



North Carolina Pest News

Departments of Entomology and Plant Pathology

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In This Week's Issue . . .

CAUTION !

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

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

FIELD AND FORAGE CROPS

From: Jack Bachelier, Extension Entomologist

Stink Bugs on Cotton

We have finally arrived at “crunch time” for stink bugs on cotton. That is, much of our cotton crop has now reached the beginning of the 3 to 5 week of bloom period when cotton plants are most vulnerable to stink bug damage. Additionally, we are seeing stink bug damage to quarter-sized bolls in the 6 to 30% range in our threshold tests, in Scotland, Union and Wayne counties. Once at the third of bloom, our threshold recommendation for the next three weeks remains at 10% internal damage to quarter-sized bolls. Although we recommend a sample size of 25 to 40 or 50 bolls for small (less than 20 acres) and larger (larger than 20 acres) cotton fields, respectively, smaller sample sizes may be appropriate if fields will be grouped for spraying purposes. Where possible, fields should be treated individually as thresholds are reached. To assist scouts in confining their inspections to quarter-sized bolls, any material, such a Plexiglass or thin plywood, into which a 1-inch diameter hole has been drilled, can serve as a template to judge the correct boll size to sample (Fig. 1).



Fig. 1. Boll-sizer showing stink bug safe and quarter-size assessment template. Image by Jack Bachelier.

To assist scouts in confining their inspections to quarter-sized bolls, any material, such a Plexiglass or thin plywood, into which a 1-inch diameter hole has been drilled, can serve as a template to judge the correct boll size to sample (Fig. 1).

In treatment situations in which brown stink bugs outnumber green stink bugs, with the bollworm moth flight either underway in our most southern counties or within a week of arrival in other areas, a Bidrin plus pyrethroid tank mix is probably appropriate. Endigo and Leverage are co-pacs of a pyrethroid plus either the active ingredient in Centric or Trimax Pro, respectively. These insecticides may be cost effective in situations in which cotton aphids are also present at treatable levels along with economic levels of stink bugs and the threat of bollworms. Both products will provide some additional control of stink bugs compared to a pyrethroid alone, but Bidrin may still be needed in the tank if brown stink bug levels are moderate to high.

At the fifth or sixth week of bloom, many bolls on the cotton plant will no longer be susceptible to stink bug damage, and the internal boll damage threshold can be raised to 30%. Please check the insect management chapter of North Carolina State University's *Cotton Information* booklet or our *Cotton Insect Corner* web page (http://ipm.ncsu.edu/cotton/insectcorner/scouting_guide.htm) to find scouting and threshold details.

Bollworm Moth Flight

As of July 24, 2009, the bollworm moth flight is underway up through Wayne, Lenoir and Jones counties, and heavier to the south. The Laurinburg trap had a 2-night total of 150 moths. Expect egg lay on cotton to increase in the coming two weeks and for the moth flight to advance into most of the remainder of the state over the next week to possibly 10 days. Some Scotland County cotton fields were reported to have plants with significant levels of bollworm eggs being deposited down in the plants as opposed to the easy-to-find terminal eggs. With essentially all of our cotton now either Bollgard, BG II or WideStrike technology, look for one-eight inch or larger bollworms as a spray trigger. Tiny hatching bollworms must eat the plant toxin to be killed, and one-eight inch or larger bollworms indicate that the first stage caterpillars have survived the toxin.

Other Insects on Cotton

We continue to receive calls of some treatable levels of cotton aphids, plants bugs and spider mites, so be on the alert for these less commonly treated pests. Please feel free to call or email us about insect-related observations on cotton in your area.

Final Cotton School

July 29. Martin County. Meet at 6:00 p.m. at the Martin County Extension Office, 104 Kehukee Park Road, Williamston, North Carolina. For details, contact J.B. Coltrain by e-mail at jb_coltrain@ncsu.edu.

