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FOCUS on Entomology

For South Plains Agriculture

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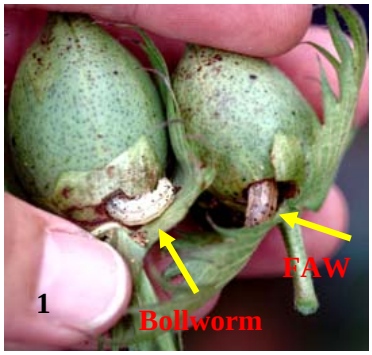
Editor's Note: I missed issuing FOCUS last week because of a family medical emergency. Thanks for bearing with me. I expect the last two weekly issues of FOCUS to go out without a hitch. This will be my last year as editor of and contributor to FOCUS on Entomology. I retire the end of this year. It has been a good run of 29 years. Thanks for hanging with me.

NEWSLETTER CONTRIBUTORS

James F. Leser, Extension Entomologist
Randy Boman, Extension Agronomist

COTTON INSECTS

Decisions, Decisions, Decisions! Bollworms and fall armyworms have moved into the area from the south causing concern for many producers and consultants. Earlier planted cotton that has cut out with less than 5 Nodes Above White Flower (NAWF) should be relatively safe and most likely unprofitable to spray. Late planted lush fields will attract much of this late season worm pressure and will make producers want to spray. And who could blame them. This cotton looks awfully good from the turnrow but needs much more time and Heat Units (HU) to make blooms and small bolls from here on out. Bolls won't be very safe from Lygus bugs until they have accumulated at least 350 HU past flower, from bollworms and possibility beet armyworms and fall armyworms until they have 350-450 HU and from pink bollworms until about 600 HU have accumulated from flower.



So the decision to spray based strictly on economics and probabilities of accumulating enough boll maturing heat units (at least 750 HU for a good boll) is a **RESOUNDING NO** from my perspective. Historical weather records indicate we will accumulate no more than 465 HU from September 1 through October 31 with a plant-killing freeze just around the corner in early November. Kind of risky to spray this late and make money but---if you are willing to roll the dice---have at it.

Bollworms have moved up into the High Plains from the south and finally infested some fields at or above the economic threshold of 10,000 ¼" or smaller worms per acre in conventional cotton or 5,000 3/8-1/2" worms per acre in either conventional or Bollgard cotton varieties. There have been bollworm infestations of concern in previous weeks south of Lamesa and over toward Abilene. And of course we had the "corn bollworms" move into our northern cotton beginning three weeks ago but most of these northern infestations were not at my treatment level. We now have the south-to-north march of bollworms occurring across the High Plains but luckily, most of our crop is beyond the vulnerable stage.

If only bollworms are present, then the pyrethroids will do the job. But then there is the risk of flaring aphids (which has occurred quite frequently following a single pyrethroid application). Add an aphicide such as Intruder, Bidrin or Centric and the cost goes up. If fall armyworms are mixed in with enough numbers for concern then maybe up the pyrethroid rate to the max labeled rate or add Intrepid. This cocktail can be very expensive---say $12 to over $20, not including the $4 aerial application fee (aviation fuel has gone up too you know). I'm thinking that it may be too expensive to protect a few bolls that are not worth as much as the earlier set ones and are at high risk of not fully maturing. It's your decision though.

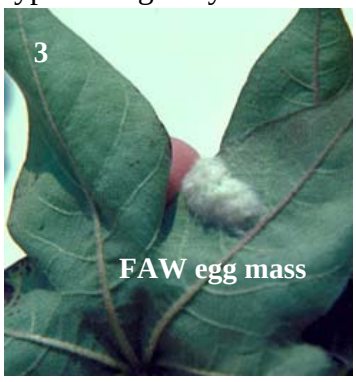
Bollgard I varieties will not control fall armyworms but will handle much of the bollworm infestations we have experienced. But higher numbers will overwhelm Bollgard I and may require an insecticide application. Bollgard II on the other hand will control bollworms better than a pyrethroid and will control fall armyworms better than any labeled insecticide. In addition, surviving bollworm larvae on Bollgard I will be easier to kill with pyrethroids.

