



2021 North Jersey Tree Fruit Report

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Apple Phenology 2021 Growing Season

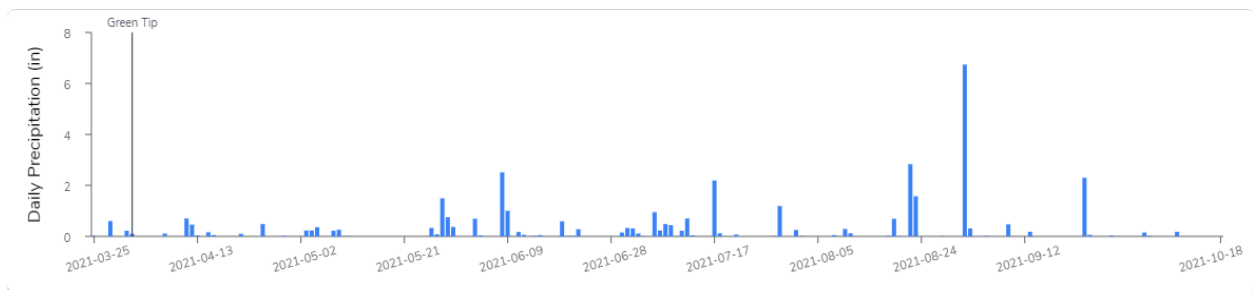
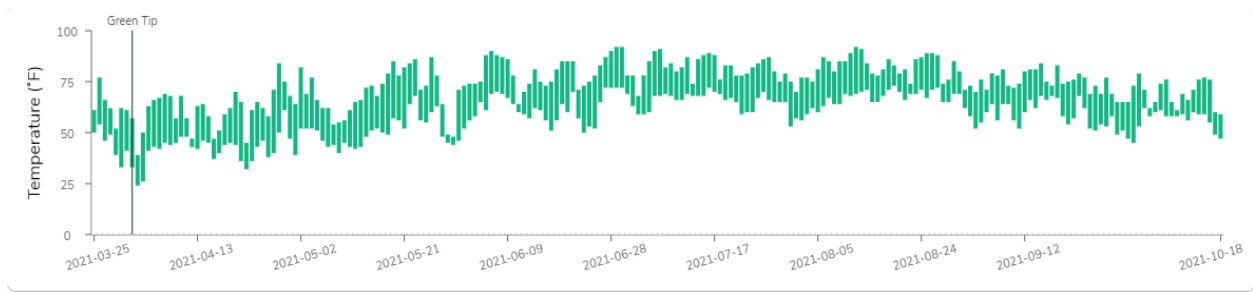
Apple

Location	Silver Tip	Green Tip	½" Green	Tight Cluster	Pink	First Bloom	Full Bloom	95% Petal Fall
Pittstown, NJ	3/25	N/A	4/6	4/13	4/20	4/24	4/27	5/11
Bridgeton, NJ	N/A	3/27	N/A	4/6	4/11	N/A	4/20	5/7

Weather Conditions

Monthly temperatures in the state were normal for much of the growing season, with the exception of August which was among the top 5 warmest on record. New Jersey had 5 days of 90F+ in June, 2 days of 90F+ in July and 5 days of 90F+ (see table below).

Precipitation was normal in the early part of the season. However, double the normal rainfall occurred in Northern NJ from mid-July through mid-September, 24 inches total for the three months, more than the normal 12 inches or 4 inches a month. September found us with 12 inches of rain in Northern New Jersey (see table below).



Average max temperature and daily total Precipitation- Pittstown, NJ (Rutgers Snyder Farm)

Horticultural Overview

Cropping was above average to excellent on pome fruit and wine grapes. There were virtually no damaging freeze events during bloom. Thus, both crops required significant chemical thinning with PGR's and some hand thinning. There were ample opportunities for multiple applications of thinners beginning at bloom due to ideal spring thinning weather conditions.

Note that growers that have taken advantage of the nibble approach to apple chemical thinning with PGR's have had greater return bloom and more uniform crop load.

As a result of double normal rainfall, we have a very large apple crop both in both fruit size and quantity. Many growers are out of bins and scrambling to find more. Cold storages are already full in some cases.

