Texas Cooperative EXTENSION
The Texas A&M University System
http://lubbock.tamu.edu/focus

FOCUS on Entomology

For South Plains Agriculture

VOLUME XLIII, NO. 4 July 2, 2004

IN THIS ISSUE

NEWSLETTER CONTRIBUTORS

James F. Leser, Extension Entomologist
Randy Boman, Extension Agronomist
Dana Porter, Extension Ag. Engineer-Irrigation
Calvin Trostle, Extension Agronomist
Terry Wheeler, Research Plant Pathologist
Pat Porter, Extension Entomologist

EDITOR'S COMMENTS

I have always encouraged the use of information provided through FOCUS by industry, others in Texas Cooperative Extension, other educational institutions, etc. With the launch of our new Crop Production Guide Series, and the use of more pictures, it is imperative that those using FOCUS material give credit where credit is due. Some of the pictures used are copyrighted and permission will be needed before further use. Most importantly, publications within the Guide Series should be cited correctly. Please indicate the title of the guide used, its origin (FOCUS on Entomology) and give credit to all its authors. The authors and I like to see wide use of the materials in FOCUS but please show professional courtesy and give full credit where due. **JFL**

COTTON INSECTS

Earlier planted cotton is well on its way to blooming while late planted cotton should be just now beginning to square. While thrips are no longer a threat to cotton of any planting date, cotton fleahoppers (CFH) and western tarnished plant bugs (WTPB) may or may not be as much of a threat depending upon cotton stage.

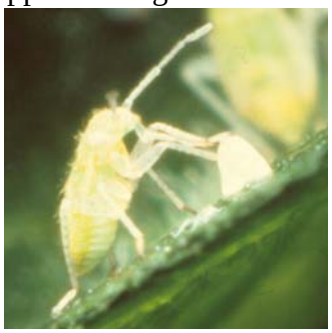
Both CFH and WTPB numbers remain at generally low levels although some increase has been noted over the last week. Very few fields have had sufficient numbers of either pest to justify treatment. There is no doubt that a few fields have required treatment for either or both pests, but with excellent growing conditions in many areas, square set has been exceptionally high. In those areas where square retention has fallen, weather has been a major

factor causing square loss, NOT INSECTS! Sand blasting, winds, hail and driving rains can and have had a drastic effect on cotton growth and development in the affected areas. So don't go blaming insects when they are not the culprits.

Cotton fleahoppers are generally more a problem for later planted cotton. Earlier fleahopper movement from weed hosts was absorbed by early squaring cotton. Their numbers remain low until at least one generation. Then these cotton-bred fleahoppers can move to later squaring fields in high enough numbers to cause an immediate problem. So watch out for those late fields. Also, most fleahopper problem fields are associated with weedy cotton fields or CRP and pastures.

Lanceleaf sage infested fields

If square set is good as fields of cotton move through early bloom, fleahoppers are no longer a problem. Once cotton is no longer vulnerable to yield losses from fleahopper feeding damage, these bugs can become both prey for larger predator species and predators for smaller predators. But WTPB will continue to be an increasing problem as their numbers multiply. Feeding damage by WTPB to all size squares, blooms and bolls with less than 350 heat units can result in yield losses.



CFH attacking egg

I would not consider fleahoppers the cause of square retention problems until their numbers reached 25-30 per 100 plant terminals inspected. This would be equal to about 14,700-17,643 fleahoppers per acre or 3-4 per three feet of row (beat sheet sampling). WTPB thresholds prior to peak bloom would be about 7-8 per 100 plants examined or 4,117-4,700 per acre or 1 per three feet of row (beat sheet sampling). This is all based on an average of 4.5 plants per foot of row stand density.

I think poor management decisions are often made for these two insects because of several factors including lack of confidence in management ability, lack of understanding of interactions between the cotton plant and the environment, concern for sampling ability, pressure from magazines based on southeast experiences not germane to our area and higher yield expectations with the newer varieties, better insecticides, eradication of boll weevils and the increased use of Bollgard cottons.

