



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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FIELD AND FORAGE CROPS

From: Jack Bacheler, Extension Entomologist

Stink Bug Alert!

As we have mentioned in previous articles, this could be a big year for stink bugs in cotton and perhaps soybean. It certainly seems to be playing out that way. In some areas we appear to have a perfect storm of high background levels of stink bugs that developed on wheat and other hosts, a high proportion of brown as opposed to green stink bugs, and very attractive and susceptible cotton plants. In most areas of the state, cotton fields are in the third to fifth week of bloom, or “stink bug crunch time” when moderate damage cannot be tolerated and the protective 10% damaged boll threshold is recommended. I think that the potential for stink to cotton bolls is far higher in North Carolina in 2012 than during the past few years, maybe even going back to 2004, our “Year of the Stink Bug”. Many consultants across a wide area are reporting 10 to 20% stink bug damage to quarter-sized bolls. If the 10% threshold is met on consecutive weeks, that finding calls for treating after each of these assessments. If a scout is correctly assessing quarter-sized bolls, a new subset of bolls will be inspected each week and the counting of previous older damage is avoided. Remember to count even slight warting and/or subtle lint staining as a damaged boll. Subtle damage simply means that the damage has occurred recently; this translates into a treatment for a resident stink bugs bug population, not a treatment for old damage.

Although our licensed independent crop consultants have a good handle on managing stink bugs, this year would be a good one for getting additional folks more active in examining approximately 1-inch diameter or quarter-sized bolls for internal damage. Please take the potential significant boll damage from stink bugs seriously.

We are getting many questions about insecticide control options for stink bugs, particularly brown stink bugs. Bidrin and Bidrin-containing combinations are very effective against brown stink bugs, rating a 5 on a 5 point rating system based on the *Cotton Insecticide Efficacy Tables* developed by entomologists across the cotton belt (<http://ipm.ncsu.edu/cotton/insectcorner/PDF/Survey%20Charts%202012.pdf>). However, we should all be reminded that the active ingredient dicrotophos is very toxic to humans and a 6-day reentry interval and appropriate safety safeguards must be observed. Also this material provides no caterpillar activity. Of the pyrethroids, bifenthrin (materials like Declare, Brigade and Discipline) rates a 4.3 out of a possible 5 for brown stink bug effectiveness while the other pyrethroids in general rate approximately 3.3. Adding acephate to a pyrethroid helps with brown stink bug control and lower rates of Bidin plus a pyrethroid is another effective option for stink bugs and provides bollworm control. If green stink bugs predominate, a number of insecticides, including pyrethroids, pyrethroid/chloronic combinations like Endigo and Brigadier, are also effective. Do not use chloronics like Admire Pro, Centric, or Belay alone for stink bugs – members of this chemical class only have ratings in the 1.5 to 3 range out of 5.

Bollworm Moth Fight

I would have been willing to place a substantial bet the our major bollworm moth flight from field corn would be extremely early this year based on our exceptionally high temperatures of this past spring and early summer. So far, the timing of our major flight appears to only a little ahead of schedule and is

approximately half way up the state as of this past Wednesday, July 23. Our biggest 2/3-night light trap catch so far is has been 436 bollworm moths caught near Johns in Scotland County on July 23, though high, this number is not exceptional for this time of year at that location. This flight can be expected to extend into our remaining counties during the coming week and could still be on the large side. We should know more about the intensity of this flight by this time next week.

We have had one report this afternoon about relatively high levels of bollworm eggs being deposited on dried cotton blooms in Hyde County. Over at least the past 15 years or so, a greater proportion of bollworm eggs seem to be placed down on the canopy, especially on dried blooms. As most folks know by now, bollworm larvae are more likely to become established on the flower tissue of WideStrike and Bollgard II varieties than on other plant parts, so don't overlook assessing dried bloom for both bollworm egg lay and for bollworms becoming established under "bloom tags".



Bollworm egg on dried bloom. Image by Dan Mott.



Bollworm in dried flower. Image by Jack Bacheler.

