

North Carolina Pest News

Departments of Entomology and Plant Pathology



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CAUTION !

The information and recommendations in this newsletter are applicable to North Carolina and may not apply in other areas.

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FIELD AND FORAGE CROPS

From: Jack Bacheler, Extension Entomologist

Thrips Management in Cotton

High thrips levels: As is often the case with many other damaging insect pests of cotton, one might assume that cotton in the Midsouth, Texas, or even Arizona would take the crown for the highest thrips levels, right? Wrong. As North Carolina and Virginia cotton producers know from

experience and tests confirm, this region has the dubious distinction of having the highest levels of thrips and potential damage in the cotton belt. Under heavy population levels and with the help of a microscope, we sometimes count as many as 300 to 500 immature thrips per 5 seedlings! That's a pile of thrips under any circumstance, let alone if seedlings are unprotected. It's probably no coincidence that the two states probably also have the highest ratio of surrounding host vegetation to average cotton field size.

High seedling vulnerability: To make matters worse, our often cool spring conditions limit plant growth, leaving the tender seedlings in the very susceptible cotyledon to two true leaf stage for extended periods. Although not recommended as a "thrips damage avoidance strategy", cotton planted here after about May 20-25 often avoids these cool conditions, and the quick seedling "grow-off" greatly reduces the thrips damage window. Additionally, approximately three weeks after these late plantings, levels of adult migrating thrips are often declining.

Bad combination: Unfortunately, our often cool wet seedling "grow-off" conditions, coupled with the very high ratio of thrips host acreage to small average cotton field size (approximately 15 acres) and resulting high thrips levels, often seem to create a "perfect storm" of thrips headaches. In a series of 70 or so replicated tests conducted in North Carolina and Virginia during the past decade, untreated cotton lost an average of approximately 300 pounds of lint compared to the best at-planting treatments. That's a lot of cotton lost from such a tiny insect.

What to do: For starters, North Carolina producers should plan on using either the 5 pound rate of Temik 15K, or one of the seed treatments (Cruiser, Gaucho Grande, Avicta, or Aeris) and also plan on a foliar application for thrips. In the case of Temik, this application, if needed, should be based on scouting for the tiny immature thrips on the new leaves or in the bud area. In the case of seed treatments, the foliar application is not a case of if, but when. Following treated seed, a foliar application for thrips is best timed at either three weeks after planting, or at the first true leaf stage, whichever comes first. Any subsequent applications for thrips should also be based on inspections of the bud area for live immature thrips. In this case, don't be fooled by crinkled older leaves – they're not going to straighten out. With cotton planted after May 20-25, we've had pretty good luck with a seed treatment or the 3 to 4 pound rate of Temik without a follow-up foliar treatment for thrips, though scouting is still highly recommended. Large scale consultants' surveys revealed that approximately 5 percent of our cotton producers used both the 5 pound rate of Temik plus a seed treatment in 2007. We are just beginning to evaluate these combinations with full rates of both – perhaps not a bad idea for April planted cotton, especially in northeastern North Carolina.

Cotton aphids and plant bugs following thrips sprays: Seed treatments are hard to beat for convenience and safety, and this technology now represents about half of our cotton acreage. However, growers should be aware that the odds of having to treat for cotton aphids or spider mites increases dramatically following seed treatments compared to Temik. In a series of large scale surveys of our independent crop consultants in 2004 and 2005 and in 2007, foliar applications were 2.5 to 10 times higher for cotton aphids and 9.5 to 12 times higher for spider mites following seed treatments than behind Temik. Fortunately, even following seed treatments, the amount cotton acreage sprayed for either pest was here still on the low side – at least for now. But if you were one of the producers who had to deal with treatable levels one or both of these pests, they can be a headache. If the status of these pests increases in North Carolina, the impact of increased spraying could well be a factor in choosing an at-planting insecticide approach.

Western flower thrips: In some years, especially following extended hot, dry weather, western flower thrips occur at high enough levels to result in significant control problems. Although tobacco thrips are far and away our most common species on cotton and can be very damaging in their own right, in most cases they can be controlled reasonably well. Cotton producer-supported research conducted here the past two years has shown:

1. Control of western flower thrips with a “normal” rate of acephate (most often Orthene in the past at 0.25 pound of active ingredient per acre) is at best very limited and often no better than the untreated check plots. Producer and consultant experience has suggested that very high rates of acephate or Monitor (0.5 to 1.0 pound of active ingredient per acre) provide some control of “westerns”, and that other organophosphate and pyrethroid insecticides fare worse.
2. In another test in which thrips adults were identified to species following either Temik 15G at 5 pounds of product per acre or a seed treatment followed by an Orthene foliar spray at 0.5 pound of active ingredient per acre, Temik provided approximately 63 percent control of western flower thrips compared to 33 percent control for the seed treatment followed by Orthene at four weeks after planting. Control of adult tobacco thrips in the same test with both Temik and the seed treatment plus Orthene exceeded 96 percent.

