



NH Integrated Pest Management Newsletter

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Fruit Development Stages

As of Monday April 26, fruit development at the UNH Woodman Horticulture Farm was as follows: Pioneer McIntosh apple - full pink; Peaches - bloom; Japanese plums - petal fall; European plums - bloom; Pears - bloom; Blueberries - pink bud to bloom.

Peach Scab

This fungal disorder isn't too common, here, but during a year when you have little or no crop, it can build up, and be more severe the next season. I'm mentioning this because we had almost no peaches in Durham last year, while others farther inland had a good crop. Captan (or sulfur) starting at shuck split are effective treatments if you have a problem with peach scab.

Plum Curculio: Major Apple Pest

Plum curculios overwinter as adults, in leaf litter in the forest. They move to orchards in response to warming temperatures and odors released by twigs, bark, flowers and fruit. Apples are strongly preferred, but they also attack pears and stone fruit. Although they may move into apple orchards during bloom, they can't attack anything until the first fruit have set. Attacks usually begin around the time of petal fall. If we have warm weather, they begin right on schedule. If we have relatively cool weather, that slows and delays the attack a little.

The female makes a small, curved scar with her mouthparts. During the 1700's, when this insect first started attacking apples here, growers referred to the insect as "the little Turk", because the injury was the shape of a scimitar on the Turkish flag. Under the flap of skin she created, the female lays an egg. The egg hatches days later, and the larva tunnels through the immature fruit. Most apples respond to this by dropping to the ground, in June or early July. Those few injured fruit that don't drop get bumpy and irregular in appearance, plus show the surface scar from the egg laying.

In most of New Hampshire, plum curculio numbers are so high that they can damage or eliminate 90 to 100% of the apple crop. That's why applying an insecticide is so important

Fire Blight

Fire blight is caused by a bacterium, and is most likely to strike apples and pears. The formula for a bad fireblight year would start with high amount of inoculum. That is the case if you had any fireblight strikes

in your orchard last year. The next risk factor is very susceptible varieties, like Braeburn, Fuji, Gala, Ginger Gold, Idared, Jonagold, Mutsu, Paulared and Spigold for apples, and Bartlett, Bosc, Clapp's Favorite, D'Anjou and Gorham for pears. By the way, these are only the most susceptible ones. If I listed moderately susceptible varieties, we'd need much more space (Cortland, McIntosh, Macoun, Mutsu...). Another risk factor is having very susceptible rootstocks, like the apple rootstocks Bud.9, Mark, M9 or M26.

Then, we would need ideal weather: warm (60F or higher), rainy weather when the trees are in bloom. If there was mechanical injury (like from a hailstorm), then the risk is still higher. The experts also point out that the trees that are most susceptible are relatively young --- Two to eight years old. There's one more risk the guides don't list: Complacency of managers. If you don't pay attention to this, you might get a nasty surprise.

My specialty is entomology, so I don't have as detailed information on this subject as do my colleagues who are plant pathologists, and write fruit newsletters: Glen Koehler (Univ. Maine) and Dan Cooley (U Mass). Both of them have excellent info in their newsletters. You can connect to Glen's newsletter through his website at <http://pmo.umext.maine.edu/apple/>. Also, his orchard radar program (predicts pest events, based on weather) will continue to use at least one NH weather data source this year: Hancock. The orchard radar links are on the same website page linked above.

Dan Cooley's information is in John Clements' newsletter. Go to UMass Fruit Advisor website. Here's the link: <http://www.umass.edu/fruitadvisor/> It gives renewal info to get his newsletter.

The computer models "Cougarblight" and "Maryblyt" are the basis for most of the predictive models to evaluate the weather risk, including those used here in New England.

Apple Scab

Déjà vu --- Friday April 16 was similar to Friday April 9, in terms of apple scab. On the 9th, we had apples in quarter inch green stage, a long daytime rain (foliage wet long enough to cause infection) and release of perhaps 7% of the season's supply of ascospores. When that rain cleared up, we had sunny weather until the 16th. On the 16th, the apple scab risk was even higher. We had more vulnerable tissue exposed (late tight cluster in Durham), a daytime rain with temperatures in high 30's and 40's, plus 300 scab DD accumulated since the biofix. Subtracting those spores that should have released on the 9th, that resulted in about 12-13% of the season's supply of ascospores released that morning, followed by another 5% released Saturday morning, and another 5% in the rain Sunday morning. At 40 degrees F, leaves must be wet for 29 hours or longer, to get infection. Rain started before dawn, and spore release probably occurred around 7AM, when there was enough light to trigger the event. Did you notice that things were wet through early Sunday afternoon? That was 53 hours or longer --- long enough for infection.

The next rain event was on April 22 (for some of us anyway) when there was a short daytime shower. Leaves dried quickly, so that event released spores, but leaves were not wet long enough to cause infection. On Friday April 23, we had another very short daytime shower in Durham. That released some spores, but leaves probably dried too quickly to allow infection. The forecast for Apr 26 & 27 is for showers & rain, so that may create another infection period.

