



North Carolina Pest News

Departments of Entomology and Plant Pathology

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CAUTION !

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

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

ANNOUNCEMENTS AND GENERAL INFORMATION

Muscadine Field Day

2013 Muscadine Field Day is on August 20, 2013, at the Castle Hayne Horticultural Research Station and starts at 9:00 a.m. Registration information is at [MuscadineFieldDay20aug13DRAFT.pdf](#).

FIELD AND FORAGE CROPS

From: Jack Bacheler, Extension Entomologist

Cotton Insect Update

Twelve hours of scouting *Bt* cotton earlier this week at Rocky Mount gave us an in-depth look at the insect situation at one location in our Coastal Plain near Rocky Mount. Plant bug damage activity during the past week remained high, with approximately 1/3 of our terminals showing either missing positions and/or blackened squares. However, we are getting beyond the time when terminal squares will have time to develop into harvestable bolls, given average conditions between now and harvest. Oddly, plant bugs were causing only limited to medium and large squares and levels of immature and adult plant bugs were also low in blooms. Bollworm damage to fruit in these Twinlink and WideStrike tests was almost non-existent and bollworm moths were hard to find. Tobacco budworm moths were much more plentiful, probably outnumbering corn earworms by about 10:1. Of course, away from this research station, based on this past week's phone calls, insect levels are all over the map, but generally low for bollworms and on the high side for stink bugs.

Budworm Levels High This Year?

Although not a pest of *Bt* cotton, budworms can sometimes be a problem of peanut and soybean. In three caterpillar samples taken from untreated peanut fields during the past week, budworms made up between 90 and 100% of the caterpillar population. Also, in conventional cotton in one of our insecticide efficacy trials, tobacco budworms accounted for more than 95% of the caterpillars found (40 budworms, 1 corn earworm and 1 fall armyworm). This might help explain why we have experienced a few pyrethroid failures on peanut recently – that is, in most years, corn earworms typically outnumber budworms by a large margin on peanut. Pyrethroids provide poor control of budworms. Dominic Reisig, Extension Entomologist, has reported some initial control problems with pyrethroids on soybean this past week out east, but in this case, most of the caterpillars were earworms (podworms), suggesting pyrethroid tolerance in some populations. Because the peanut and soybean findings are recent, additional sample identification of caterpillars in these crops will help us develop a more complete picture of possible control difficulties due to resistance or budworm abundance during the coming week. We'll be able to report the results from plenty of samples next week.

Stink Bugs Still a Threat to Cotton

Stink bugs remain a potential threat in many areas of North Carolina, both because of our generally late crop and high proportion of susceptible bolls and due to high stink bug populations, although exceptions

of “cut-out” cotton where stink bugs are no longer a threat are also common. Because stink bug levels vary so much from field to field and across the agricultural landscape, opening and inspecting the inner surface of soft 1-inch diameter or quarter-sized bolls is needed to determine if a spray is needed. Remember to use a protective 10% internal boll damage threshold during weeks 3 through 5 of the bloom period, probably extending this 10% threshold into week 6 this year.

From: Dominic Reisig, Extension Entomologist

Controlling Caterpillars in Sorghum Whorls

Two insects I’ve been hearing about in sorghum whorls are corn earworm and fall armyworm. These insects vary widely in their coloration, so it’s best to see if they are hairy (earworm) or smooth (armyworms). Fall armyworm can be distinguished from other armyworms by the presence of an inverted “Y” on the head between the eyes – note that earworm also has this “Y”.



Fall armyworm - note the smooth body. Photo from D. Mott.

Whorl feeding in sorghum is not as serious as in corn, which is an extremely plant population-sensitive crop. Some sorghum varieties, under certain conditions, can have tillers that contribute significantly to yield. So the plant may be able to push out a tiller to overcome injury from the whorl feeding. A good rule of thumb in sorghum is to assess, on average, what percentage of plants have the insect. Georgia’s threshold in 40% whorl infestation and I think that this is an excellent one to use.

