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For South Plains Agriculture

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IN THIS ISSUE

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COTTON INSECTS

It appears that major weather events have left us for the time being. Humidity levels have remained high for the last many days but these too shall fall with the return of hot, dry weather. The winds, sand blasting, cloudy skies and in some cases, water-logged fields, will result in fruit adjustments of small to medium size squares and small bolls. This will not be insect-induced loss! Cotton pests have been relatively quiet for the last couple of weeks but fleahoppers, *Lygus* and bollworms are becoming more visible. Very few fields have been sprayed up to this point. Some areas of irrigated cotton look as good as they ever have. Let's hope the bugs don't find them!

Both *Lygus* and cotton fleahopper numbers have increased over the previous week. Fleahoppers (CFH) are represented mainly by nymphs, indicating they have become established and have reproduced. This is when their numbers begin to reach levels of concern. The good news is that most fields have passed the stage when CFH damage results in measurable yield losses. The bad news is that

late planted or developing fields will potentially take a "hit" from this pest. Also, any applications from this point on could upset the balance as bollworms "dribble" into the field.

Square retention has been very high this year where weather has not stripped plants of early squares. You can generally tell when weather, not insects, is the culprit for these losses. These squares are missing from the bottom of he plant. Overall square retention has ranged from 85-95%. Many of these fields will not be able to hold all these fruit and will make adjustments. Some of these adjustments will be in response to cloudy weather, fertility and later water issues, and the return of hot, dry conditions. Remember that only about 40-50% of all fruiting positions are retained. Also, most yield comes from 1st positions (80%) unless early losses dictate that 2nd positions (normally 15%) be used for compensation.

Bollworm damaged terminal

Increased Lygus (western tarnished plant bugs) numbers are mostly adults. This means that for now, western tarnished plant bugs (WTPB) are mainly moving into and out of fields and not establishing residence through reproduction. This situation can change rapidly. I would certainly watch fields with WTPB present to insure that their numbers don't escalate rapidly through reproductive recruitment. These bugs can damage all sizes of squares, flowers and smaller bolls. Their damage potential is great but thus far we have had very few years when this pest causes widespread damage.

Thus far, most fields with problems with either CFH or WTPB have been located near weedy areas, cut alfalfa, CRP, or in weedy fields. Surveys conducted through Dr. Megha Parajulee's research program at Lubbock have indicated that *Lygus* numbers in alternate hosts are down from last year and generally less or at the same levels observed in 2002. But remember, numbers of bugs in nearby alternate hosts is not a direct indicator of future problems in cotton, just potential.

Early bollworm activity continues across much of west Texas. Egg numbers have rarely hit 10,000 per acre and small larvae rarely have reached above 5,000 per acre. Most infestations have been well below 2,000 caterpillars per acre. Now here's the deal. These "nickel and dime" egg lays only get you into trouble once cotton is blooming and they continue for two or more weeks with decent survival. We usually see less than 15% of these eggs becoming damaging bollworm larvae. Mortality is high from predators and hot, dry weather. Well we appear to have a fairly decent supply of predators (mostly, big-eyed bugs, spiders, damsel bugs and lady beetles) but our high humidity has kicked up survival. Some fields are probably going to get in trouble if this egg lay continues. Remember----I don't generally recommend spraying bollworms prior to bloom----because most studies have shown plants will compensate for this damage unless significant terminal loss occurs.

I would definitely consider using pyrethroids-alternatives on these low level infestation, at least where natural enemy numbers are good. These would include Tracer, Larvin and Steward in some cases. Where higher numbers of bollworms are encountered or where coverage becomes a real issue, pyrethroids would then become my first choice. Speaking of pyrethroids---I mentioned in a previous issue of FOCUS that resistance of bollworms to pyrethroids had been detected by Texas A&M Toxicologist Dr. Patricia Pietrantonio in Burleson County (5X)----well now resistance has been detected in Nueces County (9-14X). All these levels are alarming although NO FIELD FAILURES HAVE BEEN REPORTED

TO DATE. This should give you pause to think about what may come later in the season. We very often get flights of moths from these affected areas. We might just inherit their developing problem. Keep an eye on field control as we roll through the season. And remember---not all field control difficulties are due to resistance----some are due to poor application coverage or timing.

