NC STATE UNIVERSITY COLLEGE OF AGRICULTURE & LIFE SCIENCES

North Carolina Pest News

Departments of Entomology and Plant Pathology

Volume 29, Number 10, June 13, 2014

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 . . .

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 19, 2014, at 4:00 p.m., Piedmont Research Station, 8250 Sherrills Ford Road, Salisbury, NC. The program starts at 4:30 p.m. Please contact Gina Fernandez at 919-513-7416 for more information.

13th annual Small Farms Field Day will start at 8:30 a.m. to noon on Thursday, June 19, 2014 at the University Farm at North Carolina Agricultural and

Technical State University, 3136 McConnell Road, Greensboro, NC. For more information or to register call 336-285-4661 or e-mail ajgaines@ncat.edu.

Landscape Color Field Day will be held on Friday, June 20, 2014, at 8:00 a.m. to 4:00 p.m., JC Raulston Arboretum and Horticulture Field Lab, 4415 Beryl Road, Raleigh, NC. Please contact Brian Whipker at 919-515-5374 for more information.

FIELD AND FORAGE CROPS

From: Dominic Reisig, Extension Entomologist

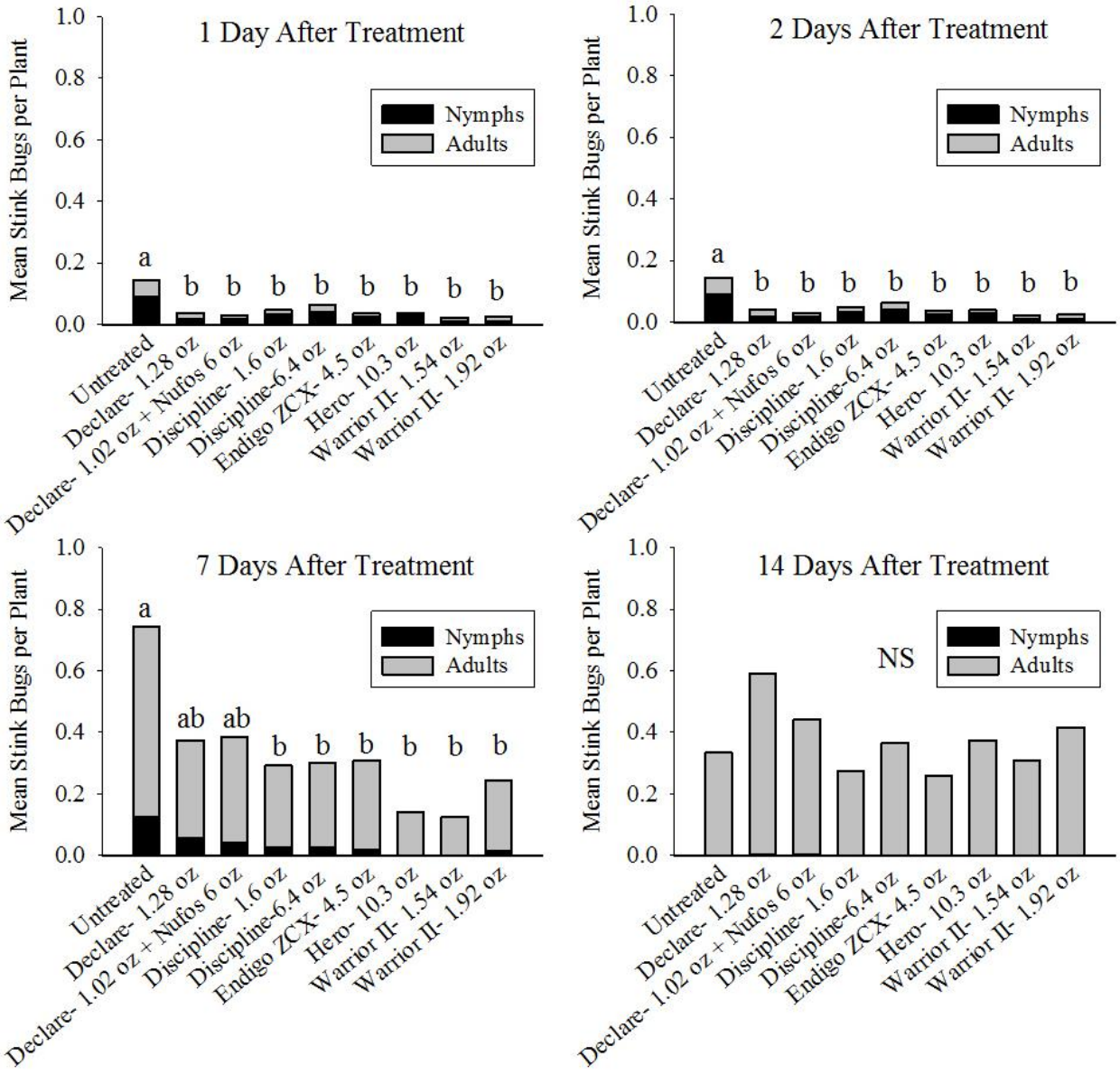
Stink Bugs in Corn

Looks like this year may be another big one for stink bugs. Like last year, we have a good crop of winter weeds that will sustain stink bugs and cause problems in cotton and soybeans. Very little corn last year suffered from stink bug injury, but based on densities in wheat, we may have some problems this year. A month ago, I thought that stink bugs would not be a problem in corn since corn plantings seemed to happen a bit later this year. However, corn is growing well and wheat harvest is delayed. Stink bugs are already beginning to move from mature wheat into corn. However, our worst problems are when wheat is harvested next to adjacent corn. In the eastern part of our state, brown stink bug undergoes a generation in wheat and then moves into adjacent corn fields during the days following harvest.

The extent of injury to the corn depends on when the wheat is harvested, what life stage the majority of stink bugs are in during wheat harvest (are there a lot of nymphs or adults?), and what stage the corn is in. For example, wheat planted in November generally produces more stink bugs that can move into corn compared to wheat planted in December. In general, the worst situation is where corn pushing out an ear (just prior to tasseling) and adjacent wheat is harvested harboring a lot of adults. These adults can move into adjacent corn, especially on field edges, and deform the ear. Nymphs can walk from harvested wheat into adjacent corn fields, but will generally feed at the base of the plant and not up the stalk, where the ear is pushing out.

