

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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ANNOUNCEMENTS AND GENERAL INFORMATION

Turfgrass Field Day on August 10 in Raleigh

The 2011 Turfgrass Field Day, sponsored by the North Carolina State University's College of Agriculture and Life Sciences and North Carolina Agricultural Foundation, will be held on Wednesday, August 10, 2011 at the Lake Wheeler Road Turfgrass Field Laboratory, 3920 Dr. Bill Gilbert Way, Raleigh, North Carolina. For more information, including the schedule of events and registration form, go to: http://www.cals.ncsu.edu/agcomm/writing/Field_Days/.

FIELD AND FORAGE CROPS

From: Jack Bachelier, Extension Entomologist

Cotton Insects and an Early Cotton Crop

It looks like another week of the “haves” and the “have nots.” The “haves” refer to those who have been blessed with adequate moisture. As we suffer through additional upcoming days of 100 degree weather, **fields without moisture are “cutting out” fast** and shedding both squares and quarter-sized and smaller bolls. Other fields are faring much better, though also maturing quickly.

Stink bug damage to quarter-sized bolls still remains very spotty and generally on the low side. With the bollworm moth flight underway, if threshold levels of internal boll damage from stink bugs is present, a high rate of a pyrethroid insecticide or a pyrethroid plus a low rate of Bidrin is a common response, with the pyrethroid bifenthrin (Discipline, Brigade, Fanfare and others) being somewhat more active against brown stink bugs than the other pyrethroids. However, most pyrethroids at high rates should work well against combinations of green and brown stink bugs along with bollworms. If Bidrin is used for stink bugs, remember to follow the label's stated 6-day reentry period. Premixes such as Endigo, Swagger and Leverage 360 are also good in situations where cotton aphids and/or plant bugs are also present along with bollworms and/or stink bugs. As cotton approaches the sixth, seventh and eighth week of blooming, be sure to raise the stink bug damage threshold to quarter-sized bolls to 20, 30 and 50%, respectively.

Although not yet present at high levels, the **bollworm moth flight** is now underway throughout North Carolina and into Virginia. This flight remains very spotty so far and may be somewhat lower in dry areas where underground bollworm pupae may be challenged to emerge as fresh moths. As we have said before, the 3% live bollworm threshold of second stage or larger larvae on fruit is typically not met until a flight of sufficient size has been present for a week or more in WideStrike or Bollgard II cotton. Recall that we do not count newly hatched first instar bollworms as many of these have not had a chance to feed on the *Bt* toxins. Look for the survival of 3 second-instar bollworms of 1/8-inch or larger per 100 fruit, paying particular attention to fields that have already



Fig. 1. Bollworm egg on the upper-middle of dried bloom. Image by Jack Bachelier.

been sprayed with the past two weeks for stink bugs or plant bugs, or to rapidly growing fields with adequate moisture. As was the case last week, include “bloom tag bolls” in your counts in the same proportion to their occurrence with squares and small bolls, as small bolls with stuck blooms are common, especially in drier areas. Several reports have come in during the past few days of bollworm eggs being found on pink and dried flowers (Fig. 1). To help get an idea of the timing and size of the current bollworm moth flight, go to the *Cotton Insect Corner* (<http://ipm.ncsu.edu/cotton/InsectCorner/>) and click on the light trap image. As of last Friday, bollworm moth counts from 19 light traps were being posted.

Although **plant bug numbers** are generally on the low side, several consultants in our eastern counties are still encountering economically damaging levels of adults and immatures. Inspecting open flowers for the presence of dirty blooms (resulting from plant bug feeding on large squares) remains one means of determining if further sampling for live bugs is needed (if 10% or more dirty blooms are found, additional sampling is advised) (Fig. 2). Additional sampling for live plant bugs after bloom initiation is best accomplished by using a 2.5-foot black ground cloth (Fig. 3). The suggested treatment threshold is approximately 2 adults per immature plant bugs per 5 feet of row (beating 2.5 feet of row from each side onto the cloth). The black ground cloths allows scouts to find the very tiny bright green, fast immature plant bugs that often become much more common than adults in blooming cotton. Although not a formal recommendation, if a sweep net is used to detect adult and immature plant bugs, a *preliminary* threshold of 5 nymphs or 17 adults per 100 sweeps may be an approximation of the need to spray. Note that this “threshold” is very preliminary and based on a single test conducted in eastern North Carolina in 2010. Therefore, this threshold has only been mentioned at a few scouting school during the past two weeks.