If you have to treat, don’t expect great control. The insects will feed on the leaves first, but then bury into the whorl of the plant. Corn earworm can be controlled with pyrethroids. They will likely be controlled better with one of the worm-specific products. Fall armyworm must be controlled with one of the worm-specific products. These are Belt and Prevathon. Lannate is another option that is effective on both insects, but is broad-spectrum. Focus on higher volume applications to wet the plant. A surfactant will probably help spread the product across the leaf. Remember that you want to do everything you can to direct the product into the whorl where the insect resides.

Resistant Earworms and Budworms Present in Soybeans

I have received many calls concerning corn earworm in soybeans. These reports were unusual for at least one reason. Earworms seem widespread geographically, but are spotty from field to field. Generally moths prefer to lay eggs in flowering soybeans, but several consultants have found earworms defoliating fields with young beans at V2-V3 (in addition to the usual). Our threshold for defoliation prior to reproductive stages is 30% throughout the canopy. However, our crop is very late this year and we need all the foliage that we can get to set a decent yield. It might be a good idea to temporarily lower the threshold to 15% to avoid losing too much on these young plants. If the worms are already large, they will likely cycle out soon, so you might want to hold out on these situations.

I have also received many calls on spray failures in both soybeans and peanuts. I identified worms from Pamlico County, comparing sprayed to unsprayed fields in this case. The 14 worms I identified from the unsprayed field were all corn earworm. However, in the sprayed field, 25% of the worms were tobacco budworm. Craig Ellison, Northampton County agent, has documented similar proportions in his area. Budworm is tolerant to pyrethroids so the spray likely selected for these. The disturbing fact was that 75% of the remaining worms were corn earworm. Since the spray was a full rate of a pyrethroid, it is likely that these insects are resistant to this chemical. Jack Bacheler, Extension Entomologist, has a somewhat different perspective, identifying worms from peanuts that ranged from 90% to 100% tobacco budworm in the Rocky Mount area.

Based on these findings, we are concerned about pyrethroid spray failures. Last year, I tested moths for pyrethroid tolerance, measuring over 50% survivorship in one area and 0% survivorship from a trap 5 miles away. This, combined with our experience with spray failures, tells us that we simply cannot predict the areas in which pyrethroids will fail. You could spray one field and have great control, drive down the road and have a complete failure, due to presence of tobacco budworm, resistant corn earworm, or both.

Because moth flights have been so low this year, I have only been able to test moths once (this Monday) for pyrethroid tolerance – despite sampling 3x a week since June. From a five trap loop in Washington County, I found, on average, 13% moths that survived a night in a pyrethroid-treated vial. In contrast, Ames Herbert, in Suffolk, Virginia, is finding survivorship around the 30% range.

In summary, we know that we have resistant worms in our system. **The safe bet is to spray a chemical other than a pyrethroid.** The diamides, like Belt and Prevathon are some examples. Syngenta has a new registration for Besiege, which is a pre-mixed product containing the active ingredient of Prevathon plus a pyrethroid (lambda-cyhalothrin, aka Karate). Blackhawk (Tracer) offers a unique chemistry class, the spinosyns, and is highly effective against corn earworm. Finally, in every trial that I've had it and at every rate (as low as 6.7 oz per acre), Steward, which is also a unique type of chemistry, has been the most effective or among the most effective chemical for corn earworm, even at lower rates.

Each product has advantages or disadvantages. For example, the residual of the diamides is very good, but may not be a concern since only one generation of corn earworm a year generally develops in soybeans. However, in some years (like 2010) we can have multiple infestations, as well as late-season pests, like soybean loopers and fall armyworms. These products are excellent choices in these situations. Above all, **rotate chemistry and only spray at threshold.**