Lesser Corn Stalk Borers on Soybeans

In soybean fields experiencing “droughty” conditions, we have been receiving additional scattered reports of lesser corn stalk borer damage, particularly on sandy soils. Although damage from this pest is not presently widespread, when present, the damage can be devastating and very difficult to control.

The small, fast, striped lesser corn stalk borer larvae (Fig. 2) feed at the base of the soybean plants in silken tubes with adhering soil particles, and sometimes into the main stem. In most cases the whole plant is killed (Fig. 3).



Fig. 2. Lesser corn stalk borer on soybean. Image by Jack Bacheler.



Fig. 3. Lesser corn stalk borer damage on soybean. Image by Jack Bacheler.

Even the extreme measure of directing a band of a high rate of Lorsban with 50 gallons per acre of water at the base of soybeans plants (a practice sometimes employed in peanuts) will probably only provide marginal control of lesser corn stalk borers at a time when in many cases these pests have already done most of their damage.

On the positive side, these caterpillars thrive under exceptionally dry conditions, but high larval mortality is often observed under good soil moisture levels. Recent rainfalls in a number of our lesser corn stalk borer infestation areas should result in high lesser corn stalk borer mortality, though the expression of damage to soybean plants recently fed upon may play out over the next few days. Some subsequent lodging is also possible.

Corn Earworms (Podworms) and Stink Bugs on Soybeans

High light trap counts and blooming, open-canopied plants are attractive to egg laying corn earworm moths. In the case of soybeans, we advise waiting until threshold levels of three-eighths to approximately on-half inch podworms are present. If threshold levels of medium-sized podworms are present, a single application is all that is typically needed. The treating of large number of smaller podworms feeding on and within blooms is discouraged because: 1) the sometimes-protected small worms may have a high survival rate; and 2) a second application may be needed due to the initial early spray not offering enough extended control.

Because the actual economic threshold used for podworms in the field varies by the sampling device, row spacing, application cost, and the anticipated selling price of the soybeans, the carrying of several tables into the field may be cumbersome. Ames Herbert of Virginia Tech University developed a simple threshold calculator based on the thresholds developed by John Van Duyn of North Carolina State University. Just plug in the sampling method, etc., and the calculator will provide the appropriate threshold to deploy (see <http://www.ipm.vt.edu/cew/>).

In sweep net, ground cloth and rigid beat cloth sampling for podworms, do not over look the counting of adult stink bugs and large stink bug nymphs. Up to this point, we are seeing higher levels of green and brown stink bugs than in recent years.

From: Steve Bambara, Extension Entomologist

Grasshoppers in Pastures

Dry summers make for good grasshopper weather. As green crops begin to brown, grasshoppers (Fig. 4) can start to move. North Carolina suffers significantly from this insect every few years. Dry areas of the state should be alert to potential problems. Reports are coming in now from hay fields. Field crop growers should be monitoring field edges. Check populations in grassy field edges or surroundings. If populations are heavy there, that



Fig. 4. Grasshopper nymphs. Image by James R. Baker.

might be the place to spray before they move to the crop. They have such a diverse diet that nothing is safe from being eaten. Carbaryl-containing bait and sprays are labeled for grasshopper control. Other sprays may include malathion and Lorsban. Dimilin might be used against the early nymphs. Fortunately, grasshoppers are not resistant to pesticides, although once the population builds to the point where pesticide application is needed, it may take several applications at two or three-day intervals because of migration in from nearby areas. The only OMRI (organic listed) material I know of is a slower acting *Nosema locustae* containing bait. For a Nebraska publication on rangeland grasshoppers, see <http://www.ianrpubs.unl.edu/epublic/live/g1630/build/g1630.pdf>.

From: Steve Koenning Extension Plant Pathologist, and Jim Dunphy, Extension Crop Scientist

Current Status of Soybean Rust in North America – July 2009

Asiatic soybean rust has been confirmed in Alabama, Louisiana, Florida, Georgia, and Texas. Most finds, with the exceptions of Louisiana and Alabama, are on kudzu. Soybean rust has spread very little this year, even with above average rainfall in many soybean growing areas. Temperatures in the 100 degree F range along much of the Gulf Coast have limited its development. With more moderate temperatures and soybeans approaching or at reproductive stages, we can expect rust to accelerate its northward movement. Still, it seems unlikely that rust will arrive until soybean harvest is in progress.

