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FOCUS on South Plains Agriculture

A newsletter from the Texas A&M AgriLife Research and Extension Center at Lubbock

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Cotton Extension Entomology: Recap of 2013 and planning for the upcoming 2014 growing season

Recap from 2013 growing season: In terms of insect pressure in High Plains cotton fields, 2013 was a pretty light year. We had low to moderate levels of thrips pressure early in the season. Inclement weather and lack of rain were the main factors for the loss of planted acres.

Except in a limited number of fields, cotton fleahoppers were not a big concern for producers during 2013. We observed increased fleahopper activity in fields later in the season, yet it was too late to suffer economic losses due to the fleahoppers. Damaging infestations of Lygus were primarily limited to a few fields in Hale and Swisher counties where insect populations did exceed economic threshold levels, resulting in the application of insecticides. Caterpillar pests such as beet armyworms, bollworms and fall armyworms were seen in non-*Bt* cotton, particularly in Gaines County. These caterpillars did cost some producers "big bucks" in insecticide applications. Caterpillar pests can quickly get out of control if their presence is not detected early on when they are small and are more easily targeted for exposure to the insecticide treatments. Once they start feeding inside hard bolls, especially bolls on the lower half of a plant, it is difficult to kill those caterpillars with an insecticide application. Therefore, timely scouting is essential to detecting early invasions of caterpillars on non-*Bt* cotton fields.

Late in the season, we also observed light aphid pressure in cotton fields in several counties. The populations never increased, due in large part to the presence of adequate beneficial arthropods and less than favorable growing conditions. I am not aware of producers making insecticide applications for aphids in this region last year. The key point for successful aphid control is to preserve your beneficials. The selection of a specific insecticide or type of chemistry is very important because the use of harsh chemicals, such as pyrethroids, could exacerbate aphid situations. We observed a few stink bugs in several cotton fields where we had our other trials and also in some fields within Extension scouting programs. Overall, the stink bug populations were very low and never caught much attention. It was estimated that in 2013, overall yield losses due to insect pests in High Plains cotton was less than 1 percent.

Projects for the 2014 season: At this time of the year, we are engaged in planning for the upcoming growing season. A fair amount of my time and effort will be invested on thrips research. We are initiating a statewide project to evaluate insecticide seed treatments used in cotton. The rationale for taking up this project is due to the fact that in the mid-south cotton growing states (i.e., Louisiana, Arkansas, Mississippi and Tennessee) researchers have documented that the efficacy of thiamethoxam (Cruiser®) on thrips is decreasing due to the development of resistance within thrips populations. The thrips populations developing resistance in the mid-south region consist of tobacco thrips, *Frankliniella fusca*. Therefore, it is important to know the specific species of thrips attacking our cotton because it may make a big difference in terms of the efficacy of our cotton seed treatments. One of the goals of this project is to determine whether thiamethoxam is losing efficacy on thrips populations in Texas.

In Texas we have several cotton growing regions and there is limited information on which thrips species are abundant within each of these regions. Therefore, we are planning to collect thrips from cotton at different locations and identify the specimens to the species level. Both of these projects (insecticide seed treatment efficacy and regional thrips species composition) will help us detect the development of resistance to thiamethoxam in thrips, if there is any. In addition to these tests, we will also be conducting thrips control performance evaluations on currently available insecticides, plus any upcoming potential products.

We have plans for conducting research to understand the incidence, damage and how to manage wireworms in cotton. Although wireworm problems are not an areawide problem in High Plains cotton, there are several fields where producers have seen this problem for consecutive years. Last year we conducted two trials (one in Gaines County; second in Bailey County) to evaluate chemicals for bollworm control and those results are available in the 2013 Annual Reports distributed by the IPM-Agents of those counties. This, year we will continue evaluating different insecticides as well as some tank-mix options for caterpillar pests. In addition, I have received a request to evaluate a few new products against fleahoppers and Lygus. Therefore, wherever we see adequate and relatively uniform populations of these insect pests, we will set-up our trials for the products.

