NC STATE UNIVERSITY COLLEGE OF AGRICULTURE & LIFE SCIENCES

North Carolina Pest News

Departments of Entomology and Plant Pathology

Volume 29, Number 8, May 30, 2014

CAUTION !

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

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In This Week's Issue . . .

See current and archived issues of the *North Carolina Pest News* on the Internet at: http://ipm.ces.ncsu.edu/2014-north-carolina-pest-news-archive/

ANNOUNCEMENTS AND GENERAL INFORMATION

Field Days Scheduled

Small Fruit Field Day will be held on Thursday, June 5, 2014, at 4:30 p.m., Sandhills Research Station, 2148 Windblow Road, Jackson Springs, NC. Registration begins at 4:00 p.m. Please contact Gina Fernandez at 919-513-7416 for more information.

Farm to Table Brunch will start at 9:00 to 11:00 a.m. on Saturday, June 7, 2014, at the Stanly County Farmer's Market, 100 Railroad Street, Albemarle, NC. Tickets available through: www.albemarledowntown.com.

Farm to Fork Event will be held on Sunday, June 8, 2014, at 4:00 to 7:00 p.m., Breeze Family Farm Center, 4909 Walnut Grove Road, Hurdle Mills, NC. Please contact Carl Matyac at 919-250-1116 for more information.

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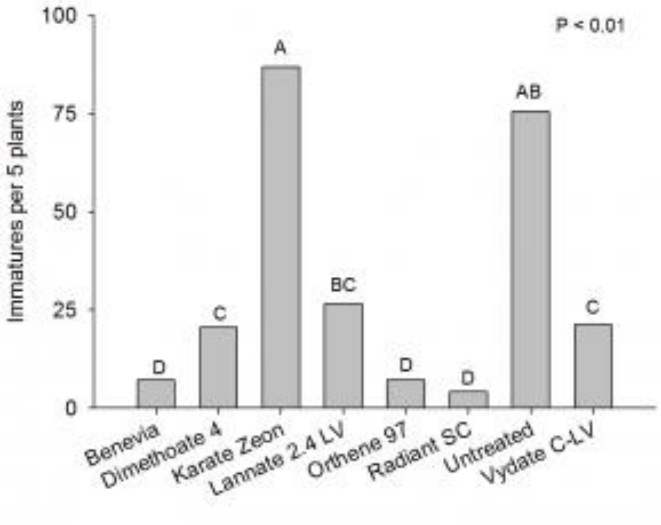
FIELD AND FORAGE CROPS

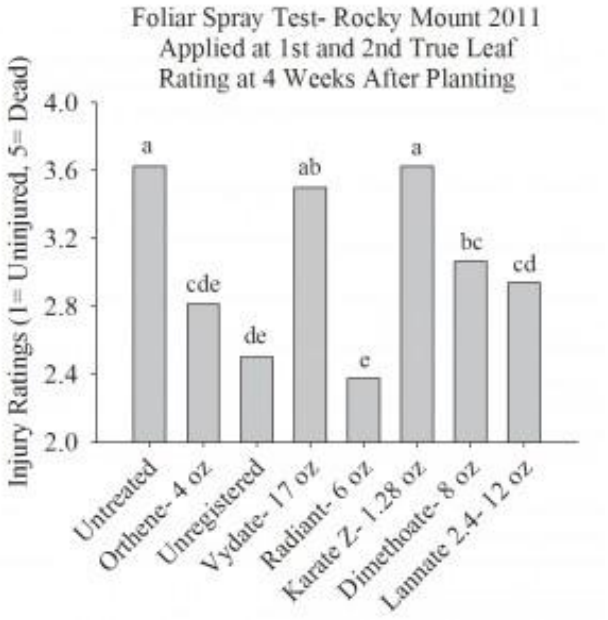
From: Dominic Reisig, Extension Entomologist

Alternatives to Acephate for Thrips and Dealing with Lackluster Management

I've been fielding a lot of calls concerning the effectiveness of acephate for thrips. Remember that our seed treatments run out at 2 to 3 weeks after planting (probably closer to two) and we are relying pretty heavily on our sprays. In my opinion, a spray of acephate is still the best option to manage thrips once the seed treatment runs out given its effectiveness and price. Pyrethroids (including bifenthrin) are not effective and other chemicals are generally not as effective. One exception is 3 oz of Radiant plus a surfactant, covered in this article here. In previous screening trials, this has been as effective on tobacco thrips as acephate.



Immature thrips averaged from foliar tests across the Southeast in 2011. Note that Benevia is an unregistered chemical and that Radiant was sprayed at 6 oz per acre, versus the North Carolina Cooperative Extension recommendation of 3 oz + surfactant. Source: Mike Toews, University of Georgia.



