

DEDICATED TO THE MEMORY OF JOHN HUNTER

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EDITOR'S COMMENTS

John Hunter passed away on July 4th after battling cancer for several months. John was 78 but wise beyond his years. I've known John since I came to Lubbock in 1976 to assume the position of Extension Cotton Entomologist following my Ph.D. program at the University

of Arizona. John and I traveled together that winter to Munday, Texas for the first Ambush field day held in Texas. It was cold and foggy yet ice tea was served at the outdoors lunch. I thought---crazy Texans! But John was the most solidly rooted individual I have ever known. During my very first summer season he initiated frequent phone visits to discuss what was happening and asking my opinion of what to do about it. These phone conversations were to last through my last season in 2005. I'm not sure who got the most of this arrangement---I know I benefited greatly. I was the academic with little practical field experience and John was the field wise one with almost 20 years experience. Together we made a good team and both grew as a result of this lasting relationship.

I'll miss John Hunter tremendously. He has left a legacy few will ever match. I'd like to believe that John is up there by God's side minding the business of pest management in the Lord's garden. The Lord couldn't find a better consultant. **JFL**

COTTON INSECTS

High temperatures and low rainfall have generally kept insect pests at bay in cotton. We did have a short run of thrips in seedling cotton but problems with cotton fleahoppers or western tarnished plant bugs have failed to materialize. Square set has remained high except where weather events involving high winds and blowing sand have been a factor. The first wave of bollworm activity began last week in the southern counties but their numbers remain low and natural enemies have been looking for a meal in generally insect-devoid cotton fields. The threat of beet armyworms remains high with elevated trap catches and

conditions conducive to their population development.

Cotton fleahopper numbers remain low.

Treatable infestations have been very rare this year. To assess fleahopper damage potential both percent square set and numbers of fleahoppers must be determined. Missing positions (evidenced by scars) or dried up little squares do not necessarily mean a fleahopper or western tarnished plant bug is at work in your field.

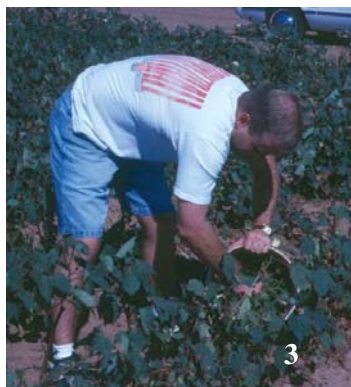


Fleahopper adult



With retention averaging 75% or above for most fields three or more weeks into squaring, little concern is needed for these two pests at this time. But things can change in a

hurry. Scouting for fleahoppers and Lygus in smaller cotton is easily accomplished using a beat bucket. Our bug threshold is 25-30 per 100 plant terminals combined with a square set falling below 90% in the 1st week, 85% in the 2nd week and 75% after three weeks of squaring. Personally I think this is too aggressive for irrigated cotton and way too aggressive for dryland or water-limited fields.



The first wave of bollworm activity started

last week in the southern areas of the High Plains. We are finding some eggs but very few larvae. Egg numbers have generally averaged less than 1,000 per acre. Most of these beginning infestations are being taken out by the heat and decent natural enemy activity.



Heat plays a major mortality role until cotton gets some size to it and starts shading the “middles”. Very few if any fields will fall victim to this first wave of activity in most years. There have not been any significant bollworm problems in the south Texas area to date. Perhaps this bodes well for us later in the season when long-range movements of bollworm moths can cause problems.

If bollworm control is needed during this first wave of activity, coverage should not be a problem. The biggest danger is to make a treatment too early on borderline infestations, not allowing sufficient time for the heat and natural



enemies to do their job. My beginning threshold for treatment would be about 10,000 3-4 day old larvae (1/4 inch to 3/8 inch). If you spray too early, you have accomplished two things---spent money unnecessarily and killed your beneficial insects and spiders needlessly.

Pyrethroids are the cheapest way to go but are also the most disruptive. I would not recommend this chemistry at this time as they are disruptive on aphids and kill most of our natural enemies. They are long lasting and keep beneficial insects and spiders from recolonizing fields for as long as 10 days.