There have been reports of reduced control with pyrethroids in some fields across the area. All pyrethroids have been implicated. Is this resistance or reduced control due to coverage, timing or rate issues? I don't know.

Fall armyworms have also moved up into the area with the heaviest infestations south of Lubbock and the lighter infestations to the north. Most of these caterpillars are being found in white and pink flowers with little damage observed outside these areas. Sometimes a little boll bract feeding or outer carpel wall feeding is observed but thus far bolls appear to have escaped penetration. So maybe these FAW won't cause much real damage?? Fall armyworm larvae have an inverted Y on their head whereas bollworms do not. They also have fewer body hairs. But until they reach third instar size, most folks will not be able to tell FAW from bollworms. Don't count on all worms in blooms being bollworms. Most FAW larvae I have looked at have been basically tan (kind of a pinky tan) in color with some stripes. Bollworms can be tan too but are more solid in coloration and often pink to yellow to black in color as well.

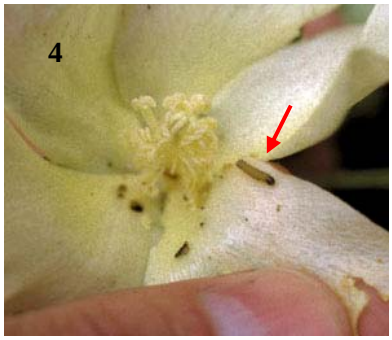
FAW inverted Y

Like beet armyworms, FAW lay their eggs in masses but often stack them in multiple layers rather than in the more typical single layer pattern mostly observed with beet armyworms. Larvae can grow to sizes similar to bollworms, up to 1 ½" or so.



Control of FAW is difficult at best. No insecticide will clean them out like Intrepid does for beet armyworms or pyrethroids usually do for bollworms. Intrepid is rated best of all those tested by researchers

but only slightly better than a high pyrethroid rate. Dow AgroSciences has indicated that they will stand behind the control that Intrepid delivers at the 5-6 oz. rate per acre. Don't expect a cleanup situation. I have no experience with Intrepid control of FAW but on a scale of poor to fair to satisfactory control, a national group of research and extension cotton entomologists ranked Intrepid as a fair+. Every other insecticide was a fair- or less. Dow also mentions adding a pyrethroid to increase movement of larvae to enhance insecticide contact. Pyrethroids are general irritants.



Early instar FAW

Bollgard I cotton varieties will provide some suppression of FAW and is rated a Fair- on the above scale. Bollgard II is rated a satisfactory- and therefore provides the best control of all readily available technology. But I would be scouting all Bollgard I and II varieties just in case if your fields still need protection.

Late instar FAW

Aphids have of course become more of a problem as pyrethroid use has increased for worm control. In many cases, a single application has triggered an outbreak by increasing their reproduction and eliminating their natural enemies. But what can aphids do to cotton now? I believe almost every field except some of the late fields off the Caprock to the east and south are past the point of yield loss potential from aphid infestations. Sticky cotton remains an issue but not until bolls start opening. And rains can often remove this threat down the road. But honeydew deposits may decrease the effectiveness of some harvest aid materials by blocking their penetration into the leaf. Remember that this honeydew does attract dirt and sooty mold fungus growth too. Also, heavy aphid feeding significantly scars the leaf's vascular system.

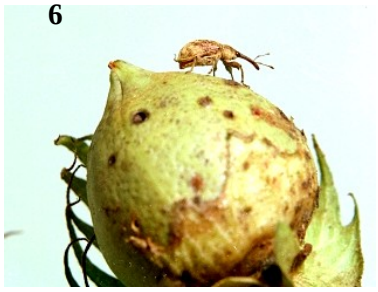
Pink bollworm numbers in traps have generally increased (see chart) as the second infield generation of moths moved out across our cotton patch looking for places to lay eggs. Enough heat units have accumulated for all areas from San Angelo, Midland and Lubbock to have 2nd generation moths flying about. (See Plains Cotton Growers "Pink Bollworm Information"). There is still a lot of vulnerable fruit out there (vulnerable until 600 HU past white flower) and enough time for these eggs to produce overwintering larvae for next year's infestations. I still feel pretty good about the slow spread of our infestations. Very little spraying has taken place so far but it is now time to intensify scouting efforts and cracking bolls, looking for small worms and warts.

