

VOLUME XLIII, NO. 7

July 23, 2004

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COTTON AGRONOMY

Cotton needs a drink if it is expected to maintain its excellent fruit load. Our crop got off to an excellent start with good winter and spring rains across most of the area. These rains

continued into June putting our annual accumulated rainfall above normal for this time of year. BUT---much of the area has not received much additional rain in July, setting this year's crop up for a big fall. In many cases, we have fields of cotton plants with above average leaf surface area and excellent fruit retention (90% or better) well into the second week of blooming. What this means is that we can expect high evapotranspiration losses and



Looking forward to a bumper crop

high water demands from the heavy fruit load as we move through peak bloom. While I am beginning to see irrigation pipe laid out and pivots cranked up, I believe that many producers are behind in meeting the irrigation needs of their crop. This may also apply to the additional fertilizer needs now that we have the chance of making an exceptional crop.

Rain chances do increase for us this Friday and Saturday, but are you willing to take a chance and wait on this rain? Most producers do not have enough irrigation capacity to cover all their acreage in a timely manner. I would follow Lubbock IPM Agent Brant Baugh's recent advice and water your best cotton first.

Most timely or earlier planted fields are at 6-8 Nodes Above White Flower (NAWF). This means their fruiting rate is slowing down with the heavy fruit load “sinking” most of the plant’s resources. Once NAWF falls to and stays at or below five, plants have reached physiological cutout. At this point producers and crop managers can start counting heat units to determine when spraying for *Lygus* or bollworms can safely stop and when the crop is mature enough for harvest aid applications. Under current heat unit daily accumulation rates (between 20-25), Dawson County growers have no more than 8 days left to make newly formed squares into harvestable bolls. Lubbock producers have no more than 3 days and those producers to the north no longer need to worry about square retention or protection. Time has run out for them. Last bloom dates would be about August 25 for southern growers (August 12th if you want to play it safe), August 20th around Lubbock and August 15th around Dimmitt.

Weeds still dog many producers providing a mixed blessing. On the one hand these weeds are competing with our crops for available moisture and are producing millions of seed for future problems. But on the other hand, our moisture situation has kept these weeds in good shape, probably acting as a trap crop---keeping fleahoppers and *Lygus* out of our cotton fields in most instances. If you do decide to eliminate these weeds, you might consider spraying them with an insecticide first, otherwise you might just herd bad bugs into your cotton. **JFL**

COTTON INSECTS

The dog days of summer really have hit our area, especially when it comes to insect pests. With few exceptions, this year’s crop has grown in a relatively insect free environment. High fruit retention and a low number of fields treated are proof that cotton fleahoppers and *Lygus* have not been much of a factor. A smattering of bollworms across the area the last

couple of weeks failed to produce any infestations I would have treated. High predatory insect and spider numbers and heat stress has kept bollworm numbers at bay. The next cycle most likely will hold off until sometime in the first 10 days of August. I am not expecting a serious problem with bollworms this year as sources of this pest across the state are not that great. Aphids are



Old bollworm damage

present in most fields but remain at low levels except in those few instances down south where multiple pyrethroid applications addressing pink bollworms have flared aphid problems.

Now is the time to preserve and cultivate those “beneficials” that reside in our cotton fields. We may need them later on to help brunt the attack of *Lygus*, bollworms and aphids. Most fields have little need for further insecticide applications at this time. Caution is the buzzword for now. Predatory

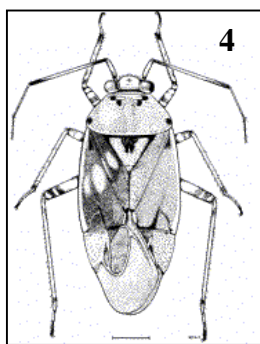


Lacewing larva

insect and spider numbers in a given field have been dependent upon previous insecticide applications and the presence/absence of a suitable food supply. Spiders appear to be the mainstay of our predator populations but minute pirate bugs, damsel bugs, lacewing larvae, big-eyed bugs and lady beetles have also made their contribution. But always do remember, you are growing cotton, not maintaining a zoo of beneficial insects. When the time comes, and pest control is needed, do not hesitate to spray.

