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Cornell's Geneva Experiment Station provides crucial support to the fight against Plum Pox

By Elizabeth Keller

Geneva, N.Y.: When two plum trees and one peach tree in Niagara County, New York tested positive for plum pox in 2006, a team dedicated to the eradication of the virus sprang into action. The team includes individuals from the USDA Animal and Plant Health Inspection Service (APHIS) and the New York State Department of Agriculture and Markets. In late 2006, they contacted Marc Fuchs, assistant professor of plant pathology at Cornell University's New York State Agricultural Experiment Station to ask that he participate in their efforts to identify and eradicate the virus. Fuchs and his colleagues agreed and immediately started to devise a sample testing system.

Plum pox was seen first in Bulgaria in 1915 and is now the major disease of *Prunus* trees in Europe, affecting plums, peaches, nectarines and apricots as well as ornamentals. Because the disease can be spread by aphids, regulatory officials in New York had been watching for plum pox for some time, and their efforts to identify the disease became an active eradication program in 2006. At this time, APHIS declared an agricultural emergency in New York, freeing up funding for eradication efforts that include an in-depth survey of *Prunus* orchards and susceptible *Prunus* ornamentals in parks and backyards.

Fuchs provides a crucial service by analyzing samples from *Prunus* trees to identify plum pox infection. The lab analyzes all samples collected in New York State, which last season numbered 91,000. Fuchs expects to analyze over 110,000 samples this season.

Fuchs's lab, like all labs associated with the survey, is required to follow strict protocols for sample collection and analysis. Samples are submitted with only a bar code to identify them, so Fuchs and his crew do not know where the samples come from. With this blind testing, they are not biased by information pertaining to grower or location. Once a sample tests positive, it is sent to the USDA's National Germplasm Resources Laboratory in Beltsville, MD. for a confirmation test. If the sample tests positive again, the corresponding tree must be removed along with every susceptible tree within a 50-meter radius. A positive test result can prove to be devastating for the grower, destroying both orchard and source of income.

Yet growers have been very cooperative. They understand the threat posed by the plum pox virus—a threat that has the potential to destroy *Prunus* orchards across the country. The government also provides compensation for tree removal and loss of production, which growers agree is fair. Ongoing extension efforts to educate growers and keep them informed ensure that growers are included as part of the team.

"We're really impressed with how professional the Geneva staff has been, and appreciate all the work they have done on our behalf," said Jim Bittner, President and General Manager of Singer Farms in Appleton, NY.

The huge number of plum pox survey samples over a survey season (3.5 months) and the short timeframe for analysis (one week) have posed a significant organizational challenge. Fuchs has two goals for the sample analysis program: to have zero tolerance for failure and to do the best possible work with the highest scientific rigor.

Since the process requires a lot of manpower, Fuchs hired an assistant, Rosemary Cox, to run the lab and supervise the students who work in it. Last year, Cox had ten full-time helpers, all high school or college students. This year, the crew has expanded to 16, and there are now two labs for analysis. With the number of samples expected to rise this year from 8,000 to 12,500 per week, the team will have plenty of work to do.

"Although this is a lot of work, none of the summer help complain," said Fuchs. "They know what they are doing is important, and they like working in an environment that offers opportunities for stewardship and teamwork."

Last year 16 trees in New York state tested positive for plum pox. As a result, 26 acres of orchard were destroyed. Yet there is hope that, through stringent surveying and identification efforts, plum pox can be eradicated from our state.

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