What's New in IPM Trapping of Oriental Fruit Moth and Dogwood Borer in NH?

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Oriental fruit moth is an insect that attacks both stone fruit and apples. It overwinters as a fully grown caterpillar, on limbs or trunk. First generation moths appear in May, and lay their eggs on tip leaves of stone fruit shoots. When the caterpillar hatches, it bores into the shoot, killing the tip. Later generations attack the fruit of both stone fruit and apples. We don't know for sure how many generations there are here.

This insect supposedly has been in NH for years, but Alan set out many OFM pheromone traps in the early 1980's and trapped no OFM's, and found no damage.

In August 2006, a grower showed us damaged fruit that looked like OFM injury. When a nearby grower also reported injury, Alan set out a few OFM traps the next spring. They captured a few specimens that year, but we found no injury. That fall, George wrote an IPM grant proposal to NH Dept. of Agr., Markets & Food. They funded it, so we monitored at 9 orchards (mostly Hillsborough Co.) the next year. We set traps in both stone fruit and apples. We repeated the work (more NHDAMF funding) in 2009, at 10 orchards.

The 2008 data showed that there were a few adults flying in all locations tested. We had a relatively strong peak of flight in May, followed by low catches for the rest of the season. The pattern was similar to what entomologists had seen in NY, before OFM became a significant pest. We decided to continue the monitoring in 2009.

In 2009 our trap data had a similar pattern. But this summer, our scout Linda Kuhnhardt began to notice dead tips on stone fruit shoots at several orchards. One of the growers noticed it, too. To us, it is the first documented OFM shoot injury here. We did more stone fruit shoot counts in October, and found quite a bit of injury. The bottom line: this insect may become serious enough that some NH stone fruit growers will have to pay attention. It might involve adding a summer spray. We plan to keep monitoring, but want you to pay attention, too. <u>OFM seems to be increasing in New England</u>.

OFM traps are <u>not easy</u> for growers to use. The lures attract many lesser appleworms. They are very difficult to tell from OFM. On the other hand, the shoot injury to stone fruit is easy for growers to recognize and count.

Dogwood borer (DWB) is one of the Sessiid moths, small, wasp-like daytime fliers. It is an apple pest that increased in importance after we shifted to dwarfing rootstocks, especially those that produce lots of burr knots and adventitious buds low on the trunk. The adult females lay eggs there, or on wound tissue on trunks and limbs. The tiny caterpillars bore through the bark and cambium, leaving dark red-brown pellets of frass. In some cases, they can seriously affect tree growth.

Monitoring DWB has been a challenge for many years. There are sticky traps and pheromone lures, but they catch a bewildering mix of the target species plus a number of close relatives. Some trapped specimens are very difficult to tell from DWB. Also, many Sessiid

moths quickly turn black in sticky traps, so you have to check them frequently, while specimens are fresh. The DWB lures by Trece and Scentry have a field life of 4-6 weeks, so traps need to be re-baited frequently to cover the entire season.

This year, Dr. Tracey Leskey, an entomologist at the USDA Appalachian Fruit Research Station offered us samples of a new USDA-ARS lure for DWB. The lure is designed to last the entire season, and preliminary tests in West Virginia suggested it was better than the two major commercial lures, by Trece and Scentry. We agreed to set up a large array of traps on 7 farms, to compare the lures in cool New Hampshire.

At each site we tested all three lures, and checked the traps at least once a week. We rotated traps to new positions each time we counted, in case there was significant variability due to trap location. This study took much more field time than we expected, largely because of the "bycatch" of other species, and difficulty identifying specimens.

Dogwood borer flight stretched from early June through late September. (Remember --- lures attract the males only, so egg-laying period is probably shorter.) It peaked July 20th to August 3rd.

During the early part of the season, the three lures seemed to perform roughly equally, although the USDA lure caught few other species, while the Trece and Scentry lures caught a variety of species. As the season progressed, the USDA lure clearly out-performed its competitors. It caught many more DWB than the others, and it trapped very few other sessiid moths. By season's end, we had caught 2450 DWB's with the USDA lures, 808 with the Trece lures, and 412 with the Scentry lures. The Scentry lures actually caught more lilac borers than dogwood borers! The Trece lure caught quite a few DWB's, but many other Sessiids. By the end of the season, we were impressed. The USDA researchers have produced a lure that very specifically targets this species, out-traps its competitors, and lasts the entire season.

During the summer, concern about DWB injury at one of these farms prompted us to dig up some severely injured trees. We had a major surprise: **broad-necked root borer**, a large black beetle that lives several years as a root feeder, totally destroyed the roots of several 6-year old apple trees on Budd9 rootstock.

The root chewing looks somewhat similar to damage from pine vole. Alan's August 4 newsletter has more details and photos: http://extension.unh.edu/Agric/Docs/Aug_4_2009.pdf If you've seen injury like this on orchard trees, please let us know.

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