I have a Bollgard test in a commercial field over in Idalou that needed treatment last week

for *Lygus*. Beat bucket sampling gave a 22 per 100 plant count on Thursday while visual whole plant counts were 16 per 100 plants (threshold would be 16/100 plants). Four days after spraying the field with 12 ounces of Orthene 90S per acre beat bucket counts were 1 total out of 324 plants and 3 out of 270 whole plants checked visually. Control was in the high 90 percentile. The downside? We also annihilated the predatory insects and most spiders. We used Orthene because the test protocol did not allow for the use of a pyrethroid.



Western tarnished plant bug

As I indicated in the above Cotton Agronomy section, there are very few days left where pinhead square protection from either fleahoppers or *Lygus* is necessary. But we still have at least three or more weeks where larger square, bloom and boll protection will be needed from *Lygus* and bollworm attack. Late planted or developing fields will be the most at risk. Fruit will not be safe until 350 heat units have accumulated past white flower. If pink bollworm protection is a consideration, bolls probably need about 650-750 heat units on them to be safe.

Speaking of pink bollworms---**considerable pinkie activity continues in hot spot areas** in and around Gaines County where producers and consultants are waging war in the Bollgard refugia. Most producers in these areas did plant Bollgard cottons, which are virtually immune to pink bollworm damage. But as a part of Bt resistance management some acreage had to be planted to non-Bt varieties. Various refuge options were available



including the 95/5-acre external or internal options and the 80/20-sprayed refuge option where for every 100 acres of Bollgard cotton planted, a producer had to plant 25 acres of non-Bollgard cotton. In this option, the non-Bollgard cotton can be sprayed with any insecticide except a Bt based insecticide. These refugia are where the pinkie battles are taking place.

Reports indicate that some non-Bollgard refuge fields have received as many as 11 applications so far. This is way above what should have been needed based on the experiences and advice from areas and intervals that have had pinkie management experience. The preventative treatments that should go on when matchhead squares appear and continue until bloom should total no more than three in most instances. These applications are based on trap catches of moths with a starting threshold of 5 or more per night per trap. Once blooms are present and quarter size bolls are available, management decisions should not be based on moth catches. Decisions should be based on the inspection of at least 40 small bolls per field (more for larger fields). Bolls should be cut and the inside of the boll wall inspected for warts. These are sites where pinkie larvae entered the boll. Developing lint around these warts should be looked at closely for small, whitish worms. Once pinkies gain some size, they will become the more characteristic pink color. Some lint damage would certainly be visible by this time. Treat fields only when infested boll counts approach 15 percent.

Once cotton is blooming, [trap catches](#) only tell you that moths are flying in the area, not that they are laying eggs in your field. This may seem to be the logical conclusion but I can assure you it won't work out that way in many instances. That is why boll inspections are critical. They take lots of time but they are necessary! I guess what I am trying to say is that spraying on the basis of moth trap catches once small bolls are present will lead you down a very expensive road.

For more pink bollworm information see [Pink Bollworm Management Tips I](#) and [II](#) in the Crop Production Guide Series of FOCUS and [Pink Bollworm Management In Texas](#).

Trap catches of boll weevils have declined, perhaps because of the attractiveness of cotton over traps at this time of the season. I would like to believe that the Texas Boll Weevil Eradication Foundation (TBWEF) program has played a large role in this reduction of weevils in the High Plains area. Planted acreage is up in all of our area zones. This too could be the partial result of the virtual elimination of boll weevils from our area since they invaded in 1991 and became an area wide problem by 1995. The TBWEF got its first run on newly placed traps in the newly established Panhandle. **JFL**



Average number of boll weevils caught per trap inspection and sprayed acreage through July 18. Number of boll weevils caught for the week ending July 18, 2004.