Kudzu Bug Update

Adult kudzu bugs continue to flood into our soybean fields in southern North Carolina. Thankfully, only low levels of nymphs are being produced as of the beginning of this past week. The high number of egg masses in some of these soybean fields suggests that nymphal levels could increase sharply during the coming week. In this past week's soybean scouting schools, we could find low levels of kudzu bugs in both Northampton and Halifax counties, though this was mostly on kudzu with low levels of adult in some soybean fields. It would be fair to say that kudzu bug flights into soybean are ongoing and probably have not peaked yet. It will be very interesting to see if our more northern counties reach threshold levels this year. We may be benefitting from the fact that North Carolina soybean producers grow approximately 10-fold more soybean acreage than grower in Georgia, so we may be benefitting from some dilution up our way. Remember to base insecticide sprays on 15 nymphs per 15 sweeps taken away from field edges. Early instar fuzzy green nymphs are very small – along the lines of adult aphids. Treating for adult kudzu bugs without nymphs only invites additional kudzu bug applications and greater odds of subsequent podworm and other caterpillar establishment.

So far kudzu bug adults have been far more attracted to April and May planted soybean than to June to early July planted beans, especially behind wheat.



Kudzu bug nymphs hatched from egg mass. Image by Joe Eger.



Many kudzu bug nymphs on kudzu. Image by Alejandro Del Valdivia.

Cotton Field Day Held on September 12

This year's Cotton Field Day will be held at the Upper Coastal Plain Research Station near Rocky Mount on September 12, beginning at 12:30 p.m. with registration and exhibits, including field tours and concluding with a BBQ supper. Some topics covered during the field tours will be:

- Tillage effects on water storage in the soil
- Defoliation strategies
- Thrips and nematode control without Temik
- Minimizing inputs for stink bug control
- Varietal tolerance to nematodes
- Varietal selection
- Alternatives to multiple PPO apps.
- Ignite systems in GlyTol/LibertyLink cotton
- Evaluations of Zidua, Warrant, Dual and Outlook
- Roundup vs. Liberty systems in RRF, LL and WRF cotton
- Cotton tolerance to Warrant applied pre and post
- Nozzle technology demonstration
- Cotton crop rotation considerations

From: Dominic Reisig, Extension Entomologist

\$16 Soybeans - Do We Need to Adjust Thresholds?

The short answer is **NO!** Read on for a more detailed explanation.

Economic thresholds are based on the concept of economic injury. Economic injury is the point at which the cost of a management action is equal to the injury that the insect is causing to the crop. It is essentially a breakeven point. Economic thresholds are set below the breakeven point and are conservative so that growers will not experience any loss. A good example of an economic threshold is the dynamic threshold for stink bugs in cotton (see <http://www.nccrops.com/2012/07/20/scout-now-for-stink-bugs-in-cotton>). Although growers can make a higher yield by spraying weekly for stink bugs, in the vast majority of cases, it is much more profitable to use the dynamic threshold, spraying only when needed.

In contrast, most thresholds used in soybeans are different. Below is an explanation for why thresholds in soybeans should remain static once soybeans are above \$10 per bushel.

Kudzu bug: the kudzu bug threshold of one nymph per sweep (15 nymphs in a 15 sweep sample) is not a true economic threshold. Research has shown that treating at these levels should avoid **ANY** yield loss. Therefore, the threshold is unaffected by the price of beans.

Defoliating pests: these include pests like green cloverworm, armyworms, and bean leaf beetle, to name a few. Much like the kudzu bug threshold, the defoliation thresholds (for the thresholds, visit <http://www.nccrops.com/2012/07/06/guide-to-assessing-percent-defoliation-in-soybeans/>) are set at a point at which growers will not incur any yield loss. Therefore, the threshold is unaffected by the price of beans.

