

## NH Integrated Pest Management Newsletter

July 7, 2011

Volume VII

No. 5

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### Potato Leafhoppers

PLH's don't overwinter in New England. They overwinter in states around the Gulf of Mexico. They build up down south, and get carried by winds into the northeast every summer. Usually they appear in June. They hit a variety of crops, including potato, alfalfa and basil, but they also attack apple. They easily can be confused with white apple leafhopper, which is identical in size and shape.

WALH is whitish, as an adult, but PLH is yellow-green. If you have a magnifying glass, you can see the whitish marks on the head & thorax of PLH, that distinguish it from WALH. The damage is very different. WALH tends to feed on the leaves, creating white stippling on them, and dropping brown fecal splotches below. PLH feeds on young shoots, and the saliva it injects causes the foliage to cup and turn yellow at the edges. The shoot itself becomes stunted.

For older trees, having the current year's growth a bit stunted isn't all that serious. But in young trees, this affects the future scaffold of the tree, which might be bad. Once PLH arrives, you might want to check your very young trees, and consider protecting them if you find significant numbers of leafhoppers on the new shoots.

I heard of my first 2011 PLH report June 27th, in alfalfa. It was only one specimen, but seen by Don Chandler, an entomologist at UNH. Perhaps we'll have more soon. But for now: low numbers.

### Apple Maggot and Blueberry Fruit Fly: Now!

These two insects are so similar, they were considered the same species for many years. They are slightly different in size (apple maggot is larger), but nearly identical in shape, color & form. The only reliable way I know of to distinguish them by appearance is the color of the femur (a leg segment) and the ratio of wing band widths (a measurement that requires a microscope and ocular micrometer. Usually, if it is large (3-4mm long) and on apple, I call it apple maggot. If it is small (2-3mm) and on blueberry, I call it blueberry fruit fly. Populations vary greatly from one site to another, and it is normal to find some plantings that have very few of them, and others that have very high (sometimes staggering) numbers.

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The smaller species has two acceptable common names: blueberry fruit fly, and blueberry maggot. As you might imagine, the “m” word doesn’t go to well with images of healthy food. So the fact sheet I’m writing now calls it blueberry fruit fly.

Both of these insects have just one generation per year in New Hampshire. They overwinter in the pupal stage, in the soil. The adults emerge, feed, and mate, and the females start searching for fruit in which to lay their eggs. The eggs hatch, and the larvae burrow and feed for 2-3 weeks, then drop to the soil to pupate and wait for next year. In blueberries, larval feeding turns the fruit mushy.

The flies use a combination of visual and odor cues to find their hosts. This is important for us, because traps have been developed that are very effective at catching the flies. We use them to tell when the flies appear, how high the populations are, and when they stop flying.

For **apple maggot**, the most effective traps are the sticky red spheres. Trece baited AM traps (sticky yellow rectangles) are slightly more effective than the red spheres, for **the first couple of weeks of the season**. For blueberry fruit fly, the yellow trap is significantly better than the red sphere, if it is hung in the correct V-position. When we tested these side-by-side last year at six sites, the yellow trap hung in a V-position caught about 2.8 times as many blueberry fruit flies as the same trap, in a vertical position! The red sphere caught far fewer.

Are your traps ready? They should be. You can buy them from:

**Gempler’s**

P.O. Box 44993

Madison, WI 53744-4993

Phone: 1-800-382-8473 or FAX: 1-608-662-3360

**Great Lakes IPM**

10220 Church Rd, NE,

Vestaburg, MI 48891. 1-800-235-0285 or FAX: 1-989-268-5311

Some people want to save money and make their own. My suggestion: if you sell your fruit, **don’t** try to make your own traps. Our vision is different from the flies, and by making your own, you are gambling as to whether or not the traps will work well. The commercial monitoring traps have been tested on the target insects (blueberry fruit fly, apple maggot, cherry fruit fly, walnut husk fly) and found to work reliably. The manufacturers also add odor-producing materials (which have also been tested) to the sticking agent of the yellow traps. It’s based on years of research, much of which was done by Ron Prokopy and his students at the University of Massachusetts.

**How & When to Hang The Traps**

In **blueberries**, I’d hang traps July 1st. The photo shows proper position. They go **inside** the bush, not over it. I look for a “hole” in a bush, with fruit within 12-16 inches of the trap. I use string to anchor it below, so the wind won’t whip it about. If you use a heavy trap, perhaps a stake or overhead wire could be used for support. If you use an overhead wire, be sure the trap is down, inside the bush, not above. Do I need to say that a third time?