July 23	-	-	-	-	-	-	0
July 24	0	0	0	1	-	-	0
July 25	0	1	0	0	-	-	-
July 26	0	0	NR	NR	-	-	0
July 27	0	0	NR	NR	-	-	0
July 28	0	0	NR	NR	-	-	0
July 29	0	0	NR	NR	-	-	-
July 30	3	0	NR	NR	-	-	-
July 31	4	0	4	0	-	-	-
August 1	NR	NR	NR	NR	-	-	-
August 2	3	0	NR	NR	-	-	-
August 3	4	0	NR	NR	-	-	-
August 4	4	1	NR	NR	-	-	-
August 5	6	0	5	0	-	-	-
August 6	NR	NR	NR	NR	-	-	-
August 7	4	1	5	0	-	-	-
August 8	5	3	NR	NR	-	-	-
August 9	2	1	2	0	0	4	-
August 10	NR	NR	NR	NR	NR	NR	-
August 11	NR	NR	NR	NR	NR	NR	-
August 12	NR	NR	3	4	9	7	-
August 13	5	6	9	NR	6	28	-
August 14	3	6	NR	NR	5	7	-
August 15	0	0	-	-	-	-	-

BW = bollworms; GSB = green stink bugs;
NR = No Report

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 8	-----	Date Initiated	-----		
July 11	3	1	0	0	1
July 12	2	0	0	0	0
July 15	8	1	0	0	1
July 16	7	0	0	0	1
July 17	8	0	0	0	1
July 19	8	0	0	1	0
July 22	12	0	0	0	1
July 26	20	1	0	0	0
July 30	25	2	0	0	6
August 1	16	0	0	0	2
August 2	22	2	0	1	4
August 5	26	3	0	2	3
August 6	8	1	0	0	1
August 9	25	1	0	0	1
August 12	30	1	0	0	1

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 5          -   -   -        2   3   7        -   -   -
July 8          -   -   -        1   2  20        -   -   -
July 10         -   -   -        0   0   6        -   -   -
July 12         0   1   1        2   0   6        -   -   -
July 15         0   0   0        3   0   0        -   -   -
July 17         0   0   0        4   1   8        -   -   -
July 19         1   0   0        0   0   9        -   -   -
July 22         0   1   0        0   2  10        -   -   -
July 24         0   0   0        0   0   6        -   -   -
July 26         0   0   0        6   0   0        1   0   1
July 29         2   1   0        7   1   1        0   0  15
July 31         14  0   0        5   0   0        1   0   6
August 2        18  0   0       10  0   0        0   0   6
August 5        28  1   0       10  0   0        0   0   6
August 7        16  0   0       26  0   0        0   0   2
August 9        ND  -   -       24  0   1        0   0   2
August 12       ND  -   -       26  0   2        0   0   3
August 14       8   0   2       16  0   1        0   0  13
August 16       1   0   0       19  0   0        0   0   1
*****
    
```

Abbreviations: CEW = corn earworms; BS = brown stink bugs;
 GS = green stinks bugs; ND = No Data

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 1          ----- Put up light trap -----
    
```

June 2	0	0	0	0	0	7	0	0
June 3	0	1	1	0	0	10	0	0
June 4	0	0	0	0	0	5	0	0
June 5	0	0	1	0	0	2	0	0
June 6	0	0	0	0	0	0	0	0
June 7	0	0	0	0	0	3	1	0
June 8	0	0	0	0	0	3	0	0
June 9	0	0	1	0	0	12	1	0
June 10	0	0	0	0	0	4	0	0
June 11	0	0	0	0	0	0	0	0
June 12	0	0	0	0	0	2	0	0
June 13	0	0	0	1	0	4	1	0
June 14	0	0	0	0	0	0	0	0
June 15	0	0	0	0	0	0	0	0
June 16	0	0	1	0	0	0	1	0
June 17	0	0	0	0	0	1	0	0
June 18	0	0	0	0	0	0	1	0
June 19	0	0	0	0	0	0	0	0
June 20	0	0	0	0	0	0	0	0
June 21	0	0	2	0	1	0	0	0
June 22	0	0	0	0	0	1	0	0
June 23	0	0	0	0	0	0	0	0
June 24	0	0	0	0	0	0	0	0
June 25	0	0	0	0	0	1	0	0
June 26	0	0	0	0	0	0	0	0
June 27	0	0	0	0	1	0	0	0
June 28	0	0	0	1	0	0	0	0
June 29	0	0	0	0	0	0	0	0
June 30	0	0	0	0	0	2	0	0

