2023 North Jersey Tree Fruit IPM Report

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Observation Overview: The IPM observations for 2023 come from the North Jersey Tree Fruit IPM Program. There are a total of 28 farms that participate in the program. The on-farm scouting program includes a total of 293 acres of apples and 148 acres in peaches. Each farm has traps for the pests included in the trap data and are scouted once a week. This data is compiled and used to make recommendations for our New Jersey Commercial Tree Fruit Production Guide E002.

The data from Figure 1 below comes from the NEWA model https://newa.cornell.edu/ using the Rutgers Snyder Farm weather station located in Pittstown, Hunterdon County, NJ. The trap data in Table 1 is an average of the data that is generated on each of the farms in the program. Note the data excludes farms using mating disruption. Mating disruption for codling moth/OFM (both Trece and Isomate) continues to be highly effective this year with 36% of growers in the program adopting the practice. Mating disruption for the peach borer complex is the standard now in Northern NJ, even on farms with less than 5 acres with 55% utilizing it. We have over 12 years of experience using mating disruption for peach tree borers. Mating disruption for dogwood borer is being utilized more for controlling this pest, especially with the loss of Lorsban and the almost uniform adoption of the tall spindle production system. Note no trap catches were observed in any of the orchard blocks utilizing mating disruption in any of the three pest complexes.

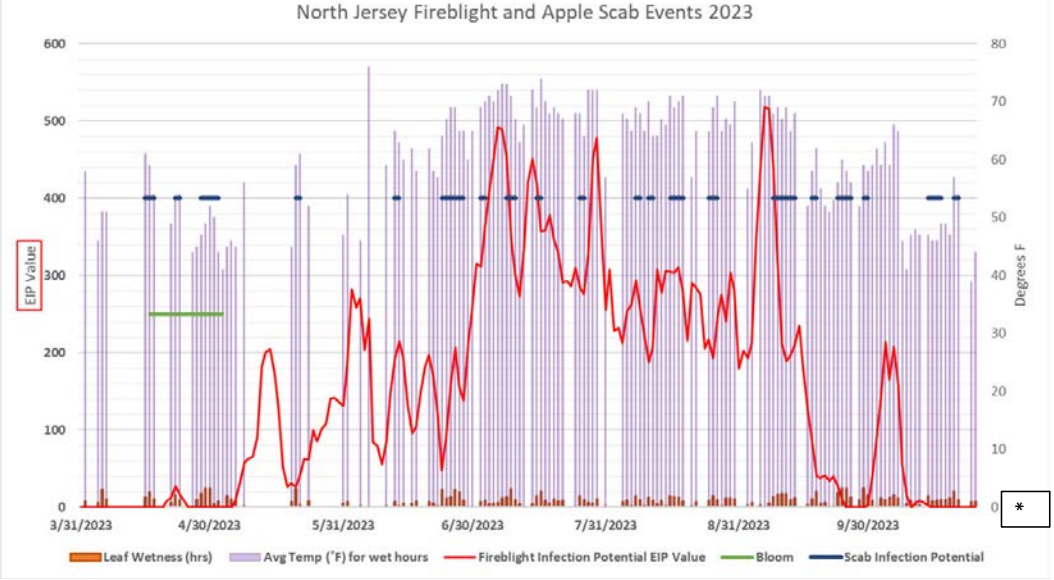

Figure 1. Weather Data, Phenology, and Apple Disease Forecasts for 2023 the Rutgers North Jersey Scouting Program. * Depicts average temperature during wet hours because the NEWA model predicts an average temperature of 60 degrees F is required for an infection event.

Weather and Cold Events

Winter freeze event - There were two cold events this past winter, one in December around Christmas and a second in February 2023 where we had 50 degree drops in temperatures. Growers in NJ had some minor injury to peach buds and selected sensitive varieties at some locations, bu all and all northern NJ (and NJ overall) had a full peach crop. However Note that these winter cold temperatures were more severe in NY and most of New England ranging from minus 15 to minus 21F. These severe winter temperatures eliminated most of the peach and stone fruit crops in NY and New England **May Freeze Event** - There was extensive **freeze injury** to apples on May 18, 2023, in NY and New England and in four northern New Jersey counties including Warren, Sussex, Morris, Hunterdon. Over four orchards in these northern NJ counties sustained temperatures of **25F to 33 F with injury ranging from 10-90% overall depending on location and cultivar. This applied to NY and all of New England** as well. There was no injury to blueberries in north Jersey based on my observations and telephone surveys. **Note** this was an unprecedented cold event for this late date with apple fruitlets ranging in NJ from 8-15mm. Apple fruitlets (meaning post bloom) are actually more sensitive to cold temperatures than flowers in bloom- apples will take 28F in bloom- see Critical Spring Temperatures for Tree Fruit Bud Development Stages. In general, apple damage in Northern NJ was spotty and not extensive depending on location, site, variety.

Hail Storms- multiple hail storms impacted several growers late in the 2023 growing season.