Corn earworm: the threshold for corn earworm is a true economic threshold, which changes with row-spacing, price of the crop, and cost of control. You can play with an online calculator by visiting <http://www.ces.ncsu.edu/plymouth/ent/cewthresholdcalc.html>. However, this calculator has one critical flaw. Research has shown that once soybean prices exceed \$10 per bushel, that soybeans will compensate for any additional loss and that the threshold should remain static. How can this be? The reason is that the calculator is based on an equation that drops the number of insects required before a treatment lower and lower as soybean prices go higher and higher. At some point, the calculator will require that the number of insects be so low that you would have to constantly treat the soybeans to keep the number of earworms below the threshold. The flaw in this logic is that the calculator does not include plant's ability to compensate for the feeding done by very few caterpillars. Therefore, our thresholds should remain constant for corn earworm as prices increase anywhere above \$10 per bushel.

Stink bugs: stink bug thresholds will likely be raised in the future, based on recent research in southeastern Virginia. Therefore, our thresholds for stink bugs are likely too low, even in the face of \$16 soybeans.

Insecticide Recommendations for Corn Earworm in Soybeans

Corn earworm picking up in soybeans and there are a lot of questions. How big will this flight be? Will tobacco budworm show up in concert with earworm? Are the earworm moths resistant to pyrethroids? At this point, the first two questions are impossible to answer. We do have some inklings about an answer to the third question, however, based on adult vial assay tests from both Suffolk, Virginia and Plymouth, North Carolina.

Dr. Ames Herbert's data from Suffolk, Virginia indicates that resistance could be high in some locations. Based on vial assay data, he is confirming survivorship in the 50% range (visit <http://www.sripmc.org/Virginia/View.cfm?lngNewsID=941>). We would start considering a population tolerant/resistant at anything over 30% point to 50% survivorship is about as high as we have ever seen it. My student, Rachel Suits, has a much smaller data set (26 moths) from Plymouth, North Carolina that only indicates 18% survivorship. This tells me that there are geographical pockets where resistance is not as prevalent. Beet armyworm numbers are increasing in areas of North Carolina and Virginia. These caterpillars are tolerant to pyrethroids. Soybean loopers have not migrated here in great number, but can be flared by the use of pyrethroids.

I encourage you to be risk averse and to make an investment that will pay dividends for your valuable crop. Consider applying Belt, Steward, or Blackhawk (the new name for Tracer) for corn earworm. If you have stink bugs and are in the R4-R6 stages, you might want to tank mix one of these products with a pyrethroid. A tank mix of a pyrethroid and acephate are an option, but will wipe out all beneficials. If you do apply a pyrethroid for corn earworm, do not follow this spray with another pyrethroid for worms.



Ideally, treatment should be directed to mid-size larvae since control of small larvae is sometimes difficult (they are within flower clusters, terminals, etc.) and large larvae may have already caused economic loss. Image from D. Reisig.

Scouting and Treating for Headworms in Sorghum

With our major corn earworm flight underway, there are numerous reports of small corn earworm (sorghum headworm) larvae in sorghum heads. Because we generally don't worry about worms as an economic problem in vegetative-stage sorghum, I recommend sampling once you have a head. To sample sorghum, you should visit the field in several places, with six being a good rule of thumb. At each location, randomly sample about ten plants by shaking the heads into a bucket. Generally when corn earworm is disturbed, it will curl up and lie still, so look for movement in the bottom of the bucket. Once you are done sampling, average your number of finds together. If you average at least one corn earworm per head, it may be worth considering an insecticide treatment.



Sorghum sampling involves specialized research equipment, like the white bucket pictured here. Image from D. Reisig.

Treatment will generally be more effective in sorghum varieties that have a looser head, since the insecticide will penetrate more easily. I recommend a pyrethroid for corn earworm and Lannate for fall armyworm. Fall armyworm should be sampled in the same way as corn earworm. Treatment should be based on the same threshold.



Large corn earworm (sorghum headworm) larvae in a sorghum head. Image from Tim Britton.

ORNAMENTALS AND TURF

From: Steve Frank, Extension Entomologist

Oleander Aphids

Anyone who has grown or looked at milkweed has seen oleander aphids. They are orange and usually very abundant. Sometimes oleander aphids become so abundant they reduce plant growth and flowering but most of the time they are not very harmful. Since they are inevitable you might as well enjoy them. The most enjoyable and interesting thing about these aphids is that you can witness all kinds of ecological interactions. Inspecting a colony of these aphids you will see parasitoids and their mummies; predacious maggots of hoverflies that specialize on aphids; predacious maggots of *Aphidoletes* midges that bite aphid knees, inject paralytic toxins, and eat the aphids. Many other generalist predators such as green lacewing larvae, lady beetles, and minute pirate bugs also hang around. These are great plants to have in public gardens because you can always teach people about these predators and parasitoids.