For those of you following degree days, we are still in the rapid maturation phase of ascospore development. As of Monday morning April 26, we had accumulated 458 apple scab degree days since the biofix in Durham.

Green Pug Moth on Apple

With bud development galloping along so rapidly, it is difficult to know what to include in the newsletter. Perhaps development will slow enough that this message isn't too late. Green pug is a tiny yellow-green looping caterpillar (inchworm) that starts feeding on opening tissues before bloom. Bloom is the time when it does its greatest injury: eating the pistils in the flowers. This causes that flower to yield no fruit. A couple of NH orchards had significant green pug injury in the last few years. Many seem to have little problem with them.

If you do not generally apply a pre-bloom insecticide, it might be worthwhile to check at pink and look for the tiny green inchworms. The fully mature ones are ½ inch long and often have a brown-red line down their backs. Search by tapping flower clusters onto a white surface, such as a large pad of paper, a paper plate, or frisbee. The caterpillars show up well. Lots of insecticides work on them, including the caterpillar strains of *Bacillus thuringiensis* (which are not harmful to pollinators). No, I would not use a neonicotinoid insecticide pre-bloom (Provado, Assail, Calypso, Actara). Sprayed pre-bloom, they may create significant risk to bees, both honeybees and our wild bees.

European Apple Sawfly

Adults of EAS should be emerging in some NH orchards, and around wild trees. This usually happens at about pink stage. For some southern NH sites, they've been out for a while already. The adults mate and females lay their eggs during bloom. Typically, our plum curculio treatments kill the larvae, but not before a few make long, curved scars on the young fruit.

My colleague Charles Vincent (Agriculture Canada) reports that they have successfully introduced the EAS parasite to several more sites in Quebec and southern Ontario. This is great news. Perhaps you remember that I brought that parasite from Charles' plots in Frelighsburg, and tried to establish it (*Lathrolestes ensator*) in NH, but was unsuccessful. Perhaps it will eventually spread here on its own, from these new sites. The northernmost parts of the state are most likely to see the effect first, but it will take time. Congratulations, Charles. I know you worked very hard on that.

TPB on Strawberries

Tarnished plant bug starts attacking strawberries when the flower buds become visible in the crown. Attack rate goes even higher when the first blossoms open. Our monitoring recommendations for this insect have shifted a bit earlier. We want growers to start checking before bloom. That way, if insecticide treatment is required, you can do it before bloom, minimizing risk to bees.

The nymphs do most of the damage. They're yellowish-green in color, and run rapidly when dislodged from the plant. Sample for them by shaking flower clusters onto a large white surface. I found that the underside of a white frisbee is ideal for the purpose. It isn't harmed by moisture, is the right size, and has a lip to slow the nymphs down from running off the edge before they get counted. The nymphs show up well on the white surface. If you find 4 or more flower clusters infested, out of 30, it is worthwhile to treat. It is a good idea to check again a few days later, if numbers are below threshold. The nymphs feed on flowers or immature green fruit (up to about 1/3 grown fruit).

If you have large acreage to sample, the New England Small Fruit Pest Management Guide describes a sequential sampling technique. It is more complicated to follow, but if done correctly, it tremendously reduces the amount of sampling you have to do [saves lots of time & effort]. I won't reproduce it here. Check out the guide for the details.

Fruitworms on Blueberry

If you've had problems in the past with cranberry fruitworm or cherry fruitworm, please remember that the timing for insecticides directed at these pests is right after petal fall. I have no idea how soon that will be, so I thought it would be wise to mention that now, since the next issue is two weeks from now. Many growers have no problems with these pests, so don't spray for them.

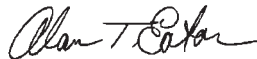
Upcoming Meetings

*Friday April 30, 2010. **Apple Grafting Clinic.*** UNH Cooperative Extension, Coos County Office Building, Route 3, Lancaster. 6 - 8pm. Space is limited, please pre-register by calling 788-4961. There is a small fee.

*Saturday May 1, 2010. **Fruit Pruning Field Day.*** Harrigan Farm, South Hill Road, Colebrook. 10:30am - 12:30pm. Pre-registration is not required. We'll look at apples and blueberries. For more information contact Steve Turaj, 788-4961.

*Friday May 7, 2010. **Wine Grape Pruning Demonstration & Grape Disease Management Discussion.*** Podere San Lorenzo, 334 Emery Road, East Andover, NH. 5:30 - 7:30 pm. For more information contact Amy Ouellette at 796-2151 or amy.ouellette@unh.edu.

*Wednesday May 12, 2010. **NH Fruit Growers' Twilight Meeting.*** Carter Hill Orchard, Concord, NH. 5:30 - 8:00 pm. For more information contact George Hamilton, 641-6060.



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