Evaluating chemistries that are soft on beneficials is always a priority, especially in the arena of aphid management. So, we will look for opportunities to conduct an insecticide trial for aphid management. Our Extension personnel in counties across the High Plains and our independent consultants will be keeping a close eye on insect situations throughout the crop season and we will make our producers aware of those situations via newsletters and other media. Finally, I would like to thank our producers and all of the cotton industry partners in the region for their hard work and perseverance. Please feel free to give me a call at 806-746-6101 (office) or 806-407-2830 (cell) if you have any question or concern regarding insect pests in your cotton. I look forward to a great cotton production year for the High Plains! **AB**

Cotton Diseases

Seedling disease complex of cotton

Losses due to seedling disease in the High Plains are generally negligible; however, the potential exists for stand reductions to occur. A number of different soilborne pathogens including *Pythium* spp., *Rhizoctonia solani* and *Thielaviopsis basicola* are involved in the seedling disease complex. High soil moisture provides conditions conducive for growth of these microorganisms and may predispose the developing seedlings to infection by slowing plant growth. While the past few years have been characterized by the hot dry conditions, frequent applications of irrigation required to promote stand establishment may foster conditions that are conducive for seedling diseases. Ideally, planting should take place when soil temperature at the 4-inch soil depth is above 65° F and favorable conditions are predicted. It is recommended that the highest vigor seed lots be planted first in the event that planting into cooler soils is necessary (to cover a large number of acres or to take advantage of soil moisture). All commercial seed comes treated with fungicides with constituents that have activity towards the aforementioned pathogens. Additional fungicide options, referred to, as over-treatments are available as needed.

Root-knot nematode

The root-knot nematode (*Meloidogyne incognita*) is widely distributed throughout much of the southern High Plains and is capable of causing significant yield loss. Symptoms associated with root-knot damage consist of poor vigor, stunting, yellowing of leaves and wilting. A characteristic feature of root-knot nematodes is the formation of galls that occur on the roots (Figure 1). In addition, infected plants may exhibit nutrient deficiency-like symptoms, as *M. incognita* females feed on cotton roots and disrupt the plant's ability to acquire water and nutrients. The amount of damage observed is more severe when nematode populations are high. Furthermore, this damage may be enhanced by other stresses such as drought or herbicide injury.

Several cotton varieties with partial resistance to root-knot nematodes are now available. The varieties Fibermax 2011GT, Deltapine 174RF, Phytogen 367WRF, and Stoneville 5458B2F have been evaluated in the past and are known to have partial resistance and/or improved tolerance. Field studies conducted in 2013 indicate that other varieties such as Deltapine 1454RN B2RF and Stoneville 4946BLB2 also possess root-knot resistance and yield similar to the aforementioned varieties. Furthermore, Phytogen 417WRF greatly reduces nematode reproduction and may be an option for fields that are severely infested. Additional studies are slated for 2014 to compare the performance of these and other cotton genotypes under varying nematode pressure.

A second nematode, *Rotylenchulus reniformis* or the reniform nematode, can also result in similar symptoms; however, the distribution of this pest is limited to only a few counties in the region. Currently, there are no commercially available varieties resistant to *R.* reniformis, but breeding efforts are underway to introduce sources of resistance from exotic cotton species. Laboratory analyses may be required to differentiate the two species. Sampling at the end of the growing season will provide the most reliable results, as nematode populations are highest at that time of the year.

Crop rotation with a non-host is a good way to reduce nematode densities, but both *M. incognita* and *R. reniformis* populations can build up quickly the next year cotton is planted. With the loss of Temik 15G, chemical management options for nematodes are limited. Performance of the seed treatment nematicides, such as Acceleron-N, the Aeris Seed Applied System and Avicta Complete Cotton are somewhat inconsistent and should not be used stand alone in high-risk fields. Foliar applications of Vydate® are labeled for use in cotton; however, research is currently being conducted evaluating usage rates and application timings in order to maximize efficacy and increase profitability. The soil fumigant Telone II has been used to successfully manage nematodes in the High Plains; however, usage is limited. This is due to availability and cost of the product, as well as constraints that affect application (i.e. specialized equipment and adequate soil moisture at the time of application). A number of products are being tested for efficacy against cotton nematodes, but data is limited at this time. Information from these and other studies will be made available as the season progresses.

