

# Plant Protection and Quarantine Science & Technology

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Plant Protection and Quarantine (PPQ) Science and Technology provides scientific support for PPQ regulatory and operational decision making and ensures that PPQ has the information, technology, tools, and methods needed for effective pest exclusion, detection, and management. S&T employs approximately 230 scientists, analysts, and support staff at 7 laboratories and various satellite locations.

## **Major Laboratories and Programs**

### **Office of the Executive Director, Raleigh, NC**

The Office of the Executive Director provides administrative support and overall coordination and management of S&T laboratories. This office also includes the National Science Program Group and National Clean Plant Network.

### **National Science Program Group, Raleigh, NC**

- Provides cross-cutting coordination of S&T activities and scientific support for special or strategic initiatives and projects, emergency response, and ongoing domestic programs including citrus health, fruit fly, and biological control.
- Includes coordination of National Plant Protection Laboratory Accreditation Program, which accredits partner laboratories to perform regulatory diagnostics.

### **National Clean Plant Network, Raleigh, NC**

- Program coordination for the National Clean Plant Network: a collaborative effort among 28 clean plant centers in 20 States to support the development and distribution of disease-free stock of fruit trees, grapes, hops, berries, citrus, sweet potato, and roses. NCPN supported centers conduct plant pathogen diagnostics, therapeutics, and establish clean plant material in foundations.

### **Beltsville Lab, Beltsville, MD**

- Develop and validate molecular diagnostics for plant pathogens.
- Evaluate and implement new diagnostic technologies.
- Bioinformatics analysis for pest identification and selection of diagnostic molecular markers.
- Diagnostics for plant pathogens of regulatory significance.
- Build capacity and conduct training for plant pathogen diagnostics.
- Develop and deliver proficiency tests and reference material to diagnostic labs.
- Select Agent Laboratory and biosecurity containment facility.

### **Fort Collins Lab, Fort Collins, CO**

- Develop digital diagnostic resources for identifying pests through the Identification Technology Program.
- Molecular diagnostics for insect plant pests using new technologies.
- Molecular screening and identification support for pest survey programs.

**Miami Lab, Miami, FL**

- Develop and validate phytosanitary treatments for quarantine pests and port inspection methods.
- Technical support to develop, review, or improve quarantine treatments.
- Develop methods to improve treatment application and efficacy.
- Analytical chemistry support for PPQ programs including fruit fly and environmental monitoring.
- Investigate and evaluate biological control agents.

**Mission Lab, Edinburg, TX**

- Fruit fly program methods development support.
- Citrus health response program support.
- Molecular diagnostics for arthropods and mollusks.
- Rearing and release of biological control organisms.
- Unmanned aircraft systems methods development.

**Otis Lab, Buzzards Bay, MA**

- Methods development for PPQ programs that includes exotic pest-exclusion, detection, emergency response, and eradication programs.
- Pest management and biological control methods for insect pests, particularly forest pests.
- Develop phytosanitary and insecticide treatments.
- Develop and evaluate pest surveillance methods including trap design and lure production.
- Molecular diagnostics and population genetics of insect pests.
- Support commodity treatment and pest management methods for light brown apple moth, European grapevine moth, and Asian citrus psyllid through the California Station.

**Phoenix Lab, Phoenix, AZ**

- Management methods for rangeland grasshopper and Mormon cricket.
- Navel orangeworm sterile insect technique development.

**Plant Epidemiology and Risk Analysis Lab, Raleigh, NC**

- Help facilitate safe trade by assessing the risk of importing and exporting plant products.
- Develop and apply models to predict pest establishment, spread and phenology.
- Assess new pest threats and pathways of introduction.
- Evaluate the effectiveness and economic benefits of existing pest programs.
- Help ensure a risk-based focus for resource allocations and safeguarding activities.
- Global leader in phytosanitary risk analysis.