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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.

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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.ncsu.edu/current_ipm/pest_news.html

ANNOUNCEMENTS AND GENERAL INFORMATION

Landscape Color Field Day Scheduled for June 29 in Raleigh

The 2011 Landscape Color Field Day, co-sponsored by the North Carolina State University's College of Agriculture and Life Sciences and North Carolina Commercial Flower Growers' Association, will be held on Wednesday, June 29, 2011 at the JC Raulston Arboretum and Horticulture Field Laboratory, Beryl Road, Raleigh, North Carolina. More information, including the schedule of events and a registration form, is available at http://www.cals.ncsu.edu/agcomm/writing/Field_Days/landscape_color_11.pdf.

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FIELD AND FORAGE CROPS

From: Jack Bacheler, Extension Entomologist

Last Big Thrips Week?

In past years, we have often observed a significant drop in the level of migrating adult thrips at the end of the first week in June. Additionally, a significant portion of our cotton has reached the "thrips-safe" five true leaf stage, with some cotton from a few far eastern counties even beginning to square.

For the remainder of the state, cotton is still susceptible to thrips damage. Although some cotton producers received enough precipitation to get by for a time last weekend, for most growers the weather pattern continues to be very hot and dry with soil moisture levels low. This in turn is limiting the growth of cotton and lengthening the time to the five true leaf stage.

In all five of our May 3-planted thrips tests at the Upper Coastal Plain Research Station near Rock Mount, essentially all of the cotton seedlings with seed treatments followed by an Orthene foliar spray at three weeks after planting looked poor and "beat up" at 29 days after planting, with substantial leaf cupping, leaf deformity and damaged buds. In these tests, the seed treatment activity had tapered off before the three weeks' expected activity and prior to the Orthene spray. It appeared that most of this damage took place in a relatively short period of time as a result of high migrating adult thrips and the rapid establishment of immature thrips in the unprotected cotton seedlings. However, the level of immature thrips was only approximately one per plant. In this case, holding off on re-spraying was indicated, though we plan to check for thrips reestablishment in 3 to 4 days.

Thrips damage to the bud area of cotton seedlings will express itself as damaged leaves for up to a week after a foliar spray. On the other hand, if the level of immature thrips is less than approximately one per true leaf (i.e., less than an average of three immature thrips per plant on three true leaf cotton) a foliar spray will not help. So be sure to examine cotton plant for the presence of immature thrips before treating, particularly if considering treating for a second time. If the newest emerging true leaves on four true leaf cotton are unfolding normally and are shiny, odds are that this cotton is essentially "out of the woods" from further damage from thrips.

Although pyrethroid insecticides are inexpensive and generally safe, we do not recommend their use for thrips control. This class of insecticides provides only mediocre control of thrips, and good control for later season insects. If a cotton producer elects to use an alternative to our standard of acephate to control thrips, dimethoate has looked good in efficacy tests in Virginia in recent weeks.

Other Cotton Insects

We have not heard of any early spider mite outbreaks yet, though the high level of seed treatment use coupled with foliar sprays for thrips and continued hot dry weather could translate into greater odds of seeing this pest in the coming weeks. These hot, dry conditions also favor the survival and rapid development of grasshoppers, especially in reduced tillage. Soybeans planted after wheat is typically at the greatest risk of grasshopper damage.

From: Dominic Reisig, Extension Entomologist

Grasshoppers and Bean Leaf Beetle in Soybeans

Grasshoppers and bean leaf beetles can injure soybeans at nearly every growth stage. There have been some scattered treatments for grasshoppers and bean leaf beetles on soybeans within the past week.