Oleander aphids on milkweed. Notice pupae of predacious flies.
Photo: S. D. Frank.



Oleander aphids on milkweed. Note parasitoid mummies and the white critter that looks like a mealy bug is actually a specialist lady beetle larva that may be in the Genus *Scymnus*. Photo: S. D. Frank.

Emerald Ash Borer Update

Around this time in 2010 I reported that emerald ash borer had been found in Tennessee not far from our border. I figured I would pass along the recent status of this pest in our neighboring states. Please visit the below link to map showing the emerald ash borer which is now in five Virginia counties bordering North Carolina and has spread to many counties in Tennessee:

http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/multistatecab.pdf.

It is essential that people are watching for this pest and report unusual boring damage in ash trees. The most complete and current information this pest can be found on the official website:

<http://www.emeraldashborer.info/index.cfm>.

RESIDENCES, STRUCTURES AND COMMUNITIES

From: Mike Waldvogel, Extension Entomology

Mosquito Activity will be Increasing

For those of you that handle consumer questions about pests:

Many areas of the state saw significant rainfall last week and that also means they will see a rise in mosquito activity particularly by the Asian tiger mosquito which takes advantage of those small and often inconspicuous sites around your property that fill with storm water and become prime mosquito

breeding sites. So, before people start planning a chemical assault on their yards as the solution to their mosquito problems, they need to start with the simpler and more long-term approach of eliminating "collectibles". I don't mean souvenirs; we're talking about all of those objects that collect and retain rainwater for days and/or weeks. For example:

- Bird baths - simply flush with a garden hose and you flush out the mosquito larvae in the process. Plus, the birds will appreciate the fresh water. For horse owners with water troughs near stalls or out in pastures, one option is to use a product such as "Mosquito Dunks" which contain the bacteria "*Bacillus thuringiensis israelensis*" which kills the mosquito larvae (not the adults). Although you can use them in outdoor water bowls for pets, it is far simpler (and better for your animals) if you "tip and toss" the water from the bowl and replenish it with fresh water **daily**.
- Old cans, tires, etc. - empty them and get rid of them (legally, not simply tossed along the highway to become someone else's problem).
- Outdoor flower pots - empty the water from the dishes/trays underneath them. Your plants have plenty of water without the overflow. This also helps reduce fungus gnat problems in the plant soil.
- Remove all of that built-up debris from your gutters. The water and decaying material attract mosquitoes.
- Rain barrels – if you collect water from your gutters or some other system, make sure the barrel is screened to keep out debris and mosquitoes
- Tarps that cover your boat, grill, firewood, etc. also collect pockets of water that can remain for 1 to 2 weeks.
- The bed of that '57 Ford pickup that you've been "restoring" for the last 25 years can collect water particularly if the tailgate faces uphill in your yard.
- Kids' pools - if they're not being used by kids, they're probably being used by the mosquitoes (and maybe some toads) – empty them. The same thing applies to pools (in ground or above ground) that aren't maintained (e.g., pools on abandoned or foreclosed properties).
- Drainage ditches - they're meant to collect storm water temporarily. Keep them free of debris so that water flows and has time to filter into the soil.
- Decorative fish ponds can be a source of mosquitoes if they contain a lot of vegetation that provides hiding places for the mosquito larvae. "Mosquito Dunks" are an option here.
- Tree holes - when limbs fall off trees, the remaining hole in the trunk can collect water. Flush that out or put a small piece of a mosquito dunk into it.