Apple Diseases

Fireblight: This was a low fireblight infection year in Northern New Jersey Both blossom and shoot blight infections were minimal in grower orchard. See Figure 1, there was no Infection Potential EIP Value above 100 during the bloom period. Fireblight infection requires an average temperature above 60 Degrees F, a wetting event and an infection potential EIP value above 100. These conditions were not met this year during the blossom blight phase, and I did not see any orchards infected with the blossom blight stage of this disease. The few incidences of fireblight this year occurred from trauma blight following multiple hailstorms.

Apple Scab: This was a low scab year in Northern New Jersey. Most growers were able to avoid major outbreaks of primary scab this year by applying fungicides before an infection incidence was predicted by the NEWA model. There was one extended infection period from 4/28-5/2 which caused a primary scab outbreak at a few farms. These farms were able to keep secondary scab under control by using anti-sporulant materials.

Bitter Rot: This disease continues to prove challenging to control. See Figure 2- Most farms in the program had bitter rot this year, but it only caused major losses at a handful of farms. One farm lost 34% of their crop to bitter rot. HoneyCrisp continues to be the most impacted cultivar with Bitter Rot, especially when grown on full dwarfing rootstocks in our tall spindle production systems. Sunburn on the fruit is one of the main precursors to bitter rot and protectants must be used on sensitive varieties. Strobilurins and Prophyt materials are thought to be effective if sprays are started early enough. See 'Controlling Bitter Rot' of Apple, Horticultural News, Volume 100, Summer 2020.

Figure 2. Bitter Rot of Apple Photo credit: Win Cowgill

Apple Insect Pests

Codling Moth: A biofix was set for 5/4 in Mercer and Middlesex counties (central NJ), 5/10 for Hunterdon, Morris, Warren, Sussex and Bergen counties (North Jersey). Growers managed this pest either through timing their sprays to the degree day model or using mating disruption. No trap catches or damage was found in the orchards utilizing mating disruption. The growers using

mating disruption typically used the dual CM/OFM mating disruption, either Trece or Isomate. Most growers timing their sprays to the degree day model had very little or no damage from this pest.

For codling moth in North Jersey our first-generation treatments occurred on June 1st and June 21st second generation treatments occurred on July 20th and August 2nd and **a 3rd generation did occur** in early September, if growers had high trap counts, they treated on September 6th.

Note that growers using CM mating disruption did not have to treat for this third generation.

Figure 4. Obliquebanded Leaf Roller moths captured in a Codling Moth Trap- June 18, 2023, Baptistown, NJ. Photo Credit Win Cowgill.

Plum Curculio: This pest was difficult to control this season because we had a long bloom which led to more damage than usual.

Brown Marmorated Stink Bug: Trap catches for this pest were very low this season, only a few growers had trap catches significant enough to require insecticides. There was very little damage caused by this pest, when it did appear it was along the wooded edges of the orchard.

Obliquebanded Leafroller: Figure 3- Traps were set for this pest only on farms where damage to the leaves was seen during scouting practices. In previous years this pest has not been an issue, but it may be returning to orchards in our area. One codling moth trap **Figure 4**, had Obliques in it. Note that Codling Moth mating disruption does not control Obliques (OBL) (personal communication Peter Jenstch).

Figure 3. Obliquebanded Leafroller larvae on apple leaf. Photo Credits: Kaitlin Quinn.

Ambrosia Beetle: This pest seems to be becoming a more prevalent issue. Three growers in the program were confirmed to have significant tree loss due to this pest. More work needs to be done to develop monitoring and control strategies for this pest. It is essential that growers utilize cultural controls that reduce tree stress since this pest tends to attack weakened trees. An active scouting/trapping program will be started in 2024. Causes of weakened trees include winter injury, drought, too much water (not using raised beds), and soil drainage issues. See **Figures 5, 6** for examples on apple.

Peach Insect Pests

Oriental Fruit Moth: A biofix was set for this pest on 4/10 for this year. Peach growers in the program managed this pest either through timing their sprays to the degree day model or using mating disruption. No trap catches or damage occurred at any of the farms using mating disruption this year. The farms using the degree day spray model had very little to no damage from this pest this year.

White Peach Scale: A few growers had some White Peach Scale damage in their later variety peaches this year. This pest's populations may have been higher this year due to erratic spring temperatures which made it difficult to get oil sprays on. It is important to

Figure 5. Extensive industry from Ambrosia Beetle, G.41 rootstock, Belchertown, MA, July 2023. Photo Credit: Trevor Hardy- Brookfield Farm Supply.

apply a dormant oil spray to manage this pest, this can sometimes prove to be challenging since it should not be applied within 48 hours of temperatures in the mid 30's or below. See figures 7, 8, 9, 10, 11

Lesser Peach Tree Borer and Greater Peach Tree Borer: Growers should be using mating disruption for these pests now that we have lost Lorsban as a treatment option and that was our best control. These pests were not caught at any of the orchards utilizing mating disruption this year.

References

Controlling Bitter Rot' of Apple, Horticultural News, Volume 100, NO3 Summer 2020

Figure 6. Ambrosia Beetle holes and frass: Sansa apple/Nic.29-Can contribute to Sudden Apple Decline- Note the weak tree on the left. New Paltz, NY Photo Credit: Peter Jentsch, Poma Tech Consulting.