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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.

Dept. of Entomology, North Carolina State University, Box 7613, Raleigh, NC 27695

In This Week's Issue . . .

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FIELD AND FORAGE CROPS

From: Dominic Reisig, Extension Entomologist

Getting Ready to Drill Down on Thrips

I had a chance to scout some more cotton this week and it looks like numbers are picking up a bit, but are still underwhelming compared to this time in previous years. We can expect more thrips to invade our cotton and develop as time goes on. With most of the cotton in the ground and up, we need to focus on managing thrips with foliar sprays.

One grower field that I visited was planted 2 to 3 weeks ago and was starting to show some injury on the first true emerging leaf. This is not surprising since the best we can expect from a seed treatment is 3 weeks of protection. With heavy rainfall, we can expect some of the chemical to wash away from the seed without being taken up from the plant. Note that many

years of replicated trials in North Carolina have not shown a consistent advantage to one seed treatment over another. However averages can be deceiving, especially in a non-average year. Your choice of seed treatment could be important here, since thiamethoxam is eight times more soluble in water than imidacloprid. Most entomologists across the Southeast agree that a spray timed at the first true leaf (1/4 inch long – view here) is more effective than later sprays. The field I visited could probably benefit from a foliar overspray.

It is tempting to tank mix sprays for thrips with a trip for herbicides. This can work if your timing is right for thrips and if your mix is compatible (tank mix article here). If you have Palmer amaranth problems, you probably have a really good pre-emergent down and you might be a little late for good thrips management. Consider an earlier trip across the field for thrips if it looks like you're at threshold (two larval thrips per seedling).

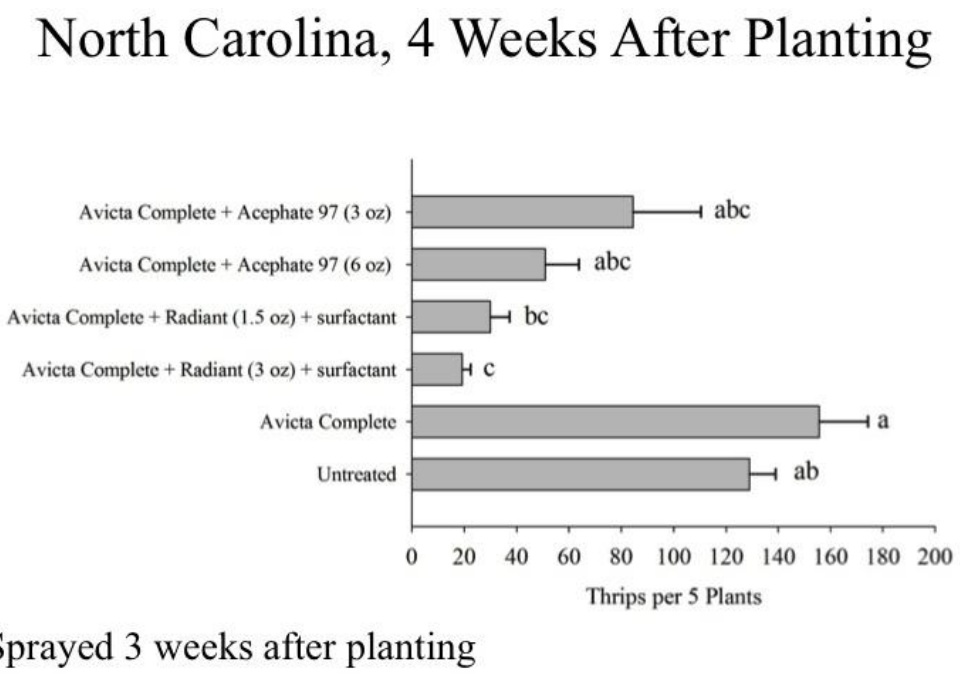


Figure 1. Foliar spray results from a trial containing a majority of western flower thrips.