High Plains Zone	2004	2003	Sprayed acres	Weevils caught the previous week
Permian Basin	0.0099	0.003	95,599	301
Western High Plains	0.0000 1	0.00004	1,800	0
Southern High Plains	0.0000 3	0.00004	12,066	0
Northern High Plains	0.0000 1	0.0001	1,972	0
Northwest Plains	0	0.00001	0	0
Panhandle	0	NA	0	0

COTTON DISEASES

Bacterial blight has been spotted on cotton in Terry and Lubbock counties. I expect that

all of the counties in west Texas have fields with this disease. To diagnose bacterial blight (angular leaf spot is another name), turn the leaves over and look for a [wet area](#) around the lesion. The [lesion](#) should go all the way through the leaf. If there is a water soaked area around the lesion, then it is bacterial blight. Your options for disease control are limited. The bacteria infected the plants several weeks ago during rain events. The plant may defoliate to some extent, from the bottom of the plant first. If we continue to have rain events, then new infections will start, and there will be more defoliation. Once bolls are present, then [boll rot](#) can occur. The amount of damage is tied to the number of rainfall events and whether your variety has some resistance.

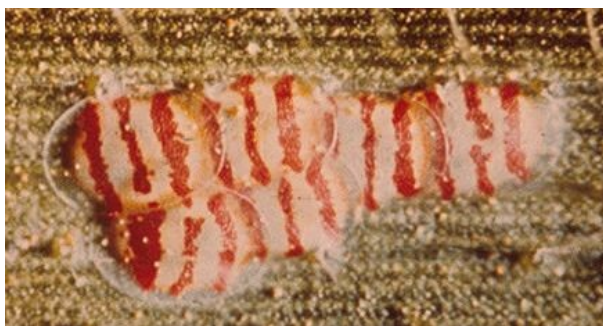
Bacterial blight [ratings](#) have been made on many varieties. While producers must weigh a number of factors when making a variety choice, I would strongly recommend that dryland fields be planted with a bacterial blight resistant variety. Those years when a dryland crop will be particularly productive are the same years that bacterial blight will be a problem because of rain. The disease can be as destructive in dryland corners as it is under a pivot, so altering your irrigation practices may not help reduce disease. Only a resistant variety can effectively reduce the severity of blight. **TW**

CORN INSECTS

We have enjoyed a relatively pest-free season to this point, but now is time to increase monitoring efforts. I was in a field near Springlake yesterday that had spider mites on 80% of the lower three leaves, and area reports are indicating increased mite activity. Southwestern corn borer (SWCB) moths are now laying eggs in corn, and will continue to do so for two to three weeks depending on location. SWCB control decisions should be made with full consideration of their impact on spider mite numbers.

Greg Cronholm, Pest Management Agent in Hale and Swisher counties, trapped the first SWCB moth on July 5. Moth flight is now well underway in Parmer, Bailey, Castro, Lamb, Hale, and Swisher counties. Some fields have been sprayed for SWCB. European corn borer (ECB) has become far less numerous in the last few years, and it will not be much of a factor. Bt corn is almost immune from SWCB and ECB, but remember that it should be scouted anyway, especially for spider mites.

SWCB lays eggs singly or in masses of two to seven overlapping eggs. These are white when first laid, but develop red striping after a day or so. (ECB also lays eggs in masses, but there are usually 8 or more eggs per mass, and these darken as they approach hatch and do not develop the red lines characteristic of SWCB.)

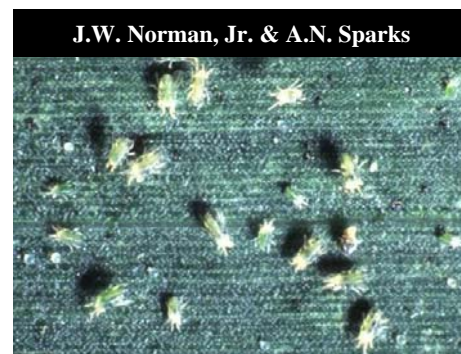


An efficient scouting method for SWCB is to examine a zone from two leaves above the ear to four leaves below the ear leaf. Studies have shown that 80% of SWCB eggs are deposited in this zone. The time to treat is when 20 to 25% of plants inspected have eggs or newly-hatched larvae. After hatch, larvae will feed behind leaf collars, beneath husks, or in other sheltered areas. Five to seven days after hatching, they will begin to bore into the stalks and become much more difficult to reach with insecticides.