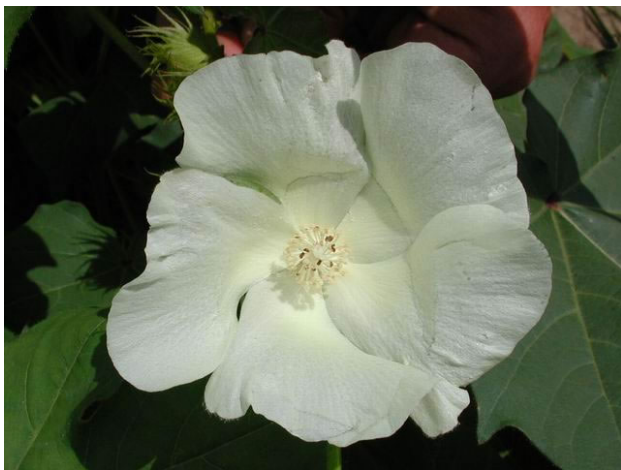


Fig. 2. “Dirty bloom”. Image by Jack Bachelier.



Fig. 3. Black ground cloth. Image from Louisiana State University (unattributed).

A downside of sweep net sampling is that sweep nets are not very efficient at detecting immature plant bugs, which are often further down in the canopy than adults. In last year’s test, immature plant bugs constituted 96% of the total population caught in a black drop cloth and 86% of the total caught in a sweep net.

Based on reports from throughout the state, only a limited number of cotton fields have been treated for **spider mites or cotton aphids** this past week. We still have plenty of time for either or both pests to become a problem, especially spider mites. Economic levels of cotton aphids should be less likely as the season progresses and the parasitic fungus becomes more prevalent.

From: Barbara Shew, Extension Plant Pathologist

Peanut Disease Advisory Update

Most growers should have applied the first leaf spot spray to peanuts in early-mid July (R3). Until recently, a second spray has not been recommended by leaf spot advisories in most locations due to high temperatures, low rainfall, and low humidity. At locations where hot dry weather has persisted and no sprays have been advised, application of foliar fungicides, especially chlorothalonil (Bravo and other brands), can greatly increase the risk of spider mite outbreaks. Spider mites can be very damaging and are difficult to control (Fig. 4). Minimize unnecessary fungicide applications during dry weather. Until we see a general break in the heat and drought, I do not recommend that you apply chlorothalonil alone or in mixture with another fungicide.



Fig. 4. Spider mite damage to peanuts. Image from Barbara Shew.

Over the past weekend, many locations received rain and/or had periods of high humidity. Sprays have been advised at some locations. Conditions at your location **may** become more favorable for leaf spot and a spray advised soon. Typically, mid-July to mid-August is the critical period for stem rot control. When the next spray is advised, growers should consider using a leaf spot fungicide that will also control southern stem rot. These include Abound, Headline and Provost. Convoy and tebuconazole are effective against stem rot, but must be mixed with a fungicide that controls leaf spots. If you are using Convoy or tebuconazole, mixing with 6 to 9 ounces of Headline would be a good alternative to chlorothalonil. However, you should not make more than two applications of a group 11 fungicide (Headline, Abound, or Evito) per season. For rates and additional details, see the *North Carolina Agricultural Chemicals Manual* (<http://ipm.ncsu.edu/agchem/agchem.html>) or *2011 Peanut Information* (http://ipm.ncsu.edu/Production_Guides/Peanuts/main.pdf).

The hot, dry weather also does not favor Sclerotinia blight, but outbreaks may occur in irrigated fields or locations that receive rain. Rain (or irrigation) is an important risk factor for Sclerotinia blight. Keep in mind that your risk of Sclerotinia blight may be higher than advised at the nearest weather station if you irrigate or have had a local rainstorm. Fields with a history of Sclerotinia blight should be scouted carefully starting in early July. Make the first Sclerotinia fungicide application according to advisory or sooner if disease is observed.

Photos and detailed descriptions of peanut diseases can be found at <http://www.peanut.ncsu.edu/>. Disease advisories are posted daily at <http://ncsupeanut.blogspot.com/>.

