

Orchard Commodity Survey – 2016

Principal Investigator – Juliet Carroll, NYS IPM Program, Cornell University

Collaborator – Art Agnello, Department of Entomology, Cornell University

Introduction

An Orchard Commodity Cooperative Agricultural Pest Survey was conducted for exotic insects and diseases including cherry bark tortrix (CBT), summer fruit tortrix moth (SFT), light brown apple moth (LBM), variegated golden tortrix (VGT), spotted lanternfly and apple proliferation phytoplasma (APP). In addition, we surveyed three orchards for latent apple viruses, which may be associated with tree decline. All the agricultural pests in the survey pose significant threats to NY fruit industries.

Objectives

1. Monitor and scout for the target species in apple and cherry orchards throughout the growing season of 2016 and submit suspect samples for determination.

Methods & Results

We adjusted the USDA APHIS written protocols for NY orchard and growing season conditions. We monitored for the insects and diseases listed in Table 1, six of which were exotic pests not found in the Northeastern US. Apple viruses were added to our survey efforts because of concern about apple tree decline and the potential emerging threat from latent viruses. Art Agnello, Department of Entomology, Cornell University, collaborated in the survey monitoring insect traps for LBM, CBT, SFT and VGT at four sites.

Table 1. The insects and diseases in the survey included those listed with the number of traps in each orchard site. Diseases were scouted and traps were serviced weekly.

Insect or Disease	Abbr.	Scientific name	Traps/Site
cherry bark tortrix moth	CBT	<i>Enarmonia formosana</i>	2
summer fruit tortrix moth	SFT	<i>Adoxophyes orana</i>	2
light brown apple moth	LBM	<i>Epiphyas postvittana</i>	2
variegated golden tortrix	VGT	<i>Archips xylosteanus</i>	2
spotted lanternfly	-	<i>Lycorma delicatula</i>	na ¹
apple proliferation phytoplasma	APP	<i>Candidatus Phytoplasma mali</i>	na
latent apple viruses	-	various	na

¹na=Not applicable

Traps were set out in late June and serviced weekly until late September. Lures were replaced at the specified intervals. Where possible, CBT traps were placed in cherry orchards, alternatively in apple orchards if no cherries were grown on the farm (Table 2). We scouted for APP at weekly intervals during September. Each week for the visual survey for diseases a different block of fruit trees on each farm was scouted with input from the growers in case odd symptoms had been noted on their farms. Approximately 20 trees were examined for APP each week, by walking between rows and stopping ten times, every 60 ft., to inspect trees in each row for disease symptoms. Surveys were conducted in all nine orchard locations. For the apple virus survey a subset of three orchards was selected in which we knew good records of scion and rootstock were kept. These trees were regularly examined during the growing season and in

August trees were flagged for sample collection, selecting healthy and declining tree pairs. Eight leaves were randomly removed from the trees, bagged and brought back to the laboratory for testing. Initial testing revealed the presence of virus in “healthy” trees, so a second set of samples were collected that included eight leaf samples from rootstock suckers.

Suspect insect specimens were brought back to our labs for pre-screening. Pre-screened suspect specimens of LBM, CBT, SFT or VGT were sent to Jason Dombroskie, Dept. of Entomology, Cornell University for determinations. Apple leaf samples collected were analyzed for virus by Marc Fuchs, Dept. of Plant Pathology and Plant-Microbe Biology, Cornell University.

Table 2. The nine orchard sites in the survey are listed below, including the owner, farm name, city, county, and crops monitored. Traps were serviced and diseases scouted at weekly or biweekly intervals, weather and spray schedules permitting.

Contact Person	Farm Name	City	County	Crops
Rick Reisinger	Reisinger’s Apple Country	Watkins Glen	Schuyler	apple
Mary Ann Grisamore	Grisamore Farms	Locke	Cayuga	apple & cherry
Warren Abbott	Abbott Farms	Baldwinsville	Onondaga	apple & cherry
Gary Craft	G & S Orchards	Macedon	Wayne	apple & cherry
Kendra Burnap	Burnap’s Farms	Sodus	Wayne	apple & cherry
Doug DeBadts	DeBadts	Sodus	Wayne	apple & cherry
Bob Cahoon	Cahoon Farms	Wolcott	Wayne	apple & cherry
Doug Mason	Mason Farm	Williamson	Wayne	apple & cherry
Bob DeBadts	Lake Breeze	Sodus	Wayne	apple

A total of 72 traps were monitored, evenly divided among the four insect species, and checked 9 to 14 times during the season. For the APP survey, a total of 2000 trees were examined. No samples were collected because no suspect symptoms were observed. For the spotted lanternfly survey we surveyed the entire perimeter of orchard blocks and farms to look for the alternate and preferred host tree-of-heaven, *Ailanthus altissima*. This tree was not found on any of the nine farms in the survey. In late summer, 110 apple leaf samples were collected from three orchards for virus testing.

Apple stem pitting virus (ASPV) tested positive in 71 samples (65%), including healthy-appearing tree samples. Apple chlorotic leafspot virus (ACLSV) tested positive in 4 samples (4%), three of these were in double infection with ASPV, and one of those was from a healthy-appearing tree. Single infections of these viruses typically don’t cause symptoms and little is known about the susceptibility and symptom expression in many of the new apple cultivars being grown in New York. Further research is ongoing in Marc Fuchs laboratory on surveying for latent apple viruses.

No quarantine pests, LBM, CBT, SFT, VGT, spotted lanternfly or APP, were uncovered by the survey as detailed in the survey target sheet Excel files submitted with this report.