Larvin and Tracer would be less disruptive insecticides but would also kill fewer worms and not last as long as pyrethroids---a good tradeoff if natural enemy preservation and aphid and beet armyworm avoidance are important to you. And remember that Bt cotton (Bollgard varieties mainly now) should take care of these early infestations without additional help.

Beet armyworms remain below radar for now but their threat is certainly there. Trap catches have been relatively high in the southern areas of west Texas and the surrounding Rolling Plains. Hot, dry conditions and skippy stands play right into



BAW egg masses

their game plan for rapid increases later in the season. We must use insecticides judiciously over the next several weeks as research and experience have shown that predators and parasites are extremely important in keeping this nasty pest in check. Keep an eye out for



Early leaf feeding

egg masses and signs of initial mass feeding. Bollgard varieties won't control

potentially economically damaging infestations of this pest although suppression is possible. Bollgard II will, on the other hand, provide significant control.

The pink bollworm problem appears to be cycling out this year. A dry year and lots of Bollgard planted cotton appear to be severely limiting overwintering survival success and colonization of hostable cotton. Last year at this time, 72 pink bollworm moths had emerged in the cages of the overwintering study (or 83%). This year only 9 have emerged

thus far. Trap catches are down too with only Gaines, Reagan, Upton and Tom Green counties with traps catching appreciable numbers. These counties actually had one trap apiece that caught 5 or more moths per night on average. This is around treatment level. Do remember that if traps are placed around fields planted to Bollgard varieties last year---do not expect to catch many moths even if the fields are now planted to non-Bollgard varieties.



Emergence of overwintering moths will be 95% complete by around July 20, depending upon future heat unit accumulations. The following chart provides pink bollworm population events based on heat unit accumulations since January 1.

Event	Average HU Accumulation
Emergence	500
50% emergence	1180
95% emergence	1950
100% emergence	2200
1 st field generation	1930
2 nd field generation	2680
3 rd field generation	3430

With hostable cotton without Bt-variety protection available for emerging moths, even a few can start an infestation that can later develop into a problem field. Trap catches (average of more than 5 per night on several traps per field) are used as an indicator of fields needing treatment prior to first flowers. Once bolls are present, trap catches only indicate a threat but boll cutting becomes mandatory for all subsequent treatment decisions (percent infested bolls).

Evidence of an infested field can often be seen by the presence of rosetted flowers. They are

produced by larvae feeding on squares just prior to flower with their silken threads tying up the flower petals in a pinwheel fashion.

Once pink bollworm larvae enter bolls, you will have to open bolls and look at the inside of the carpel wall (boll wall) for the



Rosetted bloom

presence of “warts” and small larvae. Lint associated with the wart area can be discolored. While pinkies get their name from the pink color of caterpillars, this color does not appear until the later instars. So you will be looking for generally clear colored very small larvae, almost invisible to the unaided eye. Insecticides generally used are in the pyrethroid class of

chemistry. For more pink bollworm information see [Pink Bollworm Management Tips I](#) in the Crop Production



Small pinkie and wart

Guide Series of FOCUS and [Pink Bollworm Management In Texas](#).

Boll weevil trap catches remain very low.

What a difference a year makes! With a full season program underway in the St. Lawrence area, pressure has been relieved from the surrounding program zones with a subsequent precipitous drop in trap catches and sprayed acres.

Only three zones have caught overwintered weevils thus far. These include the Permian Basin, St.



Lawrence and Western High Plains zones. It

looks like the west Texas area is rapidly approaching weevil free status at last. **JFL**

Average number of boll weevils caught per trap inspection and sprayed acreage through June 25. Number of boll weevils caught for the week ending June 25, 2006.

High Plains Zone	2005	2006	Sprayed acres	Total weevils caught this week
Permian Basin	0.0587	0.0005	1,561	12
Western High Plains	0	0.00001	0	0
Southern High Plains	0.0001	0	6,195	0
Northern High Plains	0	0	0	0
Northwest Plains	0	0	0	0
Panhandle	0	0	0	0
St. Lawrence	1.0995	0.0017	2,190	6

Average number of boll weevils caught per trap inspection and sprayed acreage through July 2. Number of boll weevils caught for the week ending July 2, 2006.

