Management of Blueberry Fruit Fly
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With new invasive insects (like spotted wing drosophila) threatening our crops, it is easy for growers to slip back into relying just on chemicals to handle insects. I feel that an integrated pest management approach really is best, and that’s especially true with this insect, blueberry fruit fly. I recommend a combined approach: 1) monitoring for the insect (traps) 2) using preventative & suppressive measures (destroy nearby wild hosts, keep bushes well pruned) and 3) applying controls only if the traps show that there is a need. Since most New England highbush blueberry growers rely on pick-your-own marketing, I have followed the lead of my colleagues at the University of Maine, in switching to the common name blueberry fruit fly, for *Rhagoletis mendax*. I think the common name “blueberry maggot” is too unpalatable for many consumers. Good public relations is another reason to monitor with traps. When PYO customers see insect traps (especially those with an accompanying sign, explaining that they are used to reduce dependence on spraying) they react favorably. Seeing sprayers or smelling pesticides in the planting tends to give customers the opposite image…farmer Rambo.

Life Cycle and Injury

Until the appearance of spotted wing drosophila in 2011, blueberry fruit fly (BFF) was the most serious insect pest of highbush blueberries in most of New England. The insect has just one generation per year, and overwinters as a pupa in the soil. The flies (the adult stage) are present from late June through August. In sites with extremely high populations, a few adults are present as late as early September. Soon after emerging, they mate. The females feed for a few more days, and then begin laying eggs. They attack ripe and ripening berries, laying eggs just under the skin of the fruit. The eggs hatch into white maggots (sorry…I had to use the m-word) that consume the flesh, turning the fruit mushy. Compared to the larvae of spotted wing drosophila, BFF larvae are more plump, and larger. Maximum size for BFF larvae is about 6mm (3/16 inch). When they are mature, they drop into the soil and pupate. The next June, the cycle begins again.

Trapping to Monitor the Flies

BFF population size varies tremendously from site to site. In our recent 3-year trapping survey, we found many sites that trapped none, a few that had some, two that trapped hundreds, and one farm that trapped thousands of adults. I recommend to all blueberry growers that they use traps to monitor BFF. The traps are easy to use, and insect identification is easy. We evaluated three basic traps, with and without added odor lures. In 2009 & 10 we also tested the “curve ball” traps, which are not commercially available. Traps work well if they are hung properly. Poorly hung traps are almost useless, except at sites with very high BFF populations. Don’t misunderstand: these are not to control the pest. They are to monitor the insects: tell when they are present, and give a relative idea of abundance.
**Red Spheres:** these are relatively heavy, so require a strong supporting branch. They are good at trapping, but the flies are a little difficult to identify against the dark red color. You can use one for many years, if you take it down in September and store it properly.

**Green Spheres:** these are also relatively heavy, so require a strong supporting branch. They are fairly good at trapping, and the flies are a little easier to spot against the green color. Like the red spheres, they can be re-used for years if stored properly.

**Baited Trece Yellow Rectangles:** These are excellent at trapping the flies WHEN HUNG PROPERLY, and are fairly good when hung vertically. The flies are very easy to identify against the yellow background. The traps are lightweight, so they must be anchored to keep them from blowing against foliage and fruit. An odor lure is already mixed into the sticking agent on these, and they arrive pre-stickied, folded up. They are useful for only 2 weeks in the field. I store mine tightly sealed in a plastic bag, in the freezer, and take them out when I’m ready to hang them.

More information on the sticking agents, how and when to hang the traps, and where to buy them is in my publication, listed at the end.

Check traps weekly for the blueberry maggot flies, and write down the data. Keeping records helps for decision-making in future years. I remove each fly as I count it, so the number will be accurate. Check traps weekly during the growing season. Soon this monitoring will tell you what the particular pattern of activity is in your planting. The “average” peak is about July 8 – 12th, but some sites with lots of late varieties might have a later peak.

You recognize BFF adults by the small white dot on their backs, almost between the wings, plus the particular pattern of black bands on the wings. They are small flies, about 4mm long (1/6 inch). A large magnifying glass may be helpful to identify them. When the flies are present, you know they can be attacking your fruit. There isn’t a particular number of flies that triggers action. You be the judge of that.

**Controls:**

Consult the current New England Small Fruit Management Guide for details on pesticides. There are both organically-approved pesticides and synthetic products. “Surround” is listed for “suppression” of BFF, so to me this implies that it isn’t too effective. The peak of BFF egg laying is a bit before the maximum “pressure” from spotted wing drosophila, but it may be common for the two to occur simultaneously. Most materials that are registered to control SWD will also control BFF.
Preventative and Suppressive Measures:

Eliminating nearby unmanaged blueberries will help reduce the problem from this and several other blueberry pests. If you avoid dumping “spoiled” berries nearby, that will help, too. Keeping the fruit picked will also help. Plants that are properly pruned will allow good penetration of spray materials, and those pruned bushes may be less preferred by spotted wing drosophila.

Helpful Sources of Information:


4) Compendium of Blueberry and Cranberry Diseases APS Press [yes, it covers insects, too]

5) New Hampshire IPM newsletter [http://extension.unh.edu/Agric/AGPMP/IPMNews.htm]

6) NH Fruit Pest Update Telephone 603-862-3763 continuous, April 1 to mid-Sept each year