When soybeans are in the seedling stage, grasshoppers can chew off plants at the base, which may cause stand reduction. Grasshoppers may be more of a problem in no-till fields and near field edges, where they emerge from overwintering areas. For grasshoppers, you might consider a chemical application if soybean stands are reduced below recommended levels in the seedling stage or if plants are defoliated in later vegetative or pod-fill stages. Because there are no well-established thresholds, use common sense when making a treatment decision. For example, soybeans seem to tolerate leaf feeding well during the vegetative growth stages. As a result, plants may look extremely injured during vegetative growth with little resulting loss in yield. Finally, only treat areas which have populations of grasshoppers, such as field edges. A common threshold for defoliators in the vegetative stages of soybeans is when total foliage loss reaches 30%. A pyrethroid insecticide will likely be an effective and inexpensive choice for treatment. Acephate is also a slightly less effective chemical choice.

In vegetative soybean, the threshold for bean leaf beetle is 30% foliage loss. If bean leaf beetles are present alone, or in addition to grasshoppers, consider applications that may be needed later in the season. Bean leaf beetles are resistant to pyrethroid insecticides in some areas in the Mid-South. Overall, pyrethroids are still effective for bean leaf beetles in North Carolina, although there were some situations in 2010 in which mid-season pyrethroid applications were not very effective. In addition, research done in North Carolina in 2010 indicated that acephate can lose effectiveness if it is used for several years in a row. As a result, chemistries should be rotated. Tank mixes of a pyrethroid with and alternative chemistry will work well. There are several chemistries on the market that offer this (i.e., Brigadier, Cobalt, Endigo, Leverage, Swagger, etc.), or you can tank mix a pyrethroid with acephate. Carbamate insecticides (Larvin and Sevin) looked weak in 2010 North Carolina research, but may be effective in some situations.

Stink Bugs Move from Wheat to Corn

Ok, you already know this, but what can you do about it? My lab has been monitoring both wheat and corn for stink bugs in multiple locations this year. Adults emerged from overwintering sites and were found in wheat in early April. The first nymphs were found in wheat on May 12. There is now a mixture of nymphs and adults in wheat. As wheat is drying down and is being harvested, stink bugs are beginning to move into corn. We did not find stink bugs in corn on May 25, but did find them on June 1.

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. Research is being conducted in my lab this year to determine if corn can be protected using an insecticide spray during this period.

Because stink bugs are migrating in large densities from wheat into corn, the best time to treat corn is likely after 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 2010 showed that aerial insecticide applications at tasseling were not only ineffective at lowering stink bug densities, but were likely too late to mitigate stink bug injury in corn.

FRUIT AND VEGETABLES

From: Frank Louws, Extension Plant Pathologist

Strawberry Diseases 2011: Year in Review

Several prominent disease issues occurred in the 2011 crop. The most common problem was bacterial angular leaf spot (ALS) (Fig. 1). This problem was very widespread in certain plant sources and we received samples or walked severely infected fields from Maryland to South Carolina. It is the most widespread and most severe case of ALS I have seen in 14 years here. The disease is caused by a bacterium called *Xanthomonas fragariae* and this pathogen can affect all above-ground parts of the plant. *X. fragariae* primarily enters the field via infected planting stock, and may persist in the field by overwintering or over summering in infected plants and dead leaves that do not break down well enough. Therefore, growers should be sure not to allow any living strawberry plants to survive the summer and strawberry residue should be managed for maximum break-down. We usually do not see problems in the following year if a clean plant source is used.

Usually, the disease declines when the warm weather of May hits. In 2011, the pathogen was clearly widespread in certain plant sources and the cool wet weather in May allowed the bacteria to build up to severe levels. Symptoms were heavy on lower leaves. The bacteria moved onto young tissue, damaged the calyx of many berries and seemed to cause plant stunting in numerous fields. This disease rarely causes yield losses but the amount of damage in some fields suggested yields were definitely impacted. The damage to the green calyx of ripe fruit took away from the aesthetic value of the fruit and in some cases could not be marketed.