Washington County, Alabama, is approximately 365 miles from Murphy, North Carolina, and 520 miles from Charlotte. The rust was detected on a sentinel plot that was at stage R4 (full sized pods). Iberia Parish, Louisiana, is approximately 585 miles from Murphy. We do not consider this find to pose any imminent threat to our North Carolina soybeans.

Soybean Disease Summary for North Carolina

Soybean rust currently poses no threat to North Carolina soybeans. Unless a tropical storm or the remnants of one moves through the southern U.S. to North Carolina, it is unlikely that soybean rust will affect the soybean crop prior to harvest. Other soybean diseases that are common this year are soybean cyst nematode, *Phytophthora* root and stem rot, and brown spot. *Phytophthora* root rot is most prevalent in low spots in fields. Many varieties are resistant to this disease. If the disease occurs on a resistant variety, identify the source of resistance genes or races that variety is resistant to and do not use a similar type of resistance in the future.

Resources for Soybean Rust in 2009

There are more resources for information on Asiatic soybean rust available this year than in many past years. Some sources for more detailed information are listed below:

Teletip Phone Number: **1-800-662-7301** (the same number as for the cotton insect update) with message updated as necessary

USDA soybean rust web site: <http://www.sbrusa.net/cgi-bin/sbr/public.cgi>

North Carolina Crop Protection Manual: <http://ipm.ncsu.edu/agchem/6-toc.pdf>

From: Steve Koenning, Extension Plant Pathologist, and Ron Heiniger, Extension Crop Scientist

Northern Corn Leaf Blight

Northern corn leaf blight is caused by a fungus called *Cochliobolus carbonum* (*Helminthosporium carbonum*). It is fairly common in North Carolina with wet weather. Hybrids vary in susceptibility to this disease. Although we have had several good corn crops the last several years, dry weather late in the season has impeded this disease. Also, we may have started growing more susceptible hybrids than were used in the past. Northern corn blight may warrant the use of fungicides on susceptible hybrids, especially if irrigated and in areas that continue to receive high rainfall. Strobilurin type fungicides – Headline or Quadris – are recommended for this disease. Combinations of strobilurin and triazole fungicides Quilt and Stratego will also be somewhat effective, but contain less of the strobilurin fungicide which is most effective. Higher rates than the minimum may be needed as there is a lot of foliage that needs coverage, and this is especially difficult by air. A minimum of 5 gallons of water per acre is recommended by air. These recommendations also apply for southern corn leaf blight and gray leaf spot.

Be on the Lookout for Southern Rust in Corn!

Conditions are favorable for southern rust in corn at this time. Spores must move from the south every year to cause a problem. Late planted corn will be particularly vulnerable if rust arrives early this year. For more information on southern rust, see <http://www.ces.ncsu.edu/depts/pp/notes/Corn/corn002.html>. Triazole fungicides Tilt or Folicur are the preferred treatments for southern corn leaf rust.

ORNAMENTALS AND TURF

From: Steve Bambara, Extension Entomologist

Fall Webworms

Fall webworms have hatched their early season brood. There is a race of fall webworm that develops in mid-summer. The web starts at the branch tips and becomes enlarged to encompass fresh, green leaves until the web may become two to three feet long. This is more noticeable with the later season brood. Because fall webworm damage accrues over the summer, they usually cause little long-term health damage to the trees they defoliate. At any one location, the populations of fall webworms wax and wane so that they are conspicuous and damaging for a year or two and then the populations seem to be thin. Webworms feed on over 600 types of trees, shrubs and other plants. In North Carolina they are most often reported on pecans, persimmons, sourwoods (Fig. 5) and willows. Small trees infested with several broods of caterpillars may be entirely enclosed in webs. After feeding for four or five weeks, the caterpillars crawl down, spin cocoons and pupate in mulch or soil.

