



NH Integrated Pest Management Newsletter

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Fruit Bud Stages in Durham

This will be the last issue with bud development info; most of our fruit have already set and are starting to swell. That's true for apples, plums and pears in Durham. Blueberries are still in bloom, and thornless blackberries have the first flower buds just visible. We don't have grapes any longer at the Woodman Horticulture Farm, but ones in the vicinity are blooming now.

Apple Scab Situation

As of Tuesday morning, May 30, we had accumulated 1041 apple scab degree days in Durham since silver tip stage. The rule I follow is that primary apple scab season ends after the next daytime rain following accumulation of 1000 SDD's. So for us in Durham, the next daytime rain after Tuesday morning ends primary season. For people in Londonderry and Hollis, you may be far enough ahead of us that rain on Sunday or Monday could have ended things. I haven't been checking SDD's for those locations.

If you didn't have fungicide protection for the last rain, a kickback material may be helpful. For the rest of the growing season, the source of infective spores for apple scab fungus is **this year's lesions, on current growth**. The spores ("conidia") are spread by splashing rain.

New infections take about 10 days to become visible. Once they become visible, they are producing conidia. In fact, the greatest conidia production occurs when scab lesions are young. This is why I have been recommending that you start checking for lesions **before** primary season ends. Details on how to check are in the New England Apple Pest Management Guide. By the way, if you find a significant number of lesions on your leaves, you should consider "burnout" fungicide sprays to limit the spread of scab. The technical term for this is "conidia suppression", and typically involves two full-rate sprays of captan, five to seven days apart (pgs. 16-17 of the guide).

Apple Thinning Time

Discussing thinning is beyond my expertise, but I wanted to point out that if you use Sevin as a thinner, it will control plum curculio (for about 5-7 days if not washed off). It can also control white apple leafhoppers. Details are below.

Plum Curculio

The warm weather finally came, and apple fruit were swelled large enough (in most NH orchards, anyway) that curculio activity started last week. The really warm weekend weather was ideal for attack. If these insects read the textbooks, they'll know that we usually expect them to be active for roughly 3 weeks. Some sites are unlucky enough to have lots of nearby wild hosts, and therefore suffer attacks for longer than that.

It has been almost a full year since you've seen fresh plum curculio injury. Do you remember what it looks like? I still have two photos of fresh PC injury on the website. Here's the link:

<http://extension.unh.edu/Agric/AGPMP/Apples/Arthropod.htm> You can click on any photo, to make it appear larger on your screen.

So why is this tiny scar important? Most (90%?) apples that are hit by PC drop off the tree in late June or early July. Plum curculio is abundant enough in most parts of NH that without protection, you could get 80 to 100% loss of fruit. That sounds bad to me. By the way, North of the White Mountains, PC isn't as severe as it is in the rest of NH.

White Apple Leafhopper

The overwintering eggs of WALH hatch at about petal fall time. By now, all of the first generation of



leafhoppers are out, so "first cover" is a good time to treat, if the population is high enough. How many is too many? An average of 25 or more per 100 leaves is enough to warrant controls. The youngest nymphs are clear or slightly whitish in color, while older ones are yellowish. As it shows in the photos, the **undersides of**

cluster leaves are the places to search. Later, the nymphs turn into adults, and are harder to control then. They have wings, are more spread out, and are larger.

Clipper on Bramble Fruit

Yes, clipper (a.k.a. strawberry weevil) should be pretty active now. I found lots of blackberries in the most vulnerable stage of development, when I was afield Sunday and Monday. In several spots, clipper was there.

Gray Mold on Strawberries and Brambles

We try to emphasize several things regarding gray mold (botrytis rot) on strawberry and raspberry. One is that the fungus usually gets its start on the petals, and then moves to the sepals, with very little sign that it is there. It stays there, hardly noticed at all. Once the fruit ripens, the mold grows into the flesh, and makes a mess of your profits. So protecting the blossoms during bloom is a critical time for

fungicides. The 2006 New England Small Fruit Management Guide gives details on fungicides and their rates.