Late emergence of overwintered pink bollworms continues, causing considerable concern in some field situations. Some fields near high trap catch areas have been sprayed as many as four times with the hope of avoiding in-season pinkie problems. This approach works as long as harvestable bolls are all safe before pink bollworm moth movement begins in late August and September. Otherwise additional applications may be needed. Late planted fields may need 1-2 applications if emergence in hot spot areas continues. However, these same fields will need additional insecticide applications to protect late maturing bolls. I would certainly refrain from spraying any more fields at this time unless nightly trap catches were in the 10-15 range. Expect to see a significant reduction in trap catch numbers following insecticide applications for 5-7 days. If not, your application was not very effective.

Moth catches from traps that are being run in Gaines, Terry and Yoakum counties by IPM

Agents, Andy Cranmer and Scott Russell indicate that overwintered site emergence is continuing and in some instances may be high enough to warrant another insecticide application.

Weekly numbers of pink bollworm moths caught in each of 8 traps in Gaines Co., 2004.

Trap	4/22	4/29	5/7	5/14	5/20	5/27	6/2-3	6/8	6/14-15	6/22	6/28-29
1	0	0	2	3	10	135	89	3	4	7	7
2	0	3	1	36	20	93	138	8	55	47	121
3	0	0	0	12	18	30	11	5	13	10	15
4	0	0	0	16	8	71	43	0	3	7	5
5	0	1	2	3	4	68	21	5	27	27	15
6	0	1	18	106	26	125	135	6	13	83	114
7	0	2	1	12	12	103	95	4	12	6	29
8	0	0	1	10	21	*	52	1	23	11	28
Total	**0**	**7**	**25**	**198**	**117**	**629**	**584**	**31**	**150**	**198**	**334**
No. /trap	**0**	**1**	**3**	**25**	**15**	**89**	**73**	**4**	**19**	**25**	**48**

*Lost to wind.

Weekly numbers of pink bollworm moths caught in each of 5 traps in Terry Co., 2004.

Trap	5/24	6/1	6/7	6/14	6/21	6/30
1	17	29	6	7	2	2
2	40	79	7	17	11	*
3	*	19	2	5	1	0
4	10	39	*	4	0	1
6	2	28	9	3	3	1
Total	**69**	**194**	**24**	**36**	**17**	**4**
No./ trap	**17**	**39**	**6**	**7**	**3**	**1**

*No data.

Weekly numbers of pink bollworm moths caught in each of 4 traps in Yoakum Co., 2004.

Trap	5/24	6/1	6/7	6/14	6/21	6/30
7	11	27	1	3	1	2
8	31	27	2	*	1	5
9	21	49	3	6	6	21
10	101	57	14	7	1	2
Total	**164**	**160**	**20**	**16**	**9**	**30**
No./ trap	**41**	**40**	**5**	**5**	**2**	**7**

*No data.

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.

Cotton aphid numbers have continued to decline as predators mow down remaining aphid infestations. This is good news because it means that the earlier aphid numbers have provided a food source to maintain and increase our natural enemies of cotton pests. It also means we have not had to apply any disruptive insecticide sprays for this pest.

The first flurry of bollworm activity has begun. Hopefully the predicted hot temperatures and high numbers of roving predators will neutralize any developing problems. We have received word from Texas A&M Toxicologist Dr. Patricia Pietrantonio that her research program has detected resistance to pyrethroids in Burleson County. The levels are similar or a little worse than last year. The resistance ratio is about 5 (it takes 5 times more insecticide to kill 50% of these insects when compared with a susceptible field population). This is just a "heads up" so that if you see control failures of bollworm when using pyrethroids later in the season, when moths have moved north into our region, these failures might be attributed to resistance. Track your beneficial insects during these earlier flurries. They often take care of any developing problems.