Emergence of overwintered pink bollworms may be nearing its end. Trap catches have fallen once more this past week on most fields with most daily catches averaging less than three. However, there are a few remaining fields where daily trap catches continue above the nominal preventative treatment level of five. A field or two have averaged as high as 10 moths per night. While we are finding a very few pinkie larvae in the field, these continuing trap catches do indicate that a protracted emergence has taken place and appears to be "dribbling out" toward the end. Many of the highest trap catches have been in the vicinity of the Oasis Gin. It looks like we need to investigate this problem.

A few fields have received as many as 6 preventative treatments! Many of these were banded on at a reduced cost. If no further applications are needed before bolls are safe from late moving pinkies, this might not have been such a bad deal. But what if more applications are needed? Then this can turn into a nightmare. All I can say is think Bt cotton! If you are in or near a pink bollworm danger area, Bt cotton varieties are the only answer. Those of you that have late planted fields of conventional cotton stand to lose your crop without multiple, expensive applications of a pyrethroid or Lock-on.

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	4/29	5/7	5/14	5/20	5/27	6/2 -3	6/8	6/14-15	6/22	6/28-29	7/6
1	0	2	3	10	135	89	3	4	7	7	7
2	3	1	36	20	93	138	8	55	47	121	53
3	0	0	12	18	30	11	5	13	10	15	13
4	0	0	16	8	71	43	0	3	7	5	3
5	1	2	3	4	68	21	5	27	27	15	19
6	1	18	106	26	125	135	6	13	83	114	18
7	2	1	12	12	103	95	4	12	6	29	12
8	0	1	10	21	*	52	1	23	11	28	13
Total	**7**	**25**	**198**	**117**	**629**	**584**	**31**	**150**	**198**	**334**	**138**
No./ trap	**1**	**3**	**25**	**15**	**89**	**73**	**4**	**19**	**25**	**48**	**17**

*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	7/7
1	17	29	6	7	2	2	3
2	40	79	7	17	11	*	6
3	*	19	2	5	1	0	4
4	10	39	*	4	0	1	2
6	2	28	9	3	3	1	1
Total	**69**	**194**	**24**	**36**	**17**	**4**	**16**
No./ trap	**17**	**39**	**6**	**7**	**3**	**1**	**3**

*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	7/7
7	11	27	1	3	1	2	2
8	31	27	2	*	1	5	2
9	21	49	3	6	6	21	4
10	101	57	14	7	1	2	7
Total	**164**	**160**	**20**	**16**	**9**	**30**	**15**
No./ trap	**41**	**40**	**5**	**5**	**2**	**7**	**4**

*No data.

We will begin to run more pink bollworm traps across the area beginning in August. Counties that will probably be involved will include Parmer, Bailey, Cochran, Hockley, Lubbock, Lynn, Terry, Yoakum, Gaines and Dawson. 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 are down as overwintered boll weevil emergence ends. Well not exactly. Some weevils are still emerging but a very low percentage of the total. Meanwhile, red weevils are being found in traps indicating that the earlier established weevils have completed one reproductive cycle. The Permian Basin zone remains a problem but hopefully the 2 applications applied by the Texas Boll Weevil Eradication Foundation (TBWEF) to about 3,500-3,000 irrigated acres in Northern Glasscock County will reduce later pressure on adjacent zones. This early program was with the blessing of the local boll weevil steering committee and the individual affected producers who each signed an agreement. Spraying was stopped after two applications to allow natural enemies to recover and to avoid secondary pest problems, especially with aphids and bollworms 'lurking around'.