Note: a key observation for all growers, a wet summer like we just had, shows both the fruit size and total yield potential for orchards.

Growers should take this opportunity to evaluate their capacity to provide adequate irrigation water in dryer seasons to provide irrigation cycles that will provide the same fruit size and total crop load that we had this season

Temperature

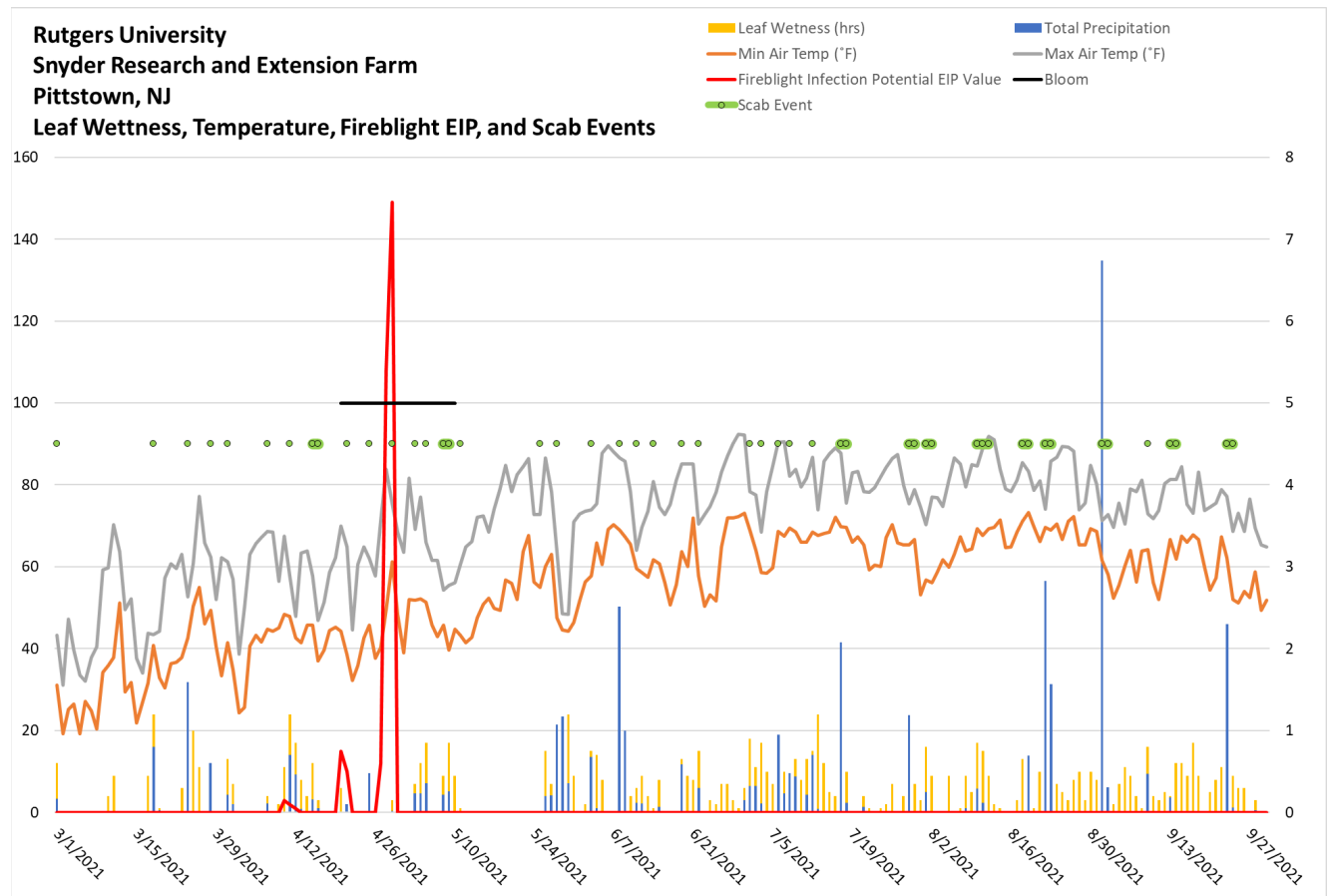
A total of 12 days of 90F+ this summer triggered more bitterrot than normal in apples, this was mostly seen in Honeycrisp but many growers had it in on other cultivars. Many growers are spraying sunburn materials on sensitive varieties, more should do so. We have had good performance with GrowForce Nutriscreen, and we have extensive data on the efficacy of ¹Valent's Raynox Plus (see citation on Raynox).

