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North Carolina Pest News

Departments of Entomology and Plant Pathology

Stephen J. Toth, Jr., editor
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CAUTION !

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

In This Week's Issue . . .

See current and archived issues of the *North Carolina Pest News* on the World Wide Web at:
http://ipm.ncsu.edu/current_ipm/pest_news.html

ANNOUNCEMENTS AND GENERAL INFORMATION

Welcome to the 2006 North Carolina Pest News

Welcome to the first issue of *North Carolina Pest News* for 2006. North Carolina Pest News is a newsletter published in electronic form by the Departments of Plant Pathology and Entomology at North Carolina State University, and contains up-to-date information on the status of disease and insect pests in North Carolina from Extension specialists in the two departments. Steve Toth, Extension Entomologist and Associate Director of the Southern Region Integrated Pest Management Center, is the editor of the newsletter.

From now until the middle of September, new issues of *North Carolina Pest News* will be available every Monday morning at 8:00 a.m. via electronic mail to county Extension agents, University specialists, and others. By Monday afternoon, the newsletter will be available on the World Wide Web at the following location: http://ipm.ncsu.edu/current_ipm/pest_news.html.

We hope that *North Carolina Pest News* will meet your individual needs for information on the occurrence of disease and insect pests in North Carolina. Please direct any suggestions or comments to Steve Toth (Steve_Toth@ncsu.edu).

FIELD AND FORAGE CROPS

From: Jack S. Bacheler, Extension Entomologist

Cotton Insect Outlook for 2006

Entomologists are skilled at explaining insect pest outbreaks -- during and at the end of the growing season. In hindsight, the causes of last year's insect problems make sense. Although many interrelated factors impact the severity of upcoming "pest years" -- such as pest survival during the winter, the abundance and quality of nearby crops and weed hosts during the spring and early summer months, and the development of the cotton crop -- weather appears to tie these factors together. And with weather predictions on a farm or county-wide basis often unreliable just a few days in advance, forecasting weather patterns that might impact insect levels weeks or months in advance are virtually worthless, especially in the Southeast. Additionally, all of our major insect pests -- thrips, bollworms, stink bugs, cotton aphids, spider mites, and others -- undergo several generations on other hosts before moving into cotton, making early predictions even less reliable. Despite the disclaimer, let's take a stab at what we might expect in 2006.

Thrips levels are often higher and more damaging in the Carolinas and Virginia than elsewhere in the Cotton Belt. This is in part due to our slower seedling grow-off conditions and high ratio of surrounding weed and small grains thrips-host vegetation to our small (14-acre average) field size. Even with last year's generally moderate thrips levels, unprotected April 27-planted cotton lost over 300 pounds of lint per acre compared to the better treatments in replicated tests. Unfortunately this situation is more the rule than the exception in this area. Behind the seed treatments Gaucho Grande and Cruiser, plan on a foliar spray targeted at the first true leaf stage -- unless cotton is planted after about May 20. With Temik at the 5 pound rate per acre, a foliar spray can often be avoided with adequate soil moisture.

Plant bugs are often kind to producers during the pre-bloom period (we have averaged approximately 3 to 8 percent treated acreage for plant bugs over the past 6 years), but they can be a scattered headache in post-bloom *Bt* cotton lines, particularly in our far-eastern counties. Both 2003 and 2004 witnessed moderate to high plant bug levels during the early boll set period in many areas. Weekly square retention counts should define most potential problem fields up to about a week or two beyond bloom initiation. Plus, they're easy to do. The crushing or cutting of quarter-sized bolls is probably best correlated with treatment need in the post bloom period for both plant bugs and stink bugs, though monitoring "dirty blooms", visual observations for adult/nymph plant bug ratios, and sweepings are also helpful.

Stink bug damage in 2004, in both conventional and on Bollgard cotton, was far and away our earliest and highest on record (I have 30 years at North Carolina State University). Stink bugs were also no picnic in 2005 in many areas of the state. With our ever-higher adoption of *Bt* cotton -- more than 90 percent in 2005 -- we can probably count on the bug complex to continue to account for most of our late season boll damage. The harder-to-control brown stink bugs also appear to have been more common in recent years. No matter what 2006 has in store, we need to pay much more attention to the bug complex in our *Bt* cotton. Additionally, as Bollgard II varieties become more widely planted in 2006 and beyond, our expected lack of treatment for caterpillars in all but a few circumstances will likely result in an even greater potential buildups of bug pests. Adequate sample sizes, lots of interior boll examinations, and green versus brown adult stink bug ratios are a must in *Bt* cotton fields, especially during weeks 3 to 6 of the bloom period. Fortunately, the 3 or so applications typically sprayed on conventional cotton usually keeps stink bug and plant damage to bolls low, although this was not always the case in 2004 and 2005. On the positive side, it appears that, on the average, a single stink bug damaged boll only accounts for about one-third as much yield loss as a bollworm damaged boll in North Carolina. Unfortunately, cotton fields with final year end boll damage of 20 to 30 percent were fairly common the past two years. That's a pretty big hit. Pyrethroid insecticides are a best choice if green stink bugs predominate. If brown stink bugs make up a signification part of the stink bug mix, consider Bidrin with or without a pyrethroid in the tank.