What is the thought process behind SWCB treatment? First, realize that the current flight of moths will continue for at least two weeks, although individual moths live only 4-5 days. Peak flights occur in late July or early August, peaking sooner in the southern counties and

later in the northern counties. In theory, you could apply one pyrethroid insecticide application and, because of a long residual effectiveness, get good control of SWCB for the rest of the flight. However, the use of a pyrethroid poses a big downside risk: spider mite outbreaks. Pyrethroids eliminate the beneficial arthropods that keep mites in check. We have so far managed to avoid mite outbreaks this season, but mite populations are increasing now and you are taking on significant risk by using a pyrethroid. If you use a pyrethroid for SWCB, add dimethoate for mite knockdown. If mites are not a factor, a better option, and one that does not increase the risk of mite outbreaks, is to use Intrepid or perhaps Tracer. Greg Cronholm's (Plainview IPM Agent) [2002](#) and [2003](#) data suggest that Intrepid at 8 oz may be more effective than Tracer on second generation SWCB.

Spider mites on the increase. As mentioned above, spider mites are increasing. Emilio Nino, IPM Agent at Dimmitt, has a few fields with treatable numbers of Banks grass mites. Greg Cronholm reports finding below-threshold numbers of mites in southern Hale County fields, but he had not checked his northern fields at the time of this writing.



Banks grass mites

Scouting should occur at least every week. Most readers are aware that Texas Cooperative Extension studies in 2002 indicated a significant increase in tolerance to Capture in some areas north of Amarillo. The good news is that we have not experienced the same level of tolerance in our part of the State. This year's mites have not been tested for susceptibility to Capture, but it is reasonable to assume that Capture will provide good control if it is used. Notice that I used the word "assume". This does not imply a guarantee. We

won't have any real idea of susceptibility to Capture until some fields are treated.

Thresholds and suggested miticides. The following is taken directly from "Managing Insect and Mite Pests of Texas Corn, [B-1366](#)" which you can read for the full story on mites. To decide whether or not Banks grass mites and/or twospotted spider mites should be controlled, estimate the control cost per acre (miticide plus application cost) and the expected value of the crop (yield X value). A two-step sampling process is necessary. The field can be quickly checked to determine the percentage of plants infested by mites. Divide the number of mite--infested green leaves (a leaf is infested if a mite colony of any size is on the leaf) by the number of green leaves per plant. If the plant equals or exceeds the percentage of infested leaves needed to cause yield loss, based on the [spider mite control decision table](#), then determine the percentage of the leaf area on the plant that is damaged by mite feeding. For some reason the official version of B-1366 neglected to list the market values in the spider mite economic threshold, so we are reprinting the corrected thresholds here. Mite damage is any light colored (chlorotic) areas on the plant that result from mite feeding.

Remember to look at all the leaves on a plant to estimate how much of the total leaf area is damaged by mite feeding. Do not base the damage estimate on infested leaves only, or the damage rating will be overestimated. Dead leaves equal 100 percent damage for that leaf. Now, calculate the average percentage of the leaf area damaged. If both the percentage of the leaves infested and the percentage of the leaf area damaged equal or exceed the values for the crop, it is time to spray. If the [miticide](#) to be applied provides rapid control (less than 3 days after application), you can wait up to one week before spraying the corn. However, if the miticide will not provide rapid control, spray the field immediately. This economic injury level may be used to make control decisions on

field or food corn before the full dent growth stage. **PP**

CROP WATER ISSUES

While much of the area remained dry, localized storms brought variable rainfall to the South Plains during the last week. High temperatures and crop development have continued to contribute to high crop water demands. Many of our crops, including corn, cotton, peanut and sorghum have reached or are rapidly approaching their peak water use periods. Appreciable precipitation and cooler temperatures are anticipated in the forecast for Friday through Sunday. Hopefully this will provide some timely help in meeting crop water needs.

