

Long Island Tree Fruit IPM Update- 2013
New England, New York & Canadian Fruit Pest Management Workshop
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Tree fruits: Eleven apples and five peach orchards were selected under a tree fruit integrated pest management project run by the Agriculture Stewardship Program of Cornell Cooperative Extension, Suffolk County. Growers were provided season long weekly pest monitoring services and pest management recommendations through expert from CCE-Suffolk County, NYAES at Geneva, and Cornell University's Hudson valley lab. In 2013, a total of 40,000 apples and 14,000 peaches were inspected for fruit damage assessment throughout the growing season (1000 fruits/sample checked from 10 interior and 10 border trees). Plum curculio, Tarnished plant bug, European apple sawfly, oriental fruit moth, and codling moth appeared to be the most significant insect pests in pome and stone fruits on Long Island. Overall these insects were responsible for 5% fruit damage.

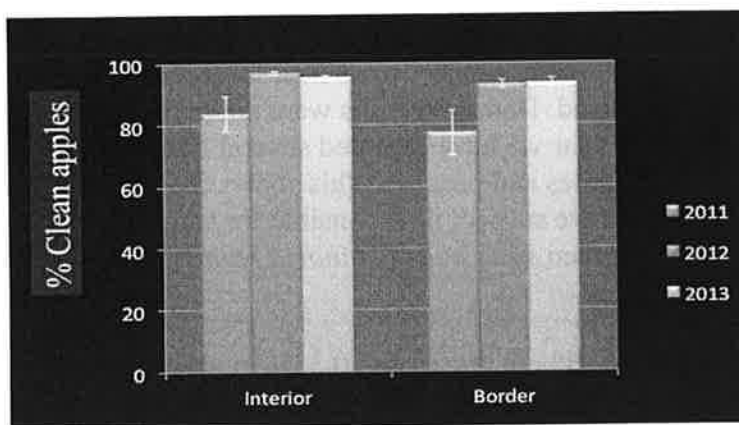


Figure 1: Percent apples found without insect damage. Survey was done by an on-farm fruit assessment of 12 apple-orchards prior to harvest in 2011 – 2013.

Plum curculio again this year is the most damaging pest on Long Island apples. However, the overall PC infestation was much lower in 2013 (3.86%) and 2012 (2.89%) in comparison to 2011 season (>15%). Early detection by monitoring traps and the use of insecticides Avaunt and Assail were very effective. Small orchard size surrounded by huge forest and multiple cultivars within block are the challenges for PC control on L.I. farms.

Tarnished plant bug damage was low in apples and peaches in 2013 (0.70%). The overall TPB infestation in 2012 was 1.28% and 2.04% for apples and peaches, respectively. This was a significant increase (4 fold) from 2011. Growers were recommended for timely weed management for reducing TPB damage in fruits. No insecticide application was recommended.

European apple sawfly was not a noticeable problem in 2011 (only 0.11% damage). In 2013, about 0.41% damage have been found in apples. In 2012, this insect first appeared as a damaging pest in some apple orchard doing as high as 2% fruit damage. The average infestation was about 0.32% in 2012. We have seen as high as 5% damage in one apple orchard this year. However, overall fruit damage was assessed less this year.

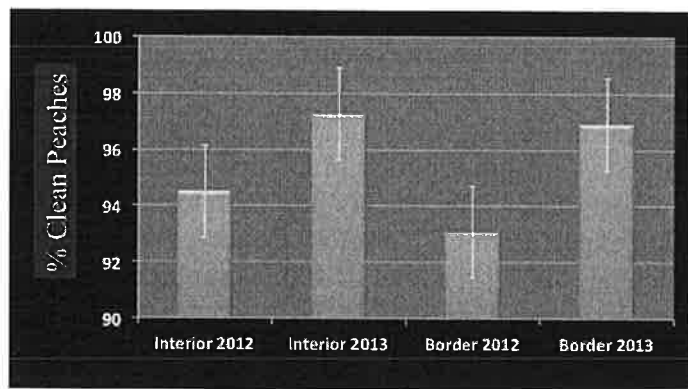


Figure 2: Percent peaches found without insect damage. Survey was done by an on-farm fruit assessment of 5 peach-orchards prior to harvest in 2012 and 2013.