For more pink bollworm information see Pink Bollworm Management Tips I in the Crop Production Guide Series of FOCUS and Pink Bollworm Management in Texas.

Lygus bug numbers are on the increase (see chart) but time is running out on them to have much impact on yield in our area. This late season increase is typical for the High Plains but this year Lygus numbers remain below economic threshold in the majority of fields---pretty much a non-pest.

For more management information on west Texas cotton insects, including a list of recommended insecticides, go to: Managing Cotton Insects in the High Plains, Rolling Plains and Trans Pecos Areas of Texas 2005 (E-6) and Suggested Insecticides for Managing Cotton Insects in the High Plains, Rolling Plains and Trans Pecos Areas of Texas 2005 (E-6A).

Boll weevil trap catches increased somewhat in the Permian Basin and St. Lawrence eradication zones. Otherwise, weevil numbers remain low across the rest of the High Plains zones. Only 6 total weevils have been caught all year in the Western High Plains zone, 17 in the Southern High Plains zone, 1 in the Northern High Plains zone and 0 in the Northwest Plains and Panhandle zones through the end of August.



With the exception of the South Texas/Winter Garden, Lower Rio Grande Valley and Northern Blacklands zones, boll weevil trap catches have been fairly stable in most Texas zones. The presence of fall armyworms, bollworms, beet armyworms and aphids in the Permian Basin, St. Lawrence and Rolling Plains Central zones is causing some concern to Foundation personnel as far as spraying goes for weevils. The standard protocol where secondary pests are an issue is to reduce the percent acreage sprayed by work unit. This has worked well in years past. **JFL**

Average number of boll weevils caught per trap inspection and sprayed acreage through August 21. Number of boll weevils caught for the week ending August 21, 2005.

High Plains Zone	2005	2004	Sprayed acres	Total weevils caught this week
Permian Basin	0.0211	0.0066	184,477	30
Western High Plains	0.00001	0.00001	12,762	0
Southern High Plains	0.00003	0.00003	24,906	0
Northern High Plains	0.00004	0.00001	342	0
Northwest Plains	0	0	0	0
Panhandle	0	NA	0	0
St. Lawrence	0.0562	NA	75,369	471

Average number of boll weevils caught per trap inspection and sprayed acreage through August 28. Number of boll weevils caught for the week ending August 28, 2005.

High Plains Zone	2005	2004	Sprayed acres	Total weevils caught this week
Permian Basin	0.0195	0.0064	189,391	55
Western High Plains	0.00002	0.00001	15,221	1
Southern High Plains	0.00003	0.00003	27,015	0
Northern High Plains	0.00003	0.00001	342	0
Northwest Plains	0	0	0	0
Panhandle	0	NA	0	0
St. Lawrence	0.1913	NA	83,666	714

COTTON AGRONOMY

Over the last couple of weeks, we have continued to receive some good rainfall in many areas across the region. August rainfall at Lubbock ended up slightly below normal, but still came in at about 2 inches (see chart). Unfortunately, we have received some hail with those thunderstorms in many places. We have had near normal or slightly below normal temperatures (see August temps.). We are just slightly above normal at Lubbock for heat unit accumulation for the entire May 1 – August 31 time period (see HU accumulation). Many fields have cutout, however, some late fields that had well above normal rainfall are rank and will run late. We are hoping for a warm finish for the 2005 growing season.

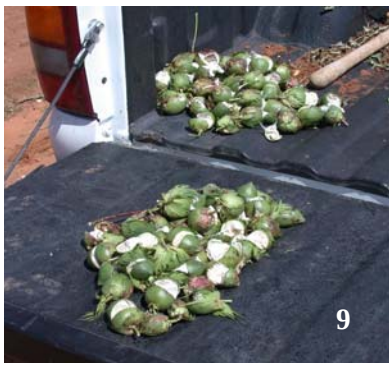
Hail damaged cotton. Last weekend, there was significant hail damage to approximately 100,000 acres across the region. Hail damage was noted in Parmer, Bailey, Hockley, Hale, Lubbock, Lynn, and Garza counties. It has been estimated that about 150,000 bales of production might have been lost. For some sickening photographs typical of the damage incurred under these thunderstorms go to:

http://www.plainscotton.org/hail082805/index.html and to my picture file.