Average number of boll weevils caught per trap inspection and sprayed acreage through July 4. Number of boll weevils caught for the week ending July 4, 2004.

High Plains Zone	2004	2003	Sprayed acres	Weevils caught the previous week
Permian Basin	0.0089	0.0033	46,442	159
Western High Plains	0.00001	0.0003	549	0
Southern High Plains	0.00004	0.00005	7,526	4
Northern High Plains	0.00003	0.00005	1,972	0
Northwest Plains	0	0	0	0

I just got back from the Texas Boll Weevil Eradication Foundation 3rd quarter Board Meeting and thought you might be interested in the following tidbits. In general, in areas where weevil numbers have been greatly reduced by the eradication program, acreage is up. The Panhandle zone is just now getting set up on about 37,000 acres. TBWEF does not expect to need to spray any acreage in this zone this year. The success of the Northwest Plains zone has led to a 61% reduction in traps. Traps have been reduced by 59% in the Northern High Plains zone, 71% in the Southern High Plains/Caprock zone and 52% in the Western High Plains zone because of their successful eradication activities. But traps were increased by 4% in the Permian Basin (PB) zone because of lingering weevil problems originating from the St. Lawrence zone. Survival of boll weevils over the winter was high this year all over the state. This has resulted in 46,442 acres sprayed in the PB this year thus far compared to 6,005 in 2003. There is a good chance that a referendum will be voted on in the Valley and the Northern Blacklands areas late this year. If these two areas approve eradication, all of Texas will be in the eradication program. Wouldn't that be great. **JFL**

COTTON AGRONOMY

Much hotter conditions prevailed over the High Plains over the past week. Lubbock actually reached 102°F on two consecutive days (2nd and 3rd). Heat units accumulated at a higher than normal rate, and fields dried out in many areas allowing producers to get some badly needed fieldwork done. We are now running about 11% above normal for a May 1 planting, and the past week HU accumulation was about 15% above normal. The good news is that thus far we are still in very good condition across much of the region, and good rainfall was again obtained in some areas. The bad news is that several thunderstorms produced high winds and hail with the rainfall and wreaked havoc in some other areas. Bailey and Lamb counties lost approximately 1,000

acres and had another 7,000 or so damaged. Perhaps 5,000 acres were damaged in Hale, Crosby, and Floyd counties, and some cotton was lost in Dawson County. We are still thinking that we have lost about 100-110,000 acres total from various storm events.

The dryland situation south and west of Lubbock is still such that we believe we have around 250,000 acres in distress. All in all, we believe that about 3.3 –3.4 million acres are still standing. Irrigated and dryland cotton in Crosby County look very similar at this time (see photos). Many producers in that area have not had to apply irrigation water at this time. Some dryland fields have entered bloom with 8-9 nodes above white flower. This indicates that if we have some timely rainfall in those areas, an outstanding dryland crop might be possible. Also, with high energy costs this year, producers have already saved considerable input cost by not having to irrigate.

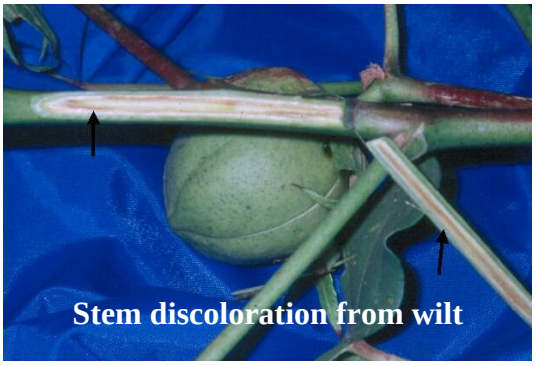
Many producers are still attempting to get weeds under control across the region. It is probably first and foremost on everyone's work agenda. However, we must not forget that many fields may not have adequate nitrogen (N) fertility at this time due to the lack of fertigation. It is imperative that we get N to the crop as quickly as possible. For fields that are substantially behind in terms of N delivery, producers should be using ground rigs where feasible. If the situation turns around and we get into dryer conditions, then the fertigation can crank up. The N uptake curve indicates that we really need to get N to the plant by once blooming commences – the point at which uptake goes "exponential." We already have many fields at this stage at this time. Other fields planted in mid-May will be blooming over the next week or so. For more information, see the past issue of FOCUS for N fertilizer comments.