If you have corn that borders wheat, consider checking the wheat for stink bugs before harvest. The most susceptible stages of corn past the V6 stage is when the ear is forming. This is directly preceding and at tasseling. However, there are very little data about the period between V6 and tasseling.

Because stink bugs are migrating in large densities from wheat into corn, the best time to treat corn is **two to three days following wheat harvest**. Stink bugs will be congregated along edges, but spread across the field within two weeks. As a result, if stink bugs are found in high densities in wheat, edges of corn fields bordering wheat should be treated soon after harvesting wheat. Research in North Carolina has shown that **aerial insecticide applications** at tasseling are not only **ineffective** at lowering stink bug densities, but were likely too late to mitigate stink bug injury in corn. High clearance tractor sprayers are effective if you spray with most types of pyrethroids. You can expect some reduction of numbers for about a week. Adults can reinvade after the spray and there is little residual control.



Adult and nymph brown stink bugs on corn.

Feeding on Seedling Soybeans

There are no major insect pests of soybean seedlings, but occasionally we do run into problems. Some folks use an insecticidal seed treatment in soybeans. While these products **are effective** to kill insects, they **will not provide a yield benefit**. To my knowledge, there has never been a single university field trial that showed a yield benefit to using an insecticidal seed treatment in any Southeastern state. Tobacco thrips live on both corn and cotton. Some of these thrips are resistant to some insecticidal seed treatments in the Midsouth. We can expect to drive resistance in our system if we use seed treatments where they aren't needed. Let's save the seed treatments for corn and cotton. Finally, insecticidal seed treatments don't do anything for non-insects like slugs, deer, etc.