Note that Benevia is an unregistered chemical and that Radiant was sprayed at 6 oz per acre, versus the North Carolina Cooperative Extension recommendation of 3 oz + surfactant.

Other folks have been concerned about lackluster performance of foliar sprays. The most important thing to look for is the presence of live thrips after your spray. Do you have immatures present? Adults? Immatures might be western flower thrips (again, covered here), so consider using Radiant or spraying up to 1 lb active ingredient of acephate. In this dry weather, you might see some flaring of other pests, such as spider mites behind acephate. Radiant is a much softer chemical and will not flare other pests. Neither chemical will have much residual so we might expect that adults could move in behind the sprays. In this case, your field may simply require a re-spray if immatures develop from these colonizers. If you are seeing dinged up plants, but no thrips present, you could be seeing injury that happened before your spray or you could be seeing some herbicide injury that only mimics thrips injury

(good article on this here). Finally, keep in mind that a good rain will help our cotton jump out of the injury that they are experiencing now.

Thrips Are Punishing Cotton

Thrips have walloped our cotton over the past two weeks, moving in late compared to "average" years. From conversations with county agents, growers and consultants, it seems that many fields treated with Admire Pro in-furrow and an insecticidal seed treatment, are experiencing fewer problems than those treated with a seed treatment alone. However, some of these fields have still required an additional foliar overspray. I cannot urge scouting cotton for the presence of adult and larval thrips enough. The simple presence of "thrips injury" can be attributed to herbicide carryover, spray failures (western flower thrips or problems with the spray application itself), or adult thrips moving in after sprays, which have little residual. Dry conditions favor western flower thrips and are not conducive to cotton growth. Favorable weather for plant growth over thrips development includes warm temperatures and adequate moisture. Our goal is to get the cotton to the five leaf stage, at which point it can easily outgrow anything from thrips.

From: Hannah Burrack, Extension Entomologist

Questions about Thrips in Tobacco

This week growers, agents, and consultants have noticed unusually large numbers of thrips on tobacco. This is no surprise to cotton growers, who have been asking about thrips for a few weeks. Agent reports and our observations at research station and scouting locations indicated that counts between 30 and 50 thrips per leaf were common. Accompanying these high numbers was also some classic "silver-leafing" foliar damage, which is caused by thrips rasping the upper leaf surface.

These observations raise the obvious question of TSWV (tomato spotted wilt virus) risk, since tobacco thrips (our most common species in tobacco) vector this virus. The first question I asked all of the people who called me was "what do the thrips look like?" This is because of the many thrips species present in North Carolina, only about four are likely to vector TSWV, and only three of those are commonly found in tobacco. Because thrips are so small, often the usual ones, such as the relatively large cereal thrips or distinctive striped soybean thrips are the species that people notice. However, we collected a small sample of thrips from the Lower Coastal Plain Research Station near Kinston, which all appeared to be female tobacco thrips.

Thrips on a tobacco leaf. The tiny, black specks are thrips. Photo via Danny Pierce, North Carolina crop consultant.

Why are we seeing so many thrips in tobacco?

The thrips we are observing are likely the third generation of tobacco thrips and our tobacco thrips flight timing predictions were right on the mark for this year! For example, third generation thrips flights were predicted to begin in Wilson County around May 23, which means that we are right in the middle of third generation dispersal. At this location, the fourth generation flight is expected to begin around June 10, so we may observe additional thrips populations in a few weeks. To see thrips flight predictions for your area, use our TSWV and Thrips Risk Forecasting Tool.

Winter weeds are also likely playing a role in our thrips observations. Plants such as chickweed, knotweed, and henbit are among the overwintering hosts for tobacco thrips in North Carolina, and as these plants die in the early summer, thrips are forced to migrate to new hosts. At many of the locations I visit (including my yard), these winter annuals have accelerated their die-back in the last few weeks.

The combination of winter weed die-back and thrips generation timing likely account for our observations this week.

What do these observations mean for TSWV risk?

TSWV infection in a plant is a complicated process. First, a larval thrips needs to feed on an infected plant, then the adult thrips must feed on a susceptible host plant to transmit the virus. In tobacco, this is further complicated by the fact that plants become more resistant to infection as they age. A six week old plant, for example, is generally less likely to develop a systemic (and therefore, damaging) infection of TSWV than a three week old plant.

The first link the chain requires that there be TSWV infection in winter weed hosts so that larvae can acquire the virus. Last year was a relatively low TSWV incidence year, suggesting that virus presence in winter weeds may also be low. This would mean that fewer of the thrips moving into our fields right now are capable of transmitting TSWV.