Radiant is another option for thrips. Some dealers might not carry this in stock, but there are no supply issues and they can easily order it in a couple days. Also note that you must add surfactant with this chemical to boost the efficacy. One advantage Radiant can provide is that it does not have tank mix/burn problems that you can sometimes run into with acephate. The major advantage for Radiant from my point of view is its efficacy on western flower thrips (Figure 1). Western flower thrips are difficult to manage with acephate and are generally a spotty problem, but in some years can be bad (especially dry conditions). Be wary of folks who might claim to identify western flower thrips in the field. While it is generally true that western flower thrips adults are light colored, and tobacco thrips are dark colored, the only way to get a positive species identification is by slide mounting and closely looking at characters such as the length of hairs behind the eye. Consider sending in a sample to the North Carolina State University Plant Disease and Insect Clinic for identification if you have problems behind acephate to know what you're dealing with.

Kudzu Bug Expectations for 2014

I have been monitoring a kudzu patch in Edgecombe County since late April this year. As expected, adults from overwintering flocked to kudzu to feed, mate and lay eggs. These adults were produced from last year's batch and survived our colder than normal winter with ease. Around the middle of May, most adults had died and 99% of the terminals had 30 to 50 eggs laid by these adults.

In previous years, we've been able to get in some April-planted beans that were visited by these overwintering sojourners. The advantage to our later plantings this year is that we will miss any infestations from last year's overwintering adults! However, we can still expect a healthy crop of kudzu bugs to develop on kudzu and other, as of yet unknown hosts, and move into our soybeans. I was seeing a few nymphs during the middle of May and expect to see our first adults on soybeans sometime in early or mid-June.

Our threshold for spraying is five bugs per plant until mid-July, when we will switch to a sweep net-based threshold. Remember that when you spray colonizers (the adults) you may have to spray again and again. Our best kudzu bug insecticides have little to no residual to control the insect. Once the migration period is over, they can easily be managed with a single spray since they are not difficult to kill.

Organic producers should try to hone their planting date to avoid kudzu bugs, which prefer early-planted beans, and worms and stink bugs, which can be a problem in later-planted beans. Preliminary research suggests that narrow leaf varieties may have some resistance or unattractive qualities to the insect.

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

Tobacco Insect Scouting Report – May 21, 2014

Plants have grown quite a bit in the last week, likely due to increased rainfall. There were a couple of flea beetle sightings in our Eastern 4 IPM field, but most fields showed no increase in pest activity.

The tobacco plants have grown quite a bit since the last scouting report. Photo: Cameron McLamb.

We have heard a few reports from fields in the southeastern part of the State with very small tobacco budworm larvae, but these fields are also far below treatment thresholds. It's also important to note that lots of things are out to kill small tobacco budworm larvae, including parasitic wasps and stilt bugs. Therefore, having small larvae in your field this week below threshold does not mean that you will have populations above threshold next week! You can create problems and unnecessary cost by treating an insect population too early!

Here are the scouting reports for week four:

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 – No treatment	0 – No treatment	0 – No treatment	0 – No treatment	0 – No treatment

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	0 – No treatment

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 – No treatment	0 – No treatment	0 – No treatment	0 – No treatment	0 – No treatment

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	0.05 beetles/plant– No treatment	0 – No treatment	0 – No treatment	0 – No Treatment	0 – No treatment

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 – No treatment	0 – No treatment	0 – No treatment	0 – No treatment	0 – No treatment

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 – No treatment	0 – No treatment	0 – No treatment	0 – No Treatment	0 – No treatment

In addition to scouting observations on farm this week and for future reports, we are including scouting information 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	0.05 beetles/plant– No treatment	0 – No treatment	0 – No treatment	0 – No Treatment	0 – No treatment

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	0.025 beetles/plant– No treatment	0 – No treatment	0 – No treatment	0 – No Treatment	0 – No treatment

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	0.18 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	0.09 beetles/plant– No treatment	0 – No treatment	0 – No treatment	0 – No Treatment	0 – No treatment

More Information:

For week three scouting report click, here.

For more information on the Integrated Pest Management project, refer to week one scouting report (here).