Verticillium wilt

Verticillium wilt, caused by the soilborne fungus, *Verticillium dahliae*, is the most economically important disease in the region. The fungus infects plants through the roots early in the season, grows through the vascular system, eventually clogging the xylem elements. As a result, plants exhibit severe wilt symptoms during bloom, when the water demand of plants increases. In addition, fruiting positions may be lost and defoliation may occur prematurely. Increasing disease incidence can negatively impact yield and fiber quality. To further complicate issues, the fungus is capable of surviving in the soil for extremely long periods of time as microsclerotia. As with nematodes, increased densities of these survival structures are positively correlated with disease incidence and yield. Dr. Terry Wheeler, Texas A&M AgriLife Research Plant Pathologist, is monitoring populations of the fungus with regard to cultural practices, such as irrigation amount and crop rotation. Other factors, such as soil temperature are also being used to try and predict Verticillium wilt outbreaks. The ultimate goal is to develop management strategies that integrate several tactics to limit damage due to this disease. Currently, variety selection is the primary option for managing Verticillium wilt. Results from research trials conducted in 2013 evaluating most of the common varieties sold in the High Plains are available and should be used when booking seed to plant in fields with a history of the disease. A complete list of the varieties evaluated and the relative performance of those varieties is available here. These and other studies will continue to be conducted over the next several years. For more information on these or other cotton diseases, contact Jason Woodward at jewoodward@ag.tamu.edu or 806-632-0762. **JW**

Figure 1. Symptoms of seedling diseases of cotton: galls on root system due to root-knot nematode infestation (upper left), common diseases of seedlings from Phythium, Rhizoctonia etc. (upper right) and Verticillum wilt (bottom)

Cotton Agronomy

Recap of 2013 Crop

According to recent National Agricultural Statistics Service data (NASS), cotton producers in the High Plains region planted around 3.8 million acres in 2013. Estimated harvested acres were 1.8 million with 52% of planted acres abandoned. The January estimate for total production was 2.67 million bales. The 2013 crop year in the High Plains and Panhandle regions was just below what was produced in 2012 (2.94 million bales). Planting conditions for 2013 were harsh with little available moisture in most areas and freeze events in early May. These conditions along with an early season storm event resulted in the high rate of abandonment as mentioned above. The remaining crop, for the most part, started the year off 2 weeks behind. However, light insect pressures, moderate summer temps (few 100° F days), and timely rainfall events, allowed most of the crops to "catch-up" developmentally and provided for high percent fruit retention going into early bloom.

As the season progressed, some beneficial rains assisted irrigation but an additional rainfall event in August would have been welcomed in most locations. In terms of heat unit accumulations, the area was closer to the long term average than had been observed in the prior two years. Insect pressure was considered light for most cotton pests. There were some hot spots during the season that observed light to moderate thrips damage early as well as some worm damage to non-bt cotton varieties. As a result of the light insect pressure and moderate temperatures, overall fruit retention was phenomenal going into first bloom with reports and observations of as high as 100%.

At season end and prior to harvest, freeze events provided assistance to some producers in the region by preparing the crop for harvest but also contributed to some quality issues for others. After all cotton had been gathered from the fields, the Texas High Plains and Panhandle regions had produced a total of 2.67 million bales of cotton. Quality was fair to good, with micronaire values averaging 3.63 and 4.01 from the Lubbock and Lamesa classing offices, respectively. Also, from the Lubbock classing office, staple averaged 35.8, strength averaged 30.3 g/tex, and an average uniformity of 79.9% was observed. Averages for length, strength, and uniformity from Lamesa were 35.5, 30.15g/tex, and 80.3%, respectively. Color grades were mostly 21 and 31 and leaf grades were 3 from both locations. As previously mentioned, the season ending freeze event contributed to quality issues for some producers with bark content observed in 25.6 and 24.9% of bales classed at the Lubbock and Lamesa classing offices, respectively.