Here are some descriptions of injury you might encounter:

1) **Thrips** can pucker soybean leaves and silver them when densities are high. They will not cause a yield loss and **no treatment is needed**.

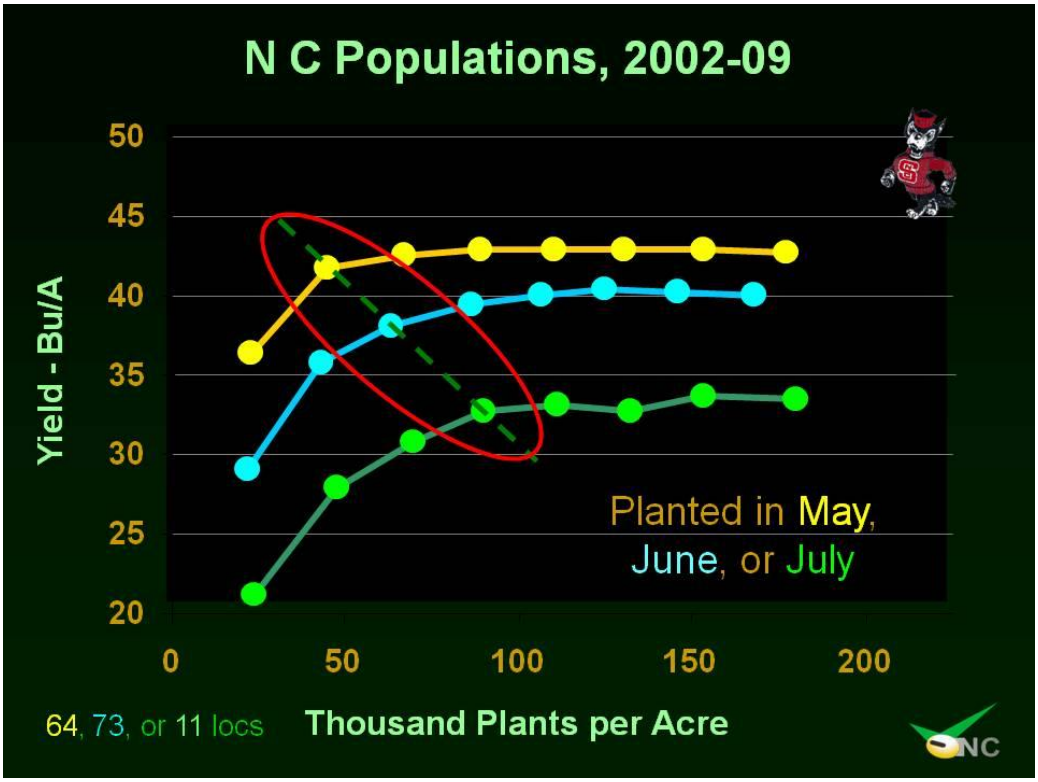
Thrips injury on a soybean trifoliate.

2) **Bean leaf beetle** is a pest that should be managed later in the season. It will almost never reach economic threshold in the early season for soybean.

Bean leaf beetle injury on soybean seedling.

3) **Grasshoppers, katydids, and cutworms** tend to be a problem on fields with lots of residue (think no-till) and fields that have not been properly rotated. They are also more of a problem on field edges. These should be controlled with a pyrethroid if they begin to reduce stand levels to densities below those recommended by North Carolina Cooperative Extension (see adjacent graph).

Seedling death due to cutworms.



Recommended plant populations (Dr. Jim Dunphy, North Carolina State University).