Of course, the use of disease free plants is critical. The challenge is certain plant sources are grown in regions where the bacteria recur but where symptoms do not show up in the nursery. Then the bacteria multiply and create problems once planted into fruiting fields. It is important to learn about the certification standards or status of the nursery plants. Copper sprays can help to reduce the bacteria problem somewhat. However, if the weather is highly favorable for the bacteria then Copper sprays or any other products are not effective, as in 2011. Copper sprays or some other products may help reduce the amount of calyx damage when used in the spring. This disease is very difficult to control in fruiting fields if the conditions are right.

What does the future hold? This is uncertain. Hopefully the next round of plants from your supplier won't have ALS. Hopefully, if some ALS is present, the weather will not be so favorable for ALS. As indicated above, normally, we do not see this level of concern with ALS.

Some fields also had high black root rot pressure or plants wilting with symptoms we have not seen before. We sampled plants from these fields and are trying to determine if the problem is something new. Some fields had high Botrytis pressure due to the cool wet conditions. Generally, the available fungicides provide superior control or warmer and dryer springs prevent widespread problems. In general, anthracnose pressure was low in 2011.

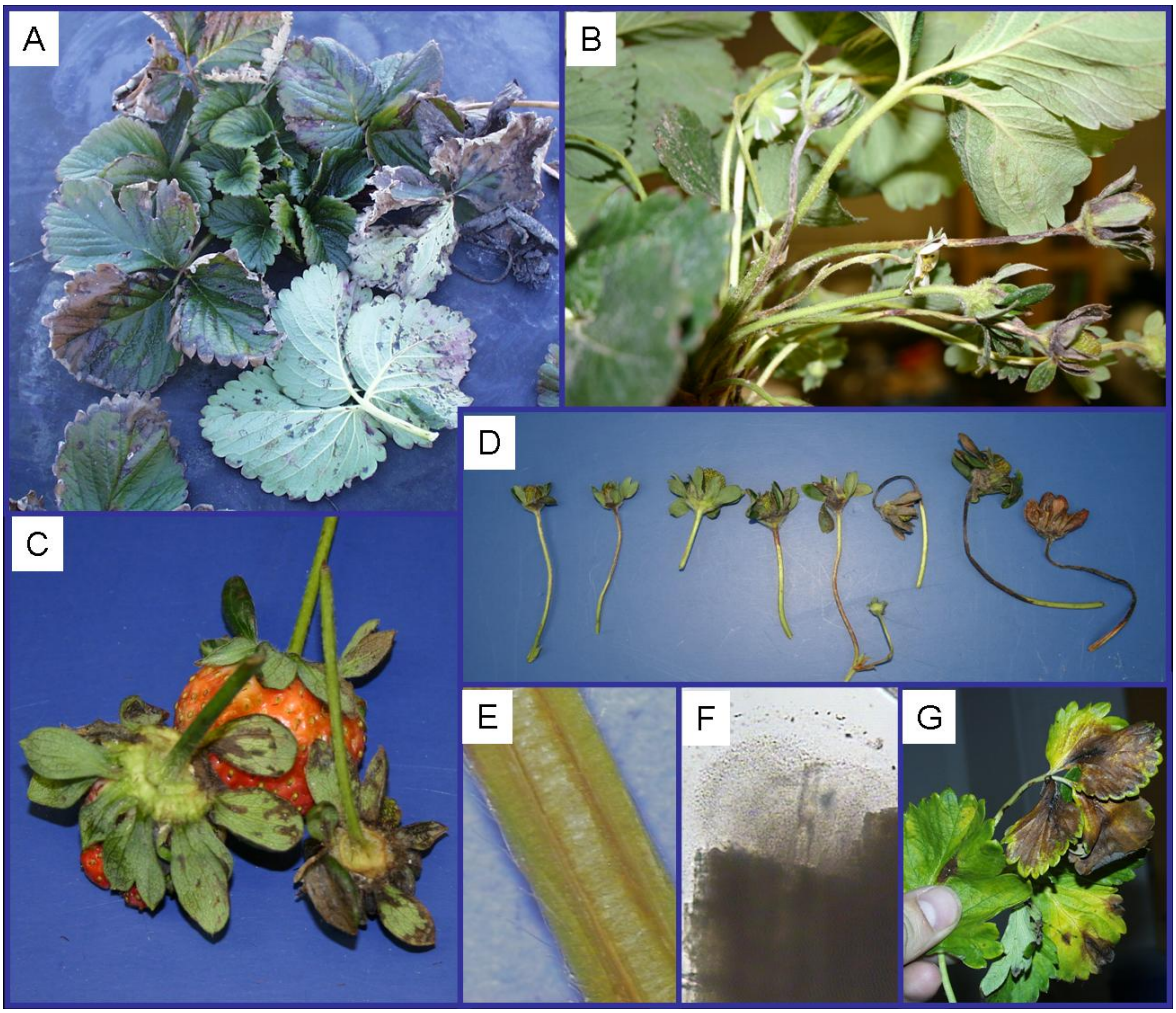

Fig. 1. Bacterial angular leaf spot (*Xanthomonas fragariae*): A) plant severely infected by *Xanthomonas fragariae* and overturned leaf showing angular leaf spots between veins where bacteria have colonized the tissue; B) a flower truss with symptoms of black discoloration on the calyx and peduncle; C) angular lesions on the calyx of developing fruit; D) range of symptoms on the calyx and peduncles; E) brown discoloration in the xylem tissue due to systemic infection by the bacteria; F) bacterial ooze from infected strawberry tissue that serves as a positive diagnosis for angular leaf spot (100x); G) leaf showing a blight symptom associated with systemic infection by *X. fragariae*.

From: Mark Abney, Extension Entomologist

Vegetable Insect Pest Update

