

NH Integrated Pest Management Newsletter

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Potato Leafhoppers Are Here

Thank you, Carl Majewski. Carl was the first to spot PLH in New Hampshire this year. He was monitoring alfalfa fields, and noticed a few leafhoppers, which he reported last week. I was about to leave for bio-control work in Quebec, and was unable to check locally. On Monday I found them in several spots in the seacoast.

PLH feeds on shoots and suckers of apples. It is rarely found on the cluster leaves, so this is one way to tell it from white apple leafhopper. Another way is by behavior. Both adults and nymphs of PLH have what appears to be a nervous, quick-to-sidestep behavior. Lastly, there is color. If you look at PLH with a hand lens, you'll see that it is yellow green, with white marks on and just behind the head. WALH adults are yellowish-white, without any spots or other colored marks.

PLH damages apples by stunting the shoots. Therefore, it is of possible concern only on very young trees. For older trees, who cares if this year's shoots get slightly stunted? If you have any young trees, I'd check now, and see if there are PLH on their shoots. We don't have a threshold identified. The New England Apple Pest Management Guide can help you select insecticides, if you feel there is a need.

White Apple Leafhopper

Since I'm on the subject of leafhoppers, I thought I'd go over WALH. WALH is in the adult stage now. In some spots, you can see the white stippling of leaves that shows where they have fed. Perhaps in some of the most northerly spots, there are still some WALH that are still in the nymph stage. Adults have wings; nymphs have only wing pads, and cannot fly. A little later the next generation of WALH will begin. The young nymphs are very susceptible to insecticides, and some growers may want to scout again then for white apple leafhoppers.

Leafminers

The next generation of leafminers has begun. In the Durham area, many mines are empty, and the tip of the brown pupal case is visible, just sticking out from the corner of the mine, on the underside of the leaf. Some adults ought to be laying eggs now or very soon. We have three generations per year of spotted tentiform leafminers and apple blotch leafminers in NH. The most susceptible stage (to insecticides) is the young larval period, the "sap-feeding" stage. This is when the mines are visible as a slightly silvery area, on the undersides of the leaves.

Apple Maggot Time

The very first apple maggots should be appearing in the traditional early spots. You should have your red sticky sphere traps out now, to check on them. The traps are primarily VISUAL traps, so placement is critical to their success as monitoring tools. They should be placed at roughly head height (yes, higher is better, but that makes checking difficult). I prefer that some fruit be within about 18 inches, especially below or to the sides. The trap itself should be fairly visible, not hidden in dense foliage. I don't use any of the scent lures. I just cover mine with a thin layer of tangletrap. Yes, it is a bit messy to apply. It is easier to use if you let it warm up in the sun first.

Varieties that mature with or after McIntosh don't seem to be susceptible now, but very early varieties can be susceptible in July. The threshold for insecticide treatment is a cumulative average of 1 or more AMF per trap. Maybe I'll include the wing band diagram again, in case you need a refresher.



Apple maggot



Cherry fruit fly



Black cherry fruit fly



Walnut husk fly

Identifying Apple Maggots

The traps catch lots of things (hair, fingers, moths, beetles) that land on them, so you'll have to check them every week (twice a week might be better for some) for apple maggot flies. I write down the catch and then squash or otherwise remove the flies from the trap (so I won't count them again next time). By writing down the numbers, and saving them, I can compare this year's catch to records from before.

The two critical marks for identification are the white spot on the back between the base of the wings, and the characteristic wing band pattern. Other close relatives (cherry fruit fly for example) are also caught on these traps, and will have white spots too. The key is that AMF has the exact pattern of black bands shown above. In fact, the illustration above I made by tracing the image under a microscope, years ago.

Japanese Beetles

The first of the Japanese beetles are on the flowers in the front yard. That means that more will join them soon. Occasionally they build up to high enough levels that they significantly defoliate apples. Then you are faced with the question of whether or not to treat for them. While several of our insecticides are effective, the best (in my experience) is Sevin. When we had a severe Japanese beetle problem at the Woodman Horticulture Farm several years ago, I begrudgingly recommended an insecticide treatment. We selected Sevin because of its effectiveness for Japanese beetle control, safety to applicators, and short re-entry time. It worked very well, and we were pleased. But later that summer, we had a severe outbreak of woolly apple aphid in that block. We have always had some WAA, but this time it was really bad. I noticed that few were parasitized, and concluded that the insecticide had largely killed off the WAA parasite (a tiny wasp), allowing WAA numbers to rise sharply. We haven't had to spray for Japanese beetles

since, nor have we had a WAA outbreak. Based on this experience (and others), I am reluctant to spray for Japanese beetles, unless they are heavily attacking fruit.

