



NH Integrated Pest Management Newsletter

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Apple Maggot Time

Apple maggot is an insect that emerges starting now. Apple orchards differ in the number of AM flies and their timing, so using red sticky spheres to monitor them makes sense. Instead of blanketing the next 8-10 weeks with apple maggot insecticides, you can apply them only if and when numbers are significant in your blocks.

Hanging the traps correctly is very important. Poorly set traps will catch almost nothing, and could mislead you. For the vast majority of orchards, concentrate most traps towards the edge rows. The exception is if there may have been significant production of AM last year within the orchard. Otherwise, assume AM are arriving from outside the orchard. Hang traps at about head height (easy to count flies that way). Place them in spots that are **highly visible**—not buried deep in the interior of the tree. Try to have some fruit within 18 inches of the trap, especially below and/or to the sides. Use more than one trap per block, but the number depends on how variable the block is. I try to place at least one trap in the earliest variety in the block.

Covering the trap with tangletrap can be a bit messy. I find that the material is easy to apply if it is slightly warmed (by being in the sunshine for a while). Try to make a thin coat covering the entire surface.

The last thing I do is hang a long strip of colored flagging nearby (not close enough to reach the sphere and get stuck!) and record the tree position somewhere.

Recognizing Apple Maggots on the Traps

One easy thing about monitoring AM is that the wing band pattern is very distinctive. You can

recognize the species by its pattern of black bands. These traps will catch several species of *Rhagoletis* flies, and they all have two things in common: 1) all have a white (or sometimes slightly yellowish) spot on the back, between the wings. 2) all have black bands on the wings. The drawings below I made over 20 years ago, tracing the pattern under a microscope. If you see the correct pattern, that's an apple maggot.



Apple maggot



Cherry fruit fly



Black cherry fruit fly



Walnut husk fly

What's the Threshold For Apple Maggot?

Well, if you are using standard red sphere traps (without the scent capsules), a cumulative average catch of 1 or more per trap would make it worthwhile to spray. But you might not need to spray everything. Often we see high catches in Red Astrachan, Earlybird, Lodi, Quinte, Vistabella or other early fruit, and none elsewhere in the orchard. In that case, I'd hit the early varieties.

For a number of years I've noted that we can get away without treating McIntosh (and varieties that mature with or after it) until August 1st. I'm not sure why, but this has worked out. It may be that immature

fruit are not preferred, or that larval or egg survival in them is poor. If I had really high numbers of flies in July on the traps, I'd protect all of my stuff, even the Macs and later varieties.

In my fruit evaluations, the highest incidence of AM injury has been on Delicious, Cortland and Northern Spy. Ron Prokopy's data suggested that Gala was high on their preference list, but so far I haven't seen much injury on it. Maybe you have been monitoring and treating so well that I haven't noticed any?? I do my fruit evaluations from August 27 to September 15, so I never evaluate really early varieties. If I did, I'm sure that some of them would show AM injury.

Summer Diseases on Apple

We usually refer to flyspeck and sooty blotch collectively as "summer diseases" of apple. The fungi that cause them have optimum growth at 95% or higher relative humidity and temperatures of 60 to 75F. Sooty blotch is relatively easy to control, but flyspeck is tougher. They are especially obvious on light colored varieties.

There are several things that can ease the problem a bit by improving air circulation and drying. Summer pruning is one. Thinning to break up fruit clusters is another. Keeping the orchard floor mowed is another. Eliminating sources of inoculum is theoretically possible, but difficult in practice. The number of species on which flyspeck fungus can grow is very long, and includes many of our common trees. Some recent research in Massachusetts suggested that wild brambles in the orchard could be significant sources, but that conclusion was wrong sometimes. There's still a lot of work to be done on these diseases.

One application of (effective) fungicide about 1 month after petal fall, and others at 3-4 week intervals may be a useful approach. If a block has a history of flyspeck problems, then a tighter schedule may be necessary.