High Plains Zone	2005	2006	Sprayed acres	Total weevils caught this week
Permian Basin	0.0489	0.0005	7,603	42
Western High Plains	0	0.00002	0	3
Southern High Plains	0.0001	0	0	0
Northern High Plains	0	0	0	0
Northwest Plains	0	0	0	0
Panhandle	0	0	0	0
St. Lawrence	0.7419	0.0016	4,950	29

COTTON AGRONOMY

Overview. Over the last couple of weeks, we have experienced somewhat [cooler temperatures](#) than we observed in the first half of June. Late June temperatures were somewhat below normal for highs and somewhat below normal for lows. Overall, we are still running about 25% above normal for cotton heat unit accumulation from May 1 through [July 6](#). There have been a few spotty rain showers across the region. For a look at the distribution of June rainfall across the region, go to the West Texas Mesonet Web site here: <http://www.mesonet.ttu.edu/Jun06rain.htm>. Some good [rainfall amounts](#) were obtained in some areas over the last few days in July. To see July rainfall across the region, click here: <http://www.mesonet.ttu.edu/Jul06rain.htm>



Many growers are spraying over-the-top (OT) glyphosate applications on Roundup Ready Flex fields. Even some of the later planted dryland cotton is beginning to hit the OT window closure for the Roundup Ready types. Many fields are on track for blooms in early to mid-July.

We are still concerned about the amount of dryland acreage that will be lost. Substantial numbers of dryland fields have already been released for crop insurance. The final acreage count will not be available from USDA-Farm Services Agency until sometime after the final certification date which, as I recall, is July 15.

Producers are continuing irrigation on dry fields. As of this writing, forecasts for high

temperatures nearing the century mark by the end of next week with slight chances of rainfall are noted. Couple this with cotton nearing bloom stage, and crop water requirements will quickly reduce soil moisture to critical levels. I suggest that producers watch their fields and not get behind on irrigation – especially if it remains hot and dry as forecasted.



Plant growth regulators. Questions concerning mepiquat-based plant growth regulators (PGRs) (Pix, Mepex, Mepichlor, Mepiquat Chloride, Mepex GinOut, Stance, and others) are being asked. Pricing of these materials vary significantly. Our results have shown that we usually do not get statistically significant increases in yields, but do get excellent growth control. Many times we don't see a lot of differences between higher priced materials and lower priced ones when it comes to growth control.

Bayer CropScience has begun marketing of a new mepiquat chloride based PGR. This product is called Stance. It is a 4 to 1 ratio of mepiquat chloride and cyclanilide (0.736 lbs/gallon mepiquat chloride plus 0.184 lbs/gallon cyclanilide). Cyclanilide is an auxin synthesis and transport inhibitor. Auxins are generally referred to as compounds that have the capacity to induce cell elongation. The inhibition of auxins could reduce cell elongation and inhibit growth. We have had the opportunity to work with this material over the last couple of years. Monti Vandiver and Brant Baugh (Extension IPM Agents) had excellent projects at Muleshoe and Lubbock in [2004](#) and [2005](#) that included several of these types of products. Producers should be aware that the mepiquat chloride concentration in Stance is about twice as high as most of the

other materials we have become accustomed to applying. THEREFORE THERE IS A CORRESPONDING REDUCED RATE. Since we have worked with this product in previous high rainfall seasons (2004 and 2005), we need to take care concerning the use of this product in the thus far dry 2006 season until we better understand its capabilities. If you have specific questions concerning this product, visit with your local Bayer CropScience representative.



Cotton field at Muleshoe, 2006

With the some of the newer cotton varieties, I think growers should be on point on this issue. My suggestions are that these PGR materials should be targeted to high input (“high” irrigation capacity) pivots, furrow-irrigated, and drip irrigated fields planted to high-growth potential varieties. With all of the new Roundup Ready Flex varieties out there, I suggest you visit with your seed company representatives concerning the specific varieties you have planted in these high-input fields concerning the amount of growth potential you might expect. We noted in 2004 and again last year that many fields did get very growthy due to the variety planted and the considerable rainfall obtained. Remember that last year at Lubbock we had near normal rainfall in May and below normal rainfall during June. July and August rainfall amounts were near normal. 2004 was not typical, and we usually see July weather hot and dry, which limits growth in many fields (even with “good” irrigation capacity). The bottom line here is to manage each specific field that may have high growth

potential. Based on the high fruit retention that we are observing, hopefully this should help “tie the plants down” and we won’t have to spend a lot of money for growth control.