Bollworm moth levels have seesawed up and down for the past 7 years here until 2003, when both 2002 and 2003 were rough bollworm years. The year 2004 showed only moderate bollworm levels, and in 2005 the flight was both very late and exceptionally light. Although bollworm damage to Bollgard cotton fields has averaged less than 1 percent during the 1996 to 2005 period, replicated tests show that a foliar application for stink bugs with either Orthene or Bidrin just prior to or during the initial 10 days or so of the moth flight can increase boll damage by bollworms by approximately 3-fold, with proportional losses in yields. This will not likely be the case with Bollgard II cotton. Widestrike lines typically provide intermediate bollworm control between Bollgard and Bollgard II varieties.

Other caterpillars, such as **fall and beet armyworms, European corn borers, and loopers**, continue to cause only minimal damage, even in conventional varieties, although fall armyworm damage to bolls was moderate in some eastern counties in 2004 and was also found in scattered cotton fields in 2005. Unlike their Bollgard predecessor, Bollgard II and Widestrike varieties show high resistance to both armyworm species and loopers.

Upcoming weather patterns during upcoming crop year will essentially determine the timing and intensity of our 2006 insect outbreaks. As a general rule of thumb, North Carolina's cotton producers fair worse with both insects and yields than during droughty years. As of late March,

we had a moisture deficit of over 6 inches throughout much of our cotton production region. Although meteorologists have difficulty in predicting weather patterns more than about a week in advance, on the positive side, sound insect and plant monitoring and well-timed sprays where needed play a major role in making the best of what nature has in store for us in 2006.

From: Stephen B. Bambara, Extension Entomologist

Malathion in Small Grains and Forages

The U.S. Department of Agriculture and the U.S. Environmental Protection Agency are soliciting comments on application rates and reentry periods for malathion in small grain, forage and vegetable crops. If any growers are using malathion and feel that current label rates or reentry intervals (REIs) are not adequate, please contact Steve Toth (Steve_Toth@ncsu.edu) via electronic mail by April 26, 2006.

From: Stephen R. Koenning, Extension Plant Pathologist, and E. James Dunphy, Extension Crop Scientist

Asiatic Soybean Rust in 2006

A sentinel plot system will be used for early detection of Asiatic soybean rust during the 2006 growing system. Currently soybean sentinel plots have been planted in Mississippi and Florida and more will be planted throughout the South in the next several weeks. Soybean rust is being monitored on kudzu at the current time. You can obtain information on the sentinel plot system on the web at http://www.sbrusa.net and the North American Plant Disease Forecast Center has started forecasts for soybean rust for 2006 (see http://www.ces.ncsu.edu/depts/pp/soybeanrust/).

Sentinel plots have been funded by the U.S. Department of Agriculture (USDA), United Soybean Board (USB), and North Central Soybean Research Program (NCSRP) for 2006. The USDA program involves 35 states and the USB/NCSRP program includes 15 states. A total of 35 states will have sentinel plots for monitoring soybean rust (SBR) in 2006. Five Canadian provinces are also involved in the monitoring effort this year. Some states will have a single leader for the sentinel plot program while in other states the responsibility may be shared among multiple individuals. A single SBR monitoring protocol has been developed for the USB/ NCSRP, USDA, and Canadian plots. Data from all sentinel plots will be uploaded to the USDA Legume Pest Information Platform for Extension and Education (PIPE) web site.

There are three important functions of the sentinel program for monitoring soybean rust. The primary function is to serve as a warning network for tracking the spread of the disease in North American soybean production regions. For this reason and because the pathogen can only over-winter in subtropical regions, southern and Mississippi Valley states have higher numbers of sentinel plots relative to their soybean acreages than states in other regions. The second function is to quantify the timing and amount of spore production in over-wintering and growing season source areas, an important input for the soybean rust aerobiology prediction system. A third function of the sentinel plot system is to collect data for epidemiological research. For this

reason, sentinel plots should be maintained after first detection unless other considerations dictate otherwise. States are encouraged to establish sentinel plots above the USDA and USB/NCSRP allotments. Non-soybean hosts including other legumes and kudzu may also be planted in sentinel plots.

Number of sentinel plots in North Carolina

Table 1 provides the counties where sentinel plots for North Carolina are located and the name of the plot coordinator.