FRUIT AND VEGETABLES

From: Lina Quesada-Ocampo, Extension Plant Pathologist

Keep Gummy Stem Blight Out of Your Watermelons

In the past couple of weeks we have seen a few watermelon seedlings affected with gummy stem blight. Growers are advised to scout their watermelons seedlings to make sure they are not presenting gummy stem blight symptoms and to avoid introducing the pathogen into fields by planting infected transplants.

Gummy stem blight is caused by the fungal pathogen *Didymella bryoniae* and affects the leaves, stems and fruits of all cucurbits. Watermelons are particularly susceptible to this disease. Seedlings infected with *D. bryoniae* will present water-soaked lesions on the stems (Figure 1) and necrotic, brown spots on the edges of leaves (Figure 2). When infected tissue is inspected closely under a microscope, reproductive structures of the pathogen called pycnidia, will become apparent (Figure 3). For a detailed description of the disease, its diagnosis and control options, see our Gummy Stem Blight of Cucurbits fact sheet.

Figure 1. Water-soaked lesions on crowns of watermelon seedlings infected with gummy stem blight. Photo: Shawn Butler, North Carolina State University Plant Disease and Insect Clinic.

Figure 2. Leaves with necrotic, brown lesions on edges due to gummy stem blight infection. Photo: Shawn Butler, North Carolina State University Plant Disease and Insect Clinic.

Figure 3. Close-up of a watermelon seedling stem infected with gummy stem blight seen under a microscope. Note the pycnidia (round, brown reproductive structures) on the surface. Pycnidia can be seen with a 10x handheld lens as small brown to black dots. Photo: Shawn Butler, North Carolina State University Plant Disease and Insect Clinic.

The gummy stem blight pathogen can be seedborne, therefore, treating seeds prior to planting is recommended. The disease is favored by warm (61°F to 75°F), wet conditions (4 to 10 hours of leaf wetness), and the pathogen is dispersed by water splashing (rain, overhead irrigation), thus, using drip irrigation will help contain infections. Once greenhouse transplants in a tray become infected, it is advised to destroy the affected tray and any adjacent trays, since the pathogen will have likely spread to neighboring trays due to irrigation splashing, even if transplants look healthy. Spores of the pathogen can survive on crop residue, so sanitation is key to prevent this disease in the greenhouse and a 2-year crop rotation may be needed for fields that have experienced severe infections.

The disease has been difficult to control in recent years due to the development of fungicide-resistant populations. Nonetheless, a fungicide trial conducted in North Carolina last year revealed some products that are effective in controlling gummy stem blight on conventional operations. While there are some products labeled for organic operations, no efficacy data has been published. For a complete report of results from our gummy stem blight trial please refer to our demonstration trials.

Products and rates assayed in this trial included:

Product	Active Ingredient	Fungicide Group
Viathon 5.1SC 4 pt	Potassium phosphite + Tebuconazole	3
Inspire Super 2.09SC 18 fl oz	Difenoconazole + Cyprodinil	3 + 9
Luna Experience 400SC 10 fl oz	Fluopyram + Tebuconazole	7 + 3
Luna Sensation 500SC 7 oz	Fluopyram + Trifloxystrobin	7 + 11
Catamaran 5.3SC 5 pt	Potassium phosphite + Chlorothalonil	M
Fontelis 1.67SC 16 fl oz	Penthiopyrad	7
Switch 62.5WG 13 oz	Cyprodinil + Fludioxonil	9 + 12
Bravo Weather Stick 6SC 2 pt	Chlorothalonil	M
Folicur 3.6F 6 fl oz	Tebuconazole	3
Cabrio 20WG 10 oz	Pyrasclostrobin	11
Manzate Pro-Stick 75DG 2 lb	Manganese, Zinc	M

Products were applied every 7 days. All treatments with the exception of Manzate Pro-Stick and Cabrio suppressed gummy stem blight when compared to the non-treated control (Figure 4). Treatments labeled with the same letter are not statistically different, so all treatments not labeled with the letter a, which corresponds to the non-treated control, presented significantly less gummy stem blight.