July

Number of Adult Insects

Date	HW	CEW	ECB	AW	AWC	GSB	BSB	TBW
July 1	1	0	0	0	0	3	0	0
July 2	0	0	0	0	0	0	0	0
July 3	0	0	0	0	0	3	2	0
July 4	0	0	0	0	0	6	0	0
July 5	0	0	1	0	1	4	2	0
July 6	0	0	0	0	0	5	0	0
July 7	0	0	0	0	0	1	0	0
July 8	0	0	0	0	0	0	0	0
July 9	0	0	0	0	0	0	1	0
July 10	0	0	0	0	0	1	0	0
July 11	0	0	0	0	1	1	1	0
July 12	0	0	0	0	0	0	0	0
July 13	0	0	0	0	0	0	0	0
July 14	1	0	0	0	0	0	0	0
July 15	0	0	0	0	0	0	0	0
July 16	0	0	0	0	0	1	0	0
July 17	0	0	0	0	0	2	1	0
July 18	0	0	0	0	0	0	0	0
July 19	0	0	0	0	0	0	0	0



July 19	0	0	0	0	0	0	0	0
July 20	0	0	0	0	0	0	0	0
July 21	0	0	0	0	0	0	0	0
July 22	0	0	0	0	0	0	0	0
July 23	0	0	0	0	0	0	0	0
July 24	0	1	0	0	1	1	0	0
July 25	1	2	1	0	2	2	0	0
July 26	0	0	0	0	1	2	0	1
July 27	1	3	0	0	1	1	0	1
July 28	1	4	0	0	2	0	0	0
July 29	0	10	0	0	2	0	0	1
July 30	0	14	0	0	4	0	0	0
July 31	0	27	0	0	4	1	0	1

August

Number of Adult Insects

Date	HW	CEW	ECB	AW	AWC	GSB	BSB	TBW
August 1	0	38	0	0	4	1	1	0
August 2	1	10	1	0	1	1	0	1
August 3	0	23	0	0	2	0	0	0
August 4	0	0	0	0	0	0	0	0
August 5	0	22	0	1	7	0	0	0
August 6	0	27	0	3	5	0	0	1
August 7	0	38	1	5	4	0	0	2
August 8	0	34	0	0	1	1	1	2
August 9	0	14	0	3	0	1	0	0
August 10	0	10	0	0	2	0	0	0
August 11	0	17	0	0	1	0	0	0
August 12	1	10	0	0	2	4	0	0
August 13	0	4	1	0	2	1	0	0
August 14	0	6	1	0	3	1	0	0
August 15	0	0	0	2	3	0	0	0
August 16	0	2	1	0	1	0	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: Craig Ellison, Agricultural Extension Agent, Northampton County

Light Trap Data from Northampton County

```

*****
                          Number of Adult Insects
*****
Woodland      Conway      Galatia      Seaboard      Gaston      Jackson
*****
Date          CEW GR BR   CEW GR BR   CEW GR BR   CEW GR BR   CEW GR BR   CEW GR BR
*****
July 31      - - -     - - -     - - -     - - -     - - -     15 13 0
August 2     2 1 1     - - -     - - -     14 10 0    20 1 0    12 31 0
August 5     0 0 0     - - -     21 6 2     18 2 0     27 2 3    25 27 1
August 7     0 0 0     - - -     8 0 0     12 0 0     16 0 0     40 9 0
August 9     1 1 1     - - -     17 5 1     16 2 0     16 0 0     43 37 0
August 12    1 0 0     - - -     3 2 1     12 2 0     6 1 0     45 43 2
August 14    1 0 0     - - -     9 13 0     24 0 0     - - -     27 93 0
August 16    0 0 0     - - -     0 0 0     2 0 0     - - -     2 2 0
*****
    
```