From: Steve Koenning, Extension Soybean Pathology Specialist, and Jim Dunphy, Extension Soybean Specialist, Crop Science

Soybean Rust Update for July 29, 2011

Recently soybean rust has been detected on kudzu in New Iberia Parrish in Louisiana. Rust has also been reported from several locations in Florida thus far in 2011. Rust reports from Mexico are sporadic at best. The potential for spread from these regions at this time is unlikely. Very hot weather throughout most of the Southeast remains as a major impediment to development of rust at this time. Most sentinel plots have been planted in North Carolina at this time and we will have about the same number of sentinel plots this year as in past years.

Prospects for Soybean Rust in North Carolina in 2011

The northward progression of soybean rust appears to be stalled this summer in Florida. Watch for tropical storm events that bring moisture from the south. We learned last year that rust can and will make large jumps distance wise over a relatively short period of time. The NOAA forecast for temperature and moisture for the critical June thru September 2011 time period is for average seasonal temperatures and above average precipitation. Additionally, the national forecast is for an above average tropical storm season. Tropical storms, especially those moving through Florida and Georgia may provide for transport of rust spores earlier in the season.

Rust spread very little in 2010, due in large part to the severe cold in the winter of 2010 and a relatively dry, especially in the late season, growing season.

Resources for Soybean Rust in 2011

North Carolina Agricultural Chemicals Manual: <http://ipm.ncsu.edu/agchem/agchem.html>

The IPM PIPE web site: <http://sbr.ipmpipe.org/cgi-bin/sbr/public.cgi>

Soybean Rust in the Mid-Atlantic Region: <http://cipm.ncsu.edu/ent/SSDW/RustBulletin08.pdf>

From: Dominic Reisig, Extension Entomologist

The Corn Earworm Flight is On

The bollworm/corn earworm flight has begun for North Carolina. This is the generation that can affect both cotton and soybeans. We usually see one more generation after this, although in 2010, two more generations followed this one. Scouting for this insect is going to be even more essential this year, as we have pockets around the eastern part of the state that have received widely varying amounts of moisture.

Corn earworm adults (Fig. 5) will often emerge from their pupal stage en-masse when the soil becomes moist, if conditions were previously dry. I have heard of a few soybean fields that have exceeded threshold already. These are historical "problem" areas for corn earworm and the soybeans were at a stage that was attractive for corn earworm egg laying. One field in particular was directly adjacent to

irrigated sweet corn. In soybeans, corn earworm prefers open canopies, flowers, and young growing terminals.



Fig. 5. Corn earworm adult. Image from Dominic Reisig.

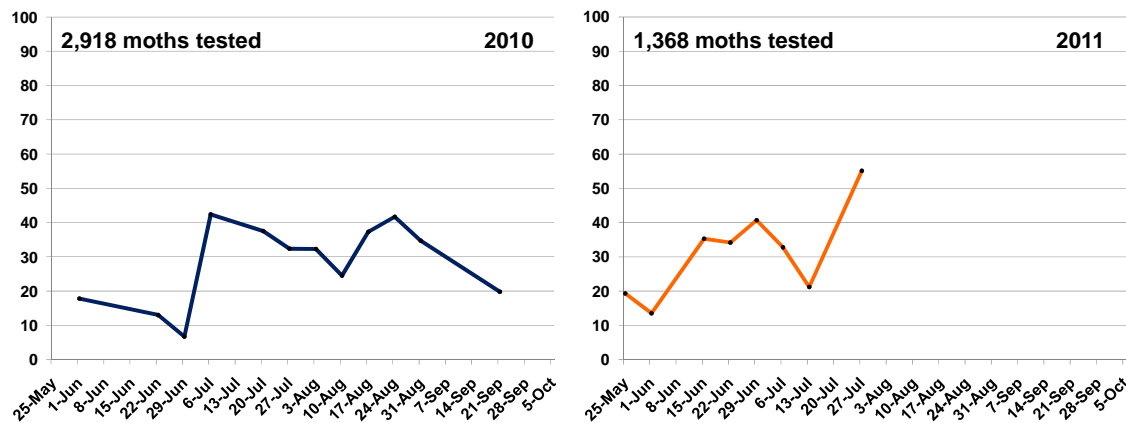
In cotton, you should begin checking for third instar bollworm larvae on cotton bolls, especially under bloom tags. The threshold is three or more in 100 bolls. In soybeans, the threshold is based on row width, sampling method, and the cost of control. Bean price is irrelevant at this point, since the threshold doesn't change when bean price exceeds \$10 per bushel (this is due to plant compensation for corn earworm feeding). An online threshold calculator can be found at the following site on the Internet: <http://www.ces.ncsu.edu/plymouth/ent/cewthresholdcalc.html>.