For **apples**, traps go up at the same time, possibly a bit later. Apple maggot is a stronger flier than its relative, so the position is a bit



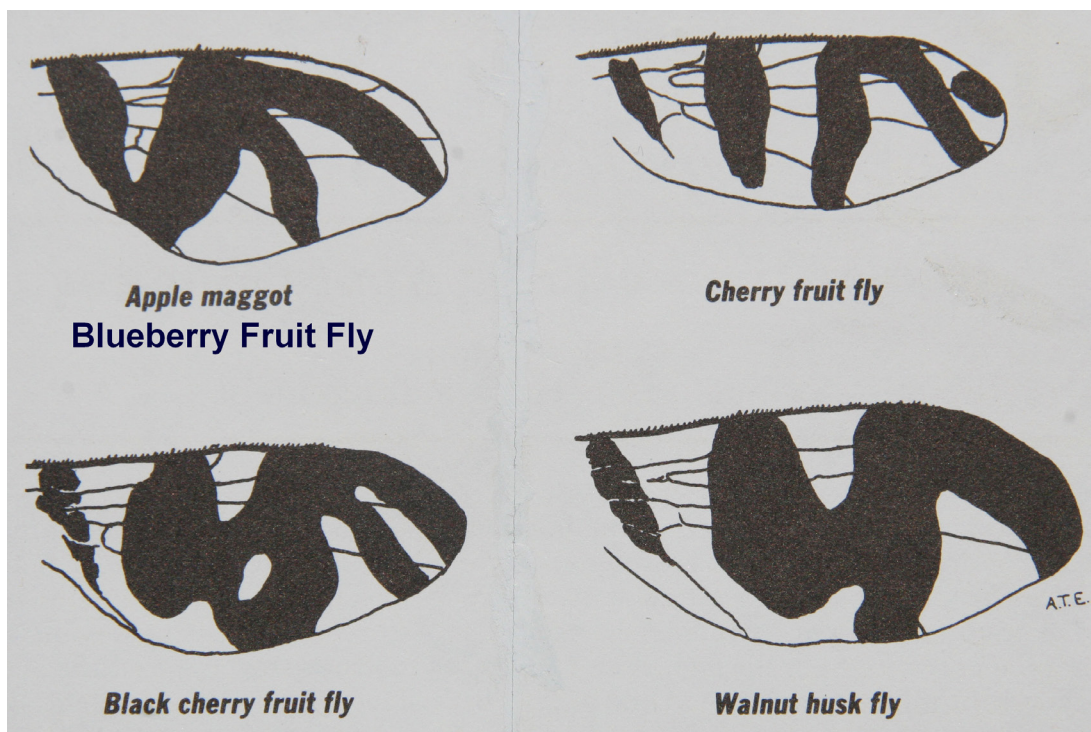
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different. I search for a visible location, not buried in foliage. I usually hang it towards the edge of the tree, at about head height. I make sure that some fruit are within 12-16 inches of the trap, and the trap is in the sun--- highly visible.

For both crops, plant cultivar makes a difference. In the early part of the season, the flies are most active in early varieties. Later, they are more common in late varieties. In apples, certain varieties are known to be especially good spots to catch them. For example, Red Astrachan and Lodi seem to be especially attractive early apples. Cortland and delicious seem to be especially attractive late varieties.

### **Identifying Blueberry Maggot and Apple Maggot Flies**

The adults are easy to identify from other flies. Both species have characteristic black wing bands to distinguish them from other species. Blueberry fruit fly and apple maggot have identical wing band patterns. In the drawing here, I didn't have enough space to easily write both names under the correct wing (which is the top left drawing). Telling the two species apart is a little tricky, especially if you have blueberry bushes planted right next to apple trees. Blueberry fruit flies are fairly small, usually between 3 and 4 millimeters long (1/8 inch). Apple maggot flies are usually larger, 4 – 6mm (3/16inch). The traps also can catch other closely related species, which won't attack your apples or blueberries, but can get trapped. Luckily, they have wing bands that are really different in pattern. The diagram below shows these bands.

