



NH Integrated Pest Management Newsletter

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Fruit Bud Development

As of Monday May 2, Fruit trees were in the following stages at the Woodman Horticulture Farm in Durham: Pioneer McIntosh Apple: pink. Plums: almost at petal fall. Pears: white bud. Blueberry: flowers in loose clusters. Blackberry: 1.5 to 2 inches of growth from fruit buds.

Apple Scab Situation

Experienced apple growers know that we are in the high risk time of year, relative to apple scab. This is confirmed by the apple scab degree day figure for Monday May 2: 424 in Durham. If you turn to page 9 in the latest New England Apple Pest Management Guide (that's the 2003-4 version by the way), you'll see that this correlates with about 40% of the season's supply of ascospores having matured already. This, coupled with lots of expanding tissue and rainy weather makes for the high risk.

Rust Diseases of Apple

I didn't include photos of either Quince rust galls or cedar-apple rust galls in the last issue, so I decided to color things up this week. The photo to the right is a gall of cedar-apple rust, after a soaking rain. The fleshy orange telial arms are extended, making the gall easy to spot in the tree. One co-worker said they look like orange Christmas tree ornaments. These galls are on red cedar, and the spores from them infect apple foliage. Some varieties are quite susceptible, including Golden delicious, Mutsu, Gala, Jonagold. Delicious is almost



immune to cedar-apple rust, but it is quite susceptible to quince rust. Quince rust attacks the fruit, and the galls are slight spindle-like swellings in branches of common juniper. It's easy to see them when the telial arms are out, but otherwise I find them very hard to spot.

I mentioned last week that complete elimination of the alternate hosts stops the problem. The big question is: how far can the spores travel? I've seen suggestions that they can go up to half a mile, but eliminating any within 100 to 200 yards should virtually eliminate the problem, since spores from farther away have a low chance of getting to your trees. You could tolerate an occasional lesion, couldn't you? Of course, fungicides can protect your fruit and foliage, and the New England Apple Pest Management Guide has details. Among the fungicides with an "excellent" rating for cedar-apple rust are Bayleton, Mancozeb, Nova, Polyram, Procure, and Rubigan. There may be some newer materials as well.

FireBlight

Do you remember Dr. Jay Norelli coming here November 15th, 2004? He is a USDA expert on fireblight. His article on fireblight and its management is on the IPM page of our website. Here's a link, so you can refresh your memory about what is important in managing FB.

<http://extension.unh.edu/Agric/AGPMP/PMPIPIM.htm> Look on the right side of the page, for the fireblight link. Fireblight is a bacterial disease, and apples and pears are quite susceptible. Other rose family plants are susceptible, too. Among the most susceptible of apple varieties are Braeburn, Fuji, Gala, Ginger Gold, Idared, Jonagold, Mutsu, Paulared and Spigold. Among rootstocks, M9 and M26 are rated very susceptible. The most worrisome condition for spread of fireblight is warm rain during bloom. If you couple that with a significant number of FB cankers in the orchard, susceptible varieties, and susceptible rootstocks, that's a VERY risky situation. Throw in some hail, and that could make it a nightmare.

The New England Apple Pest Management Guide is one location to find predictive models on temperature and fireblight risk. Now might be a good time for you to check on this.

Green Pug Moth

We expect GPM caterpillars to do their heaviest feeding during late pink and bloom stage. Then, late in the bloom period, they "disappear". Actually, they stop feeding pupate then. If you are contemplating controlling these critters, the last opportunity is at pink stage. The adult moths fly in June, and are grayish, with a slight green tinge. There is just one generation per year. Very high numbers could thin your crop, because the caterpillars especially like to feed on the pistils of the flowers. I'm only an entomologist, but even I know that chomping up the pistil during bloom means no fruit from that flower.

Plum Curculio

One annual rite of spring is the return of plum curculio to orchards. Apples are especially heavily hit by this native insect. It overwinters in the woods, and flies into orchards in the spring, usually around petal fall time. Odors from the trees are important lures to the weevils. The young fruitlets also produce odors that are important lures. Once the fruitlets get to about 6 or 7mm in diameter, they become susceptible to PC injury.

Some observers have reported that apple blocks that were pruned late had more curculio attacks than those that were pruned early. This was observed for some time, but it wasn't until the research on odors produced by the trees that we had a possible explanation. I'll cover PC more as we get closer to the worrisome period for activity.

Codling Moth and Redbanded Leafroller on Apple

These insects (and lesser appleworm) can be significant pests of apple, but they are usually controlled by the insecticides we direct to plum curculio (and later, apple maggot). The adults (moths) fly and lay their eggs when curculio is active. RBLR is the first to fly, and lesser appleworm is next. Codling moth is the last of the three, with heavy first generation flight around the time of petal fall. All three moths have a second generation later in the summer.

Rosy Apple Aphid

Rosy apple aphid (RAA) is an early season pest that especially hits Cortland trees. Delicious is somewhat susceptible, as is Monroe and a couple of other varieties. The tiny aphids feed on spur leaves. The aphids produce toxins that severely stunt the growth of any fruit on that spur. Affected fruit are very

tiny, often ridged like a pumpkin. If your Cortland trees have had this problem, scouting for RAA would be a good idea early. Pink stage is the last opportunity we have to hit the colonies effectively. After that, the leaves on which they feed curl up, preventing insecticide from reaching them.