Today we have several new insecticides available that might help. They might be less likely to cause WAA flare-ups. One is Surround. Several reports have reached me, to the effect that it works well on Japanese beetle. I don't know about the effectiveness of Avaunt. The new insect growth regulators (Assail, Esteem, etc.) would **not** be good candidates, since they control immature insects, not adults.

Mites

Hot weather brings on mite problems. In hot weather, they can go through a generation very quickly, so their numbers build up to worrisome levels then. Below is the next mite sampling chart, used for July 15 to August 15. The reason that we switch charts is that apple trees gradually increase their ability to tolerate mites as the season progresses.

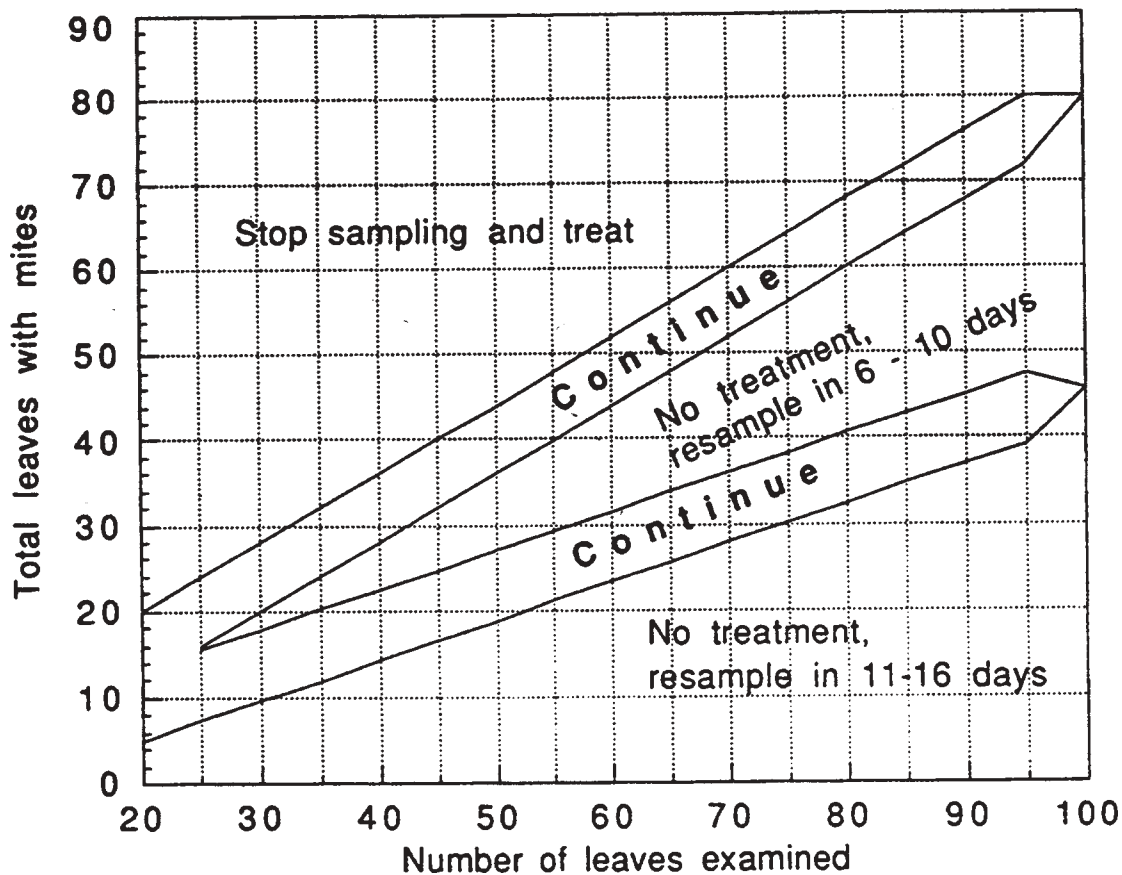
Be sure to keep watch for mites, especially starting with traditional hotspots in the orchard. The simplified method that follows is very efficient, very easy. Use a large diameter hand lens (up to 10 power) if you have trouble seeing mites.

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

Alan T. Eaton

**Extension Specialist
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Mite Sampling Chart - Threshold = 5.0 mites/leaf (July 15 - August 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 5.0 mites per leaf, from July 15 until August 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 or foliar terminal.

* 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 7.5 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.