Orchard Commodity Survey – 2017

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Introduction

An Orchard Commodity Cooperative Agricultural Pest Survey was conducted for exotic insects and diseases including cherry bark tortrix (CBT), variegated golden tortrix (VGT), European cherry fruit fly (ECFF), spotted lanternfly and apple proliferation phytoplasma (APP). All the agricultural pests in the survey pose significant threats to NY fruit industries.

In addition, under this project Carroll assisted Marc Fuchs, Plant Pathology and Plant-Microbe Biology, by collecting samples from three orchards to test for latent apple viruses, which may be associated with tree decline. This effort was part of a larger project and detailed results are not included here.

Objectives

1. Monitor and scout for the target species in apple and cherry orchards throughout the growing season of 2017 and submit suspect samples for determination.

Methods & Results

We adjusted the USDA APHIS written protocols for NY orchard and growing season conditions. We prepared a handout describing the survey, which was provided to the collaborating growers that were allowing us to set and monitor traps for the target insects. We monitored for the insects and diseases listed in Table 1, all of which are exotic pests not found in the Northeastern US.

Table 1. The insects and diseases in the survey included those listed below with the number of farms surveyed by each collaborator shown.

Target species			Farms per collaborator		
Insect or Disease	**Abbr.**	**Scientific name**	**IPM**	**Entom.**	**LOF**
cherry bark tortrix moth	CBT	*Enarmonia formosana*	10	4	4
variegated golden tortrix	VGT	*Archips xylosteanus*	10	4	4
European cherry fruit fly	ECFF	*Rhagoletis cerasi*	10	4	4
spotted lanternfly	-	*Lycorma delicatula*	17	0	0
apple proliferation phytoplasma	APP	*Candidatus* Phytoplasma mali	17	0	0

Two traps per species were used at each farm site. Farms were located in the following counties: Cayuga, Niagara, Onondaga, Ontario, Orleans, Schuyler, Seneca, Tompkins, Wayne, and Yates. Traps were set out in May and serviced every one to two weeks until late September. Lures were replaced at the specified intervals in the APHIS protocols. Where possible, CBT traps were placed in cherry orchards, alternatively in apple orchards if no cherries were grown on the farm. Where possible, ECFF traps were placed in cherry orchards or, if no cherries were grown on the farm, in *Lonicera* spp. on orchard edges. A total of 108 traps were monitored by

IPM, LOF, and Entomology, evenly divided among the three insect species (CBT, VGT, and ECFF), and serviced nine to 19 times during the season.

We scouted for APP in early October. Before scouting we asked for input from the growers in case odd symptoms had been noted on their farms. Apple trees were examined for APP by walking between rows and stopping ten times, every 60 ft., to inspect trees in each row for characteristic disease symptoms. Surveys were conducted in 17 orchard locations and a total of 1270 trees were examined for APP symptoms. No samples were collected because no suspect symptoms were observed.

The 17 orchard locations scouted for APP were also checked for the presence of *Ailanthus altissima*, tree-of-heaven, a favored host for spotted lanternfly. We surveyed the entire perimeter of orchard blocks and farms to look for its preferred host, tree-of-heaven. This tree was not found at any of the orchard survey sites.

For the apple virus survey three orchards were selected in which we knew good records of scion and rootstock were kept. Quadrat samples were taken in October (leaves) and quadrats containing positive results for latent viruses were resampled in November (twigs) according to a protocol provided by Fuchs. Apple tissue samples were analyzed for virus by Fuchs. The main virus found was apple stem pitting virus.

Suspect insect specimens were brought back to our labs for pre-screening. A total of 2962 non-target insects were caught in the traps, not counting LOF data, which was submitted independently. A subset of these, which couldn't be ruled out as target species, were sent in for determination. Pre-screened suspect specimens of CBT, ECFF or VGT were sent to Jason Dombroskie, Dept. of Entomology, Cornell University for determinations.

The orchard commodity survey trapping data spreadsheets were submitted to the NYS Department of Agriculture and Markets. Tess Grasswitz, LOF, provided her written report separately to the Department, as well.

No quarantine pests, CBT, VGT, ECFF, spotted lanternfly or APP, were found by the orchard commodity survey in 2017.

Fact Sheets

As part of Carroll's work on the commodity survey projects (small fruit, orchard, grape), her program prepares fact sheets on the pests in the surveys. These fact sheets are in Cornell University's digital repository, eCommons. In 2016, we wrote one on Spotted Lanternfly, http://hdl.handle.net/1813/43943. In 2017, we wrote one on European cherry fruit fly, http://hdl.handle.net/1813/53834. An index to these fact sheets is available on the NYS IPM Program web page, https://nysipm.cornell.edu/agriculture/fruits/invasive-species-exotic-pests. These fact sheets are written for a lay audience.