Orchard Commodity Survey – 2014

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Introduction

An Orchard Commodity Cooperative Agricultural Pest Survey was conducted for exotic insects and diseases including light brown apple moth (LBM), cherry bark tortrix (CBT), and apple proliferation phytoplasma (APP). Because of the potential spread of streptomycin-resistant fire blight in NY following its discovery in 2011, we also monitored for this disease. 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 2014 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 four insects and diseases (Table 1), three of which were exotic pests not found in the Northeastern US. Fire blight was added to our survey efforts because streptomycin resistance in the pathogen had been identified in 2011 in NY. Art Agnello, Department of Entomology, Cornell University, collaborated in the survey monitoring insect traps for LBM and CBT at six sites, 2 traps/site.

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
light brown apple moth	LBM	*Epiphyas postvittana*	2 or 4
cherry bark tortrix moth	CBT	*Enarmonia formosana*	2 or 4
apple proliferation phytoplasma	APP	*Candidatus* Phytoplasma mali	na[1]
streptomycin resistant fire blight	SmR Ea	*Erwinia amylovora*	na

[1]na=Not applicable

Traps were set out in early July and serviced weekly until mid-October. 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 diseases at weekly intervals during appropriate times of the season, June to July for fire blight and August to September for APP. Each week for the visual survey for diseases a different block of fruit trees on each farm was scouted for diseases with input from the farmers in case fire blight or other odd symptoms had been noted on the farms. Approximately 20 trees were examined for either fire blight or APP each week, by walking between rows and stopping ten times, every 60 ft., to inspect two trees in each row for disease symptoms. The varieties scouted included, but were not limited to, Acey Mac, Aztec Fuji, Gala, Galaxy Gala, Ginger Gold, Greening, Honeycrisp, Jonagold, McIntosh, NY1 (SnapDragon), NY2 (Ruby Frost), and Twenty Ounce. Surveys were conducted in 12 orchard locations, including one location, an apple nursery in which only diseases were scouted, Table 2.

Suspect specimens were brought back to our labs for pre-screening. Pre-screened suspect specimens of LBM and CBT were sent to Jason Dombroskie, Dept. of Entomology, Cornell University for determinations. Fire blight samples collected were analyzed by Kerik Cox, Dept. of Plant Pathology and Plant-Microbe Biology, Cornell University. Nineteen bulk leaf samples were collected the last week of the survey from APP-suspect trees flagged for observation during the survey period and these were sent to Glenn Colburn, Molecular Plant Pathogen Detection Lab, Clemson University, for molecular determination of APP.

Table 2. The 12 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 intervals, weather and spray schedules permitting.

Contact Person	Farm Name	City	County	Crops
Jeremy Wolf	Green Acre Farm	Hilton	Monroe	apple & cherry
Gary Craft	G & S Orchards	Macedon	Wayne	apple & cherry
Jeff Morris	Glenora Farms	Dundee	Yates	apple & cherry
Dennis Hartley	Littletree Orchards	Newfield	Tompkins	apple & cherry
Mary Ann Grisamore	Grisamore Farms	Locke	Cayuga	apple & cherry
Thomas DeMarree	DeMarree Fruit Farm	Williamson	Wayne	apple
Doug Mason	Mason Farm	Williamson	Wayne	apple & cherry
Doug DeBadts	DeBadts	Sodus	Wayne	apple & cherry
Craig Cahoon	Cahoon Farms	Wolcott	Wayne	apple & cherry
Matt Wafler	Wafler Nursery*	Wolcott	Wayne	apple
John Teeple	Teeple Farms Inc.	Wolcott	Wayne	apple
Eric Tuttle	K.S. Datthyn Farms	Sodus	Wayne	apple & cherry

*only diseases were scouted at this location.

A total of 172 traps were monitored, half LBM and half CBT, and checked 13 to 15 times during the season. For the APP survey, 2,218 trees were examined, including approximately 800 in the nursery, and 19 samples collected, none from the nursery. Fire blight was scouted on 2,520 trees and 36 samples collected. *Erwinia amylovora* was recovered from 22.

No streptomycin-resistant fire blight isolates were identified in any of the collected fire blight samples. No quarantine pests, LBM, CBT, or APP, were uncovered by the survey.