Agronomy Update

As cotton planting quickly approaches, the Texas High Plains are still experiencing moderate drought conditions. According to the Texas Tech University West Texas Mesonet website, an average of 0.4" of precipitation (rain and snow) has accumulated from 1-November, 2013 to today (13-March) across all monitoring sites. Higher accumulations were observed in areas south and east of Lubbock where significant snowfall occurred. Although these areas are in better moisture condition than the Lubbock area, more precipitation is needed to achieve adequate soil moisture for planting and to replenish the soil profile. Furthermore, recent high winds have depleted shallow moisture as evident by the dusty conditions. If a significant amount of precipitation does not occur prior to planting, pre-plant irrigation may need to be applied for stand establishment. If planting too early and cool temperatures are observed, as was the case in 2012, the possibility of “chilling injury” is greatly increased. Temperatures at 41^0 F can damage or even kill seeds. Damage to seedlings from chilling injury can include aborted root tips and decreased vigor. If the root tips are damaged or aborted, the roots will not penetrate the soil to normal depths and “crow-footing” may be observed. This results in plants that cannot obtain adequate moisture and nutrients from deeper soil depths and lower yield potential.

Getting off to a good start is critical to a successful growing season and optimizing yields and profitability. In summary, planting high quality seed at recommended seeding rates to a firm, moist seed bed at 65^0 F or better with a favorable five to seven day forecast will greatly increase chances for success. Furthermore, variety selection is highly crucial and is considered one of the most important decisions producers face annually. To assist with this selection process, several variety trials are conducted by both Texas A&M AgriLife Research and Extension. Trials are conducted to compare production differences in genetics and technologies. Also, varietal differences in resistance to specific pathogens and soil-borne pests are determined at multiple locations across the region. Finally, we have included below some updated excerpts from previous “Focus” articles that address variety selections and result reports as well as pre-plant soil sampling for deep nitrate-nitrogen.

Variety Selection Process

Selecting productive cotton varieties is not an easy task especially in the Texas High Plains, an area where weather can literally “make or break” a crop. Producers need to do their homework by comparing several characteristics among many different varieties, and then keying these characteristics to typical growing conditions. We can’t control our growing environment from year to year, but we can select the varieties we plant based on desired attributes. It is very important to select and plant varieties that fit specific fields on your operation. Don't plant the farm to a single variety, and try relatively small acreages of new ones before extensive planting. **Don't forget to plant fields with disease or nematode history with the best varieties having greatest levels of resistance to those specific conditions.**

Variety Testing Publications

If disease and nematode are not an issue, then producers should scrutinize all possible university trial data available to see how a variety has performed across a series of environments, and if possible, across years. It is best to consider multi-year and multi-site performance results if available. However, due to the rate of varietal release, some new varieties are made commercially available which have not undergone multi-year university testing.

Dr. Jane Dever has published the "Cotton Performance Tests in the Texas High Plains and Trans Pecos Areas of Texas 2013” report. This report contains data on many entries in several small plot trials. Small plot trials enable producers to observe results from a large number of entries at multiple locations. These trials are normally conducted under uniform, disease-free conditions, unless a test is specifically targeted toward a certain disease. Dr. Dever has included summaries over locations for some sets of trials. This is an outstanding resource and provides much information on variety performance, including lint turnout, fiber quality, earliness, plant height, and storm resistance. Results from locations with Verticillium wilt, Root-knot nematode, and Bacterial blight are also available in this publication.