Fall webworms can be managed by pulling down the webs and destroying the caterpillars if the webs are within reach by a pole. If the webs are within reach of a sprayer, several insecticides can be sprayed for control. Spray adjacent foliage. Insecticides work best when the caterpillars are young, so it is best to

treat as soon as the webs are first noticed. A product containing *Bacillus thuringiensis* or carbaryl is appropriate for homeowner use, while commercial applicators can use *B.t.* (e.g., Dipel), Conserve, Talstar or one of several other options. Talstar is not recommended for plants prone to spider mite problems. You can view a QuickTime movie clip about fall webworms and their control on the Internet at <http://www.ces.ncsu.edu/depts/ent/notes/O&T/shrubs/note07/fallwebworm.mov>.



Fig. 5. Fall webworms on sourwood. Image by Steve Bambara.



Fig. 6. U. S. postage stamp. Image from Steve Bambara.

Yellow Garden Spiders

The yellow garden spider (Fig. 6), *Argiope aurantia*, is also called the black and yellow argiope. It is a large spider that is sometimes noticed in the garden or around the house in the fall. They spin a characteristic web that has a dense white zigzag pattern in the middle. The spiders usually rest in the center of the web, facing head downward. When the web is disturbed, a yellow garden spider often bounces so rapidly on the web that it almost becomes a blur. Yellow garden spiders wrap insects that blunder into the webs with silk from spinnerets on the abdomen. They use the fourth pair of legs to spread the silk to cover the prey. The males are much smaller than the females. Eggs are laid in a mass and covered with loose silk and then a dense covering of tan silk. Yellow garden spiders are usually not abundant enough to be considered a nuisance or dangerous enough to humans to be considered a pest. It is a dramatic find for the average homeowner. County Extension agents should not be surprised if they receive a call about one soon. For more information on these spiders, see the following web sites: http://animaldiversity.ummz.umich.edu/site/accounts/information/Argiope_aurantia.html
<http://www.jstor.org/stable/2424265>

Spider Pictures

Spiders are good predators in the landscape. E-mail me (Steve_Bambara@ncsu.edu) your spider photographs from your garden or landscape and we'll publish some of them in *North Carolina Pest News* in the upcoming weeks.

From: Steve Frank, Extension Entomologist

Rose Aphids in the Landscape

This week I have found rose aphids (Fig. 7), *Macrosiphum rosae*, on *Knock Out* rose bushes on the North Carolina State University campus. So far populations are small but as with other aphids they reproduce rather rapidly. Fortunately, I find live aphids and parasitized aphid mummies in almost equal numbers. This and other natural enemies such as lady beetles, minute pirate bugs, and syrphid flies generally prevent rose aphids from becoming a problem in most situations. Scout by looking for shiny accumulations of honey dew on leaves and white flecks which are shed skins. Aphids will be on the underside of leaves above where you find honeydew and skins. Plants that are under stress or over fertilized are likely more susceptible to eruptive populations. In addition, application of insecticides to target other pest such as Japanese beetles could kill natural enemies and cause an outbreak. This is true for any aphid. Plants in greenhouses where conditions are good for aphid growth (good temperature, plenty of water, constant fertilizer, no natural enemies) may also have higher populations of rose aphid. Should control be necessary consult *Ornamentals and Turf Insect Note No. 38* on the Internet at <http://www.ces.ncsu.edu/depts/ent/notes/O&T/flowers/note38/note38.html>.



Fig. 7. Rose aphids. Image by Whitney Cranshaw, Colorado State University (<http://www.bugwood.org>).