Fungicides with an excellent flyspeck & sooty blotch rating include mancozeb, Flint, Polyram, Sovran and Topsin-M. Topsin-M is a material you'd use mixed with a different fungicide, since there is high risk of resistance developing if you use it by itself (and the label requires it). Flint and Sovran are also materials where repeated use might encourage resistance.

This Month's (Apple) Mite Sampling Chart

We'll include this month's chart at the end. The threshold for two-spotted spider mites and European

red mites is slightly higher now, because the trees can withstand a bit more injury than they could earlier in the year. Next month we'll include the late summer chart, which raises the threshold again, for the same reason.

Apple Blotch Leafminer and Spotted Tentiform Leafminer

I will be making more observations on these later this week, but expect to see signs of generation # 2 soon.

Potato Leafhopper

Carl Majewski gets the prize again this year, for finding the first potato leafhoppers. He was checking alfalfa, and found some adults (only a few) in late June in Cheshire County. On July 4th, I found adults on apple and thornless blackberry at the Woodman Horticulture Farm, in Durham. I didn't find many. PLH is a concern on apple because it stunts growth of shoots, suckers and terminals. If you have full sized trees, that's not much of a concern for you. For young trees, this is a more significant matter, and you might want to apply an insecticide if you find many. No one (to my knowledge) has yet determined a threshold for them on apple. Despite this, there are plenty of products available to kill them! Just check the New England Apple Pest Management Guide for details.

Japanese Beetle Time

Japanese beetles are in the adult stage for July and August, and a few last into September. They feed on foliage, flowers, or fruit of many species. Apple, peach, plum, nectarine, cherry, blueberry, blackberry and raspberry are all on their list. Sometimes the injury is severe enough to warrant an insecticide treatment. Usually they are out by now, but I still haven't found any in Durham as of the 5th of July.

No, I do NOT recommend using Japanese beetle traps as a control measure. Research shows that they attract more beetles than they catch, thereby increasing the number found nearby. Some people say to place them far away from your fruit, to draw them away. I don't accept that idea. Why pay money for traps and expend labor to increase the JB population somewhere on your property? Why not spend no money on traps, and not increase the population at all?

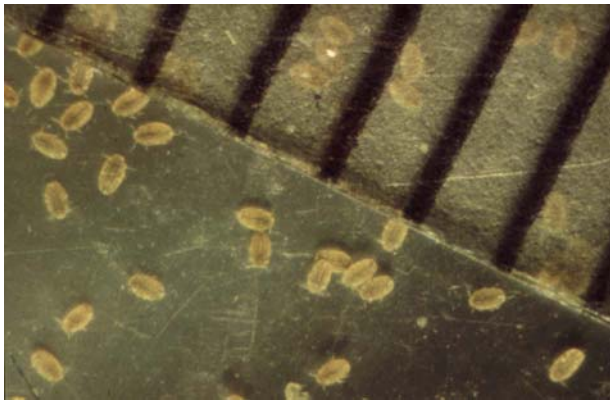
Borers on Peach Trees

The two major borer species on stone fruit are lesser peach tree borer and peach tree borer. LPTB

flies a bit earlier in the year (June & early July) and primarily attacks the upper trunk and major scaffold limbs. PTB flies in July & early August, and primarily hits the lower trunk. There are several materials registered, including Ambush, Asana, Thiodan, Thionex, Warrior, and Pounce. Yes, there are some forms of Lorsban labeled for this, but they must be applied **much earlier** in the year, as “delayed dormant” trunk sprays.

Crawlers of European Fruit Lecanium Scale Now

Last year we had quite a few sites (blueberry mostly) that had this large scale insect. A few more turned up this spring, when people were pruning. If your bushes have these insects this year, now is the time when the young crawlers are emerging, and are vulnerable to insecticides. Some of the insecticides you’d be applying for cranberry fruitworm or blueberry maggot should control these insects. If you have a pesticide applicator’s license in NH, you could use Asana, Imidan, or Sevin, to name a few. If you don’t have a license, you’ve got a problem. European fruit lecanium scale doesn’t appear on many (any?) blueberry pesticide labels, so you might have no legal pesticide options. In the photo, the black lines are 1 mm apart.