The Texas A&M AgriLife Extension and Plains Cotton Improvement Program, “2013 Systems Agronomic and Economic Evaluation of Cotton Varieties in the Texas High Plains” report will be available soon. In the meantime, we have made available on the Lubbock website, yield and HVI results tables from most 2013 AgirLife Extension large plot variety trial locations (Systems and RACE). The final report will contain multiple locations of replicated cotton demonstrations conducted by Texas A&M AgriLife Extension personnel in producer-cooperator fields across the region. Since these trials are planted and harvested with producer-cooperator equipment, the number of entries per site is generally less than 15, and many times less than 10. However, these trials reflect a wide range of cultural practices, locations, irrigation types, etc. Producers should look closely at location or site descriptions and compare management practices of cooperating producers to theirs to make informed variety decisions.

Deep Soil Sampling for Residual Nitrates

With high fertilizer prices, special emphasis is being placed on reminding producers about proper soil sampling and testing techniques. One of the most costly fertilizers is nitrogen (N). Nitrogen is important for producing protein in plants and crop demand is very much yield driven. Establishing a realistic yield goal is the first task. Producers shouldn't take the attitude that cotton is like a grain crop. The more nitrogen applied when given high water doesn't necessarily translate into higher yield. Many times we can retain the fruit in a high water input field but not have time to mature that fruit. This results in a large number of pounds of lint, but can significantly reduce maturity because the late-set bolls do not have adequate time to mature. Excess N can aggravate the problem by delaying crop maturity, especially if poor maturity weather is encountered in September and October. There is a fine line between obtaining an adequate yield and having good maturity in the crop, especially north of Lubbock. Excessive N can result in 1) Unwanted crop growth which in turn will require plant growth regulator (such as mepiquat chloride) application - especially on varieties that are inherently "growthy", 2) Increased Verticillium wilt problems, 3) Increased aphid problems, and 4) More harvest aid challenges at the end of the season.

Over the last several years agronomists across the state working in cotton have surveyed residual N in the soil profile in producer fields. Results from several of these locations indicate considerable amounts of N that should be accounted for when determining how much N fertilizer to apply. Soil sampling to a depth of 24” is recommended especially following the two most recent years where well below average rainfall was observed and yields were lower than anticipated. Under “normal” conditions, in the High Plains region, many fields may encounter this deep N somewhat later in the season resulting in a surge of green at a time when we would like for the fields to become more N deficient. Based on research projects this is likely a contributing factor to lower micronaire in some fields in years with poor maturing conditions.

The basic formula for success is this: 1) Determine the yield goal in bales per acre for the field based on irrigation capacity, varietal performance, early season profile moisture, etc. 2) Multiply this yield goal times 50 pounds of N per bale of production. 3) Deep sample for residual soil N down to the 18-24 inch depth. 4) Submit the samples to a soil testing laboratory, fully recognizing the depth that the sample represents. 5) Use the appropriate conversion factor based on the depth of sampling to convert the nitrate-N test results from the laboratory to pounds of N per acre IF the laboratory does not provide this service. 6) Subtract the amount of residual N found from the N fertilizer needed based on the yield goal. If high nitrate-N irrigation water is used, then additional steps must be made to compensate for N delivery during the growing season. Based on 10 ppm nitrate-N concentration in irrigation water, application of an acre-ft (12 acre-inches) during the growing season will result in about 27 pounds of N being simultaneously applied. Few High Plains wells will have nitrate-N concentrations of that magnitude. However, with high fertilizer prices, the water should be checked and credits made for this against overall N fertilizer application. For more information on cotton fertility go to: http://lubbock.tamu.edu/programs/crops/cotton/fertility/ . **MK and KK**

Corn Insect Update

I recently attended the Monsanto Corn Academic Summit in St. Louis, Missouri and picked up some information that might be of interest to High Plains corn growers. Here is a brief summary.