Big-eyed bug eggs

Boll weevils trap catches remain generally low, with the exception perhaps of the Permian Basin Zone. There have been a total of 3 weevils caught this year in both the SHP and the NHP zones. The WHP zone caught its first weevil for the year. The St. Lawrence zone is scheduled for a September start with a diapause program across all acres. But since most boll weevils are coming from the irrigated acres of the northern Glasscock County area, the Texas Boll Weevil Foundation and the zone steering committee thought it might be prudent to start

early on these fields to limit weevil build-up and minimize spread to adjacent active zones. This was done with the consent of about 8 growers on approximately 3,000 irrigated acres spread out over an area, 15 X 40 miles. The first of the initial 2 applications went out June 23rd. Affected growers have signed two week renewable contracts. These early applications will most likely be finished by mid July. Secondary pests are being monitored very closely. **JFL**

Average number of boll weevils caught per trap inspection and sprayed acreage through June 27. Number of boll weevils caught for the week ending June 27, 2004.

High Plains Zone	2004	2003	Sprayed acres	Weevils caught the previous week
Permian Basin	0.0097	0.0032	25,867	350
Western High Plains	0.00001	0.0004	278	1
Southern High Plains	0.00002	0.00001	2,462	2
Northern High Plains	0.00003	0.00004	1,972	1
Northwest Plains	0	0	0	0

COTTON AGRONOMY

Over the last week, we have experienced significant rainfall across many locations in the High Plains. Some locations have reported greater than 5 inches or so (around Sudan, Plainview, Tulia, and others). To the best of my knowledge we have not obtained significant hail in these areas. However some localized flooding has occurred and the cotton in some places was "ragged up." If we can continue to obtain good rainfall, this will be a major blessing for the region. With the cooler, cloudy conditions we had over the last week, solar radiation and DD60 heat unit accumulation dropped dramatically compared to the long-term average. For the week of June 24-30, we observed 66% of normal heat units. With the much cooler weather the last week of June, we ended up at about 96% of normal for the month. However, from May 1, we are still looking at about 10% above normal heat unit accumulation for the growing season thus far. Most timely planted fields are squaring and some earlier planted fields are just now blooming.

Drip field west of Lubbock Center

Producers should take note concerning nitrogen fertilization. With above normal precipitation, many growers have had a difficult time getting N fertilizer applied and are getting behind. This is especially true for producers who normally apply their fertilizer through center pivots or drip irrigation systems. We have not been irrigating in many fields in June. It is time to get this crop fertilized. This was addressed in earlier in the Focus June 18 issue (N Fertilization Considerations for Cotton). I suspect that if we return to a normal weather pattern in July, we might get behind on irrigation rather quickly, especially for those fields that have had outstanding rainfall and are shallow rooted. Staying on top of this might result in less moisture stress during the critical early flowering period.

Weed control will also become a major concern for many fields that have received heavy rainfall during the last week or so. Some fields may not have been sprayed with Roundup over-the-top before the window closed and are still weedy. For information on late applications see the Focus June 18 issue. For additional information on post-directing herbicides see the Mid-Season Weed Control In

Cotton and Peanuts in the Crop Production Guide Series.

Controlling excessive cotton growth. Questions concerning mepiquat chloride (Pix, Pix Plus, and others) applications have recently been asked. With the excessive rainfall and newer varieties, I think growers should be on point on this issue.

Chaperone PGR Issues

Chaperone is a new product that is marketed as a protein transport enhancer. The label states that this product "increases the uptake of proteins that are necessary for plant growth resulting in improved yield." This product contains sodium p-nitrophenolate (0.30%), sodium o-nitrophenolate (0.20%) and sodium 5-nitroguaiacolate (0.10%). Application directions indicate that this material should be applied directly to cotton foliage, "almost to run off." Two applications can be made beginning at the pinhead square stage and continuing through boll filling. A high quality 90/10 adjuvant or silicone surfactant should be used. A minimum of 5-10 gallons/acre (gpa) of spray volume should be used by ground application, and at least 3-5 gpa with aerial application. The Chaperone rate should be 5-10 oz/acre up to a maximum of 20 oz/acre total applied for the growing season. I have been told that this product can be tank-mixed with mepiquat chloride materials.