Blueberry Maggot

Blueberry maggot is one of the *Rhagoletis* flies I referred to in the apple maggot section. Years ago, it was considered the same species as apple maggot, because they look nearly identical. Here’s my rule of thumb: if the trap is in a blueberry bush, it’s BM. If the trap is in an apple tree, it is AM. That usually works except when the two hosts are right next to each other. In that case, I assume that a large one is AM, and a small one is BM. A medium sized one? I toss a coin.

Blueberry maggots are active during the same period as AM, but attack blueberries (you knew that,

right?). Placement of blueberry maggot traps is a little different. For lowbush situations, I suspend the trap just 6" above the foliage, or in a bare spot in the bush. I choose a place sheltered from the wind. In highbush situations, I look for a “hole” in a bush, so the trap can stay in the fruit zone. Those hung above the bush don’t catch much.

Sometimes I use a stake to support the trap, and other times I hang it (on a long wire) suspended from overhead netting supports. Some highbush plants are strong enough to support a trap themselves.

Using BM traps creates an odd dilemma for pick-your-own growers. They help minimize spraying, (and remind customers that you do so), but can offer an attractive hazard to customers. Long hair and expensive cashmere clothing sticks very well to tangletrap, and the stuff is difficult to remove. Why does it have an affinity for expensive suits and brand new things?

Cyclamen Mites on Strawberry

Cyclamen mites sometimes create severe damage on strawberries. The damage is easiest to recognize and treat a short time after renovation. Look at the new growth. Is it twisted, distorted, sometimes purplish? That could be signs of cyclamen mite. But it could be herbicide injury, too. The pattern of injury is another clue. If it is spotty (a few plants here, then several OK plants, then a few more...) That suggests cyclamen mite. If it is every plant in the row, that suggests herbicides. You can get confirmation of cyclamen mite by digging to the base of the crown, and examining under 20x power or more. That usually means a microscope. Cyclamen mites are oval, pinkish, pointy at the rear end, shiny and very tiny (1/4 millimeter long).

Controlling them is easiest soon after renovation because there is relatively little vegetation to block the spray from penetrating deep into the crowns where they live. Use high gallonage (many labels say 400 gals/acre), a wetting agent, and high pressure (to get good agitation of the leaves that are present) to get good control. Thiodan and Kelthane are both registered materials to control cyclamen mites.

Black Vine Weevil

Adults should be appearing now. They hide during the day, and feed on foliage at night. Strawberries, rhododendron, yew, and many other plants are fed on by the adults. Feeding on strawberry (and other plants with broad leaves) looks like notches or scalloping cut

into the leaf edges. Egg laying doesn't begin until August 1st, so in the few situations where we suggest an insecticide for tjis on strawberry, we wait until most of the adults are out, but before egg laying starts. That is usually late July. I don't know if the cold spring has set things back or not.

Upcoming Meetings

July 7th, Sherman Farm, East Conway NH.

The Sherman family are our hosts for a meeting sponsored by Cooperative Extension and the NH Vegetable & Berry Growers' Assn. 1.5 Pesticide Applicator Training recertification credits will be offered, but you must sign in by 5:15 PM to be eligible. The farm stand features their own dairy products (great ice cream!), meats, plus cut flowers, small fruit, and vegetables. From Conway, take Rt 113N to Fryeburg, then turn left at the post office on 113N. Drive 1.5 miles to the fork in the road and look left to see the farm stand.

July 11th, Apple Hill Farm, Concord: This is a tree fruit meeting for commercial growers, featuring Starker Wright. Starker was Ron Prokopy's graduate student, and he has continued a couple of lines of work after graduating and beginning work in Kearneysville, WV. His company is Pest Management Innovations, and they are developing the pesticide-treated red

sphere traps to control (that's right, **control**) apple maggots. Starker, Steve Wood, and Chuck Souther will also discuss the ongoing plum curculio research at their farms, that Ron Prokopy began. George Hamilton has arranged to offer 3.0 PAT recertification credits. You must sign in by 5:30 PM to be eligible.