4) **Slugs**, which are also more of a problem in no-till fields, are more difficult to control, as insecticides are ineffective. They are more of a problem when conditions are cool and wet. Slugs are difficult to sample, not only because of their small size, but because they are active in low light conditions, like cloudy days and at **night**. One thing that you can do is to move the residue around to find the slugs and to look for the slime of their trails where they have moved. The dried slime will shine in the sun.

   Slugs will feed on the margins of plant leaves and once they have consumed this tissue, they can move to rasp and feed on terminals. Sometimes you will see chunks missing from the seedling stem where they have fed. In severe cases, slugs can consume entire seedlings.

Slug feeding on a leaf margin.

   The best management action to reduce slugs is to till. If you're producing under no-till, slugs are probably not going to change your tillage practices. Basically the more trash you can clean away from the seedlings, the fewer problems you will have. Consider strip till. Less drastic steps are focusing on good residue removal with the row sweepers and using starter fertilizer. The only known remedial measure for slugs, besides waiting for warmer and dryer weather, is to use Deadline M-Ps (AMVAC).

5) **Three-cornered alfalfa hoppers** feed on seedling and are generally discovered after the fact, when plants lodge later in the season. Seed treatments and foliar pyrethroid sprays can effectively manage these insects. The problem is that it takes **EXTREMELY** high densities to impact yield. So your money is wasted 99.9% of the time targeting a seed treatment for these critters. See this previous blog post for more information and this website for the threshold. In short, if you've had a problem with these in the past, do not waste your money with a seed treatment. Scout your beans and treat if you need to.

6) Finally, **lesser cornstalk borer** can give us problems, especially in late-planted soybeans, on droughty soils, and/or during hot and dry periods. Unfortunately we do not know of any remedial control measure (including pesticides) that is effective for this insect. This previous blog post contains information concerning varieties that are more of less resistant to this insect.

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

Tobacco Insect Scouting Report – June 12, 2014

It is our seventh week of scouting at our IPM and grower standard fields. The tobacco plants are looking healthy, given substantial sunshine and rain over the past week. Budworms have started showing up in greater numbers, and flea beetles numbers have started to decline at most locations. Tomato spotted wilt virus infections have started developing in greater number of plants, but they are still at low levels in all of our fields.

Tobacco at the Eastern 4 location. Photo: Cameron McLamb.

Here is the week seven scouting report for our commercial fields:

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*	*0.02 beetles/plant – No treatment*	*0 – No treatment*	*0 – No treatment*	*0 – No treatment*	*2.6 thrips/plant* *4% of plants infected with tomato spotted wilt virus*

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*	*2% budworm infested plants – No treatment*	*0 – No treatment*	*0 – No Treatment*	*2.9 thrips/plant* *6% of plants infected with TSWV*

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*	*0.15 beetles/plant – No treatment*	*0 – No treatment*	*0 – No treatment*	*0 – No treatment*	*26.9 thrips/plant*

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*	*0.18 beetles/plant – No treatment*	*3% budworm infested plants – No treatment*	*0 – No treatment*	*0 – No Treatment*	*42 thrips/plant*

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*	*0.10 beetles/plant – No treatment*	*0 – No treatment*	*0 – No treatment*	*0 – No treatment*	*3.2 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*	*0.02 beetles/plant – No treatment*	*0 – No treatment*	*0 – No treatment*	*0 – No Treatment*	*2.3 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	0.03 beetles/plant – No treatment	5% budworm infested plants – No treatment	0 – No treatment	0 – No Treatment	4% of plants infected with tomato spotted wilt virus

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	0.09 beetles/plant – No treatment	3% budworm infested plants – No treatment	0 – No treatment	0 – No Treatment	3% of plants infected with TSWV

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	0.25 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 – No treatment	1% budworm infested plants – No treatment	0 – No treatment	0 – No Treatment	0 – No treatment

Notes: We have started seeing higher numbers of budworms at our locations, but none are near the threshold where treatment is recommended. Weather could have an effect on pest numbers due to some heavy rainfall over the past week.

More information

For last week scouting report, click here.

