

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 . . .

FIELD AND FORAGE CROPS

- Cotton Bollworms
- Fall Armyworms on Cotton
- Bug Damage to Cotton
- Current Soybean Disease Situation
- Asiatic Soybean Rust Outlook
- Section 18 Fungicides for Management of Asiatic Soybean Rust
- Web Resources for Asiatic Soybean Rust
- Fungicide Application for North Carolina Soybeans
- Target Spot on Soybean
- Pastures and Forages: Fall Armyworm Report

ORNAMENTALS AND TURF

- Peach Tree Borers Rest on Their Laurels
- Spider Wasps

- Redhumped Caterpillars
- Spangle Galls on Oak

INSECT TRAP DATA

- Light Trap Data from Anson, Stanly and Union Counties
- Light Trap Data from Bertie County
- Light Trap Data From Chowan County
- Light Trap Data from Craven County
- Light Trap Data From Cumberland County
- Light Trap Data from Duplin County
- Light Trap Data From Edgecombe County
- Light Trap Data From Halifax County
- Light Trap Data From Hoke County
- Light Trap Data From Jones County
- Light Trap Data from Lenoir County
- Light Trap Data from Martin County
- Light Trap Data From Northampton County
- Light Trap Data from Onslow County
- Light Trap Data From Perquimans County
- Light Trap Data from Robeson County
- Light Trap Data from Sampson County
- Light Trap Data From Scotland County
- Light Trap Data from Wayne County
- Light Trap Data from Wilson County

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http://ipm.ncsu.edu/current_ipm/pest_news.html

FIELD AND FORAGE CROPS

From: Jack S. Bachelier, Extension Entomologist

Cotton Bollworms

Bollworm moth counts in black light traps are trending downward across much of the state, although a few scattered locations in the central and northern counties of North Carolina showed their highest counts of the year this week. With moth counts in the 100 to 200 range (two night counts) in two of three traps Scotland County this Friday, moth levels will probably remain high enough in all areas of the state to result in potentially damaging bollworm populations where cotton is attractive. With our widely variable moisture availability, and thus cotton attractiveness to egg laying moths, local conditions will probably be more important than the flight status from here on. Drought conditions have pushed cotton quickly toward “cutout” in many areas of the state, while in other areas cotton remains very attractive and susceptible to damage.

This appears to be a rough year for “worm escapes”, with more that our share of both tobacco budworms on conventional cotton and bollworms on conventional and Bollgard cotton. Whether the larger bollworms resulted from very heavy egg pressure, the disruptive effects of organophosphate insecticides such as Bidrin alone for stink bug control, an extremely high proportion of stuck bloom tags (over 50 percent of the 3½ week old bolls we checked in a stink bug test in Wayne County the morning of August 11 still had attached dried blooms), mistimed applications, or too little volume, the question of what to do with large bollworms remains frustrating. Unfortunately, no reasonable insecticide control measure for large (½ to 5/8 inch, or longer) bollworms or tobacco budworms exists, despite the various concoctions offered through the years. To add insult to injury, the cycling through of large larvae doesn’t mean that one is out of the woods. With a bollworm moth flight that looks like it may last 3 to 4 weeks in some places, another batch of eggs and worms could be on the way. As is always the case, some cotton fields remain clean with minimal insecticide input.

Fall Armyworms on Cotton

Reports of fall armyworms have increased during the past week, still mostly from scattered cotton fields in south central and in far eastern counties. With continued hot, dry weather, levels of fall armyworms can probably be expected to increase. Fall armyworms appear to have a far easier time becoming established under drought conditions. If cooler, rainy conditions prevail during the coming week, fall armyworms will probably not fare as well. In the past, we have had reasonable luck in controlling a combination bollworms and small fall armyworms with a tank mix of a pyrethroid insecticide plus either Lorsban (chlorpyrifos) or Larvin. The pyrethroid insecticides Karate and bifenthrin (Capture, Brigade, Sniper and Discipline) have shown greater

activity against fall armyworms than some of the other pyrethroids, although less is known about the activity of the newer pyrethroids like Mustang Max and Prolex. Intrepid also shows at least fair activity against fall armyworms, and might be another tank mix alternative. Phillip Roberts at the University of Georgia has had some reports of Diamond showing good fall armyworm activity, though the cost is just under \$10.00 per acre, and little replicated testing information is available. Attempting to control large fall armyworms typically ends in disappointment.

Bug Damage to Cotton

Damage to quarter-sized bolls from stink bugs and plant bugs is also extremely variable across that state and from field to field. In our stink bug tests in Wayne County, damage to untreated check plots was around 30 percent on August 9, while damage in other tests near drier Rocky Mount hovered around 5 percent. Where treated, hopefully based on thresholds, control of bugs appears to be good. In most cotton fields, we are still in the susceptible stage of Weeks 3 to 6 of blooming. In our dry areas, most of us would gladly trade rainy weather patterns for a greater chance of stink bug damage resulting from a more extended boll production period.

Within the next week or two, much of our cotton should be pointing us toward raising stink bug thresholds based on a higher proportion of 3½ week old “bug-safe” bolls.