Brown marmorated stink bug: Less than 0.25% apples and 0.10% peaches were found showing some kind of stink bug damage mostly from the exterior rows near forest borders. Similar damage was observed in 2012 on Long Island. Damaged fruits were not attributed to any particular stink bug species. However, unlike last year we have captured several BMSB adults and nymphs (3rd & 4th instar) in traps from both apples and peaches. This shows the insect is now breeding in the eastern part of the Long Island and we suspect it responsible for some of the stink bug damage seen this year. One BMSB adults, 4 green stink bugs (*Chinavia halaris*) adults were found in apples during the fruit scouting period.

Internal Lepidoptera (OFM/CM) damage was 0.41% in apples and 0.33% in peaches. Numbers were low in most of the orchards in 2012 but we have seen an upswing of lepidoptera damage this year. Although codling moth was never considered a threat for tree fruit on L.I., this year a couple of apple orchards have received some codling moth damage in late summer and early fall. Some growers use mating disruption for OFM control. Overall 33% of Long Island tree fruit blocks were under OFM mating disruption.

Spotted wing drosophila: A total of 20 monitoring traps were placed in raspberries, blackberries, peaches, apples, blueberries, grapes, and adjacent forests. First sustainable SWD capture on long Island occurred between 12 -19 June in raspberries (approx. 650 DD@50 base from Jan 1, day length 15:07). Numbers increased as the season progresses. Monitoring will be continued in a smaller scale through winter.

Raspberries and blackberries were heavily damaged by SWD in 2013. An intensive fruit damage assessments were done by weekly fruit inspection and laboratory rearing from 3 commercial farms. During mid-July to the end of July about 10.0%, in August 69.5%, and in September 99.3% raspberries were found to be infested by SWD. Blackberries were heavily infested from

the beginning of the season starting at 45.4% in July, 77.3% by mid-August, and 100% from mid-August to onward. Blueberries were not affected much by spotted wing drosophila until late August. Less than 0.5% blueberries were found infested by July 17. From July 18 – 24 less than 2.0%, and from July 31 – August 7 (harvest ends) about 48.0% blueberries were infested. This is important to note that blueberry cultivation is small and mostly U-Pick type on L.I. and 90% berry harvest ends by late July. Late harvested berries appeared to be in significant economic risk from spotted wing drosophila damage.

Peach and apple damage by spotted wing drosophila was not noticed in Long Island orchards. In a laboratory rearing, 24 peaches and 24 apples directly picked from trees apparently had some soft spot on fruits produced no spotted wing drosophila. No oviposition mark or breathing tubes was observed when fruits were checked prior to set in rearing cages.

Grape damage was assessed intensively for the entire season. No spotted wing drosophila oviposition was observed until mid-September. However, from mid-September SWD damage has been found in some red cultivars (Pinot Noir, Merlot, and Cabernet Franc.) Some Merlot samples have shown unusually high numbers of SWD oviposition particularly vines near the forest border. Since early-October increased numbers of oviposition (as high as 50%) was observed in both **healthy** “merlot” and “cabernet” grapes. Similar to last year, we did not find any oviposition in Chardonnay grapes. Fruit color, ripeness, skin toughness, sugar content, and acidic condition might have effect on fly preference. Lack of other preferred host in late season might put late cultivars in higher risk from oviposition. Further research is necessary to assess the overall damage by SWD in grapes.

Beside crop hosts we also checked wild berries grown adjacent to fruit orchards. Wild black cherry, *Prunus serotina*, is another spotted wing drosophila's (SWD) wild host found widely grown in forest and landscape on Long Island. This cherry plant is native to eastern North America. This is appeared to be the earliest preferred wild host (90% oviposition) of spotted wing drosophila followed by pokeweed berries (mid-season host), autumn olive (late-season host, invasive sp.) and bittersweet nightshade (late-season host). Depending on the time of collection and site we found 40 – 90% pokeweed berries, <15% bittersweet nightshade, and 10 - 80% autumn olives with eggs laid inside.

We have the adult emergence data for all the crops and wild hosts reared in laboratory and we will report the results later in the NY Expo meeting in Syracuse, and AgForum meeting on Long Island, NY in January, 2014.

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