We participated in a statewide Chaperone testing protocol in [2004](#) and [2005](#). Chaperone PGR is marketed as a yield-enhancing product. We were not able to document any significant yield increases from this product in the High Plains.

For some good information concerning various PGR materials, go to the Crop Production Guide Series on [plant growth regulators](#). **RB**

COTTON DISEASES

Root-knot and reniform nematodes are highly damaging to cotton this summer. In places where water was delayed or inadequate, plants are even dying. If you are experiencing stunting in your fields (uneven growth), then nematodes may be the culprit. Look for severity of galling on the taproot as an indication for root-knot nematodes. If reniform nematode is involved, then it is necessary to have a soil sample tested.

There have been some questions about how the new nematicide product AVICTA Complete Pack is performing compared to Temik 15G. We (Terry Wheeler, Scott Russell (IPM agent in Terry/Gaines), Emilio Nino (IPM agent in Castro/Lamb), and Kerry Siders (IPM agent in Cochran/Hockley)) are looking at large plot comparisons that include AVICTA complete Pack, Temik 15G, and no nematicide treatment. We will not know the final results until we harvest, since nematodes are so variable within fields that it is difficult to measure enough samples to really know how the treatments are performing. However, I will present the root galling data that was taken at 35–45 days after planting. The fields ranged from low pressure (average of 0.5 to 2.6 galls/plant) to moderate pressure (5.1 to 6.6 galls/plant). We looked at 120 to 160 plants for each treatment in each of

six fields. Temik had the least number of galls/plant (2.4), and AVICTA complete pack and the untreated plots had similar number of galls (3.6 and 3.3, respectively). In every field, Temik 15G averaged fewer galls per plant than the untreated check or AVICTA complete pack, but there was always so much variation in gall numbers, that the differences were not statistically significant. In other words, no matter how good or bad the treatment, all the treatments had plants with both high and low numbers of galls within the plot.

Fusarium wilt was found in several fields last week. This disease is a complex between *Fusarium oxysporum* (a fungus) and the root-knot nematode. In general, stripper varieties are more resistant to this problem than picker varieties. We have been testing varieties in a Fusarium wilt field in Lamesa for the last three years. I am still hesitant to recommend a picker variety for this disease. However, Temik 15G at 5 lbs/acre has always given a big yield boost in test sites. Yields increased by 15 to 25% when Temik 15G was used compared to no Temik15G. We have also looked at AVICTA complete pack in Fusarium wilt fields, and it has consistently performed poorer than Temik 15G, though better than the untreated check. Hopefully by the end of this year, we will release information on the Lubbock web site as to the performance of varieties against this disease at one site over the last three years. However, Fusarium wilt is a problem that needs more variety testing at multiple sites before recommendations can be made with confidence. **TW**

Potential for foliar diseases has increased with the recent showers throughout the Southern Plains, although, weather conditions remain generally dry. Samples received at the Lubbock Center on July 6 have confirmed the first report of Alternaria blight of the season. The disease was first observed in 1999 near Welch. Over the past several years, there has been a small increase in the number of calls pertaining to this disease. Fields exhibiting symptoms of Alternaria blight have been

isolated to counties south of Lubbock (ie Gaines, Dawson, Yoakam, and Terry); however, calls concerning fields exhibiting similar symptoms were received throughout the area in 2005.

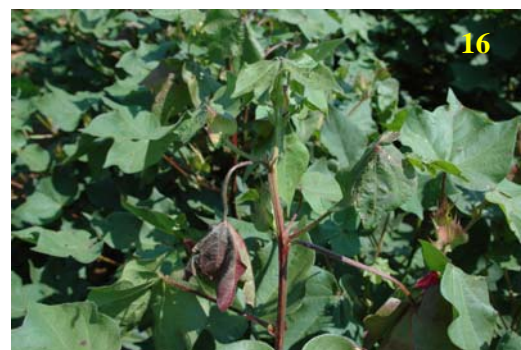
Initial infections are believed to occur at the leaf margin and which may appear chlorotic or necrotic.