From: Steve Koenning, Extension Plant Pathologist, and Jim Dunphy, Extension Soybean Agronomist

Current Soybean Disease Situation

Sentinel plots continue to be monitored weekly, and several samples from kudzu in the southern part of the state were taken to the lab for examination. All were negative for Asiatic soybean rust. **Rust has not been found in North Carolina thus far.** Frogeye leaf spot is quite common in susceptible varieties and this disease does warrant fungicide application on highly susceptible varieties.

Asiatic Soybean Rust Outlook

Soybean rust is starting to develop at a faster pace to the south of North Carolina. It has been found in Jefferson County, Mississippi (along the Mississippi River), in Jefferson County, Florida, and as the afternoon of August 7, Tift County, Georgia. This find on soybeans growing on a commercial research site is located about 300 miles from Charlotte, 530 miles from Elizabeth City, 360 miles from Fayetteville, 255 miles from Murphy, 405 miles from Raleigh, 465 miles from Washington (North Carolina), 375 miles from Wilmington, and 370 miles from Winston-Salem.

Asiatic soybean rust has now been found on soybeans in 9 counties in five states (Alabama, Florida, Georgia, Louisiana and Mississippi). It has been found on kudzu in 5 counties in Alabama, 13 in Florida, 6 in Georgia, 3 in Louisiana, 1 in Texas, and 1 in Mississippi.

Although it has been hot and dry through much of the Mid-South and Delta, recent storms in northern Florida and southern Georgia may result in increasing detections of soybean rust. Since

2006 soybean production in Florida and Georgia is estimated at only about 155,000 acres, high numbers of spores are not anticipated coming from soybean at this time. Although rust is likely to spread over the next several weeks to the south of North Carolina, long distance spread is unlikely since sources of spores are still weak.

Section 18 Fungicides for Management of Asiatic Soybean Rust

Should they be needed, a number of fungicides have emergency registrations (Section 18 labels) for Asiatic soybean rust. Should you require one of these products, remember that anything with an emergency exemption is considered to be a restricted use pesticide. Thus you must have a pesticide license to use these materials and you should have an emergency label with you. Some new products may become available this summer, but there may be added restrictions. Check the restrictions on what you may plant within 12 to 18 months of using these materials, or you may be legally required to plant soybean in a field sprayed with these materials next year.

Web Resources for Asiatic Soybean Rust

A number of excellent resources are available on the web to assist you with decision making on Asiatic soybean rust. The North Carolina soybean rust forecast is available on web (<http://www.ces.ncsu.edu/depts/pp/soybeanrust/index.php>) and USDA soybean rust and soybean aphid web site (<http://www.usda.gov/soybeanrust/>). The USDA site also contains tools to help manage insurance claims and current information on labeled fungicides.

Fungicide Application for North Carolina Soybeans

In the past ten years or so, foliar fungicides have not been recommended routinely for use in soybean in North Carolina. The exceptions to this rule have been in situations where frogeye leaf spot was found on a susceptible variety, or in instances where a grower received a premium for edible beans or seed beans. Fungicide trials typically showed a one to two bushel yield increase with the use of materials like Benlate. With soybean prices generally in the \$5.00 per bushel range this expense could hardly be justified. More recent work with Quadris at 6 ounces per acre showed yield increases of 1.5 bushels per acre in North Carolina, although some locations in Virginia and elsewhere showed yield increases on the order of three to five bushels per acre or more with strobilurin-type fungicides (Headline or Quadris). With soybean prices approaching \$7.00 per bushel, the chances of recouping chemical costs from fungicide application at the R3 stage certainly improve, and may allow producers to sleep better at night. Also, consider the rate per acre of the fungicide you choose to use. In general, higher rates will provide longer residual control, so the possibility exists that one application at the higher rate may eliminate or reduce the need for a second application. Remember though, that soybean should not be sprayed beyond the R5 stage and much of our full season soybean crop, especially early maturing varieties, are nearly out of the woods as far as soybean rust is concerned. Approximately 5,000 copies of the book *Using Foliar Fungicides To Manage Soybean Rust* have been delivered to county Extension offices and the book is also available on-line at <http://www.oardc.ohio-state.edu/SoyRust/index.htm>. Our general recommendations for using fungicides to manage rust in North Carolina are included as an attachment (Recommendations for Managing Soybean Rust in North Carolina in 2006) at the end of the document.

Target Spot on Soybean

A fungal disease, target spot of soybean (caused by *Corynespora cassicola*), has been identified from a few of the samples sent to the North Carolina State University Plant Disease and Insect Clinic from sentinel plots in 2006. In 2004, this disease resulted in early defoliation of certain soybean varieties and resulted in yield losses of as much as 50 percent. While we don't understand why this disease was a problem in 2004 and 2005 when we had not seen it since about 1981, target spot has appeared on soybean in much of the southeast this year. At this time we suspect that only a few varieties are susceptible to this disease. The use of a foliar fungicide may well be warranted on susceptible varieties, especially if there is a good chance for extended periods of rain. Please consult the on-line version of the *North Carolina Agricultural Chemicals Manual* for recommendations for fungicides at <http://ipm.ncsu.edu/agchem/agchem.html>.

Pastures and Forages: Fall Armyworm Report

If you have been watching the insect light trap data in the *North Carolina Pest News*, Robeson County has been reporting a lot of moths during the last week of July. If populations of larvae are going to appear, they may start being noticed within the next week or so. Start scouting for them now or soon. Of the other counties checking for fall armyworms, none have been reported and moths in light traps.