When planning your spray program, make sure you alternate fungicide groups of products to avoid generating fungicide-resistant strains. You can find some example products on our Gummy Stem Blight of Cucurbits fact sheet. Growers are encouraged to read the 2014 Watermelon Spray Guide developed by Dr. Anthony Keinath from Clemson University, and the Southeastern U.S. Vegetable Crop Handbook for the latest fungicide recommendations.

If you think you have gummy stem blight in your cucurbits please contact your local Extension agent and send photos and/or physical samples to the Plant Disease and Insect Clinic for confirmation.

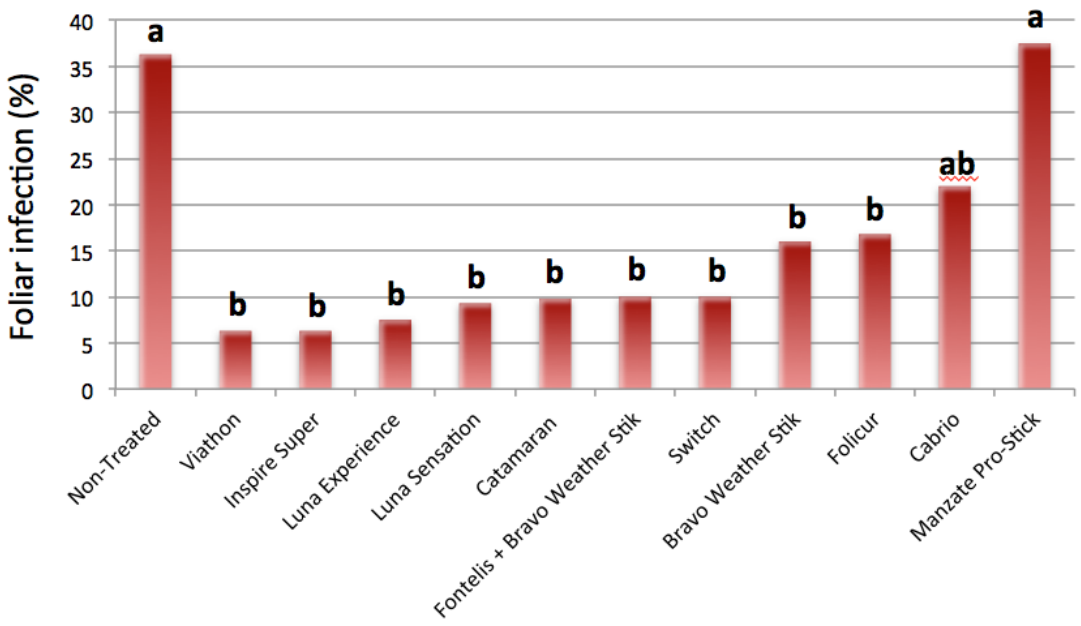


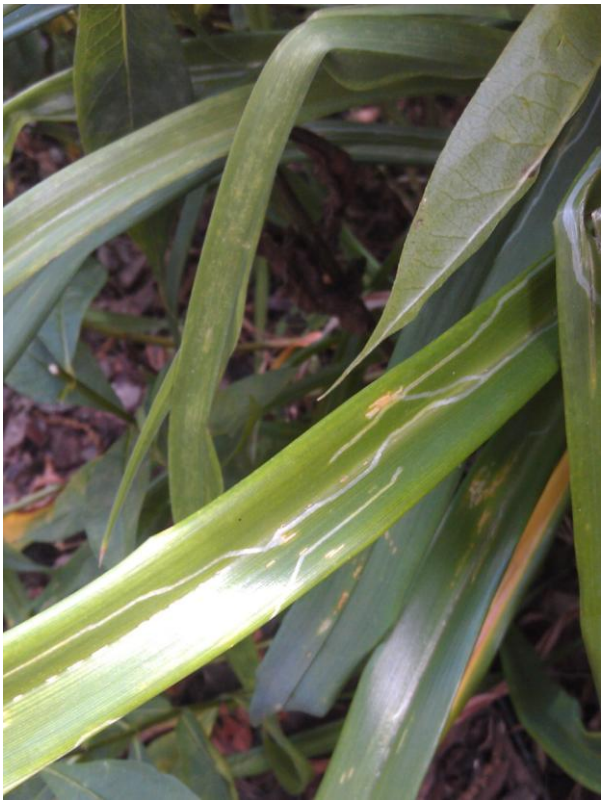
Figure 4. Products for gummy stem blight control on watermelon.

