

Maine 2018 Tree Fruit: Notable Events

Northeast Tree Fruit IPM Working Group, October 23, 2018

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Branch and tree death

There was an increased number of reports of about dead branches and entire dead apple and other fruit trees in 2018. These reports began at the typical timing. It is not unusual to have trees look fine until fruit set, then have foliage collapse shortly after Petal Fall. We attribute this to winter damage to the vascular system. But in 2018, more cases continued to be reported into July and August. It is possible that for cases involving noncommercial plantings, the timing of reports was not an accurate indicator of when symptoms first developed.

Our best guess was that a combination of cumulative weather-based stressors were taking their toll.

There were extended dry periods in late summer in both 2016 and 2017. In fall of 2017, average September temperature in 2017 was 5–7°F (2–4°C) above the 1981–2010 average in most locations, and at least 3°F above average in the rest. Average October temperatures across Maine were 5–10°F (3–6°C) above the 1981–2010 average. November temperatures varied between locations, but were either near normal or 1–3°F below the 1981–2010 average. Precipitation was 30%–100% above normal in October, but 30%–70% below normal in November.

Apple trees all over the state did not drop their leaves. Veteran growers with many decades of experience said they had not seen leaf retention to this degree ever before. December brought daily low hourly temperatures of -13°F, -15°F, -20°F, -20°F, -17°F, -17°F, and -20°F (Dec. 27–Jan. 2). There was below normal precipitation in January–March, and an extended dry period from early May to mid-June. Dry conditions (warm temperatures with dry spells, slow grass growth, but close to normal total precipitation in pulses) in June–August, may also have been a factor in some later developing cases.

Starting in June, limb and total tree dieback was observed in numerous locations, often on trees that had shown no such symptoms for decades. Our conjecture is that the warm wet October altered the normal physiological processes of hardening off before winter and left trees vulnerable to the extreme cold of late December – early January. In addition, soil moisture deficit during critical pre-bloom — bloom foliage expansion may have overly stressed tree resources, or interfered with their ability to recover from earlier stressors.

Fire blight

There was a high risk blossom infection period on May 26, 2018, as McIntosh were losing their petals and later blooming cultivars still had numerous open flowers. Most, but certainly not all,

commercial growers applied streptomycin. While there were scattered strikes in multiple orchards, fire blight was not a major issue in Maine in 2018, with one exception.

A ca. 30-acre orchard that was sprayed with streptomycin at ca. 30 gallons water per acre shortly before the infection period began (presumably within 24 hours before rain began on May 26) had extensive infection, especially on young dwarf Honeycrisp trees. Other cultivars, notably Paulared, were also affected, but not as bad as the Honeycrisp. Thousands of sanitation cuts were made over the ensuing two-three weeks. Cuttings were placed in plastic garbage bags and removed from the orchard. After the initial round of cuts, new strikes appeared in the same trees. But eventually there were no more strikes to cut, and by harvest there no signs of fire blight beyond all the pruning. That may have been due at least in part to terminal bud set. This orchard had no signs of fire blight the previous year.

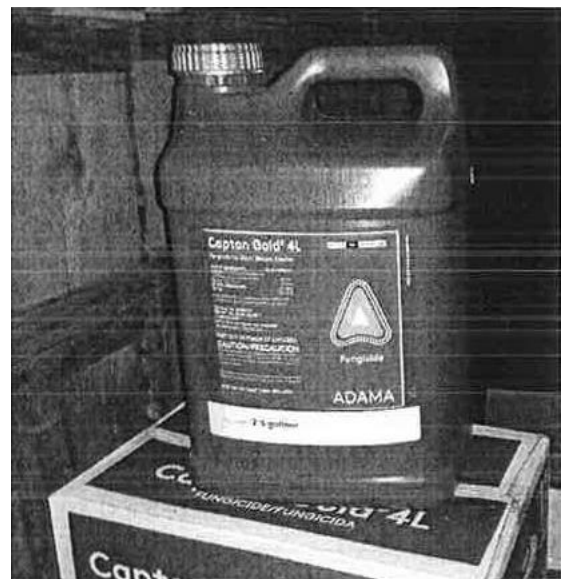
A neighboring orchard about one mile away received the same streptomycin application, but at 100 gallons per acre and had almost no fire blight except a few trees at row ends the received poor coverage. However, the comparison is complicated by the second orchard having almost no Honeycrisp, and consisting almost entirely of older, fully established semi-dwarf trees.