In essentially all of our research trials, when cotton plants have an average of approximately 5 to 6 true leaves with adequate moisture levels and reasonably warm weather, thrips control was no longer justified. If our current good to excessive soil moisture conditions can align with warmer conditions after early next week’s cool spell, hopefully we can get off to a good start.

As most North Carolina cotton producers can attest, we and our neighbors from Virginia must contend with higher thrips levels and potential damage than anywhere else in the cotton belt. Very hot, dry weather can also result in such high levels of migrating thrips that untreated cotton can sometimes reach upwards of 50 to 75 immature thrips per plant. Timely aggressive control of this troublesome pest complex is often an important component of profitable cotton production here. An early, vigorous cotton crop triggers earlier fruiting, helps set the stage for mid to late-season insect management opportunities (such as lower potential boll damage from stink bugs), and often allows more effective defoliation and earlier harvest.

Gaucho Grande versus Cruiser Seed Treatment: At both the prior and the more recent higher rates, Gaucho Grande and Cruiser have provided similar control of thrips, nearly identical reductions in plant damage, and similar stand counts, plant heights, dry weights, fruit set, maturity and yield. **A word of caution** – with either of these products, expect no more than approximately three weeks of thrips control from the date of planting. To extend this short residual activity, foliar application following a seed treatment – the closer to the first true leaf stage the better, and no more than 3 to 3.5 weeks after planting. Although it seems on the early side, a cotyledon stage spray is probably far better timed for thrips than a second or third true leaf stage application. In most cases (though certainly not always – seen in 2005 and 2006), a single application at the first true leaf stage provides cotton seedlings with enough thrips protection time to get the plants “over the hump”; thus, reducing further thrips vulnerability and often extending into a period of fewer migrating thrips.

Insecticide Seed Treatment versus Temik: A seed treatment followed by the above timed foliar application typically provides thrips control and plant growth similar to 5.0 pounds of Temik 15G in soils without economic levels of nematodes. A seed treatment followed by a foliar spray to seedlings later than the first true leaf stage usually gives the advantage to Temik. Under conditions of poor uptake, a possible foliar application following Temik should be based on the finding of crinkled (or possum-eared) newly forming young leaves and deformed or darkened buds along with the presence of immature thrips.

Avicta and Aeris Seed Treatments: Based on three years of evaluations in North Carolina, Avicta seed treatment (Cruiser + abemectin for nematodes + Dynasty, a three-way fungicide) and Aeris (Gaucho Grande + thiodicarb for nematodes + fungicides put on either by a dealer or already on the distributed product) usually provides nematode control similar to Temik 15G at 5 to 6 pounds. Until further testing, the level of thrips control provided by these products should be considered identical to Cruiser or Gaucho Grande alone; thus, the same need for a foliar spray.

Western Flower Thrips: We have 5 to 7 thrips species that are found on cotton seedlings, most commonly tobacco thrips. Most species are well controlled with at-planting and/or foliar insecticides, unless migrating adult and established immature thrips are present at very high levels. Unfortunately, difficult to control western flower thrips sometimes make up a portion of the overall thrips population. This species is both difficult to control with seed treatments and with foliar applications at conventional rates (i.e., Orthene 97 at 0.25 pound of active ingredient per acre). For example, in a 2006 test near Rocky Mount, Temik alone at 5 pounds of product per acre controlled 63 percent of adult western flower thrips compared with 30 percent control with the seed treatments plus an Orthene spray at 4 weeks after planting.

Cotton Aphid and Spider Mite Increases: In a 2004-2005 Independent Crop Consultants' Survey, of the consultants reporting 100% Temik use by approximately 150 cotton producers 6.8 percent of their cotton acreage was treated for cotton aphids. The producers of consultants reporting an average of 75 percent seed treatment use (usually followed by a foliar spray for thrips) sprayed 15.7 percent of their cotton acreage for cotton aphids, a two-fold increase. With spider mites, although overall spraying was less, the difference was more dramatic, with the high Temik users treating 0.58 percent of their cotton acreage for spider mites and seed treatments users (seed treatment + foliar spray) treated 5.3% of their acreage, a difference of approximately nine-fold. Cotton producers electing to use the seed treatment plus foliar spray route should be on the alert for greater potential economic infestations of the above pests.

Late Planted Cotton: In cotton planted after approximately May 15-20 in North Carolina, a seed treatment alone or Temik 15G at the lower 3 pound of product rate usually provides adequate thrips control due to quicker seedling "grow-off" and generally declining thrips levels in the two to three weeks following this late planting.

ORNAMENTALS AND TURF

From: Steve Bambara, Extension Entomologist

Hickory Phylloxera Galls

Phylloxera are aphid-like insects that feed on the developing leaves of pecan or hickory and cause galls (Figs. 1 and 2) to form. The galls are green at first but gradually turn brown and crack open (Fig. 3). The phylloxera escape and lay eggs that develop into males and females. These insects mate and the females of some species crawl to protected places on the bark of the host tree and die. With these insects, a single egg inside the body of the female survives the rest of the summer, fall, and winter. Other species lay eggs on the leaves and twigs. These eggs hatch the following spring and the tiny, new phylloxera feed on the developing buds and form a new generation of galls. As the galls dry, the leaves often fall prematurely. There is no pesticide currently labeled for phylloxera galls on hickory. Treatment is rarely practical or worthwhile. Damage is cosmetic except in severe cases.