Table 1. North Carolina counties where sentinel plots are located and cooperators.

County	Cooperator
Hyde	Gibbs
Columbus	Marshall
Perquimans	S. Winslow
Carteret	Onorato
Lenoir - Cunningham	P. Winslow
Johnston	Evans
Cherokee	K. Wood
Wayne	Pitzer
Chowan	Williams
Cleveland	Gibson
New Hanover	Rorem
Sampson	Brogden
Henderson	Thompson
Pasquotank	A. Wood
Bertie	Corbett
Rowan	Hampton
Montgomery	Chandler
Scotland	Morrison
Washington	Barnes
Union	Pegram
Edgecombe	Bogle
Granville	Smith
Stanly	Braswell
Currituck	Grandy

Destruction of sentinel plots infected with SBR

The decision to spray or destroy sentinel plots after SBR detection is the responsibility of individual states. If the decision is made to destroy a plot the eradication date must be uploaded to the USDA PIPE database. This information will give modelers a better idea of the level of SBR inoculum production in a geographic area.

ORNAMENTALS AND TURF

From: Stephen B. Bambara, Extension Entomologist

Tent Caterpillars

Tent caterpillars have been feeding for a few weeks. These hairy caterpillars prefer plants such as cherry, crabapple and certain ornamental fruit trees. Eastern tent caterpillars hatch in spring just as the buds are breaking on wild cherry and crabapples. There is only one generation per year. (This should not be confused with the fall webworm.)

Eastern tent caterpillars build their silk nests (Fig. 1) in the crotches of host plants. The caterpillars (Fig. 2) then crawl down from the trees to search for a place to spin their cocoons. This is happening now in some parts of the state. In late spring, the moths emerge to mate and lay eggs (Fig. 3) for the next year's generation.

Fig. 1. Eastern tent caterpillar tent in the early spring. Image from J. R. Baker.

Fig. 2. Eastern tent caterpillar. Image from J. R. Baker.

Fig. 3. Eastern tent caterpillar egg mass. Image from J. R. Baker.

Boxelder Bugs ("BUGSTOCK")

Boxelder bugs sometimes gather for reasons of peace, love and music. Well maybe not the music. Boxelder bugs (Fig. 4) feed on the seeds of boxelder trees and to a lesser extent on the seeds of maples, ash, and a few other trees. Sometimes these bugs can become abundant (Fig. 5). However, when boxelder bugs annoy people year after year it is usually because they have a female boxelder tree in the yard or nearby. *Ornamentals and Turf Insect Information Note Number 40* (see http://www.ces.ncsu.edu/depts/ent/notes/O&T/houseplants/ort040e/ort040e.htm) provides additional information on boxelder bugs. Boxelder bugs are a more frequent complaint later in the season, but it is not uncommon to receive complaints at this time of year and we've had a few already. If desired, any pesticide should be directed onto the bugs to kill them, not onto the tree or non-infested parts of the house.

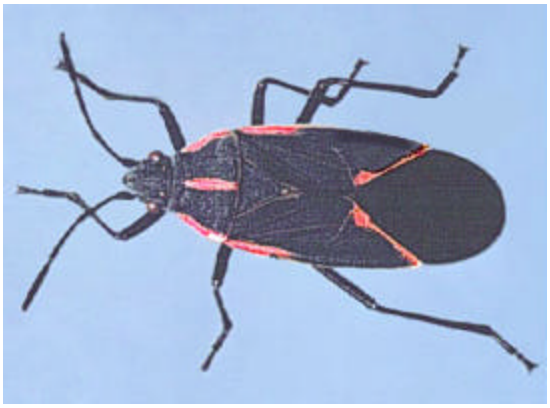

Fig. 4. Boxelder bug. Image from J. R. Baker.

Fig. 5. Boxelder bug nymphs at base of boxelder tree. Image from J. R. Baker.

From: Christine A. Casey, Extension Entomologist

Minute Cypress Scale: Not A Small Problem

It may be tiny in size, but it can be a big headache if you're trying to grow Leyland Cypress. This plant (a.k.a. the "Entomologist's Job Insurance") is host to a number of insect and disease problems. The smallest of these is the minute cypress scale, *Carulaspis minima*, which is a small armored scale with a circular to oval cover. It has a brown papery appearance with a yellow center. The scales can be found on needles and bark, where they cause yellowing and dieback. This scale overwinters on the needles, and the crawlers hatch in late spring. At that time, two applications of horticultural oil, 14 days apart, should be used for control. For more information on Leyland Cypress insect pests, see *Ornamentals and Turf Insect Information Note Number 133* on the web at http://www.ces.ncsu.edu/depts/ent/notes/O&T/specificplants/eightinsects1.pdf.