Corn Earworm Tolerance to Pyrethroids May Be an Issue in 2011

Previous to the flight, I was not very concerned about widespread tolerance of pyrethroid insecticides in the North Carolina corn earworm population. Ames Herbert, Extension Entomologist, Virginia Tech University, has a large representative sample from our neighbors to the North. He has documented increased survival of corn earworm moths exposed to pyrethroids this year compared to 2010 (Fig. 6). Survivorship of moths using this test is correlated with tolerance to pyrethroids. Remember that 2010 was a problem year, with many reports of pyrethroid insecticide treatment failures.

My graduate student, Rachel Suits, has been testing moths using the same test in our state, albeit on a much smaller scale and in fewer locations (Fig. 7; please read the caption). Before mid-July, there were very few survivors. However, notice that we are documenting some survivorship in the North Carolina system. Based on this information, I am recommending using an alternative chemistry (e.g., Belt, Larvin, Tracer, Steward) or to add half a pound of Orthene with a pyrethroid as a tank mix.

Mean weekly % corn earworm moth survival, 5 µg cypermethrin, Suffolk, VA



**Adjusted for control mortality using Abbott's formula.
Moths were collected from pheromone traps.**

Ames Herbert, 2011
Virginia Tech Tidewater AREC

Fig. 6. Survivorship of Virginia male corn earworm moths exposed to a standard pyrethroid (cypermethrin) vial test in 2010 and 2011. Figures from Ames Herbert, Virginia Tech University.

Weekly Percentage Surviving Corn Earworm 2011

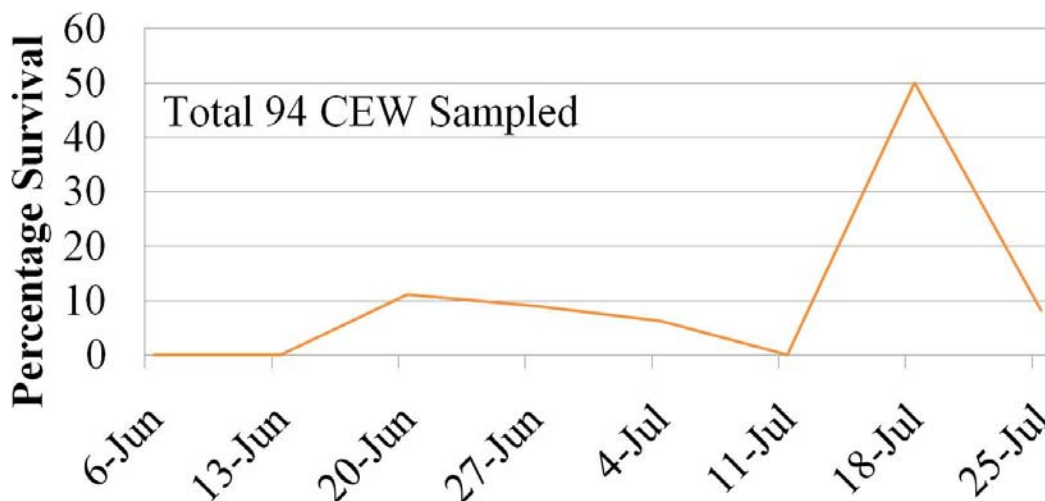


Fig. 7. Survivorship of North Carolina male corn earworm moths exposed to a standard pyrethroid (cypermethrin) vial test in 2011 at Tyrrell County, Rocky Mount, and at the Tidewater Research Center (Plymouth). Please note that the 50% survivors recorded on July 18, 2011 were from a sample size of only 2 moths. Figure from Rachel Suits.

INSECT TRAP DATA

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

Light Trap Data from Bertie County

```

*****
                Windsor      Woodard      Hexlena      Colerain
                *****      *****      *****      *****
Date           Moths  GSB   Moths  GSB   Moths  GSB   Moths  GSB
*****
July 20             4    4     15    3     0    1     -    -
July 21             4    0     25    1     -    -     -    -
July 22            10    1     12    2     9    5     -    -
July 23            37    0     -    -     -    -     -    -
July 24             -    -     -    -     -    -     -    -
July 25            70    1     19    2     19    4     -    -
July 26            15    0     7    0     12    0     25    0
July 27            20    2     19    1     17    0     -    -
July 28            39    0     34    4     15    1     -    -
July 29            36    6     27    4     10    2     -    -
*****
    
```