The fungus will progress down the veins to the petiole ultimately infecting the main stem. Infected leaves have a wilted

appearance, and may exhibit a “Sheppard’s crook” or downward curling. The undersides of veins of leaves from the upper canopy typically turn a brownish/maroon color. Infected plants may appear stunted compared to uninfected plants. Little information is currently available regarding the economic importance or control of this

disease in the High Plains. According to Randy Boman, there does not appear to be any



major differences in susceptibility among the most commonly grown cultivars; however, additional studies are needed to fully explore any differences. Major yield reductions have not been attributed to Alternaria blight, but management options may be warranted if the disease becomes widespread. Efforts will be made to monitor this disease. If you have any questions regarding Alternaria blight please contact personnel at the Lubbock Center. **JW**

SORGHUM & SUNFLOWER AGRONOMY

Late plant cropping options are narrowing.

Without significant rainfall over most of the South Plains, cotton-replacing alternative crops are a consideration. We are not at or past the last recommended planting dates for most crops. Shorter-season maturity grain sorghum, sunflower, and summer annual forage crops remain possibilities that could be planted with minimal costs though replanted cotton ground may face limitations due to cotton herbicides. For a more complete list late-season planting options refer to “2006 Alternative Crop Options After Failed Cotton and Late-Season Crop Planting for the Texas South Plains.” It is available at <http://lubbock.tamu.edu> or through your local county Extension office.

Summer annual sorghum/sudan forages.

Numerous producers have indicated their interest in planting a summer forage crop. One key advantage, provided you can either graze it or have a market for the hay, is that a mature physiological stage of growth is not required. Hence you are in the driver’s seat regarding when you graze or harvest. A cool fall or an early frost will not threaten any required seed maturity.

Along with inquiries about haygrazer or sorghum/sudan for 2006 planting, producers are increasingly recognizing that forage quality is a worthy target, not just total yield. Foremost among summer annual forages is the brown midrib (BMR) trait that was introduced into commercial sorghum/sudans and forage sorghums from about 1999-2001.

The following is taken from “Annual Summer Forages for West Texas” available through local Extension offices or on the Web at <http://lubbock.tamu.edu/othercrops/forage.php>

Brown mid-rib (BMR) sorghum/sudan. The brown mid-rib visual trait is usually noted in the leaves. These forages are generally lower

lignin content in the leaves and stalk. This results in 20 to 50% less lignin than conventional sorghum/sudan when measured at comparable maturities. High lignin lowers the digestibility of the forage. Thus BMR forage has higher feed value and forage palatability for livestock. The Texas A&M Center at Amarillo reported a 12% increase in average daily gain for stockers in a replicated rotational grazing system when grazing BMR vs. conventional sorghum/sudan. In addition, grazing preference for BMR forage vs. other sorghum/sudans is often observed in the field. Don’t be deterred by somewhat higher seed costs with BMR forages. At modest seeding rates many of the regional Texas High Plains companies’ hybrids will cost only \$3-4 more per acre to plant.



Management of BMR sorghum/sudan (~16,000 seed/lb.) is similar to conventional sorghum/sudan for seeding, planting date, and harvesting. One concern with BMR may be standability (lodging). This is generally an issue only if the forage heads out (which also means we have reduced forage quality).

Higher seeding rates increase lodging potential. Also, BMR forage sorghum is available, and forage quality results demonstrate



Brown midrib (BMR) color trait on leaves

that BMR forage sorghums as a class are very

near corn silage quality but require 10-25% less water to obtain comparable tonnage.

In general, recommended drilled seeding rates for irrigated and dryland sorghum/sudan are 25 lbs./A and 15 lbs./A, respectively. However, in dryland conditions or when buster replanting of irrigated ground where herbicides might be an

issue, good results can be achieved using a planter. Seed placement is better with a planter, and establishment is a key component of forage production success. For planter irrigated and dryland seeding rates, consider 15 lbs./A and 10 lbs./A, respectively. **CT**

COTTON INSECT PHOTO CREDITS

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