ORNAMENTALS AND TURF

From: Stephen B. Bambara, Extension Entomologist

Peach Tree Borers Rest on Their Laurels

Peachtree borers are caterpillars of a clearwinged moth. The moths closely resemble paper wasps (Fig. 1), but of course the moths do not sting. These moths emerge throughout the growing season, but the great majority of them are in flight between August 15 and September 15. Consequently, most of the borers can be preventatively controlled by spraying the trunk with cyfluthrin or other pyrethroid around August 15 and again around September 1. The moths lay eggs at the base of peaches, plums, cherrylaurels, and ornamental cherries.

From these eggs hatch tiny, white caterpillars that bore into the bark and tunnel in the cambium at the base of the tree (Fig. 2). If many borers infest a tree, the cambium may be completely girdled beneath the bark, and the tree will die. The borers pupate inside the infested tree during late spring and summer and then emerge as moths a few weeks later. The prevailing recommendation is a spray to prevent further borers from invading the tree if this is a problem. There is not a simple method to control larvae already boring in the wood.



Fig. 1. Female peachtree borer moth. Image from James R. Baker.



Fig. 2. Frass and tunneling by the peachtree borer. Image from James R. Baker.

Spider Wasps

Pompilid wasps (Fig. 3) are active at this time. These large colorful metallic wasps have no reason to sting people. They are not social or colonial. Their mission in life is to catch spiders to provision a nest for offspring. Many have active, bright colored antennae and some have additional coloration.



Fig. 3. Pompilid wasp. Image by Stephen B. Bambara.

Redhumped Caterpillars

This week I received an image of redhumped caterpillars (Fig. 4) on redbud from Greg Trawick in Stanley County. The redhumped caterpillar is not as common as many other tree foliage feeding caterpillars. Redhumped caterpillars are widespread, but usually not abundant enough to cause concern. They feed on most shade and fruit trees. Redhumped caterpillars are so named because there is a red hump toward the rear. The head is also red. Whenever the worm is handled, it gives off a disagreeable odor. Like other gregarious caterpillars, redhumped caterpillars feed in a group and completely strip all the leaves on one twig before moving to another branch. The moths are grayish brown in color with a two-inch wingspan. They appear from May to August and lay eggs in masses of about 100 on the undersides of leaves. When the

caterpillars mature, they crawl down and spin cocoons in the mulch. The winter and spring is spent there. There is only one generation per year.

Although one might apply a pesticide such as Sevin to the leaves, I think a long stick could knock many of the larvae out of the tree where they could be crushed underfoot. If one can reach, prune out the leaves with the caterpillars on them while still small.



Fig. 4. Rehumped caterpillars. Image from the North Carolina State University Plant Disease and Insect Clinic.

Spangle Galls on Oak

Cynipid gall wasps in the genus *Neuroterus* cause various shapes of galls on the leaves of oaks (Fig. 5). Some *Neuroterus* galls are deciduous and even saltatorial (they jump!). When the leaf galls mature, the galls drop from the leaf and the gall wasps grubs inside can actually cause the galls to jump around on the ground. When each gall drops off, a scar is left on the leaf. Fungi can then invade the leaves through the scars and cause death of the leaf tissue in the area of the gall. When many gall scars are present, much of the leaf area (especially the apex) will die. This may cause premature leaf drop.



Fig. 5. *Neuroterus* galls. Image by Keith Edkins.

Neuroterus gall wasps have alternating generations in which there is a two or three-year twig gall and a growing season leaf gall that only lasts a few months. In the past, insecticides such as Sevin were suggested in the spring just after leaf out. I don't think this would be a big help and could throw the tree ecosystem more out of balance, if it helped at all. Controlling the leaf galls completely one year may have little impact on the density of the galls the following year.

We are not sure why some trees seem to be particularly attractive to gall wasps. Such trees may be under stress. It may be just as effective to control the wasps by improving the growing conditions of the tree.

For more information on galls on oaks, see *Ornamental and Turf Insect Information Note No. 5.* (<http://www.ces.ncsu.edu/depts/ent/notes/O&T/trees/note05/note05.html>).

INSECT TRAP DATA

From: Thomas G. Pegram, Agricultural Extension Agent, Union County

Light Trap Data From Anson, Stanly and Union Counties

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*****
                        Number of Adult Insects
*****
      Anson S      Anson N      Union S      Union N      Stanly
*****  *****  *****  *****  *****
Date    CBW  GR  BR  CBW  GR  BR  CBW  GR  BR  CBW  GR  BR  CBW  GR  BR
*****
July 17  12  78  20   10   0   0   18  17   0   38   4   0    8   0   0
July 19   -   -   -   15   0   0   19  12   0   30   2   0   14   0   0
July 21  18  11   2   28   0   0   81  17   0   40   4   1   15   1   0
July 24  55  48   7  101   1   2  211  13   0   59  26   3   24   0   0
July 26   0   0   0  157   3   0  250   9   0   46  18   1   23   1   0
July 28   0   0   0  133   1   0  185  12   0   44   8   0   27   2   0
July 31   -   -   -  132   5   0  215  14   0   36   9   2   42   3   0
August 2  -   -   -  118   4   1  230  15   0   43   8   0   33   2   0
August 4  -   -   -  102   1   0  245  12   0   57  11   0   10   0   0
August 7  71 158   9   80   1   0  375   9   0   52   4   0    5   1   0
August 9  39  14   0   28   0   0  150   6   0   67   3   0   16   0   0
August 11 42  21   1   38   5   0  145   4   0   61   7   0   17   0   0
*****

