Fruit Bud Development

Fruit bud stages at UNH Woodman Farm on Monday morning, April 29, 2013 were as follows.
- **Pioneer McIntosh Apple** - tight cluster.
- **Peaches** - early bloom.
- **Pears** - green cluster.
- **Japanese plums** - bloom.
- **European plums** - green cluster.
- **Blueberries** - loose clusters to pink bud.

Thresholds for Leafminers on Apple Trees

The threshold (population density where it becomes worthwhile to control them) for spotted tentiform leafminer/apple blotch leafminers, [using red rectangle sticky traps on the trunk] varies by apple variety. For McIntosh, it is a cumulative catch of 4 or more moths from quarter inch through tight cluster stage. For other varieties, the threshold is 9 or more moths, because other varieties are much less sensitive to leafminer damage. Please remember that this tells you IF it is worthwhile to apply an insecticide. It doesn’t tell you WHEN to do it. In Durham, I had no leafminers on the traps by Friday afternoon April 26, but several were caught over the weekend. Farther south, there must have been significant numbers flying as well.
When (and What) to Spray for Leafminers on Apple

We have three generations of STLM/ABLM per year in New Hampshire. The best time to apply an insecticide (if it is needed) is against the first generation miners. They are more synchronous than the others, so a single, well-timed treatment does the trick. If we wait for the second generation, it usually requires two applications to get really good control. I NEVER recommend treatment for the third generation. That is too late to prevent the fruit drop that can result from heavy attack. Also, the third generation is heavily parasitized.

We have quite a few insecticide options. Formerly, we sometimes targeted the adult moths with an early spray directed very low, to kill emerging ones. Thiodan and Thionex were our choices. This option is rarely used now. Much more common now are sprays directed at either the eggs and just-hatched larvae, or the older sap-feeding larvae. Once larvae grow to the older tissue-feeding stage, we can’t control them with sprays.

Insect growth regulators (Esteem, Intrepid) are most effective on eggs and very young larvae, so they are applied during pink stage. Rimon is an IGR that would go on immediately after petal fall. Actara is targeted at this period. The Actara label reminds us that it penetrates the foliage a bit. Aza-direct is OMRI listed, and works by ingestion. I don’t think significantly penetrates foliage, so the preferred timing would be in the egg stage (so they can consume the material before mining into the leaf tissue.

Vydate is still in some growers’ pesticide sheds, and it is effective on leafminers. Apply it during pink stage, because spraying Vydate soon after pink can over-thin the fruit. Avaunt is typically applied at pink as well. The Avaunt label still uses the word "suppress", rather than "control", for leafminers. A note says that using an adjuvant may improve its performance on leafminers.

Insecticides that target young larvae (“sap-feeders”) come next. Mines of sap-feeders are visible from the undersides of the leaves, as slightly silvery patches. If you are unsure, you can carefully peel away the silvery underside of the mine, to reveal the tiny, almost clear larva. Usually that means spraying right after petal fall. Proclaim is used then, combined with a surfactant (don’t use a sticker!). It has some ability to penetrate inside the leaf. Voliam flexi, Voliam Xpress and Tourismo are combination insecticides applied right after petal fall. Many labels say “during the sap-feeding stage”, so that could be a little after petal fall (check undersides of leaves for evidence). Agri-Mek, Altacor, Belt, Calypso, Delegate, Entrust, Lannate, and Leverage are in this category. Some require a surfactant to be effective, so check the labels!

I’ll go back to pink stage for a minute. We have many pyrethroid insecticides that work on leafminers. They affect adults (or eggs, if you have high enough gallonage to hit them), not the immatures, which are inside the leaf layers. Pyrethroids tend to be quite persistent and broad spectrum, so they can be very harmful to beneficial insects. For these combined reasons, I usually downplay them as an option for leafminers, but they are legal options: Asana, Baythroid, Danitol, Pounce, Proaxis, Warrior.

Apple Scab

As of Monday April 29, we had accumulated 77 apple scab degree days since the biofix, in Durham. That means that about 2% of the season's supply of ascospores are mature. In much of Rockingham and Hillsborough counties, things have progressed further, and may be in the rapid maturation phase now. We had no infection periods in Durham since April 16th. The forecast for Durham shows warm temperatures, with the only chance of daytime rain coming Thursday. When we do get daytime rain, that should release more apple scab spores.
Cedar-Apple and Quince Rust

Galls of cedar-apple rust are ready to release spores during rainy periods. They look a bit like tan or gray golf balls, until the telial arms develop. When wet, the telial arms expand and look like droopy bright orange ornaments. You could maintain fungicide protection for your apples… or eliminate ant red cedar trees from within 100 yards of your orchard. Even tiny trees, just 2 feet tall can be a source of spores. Eliminating the alternate hosts eliminates the problem. Red cedar (Juniperus virginiana) and apple are the two hosts the fungus requires, to grow. Quince rust similarly switches between apple and Juniperus, but it is primarily common juniper (J. communis) that is the alternate host for that. Quince rust galls are very hard to find on juniper, unless it is wet weather. Then the flesh, orange telial arms seem to spring out from the branches, with no really obvious gall. While cedar-apple rust seems to make lesions on foliage of susceptible apple varieties, Quince rust seems to hit the fruit.

Rosy Apple Aphid

Rosy apple aphid is the species that causes some Cortland fruit to be severely stunted, ridged, and puckered at the calyx end. I rarely see this on other varieties. The young colonies of this species are recognizable because the leaf starts to curl up over the aphids. The smallest RAA’s could be dark green color, but some would look yellow, and some might be powdery purple or pink color. Pink stage is the last chance to check for RAA, and if need be, control them. Look for the tightly curled leaves on Cortland trees. If you wish, you can search inside the curled leaves for the aphids, but that’s not necessary.

Beleaf is one of the treatments that can be used to control this insect. Spraying after pink stage is rarely effective, because the curled up leaves protect the colonies. This is my annual opportunity to remind you that eliminating English plantain from the orchard floor will dramatically reduce or eliminate the problem. It is a key alternate host for RAA.
Green Pug Moth

Green pug is a geometrid (inchworm) that begins feeding on the foliage soon after the apple buds open. Once the flower buds open enough, it moves to feed on the pistils. That eliminates the possibility of a fruit growing from attacked blossoms. Many orchards have little or no problem from this insect, but a few get significant injury. **Pink stage is the time to check for the caterpillars.** The caterpillars are small, yellow-green, and the older ones have a red-brown line down the back. There is no threshold figured out for this species. If you find what you think are a significant number of them, consider applying an insecticide right away, before bloom. You could visually search for them, or firmly tap flower clusters (at pink stage) onto a white surface. I found that an inverted white Frisbee is excellent for this. An organophosphate or *B.t.* insecticide might be a good choice.

Meetings

Wednesday May 8. Tree Fruit Twilight Meeting at Brookdale Fruit Farm, Broad St, Hollis, NH. 5:15 to 7:30PM  2 P.A.T. credits are offered.

Thursday May 9. Grape Vineyard Sprayer Calibration Meeting at Flag Hill Vineyard, 297 North River Rd (Rt 155) Lee, NH. 12:30 to 4:00 PM. George Hamilton and Bill Lord will be demonstrating both backpack and air blast equipment. 3 PAT recertification credits are offered.

Wednesday May 22. Drip Irrigation Meeting and Demonstration at Sherman Farm, 2679 East Conway Road, Conway, NH 03813. 3:00 to 6:00 PM.

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