The second link requires a susceptible host plant. We had a prolonged transplant period this spring and early summer, which means there is a lot of variability in plant age. Younger plants (less than six weeks old) are at higher risk of infection than older plants.

What should we do now?

The foliar feeding damage by thrips is likely negligible. It is occurring early in the season on leaves that will be on the lower part of the plant and subject to much more abuse before harvest.

Predictions made by our TSWV and Thrips Forecasting Model still suggest that this will be an "average" year for most locations. This model takes into account last year's thrips populations and this year's weather conditions to make its prediction. This average observation may be due to the fact that we had relatively low thrips numbers and relative little virus incidence last year.

Growers in high TSWV risk areas (greater than 10% incidence in an average year, with standard production practices) may want to take action in the field (see the TSWV and Thrips Forecasting Model for management recommendations).

Growers in lower TSWV areas will still likely not see a benefit of additional management efforts, especially not those directed at thrips. Insecticide treatments for thrips are not recommended as they are short lasting and have not been demonstrated to reduce virus incidence. This is why greenhouse treatments have become so popular for TSWV management, because while they do not necessarily kill thrips, they discourage them from feeding on plants and reduce the time they do feed.

It is also important to note that TSWV takes time to develop in the plant before symptoms are observed. This means that any diseased plants observed in fields right now are likely due to infections from a few weeks ago and that it take a few weeks from now for any infections due to this thrips flight to develop.

More information

Thrips in tobacco – Tobacco Growers Information Portal

Tomato spotted wilt virus risk forecasting in tobacco – Entomology Portal

(Originally posted at: http://tobacco.ces.ncsu.edu/2014/05/thrips-in-tobacco/)

From: Hannah Burrack, Extension Entomologist and Cameron McLamb, Student Working

Tobacco Insect Scouting Report – May 30, 2014

Our weekly scouting, now in week five, has shown a slight increase in flea beetle activity, but still well below the threshold amounts required to begin treatment. After reports of budworms in some grower locations, no budworms were observed at our sites. We, along with many others, also observe thrips at all of our sites.

Tobacco at one of our Piedmont locations. Photo: Cameron McLamb.

Scouting Report, Eastern 1 – Grower Standard Field

Insect observation	No. aphid infested plants	Flea beetles/plant	Percent tobacco budworm infestation	Hornworms/plant	Percent cutworm damaged plants	Other insects
Treatment needed?	0 – No treatment	0.04 beetles/plant – No treatment	0 – No treatment	0 – No treatment	0 – No treatment	Thrips observed

Scouting Report, Eastern 2 – IPM Field

Insect observation	No. aphid infested plants	Flea beetles/plant	Percent tobacco budworm infestation	Hornworms/plant	Percent cutworm damaged plants	Other insects
Treatment needed?	0 – No Treatment	0 – No treatment	0 – No treatment	0 – No treatment	0 – No Treatment	Thrips observed

Scouting Report, Eastern 3 – Grower Standard Field

Insect observation	No. aphid infested plants	Flea beetles/plant	Percent tobacco budworm infestation	Hornworms/plant	Percent cutworm damaged plants	Other insects
Treatment needed?	0 – No treatment	0.05 beetles/plant – No treatment	0 – No treatment	0 – No treatment	0 – No treatment	Thrips observed

Scouting Report, Eastern 4 – IPM Field

Insect observation	No. aphid infested plants	Flea beetles/plant	Percent tobacco budworm infestation	Hornworms/plant	Percent cutworm damaged plants	Other insects
Treatment needed?	0 – No Treatment	0.23 beetles/plant – No treatment	0 – No treatment	0 – No treatment	0 – No Treatment	Thrips observed

Scouting Report, Piedmont 1 – Grower Standard Field

Insect observation	No. aphid infested plants	Flea beetles/plant	Percent tobacco budworm infestation	Hornworms/plant	Percent cutworm damaged plants	Other insects
Treatment needed?	0 – No treatment	0.08 beetles/plant – No treatment	0 – No treatment	0 – No treatment	0 – No treatment	2.15 thrips/plant

Scouting Report, Piedmont 2 – IPM Field

Insect observation	No. aphid infested plants	Flea beetles/plant	Percent tobacco budworm infestation	Hornworms/plant	Percent cutworm damaged plants	Other insects
Treatment needed?	0 – No Treatment	0.06 beetles/plant – No treatment	0 – No treatment	0 – No treatment	0 – No Treatment	1.22 thrips/plant

Here are the scouting reports from the control plots for our experiments at the Upper Coastal Plain Research Station near Rocky Mount, NC, and the Lower Coastal Plain Research Station near Kinston, NC. For some of these experiments, the control plots receive no insecticide treatments for the entire season. For some of the experiments, we are interested in only caterpillar pests so all plants in the experiment, including the control plots, are treated in the greenhouse with imidacloprid to prevent other early season pests.