These late-season hail events are very difficult. Many times the damage is so severe that fields are "no brainers" as far as management. Other times, there is enough maturity in some bolls that producers often opt to apply ethephon-based harvest aids to open what bolls they can and then strip. Typically these fields produce low micronaire lint, and have very low gin turnout. In my opinion, the most critical observations that must be made pertain to boll maturity, and the amount of mature or nearly mature bolls. I assembled a useful handout pertaining to this a while back: http://lubbock.tamu.edu/cotton/pdf/assessinglshaildamage2005.pdf.

My guess would be that many of the affected fields lack enough maturity (due to the August 27th hail date) to get reasonable responses to ethephon due to boll immaturity (see slides 1 & 2). **Do not spend money on fields that have only watery, very immature bolls.** Ethephon treatment may actually open many of these bolls, however, many times they fail to "fluff" properly. Bolls that have good maturity (see slides 3-5) may open and "fluff" properly.

The best way to determine boll maturity is to cut out several row-ft of plants from representative areas in the field and then strip off each boll. Begin cutting bolls with a sharp knife and separate different classes of bolls into piles. I suspect it will take at least 15 bolls/row-ft in 40-inch rows (at a minimum) to produce a bale of cotton.



In 2003, I saw some fields having good maturity that were treated with ethephon and then stripper harvested that performed very well. The key factor is how many mature bolls are on the plants and are present per row-ft. We did some small plot testing with Tommy Doederlein (EA-IPM, Dawson and Lynn counties) in Lynn County in 2003 to investigate the efficacy of several harvest aid treatments after a September 7 hail event. These plots were harvested with a John Deere 482 plot stripper and grab samples of harvested bur cotton were ginned at the Lubbock Center. Lint samples were submitted to the Texas Tech University International Textile Center for HVI analysis. One test was conducted in a part of the field that was 60% defoliated: http://lubbock.tamu.edu/cotton/pdf/haildamagedcot200360def.pdf.

Another duplicate but completely separate test was conducted in a part of the field that was essentially 100% defoliated: http://lubbock.tamu.edu/cotton/pdf/haildamagedcot2003100def.pdf. For closeup pictures of this site see slides.

Kerry Siders (EA-IPM, Hockley and Cochran counties) also conducted a small plot trial in a field that was hail damaged on September 14,

1999. That trial was hand harvested. For that report, click here: http://lubbock.tamu.edu/cotton/pdf/haildamagedcothockley99.pdf

Alternaria Blight showing up again. It has been brought to our attention here at the Lubbock Center that "Alternaria Blight" has been encountered again. I had two contacts concerning this, one field south of Lamesa and the other south of Plains. It is my understanding that Dr. Terry Wheeler (Lubbock Center Experiment Station plant pathologist) has also had some contacts with producers/consultants concerning this problem in Gaines County. While on the crop tour in Gaines County Wednesday, I noticed several spots in fields. There is currently some confusion about the correct mycological classification of this pathogen. Dr. Wheeler is now thinking that this fungal organism may also be infecting peanuts. This makes sense, as all of the fields where we have seen this problem over the last several years have been in the sandy land in about a 60-mile radius of Welch. This is the location from which we received our first calls on this back in 1999.

In the August 13 and 20, 1999 issues of Focus, we reported a plant health problem of unknown origin. Subsequent isolation work conducted by Dr. Wheeler indicated the disease was caused by an Alternaria species (fungus). Since the first sighting of this disease was in fields near Welch, it was jokingly dubbed the "Welch Mocus." We received some calls concerning a few fields with small areas with this symptomology in 2000. Fields infected in 1999, 2000, and 2001 were in Dawson and Gaines counties. It was brought to my attention that the disease appeared again in a field south of Seminole in 2001: http://lubbock.tamu.edu/focus/Focus2001/Template/August%203/imageGallery_Aug3.html). Varieties infected since 1999 have included Paymaster 1220 RR, Paymaster 1330 BG, Phytogen 569, Deltapine 5415 RR, Fiber Max 989, Deltapine 2379, Paymaster 2326RR and FiberMax 958.

