs for insect pests, particularly forest pests.
- Supports commodity treatment and pest management methods for light brown apple moth and European grapevine moth through the California Station.

CPHST Phoenix Lab, Phoenix, AZ

- Develops methods to support the pink bollworm eradication program.
- Develops chemical and biological management methods for rangeland grasshopper and Mormon cricket.

CPHST Plant Epidemiology and Risk Analysis Lab, Raleigh, NC

- Conducts risk assessments to analyze potential pest risks associated with imported plant products in order to facilitate safe trade.
- Provides pest information and analyses to support exports of plant products.
- Identifies and assesses new pest threats and pathways.
- Collects and analyzes new information about plant pests to inform risk analysis work.

Biological Control Program

- Coordinates biological control methods development throughout CPHST and with cooperators to control invasive plant pests and weeds.

Fruit Fly Program

- Coordinates methods development throughout CPHST and with cooperators for exotic fruit fly exclusion and detection.

National Plant Protection and Laboratory Accreditation Program

- Evaluates laboratories outside of PPQ to ensure their capability to make accurate diagnostic determinations for regulatory purposes.
- Coordinates quality management initiatives for plant diagnostic laboratories.

National Scientific Technologies Program

- Coordinates the development of new technologies for plant inspection.

Examples of Recent Projects

- CPHST worked with cooperators to develop an area-wide management approach to controlling Asian citrus psyllid, the vector for the devastating citrus disease, citrus greening. This approach can reduce psyllid populations by over 90 percent and has been adopted by citrus growers in the Lower Rio Grande Valley of Texas. In addition, CPHST has begun rearing and release of biological control organisms to manage the psyllid.
- CPHST conducted risk assessments for citrus black spot and sweet orange scab diseases that were recently detected in the U.S. These analyses concluded that fresh fruit is not a pathway for disease spread if the fruit undergoes certain packinghouse procedures. This information was used to update regulatory requirements and provided conditions to allow interstate movement of citrus to markets outside of quarantine areas.
- In response to an outbreak of European grapevine moth (EGVM) in California, CPHST worked with cooperators to develop survey techniques, area-wide management methods (including use of insecticides and mating disruption), and host commodity treatments that protected domestic and international grape markets. The effectiveness of the EGVM program has resulted in a thousand-fold reduction of EGVM in California (over 100,000 moths captured in 2010 versus about 80 in 2012).