

Foiling pest, plant invasion

By Susan Salisbury, Palm Beach Post Staff Writer

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A mango stashed in a suitcase on a flight from Haiti.

A ship with a load of toys from China packed in wooden crates.

A cutting from a prized citrus tree smuggled in a carry-on bag on a flight from Brazil.

An airplane load of fresh-cut roses and carnations from Colombia.

All seem harmless, but they are typical of the kinds of potentially devastating shipments that come into Florida's seaports and airports and across its borders each week. In each could lurk an insect, an invasive plant or the next plant disease that could end up costing the United States and Florida \$300 million, like citrus canker has since 1996.

Expanded trade with the countries involved in the Free Trade Area of the Americas pact, which was negotiated last week in Miami, poses a particularly strong risk for Florida. Under the pact, a 34-nation free-trading bloc would be created among the Western Hemisphere nations, Cuba excluded.

Because Florida and the Caribbean share a common ecosystem, whatever thrives in those balmy climates will thrive in Florida. The pest can take hold far from predators that might keep it under control in its native land, said Mike Shannon, Florida plant health director for the USDA's Animal and Plant Health Inspection Service office in Gainesville.

"There is a clear pattern of invasions of Florida from the Caribbean, including Central America, of things getting into those countries first and then coming here," Shannon said.

Quite often, Asian pests and diseases go from Asia to the Caribbean or Central America, then to Florida.

Trade's ripple effect is supposed to be more dollars flowing to importers and exporters, more jobs and a way out of poverty for poor nations. Too often, with those positives come unwanted pests and diseases that now cost the United States an estimated \$138 billion a year to control, according to the U.S. Department of Agriculture.

"On average, Florida gets 12 new insects a year, plus serious disease and invasive-plant problems," Shannon said. "That's more than any other state. It exemplifies the price being paid for the dependency of Florida on foreign trade. The more trade there is, the more risk there is."

As trade and tourism have increased, so has the problem of foreign pests and plant diseases, both unintentionally and by deliberate smuggling.

During the past 200 years or so, more than 50,000 foreign plant and animal species have made their way to the United States, said Edward Evans of the University of Florida's International Agricultural Trade and Policy Center in an April report.

About one in seven has become invasive, meaning the species is nonnative to the ecosystem and causes, or is likely to cause, economic or environmental harm or harm to human health.

Less than 2% inspected

Shockingly, less than 2 percent of all goods are inspected, said Marjorie Hoy, a University of Florida entomology professor who discovered that fact while participating in a USDA bioterrorism study.

"They are looking now more intensely for people and goods and drugs and all kinds of things," Hoy said. "Still, they are only getting a fraction. The focus right now is on detecting terrorism. My sense of it is there is a heightened awareness that we have very leaky borders."

Inspecting everything using current methods would cost an astronomical amount, Hoy said. What's needed is improved technology and more partnerships with other countries for research to stop the pests on their home turf.

The USDA is working in 29 countries around the globe, attempting to interdict the pests and diseases before they leave for the United States.

Richard Gaskalla, director of the Division of Plant Industry at the Florida Department of Agriculture, said wider trade increases the risks.

"We are a sentinel state here," Gaskalla said. "We're probably at the highest risk, or among the states that are, like California, where these things don't get killed back during the winter. Customs may look at a container full of melons from Panama, but they usually see just a small percentage of an entire load."

Countries eager to sell produce to U.S. consumers might not always have the necessary safeguards. An example is the discovery in 2001 of Mediterranean fruit fly larvae in shipments of clementine tangerines from Spain.

"With clementines from Spain, their protocol did not work," Gaskalla said. "There was a breakdown in the system. We got live larvae in several different states."

Gaskalla saw firsthand what's at stake in the free-trade negotiations, which are scheduled to end in an agreement in early 2005. After Argentina indicated to USDA officials this spring that it wanted to ship citrus to the United States from areas low in canker, Gaskalla traveled there to take a look at the designated groves.

"The first two groves I went into I found citrus canker," he said. "It wasn't supposed to be there. The point is, a lot of people who go on on-site visits have sipped from the president's free-trade cup. They are thinking trade. They are not thinking protection."

In Florida, the battle to protect is constant, ongoing and seemingly never-ending. Among the worst invasives that have entered the state are serious agricultural pests such as the Mediterranean and Oriental fruit flies, the brown citrus aphid, citrus leaf miner, Asian citrus psyllid and small hive beetle. Others, including the bromeliad weevil and the cactus moth, attack native plants in natural areas.

"We are always playing a catch-up game," said Wayne Dixon, bureau chief of entomology, nematology and plant pathology at the Division of Plant Industry in Gainesville. "As large as Florida is and with all the habitats it has, it maximizes the organisms. There's a habitat for everybody."

For example, on May 8, Mexican fruit fly larvae were detected in Manzano peppers from two produce markets in Pinellas Park near St. Petersburg. The Mexfly is potentially devastating to citrus and has not been found in Florida since 1972, state Agriculture Commissioner Charles Bronson said. Eradication efforts following past outbreaks of similarly destructive Mediterranean fruit flies have cost \$100 million an episode.

Also in May, federal and state experts began a biological control program to combat another invasive, the tropical soda apple, a noxious weed native to Brazil and Argentina. Since arriving in Florida in 1988, it has spread over 1 million acres in the state.

Hopes are that the release of the leaf-eating beetle *Gratiana boliviana* on a ranch outside of Lakeland will slow and eventually eradicate the soda apple. It took six years of research to ensure there will be no harmful side effects from the beetle.

Alertness helps at farm level

Once pests are in the country, an alert and well-informed agricultural community can help stop pests at the farm level.

The Florida Department of Agriculture had exotic pest and disease identification seminars in nine locations this spring to warn citrus growers about what they might see on their trees. Most, such as citrus greening disease, which has been in China for 100 years, aren't here yet.

Mike Thomas, an entomologist at the Division of Plant Industry, told a group of about 20 growers in Vero Beach that the situation is worsening.

"We can't keep track of all the pests," Thomas said. "If you see something new to you, it's probably new to us, too."

State and federal officials are doing what they can through port inspections, quarantine treatments, detection surveys, eradication and biological control programs to combat invasive insects. In 1999, the USDA established the Subtropical Exotic Pest Interdiction Unit in Miami.

"Our focus is on insects that would threaten our agriculture that we know exist in the Caribbean and Central and South America," said Robert Heath, the unit's director. Researchers concentrate on 12 to 15 pests at a time, a fraction of the possible invasives.

Scientific work takes time and is expensive, but is often the first and best defense, officials say.

An example is a program to head off the pink hibiscus mealybug, known to attack more than 125 plant species, from avocados to tomatoes and seagrapes.

Knowing the Asian-origin insect could spread to the United States from the Caribbean, the USDA developed a biological control in the Caribbean using wasp-like insects that eat the mealybugs.

When the mealybug was first detected in Broward and Miami-Dade counties in June last year, entomologists were ready with their weapon, the parasite.

Now the parasites have been released in Florida and appear to be working well. No matter how the invasives arrive or where they come from, once they are on U.S. soil, officials say, funding for the manpower needed to control and eradicate them falls short. Realistically, it would be close to impossible to stop everything, but there's too much at stake to give up.

Dixon of the Division of Plant Industry sums it up: "We have a list 40 pages long of things we know are out there and likely would not be nice for us. We have to make the net small enough so they can't get through."