Spray For These Oval Things on My Apple Buds?

I haven't run these photos for a while. Occasionally an apple grower sees these gray oval things on his/her twigs, and applies an insecticide to take care of the "problem". Well, these are beneficial insects! They are eggs of Syrphid flies. The flies locate aphid colonies (by smell) and lay their eggs nearby. The maggots that hatch from them are voracious aphid predators. Syrphid fly larvae are variegated, and can be yellowish, tan or brown. If you see orange maggots among aphid colonies, those are



cecidiomyid larvae, also voracious aphid predators. Most of us need a hand lens and good light to see these eggs well. They are roughly 1mm long. In the photo to the left, there are several, the most obvious being the two on the open leaf near the center of the picture. By the way, my photos of syrphid larvae (and other apple aphid predators, too) are on the IPM page. The url is slightly different from the one above. Here it is: <http://extension.unh.edu/Agric/AGPMP/Apples/index.htm> It has about 60 photos of pest injury to apples, plus some beneficial organisms. After you get there, to see any of the photos full sized, place your cursor on the photo and click.

Mummyberry of Blueberry

Don't forget about mummyberry. If dry weather continues this spring, then we won't have as many opportunities for this fungus to attack. But the risky period will continue for a while. Don't forget to check Dr. Schilder's article on our website. The same link I gave above (for fireblight) gets you to the page with both links.

Raspberry Fruitworm

The adults of raspberry fruitworm should be appearing soon. This species is a tan, oval beetle, about 1/8 long. They do a little chewing on the leaves, but the serious damage starts after bloom: they lay eggs on the green fruit. The eggs hatch into tan segmented "worms" which bore in and feed on the receptacle. When you pick an affected fruit, the larva often comes with it (inside). Customers do NOT like these things in their fruit. If you have a fruitworm problem, the best time to treat with an insecticide is shortly before bloom begins.

Tarnished Plant Bug and Strawberries

Tarnished plant bug can be a very serious strawberry pest. The insect overwinters as an adult, and as I write this (May 2nd) they are feeding on apple and peach buds (among other things). Once strawberry flower buds appear, some TPB's start feeding on them. The open flowers provide a visual lure to

TPB's, and numbers climb once flowering starts. The bugs lay eggs in the plants, and the tiny nymphs hatch from them and begin feeding.

TPB's have piercing-sucking mouthparts, and they feed on hundreds of different plants. They strongly prefer to feed on flowers, flower buds, and immature fruit. On strawberry, they prefer to feed on the immature seeds and the vascular bundles that support them. The flesh around such damaged seeds fails to grow, leaving the fruit with hard, green sections. I've seen them attack so heavily that the bed was not worth harvesting. David Handley (Univ. of Maine) is one researcher who has looked at TPB injury among different varieties. Kent and Mic Mac were two that repeatedly showed up with high TPB injury, while Honeyoe was one that often had lower levels.

Research shows that the most serious injury is done by the nymphs. They concentrate on the young fruit, so the most vulnerable time is when there are lots of young fruit on the plants.

You check for TPB's by tapping the flower clusters onto a white surface. I find that a white Frisbee is ideal. It is a good size, has a slight rim, and isn't damaged if it gets wet. Tapping dislodges the TPB's, and they are easy to spot on the white surface. If 4 or more out of 30 fruit clusters have TPB's, it is worthwhile to spray an insecticide. For those of you familiar with checking for TPB's, look at table 16 in the 2006 New England Small Fruit Pest Management Guide. It describes a slightly more complicated method. It is a big time-saver. Statisticians call it a sequential sampling method.

You can check the 2006 New England Small Fruit Pest Management Guide for insecticide choices and details. By the way, if fallow fields, alfalfa, or red clover are growing nearby, mowing them when strawberries are in bloom will move many of the TPB's from the fields into your strawberries, just at their most vulnerable time. Hint: This is bad.

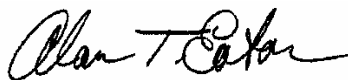
Currant and Gooseberry Pests

I don't know much about pests on these "new" crops, but enough people are growing them that there is now a section on them in the 2006 New England Small Fruit Pest Management Guide. If you want to plant currants or gooseberries, you need a permit from the NH Division of Forests and Lands. This is because they might serve as hosts to white pine blister rust, a forest pathogen. There are several varieties that are considered resistant enough to the rust fungi that they are approved for planting. For more details and the permit application form, follow this link:

<http://nh.gov/dred/divisions/forestandlands/bureaus/forestprotection/WhitePineBlisterRust.htm>

Grape Flea Beetle

I don't work with grapes much, but one of the most common grape pests on backyard vines is grape flea beetle. The adults should be out now in Southern NH. They are bluish-black shiny beetles, about 3/16 inch long. Their name comes from the jumping they do when disturbed. Sometimes they feed heavily on the opening buds. Once the tissue from the buds has grown to 1/2 inch or more, they are past the period of greatest risk from this pest. Usually it isn't a problem.



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