Weedy field in Hale County

Some producers are concerned about excessive plant size. There's more than one way to "skin a cat" here. Some are opting for lower rate mepiquat chloride applications (4-8 oz/acre of 0.35 lb ai/gallon mepiquat chloride - MC) on very growthy fields, perhaps where N fertilizer was already applied and they have received outstanding rainfall. Typically, excessive growth is associated with high irrigation capacity (furrow, pivots and drip) and some of the longer-season picker type varieties such as Deltapine 555BG/RR, 444BG/RR, Stoneville 5599BR and 4892BR, and perhaps the FiberMax 989 background varieties and others. After these initial applications on these varieties, an evaluation will need to be made on fruit retention and growing conditions to determine how much MC to apply at early bloom. In other areas where lower irrigation capacity is typically deficit anyway, many are taking a "wait and see" attitude as to weather conditions, fruit retention, etc. If a potential plant size problem occurs after blooming on some of the varieties that tend to be less growthy anyway, then a single high dose (16 oz/acre or so) of MC could be applied during the bloom stage. There is no single recommendation for these products that can be made. This must be done on a field-by-field basis with many factors included in the overall decision. We are now into hotter, dryer conditions across much of the area, and the high fruit retention and drying soils will likely control most plant growth. For more discussion of these concerns see last week's FOCUS comments. **RB**

COTTON DISEASES

Reports have been coming in on wilt diseases from all parts of the High Plains. Verticillium wilt is now making an appearance. This disease can look identical to Fusarium wilt. To positively identify a wilt problem, break the stem and look for internal discoloration. For fields where root-knot nematode is NOT present, wilt is most likely caused by Verticillium. In fields with root-knot nematode problems, either fungus can cause wilt. In both cases, the choice of variety is the most important factor in controlling the severity of wilt. However, varieties can have very different ratings for the two types of wilt diseases. Verticillium wilt more typically starts when the plant flowers and can continue to develop throughout the growing season. Symptoms are much more severe under cool conditions. Once the crop is planted, it is difficult to manage wilt. Other factors that may slightly affect wilt include: stand (a thick plant stand is better than a thin stand); water (over watering will cause more wilt to develop than under watering); cultivation (less is better). The last time Verticillium wilt was moderately severe was in 1996. This means that we don't have very reliable wilt ratings for the more modern varieties. Verticillium wilt ratings for different varieties will be posted in FOCUS once we obtain enough data. However, all cotton varieties are somewhat susceptible to wilt. There are no immune varieties. **TW**



Stem discoloration from wilt

SORGHUM INSECTS

Corn leaf aphids are reported to be moderate to heavy in whorl stage sorghum. This aphid provides an excellent source of food for predators and parasitic wasps to feed upon and increase their numbers. These beneficial insects will be needed later when greenbugs appear. The corn leaf aphid is not a problem for commercial sorghum but may be for some sorghum grown for seed production. Some corn earworms (aka bollworms) are showing up as the first moth flight of the season continues. **JFL**

CORN INSECTS

Reports from Dr. Carl Patrick, Extension Entomologist at Amarillo, and Greg Cronholm, IPM Agent in Plainview, indicate that the second flight of southwestern corn borer (SWCB) moths is underway. These are the moths that will lay eggs that produce the second generation of SWCB. This is also the generation that causes the most economic damage.

Banks grass mite infestations remain low due to previous frequent rainfall events and high humidity. Continue to closely monitor this pest. Spider mites can rapidly increase once hot, dry weather returns. This is especially true now that corn ranges from silking to blister stage.