Apple harvest was a little early at first, but slowed down to normal by mid-September. Fruit color has been hard to come by with warm temperatures throughout August and September.

Many growers let apples hang on the trees beyond normal picking date to try to improve fruit color. Single and double pouchs of the PGR Retain are being used widely to delay maturity of MacIntosh, Honeycrisp and Gala. This successfully improves fruit color and size and adjusts the picking time window so that they hang on the tree for the PYO in demand season, (Late September through Columbus Day weekend).

Pest Management Overview

Diseases



Apple

Fireblight remains the number one issue on newly planted apple trees and hard cider cultivars. Control has not been adequate. More uniform use of copper after planting is needed.

Apple Scab both primary and secondary remains problematic in some blocks in a number of orchards. More attention to both NEWA and RimPro forecasts are needed.

Fruit rots remain troublesome and increased despite more than adequate control measures. See note above on bitterRoot.

Insect Pests- *Bio fixes are for North Jersey*

Oriental Fruit Moth Biofix (*April 8*)

Coddling Moth (*Biofix May 1*) CM trap captures were very low this year compared to recent years. Codling Moth damage in New Jersey was lower than past years, however control measures were needed through August and into September because of above threshold trap captures extending later than normal.

A number of north Jersey growers are using Trece mating disruption.

We particularly like the CDMA + OFM combined mating disruption for apples, which provides OFM and Codling Moth control. For north Jersey growers where we have 2-3 generations of CM and the second generation can drag on making it hard to time insecticide sprays, especially if we get the 3 generations. We had treatment numbers this year into September where we did not have CM mating disruption.

Plum Curculio (*First Scars Observed April 29*) Plum Curculio control was more difficult than most years because of prolonged cool spring conditions.

Ambrosia Beetle/black stem borer continues to grow in apple blocks in north Jersey. A formal scouting program is needed to follow this pest. Most north Jersey orchards have woods on multiple sides. With the loss of Lorsban, our most effective control, we are in trouble with this pest. Growers need to avoid all stress in new apple plantings, and ensure adequate drainage before planting.

Incidence of **San Jose Scale** infestation in tree fruit remained significantly higher than past seasons, throughout the state.

Spotted Lantern Fly increased greatly in 2021 with reports coming in statewide.

SLF emerged in 2019 as a major issue in a number of northern vineyards. This activity seems to have slowed down a little this past growing season for the northern half of the state. However, North Jersey growers followed much stricter control sprays. Southern counties experienced the first outbreaks in vineyards and orchards with some observations of adults feeding on apple twigs and excessive levels of honeydew on fruit. The numbers seen per vine in grapes vary greatly from 0-50 . Most of which are being found near the vineyard perimeter close to the wood line. A total of 72% (n=32) of vineyards in a recent survey have seen

SLF in their vineyards. Only 50% are spraying for it though. To date little economic damage has been reported despite the large number of sightings. Threshold numbers are needed for grape and apple as well as Section 18's for shorter PHI pesticides as we get toward harvest to prevent honeydew on apples.

Tufted Apple Budmoth (*Biofix May 1*) Tufted Apple Budmoth were again observed. Soon after a biofix was set in early May flight increased drastically and was stable over the whole flight period from late May through the first week of July. On some farms weekly pheromone trap captures exceeded one hundred males per trap. Codling Moth treatments successfully controlled TABM, however on farms with CM mating disruption two or three specific TABM treatments were needed.

Catfacing Insects are an issue in some orchards throughout the state.

Woolly Apple Aphid has become an increasing issue in a number of Northern Counties.

Brown Mammorated Stink Bug is an issue for in some northern NJ orchards, especially on Honeycrisp. Lack of close to harvest PHI insecticide labels is a major issue.