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CBW = cotton bollworm moths; GR = green stink bugs; BR = brown stink bugs

Trap Locations and Cooperators:
 Anson N: Ansonville area (Fincher Martin)
 Anson S: Deep Creek area (Richard Melton)
 Union N: New Salem area (Tom Pegram)
 Union S: White Store area (Greg Hargett)
 Stanly: Richfield area (Shannon Braswell)

From: Richard W. Rhodes, County Extension Director, Bertie County

Light Trap Data From Bertie County

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*****
                Windsor      Woodard      Hexlena      Roxobel      Colerain
                *****      *****      *****      *****      *****
Date            BW GSB BSB    BW GSB BSB    BW GSB BSB    BW GSB BSB    BW GSB BSB
*****
July 10         0  0  0      -  -  -      -  -  -      1  0  0      -  -  -
July 11         0  2  0      -  -  -      0  0  0      -  -  -      -  -  -
July 12         0  3  0      2  0  0      -  -  -      -  -  -      -  -  -
July 13         0  3  0      -  -  -      0 17  0      3  3  0      5  1  0
July 14         0  5  0      2 10  0      0  9  0      -  -  -      -  -  -
July 15         -  -  -      -  -  -      -  -  -      -  -  -      -  -  -
July 16         -  -  -      -  -  -      -  -  -      -  -  -      -  -  -
July 17         -  -  -      7 12  0      0 11  0      2 14  0      -  -  -
July 18         1  9  0      -  -  -      0  3  0      1  2  0      -  -  -
July 19         1  6  0     11  7  0      0  2  0      0  3  0      2  7  0
July 20         0  7  0      8  5  0      0  8  0      0 22  0      2  1  0
July 21         7  1  0      5  2  0      1  6  0      -  -  -      -  -  -
July 22         1  6  0      -  -  -      -  -  -      -  -  -      -  -  -
July 23        15  2  0      -  -  -      -  -  -      -  -  -      -  -  -
July 24        18  0  0     14  1  0      5 11  0      -  -  -     15  0  0
July 25        19  6  0     27  0  0      4  2  0      -  -  -     18  0  0
July 26        10  1  0     24  3  0      4  7  0      -  -  -     35  1  0
July 27        35  9  0     24  5  0      2  7  0      9  1  0     15  2  0
July 28        22  2  0      -  -  -      3  7  0     11  0  0     46  0  0
July 29        30  3  0      -  -  -      -  -  -      -  -  -      -  -  -
July 30        55  1  0      -  -  -      -  -  -      -  -  -      -  -  -
July 31       102  0  0      7  1  0     54 31  0     50  6  0     60  4  0
August 1       93  4  0     178 1  0     39  7  0     16  4  0     170 0  0
August 2      215 10  0     87  8  0     53  6  0     19  3  0     236 6  0
August 3      265 12  0     77  1  0     66 12  0      -  -  -     305 3  0
August 4      202  8  0     83  4  0     65  5  0     19  5  0     351 4  0
August 5      115  3  0     80  2  0      -  -  -     31  5  0      -  -  -
August 6       34  3  0     56  0  0      -  -  -      -  -  -      -  -  -
August 7       14  0  0     42  3  0     92  0  0     21  2  0     470 0  0
*****

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BW = Bollworm moths; GSB = Green stink bugs; BSB = Brown stink bugs

From: Mike Williams, County Extension Director, Chowan County

Light Trap Data From Chowan County

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*****
                        Adult Insects
                        *****
Date                    CEW      GSB      BSB      ECB
*****
July 18                  0        6        0        0
July 19                  0        4        0        3
July 20                  0        2        0        5
July 21                  1        6        -        -
July 22                  7        2        -        -
July 23                  -        -        -        -

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July 24	43	2	-	-
July 25	40	2	-	-
July 26	35	1	-	-
July 27	41	13	-	-
July 28	51	27	-	-
July 29	46	4	-	-
July 30	81	68	-	-
July 31	160	8	-	-
August 1	140	7	-	-
August 2	137	19	-	-
August 3	265	20	-	-
August 4	161	21	-	-
August 5	103	5	-	-
August 6	-	-	-	-
August 7	65	0	-	-
August 8	51	0	-	-
August 9	78	2	-	-
August 10	11	0	-	-
August 11	21	0	-	-

CEW = Corn earworms (bollworms); GSB = Green stink bugs;
 BSB = Brown stink bugs; ECB = European corn borers