Other things that help reduce the risk of gray mold problems are management options that shorten drying time, after rain or dew. These include things like keeping rows narrow, eliminating weeds, and orienting rows so that the prevailing winds will blow down them. Keeping the fruit well mulched (so they rest on mulch, not soil) helps too, especially with leather rot. Leather rot is caused by a different fungus. I knew you'd ask.

Bird Problems Coming on Strawberries?



Every year we have at least a couple of sites with significant bird problems. Cedar waxwings are usually the worst offenders, and they really love to attack strawberries. They tend to live in groups, rather than single pairs. They are small birds, with crests, and yellow-tipped tails. How do you deal with them?

One option is to avoid creating ideal nesting cover for them. Trees close to strawberry fields are great perching sites from which to swoop down and chomp a hole in a nice ripe fruit. Trees and bushes that produce small fruit are great lures for nesting and feeding. Shadbush (shown in this photo near my office) is one lure. Honeysuckle and cherry are others. Later in the year, I often see them in crabapples and blueberries. If I could, I'd try to locate strawberry plantings away from such sites. I might consider cutting down some nearby trees, if they seem to be heavily used by cedar waxwings. It is too late for this year, but you might consider offering sparrow hawks nest boxes on your farm. They are similar to birds that we know prey on cedar waxwings, and they readily take to nest boxes of the proper size, placed the correct way. My fact sheet on this is at <http://extension.unh.edu/Agric/AGPMP/Pubs/Apft5902.pdf> At any time of year, I usually notice them first by sound. They produce a single pitch call note. You can easily learn it by checking a bird call tape or CD.

If you don't notice the problem until the fruit starts to ripen, you have a few options that might help. First, shooting isn't allowed. These are protected species. Visual and/or noise devices can sometimes help, if they're used carefully. The key point is to set them up **just as the fruit become ripe**. The reason is that the birds get used to these methods, and starting too early gives them time to adapt. Starting after the birds have really developed a feeding pattern is less effective, because it is harder to break that established pattern. Mylar tape flashes (and sometimes makes noise). There are pinwheels that similarly combine motion and sound. There are scare-eye balloons as well, and other flashing things. You can buy battery-operated devices that broadcast bird distress calls. Some of them work fairly well, but... 1) they need to be placed right where the problems occur and 2) they are annoying to pickers. Remember what I said about starting at the right time. You could always net the entire planting, but that takes considerable effort and is costly.

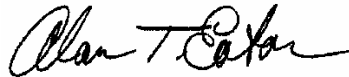
If you have bird problems (or any other pests that are vertebrate animals) you can get help from the Wildlife Services group in Concord. Their telephone number is 223-6832.

Are Mites Still There on our Apple Leaves?

Well, yes. But I expect that the very heavy rains we had earlier washed quite a few mites off of the foliage. So I don't expect to hear about mite problems for a while, even though we have now had some warm weather. They'll need a while to catch up, and warm weather will provide that. The most common plant-attacking mite on NH apples is the European red mite. Two-spotted spider mite

sometimes is a problem, but not often. We have plenty of a third species (apple rust mite) but you really need very high numbers of them to create a problem. By the way, if you thought European red mites and two-spotted spider mites were small, you'll be impressed by apple rust mite. It is yellowish, pie-shaped, and perhaps a quarter the size of ERM or TSSM!

Every year I include descriptions of the sampling method for mites. It is a sequential method, devised by my colleagues in New York. Although it is more complicated to explain to someone new, the sequential sampling method saves a tremendous amount of time in the field, compared to simpler methods. Details are on the next page.