(Originally posted at: http://tobacco.ces.ncsu.edu/2014/06/tobacco-insect-scouting-report-june-12-2014/)

FRUIT AND VEGETABLES

From: Lina Quesada-Ocampo, Extension Plant Pathologist, and Emma Wallace, Graduate Student

Cucurbit Downy Mildew Outbreak in Southeastern North Carolina

Cucurbit downy mildew was reported June 9, 2014 in a commercial cucumber field in Duplin County, North Carolina and confirmed by the Quesada Lab at North Carolina State University.

Symptoms were typical of downy mildew, including angular chlorotic lesions on the leaves and a grayish-brown "downy" appearance on the abaxial surface. Structures of the oomycete *Pseudoperonospora cubensis*, the causal agent of cucurbit downy mildew, were identified using dissecting and compound microscopes, confirming the disease.

Cucumber leaf collected from Duplin County, North Carolina on June 8, 2014, adaxial side. Note angular, chlorotic lesions. In some cases, the lesions have started to turn necrotic and merge into one large infected area (Emma Wallace, North Carolina State University Vegetable Pathology Lab).

Cucumber leaf collected from Duplin County, North Carolina on June 8, 2014, abaxial side. Note angular, chlorotic lesions with a grayish-brown "downy" appearance (Emma Wallace, North Carolina State University Vegetable Pathology Lab).

Structures of *Pseudoperonospora cubensis*, the oomycete that causes cucurbit downy mildew. Observed at 100x using a compound microscope (Emma Wallace, North Carolina State University Vegetable Pathology Lab).

The disease seems to be just starting and only 1% of the field was affected; however, individual leaves presented about 80% disease severity. Growers are recommended to take immediate action to protect cucurbit crops in North Carolina, especially since we will experience favorable weather for disease in the next two weeks. Typically cucumbers, watermelons and melons are more susceptible to the disease than squash and pumpkin.

For more information about the disease and how to control it see our Cucurbit Downy Mildew fact sheet, previous alerts, and results from our demonstration trials. Control recommendations are also available in the Cucurbit Downy Mildew IPM pipe website, where you can also register to receive text, email and/or phone alerts when new disease outbreaks are reported.

If you think you have cucurbit downy mildew in your cucurbits please contact your local Extension agent and send photos and/or physical samples to the Plant Disease and Insect Clinic. If cucurbit downy mildew is confirmed in your samples by an expert, please make sure a report is sent to the Cucurbit Downy Mildew IPM pipe website.

With the arrival of downy mildew in North Carolina this year, we encourage commercial growers and homeowners alike to be diligent in checking cucurbit leaves for downy mildew and reporting this disease to the Cucurbit Downy Mildew IPM pipe website. These reports are crucial to warn growers of an outbreak, and serve as valuable data for research on the epidemiology of this pathogen, which contributes to developing disease management strategies. With your help, we can lessen the effects of downy mildew!

Follow us on Twitter and Facebook for more veggie disease alerts.