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	3	1	9	3	1	0	0	0	0
July 12	1	0	5	3	0	0	0	0	0
July 17	4	0	31	16	0	0	0	0	0
July 19	2	0	16	2	0	2	0	0	0
July 21	7	1	23	2	3	0	0	0	0
July 24	4	0	42	3	0	4	2	0	0
July 25	2	0	21	4	1	0	0	0	0
July 26	1	1	36	2	0	0	0	0	0
July 27	2	0	31	1	1	0	0	0	0
July 28	4	0	43	2	0	0	0	0	0
July 31	9	0	318	16	1	0	2	0	0
August 1	0	2	96	3	0	1	3	0	0
August 2	4	0	187	7	3	1	2	0	0
August 3	1	0	153	3	1	0	0	0	0
August 4	4	0	149	6	1	0	0	0	0
August 7	3	2	179	2	0	0	4	0	0
August 9	0	0	42	0	0	0	2	0	0
August 11	0	0	23	0	1	0	0	0	0

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

From: Colby S. Lambert, Agricultural Extension Agent, Cumberland County

Light Trap Data From Cumberland County

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*****
                        Number of Adult Insects
                        *****
Date      THW      CEW      GSB      BSB
*****
June 30           trap set up
July 3         2         9         22         6
July 5         0         2         15         4
July 7         0         6         3         1
July 10        0         2         7         1
July 12        -         -         -         -
July 14        1         0         31         2
July 17        4         16        29         1
July 19       19         40        23         1
July 21       28        129        10         2
July 24       13        439        10         0
July 26        4        401         0         0
July 28        6        321        15         1
July 31        -         -         -         -
August 2       9        180        46         8
August 4       -         -         -         -
August 7       9        466        67         5
August 9       1        103        20         0
August 11      0        114        24         0
*****
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THW = tobacco hornworms; CEW = corn earworms;
GSB = green stinks bugs; BSB = brown stink bugs

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

Light Trap Data From Duplin County

```
*****
                        Number of Adult Insects
                        *****
Date      BW      GSB      BSB
*****
July 7         3         2         1
July 10        1         2         2
July 12        1         5         1
July 14        0         8         2
July 17        0        21         2
July 19        0        17         3
July 21        0         6         0
July 24       321        15         0
July 26       286         9         0
July 28       161         7         0
July 31       715        32         0
August 2      557        60         1
August 4      525        32         2
August 7      152        12         1
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August 9 57 13 2
 August 11 48 2 1

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

Trap location: Albertson
 Cooperator: Justin Murphy

From: Arthur R. Bradley, Jr., Agricultural Extension Agent, Edgecombe County

Light Trap Data From Edgecombe County

 Number of Adult Insects

 W Edgecombe /a Coakley /b Lawrence /c

 Date CEW BS GS CEW BS GS CEW BS GS

Date	CEW	BS	GS	CEW	BS	GS	CEW	BS	GS
July 7	0	0	3	7	0	48	-	-	-
July 10	0	0	0	14	7	1	-	-	-
July 12	0	0	12	3	0	34	-	-	-
July 14	0	0	13	4	0	61	-	-	-
July 17	0	0	3	9	0	27	0	0	1
July 19	0	0	2	7	0	24	0	0	0
July 21	0	0	4	6	0	12	0	0	2
July 24	-	-	-	29	1	61	5	0	0
July 26	30	0	2	46	0	11	55	0	11
July 28	45	1	8	46	0	14	11	0	2
July 31	117	1	13	72	0	39	1	0	0
August 2	50	0	8	107	0	14	11	0	5
August 4	58	0	13	190	0	39	70	0	1
August 7	30	0	1	79	0	1	22	0	1
August 9	29	1	3	39	0	3	11	0	4
August 11	25	0	4	-	-	-	3	0	1

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

a = trap located 12 miles west of Tarboro; maintained by Tom Porter.
 b = trap located 5 miles east of Tarboro; maintained by Bryan Mayo.
 c = trap located at Lawrence; maintained by Terri Thomas.

From: Arthur Whitehead, Jr., Agricultural Extension Agent, Halifax County

Light Trap Data From Halifax County

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*****
                Scotland
            Hobgood      Neck      West      Weldon
            *****      *****      *****      *****
Date      CEW  GSB  BSB  CEW  GSB  BSB  CEW  GSB  BSB  CEW  GSB  BSB
*****
July 17      -   1   -   -   -   -   -   -   -   -   -   -
July 19      -   -   -   -   -   -   -   -   -   -   -   -
July 21      -   -   -   -   -   -   10  0   0   5   0   0
July 24      5   2   -   7   4   -   8   -   4   10  3   -
July 26     55   -   -   8   7   -   10  3   -   16  3   -
July 28      -   -   -   11  -   -   23  -   -   -   -   -
July 31      1   -   -   16  -   -   27  -   -   16  -   -
August 2     11  -   -   22  -   -   26  -   -   -   -   -
August 4     70  -   -   25  -   -   29  -   -   4   -   -
August 7     22  -   -   32  -   -   28  -   -   10  -   -
*****
    
```

Abbreviations: CEW = corn earworms;
 GSB = green stinks bugs; BSB = brown stink bugs

From: Keith B. Walters, Agricultural Extension Agent, Hoke County

Light Trap Data From Hoke County

```

*****
                        Boyles Farm
            *****
Date      Moths      GSB      BSB
*****
June 28      28          4          0
June 30      72          26         0
July 3        -           -           -
July 5       13          7          0
July 7       41          9          13
July 10      32          7          0
July 12      16          5          1
July 14      17          33         4
July 17      12          22         3
July 19      27          27         2
July 21      39          14         3
July 24      23          14         11
July 26     223          9          17
July 28     198          7          7
July 31     327          23         18
August 2     276          32         18
August 4     147          11         2
August 7     353          36         8
August 9      78           6          0
August 11    167          7          0
*****
    
```

GSB = green stink bugs; BSB = brown stink bugs

Location of trap is Shannon Road, Shannon.
Trap monitored by Johnny Boyles.