Fig. 1. Hickory galls. Image by Steve Bambara.



Fig. 2. Hickory nipple galls. Image by Steve Bambara.



Fig. 3. Gall on hickory opened to show phylloxera insects inside. Image by James R. Baker.

North Carolina Continues Gypsy Moth Battle

The North Carolina Department of Agriculture and Consumer Services Plant Protection Section continues to monitor and regulate the gypsy moth in North Carolina. This program has been active since the 1970s. Most recently, an infestation was detected in Warren County along the Virginia border. Gypsy moths have been “challenging” our state for decades. Sometimes home owners will mistake tent caterpillars (which may still be crawling) or fall webworms for gypsy moths. Note the pairs of red and blue dots on the gypsy moth caterpillar (Fig. 4). For complete details on the Department of Agriculture and Consumer Services gypsy moth program, see the following web site: <http://www.agr.state.nc.us/plantindustry/plant/entomology/GM.htm>.

Fig. 5 shows a 106-foot Army blimp used in dusting with arsenate of lead a gypsy moth infestation at Deering, N.H. Some of the cement used in supporting the control cabin mounted under the blimp loosened during discharge of the first load of insecticide. It could not be repaired and was deflated and returned to Dayton, Ohio (1923).



Fig. 4. Gypsy moth caterpillar. Image by Ferenc Lakatos (<http://www.bugwood.org>).



Fig. 5. Army blimp used in dusting of a gypsy moth infestation (USDA Forest Service Archive Photo).

Red Mites: Currently Playing on a Rock Near You

“Gozillions” of tiny red, erythraeid mites (Fig. 6), about the size of a sand grain, have been seen crawling outdoors, up garden walls, walkways and sometimes coming inside around windows and doors. This is one mite that is often found between a rock and a hard place (or on top of it).

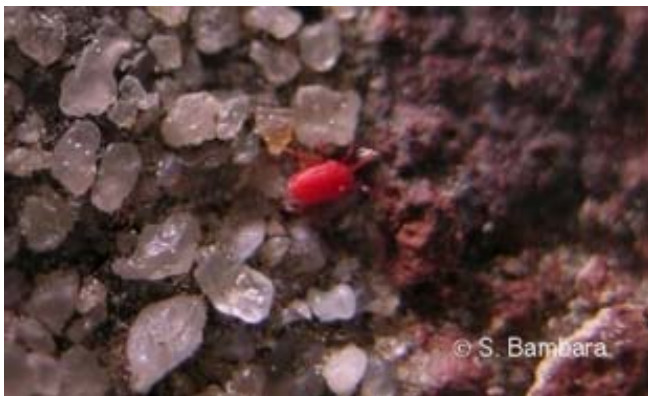


Fig. 6. Erythraeid mite. Image by Steve Bambara.

They are not likely to bite people. Most (all?) erythraeids start out as parasites of insects. The older instar nymphs and adults are predaceous on a variety of insects. Pesticide applications are not really necessary, unless one's tolerance for mites is lower than spraying poison all around the premises. Hosing the walkway with a little soapy water might make you feel better, but without knowing that you've pinpointed all of the sources you could find out that they are actually coming "down" (for example from moist areas under roof shingles) whereby spraying the foundation obviously has no effect. There is really no harm to you unless you are having an outdoor wedding and the bride sits on something that has been out in the yard.

Clover mites (you can read about clover mites in *Ornamental and Turf Insect Note No. 124* at <http://www.ces.ncsu.edu/depts/ent/notes/O&T/lawn/note124/note124.html>) may also do this, but they are not totally red. With clover mites, the problem usually abates in about a week or so. Erythraeid mites may continue for over a month. The best advice may be to not sit down outdoors if you are wearing white clothing and don't wear your bifocals while you're outside.

Second Canadian Province Drops Traditional Pesticides

According to an article in the Cape Breton Post, Home Depot said it will voluntarily discontinue selling traditional pesticides and herbicides by the end of 2008 and will instead sell more environmentally friendly alternatives. Dandelions and 2,4-D herbicide seem to be at the heart of the controversy. The move is in response to the announcement that Ontario (following Quebec) will ban the "cosmetic use" of pest control products on residential lawns, gardens and parks. Several other provinces are considering a similar ban. To read the entire Cape Breton Post article, go to <http://www.capebretonpost.com/index.cfm?sid=129957&sc=145>.

Recommendations for the use of chemicals are included in this publication as a convenience to the reader. The use of brand names and any mention or listing of commercial products or services in this publication does not imply endorsement by North Carolina State University, North Carolina A&T State University or North Carolina Cooperative Extension nor discrimination against similar products or services not mentioned. Individuals who use chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Be sure to obtain current information about usage regulations and examine a current product label before applying any chemical. For assistance, contact an agent of North Carolina Cooperative Extension.

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