INSECT TRAP DATA

From: Mike Carroll, Agricultural Extension Agent, Craven County

Light Trap Data from Craven County

```

*****
                        Number of Adult Insects
*****
Date      THW    TBW    CEW    GSB    BSB    ECB    FAW    BAW    Looper
*****
July 10   -      2      2      -      -      -      -      -      -
July 13   0      1     15      1      -      -      -      -      -
July 20   8      3     80      3      -      -      -      -      -
July 22   3      1     47      -      -      -      1      -      -
*****

```

THW = tobacco hornworms; TBW = tobacco budworms; CEW = corn earworms;
 GSB = green stink bugs; BSB = brown stink bugs; ECB = European corn
 borers; FAW = fall armyworms; BAW = beet armyworms

Location of trap: Cove City
 Cooperators: Cove City Fertilizer

From: Curtis D. Fountain, Agricultural Extension Agent, Duplin County

Light Trap Data from Duplin County

```

*****
                        Number of Adult Insects
*****
Date      BW      GSB      BSB
*****
July 6    -      -      -
July 8    -      -      -
July 10   -      -      -
July 13   -      -      -
July 15   0      4      0
July 17  10     13     0
July 20  15     32     0
July 22  31      2      0
July 24  22     15     0
*****

```

BW = cotton bollworms; GSB = green
 stink bugs; BSB = brown stink bugs

Trap location: approximately two miles east of Albertson
 Cooperator: Justin Murphy

From: Arthur R. Bradley, Jr., County Extension Director, Edgecombe County

Light Trap Data from Edgecombe County

```

*****
                        Number of Adult Insects
*****
                Coakley      West Edgecombe      Lawrence
                *****      *****      *****
Date           CEW   BS   GS      CEW   BS   GS      CEW   BS   GS
*****
July 17        15   -   3       -   -   -       -   -   -
July 20         10   -   4       -   -   -       -   -   -
July 22         18   1   3       -   -   -       -   -   -
July 24         14   -   4       -   -   -       5   -  20
*****

```

Abbreviations: CEW = corn earworms;
BS = brown stink bugs; GS = green stinks bugs

From: Keith B. Walters, County Extension Director, Hoke County

Light Trap Data from Hoke County

```

*****
Date           Moths      GSB      BSB
*****
July 8          5          10       -
July 10         5           4       -
July 13         4           1       -
July 15         4           5       -
July 17         5           4       -
July 20         4           7       -
*****

```

GSB = green stink bugs; BSB = brown stink bugs

Location of trap is Chisholm Road, Raeford.
Trap monitored by Earl Hendrix.

From: Alan A. Harper, Lenoir County

Light Trap Data from Lenoir County

June

```

*****
                        Number of Adult Insects
*****
Date      HW      CEW      ECB      AW      AWC      GSB      BSB      TBW
*****
June 10   1       0       1       0       0       0       0       0
June 11   1       0       0       0       0       3       2       0
June 12   1       0       0       0       0       2       0       0
June 13   1       3       0       0       1       16      2       0
June 14   1       1       0       0       0       8       13      1
June 15   0       3       0       0       5       38      1       0
June 16   1       4       1       0       1       4       0       0
June 17   1       3       0       0       1       3       0       0
June 18   0       2       0       1       0       4       1       0
June 19   0       0       0       0       0       24      4       0
June 20   0       4       0       0       1       14      19      0
June 21   0       7       0       0       3       5       14      1
June 22   0       5       0       1       4       1       5       0
June 23   0       6       0       0       1       1       2       0
June 24   1       3       0       0       3       4       0       0
June 25   0       4       1       0       8       1       1       0
June 26   1       1       0       1       9       16      1       0
June 27   0       1       0       0       4       9       2       0
June 28   0       2       0       1       1       6       1       2
June 29   0       1       0       0       1       7       3       0
June 30   0       1       0       0       1       0       1       0
*****

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July