From: Curtis D. Fountain, County Extension Director, Jones County

Light Trap Data From Jones County

```

*****
                Number of Adult Insects
                *****
Date           BW      GSG      BSB      HW
*****
July 21        3        3        1        2
July 24        4        1        0        2
July 26        6        1        7        3
July 28       63        0        0       10
July 31      140        1        6        7
August 2     244        4        1       10
August 4     265        2        4        6
August 7      25        1        2        9
*****

```

Trap Location: Comfort
Monitored by: Morris and Brett Pike

BW = bollworms; GSB = green stink bugs;
BSB = brown stink bugs; HW = hornworms

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 7
June 8         0        0        0        0        0        0        0        0
June 9         0        0        1        0        0        0        0        0
June 10        0        0        1        0        0        0        0        0
June 11        0        0        0        0        1        6        1        0
June 12        0        0        1        1        0        0        2        0
June 13        0        1        2        0        0        0        0        0
June 14        0        0        3        0        0        0        0        0
June 15        0        0        1        0        0        0        0        0
June 16        0        0        2        2        0        3        2        0
June 17        0        0        0        0        0        1        0        0
June 18        0        0        0        0        0        2        0        0
June 19        0        0        0        0        1        3        0        0
June 20        1        1        0        0        0        2        0        0

```

June 21	1	0	0	0	0	1	2	1
June 22	0	0	0	1	2	0	0	0
June 23	1	0	1	0	0	5	7	1
June 24	0	3	2	0	0	1	1	0
June 25	0	4	1	0	0	2	2	0
June 26	0	5	0	0	1	1	1	1
June 27	1	2	0	0	0	10	0	0
June 28	0	2	0	0	0	2	0	1
June 29	1	1	0	1	0	5	0	3
June 30	0	6	2	0	0	3	1	0

July

***** Number of Adult Insects *****								
Date	HW	CEW	ECB	AW	AWC	GSB	BSB	TBW
July 1	1	12	1	0	0	2	0	0
July 2	1	6	0	0	1	0	0	0
July 3	0	4	0	0	0	2	2	0
July 4	0	3	0	0	0	7	0	0
July 5	0	4	0	1	0	4	1	0
July 6	0	5	0	0	0	4	0	0
July 7	0	8	3	1	2	1	0	1
July 8	0	3	0	0	1	3	0	1
July 9	0	3	0	0	0	0	0	0
July 10	0	2	0	0	0	1	0	0
July 11	0	5	0	0	1	3	0	0
July 12	0	12	0	0	1	6	0	0
July 13	0	5	0	0	1	3	0	0
July 14	0	12	0	0	4	7	0	0
July 15	0	9	0	1	0	2	0	0
July 16	0	6	1	0	0	2	0	0
July 17	1	8	4	1	1	4	0	0
July 18	2	14	3	1	2	13	1	0
July 19	0	12	12	1	7	20	1	3
July 20	1	7	9	1	7	2	0	2
July 21	2	12	8	1	5	3	0	1
July 22			light	inadvertently	unplugged			
July 23	1	4	5	1	1	2	0	1
July 24	4	23	2	1	5	0	0	4
July 25	9	59	2	1	1	29	0	5
July 26	6	44	4	1	3	3	0	3
July 27	1	105	9	4	0	17	1	4
July 28	5	99	5	3	4	8	0	7
July 29	2	41	2	1	1	5	0	0
July 30	3	177	7	2	4	8	0	3
July 31	1	158	8	1	3	10	2	6

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

```

*****
                Farm Life      Robersonville      Palmyra
                *****
Date            BW  GSB  BSB   BW  GSB  BSB   BW  GSB  BSB
*****
July 17         8   1   0    3   8   0    1   8   0
July 19         5   0   0    6  10   0    0   0   0
July 21         6   2   0    3   5   0    -   -   -
July 24        23   0   0   40   7   0    1   7   0
July 26        21   3   0    8   6   0    2   3   0
July 28        19   7   0    8   5   0    -   -   -
July 31        46  17   2   20  10   0    2   3   0
August 2       78   8   0   22   8   1   15  15   0
August 4       60   2   0   65   8   1  131  31   0
August 7       27  14   2   21   0   0   62   1   0
August 9       53  23   0   34   4   0   51  10   0
August 11      28   6   0   27   3   1   16  33   0
*****

```

BW = Bollworm moths; GSB = Green stink bugs; BSB = Brown stink bugs

From: Craig Ellison, Agricultural Extension Agent, Northampton County

Light Trap Data From Northampton County

