PLANT PROTECTION AND QUARANTINE

Safeguarding America's Harvest and Environment

United States Department of Agriculture
Animal and Plant Health Inspection Service
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This publication supersedes Miscellaneous Publication No. 1557, "Plant Protection and Quarantine: Safeguarding American Agriculture, Fighting Invasive Species, and Facilitating Trade," which was published in October 1999.

Cover photo: The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) plays a vital role in protecting agriculture from plant- and animal-health-related threats. This work protects the affordability, abundance, and quality of the food supply for consumers. *(USDA Agricultural Research Service [ARS] image by photographer Keith Weller.)*

For information about careers with Plant Protection and Quarantine (PPQ), phone us toll free on (800) 762–2738 or send an e-mail to francis.k.murphy@aphis.usda.gov. You can learn more about PPQ programs by visiting our Web site at <http://www.aphis.usda.gov/ppq>.

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The Plant Protection and Quarantine (PPQ) program is an integral part of USDA's Animal and Plant Health Inspection Service (APHIS). PPQ safeguards agricultural and natural resources from the risks associated with the entry, establishment, or spread of animal and plant pests, diseases, pathogens, and noxious weeds. PPQ's team of scientists, program specialists, and support personnel execute this complex mission through various means, including:

- Collection and analysis of pest data both in the mainland United States and offshore,
- Surveying for and detecting exotic (= foreign) pests and diseases in the United States,
- Developing quarantine policies and regulatory requirements for agricultural commodities and plant resources,
- Inspecting propagative plant materials for importation, and
- Responding to plant health threats.

Detecting and Eradicating Pests Early

Finding new exotic pest outbreaks early, coupled with an aggressive eradication or management campaign, is PPQ's game plan to prevent the establishment and spread of new pests in the United States. PPQ's Cooperative Agricultural Pest Survey (CAPS) program identifies pests of concern that are high risk and then surveys to detect their spread. CAPS—a cooperative project with the State departments of agriculture—aims to detect new pests before they can become established.

When an exotic pest or disease outbreak occurs, PPQ immediately takes action to protect U.S. plant and animal resources by either eradicating the plant pest or weed or containing and managing the threat. The next step is reassuring the public and our trading partners that the health of U.S. agriculture is being protected. Working in concert with local and State officials, PPQ's incident command teams provide on-the-ground support in responding to pest outbreaks and

mitigating their effects. These first responders determine the true extent of the pest infestation and the appropriate risk-mitigation strategy.

Sometimes the mitigation strategy is basic, for example, removing the host material and trapping for insects associated with it at the infestation site. At other times, PPQ employs more sophisticated methods that involve the use of federally approved pesticides, sterilized insects, or biological control agents to contain and suppress exotic pest populations. Currently, PPQ conducts emergency programs addressing several serious agricultural threats: citrus canker, emerald ash borer, Asian longhorned beetle, plum pox virus, and exotic fruit flies.

The plantings of cherry trees around the Jefferson Memorial in Washington, DC, symbolize the natural beauty of our Nation's capital. But trees in the original shipment received in January 1910—a gift from the Japanese Government—had to be destroyed by USDA after they were found to be infested with insects, nematodes, and diseases not known to exist in the United States. Followup phytosanitary practices eventually allowed importation of the beautiful specimens shown here. (USDA file photo.)

Witchweed: Exemplifying Successful Partnerships

Witchweed *(Striga asiatica)* is a parasitic plant from Asia that attacks many very important crops in the United States, including corn, sorghum, sugarcane, and rice. Unlike most weeds, which merely compete with crops, witchweed taps directly into the host's root system and robs the crop of nutrients and moisture. Consequently, the host wastes energy supporting witchweed growth at its own expense. A parasitized host, such as corn, experiences reduced current-year productivity by producing fewer and smaller seeds. However, witchweed damage to other plants in future years is a greater concern because a single witchweed plant can produce up to 50,000 seeds per year!

Witchweed is one of many related parasitic plants native to Africa, India, the Middle East, and China. Invasive species introductions in the United States rose markedly during the last century as international travel and trade experienced unprecedented growth. (APHIS photo archives at Oxford, NC.)

- PPQ and State cooperators in the Carolinas, where witchweed first appeared in America, have reduced the infested acreage by 99 percent (from 450,000 acres to about 2,813).
- Harmonious State and Federal quarantines have successfully prevented the human-assisted spread of witchweed beyond the infested region.
- North Carolina has assumed the lead role in eradicating witchweed from the State, with PPQ maintaining a supporting role.