There is a new material for control of BSMB that has Zero days to harvest, Venerate XC from Marrone BioInovations. North Jersey growers first used it in 2020 on Honeycrisp with good success.

Venerate XC is a biological insecticide that works on many insect pests, BMSB it keeps them from feeding on fruit. Peter Jentsch did extensive testing of this material for BMSB and found it was highly effective to prevent BMSB from feeding on fruit. His work at the full rate showed 100% clean fruit after 24 hours

Periodical cicada Brood X of 17-year appeared in high numbers in many North Jersey orchards. On Tall Spindle Apple trained trees at 1200 trees to the acre it is essential to prevent the shoot flagging that comes from the female ovipositing in the leader and into the short fruiting shoots. The egg laying caused significant damage to several orchards in central New Jersey. North Jersey growers were more aggressive in treatment. A number of farmers reported the need for 5-12 sprays to manage egg laying.

Our observations this season were that insecticides must be sprayed every 3-5 days. With no residual impact it is essential to hit the adult females as they are in your trees or on in the air. The best time to spray is when they are active in the morning. As evening approaches, they are less active (especially with cooler temperatures i.e. 50F the last two nights in Baptistown, NJ) We want to kill as many as possible at each application.

The adults are large hard-shelled insects and are difficult to kill, some insecticides knock them down and they are back up in several hours.

If there is a large population in adjacent woods or trees (hedgerows) the females will repopulate apple the next day after application and begin laying eggs again. With some materials, Cavalary (Lambda-cyhalothrin) they seemed to land and shy away for a day, but then back in full force a day later.

Pesticides for Cicada Control Sources Cornell, Penn State, Virginia Polytech

Most past work on Cicada has been done by Penn State, Cornell and Virginia Polytech back in 2004.

Thank you to Peter Jenstch (Poma Tech Inc.) for all the telephone guidance on controlling this pest this season.

Lanate (methomyl) and the pyrethroid class including Asana (esfenvalerate), Danitol (fenprothrin) or Warrior (lambda-cyhalothrin), have proven to be quite effective against the cicada, often providing high mortality on contact.

Of these insecticides, it appears that two of the pyrethroids are capable of maintaining low oviposition damage to trees to reduce limb breakage and fruit loss. In studies conducted by Chris Bergh at Virginia Tech in Winchester, VA, three dilute applications were made at 6–8-day intervals to young trees beginning on 28 May. Near the end of the egg-laying season, Asana applied at the high labeled rate of 14.5 oz/A and Danitol applied at 21.0 oz/A provided significantly better ovipositional deterrence to the 17-year cicada.

These same two materials Asana and Danitol were the best in 2004 in work conducted by Peter Jenstch at Cornell.

The best information comes from [Cornell University](#) and [Pennsylvania State University](#) newsletters, both based on data from the last brood and insect trials in 2004 via Chris Bergh, VPI Biddinger and Hull, Penn State

Photos of cicada oviposition and damage in Hunterdon County NJ are below.





Citations:

¹Win Cowgill, R. Magron, W. Autio, 2016. [Raynox Plus, for the Control of Sunburn on Apples](http://www.horticulturalnews.org/96-4/a1.pdf), Horticultural News, Volume 96:4
<http://www.horticulturalnews.org/96-4/a1.pdf>

²Peter Jentsch, 2013 [HE'S ONLY MOSTLY DEAD - MANAGING BROOD II OF THE 17-YEAR CICADA IN THE HUDSON VALLEY](http://www.scaffolds.entomology.cornell.edu/2013/SCAFFOLDS%206-10-13.pdf). Scaffolds 06_10-2013
<http://www.scaffolds.entomology.cornell.edu/2013/SCAFFOLDS%206-10-13.pdf>

³ Grzegorz (Greg) Krawczyk, 2021. A Blast from the Past: 17-Year Cicada Control in Pennsylvania Apple Orchards 2021
https://extension.psu.edu/a-blast-from-the-past-17-year-cicada-control-in-pennsylvania-apple-orchards-2021?j=601160&sfmc_sub=54597077&l=159_HTML&u=138%E2%80%A6