

Maine 2021 Tree Fruit: Notable events

Northeast Tree Fruit IPM Working Group, October 19, 2021
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Seasonal weather summary

McIntosh Green tip at the Highmoor Farm Agricultural Research station in Monmouth Maine arrived about two weeks earlier on April 14. There was little rain between early Pink (May 6) to 9 days after Petal fall (May 29), with conditions dry enough that apple scab spore maturation was presumed to have stalled.

Moderate rain (1.1") over Memorial Day weekend May 29-31 was followed by another extended dry period from June 1 to July 1. Unusually high temperatures in late June combined with cumulative rain deficit created concern about lack of soil moisture.

July brought a reversal with below normal temperatures and above normal amount and frequency of rain.

August reverted to above average temperatures and rain deficit. September temperatures were near those of recent years with slightly above average rain.

Apple Diseases

Fire blight

Temperatures during the main bloom period were above average, but still too cool and/or dry for severe fire blight risk. Then with later blooming cultivars just reaching 95% Petal fall on May 22, temperatures warmed with Cougar Blight Heat Units exceeding 500. Peak risk for blossom blight infection occurred on May 26 with a daily high temperature of 90F and Cougar Blight heat units at over 800.

Most commercial growers applied streptomycin and control was very good, with no major outbreaks in multi-acre commercial orchards. However the number cases of fire blight submitted to the plant disease diagnostic clinic by hobbyist home orchards seems to have exceeded any previous year. One question is whether the drought in summer 2020 may have resulted in more staggered bloom timing in 2021, resulting in more open flowers available on days 5-8 after main bloom Petal fall being available when high risk conditions for blossom blight occurred.

The widespread occurrence of fire blight in home orchards may increase inoculum availability in commercial orchards in 2022. Up until the last 10 years, fire blight was rare enough in Maine that it was a routine facet of pest management in most commercial orchards. That has changed. What may need to change going forward is broadening FB management strategy away from a singular focus on precise timing of streptomycin application IF blossom blight conditions are identified. The broader approach follows recommendations by Kari Peter at Penn State to use a multi-faceted approach that assumes fire blight risk will occur. That approach can include Actigard or Apogee/Kudos application at Pink, and assumes a streptomycin application at Full bloom, possibly combined with Actigard or Apogee/Kudos, in addition to watching fire blight model forecasts to identify need and timing for another streptomycin application immediately before blossom blight infection period(s).

Apple scab

2021 may have been the easiest year ever for apple scab prevention in Maine. The dry conditions during the time peak foliar susceptibility during bloom no doubt was a major factor. Because ascospore maturation and release was presumed to have been delayed by lack of moisture, the final primary scab infection period in the central Maine apple growing region (Highmoor Farm in Monmouth) was estimated to have been delayed until June 22, 34 days after 95% McIntosh Petal fall. In southern Maine (Sanford area), there were only two major primary scab infection periods on May 30 and June 14, 10 and 25 days after McIntosh Petal fall.

Scab control appears to have been excellent in managed orchards. There were enough samples with apple scab submitted to the plant disease diagnostic clinic to show that apple scab was still present.

Flyspeck – Sooty blotch

Flyspeck growth hour accumulation was above the long-term average during July due to the frequent rains. Above normal accumulation continued in August-October, presumably from above normal night temperatures. As of October 1y, the cumulative FS growth hours are 151% of the estimated long-term average. In order to achieve a high probability of apples on semi-dwarf or larger trees not having visible SBFS growth before October 4 required that a final application of Pristine; Topsin M, Inspire Super or other DMI; or Captan-alone be applied no earlier than September 3. Most Maine growers probably put the final fungicide spray on before Sept. 3, suggesting possible increase of noticeable SBFS at harvest due to unusually warm night temperatures in September and October.

Marssonina infection in an organic orchard may be the first documented case in Maine. Powdery mildew is not common in Maine but was observed in 2021.

Apple Insect and Mite Pests

Apple maggot captures seemed to follow the Quebec degree day model quite well, i.e. start and end of AM trap captures lined up well with the DD date estimates.

Obliquebanded leafroller wrecked a Honeycrisp block at Highmoor Farm in 2020 despite what seemed to be a sufficient frequency and selection of insecticide applications and unremarkable counts in pheromone traps. In 2022, the Honeycrisp block was not damaged, but an adjacent block of Cortlands was, again despite what seemed to be sufficient insecticide and unremarkable trap captures. It appears that prebloom control of overwintered OBLR larvae is required where they are established. By the time of summer generation larval hatch in July, either thick foliage or tight spacing between fruit allows OBLR to escape insecticide spray coverage. Michigan State Extension says pheromone trap capture numbers are only for timing flights, and are not useful for a population density estimate. I agree.

Other pests

Green pug moth and **Winter moth** caterpillars were both observed in Maine locations away from their usual coastal distribution, suggesting the possibility that these species may be spreading in Maine. **Gypsy moth** were reported to be on the increase in western Maine.

Browntail moth were in outbreak status in large areas of central and southern Maine this year. They were not a problem in orchards receiving insecticide coverage for other pests, but did establish nests in tree around orchards which creates a serious nuisance from their itching hairs.

Apple and thorn skeletonizer has become a regular source of samples from home orchardists.

Apple pith moth were found in an organic orchard. This tip borer creates flagging shoots that resemble fire blight strikes.

What appeared to be a **Black stem borer** was found in a home owner sample. This pest has not previously been reported as a problem in Maine.

Round headed apple tree borer continues to cause extensive damage to young apple trees not receiving regular insecticide sprays. An organic grower in Maine reported good success applying undiluted neem butter to the lower trunks of trees. On 400 treated trees, he subsequently found only 12 RATB. On 100 trees in the same planting that did not get the neem treatment, he found 90 RATB. The undiluted neem caused some tissue damage on M111 rootstocks but not two other rootstocks.

Potato leafhopper showed up on other crops, but did not cause serious problems in apple orchards.

European red mite, Tentiform leafminers, and White apple leafhopper were sparse in Maine in 2021 as far as I can tell.

Pearleaf blister mite was a common issue in home orchard specimens sent to the plant disease clinic.

Phytotoxicity

In 2018 two orchards suffered sudden occurrence of phytotoxicity after applying the Adama green jug Captan Gold 4L. In both cases the product was noticed as being “clumpy”. In 2021 a large block of Honeycrisp showed cracking and skin defects where Captan Gold 4L had been applied. Damage was heavier on row ends where double spray coverage might have occurred. Watching out for product formulation that is not in proper suspension upon receipt from the manufacturer, and careful attention to tankmixing is advised for this formulation in particular.



Sunburn

Six days of daily high temperatures in the low 90s on June 6-8 and 28-30 in southern Maine caused concern about potential apple sunburn. Those dates were less than the 7-8 weeks after Petal fall identified in WA as a threshold at after which apple become large enough to be sensitive to sunburn. There were four days of >90F daily high temperatures at Highmoor Farm in central Maine. While a few sunburned apples were observed during orchard scouting, growers have not commented about unusually high sunburn this year. If the June temperatures had occurred later in the summer, sunburn may have emerged as a new threat to apples in Maine. Between hail, which not infrequently affects orchards in Maine, and sunburn, the use of hail netting may become economically feasible for high-density high-value blocks. Netting may also reduce drought susceptibility to some degree.

Peaches in Maine provide a good crop about 2 years in 5. And historically have suffered from winter kill about once every 10 years. Peach survival and productivity was very good in 2021.