On Station, Kinston – Control plants with no insecticide treatment

Insect observation	No. aphid infested plants	Flea beetles/plant	Percent tobacco budworm infestation	Hornworms/plant	Percent cutworm damaged plants	Other insects
Treatment needed?	0 – No Treatment	0.04 beetles/plant– No treatment	0 – No treatment	0 – No treatment	0 – No Treatment	4% of plants with greater than 50 thrips per leaf

On Station, Kinston – Control plants treated with imidacloprid

Insect observation	No. aphid infested plants	Flea beetles/plant	Percent tobacco budworm infestation	Hornworms/plant	Percent cutworm damaged plants	Other insects
Treatment needed?	0 – No Treatment	0.01 beetles/plant – No treatment	0 – No treatment	0 – No treatment	0 – No Treatment	4% of plants with greater than 50 thrips per leaf

On Station, Rocky Mount – Control plants with no insecticide treatment

Insect observation	No. aphid infested plants	Flea beetles/plant	Percent tobacco budworm infestation	Hornworms/plant	Percent cutworm damaged plants	Other insects
Treatment needed?	0 – No Treatment	0.88 beetles/plant – No treatment	0 – No treatment	0 – No treatment	0 – No Treatment	0 – No treatment

On Station, Rocky Mount – Control plants treated with imidacloprid

Insect observation	No. aphid infested plants	Flea beetles/plant	Percent tobacco budworm infestation	Hornworms/plant	Percent cutworm damaged plants	Other insects
Treatment needed?	0 – No Treatment	0.08 beetles/plant – No treatment	0 – No treatment	0 – No treatment	0 – No Treatment	0 – No treatment

More information

For last week scouting report, click here.

Questions about thrips in tobacco – Tobacco Growers Information

(Originally posted at: http://tobacco.ces.ncsu.edu/2014/05/tobacco-insect-scouting-report-may-30-2014/)

ORNAMENTALS AND TURF

From: Steve Frank, Extension Entomologist

Hawthorn Lacebugs

Hawthorn lacebugs have been active for some time and we are seeing damage start to build. Now we see a mix of adults and nymphs. Hawthorn lacebugs feed on pyracantha, serviceberry, and cotoneaster. Azalea lacebugs feed primarily on azaleas. Both cause stippling damage visible on the top of leaves and leave fecal spots on the bottom of leaves. Lacebugs management information: http://www.ces.ncsu.edu/depts/ent/notes/O&T/shrubs/ort039e/ort039e.htm. Imidacloprid will kill both pests, but should not be used on plants that are flowering or that will flower soon due to negative effects on pollinators.

Young lacebugs on *Pyracantha* leaves. Photo: S. D. Frank.

Elm Pests Get Going

Right now a lot is happening on elm trees. For those of you who still have elm trees you can look for elm leafminer, *Fenusa ulmi*, and woolly elm aphid *Eriosoma americanum*. Elm leafminer is a sawfly that lays eggs in elm leaves. The larvae mine tissue creating blotchy, brown translucent areas on the

leaves. In late spring the larvae exit leaves, drop to the ground and borrow an inch down to pupate. Affected leaves will remain on the trees and become brown as mined tissue dies. They may drop prematurely. This time of year you can find a few adults left, but mostly you will find larvae in various stages of development. Mines are small so far, but expand rapidly. Imidacloprid and Orthene can be used to kill larvae in mines, but they are protected from contact insecticides such as bifenthrin. If adults are present in your area, foliar applications of these products can reduce oviposition.

Small leafminer larvae in a new leaf mine. Photos: S. D. Frank.

Woolly elm aphids in curled elm leaves. Photo: S. D. Frank.

Woolly elm aphids are an interesting aphid that manipulates host foliage to create a shelter. The foliage is not altered into a true gall like those on witch hazel, but as you can see in the picture that are pretty snug and protected from the elements. These aphids use serviceberry (*Amelanchier* spp.) roots as alternate hosts. They overwinter as eggs on elm bark. A female aphid emerges as elm leaves are expanding. She feeds on the underside of a leaf and at maturity produces 200 eggs. The infested leaves begin to curl and accumulate waxy debris that makes the aphids look woolly. Mid-summer a winged generation develops that migrates to Amelanchier trees. These colonies of twisted leaves can be easily pruned out. In the case they are over abundant or there are other pests present an insecticide application may be warranted. A recent blog post contains other information and pictures: http://ecoipm.com/.