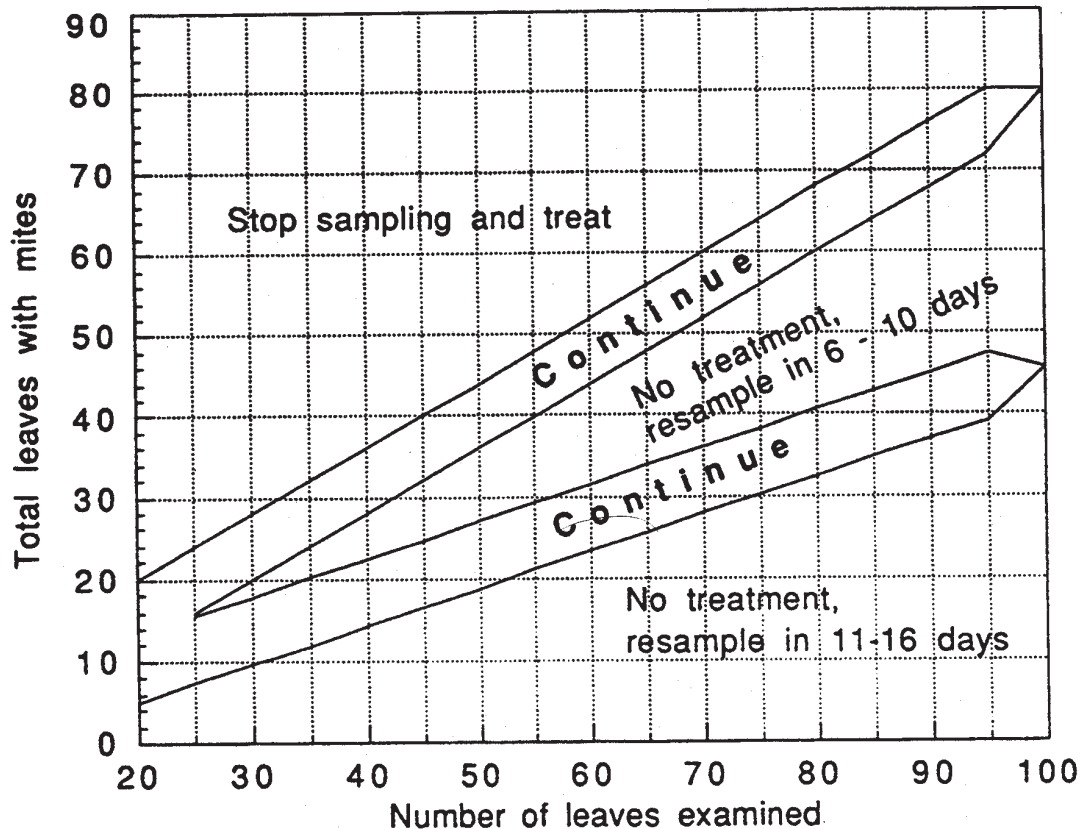
July 13, Berry Hill Farm, Stratham Heights Rd, Stratham: This meeting is sponsored by The Northeast Organic Farming Assn. of NH and will begin at 6PM. Caroline Robinson is our host, and Becky Grube and I will both be on hand to answer questions and make comments. We will also tour New Roots Farm, another certified organic farm that is leasing some land from Caroline. Jeff & Renee Cantara are our hosts there.

July 26, Green Wagon Farm, Keene: This meeting will offer 2 PAT recert. credits (if you sign in by 5:30PM. Bill Jarrell is our host this evening, and he grows vegetables, flowers, high tunnel tomatoes, and strawberries. Here are Carl Majewski's directions: From Concord, take Rt 9 to Keene and continue as below. From Keene, take Rt 12 north towards Walpole and take the next exit (about 1 1/2 miles) onto Maple Avenue. Turn right off the exit ramp onto Maple Ave, go to the set of lights, and take a right onto Court Street. The farm stand is immediately on your left.



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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.