Establishing Effective Regulations and Policies

The best and most cost-effective solution for mitigating agricultural damage is preventing the entry of exotic plant pests into the United States. As a regulatory program, it is PPQ's responsibility to establish effective regulations and policies to protect U.S. agriculture through the exclusion of exotic pests and diseases. PPQ determines what plants and plant products can be imported into this country and what products pose a high risk and, therefore, should be kept out. Based on varying levels of risk, PPQ's regulations provide multiple layers of protection ranging from product bans to commodity treatments or other actions that lessen pest risk (e.g., restricting imports to certain geographic regions or certain seasons).

Although inspections like the one that netted this illicitly imported material are now performed by employees of the Department of Homeland Security, PPQ still establishes, maintains, and enforces all regulations governing the import and export of plants and certain agricultural products. (APHIS file photo.)

Inspecting Plant Imports

Plants and seeds requiring permits for propagation must enter the United States through specific ports-of-entry, where such items can be inspected and certified free of pests and diseases. At these plant inspection stations, PPQ also enforces the rules and regulations that apply to the import and export of plant species protected by the Endangered Species Act and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). PPQ currently operates 17 plant inspection stations nationwide.

Approximately 800 million plants are imported into the United States each year. At PPQ plant inspection stations at ports-of-entry, these plants are inspected to ensure they are free of pests and diseases. (APHIS file photo.)

An exotic pest like the Asian longhorned beetle can be very destructive in new environments that do not already support natural controls, such as parasites, predators, and diseases. Native host plants—innocent of previous contact with an exotic organism—have not yet adapted to or developed effective defenses against it. (APHIS file photo.)

Citrus canker, a bacterial disease affecting all kinds of citrus, is common in many tropical parts of the world. PPQ's current cooperative eradication program in Florida began in 1995, when an Asian strain of citrus canker was detected in a residential area near Miami International Airport. (APHIS file photo.)

Minimizing Pest Risks Offshore

To meet the challenges associated with rapidly accelerated travel and trade, PPQ's strategic emphasis has shifted from excluding pests and diseases solely at ports-of-entry. PPQ's new strategic emphasis includes safeguarding through surveillance and risk mitigation outside the United States as well. In cooperation with APHIS' International Services unit, PPQ has established Safeguarding Officer positions overseas to gather pest information and to monitor trade trends. These Safeguarding Officers monitor changes in production, processing, and shipping practices that could increase the risk of pest introductions into the United States. Stationing these officers abroad provides an opportunity to mitigate risks at the point of origin of exotic pests rather than inside this country.

Linking Strategy and Technology

The Center for Plant Health Science and Technology (CPHST) is the scientific support organization for PPQ. CPHST identifies, develops, or adapts appropriate state-of-the-art technologies for detecting, identifying, and mitigating risks of exotic pests. CPHST leads PPQ's scientific research in pest detection and survey, molecular diagnostics, risk assessment, integrated pest management, and insect mass-rearing. CPHST also adapts technology applications to meet the ever-changing needs of PPQ's risk-mitigation strategies.

Introduced to the Western United States as an ornamental shrub in the early 1800s, saltcedar is now a serious threat to native plant communities. ARS and PPQ scientists are studying about 30 different insects that are natural enemies of saltcedar to determine their suitability for use as biological control agents. (Image taken by Steve Dewey of Utah State University and furnished by ForestryImages.org.)

Ensuring a High-Quality Food Supply

International trade takes place in larger volumes and with fewer economic and political restrictions than ever before. However, with increased trade comes the increased potential for introductions of exotic pests and weeds that could threaten the health of U.S. agriculture. Therefore, PPQ regulates the importation of agricultural products to help ensure that they are pest and disease free.

Exclusion of exotic pests and diseases is the first line of defense for protecting the production capacity of U.S. agriculture and the U.S. food supply. The introduction of an exotic pest on an agricultural commodity can result in trade restrictions affecting its quality and availability in the marketplace. Hence, an unintended introduction can cost hundreds of millions of dollars in eradication and control measures and ultimately lead to higher prices for consumers. Consequently, APHIS bases its regulatory decisions on risk-management strategies that ensure safe imports.

Americans have come to expect a diverse array of fruits and vegetables in local stores. To satisfy the ever-changing market demands of Americans, the United States imports produce from around the globe, all of which must meet PPQ's stringent health standards. (USDA file photo.)

Assisting U.S. Farmers and Exporters

PPQ assists American farmers and exporters by providing phytosanitary inspection and certification for plants and plant products being shipped to foreign countries. These phytosanitary certificates, as required by the importing country, certify that the products are pest and disease free. PPQ also helps to maintain and expand market access for U.S. farmers and exporters by engaging in trade negotiations with foreign nations.

Thank you for getting to know us. For more information, please visit our Web site at <http://www.aphis.usda.gov/ppq>.

Roughly 42 percent of the total land area of the United States is used to produce crops and livestock. PPQ's success in excluding harmful exotic pests not only secures the Nation's food supply but also supports the national objective to protect the environment. (ARS photo by Scott Bauer.)