```

*****
                Number of Adult Insects
                *****
Woodland      Conway      'Neck      Seaboard      Gaston      Jackson
*****
Date          CEW GR BR   CEW GR BR   CEW GR BR   CEW GR BR   CEW GR BR   CEW GR BR
*****
July 17      - - -    - - -    - - -    - - -    - - -    0 84 6
July 19      - - -    - - -    - - -    4 10 0    - - -    0 124 4
July 21      - - -    - - -    - - -    - - -    - - -    - - -
July 24      - - -    2 0 0    26 17 0    30 0 0    - - -    61 140 3
July 26      1 0 0    10 12 1    29 13 0    40 6 0    - - -    83 11 1
July 28      3 4 2    9 8 0    24 19 0    31 1 0    32 0 0    59 72 3
July 31      3 22 2    10 19 4    50 35 0    72 12 0    53 0 0    208 191 2
August 2     1 11 1    9 18 1    53 41 0    57 12 2    22 2 0    103 94 2
August 4     4 13 1    17 9 4    49 58 0    46 8 2    24 0 0    157 135 5
August 7     0 0 0    3 4 0    53 8 0    - - -    11 0 0    199 20 0
August 9    22 1 0    6 0 0    58 9 0    29 0 0    - - -    271 20 0
August 11   13 0 0    4 2 0    49 9 0    7 0 0    - - -    227 8 0
*****

```

CEW = corn earworms; gr = green stink bugs; br = brown stink bugs
 Locations: Woodland, Conway, 'Neck, Seaboard, Gaston and Jackson
 Monitored by: L. Culpepper, K. Edwards, B. Johnson, T. Flythe,
 D. Grant and B. Bryant

From: Bryant M. Spivey, Agricultural Extension Agent, Onslow County

Light Trap Data from Onslow County

```
*****
                        Number of Adult Insects
                        *****
Date           Bollworms           GSB           BSB
*****
July 3         15                   7             0
July 5         43                   17            0
July 7         21                   2             0
July 10        18                   0             1
July 12        16                   4             3
July 14        22                   20            0
July 17        93                   7             0
July 19        32                   7             2
July 21        50                   6             0
July 24        156                  14            0
July 26        203                  12            1
July 28        246                  13            2
July 31        345                   8             0
August 2       125                   6             0
August 4       101                   6             2
August 9       68                    6             0
*****
```

GSB = green stinks bugs; BSB = brown stink bugs

Insect counts are from a single black light trap located approximately 1 mile east of Richlands.

From: Lewis Smith, County Extension Director, Perquimans County

Light Trap Data From Perquimans County

```
*****
                        No. of Adult Insects
                        *****
Date           Bollworms
*****
July 28         1
July 29         9
July 30        29
August 1        80
August 2        96
August 3        77
August 4        87
*****
```

From: Everett Davis, County Extension Director, Robeson County

Light Trap Data From Robeson County

```
*****
                        Number of Adult Insects
                        *****
Date                   BW      GSB      BSB      FAW
*****
July 8-9               7       8       1       4
July 10                4       9       0       0
July 11-12             7      12       1       0
July 13                5       5       0       1
July 14               27      12       1       3
July 15-16            62      21       2       2
July 17               63      19       2       1
July 18              102      25       1       6
July 19              162      21       1       4
July 20              211      27       2       6
July 21              258      22       3       6
July 23-23           349      32       2       7
July 24              312      15       2       9
July 25              315      21       0      16
July 26              481      20       0      23
July 27              387      15       1      19
July 28              457      18       0      21
July 29-30           761      32       3      23
July 31              536      32       2      11
August 1 #            89       6       0       0
August 2             137      18       1       1
August 3             194      23       0       1
August 4             162      11       0       2
August 5-6           209      12       1       3
August 7              93       8       0       2
August 8              -        -        -        -
August 9-10          219      42       2       3
*****
```

BW = bollworms; GSB = green stick bugs;
BSB = brown stink bugs; FAW = fall armyworms

Location is Rowland; monitored by Kay McGirt

= field was sprayed

From: Josh Gaddy, Agricultural Extension Agent, Sampson County

Light Trap Data from Sampson County

```
*****
                        Number of Adult Insects
                        *****
Date                   BW      GSB      BSB      THW
*****
June 30                trap set up
July 3                  0       4       0       2
July 5                  3       9       0       0
*****
```

July 7	2	6	0	2
July 10	4	8	0	0
July 12	1	11	1	2
July 14	1	5	0	0
July 17	0	23	2	4
July 19	1	15	5	9
July 21	11	12	0	18
July 24	20	5	0	15
July 26	105	10	3	6
July 28	127	75	13	16
July 31	150	21	4	6
August 2	101	31	18	6
August 4	158	28	10	8
August 7	33	60	8	9
August 9	67	11	1	2
August 11	60	30	2	5

BW = cotton bollworms; GSB = green stink bugs;
 BSB = brown stink bugs; THW = tobacco hornworms

Black trap located 6 miles south of Clinton on
 US-701S on the farm of Mike and James Hope.

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

Light Trap Data From Scotland County

Number of Adult Insects

Date	Gibson				John's				Laurinburg			
	BW	GSB	BSB	FAW	BW	GSB	BSB	FAW	BW	GSB	BSB	FAW
July 7	-	-	-	-	1	1	2	-	2	4	-	-
July 10	11	3	-	-	9	-	-	-	6	7	1	-
July 12	12	17	-	-	9*	2*	-	-	3	3	1	-
July 14	16	38	-	-	21	5	-	-	3	10	-	-
July 17	16	26	1	-	54	23	1	-	24	14	3	-
July 19	24	17	-	-	70	7	-	-	18	10	2	-
July 21	94	5	-	-	138	7	-	-	75	5	-	-
July 24	263	20	-	-	198	1	-	-	190	15	-	-
July 26	352	2	-	-	292	3	-	-	230	5	-	-
July 28	232	17	2	-	145	4	1	-	418	19	-	-
July 31	411	28	-	-	593	5	1	-	408	16	-	-
August 2	124	36	-	-	375	30	2	-	336	7	1	-
August 4	212	15	-	-	275	30	1	-	224	10	-	-
August 7	181	14	-	-	94	3	-	-	111	7	-	-
August 9	102	1	-	-	109	2	-	-	129	1	-	-
August 11	194	4	-	-	145	1	-	-	113	7	-	-

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

Trap Location: Gibson, Johns and Laurinburg
 Monitored by: Jim Ellis, David Morrison,

Percy Rachels, Rusty Muse and T. G. Gibson

* light unplugged

From: Kevin Johnson, Agricultural Extension Agent, Wayne County

Light Trap Data from Wayne County