Squash bugs continue to cause major headaches across the state in a variety of commercial and home garden cucurbit plantings. The adult bugs are moving into fields and taking up residence beneath plastic

mulch where they are difficult to detect and even harder to control. Squash bugs inject a toxin into plants when they feed, and it only takes a couple bugs to kill a young seedling. Larger plant will succumb to squash bug feeding as well, and scouts should be checking under plastic for the pests. Infested plants will turn yellow and wilt rapidly; damage can easily be mistaken for disease.

Adult squash bugs are difficult to kill in conventional plantings, and can be devastating in organic systems. Insecticide options for squash bug control can be found in the *North Carolina Agricultural Chemicals Manual* (http://ipm.ncsu.edu/agchem/agchem.html). Homeowners should contact their local county Extension Agent for more information on squash bug control. Extension agents or consultants needing to discuss control options can contact me by electronic mail at mark_abney@ncsu.edu.

Lygus bugs (aka tarnished plant bugs) are turning up in vegetable crops in eastern North Carolina. This insect is a common pest of cotton, but we do not see it often in many vegetable crops. In the last week, we have gotten reports of lygus in pepper and cucurbits. The bugs feed by inserting their needle like mouth parts into plant tissue and sucking out the plant juices. Feeding of this kind can cause blooms and small fruit to abort and may cause misshapen fruit. The effect of lygus feeding in most vegetables is not well known; consultants and scouts are urged to keep a close eye on fields where the insects are present to determine if damage is occurring. In the southeast, lygus bugs can be controlled fairly easily with pyrethroid insecticides. Because pyrethroids can flare secondary pests, such as spider mites and aphids, alternatives may be needed in crops susceptible to these pests. Check the *North Carolina Agricultural Chemicals Manual* for control options. Lygus bugs are highly mobile, and growers should be aware that bugs are capable of quickly re-infesting fields after a pesticide application is made.

Receive vegetable pest updates from North Carolina State University via Facebook (NCSU Vegetable Entomology) and Twitter (ncsuveg).