Small corn earworms are being found in most silking corn as the first moth flight of the season continues.

"Western bean cutworm activity has been reported from several areas in the northwest portion of the Texas Panhandle, according to Dr. Patrick. Historically, this corn pest has largely been restricted to Dallam and Hartley counties. More recently, infestations have also been reported in Sherman and Moore counties. Western bean cutworm moth activity begins in early July, with egg lay following shortly thereafter. Eggs are laid on the upper surface of the leaves in masses of 5 to 200. They turn from a pearly white at egg lay to bluish-black by hatching time. At hatching the young cutworms feed on the eggshell and then

depending on the stage of corn development move to one of two sites on the corn plant. If the corn has not tasseled, young cutworms will feed in the whorl on the developing tassel. If the corn has tasseled, the young cutworms move to the developing ear and feed on the silk. As the larvae mature, they begin feeding on developing grain. Unlike corn earworm, several western bean cutworm larvae may feed on each ear. Insecticide treatments should be made when 14 percent of the plants are infested with eggs or larvae and corn is 95 percent tasseled." **JFL**

SORGHUM AGRONOMY

Grain sorghum & standability. Grain sorghum brace roots' ability to penetrate the soil surface is an important key to keeping the crop standing. Hybrids may vary considerably when it comes to standability. My own farm experience in eastern Kansas was that cultivating soil around the base of the sorghum plant improved the likelihood that the crop stood well as this enabled brace roots to anchor. This was also good for weed control as we covered many small weeds. Since then my brother has changed the sorghum hybrids he plants to another company mainly because of improved standability. He has to have it as he often encounters wet fall conditions and the sorghum has to wait for harvest. Likewise, in the Texas South Plains, much harvestable grain sorghum may have to wait for cotton harvest or for custom harvesters who have a long waiting list. A good standing grain sorghum hybrid may be more important than having the best yielder if one considers the late-season risk of delayed harvest.

If we are trying to minimize tillage then is cultivating for improved brace root soil penetration a good idea? Also, if we are planting sorghum on the top of the bed (depending on how much soil we knock off) then it is difficult to throw soil around the base of the sorghum plant. And with sorghum on top of a bed, in a dry year, the brace roots will struggle to get in the ground. There has got to be some moisture there for penetration to work very well.

Are we making a mistake planting sorghum on top of a bed? Several long-time farmers here in West Texas would assert that we are, that this is one of the ways 'we farm sorghum like we farm cotton,' and this is not good for sorghum. Rather, some of these same farmers recall when they planted nearly all their sorghum with a buster planter somewhat below ground level. Standability was not a problem.

What about low sorghum seeding rates and standability? I have been asked about the potential for sorghum to fall down if we plant at the low seeding rates Extension suggests are sufficient to yield adequately yet limit risk in a dry year when a too-high plant population crop burns up. Yes, with a poor standing hybrid a low population sorghum crop in a good rainfall year could set heads with well above 1/10 lb. of grain per head. But at lower plant populations you also have a bigger stalk, and if there is likelihood that lodging is a concern in this case, then something good has happened—you have had some rain! The key here is a good standing hybrid that handles all situations well. Look at your sorghum this year on dryland fields. Did the brace roots get in the ground? If not, ask yourself if the way you planted might have restricted the ability of the sorghum brace roots to get in the ground. Consider cultivating to throw soil toward the sorghum stalks while eliminating some weeds. Managing for sorghum standability is an important risk management tool just like the modest seeding rates recommended for dryland grain sorghum in the Texas South Plains. **CT**

ALFALFA AGRONOMY

Is N fertilizer necessary for established alfalfa? This question has been brought to me by producers northwest of Lubbock who are seeking yields near 8 tons per acre. Likewise, scattered producers near Midland and on south

toward Ft. Stockton who have ample water and a longer growing season produce high tonnage and wonder about having enough N to make all that protein. As you know, alfalfa is a legume, and there are specific strains of N-fixing *Rhizobium* bacteria that can provide the needed N. My first question about N on established alfalfa is: How well noduled is your current alfalfa crop? Most producers haven't looked. In my own survey I am generally disappointed that I don't find the degree of nodulation I would like to see in alfalfa. In many cases there is little to no nodulation. These instances need supplemental N to achieve sustained high yields.