ORNAMENTALS AND TURF

From: Steve Frank, Extension Entomologist

New Pest: Daylily Leafminer Active Now

The daylily leafminer is a recent pest from Asia. It was first detected in 2006, but is now spread through much of the Southeast including North Carolina. I spotted some last week on a trip to Georgia. This fly lays its eggs in daylilies and the larvae produce relatively straight, vertical mines. Pruning infested leaves will help prevent the larvae from maturing and infesting new leaves. We are conducting efficacy tests on this pest right now so I should have recommendations for next year. But for now materials targeting other leafminers such could help. A recent article about this pest is in American Nurseryman.

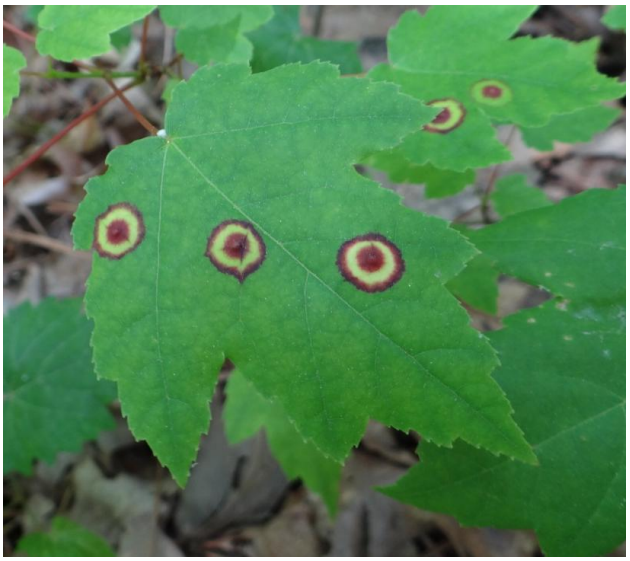


Daylily leafminer damage. Photo: S. D. Frank.

Cottony Maple Leaf Scale Eggs

Cottony maple leaf scale is one of several cottony scales in the genus *Pulvinaria*. Last week we mentioned cottony camellia scale. You can find these now on their most common hosts maple and dogwood. Stand under a tree and look up and you will see cottony masses about the size of a cotton swap stuck to the bottom of leaves. These are the egg masses. They each contain many hundred eggs that are hatching as we speak. The crawlers will settle and feed on the leaves all summer then migrate back to branches in fall before leaf-drop.

Cottony maple leaf scale ovisacs on a maple leaf. Photo: S. D. Frank.



Ocellate galls on a red maple. Photo: S. D. Frank.

Midge with an Eye on Maples

The ocellate gall midge, *Acericecis ocellaris*, causes an ocellate (single-spotted), pale green to yellow, often bright red-margined gall. Galls are 5 to 6 mm in diameter and occur primarily on foliage of red maples, but also *A. saccharinum*, *A. spicatum*, and *A. pennsylvanicum*. I found galls this week on trees in central Georgia so if you have not seen it here yet you will soon. Galls typically appear in May and contain a single, translucent midge larva. Larvae exit the gall and drop to the ground to overwinter as pupae. These are actually quite attractive critters that could even improve the appearance of trees. Just think if someone bred a tree with yellow and red eye-shaped dots it would be all the rage. That said, these midges usually only occur a few at a time and will not harm tree health. Find out more about maple pests in a free e-book: http://ecoipm.com/extension/extension-resources/.