Phytotoxicity

Two growers reported inexplicable fruit skin scarring, specific to certain cultivars that became apparent in June and early July.

In both cases, the growers had used liquid Adama Captan Gold 4L, bought new from the dealer in spring 2018 (i.e. not stored over the winter by the grower) that came in green jugs and which was clumpy when poured into the spray tanks.

Certain strains of McIntosh (Chickadee Mac in particular) were much more severely affected than others. Other McIntosh strains (Marshall Mac, Rogers Mac, Macspur) also showed some damage, but not nearly as much. Non-McIntosh cultivars did not have noticeable damage in one of the orchards, possibly both. In both cases, the skin lesions (russeting, some cracking but not much) remained evident until harvest and affected crop value.

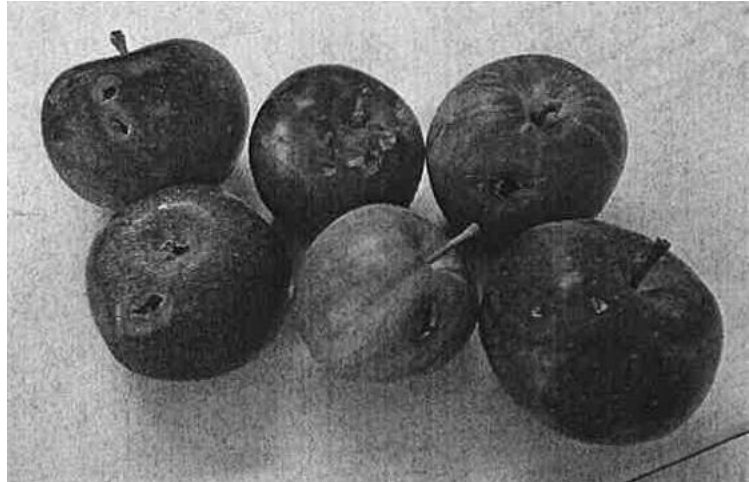


Apple maggot

The spatial variation between apple maggot trap captures continues to surprise. On August 18, an orchard with 10 total traps, averaged 1.1 apple maggot fly per trap on 9 of the traps. The 10th trap had 22. This same trap location, in a block of Tolman apple trees, also had high counts

in 2017. This makes me wonder about the optimum trap density and trap locations for whole orchard monitoring.

Squirrel population outbreak
Maine had an unprecedented (within memory of anybody I spoke with) squirrel population in 2018. Reports of squirrel damage to apples began in July and were distressing throughout the apple growing region by August and September. One anecdotal report was that a large Honeycrisp block suffered 50% damage.



Both red and gray squirrels were observed feeding on fruit. Apples at the tops of trees were sometimes consumed extensively. The damage was especially frustrating where squirrels would take one or two small bites out of each apple, but ruin every apple on a branch.

No practical remedies other than shooting were available. Wildlife biologists trace the high population to a very productive mast (food) supply in 2017, but with a lesser supply this year. Prolonged dry conditions in late summer may have also been a contributing factor.

Flyspeck / sooty blotch

A heavy rain (>1.5", 4 cm) on September 11 occurred near the date beyond which loss of fungicide coverage might not be consequential due to proximity to harvest and because of declining temperatures below the optimal range for flyspeck growth. Temperature and leaf wetness tracking suggests that later ripening apples at Maine orchard locations could have shown visible flyspeck colonies starting around October 7 even if fungicide suppression had been continuous during the prior months. Field reports not yet available.

Nothing remarkable

Apple scab, codling moth, European red mite, leafminers, obliquebanded leafroller, plum curculio, woolly apple aphid, white apple leafhopper . . . **but:** Interpretation of codling moth and obliquebanded leafroller codling moth trap captures (with standard lures and wing traps) continues to be unresolved. Some sources say that pheromone trap counts of male moths are not predictive enough as a basis to determine if additional insecticide protection is needed. Some sources cite 5 moths per week as a treatment threshold, other 10 moths per week.