Why is nodulation poor? Did you plant alfalfa that already had a *Rhizobium* inoculant on the seed? Was the seed old? How was the seed stored (hot shed)? Did you have hot, dry conditions after seeding that might have killed off the inoculant? It is not feasible to add liquid *Rhizobium* inoculant to irrigation water for alfalfa. In theory this might work, but no results have demonstrated this.

What if nodulation is good? Will it supply enough N to my crop? Can I still boost yields with supplemental N? Or will I hurt the nodulation I already have? If you use mid-season N applications on established alfalfa, are there any risks? A well-noduled crop should provide enough N for a high-yielding alfalfa crop. Typically, reports suggest that a six-ton alfalfa crop requires about 300 lbs. of N (that is what is removed from the field). The potential pitfalls of adding N to alfalfa are: 1) a reduction in nodulation going forward (plants are lazy—they will take fertilizer N instead of the 'free' N of nodule N fixation), 2) an increase in weed problems (especially the grassy weeds, which out compete alfalfa for N), and 3) you may shorten the longevity of the stand.

I know growers in Texas South Plains that are routinely adding N to their fields, and they believe they are seeing the benefit. I am skeptical that there are any great increases in yield, especially if they don't know whether they have any nodulation. Nodulation might have been there at one time, but now it could be gone due to N use. The bottom line is if a producer receives a yield response to mid-season N on established alfalfa then there are probably some other management issues that need to be evaluated, especially *Rhizobium* inoculant and planting seed.

I would appreciate hearing from consultants and producers on this matter. The opportunity for some research in 2005 exists, but fields must be evaluated for current nodulation status in 2004 to choose appropriate fields for research. **CT**

FORAGE AGRONOMY

Summer annual forages and late planting. As cropping options for late season planting diminish some producers might be interested in the reduced risk and options that planting a summer forage crop provide. Although a few reasonable late-season planting options are still available south of Lubbock, other areas might consider the ground cover, production, and potential market that some late-planted summer annual forage may provide, especially if you can lease grazing or bale for a ready hay market. Producers minimize the risk, as grain or fiber maturity is not needed. Sorghum/sudan in the Lubbock area planted on July 15th with some rainfall should be "grazable" by late August (as soon as the crop is 24-30" tall) and can still produce adequate hay yields. The long-term plan of any late planting to forage might be balanced against waiting until early September to plant small grains. An additional benefit of sorghum/sudan, provided that the crop is not grubbed into the ground this fall, is a wind cover for seedling cotton in 2005. **CT**

CROP WATER ISSUES

Previous thunderstorms have brought localized variable rainfall to the South Plains during the last week. High temperatures and continued crop development are contributing to increased

crop water demands. Corn is in its peak water use period (silking through milk stages). Other crops are rapidly approaching their peak water use periods.

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.htmT. Some of these estimates are summarized below. Crop water demand estimates for additional crops and additional growth stages are available from the networks. 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 July 1 - July 7, 2004. Average Daily Crop Water Demand (inches per day).

Location	Reference Crop ET (in./day)	Corn	Cotton	Peanut	Sorghum
		12-leaf – milk	Emerged-squaring	Flower – pod dev.	4-leaf - flag
Halfway	0.28	0.33-0.37	0.14-0.28	0.20-0.29	0.14-0.24
Lamesa	0.35	0.41-0.45	0.17-0.34	0.24-0.38	0.18-0.33
Lubbock	0.33	0.39-0.43	0.16-0.32	0.23-0.36	0.16-0.31

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