Moths = Bollworm moths; GSB = Green stink bugs

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   LOOP
*****
July 5           1    1    -    2    -    -    -    -    -
July 11          -    -    3    3    1    -    -    -    -
July 18          -    -   23    -    -    4    -    -    -
July 22          -    -   38    1    1    -    -    -    -
July 25          -    -   75    -    -    -    -    -    -
July 29          2    -   91    1    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; LOOP = Looper

Location of trap: Cove City
 Cooperators: R & W McCoy Farms and Cove City Fertilizer

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

Light Trap Data from Cumberland County

```

*****
                        Number of Adult Insects
*****
Date          THW          CEW          GSB          BSB
*****
July 7        ----- trap set up -----
July 9         0             1             3             0
July 11        0             6             8             1
July 13        0             4             26            3
July 15        0             4             1             0
July 18        0             5             6             0
July 20        0            16            16            0
July 22        0            24            12            1
*****
    
```

THW = tobacco hornworms; CEW = corn earworms;
 GSB = green stinks bugs; BSB = brown stink bugs

Trap located in Godwin at Cumberland/Harnett County Line
 at Lewis Farms off of Highway 301

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

Light Trap Data from Edgecombe County

```

*****
                        Number of Adult Insects
*****
West Edgecombe          Coakley          Lawrence
*****          *****          *****
Date          CEW    BS    GS    CEW    BS    GS    CEW    BS    GS
*****
July 8         -     -     -         0     0     0         -     -     -
July 11        0     0     0         0     1     3         -     -     -
July 13        0     0     0         0     1     1         4     0     6
July 15        0     0     0         0     0     0         0     0     4
July 18        0     0     0         3     0     0         0     0     0
July 20        0     0     0         3     0     2         2     0     4
July 22        0     0     2         4     0     0         1     0     2
July 25        1     0     7        14     0     0         0     0     4
July 27        5     0     5        22     0     0         0     0     1
July 29        4     0     1        26     0     1         0     0     1
*****
    
```

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

From: Alan A. Harper, Lenoir County

Light Trap Data from Lenoir County

July

```

*****
                        Number of Adult Insects
*****
Date      HW      CEW      ECB      AW      AWC      GSB      BSB      TBW
*****
July 18    0       9       0       0       1       0       0       0
July 19    0       1       2       0       0       1       0       0
July 20    0       5       0       0       0       2       0       0
July 21    0      20       1       0       2       2       0       1
July 22    0      15       0       0       0       4       0       0
July 23    0       8       0       0       3       1       0       0
July 24    0       4       0       0       0       0       0       0
July 25    0       8       0       0       1       0       0       0
July 26    0      11       0       0       2       0       0       0
July 27    0      16       0       0       0       0       0       1
July 28    0      24       0       0       1       2       0       2
July 29    0      13       0       0       1       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: Al Cochran, County Extension Director, Martin County

Light Trap Data from Martin County

```

*****
                        Robersonville      Farm Life
*****
Date      BW      GSB      BW      GSB
*****
July 8     8       3         2     6,1*
July 13    3       1         3       0
July 15    3       0         0       3
July 18    5       0         2       0
July 20    5       1         3       1
July 22    9       1        12       0
July 25   12       1         7       1
July 27   17       0         8       4
July 29   17       0        24     0,6*
*****
    
```

BW = Bollworm moths; GSB = Green stink bugs
 * brown stink bugs

From: Craig Ellison, Agricultural Extension Agent, Northampton County

Light Trap Data from Northampton County

```

*****
                          Number of Adult Insects
*****
Woodland   Conway   Galatia   Seaboard   Gaston   W. Gaston   Jackson
*****
Date       CEW GR BR   CEW GR BR   CEW GR BR   CEW GR BR   CEW GR BR   CEW GR BR
*****
July 11    - - -    21 0 0    - - -    - - -    - - -    - - -    6 15 0
July 13    - - -    13 2 0    - - -    0 0 0    - - -    - - -    21 11 0
July 15    - - -    0 0 0    - - -    0 0 0    - - -    - - -    7 0 0
July 18    - - -    1 0 0    2 0 0    2 0 0    2 0 0    - - -    0 0 0
July 20    0 1 1    2 12 0    2 0 0    4 0 0    8 0 0    - - -    19 6 0
July 22    0 1 0    0 0 2    7 0 0    1 3 0    13 0 0    - - -    17 5 0
July 25    0 1 0    0 16 0    7 7 0    8 25 0    6 0 0    - - -    35 29 0
July 27    3 0 0    7 26 0    23 11 0    1 7 0    - - -    - - -    17 17 1
*****
    