The good news is that large affected acreage has not yet been reported or observed, but there is some concern. Areas are typically about 10-30 yards in diameter. The plants are affected from the terminal down, with leaf wilting and desiccation evident. On recently infected plants, major veins on the underside of the uppermost leaves turn a brownish/maroon color. As the problem progresses, leaves typically "stick" but sometimes do defoliate. The terminals of severely affected plants die and curl downward. Symptoms then move down the main stem. A maroon discoloration of the main stem generally occurs, in conjunction with dark lesions. Plants that have been affected for a longer period of time are generally several inches shorter than uninfected neighbors. Total fruit shed does not readily occur, as larger bolls are generally retained on dead plants. No vascular discoloration in the main stem is apparent as with Fusarium and Verticillium wilts. See pictures of the 2005 infected Yoakum County field and symptomology. If anyone observes this disease, please call the Lubbock Center so we can record the location and affected variety.

Verticillium Wilt observed in some fields. We are getting calls concerning Verticillium wilt in some fields. See table for an update of varietal susceptibility in one of Dr. Wheeler's ongoing field trials in Parmer County. For more detailed general information and management suggestions for Verticillium and Fusarium see Focus Crop Production Guide: (http://lubbock.tamu.edu/focus/Off_Season/Feb_1_2005/feb1_2005.pdf).

Aphid honeydew effect on paraquat harvest aid efficacy. Reports are coming in that indicate we have some aphid flare-ups following pyrethroid applications for bollworms in some fields. This is another difficult management decision at this time. We know that aphid honeydew can potentially cause sticky cotton if we don't get some rainfall to wash off the honeydew from open bolls. Although we don't have hardly any open bolls out there at this time, I want to let our

producers know that honeydew contaminated leaves (typically with associated dust entrapment) don't respond very well to applications of paraquat based harvest aid materials. **RB**

WEST TEXAS AGRICULTURAL CHEMICALS CONFERENCE

The 53rd Annual West Texas Agricultural Chemicals Conference is scheduled for Wednesday, September 21, 2005 at the Holiday Inn-Park Plaza Hotel and Conference Center, 3201 S. Loop 289, Lubbock. Registration begins at 7:00 a.m. and the program starts at 8:15 a.m. There are 6 CEU credits for private, commercial and noncommercial applicators and 5.75 CEU credits for Certified Crop Advisors.

CROP TOUR SCHEDULE

September 9. Swisher County Forage Meeting. Contact Michael Clawson, CEA-AG, at 995-3721.

September 13. Yoakum County Crop Tour. Contact Arlan Gentry, CEA-AG, at 456-2263.

September 14. Lubbock County Crop Tour. Contact Mark Brown, CEA-AG, at 775-1680.

September 14. Cochran County Crop Tour. Contact Jeff Wyatt, CEA-AG, at 806-266-5215.

September 15. D&PL Field Day, eight miles south of Lorenzo on the Steve Chapman Farm, 9:00 a.m.

September 15. Dawson County Crop Tour. Contact Tommy Doederlein, EA-IPM at 806-872-5978.

September 15. Terry County Crop Tour. Contact Chris Bishop, CEA-AG, at 806-637-4060; Scott Russell, EA-IPM at 806-637-8792.

September 16. Swisher County Crop Tour. Contact Michael Clawson, CEA-AG, at 806-995-3726.

September 20. Floyd County Ag Tour. Contact J.D. Ragland, CEA-AG, at 983-4912.

September 22. Bayer CropScience/FiberMax Field Day, phone 806-765-8844 for more information.

September 22. Lynn County Crop Tour. Contact Bryan Reynolds, CEA-AG, at 561-4562.

September 28. Crosby County Crop Tour. Contact Steve Young, CEA-AG, at 806-675-2347.

September 28. All-Tex Seed Field Day, phone 806-894-4901 for more information.

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