ORNAMENTALS AND TURF

From: Steve Bambara, Extension Entomologist

Galls on Red Bay

At a recent field day in the J.C. Raulston Arboretum in Raleigh, we observed first hand, leaf galls on red bay. These conspicuous leaf galls are caused by the psyllid, *Trioza magnolia* (Fig. 2). From the scientific name of the insect, one would assume red bay is a magnolia. The entomologist who first described this insect mistakenly thought the host plant was one of the bay magnolias. However, this pest only occurs on the *Persea* bays. It has also been reported from silk bay, swamp bay, and shore bay (all in the genus *Persea*). Although people confuse bays, the insects never confuse them. Hence, the galls can be used as a plant identification

Fig. 2. Leaf galls on red bay. Image by J. R. McGraw.

character. The galls are formed on the new growth as it emerges in the spring. The immature psyllids hatch and inject their saliva into the leaves as they feed. The saliva acts as a potent plant growth regulator and causes the edges of the leaves to curl around the insects. The gall protects the young psyllids as they feed and grow. When mature, the adult psyllids emerge from the galls, mate and lay eggs for another generation. Adult psyllids are small insects which greatly resemble leafhoppers except that the wings are clear and colorless.

According to Warren Johnson, an authority on pests of shrubs and trees, this insect does little actual damage to the plant; however, the galls may be upsetting to a homeowner. In light of the recent discovery of the red bay ambrosia beetle, this gall may be helpful for red bay identification. Go to http://entnemdept.ufl.edu/creatures/orn/trees/red_bay_psyllid.htm for a University of Florida insect note about this psyllid.

Flatid Planthoppers Due Soon

Seen any white fluff lately? No, I'm not talking about the Sta Puff Marshmallow man on "Ghost Busters" reruns. I have just noticed the beginning of Flatid planthopper activity with nymphal feeding and fluffy waxy spots appearing on tender shoots of hosta. This group of planthoppers may also appear on crape myrtle, hydrangea, maple, etc.

The diagnostic characteristic is that they **jump** when you touch the fluff. As the summer weeks pass, the fluffy mass will expand a little. Eventually, the adults (Fig. 3) will leave and the residue (Fig. 4) will be left behind. Usually there aren't that many over which to be concerned, but if washing them off with a hose does not disrupt them enough, insecticidal soap or other suitable insecticide should be adequate for the homeowner.

Fig. 3. Flatid planthopper adult. Image by James R. Baker.

Fig. 4. Flatid planthopper waxy fluff on stem. Image by Steve Bambara.

RESIDENCES, STRUCTURES AND COMMUNITIES

From: Patty Alder, Training Coordinator, Department of Entomology

Tips for Effective Ant Baiting

Baiting for ants has some advantages over other types of insecticides. First, baits can work when the nest cannot be found or it is inaccessible for treating with other chemicals. Second, baits pose less of a risk to children and staff by reducing the risk of possible contact with a toxic chemical. Third, baits can kill the entire colony whereas most insecticides sprayed on a surface kill only the workers that contact it.

Remember, baits are effective **only if they are eaten** and not all baits are equally attractive to different ant species. Make sure the bait you use is acceptable to the ants. Place a small amount of bait where you see ants foraging and then watch their reaction for a few minutes. If the ants show no interest in the bait, try another bait until you find one that they readily feed on. Once you find a bait that is acceptable to the ants, several other factors determine its effectiveness, including:

- **Sanitation** - Baits work best when there are no other food sources available to ants. Keep areas clean so ants are not "distracted" from locating and feeding on the bait.

- **Proper placement** - Bait should be placed in known or suspected areas of ant activity. Be sure that bait is placed out of the reach of children, pets, and wildlife. Never place bait directly on countertops where food is prepared or in an area where it will get wet and/or contaminated.

- **Quantity** - Make sure you put out enough bait and that it remains fresh. If the ants carry away all of the bait, then they may leave the area and go elsewhere before enough bait is spread within the colony. Ant species that are capable of producing large colonies, such as the Argentine ant, will most likely require more than one application of bait.