```

CEW = corn earworms; GR = green stink bugs; BR = brown stink bugs

Locations: Woodland, Conway, Galatia, Seaboard, Gaston, West Gaston and Jackson
 Monitored by: L. Culpepper, K. Edwards, Ben Harris, T. Flythe, D. Grant,
 Tim Phelps and B. Bryant

From: Melissa E. Huffman, Agricultural Extension Agent, Onslow County

Light Trap Data from Onslow County

```

*****
                          Number of Adult Insects
*****
Date       Bollworms   GSB   BSB   Hornworms
*****
July 22    30           1    -    -
July 25    30           1    -    -
July 27    80           2    -    -
July 29    115          7    -    -
*****
    
```

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: Keith Kettner, Agricultural Extension Agent, Sampson County

Light Trap Data from Sampson County

```

*****
                        Number of Adult Insects
                        *****
Date                   GSB           BSB           BW
*****
July 26                8             -            85
*****
    
```

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

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

From: Dominic Reisig, Extension Entomologist

Light Trap Data from Tidewater Research Station (Washington County)

```

*****
                        Number of Adult Insects
                        *****
Date                   CEW    TBW    ECB    AW    SBL    BSB    GSB    BaSB    DSB
*****
June 22                9     0     0     0     0     0     1     0     0
June 24                5     0     0     0     0     2     2     0     0
June 27                4     0     0     0     0    17     0     0     0
June 29                3     0     0     0     0    13     0     0     0
July 1                 3     0     0     0     0     6     0     0     0
July 4                 3     0     0     0     0     2     0     0     0
July 6                 0     0     0     0     0     2     1     0     0
July 8                 2     0     0     0     0     1     3     5     0
July 11                1     0     0     0     0     0     0     0     0
July 13                1     0     0     0     0     5     2     0     1
July 15                0     0     0     0     0     2     1     0     0
July 18                0     0     0     0     0     0     0     0     0
July 20                0     0     0     0     0     0     0     0     0
July 22                0     0     0     0     0     0     0     0     0
July 25                6     0     0     0     0     0     0     1     0
July 27               14     0     0     0     0     1     1     2     0
July 29               11     0     0     0     0     2     4     0     0
*****
    
```

Abbreviations: CEW = corn earworms; TBW = tobacco budworms;
 ECB = European corn borers; AW = armyworms; SBL = soybean
 loopers; BSB = brown stink bugs; GSB = green stink bugs;
 Banasa stink bugs; dusky stink bugs

**Pheromone Trap Data from Tidewater Research Station, Tyrrell County
and Upper Coastal Plains Research Station**

```

*****
                Tidewater      Tyrrell Co.      UCPRS
                *****
Date           CEW   TBW      CEW   TBW      CEW   TBW
*****
June 9         -    -        11    2        6    7
June 15        0    4         1    5         0    0
June 22        -    9         7    6         7    2
June 30        -    -         9   16        11   15
July 8         -    5        16    4         3   16
July 12        2    4         -    -         -    -
*****
    
```

Abbreviations: CEW = corn earworms; TBW = tobacco budworms

From: Kevin Johnson, County Extension Director, Wayne County

Light Trap Data from Wayne County

```

*****
                Number of Adult Insects
                *****
                Goldsboro
                *****
Date           GSB   BSB   CEW   HW
*****
July 6         0    2    0    0
July 8         2    1    -    -
July 11        -    3    3    3
July 13        1    8    4    1
July 15        -    1    1    -
July 18        -    -    2    -
July 20        2    -    4    -
July 22        1    3   29    -
July 25        9    3   50    -
July 27        3    3   85    2
July 29       10    3   45    1
*****
    
```

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

Cooperator: Willie Howell (Goldsboro)

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

Light Trap Data from Wilson County

```

*****
                Number of Adult Insects
                *****
                Kenly           Fountain
                *****           *****
Date           CEW  GSB           CEW  GSB
*****
July 13         -   -             1   9
July 15         2   0             1   2
July 18         3   0             2   1
July 20         0   3             2   2
July 22         3   1             0   7
July 25         2   2             7   5
July 27         7   1             9   5
July 29        19   2             8   9
*****

```

CEW = corn earworms; GSB = green stink bugs

Locations: Kenly and Fountain
Monitored by: Norman Harrell 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.