Evapotranspiration (ET, crop water demand) estimates for the South Plains are summarized below. **DP**

Crop water use estimates for the week of July 15 - July 21, 2004. Average Daily Crop Water Demand (inches per day).

Location	Reference Crop ET (in./day)	Corn	Cotton	Peanut	Sorghum
		Blister - dent	Square - bloom	Pod develop.	5-leaf - flower
Halfway	0.27	0.35- 0.32	0.27- 0.32	0.27- 0.30	0.17- 0.29
Lamesa	0.28	0.38- 0.29	0.29- 0.34	0.29- 0.32	0.20- 0.30
Lubbock	0.28	0.36- 0.28	0.27- 0.33	0.28- 0.31	0.19- 0.30

CROSBY/FLOYD TURNROW MEETINGS

Two cotton turnrow meetings are scheduled for Wednesday, July 28th. The first will be at 9:00 a.m. at the Associated Cotton Gin in Crosbyton. The second meeting will be at the Floydada COOP Gin at 11:00 a.m. There will be 1 ½ CEUs available at each meeting. Extension participants will include J. D. Ragland, Steve Young, Steve Davis, Randy Boman and Jim Leser.

MONSANTO FIELD DAY

Producers and other agribusiness interested parties are invited to a field day sponsored by Monsanto that will be held at the Helms Farm, 2 ¼ miles south of Halfway (about 8 miles west of Plainview on Hwy. 70) on FM 1070 on Tuesday, August 3rd from 9:00-12:00 noon. The topics will include irrigation management, Bollgard/Bollgard II performance, Roundup Ready Flex Cotton, corn hybrids and tillage systems, and Roundup Ready Alfalfa. Texas Cooperative Extension and Texas Agricultural Experiment Station scientists will be part of the field day. For further information contact Dr. Shea Murdock at 806-543-3252.

LATER SEASON COTTON MARKETING WORKSHOP

Dr. Carl Anderson will be in Lubbock for the last time as an Extension Cotton Marketing Specialist. He will be on the Later Season Cotton Marketing Workshop program on August 3rd at the Lubbock A&M Center north of the airport. The program starts at 3:00 p.m. and will be finished by 7:30 p.m. Dinner will be provided by the American State Bank at 5:30 p.m. Registration fee is only \$15. Call Wendy Durrett at 806-746-6101 to get your name on the list. This will be a special occasion since this will be Dr. Anderson's last official visit to Lubbock before his retirement. **This workshop is a tribute to Dr. Anderson's many contributions on cotton marketing.**

HIGH PLAINS VEGETABLE AND WEED CONTROL FIELD DAY

The 2nd annual High Plains Vegetable and Weed Control Field Day is scheduled for Tuesday, August 10th at the Texas Agricultural Research and Extension Center at 1102 East FM 1294, north of the Lubbock airport (exit 11 off I-27). Lunch is provided if RSVP received by August 3rd. Contact Wendy Durrett at 746-6101. Dr. Russ Wallace, Extension Vegetable Specialist, will give 2 CEUs and will display variety, herbicide and fungicide trial information to cucurbit producers.

COTTON INSECT PHOTO CREDITS

1. Glodt, Bob. Agri-Search. Plainview, TX
2. Leser, James. Texas Cooperative Extension. [Cotton Pest Images](#)
3. Smith, Ron. Auburn Univ. Image 1857084. <http://www.ipmimages.org>
4. Texas Cooperative Extension. [Cotton Pest Images](#)
5. Univ. California Management Guidelines. [Cotton Pink Bollworm](#)
6. Clemson University. Image 1233021. <http://www.ipmimages.org>

FOCUS on Entomology is published by
Texas Cooperative Extension
Route 3, Box 213AA
Lubbock, Texas 79403

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