ORNAMENTALS AND TURF

From: Steve Frank, Extension Entomologist

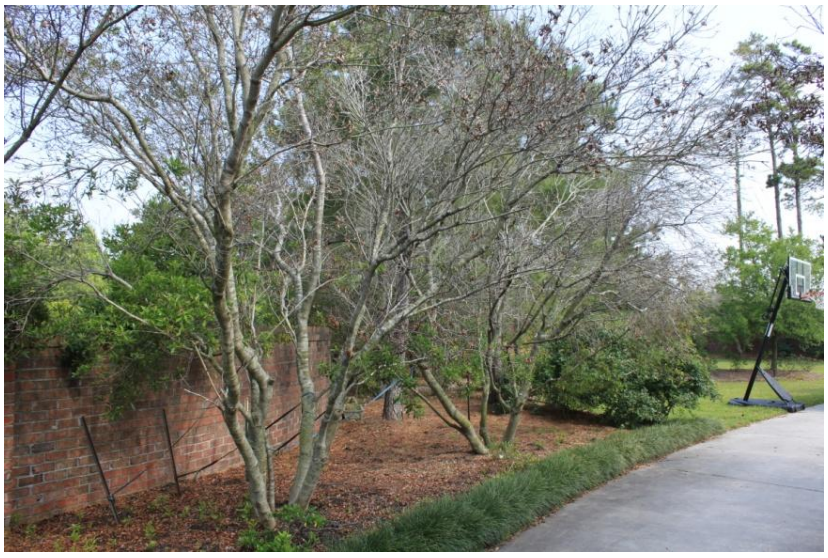
New Armored Scale Infests Wax Myrtle

We have a new armored scale to contend with in North Carolina. *Melanaspis deklei*, infests native wax myrtle, *Myrica cerifera*. It has been reported from Florida with occasional reports further north. In the last several years my colleague, J.C. Chong at Clemson University, has found increasing number of infestations in the landscapes of coastal communities in South Carolina. Wax myrtle is one of the most common plant species in ornamental landscapes particularly near the coast. *M. deklei* has not been reported in North Carolina until now. As with many new or rare pests this one was noticed by a landscape professional and Extension agent who reported several dead and dying wax myrtles and sent pictures and samples to the North Carolina State University Plant Disease and Insect Clinic.

M. deklei has three generations per year in South Carolina. It feeds primarily on stems and branches and causes canopy thinning, branch dieback, and eventually large canopy gaps or plant death. Similar to gloomy scale, crawlers emerge for over a month which makes control difficult. Little else is known about *M. deklei* biology. No effective management tactics have been identified. Applications of horticultural oil can decrease abundance a little, but systemic neonicotinoids have shown no effect.

Just a week or two ago I reported on crape myrtle scale as a new exotic pest that is working its way toward North Carolina. Read more on crape myrtle scale: http://ecoipm.com/2014/05/15/keep-alert-for-a-new-crape-myrtle-pest/

Now we have a new (probably native) pest of another common landscape plant. More pictures and information at: http://ecoipm.com



Dead and dying wax myrtle infested with *M. deklei* in New Hanover County. Photo: Al Hight, North Carolina State University Extension.

Rose Aphids

This week I found a lot of aphids on some rose bushes near my house in Raleigh. I have not yet determined whether they are rose aphids, *Macrosiphum rosae*, but it doesn't matter a lot to folks managing them. Aphids can be managed with horticultural soaps or oils or with a number of different insecticides in the aphid fact sheet. Keep in mind that most foliar insecticides including neonicotinoids cannot be applied to plants in bloom. Since many roses bloom continually it may be almost impossible to find a time to apply insecticides. For more information: http://www.ces.ncsu.edu/depts/ent/notes/O&T/flowers/note38/note38.html

Aphids covering a rose bud. Photo: S. D. Frank.

INSECT TRAP DATA

From: Alan A. Harper, Lenoir County

Light Trap Data from Lenoir County

June

Date	Number of Adult Insects							
	HW	CEW	ECB	AW	AWC	GSB	BSB	TBW
June 3	---------- Put up light trap ----------							
June 4	0	0	0	0	0	2	1	0
June 5	0	0	0	0	0	0	0	0
June 6	0	0	0	0	0	2	0	0
June 7	0	0	0	0	0	0	0	0
June 8	0	0	0	0	0	0	0	0
June 9	0	0	0	0	0	0	0	0
June 10	0	0	0	0	0	3	0	0
June 11	0	0	0	0	0	1	0	0
June 12	0	0	0	0	0	1	1	0
June 13	0	1	0	0	1	0	0	0

Abbreviations: HW = hornworms; CEW = corn earworms; ECB = European corn borers; AW = true armyworms; AWC = armyworm complex; GSB = green stink bugs; BSB = brown stink bugs; TBW = tobacco budworms