Many people ask about treating shrubs in their yard. Mosquitoes will rest in these locations, but whether treating them "controls" a mosquito problem is difficult to determine depending on the species of mosquitoes most prominent in your area. Similarly, people using outdoor foggers will definitely kill

mosquitoes, but depending on the time of day/evening that they use it, they may be missing the peak activity of the most common mosquito species found in their area. Two other issues about using outdoor foggers are important. First, safety is critical. Make sure that you are standing upwind from the direction that you are dispersing the fog and wear appropriate protective equipment to prevent the fog from getting into your eyes and lungs or on your skin. Second, know where the fog is going. Some of your neighbors may not actually want chemicals drifting onto their property (particularly if they're outside eating at the time!). The same applies to the automated misting systems that some people have installed on their homes. From time to time, we get reports of companies that offer "mosquito control" whose response to the question of what they are using is simply that it's something "safe" or "natural" but they won't actually tell you what the chemical is. Personally, I would steer clear of a company that isn't willing to tell you what they are spraying (or propose to spray) on **your** property. You have the right to know the identity of the product and if they won't reveal it, the North Carolina Department of Agriculture and Consumer Services is very willing to "encourage" them to be forthright about their control program.

One other point to remember - mosquitoes have no concept of property lines. Mosquito management takes a neighborhood effort to be truly effective. We have information on mosquito control on the web at <http://insects.ncsu.edu/Urban/mosquito.htm>.

INSECT TRAP DATA

From: Andrew Baucom, Agricultural Extension Agent, Union County

Light Trap Data from Anson, Stanly and Union Counties

```

*****
                Number of Adult Insects
                *****
                Union S   Stanly N   Anson W
                *****   *****   *****
Date           CEW   GR   CEW   GR   CEW   GR
*****
July 16         4   21    -    -    -    -
July 18         3   20    -    -   14    3
July 20         6   15    0    3   11    8
July 23        11   28    0    3   38   11
July 25        23   35    1    2   42    6
July 27        25   23    2    2   54    4
*****
    
```

CEW = corn earworm moths; GR = green stink bugs

Union County-South; Stanly County-North; Anson County-West

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

Light Trap Data from Bertie County

```

*****
                Windsor   Hexlena
                *****   *****
Date            BW   GSB   BW   GSB
*****
July 22         10    9    -    -
July 23         3    14   -    -
*****
    
```

BW = bollworms; GSB = green stink bugs

From: Mike Carroll, Agricultural Extension Agent, Craven County

Light Trap Data from Craven County

```

*****
                Number of Adult Insects
                *****
Date            BW   GSB   BSB   FAW   THW
*****
July 9          2    2     0     2     0
July 12         2    2     1     0     0
July 16         0    0     0     0     0
July 20        41    3     2     0     1
July 23        25    3     0     0     2
July 25        34    2     0     0     1
July 26        40    2     0     0     0
*****
    
```

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

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

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 9          -    -   -    3    1   1    -    -   -
July 11         -    -   -    8    1   3    -    -   -
    
```

July 13	-	-	-	9	0	0	-	-	-
July 16	-	-	-	17	0	5	-	-	-
July 18	-	-	-	-	-	-	-	-	-
July 20	-	-	-	10	0	1	-	-	-
July 23	9	0	1	9	0	2	-	-	-
July 25	18	0	2	-	-	-	-	-	-
July 27	10	0	2	16	0	6	-	-	-

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

From: Upper Coastal Plains Research Station, Edgecombe County

**Light Trap Data from Edgecombe County -
 Upper Coastal Plains Research Station**

Date	CEW
July 24	3
July 25	2

Abbreviations: CEW = corn earworms

Locations: South East of Rocky Mount

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 22	0	2	0	0	0	0	0	0
June 23	0	0	0	1	0	0	0	0
June 24	0	3	1	0	1	0	0	0
June 25	0	4	0	0	2	0	0	0
June 26	0	2	0	0	2	0	0	0
June 27	0	1	0	0	0	0	0	1
June 28	0	0	0	0	0	0	0	0
June 29	0	2	0	0	0	0	0	0
June 30	0	1	0	0	1	0	0	0

July