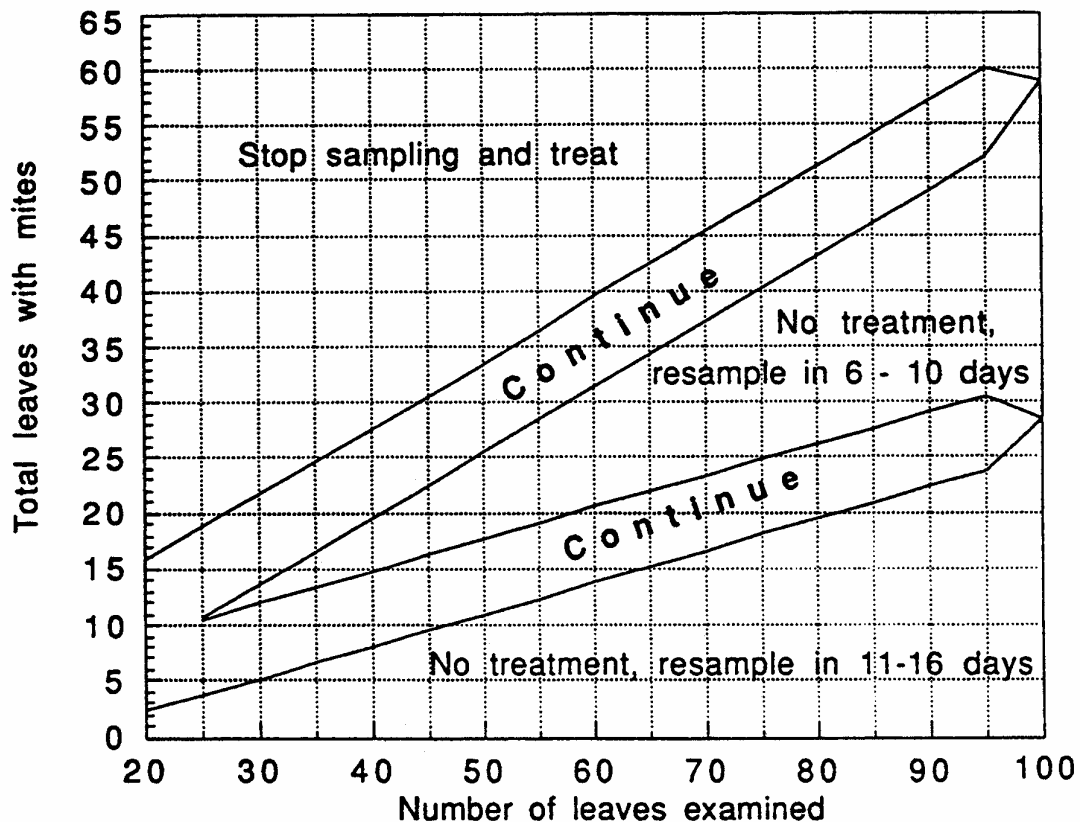
A handwritten signature in black ink that reads "Alan T. Eaton". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Alan T. Eaton

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Mite Sampling Chart - Threshold = 2.5 mites/leaf (June 15 - July 15)



* This procedure involves examining middle aged leaves for motile mites (any stage except eggs). Use this chart, which corresponds to a mite density of 2.5 mites per leaf, from June 15 until July 15. You will not be counting mites, but will only determine whether they are present or absent on each leaf sampled.

* Starting with a random tree and sampling every other tree, collect 4 leaves in a plastic bag from each of 5 trees, choosing from each quadrant of the canopy. To make sure the leaves are of intermediate age, pick them from the middle of the fruit cluster.

* Using a magnifier, examine the top and bottom surface of each leaf for motile mites and keep track of the number of leaves containing motile mites. When all 20 leaves have been examined, compare this number with the decision lines on the above chart. If you are in either of the "Continue" zones, take more leaf samples in batches of 10 (5 per tree, for simplicity), adding the number with mites present to your original value while checking the chart again. Continue until you have passed out of the "continue" zone to arrive at a decision. If you reach "Stop sampling and treat", the population is above the threshold and a miticide application is recommended. If you reach one of the "Resample" zones, the population is below threshold, and should remain so for at least the number of days stated. Return at the designated time and conduct another sample. If "6-10 day" resample date falls during 5.0 mites/leaf Threshold period, you can wait for a total of 11-16 days before resampling.

Modified from: Apple IPM; A Guide for Sampling and Managing Major Apple Pests in New York State. Agnello, A., J. Kovach, J. Nyrop, H. Reissig, W. Wilcox.