Dr. Robert Lemon (Texas State cotton Extension specialist at College Station) has summarized some of the trials conducted in Texas. His comments on this product are as follows: "*Research conducted on irrigated cotton in the Coastal Bend has shown statistically significant lint yield increases of up to 274 lbs/acre compared to the untreated check and increased levels of petiole nitrates during the bloom period. In most instances, a five-ounce application was made at early bloom. Results from three years of testing in central Texas have not been quite as dramatic, but in most instances a positive trend was noted, but results were not statistically significant. However, when data from all seven studies were combined, the statistical analysis indicated significant lint yield increases with 10 and 20-ounce rates applied at early bloom. All treatments improved yield over the untreated check, with the 20 ounce rate showing a 12% yield advantage, the 10 ounce rate a 7.5% improvement and the 5 ounce rate a 3.4% increase (not statistically significant) over the untreated check. Based on all these results, it is apparent that the product potentially offers some very positive benefits; however, further testing in multiple environments is necessary to develop the best possible recommendations.*"

Several Extension agronomists in Texas will be involved in a uniform testing protocol in 2004. We will be participating in this project. Our plans are to conduct several large-plot replicated trials in cooperation with Extension agents across the region. We should be able to determine how this product performs in the High Plains across several locations. **RB**

CROP WATER ISSUES

Highly variable rainfall amounts have fallen on portions of the South Plains during the last week. Localized flooding has been observed in some areas. With many fields beginning to enter the bloom stage with associated increased water demands, now is a good time to check soil moisture, paying particular attention to depth of stored moisture. More information on soil moisture measurement and monitoring is available at:

Monitoring Soil Moisture By Feel And Appearance (PDF 3.2 MB). High Plains Underground Water District No. 1

Soil Moisture Monitoring: An Overview of Monitoring Devices (PDF 3.2 MB). High Plains Underground Water District No. 1

Comparisons of some of the Soil Water Content Sensors (Soil Water Content Sensor discussion group)

Root zone depth. Most crops will extract most (70% - 85%) of their water requirement from the top one to two feet of soil, and almost all of their water from the top 3 feet of soil profile, if water is available. Deeper soil moisture is beneficial primarily when the shallow moisture is depleted in high water demand periods. Root development is crop-specific, and it can be limited by soil conditions, such as compacted layers, caliche layers, excessively dry or wet soil conditions and other factors. In the absence of these limiting factors, effective root zone depths are expected to develop as follows:

Crop	Alfalfa	Corn	Cotton	Peanut	Sorghum
Root zone depth in feet	3.3-9.8	2.6-5.6	2.6-5.6	1.6- 3.3	3.3-6.6

Crop water use. Evapotranspiration (ET, crop water demand) estimates for the South Plains are accessible on the South Plains ET Network website at: http://lubbock.tamu.edu/irrigate/weatherdata.html. Texas Panhandle and South Plains ET estimates are accessible on the North Plains ET Network website at: http://amarillo2.tamu.edu/nppet/station.htm. Some of these estimates are summarized below. Crop water demand estimates for additional crops are available from the network. These crop water demand estimates reflect expected maximum water use for well-watered (non-stressed) crops. **DP**

Crop water use estimates for the week of June 24-June 30, 2004. Average Daily Crop Water Demand (Inches per day).

Location	Reference Crop ET (in/day)	Corn	Cotton	Peanut	Sorghum
		10-leaf blister	Emerged - 1st square	Flower to pegging	Emerged - Flag
Halfway	0.19	0.21-0.26	0.10-0.19	0.10-0.20	0.08-0.17
Lamesa	0.20	0.23-0.26	0.10-0.19	0.10-0.20	0.08-0.19
Lubbock	0.19	0.21-0.25	0.10-0.19	0.10-0.20	0.08-0.18

Estimates of soil water storage capacity. Soil moisture storage capacity varies with soil type (texture). The following estimates of soil moisture storage (at field capacity), have been summarized from USDA NRCS Soil Surveys:

Soil Series	Depth from surface (inches)	Soil texture	Available water storage at field capacity (in.H2O/ in. soil)	Approx inches water per foot soil depth	Approx inches water in 3-ft. root zone	Approx inches water in 5-ft. root zone
Acuff	0-10	Loam	0.14-0.17	1.86	5.7	9.1
	10-36	Sandy clay loam	0.15-0.17	1.92		
	36-80	Sandy clay loam	0.13-0.15	1.68		
Amarillo	0-9	Fine sandy loam	0.11-0.15	1.56	5.5	8.9
	9-44	Sandy clay loam	0.15-0.17	1.92		
	44-102	Sandy clay loam	0.11-0.15	1.56		
Brownfield	0-26	Fine sand	0.08-0.12	1.2	3.6	6.0
	26-42	Sandy clay loam	0.08-0.12	1.2		
	42-52	Fine sandy loam	0.08-0.12	1.2		
	52-60	Fine sand	0.08-0.12	1.2		
Olton	0-13	Clay loam	0.16-0.18	2.04	6.1	9.6
	13-39	Clay loam	0.16-0.18	2.04		
	39-80	Clay loam	0.14-0.15	1.74		
Pullman	0-8	Clay loam	0.15-0.18	1.98	5.7	9.1
	8-46	Clay	0.15-0.16	1.86		
	46-84	Silty clay loam	0.14-0.16	1.80		

LATE PLANTED GRAIN SORGHUM

I discussed last recommended planting dates in the June 10th issue of FOCUS. At this point, with the exception of the lower South Plains, growers should be shortening grain sorghum maturity. The cutoff for a medium maturity grain sorghum in much of the Central South Plains is June 30th, and about a week ago in Parmer, Bailey, Castro, and Cochran counties. With all the recent rain, producers still planning on planting grain sorghum may have too long a maturity of grain sorghum on hand. You may need to exchange that seed. Growers in the northwest South Plains should try to get sorghum planted as quickly as possible with an early maturity hybrid by July 5th. There is an increasing risk that cool fall temperatures could curtail production.

Growers in the central South Plains should be able to comfortably plant medium to early maturity sorghums now or early maturity grain sorghum through about July 10th. Again, consult the July 10 issue of FOCUS for information on sorghum last recommended planting dates by region and company hybrid, seeding rates, etc. **CT**

PEANUT FOLIAGE TURNING YELLOW?

Several producers have called with concerns about yellowing in peanuts, particularly since the rains set in about two weeks ago. Some of my own trial fields looked fine, nice and green, up through about June 12. Then to return to them late last week one wonders, "What happened?" Yellow peanuts across the field.

First, peanuts tend to yellow considerably on caliche ground, and production is reduced when caliche is strong. Leaves can be completely bleached out due to severe iron deficiency (usually) such that classic iron deficiency symptoms, interveinal chlorosis (where the veins are green and yellow in between the veins) is not observed. These symptoms for iron (Fe) deficiency normally appear in the newest trifoliate leaves, as Fe is not mobile within the plant. This is in contrast to nitrogen deficiency in peanuts for N is mobile within the plant and though we might see general yellowing of the whole plant, symptoms generally are more pronounced on older leaves. High pH in caliche soils can affect other micronutrients, but Fe is usually the problem. Applications of foliar Fe may or may not help the crop, and in less than severe cases the peanuts may gradually grow out of the problem as the root volume expands.

A Spanish peanut field in Lamb County that showed no symptoms of any nutrient problems, had at least 40 lbs. N/acre already applied, had some Rhizobium nodulation (~5 nodules per plant), and had just received 3" of irrigation. Then the rains came. The yellowing condition developed very quickly, but all symptoms were on the youngest leaves. Classic indications of Fe deficiency are where the veins have retained some green color.

Are some fields limited running out of nitrogen now? Perhaps. But I believe most of what farmers are seeing is related to micronutrients, primarily iron. Limited amounts of zinc (Zn) and perhaps manganese (Mn) could be a problem in some fields, but probably not without Fe deficiency, too. Symptoms for Zn and Mn deficiency can appear similar to Fe in many cases, at least early on.

The onset of rain and cooler conditions can trigger quick Fe deficiency response in peanuts and other crops as well. As for nitrogen, many fields have not received so much rain that we would have expected leaching of N, and plants should be producing some N on their own from Rhizobium as well as translocating N

internally. Hence we would not expect to see the sharp yellowing on younger leaves from N deficiency.