```

*****
                        Number of Adult Insects
*****
                Seven Springs                Goldsboro
*****                *****
Date            GSB  BSB  BW  THW            GSB  BSB  BW  THW
*****
June 26         -   -   -   -             43   3   10   6
June 28         -   -   -   -             81   4   -   -
June 29         -   -   -   -            131  11   4   1
July 3          -   -   -   -             91   9   5   2
July 5          -   -   -   -             63  10   -   -
July 7          -   -   -   -             47   4   2   2
July 10         -   -   -   -             15   0   5   3
July 12         2   1   -   -             17   3   3   1
July 14         2   -   8   -             29   4   -   -
July 17        15   2  20   -            111  11   2   5
July 19         -   -   -   -             37   4  13   3
July 21         3   -  37   7             17   -  18   2
July 24         1   2  62   3             47   2  78  11
July 26        11   1 100   4             32   - 157   8
July 28         9   - 105   -             66   5 209   3
July 31        10   1 125  10            174  10 264   8
August 2       25   8 235   3            134  12 238   5
August 4       5   6 130   6            174  18 224   3
August 7       7   3 250   5            101   9 174   6
August 9      52   3  96   3             14   2  35   1
*****

```

GSB = green stink bugs; BSB = brown stink bugs;
BW = budworms; THW = hornworms

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

From: Norman E. Harrell, Agricultural Extension Agent, Wilson County

Light Trap Data From Wilson County

```

*****
                        Number of Adult Insects
*****
                Lucama      Pender's Xrds      Sims      Fountain
*****
Date            CEW  BS  GS      CEW  BS  GS      CEW  BS  GS      CEW  BS  GS
*****
July 14         5   1  16      -   -   -      -   -   -      -   -   -
July 17        13   2   2      -   -   -      -   -   -      9   0  23
July 19         6   0   2      5   0   0      2   0   1      8   0  18

```

July 21	6	0	0	7	0	1	3	0	2	2	0	3
July 24	30	0	1	11	2	5	14	0	2	17	0	4
July 26	33	0	3	21	0	0	81	0	1	51	0	3
July 28	36	0	0	15	0	2	255	0	0	66	0	0
July 31	60	0	1	66	0	9	84	0	7	61	0	20
August 2	46	0	0	71	0	2	44	0	1	34	0	9
August 4	49	0	0	51	0	3	31	0	0	66	1	24
August 7	73	0	0	26	0	0	3	0	2	40	0	9
August 9	18	1	1	8	0	0	2	0	0	18	0	8
August 11	26	1	2	17	0	0	0	0	0	27	1	1

Locations: Lucama, Pender's Crossroads, Sims and Fountain
 Monitored by: Chris Bass, Adam Gardner, Thad Sharpe, IV and Barbara Smith

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.

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Recommendations for Managing Soybean Rust in North Carolina in 2006

Stage of Development		Days to R7		Fungicide Recommendation if:		
		Full Season	Double Crop	No Rust Confirmed within 100 miles	Rust Confirmed within 100 miles	Rust Observed in field
Number	Description					
	Vegetative			Do Not Spray	Do Not Spray	T or C fb T or C fb T or C Also See Footnotes
R1 or R2	Early or Full Bloom	65	55	If frogeye leaf spot is identified on a susceptible variety: S fb N or N fb S or S fb C	S, T, or C fb S, T, or C	Same as above
R3	Small Pods	55	47	Same as above	Same as above	T or C fb T or C
R4	Full Sized Pods	45	38	If frogeye leaf spot is identified on a susceptible variety: N fb S or S fb C	Same as above	Same as above
R5	Small Beans	35	30	If frogeye leaf spot is identified on a susceptible variety: S	S, T, or C	T or C
R6	Full-Sized Beans	20	17	Do Not Spray	Do Not Spray	Do Not Spray
R7	>1 Pod/Plant Mature Color	0	0	Do Not Spray	Do Not Spray	Do Not Spray

S denotes a strobilurin fungicide, **T** denotes a triazole, **C** denotes a combination of the two, and **N** denotes a nitrile fungicide.