- **Durability** - Baits will eventually become unacceptable if they are exposed to high temperatures, rain, and sunlight. Check baited areas for signs of ant feeding and replace baits that are no longer acceptable to the ants.

- **Patience** is important to successful baiting. Most ant baits are slow-acting. You may continue to see ants for a week or more after baiting. It is important that the ants are able to return to the nest with the bait so it can be fed to other members of the colony. Do not disturb or kill the foraging ants.

- **Remember,** if you determine that chemical control is needed to successfully control the ants, never spray in areas baits have been applied. If the baits are contaminated, the ants will avoid the bait.

Fig. 5 illustrates an "Ant Baiting Decision Tree" developed by Jules Silverman, Charles G. Wright Professor of Structural Pest Management, at North Carolina State University. You may use the baiting tree as a tool in determining what actions to take in order to successfully bait for ants.

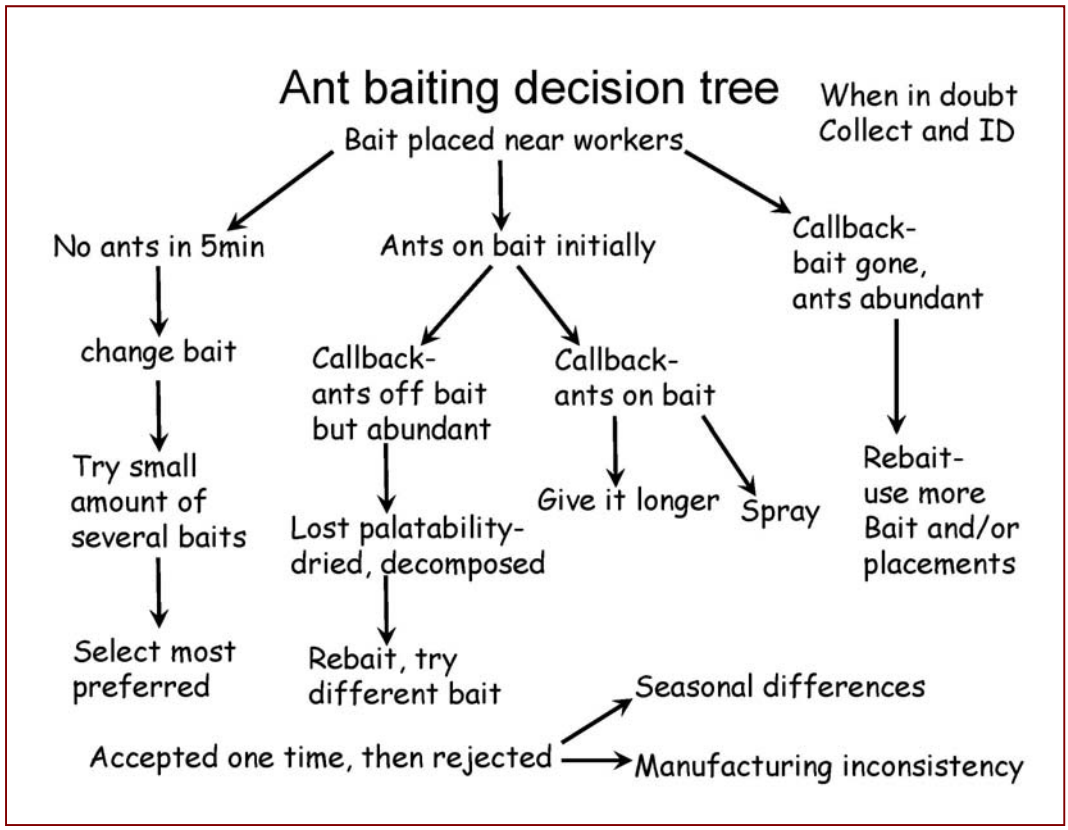

Fig. 5. Ant baiting decision tree. Image from Jules Silverman.

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.