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Center for Plant Health Science and Technology National Programs

**Agricultural Quarantine Inspection
and Port Technology**



Who We Are

The mission of the Center for Plant Health Science and Technology's (CPHST) Agricultural Quarantine Inspection and Port Technology (AQIPT) Program is to provide scientific support to regulatory program managers and decisionmakers engaged in strategic planning and deployment of programs in the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service's (APHIS) Plant Protection and Quarantine (PPQ) branch.

The vision of the CPHST AQIPT program and APHIS-PPQ is to safeguard American agriculture and natural resources by developing, adapting, and supporting technology to detect, identify, and mitigate the risk posed by exotic pests in preclearance programs and at ports-of-entry. The core activities of the AQIPT program include quarantine treatment development, treatment manual support for ports-of-entry, shipping-container and vessel certification, development of methyl bromide alternatives, maintenance of a database on methyl bromide use, certification of international commodity treatment facilities in pre-clearance programs, and development of detection technologies for port deployment (e.g., chemical sensors, acoustical detectors, and agricultural x-ray technology).



CPHST scientists are working on methods of improving the efficacy of alternatives to fumigation, such as vapor heat treatments and irradiation, to kill fruit-fly eggs and larvae in fruit. Here, a Mediterranean fruit fly prepares to deposit her eggs on coffee beans. (Image downloaded from <http://www.invasive.org/images> and used by permission.)

What We Do

To improve APHIS PPQ program management, AQIPT personnel:

- Oversee all PPQ agricultural quarantine inspection and port technology development programs and personnel;
- Provide scientific support for PPQ operational programs, the U.S. Department of Homeland Security's Customs and Border Protection, the U.S. Department of Health and Human Services, and other national and international organizations with a vested interest in minimizing risks associated with invasive organisms; and
- Act as liaisons with international organizations in the development of commodity treatments and other technologies for preclearance programs to meet U.S. phytosanitary requirements.



Preclearance programs help ensure that imported agricultural commodities are free from pests before they arrive at U.S. ports-of-entry. (USDA file photo.)

Recent projects include

- Cold treatments on citrus imports,
- Development of an “electronic nose” for detecting contraband,
- Irradiation of fruits and vegetables,
- Trace-element analysis for detecting contraband,
- Development of radio frequency as a commodity treatment,
- Development of agricultural Internet monitoring for regulating sale of contraband over the Internet, and
- Development of atmospheric plasmas as a commodity treatment.



All fruits and vegetables, such as these avocados, carry with them trace unique phylogeographic signatures acquired from soil and other things in the environment where they were grown and packaged. CPHST scientists are working on methods of analyzing these trace elements to pinpoint the origin of agricultural commodities. Eventually, this technology will help regulators identify commodities that have been smuggled into the United States. (APHIS photo by PPQ employee Alison Neeley.)

Where We're Going

As global trade increases, the threat of pest introduction through agricultural imports increases proportionally. Quarantine inspections and mitigating treatments represent a significant defense against these alien pests.

Agricultural personnel require technologies that are effective and efficient. The dynamic nature of the agricultural-imports pathway requires that existing technologies be refined and new ones developed.

AQIPT research provides the scientific basis on which inspection and treatment technologies are based, in order to guarantee quarantine security of our agricultural imports and promote international trade.



To mitigate the risk of introduction and establishment of fruit flies, APHIS regulations require that fruit being shipped to the United States from fruit-fly-infested countries undergo intransit cold treatment. CPHST scientists and staff are working on several projects to optimize the intransit cold-treatment process. (APHIS file photo.)

Contact Information

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A ship is being inspected for Asian gypsy moth egg masses. Vessels that were in Russia or the Far East at the time of adult moth flight [midsummer] are inspected upon arrival at U.S. ports. (APHIS file photo.)

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