```

*****
                Number of Adult Insects
                *****
Date           HW    CEW    ECB    AW    AWC    GSB    BSB    TBW
*****
July 1         0     2     0     1     1     0     0     0
July 2         0     2     0     1     1     0     0     0
July 3         0     1     0     0     0     0     0     0
July 4         1     0     1     2     1     0     0     0
July 5         ----- Light unplugged -----
July 6         ----- Light unplugged -----
July 7         0     0     0     3     6     1     0     1
July 8         0     0     0     2     4     0     0     0
July 9         0     1     0     5     3     0     1     0
July 10        0     0     0     2     1     0     0     0
July 11        0     2     0     1     1     0     0     0
July 12        0     1     0     4     7     0     0     0
July 13        2     4     0    13     4     0     0     0
July 14        ----- Light unplugged -----
July 15        0     7     0    11     6     1     0     0
July 16        0     6     0     6     2     1     1     1
July 17        0     4     1     2     4     0     2     0
July 18        0     8     0     1     3     2     1     0
July 19        0     5     0     4     3     0     0     1
July 20        0     5     0     0     0     0     0     0
July 21        0    11     0     1     3     1     0     0
July 22        0    36     0     0     0     0     0     1
July 23        0    25     0     1     3     2     0     3
July 24        0    41     0     1     4     4     0     0
July 25        0    29     0     1     7     0     0     0
July 26        1    55     1     1     2     3     0     4
July 27        0    16     0     6     1     1     2     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: 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  CEW GR BR
*****
July 18  - - -    - - -    - - -    - - -    - - -    - - -    9 16 -
July 20  - - -    - - -    - - -    - - -    - - -    - - -    30 14 -
July 23  - - -    - - -    26 24 0    75 0 0    - - -    - - -    14 11 4
    
```

July 25 - - - - - 26 3 0 44 6 0 - - - - - 37 8 3

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
 and B. Bryant

From: Mac Malloy, Agricultural Extension Agent, Robeson County

Light Trap Data from Robeson County

 Number of Adult Insects

Date	THW	TBW	GSB	BSB	FAW	BW
July 25	2	-	1	1	-	-
July 27	-	2	5	1	-	5

THW = tobacco hornworms; TBW = tobacco budworms; GSB = green stick bugs;
 BSB = brown stink bugs; FAW = fall armyworms; BW = bollworms

Location: Lumber Bridge; Collected by: Forbis Farms

From: Scotland County Extension Center

Light Trap Data from Scotland County

 Number of Adult Insects

Date	Gibson				Johns				Laurinburg			
	BW	GSB	BSB	FAW	BW	GSB	BSB	FAW	BW	GSB	BSB	FAW
July 18	27	9	0	0	-	-	-	-	-	-	-	-
July 20	52	10	2	0	-	-	-	-	54	3	0	0
July 23	54	13	1	0	436	7	0	0	89	3	0	0
July 25	16	3	0	0	189	4	1	0	21	2	1	0
July 27	34	15	0	0	173	4	1	0	37	2	1	0

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

From: John Sanderson, Agricultural Extension Agent, Wayne County

Light Trap Data from Wayne County

```

*****
                Number of Adult Insects
                *****
                    Goldsboro
                *****
Date           GSB    BSB    CEW    HW
*****
July 4         0     4     0     0
July 6         1     3     0     1
July 9         3     6     0     4
July 11        1     0     3     5
July 13        0     0     2     8
July 16        8     1    27     1
July 18        1     1    15     1
July 20        4     2     7     1
July 25        3     2    26     0
July 27        9     6    37     0
*****
    
```

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

Cooperator: Gerald and Willie Howell Farm (Goldsboro)

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

Light Trap Data from Wilson County

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*****
                Number of Adult Insects
                *****
                    Kenly           Fountain           Pender's
                    *****           *****           *****
Date           CEW  GSB    CEW  GSB    CEW  GSB
*****
July 16         5   0     -   -     -   -
July 18         3   2     -   -     -   -
July 20         2   3     5   1     -   -
July 23         7   4    18  11     -   -
July 25         5   9     8*  3     0   0
July 27         6  11    14  11    11  0
*****
    
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CEW = corn earworms; GSB = green stink bugs

*= problems with blacklight bulb

Locations: Kenly, Fountain and Pender's Cross Roads
 Monitored by: Norman Harrell, Barbara Smith and Adam Gardner

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.