Should I apply an iron or an iron/ micronutrient mix for peanuts? There is merit in considering applications of Fe in particular, probably at about 3% Fe. If the material is available, I prefer ferrous iron sulfate (non-chelated) at 1 lb. per 5 gallons of water with a sticker adjuvant. For now, target 5-10 gallons per acre, but 10-15 gallons per acre for larger peanuts. This is more economical than expensive iron chelates (e.g., iron citrate). We are not expecting soil activity hence a chelated form of Fe is not necessary. Ferrous iron ammonium sulfate can also be used at about 2.5-3.0% Fe. Since Zn or Mn might be limiting and the deficiency harder to determine based on symptoms alone, producers might feel comfortable adding these other micronutrients if they decide to spray. A WHOLE-LEAF TISSUE TEST would tell you more accurately what the needs might be, but be cautious about using petiole tests. According to Texas A&M peanut physiologist Dr. Mike Schubert, petiole tests measure translocatable nutrients, which Fe and Zn are not. He recommends leaf tests only. Petiole tests in peanuts have not been well documented for their effectiveness.

Finally, with the return of open weather and some drying, I believe many of our yellow peanuts from Lamb County in the north to Dawson County in the south will green up a bit. It has been difficult to ascertain if the peanuts in several fields I have observed in the South Plains ever really did benefit from the foliar iron received from multiple Fe applications in the past several years. Many of the yellow fields (expect those on significant caliche) seem to eventually green up on their own. **CT**

PEANUT POD ROT

Fields that have a history of peanut pod rot should probably receive preventative fungicide applications at 60 and 90 days after planting. Most areas have received a great deal of rainfall this summer, so preventative fungicide applications may be important in protecting pegs that will be forming pods in July. Go to the "2004 Peanut Disease and Nematode Control Recommendations" Texas Guide for more specific recommendations and fungicides. **TW**

SOYBEAN RUST ALERT

Soybean rust is a very serious disease that is **NOT KNOWN TO BE IN THE U.S.** yet, but is predicted to arrive from Central or South America in 2004 or 2005. If the experts are right, airborne disease spores will enter somewhere along the Gulf Coast from Texas to Louisiana. Soybean rust can be managed with fungicides, and there are two currently labeled in the U.S. Texas A&M University Plant Pathologist Dr. Tom Isakeit has been busy trying to get a Section 18 use permit for several more products. If left untreated, soybean yield losses will average somewhere from 30 to 70%.

We are mentioning soybean rust now because we want you to report any rust-like symptoms to your county office immediately. This rust affects soybeans, blackeyed peas, green beans, lima beans, kidney beans, cowpeas, and a number of other legumes. If we find rust in your field, you won't be quarantined or anything like that. All the experts know it is coming, and they also know it can't be stopped. However, this disease has the potential to decimate U.S. soybean production, and we need to detect it early in order to minimize the impact it might have.

Signs of soybean rust include:

- Brown spots on leaves
- Premature plant defoliation and death
- Spore clouds present when leaves are disturbed
- Infected leaves wither and die leaving the plant with petioles attached to stems if defoliation occurs rapidly

Here are some photographs of soybean rust, and an additional plate of photographs of soybean diseases that look like rust. If you see anything that looks like these soybean rust photographs, call your county Extension office immediately. **PP**

USDA SUNFLOWER REPORT

The June 30th acreage report for sunflower indicated that short supplies would develop rapidly this fall. Acreage in the Dakotas is down as much as 20% due to wet weather that delayed planting until too late for sunflower.

Several companies including Sigco Sun of Goodland, Kansas, are now offering higher prices for Texas confectionary than we have seen in a long time--- as much as $13 to $19 per cwt. depending on seed size.

Sunflower oil is also expected to be in short supply and market observers note a decoupling of sunflower oil, especially NuSun mid-oleic oil, from soybean oil prices on the Chicago Board of Trade. Little oil is expected to be available for export, as the domestic market will be met first.

There is still adequate time to plant both confectionary and oilseed sunflower in the South Plains. For a brief review of last recommended planting dates, industry contact phone numbers for prices and delivery locations, consult the Extension 'Replant/Late Plant' guide'. **CT**

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

Editor: James F. Leser
Web Layout: Michelle Coffman

For more information call or e-mail
(806) 746-6101 or m-coffman@tamu.edu