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

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

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

Light Trap Data from Onslow County

```

*****
                          Number of Adult Insects
*****
                          Green      Fall      Tobacco
Date          Bollworms  Stink Bugs  Armyworm  Hornworm
*****
July 1         0           0           0           0
July 3         0           0           0           0
July 5         0           0           0           0
July 8         0           0           0           0
July 10        0           2           0           0
July 12        0           1           0           0
July 15        0           0           0           0
July 17        6           2           0           0
July 19        6           3           0           1
July 22        11          8           1           0
July 24        8           15          1           0
July 26        8           6           0           0
July 29        25          5           0           1
July 31        21          8           0           2
August 2      -----  Data not collected -----
August 5       20          74          0           2
August 7       12          2           2           1
    
```

August 9	16	8	0	0
August 12	28	29	0	1
August 14	6	28	0	0
August 16	12	1	0	1

Trap Location: Richlands; Cooperator: Richlands Farm, Inc.
 Insect counts are from a single black light trap located approximately 1 mile east of Richlands.

From: Scotland County Extension Center

Light Trap Data from Scotland County

```

*****
                        Number of Adult Insects
*****
                Gibson                John's                Laurinburg
*****                *****                *****
Date      BW  GSB  BSB  FAW      BW  GSB  BSB  FAW      BW  GSB  BSB  FAW
*****
July 17    0   0   0   -      11  14  34  -      0   0   0   -
July 19    4   6   5   -      12   7  20  -      0  11  44  -
July 22   16  21   0   -      12   5  14  -      1  11  13  -
July 24   44   7   0   -      25   6  17  -      1   2   6  -
July 26   22   2   0   -      44   1   1  -      5   0   2  -
July 29  118  13   0   -      54   3  12  -      15   7   2  -
July 31  114   3   0   -      94   8   9  -      0   0   0  -
August 2    0   0   0   -      66   5   4  -      12   2   6  -
August 5 268  39   1   -      53  23  53  -      20   2  16  -
*****
    
```

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

From: Dominic Reisig, Extension Entomologist

Light Trap Data from Tidewater Research Station

```

*****
                        Number of Adult Insects
*****
Date      CEW   TBW   AW   SBL   BSB   GSB
*****
July 5         0     0     0     0     0     0
July 8         0     0     0     0     0     0
July 10        0     0     0     0     1     1
July 12        0     0     0     0     1     3
July 15        0     1     0     0     6     2
July 17        0     0     0     0     2     8
July 19        0     1     0     0     6     3
*****
    
```

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

From: Tyler Whaley, Agricultural Extension Agent, Wayne County

Light Trap Data from Wayne County

```

*****
                Number of Adult Insects
                *****
                    Goldsboro
                *****
Date           GSB    BSB    CEW    HW
*****
July 14        -      2      -      0
July 15        5      6      0      0
July 17        9     19      0      0
July 19        0      6      0      0
July 22        2      5      0      0
July 24        1      5      0      0
July 26        1      1      1      1
July 29        1      0      7      1
July 31        9      1     15      0
August 2       2      0     27      0
August 5       5      2     40      0
August 7       0      0      0      0
August 9       4      1     16      0
August 12      5      1     12      0
August 14     10      2     20      1
*****
    
```

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

Cooperator: Willie Howell Farm (Goldsboro)

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

Light Trap Data from Wilson County

```

*****
                Number of Adult Insects
                *****
                Kenly      Fountain      Pender's
                *****      *****      *****
Date           CEW  GSB    CEW  GSB    CEW  GSB
*****
July 29        -   -      3   5      -   -
July 31        1   0      2   6      -   -
August 2       5   0     42   4      -   -
August 5       7   0     33   2      0   0
August 7       7   1     32   5      0   0
    
```

August 9	8	11	32	16	1	3
August 12	3	3	35	11	7	0
August 14	1	1	15	5	17	1
August 16	4	0	10	1	32	2

CEW = corn earworms; GSB = green stink bugs

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.