```

*****
                        Number of Adult Insects
*****
Date      HW      CEW      ECB      AW      AWC      GSB      BSB      TBW
*****
July 1    0       1       0       0       1       3       0       0
July 2    1       2       0       0       2       5       1       0
July 3    0       1       0       0       4       1       0       0
July 4    0       2       0       0       5       0       0       0
July 5    0       2       0       0       3       0       0       0
July 6    0       0       0       0       0       1       2       0
July 7    0       1       0       0       1       5       0       0
July 8    0       0       0       0       0       3       0       0
July 9    0       2       0       1       2       5       0       0
July 10   0       2       0       0       1       3       0       0
July 11   0       2       0       0       4       6       0       0
July 12   1       0       0       0       6       2       0       0
July 13   0       0       0       0       3       2       0       0
July 14   0       1       0       0       2       0       0       0
July 15   1       4       0       0       7       6       0       0

```

July 16	1	8	0	0	4	3	0	0
July 17	0	5	1	0	3	1	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

From: J. B. Coltrain, County Extension Director, Martin County

Light Trap Data from Martin County

	Robersonville		Farm Life	
Date	BW	GSB	BW	GSB
July 20	5	0	3	2
July 22	4	0	6	1
July 24	3	0	5	7

BW = Bollworm moths; GSB = Green stink bugs

From: Melissa Evans, Agricultural Extension Agent, Onslow County

Light Trap Data from Onslow County

	Number of Adult Insects			
Date	Bollworms	GSB	BSB	Hornworms
June 24	-	-	-	-
June 26	2	10	0	0
June 29	7	5	0	0
July 1	-	-	-	-
July 3	-	-	-	-
July 6	-	-	-	-
July 8	-	-	-	-
July 10	-	-	-	-
July 13	-	-	-	-
July 15	-	-	-	-
July 17	21	10	-	-
July 20	30	12	-	-
July 22	45	3	-	-
July 24	80	3	-	-

GSB = green stinks bugs; BSB = brown stink bugs
 Trap Location: Richlands; Cooperator: Richlands Farms
 Insect counts are from a single black light trap located approximately 1 mile east of Richlands.

From: Kent Wooten, Agricultural Extension Agent, Robeson County

Light Trap Data from Robeson County

```

*****
                        Number of Adult Insects
*****
Date          BW      GSB      BSB      FAW
*****
July 16       9        -        -        -
July 17      13        -        -        -
July 18-19   34        -        -        -
*****

```

BW = bollworms; GSB = green stick bugs;
 BSB = brown stink bugs; FAW = fall armyworms
 Trap location: Rowland; Cooperator: Kay McGirt

From: David E. Morrison, Agricultural Extension Agent, Scotland County

Light Trap Data from Scotland County

```

*****
                        Number of Adult Insects
*****
                Gibson                John's                Laurinburg
                *****                *****                *****
Date          BW  GSB  BSB  FAW      BW  GSB  BSB  FAW      BW  GSB  BSB  FAW
*****
July 10       7   10   0   0        3   3   0   0        5   1   0   0
July 13      27  33   0   0        7   9   1   0        2   0   0   0
July 15      16  11   1   0       35   1   0   0       17   1   0   0
July 17      14  21   0   0        0   0   0   0       17   1   0   0
July 20      23  22   0   0       23   6   0   0       72   2   0   0
July 22      25   9   0   0       49   4   0   0       78   3   0   0
July 24      66  24   0   0      247  18   1   0      153  15   0   0
*****

```

BW = bollworm moth; GSB = green stink bugs;
 BSB = brown stink bugs; FAW = fall armyworms

From: Kevin Johnson, Agricultural Extension Agent, Wayne County

Light Trap Data from Wayne County

```

*****
                        Number of Adult Insects
*****
                Seven Springs                Goldsboro
*****                *****
Date          GSB   BSB   CEW   HW          GSB   BSB   CEW   HW
*****                *****
July 13      -     -     -     -           5     1     0     1
July 15      -     -     -     -           1     0     4     2
July 17      -     -     -     -           0     0     2     2
July 20      -     -     -     -           6     0     4     9
July 22      -     -     -     -           0     1    13     4
July 24      -     -     -     -           2     0    20     3
*****

```

GSB = green stink bugs; BSB = brown stink bugs;
CEW = corn earworms; HW = hornworms

Cooperators: D. M. Price (Seven Springs); Willie Howell (Goldsboro)

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.