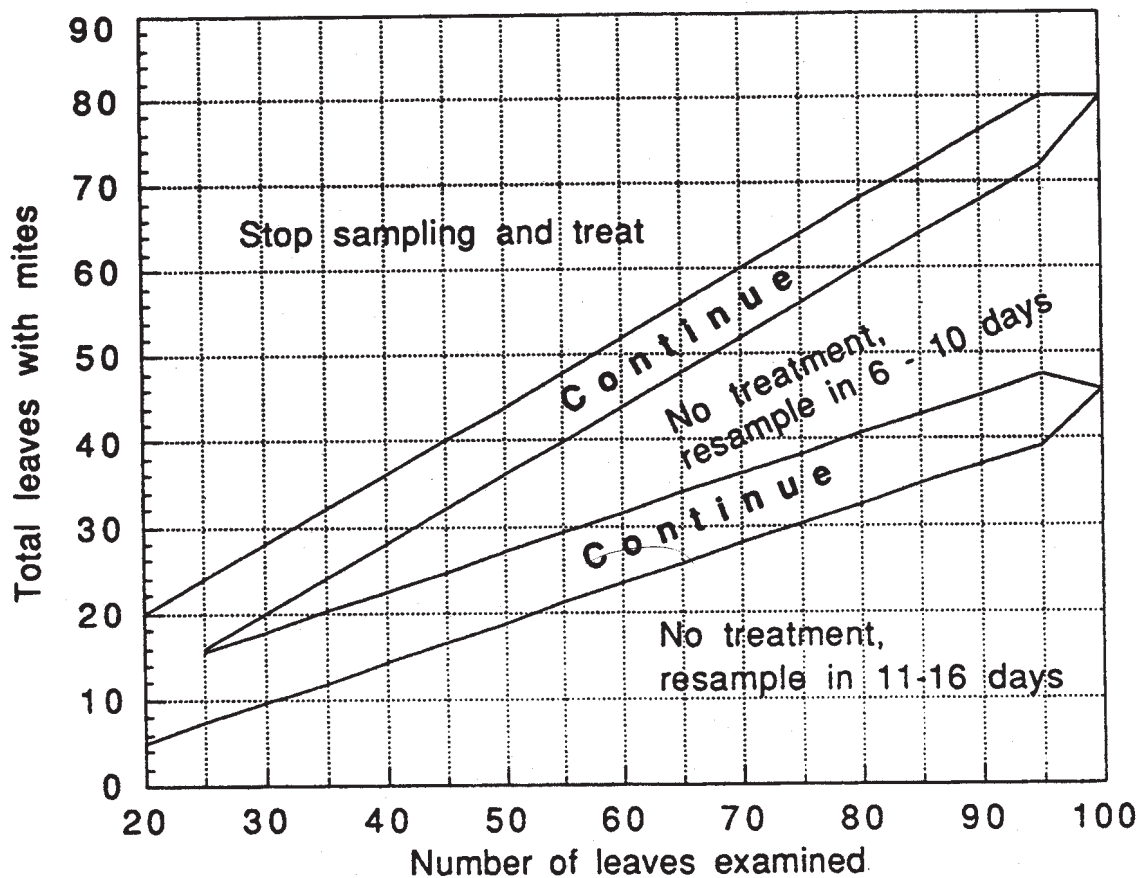


### **Mites on Apples**

As the weather gets hot and dry, European red mite and two-spotted spider mite can rapidly build up in numbers, especially if your pesticide program has been rough on predator mites. At the end of this week's newsletter are the same instructions I've given you for several years, to monitor leaf-feeding mites on apples. The procedure is simple to see if mites are reaching threshold levels. At this time of year, The threshold is about to go up to 5 per leaf, but if you use the simplified method explained in the chart, you only have to count whether or not a leaf has any active mites on it. Yes, it requires good light, and some form of magnifier. For me, 4-6X is about perfect magnification. Usually, if you see leaf bronzing, the threshold has been surpassed already. The complete mite sampling chart for June 15 - July 15 can be found on the following page

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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.

## Raspberry Cane Borer

Raspberry cane borer is a black, elongated beetle with long, black antennae. The adults start flying about now, and the females make two girdle rings near the tip of new canes, and lay an egg in the stem between them. The tip of the cane wilts, the egg hatches, and the borer slowly bores downward, emerging two years later as an adult beetle.

I do NOT recommend spraying to control this insect. Remove girdled canes soon after they appear, and destroy nearby unmanaged brambles, to control this insect.

## Japanese Beetles

I saw my first Japanese beetle this year on June 27th. The adults are rapidly building up in numbers, as emergence continues. Some of the early ones are attacked by a tachinid fly (a parasite). You can recognize parasitized ones by the tiny white oval egg (sometimes more than one) attached to its back. Please remember that we DO NOT recommend the commercial Japanese beetle traps as a way to control them. The traps attract far more beetles than they catch, therefore increasing the numbers locally.

## Upcoming Fruit-Related Meetings

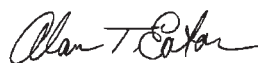
*Tuesday July 12, 2011.* **Vegetable & Berry** meeting at Moulton Farm, 18 Quarry Rd, Meredith. 5-7PM. For more details contact Kelly McAdam at 603-527-5475 or [kelly.mcadam@unh.edu](mailto:kelly.mcadam@unh.edu)

*Wednesday July 13, 2011.* **Tree Fruit Meeting** at Poverty Lane Orchard, 98 Poverty Lane, West Lebanon, NH 5-8PM. 2 P.A.T. recertification credits are offered. More details contact Heather Bryant at 787-6944 or [heather.bryant@unh.edu](mailto:heather.bryant@unh.edu).

*Monday July 18, 2011.* **Vegetable & Berry Grower Meeting** at J & F farm, 124 Chester Rd, Derry. 5-8PM. 2 P.A.T. recertification credits are offered. For more information contact Nada Haddad at 679-5616 or [nada.haddad@unh.edu](mailto:nada.haddad@unh.edu).

*Wednesday July 20, 2011.* **Vegetable & Berry Meeting** at Meadowstone Farm, 809 Brook Rd, Bethlehem. 5-7PM For more information contact Heather Bryant at 787-6944 or [heather.bryant@unh.edu](mailto:heather.bryant@unh.edu).

*Thursday July 21, 2011.* **Highmoor Farm Field Day.** Monmouth, ME. Highmoor is a research farm run by the University of Maine. 8:30AM to 3:30PM. Registration fee is \$15.00, including lunch, and no preregistration is required. For more information, visit the website: [www.extension.umaine.edu/highmoor/](http://www.extension.umaine.edu/highmoor/) or call 207-933-2100



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