

## **Trade, travel, technology and turmoil - the drivers of plant biosecurity in the USA**

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Animal Plant Health Inspection Service (APHIS) is the United States Department of Agriculture Agency responsible for protecting American agriculture and natural resources. Within APHIS, Plant Protection and Quarantine (PPQ) is the front-line program responsible for protecting plant natural resources and agricultural plants/commodities from the actions of invasive alien species (IAS), such as plant pests, diseases, and noxious weeds. The PPQ biosecurity effort for the United States responds to four principal drivers, namely, *agricultural trade, human travel, biosecurity technology, and social/ economic turmoil.*

Statistical data is presented for the past 20 years to document significant increases in agricultural trade. Statistical data on passenger travel shows that the United States has experienced significant increases in travel to its country. Plainly, more people are traveling from distant places to the United States than in the past; more Americans are touring the world to visit exotic places rarely visited in the past. Consequently, tourism brings increased dangers of deliberate and accidental introduction of pests, diseases, and weeds.

Concomitant with increased trade and travel, PPQ has witnessed an increase in the interception of IAS at borders associated with agricultural industries and an increase of IAS within natural habitats. This situation has increased the opportunities for IAS to become introduced, established, and negatively impact agriculture and commerce. Coupled with this trend, we also see a demonstrable increase in the number of invasive species being treated by emergency programs. Some notable active programs include Asian longhorn beetle, emerald ash borer, *Phytophthora ramorum*, citrus greening, citrus canker and light brown apple moth to name a few. Collectively, these emergency control programs costs hundreds of millions of dollars and also shape regulatory priorities. The presentation discusses some innovative activities associated with emergency programs.

Improved biosecurity technology is a critical driver for PPQ. In response to challenges posed by IAS, biosecurity efforts have been driven to improve tools and technology that are used in survey, detection, identification, and mitigation of pests, diseases, and weeds. The presentation identifies some of the organizations involved in this work and briefly discusses some notable achievements driving research and development of science and technology in support of biosecurity. The scope of some collaborative efforts is explained and a justification for international collaboration is proposed.

Social and Economic Turmoil abound throughout the world and we see increases in IAS interception associated with illegal commerce. Smuggling Interdiction and Trade Compliance is a regulatory program that focuses on efforts to control illicit commerce. Illegal immigration also contributes to the movement of IAS in the United States, but the impact on biosecurity has not been precisely measured. The presentation briefly characterizes these efforts.