Corn rootworm

The corn rootworm is now listed as the most expensive pest in the world to control. Rootworm transgenic Bt corn gives an average 5% yield increase over non-Bt corn, for a net economic impact of $9.71 to $48.97/acre. Yield loss for each node of root injury is 15% of yield (or an average of 28 bushels per node destroyed). This is to say that a root rating of 1 on the Iowa State Scale (meaning and entire node of roots is pruned) would result in a 15% yield loss.

Elson Shields, and entomologist at Cornell, showed data that the beneficial nematode, *Steinernema feltiae,* is killing corn rootworm larvae in first and especially second year corn in fields inoculated with nematodes when they were planted to alfalfa. There were many more nematodes in these fields than when the field was in alfalfa, and it is very likely that the increase in the beneficial nematodes is because they are killing corn rootworm larvae and reproducing in the dead bodies. Nematodes may not replace soil applied insecticides, but they are probably killing a lot of rootworms. (Elson Shields is the one who helped us develop nematode technology to kill larger black flour beetles in cotton gin trash.)

Aaron Gassmann from Iowa State University reminded us that, from an evolutionary perspective, rootworms have a very tight linkage with corn because it is their only real host. So they must adapt to changes in the corn system. Essentially there is no “refuge” of unselected rootworms outside of corn, so what we do in corn affects the whole local population. They must adapt or die. This goes for any tactic we use against them; insecticides, crop rotation, Bts and other practices.

Corn rootworm resistance to Cry3Bb1 (the Bt toxin in VT Triple Pro hybrids)

There were around 500 “Performance Inquiries” in 2013 and this is in line with 2011 and 2012. Ninety five percent of these were on fields planted multiple years to Cry3Bb1. In total, performance issue acres amounted to 0.2% of acres planted to Cry3Bb1 nationally. Monsanto said that fields that had performance issues with Cry3Bb1 the previous year do not need a soil applied insecticide the next year if they are planted to SmartStax, and they showed data that backed this up. (SmartStax has two corn rootworm toxins; Cry3Bb1 and Cry34/35.) The root injury with SmartStax in fields that had Cry3Bb1 failures the previous year was only was 0.25 nodes (below economic significance). SmartStax + soil insecticide had a root injury rating of 0.20. They also referenced a recent scientific paper that showed the soil-applied insecticide Aztec and seed treatments, even at high rate, do not increase yield of Bt corn and do not have much efficacy on moderate to high rootworm populations. Here is a direct quote from the article's abstract, "The data from this study do not support combining insecticide with Bt maize because the addition of insecticide did not increase yield or reduce root injury for Bt maize, and the level of rootworm mortality achieved with conventional insecticide was likely too low to delay the evolution of Bt resistance."(Petzold-Maxwell et al., 2013, Journal of Economic Entomology 106: 1941-1951). Monsanto also showed data that the seed treatment Poncho 1250 has more efficacy than Poncho 500, but the duration of root protection is not different between rates.

There are no apparent fitness costs for resistance to Cry3Bb1, and resistant corn rootworms are as healthy and able to reproduce as those who do not have the resistance alleles. Development is not delayed and body size and fecundity are not affected. Having the resistance alleles has no effect on longevity. Bad news.

Cry3Bb1 resistance is now confirmed in Nebraska, and there is cross-resistance with mCry3a.

Resistance to Cry34/35

Elson Shields reported that Pioneer had a presentation at ESA where they said resistance to Cry34/35 was additive dominant with 88% survival of the heterozygote and 100% with homozygous resistant insects. However, it should be noted that the resistant insects were selected in the laboratory and as yet we have no solid documentation that a Cry34/35 resistance problem is "in the wild" on farms.

Herbicide resistant weeds

Robb Fraley (VP of Monsanto and Chief Technology Officer) gave a presentation and said that they are working on RNAi for herbicide resistant weeds that will bring them back to susceptibility to many existing herbicides (not just Roundup). The technology is called BioDirect and will be a spray-on product. The RNAi will knock out the genes that confer resistance. This technology is very advanced in the pipeline. **RPP**

Small Grains Agronomy

Nitrogen Top-Dressing on Wheat for Grain—Timing

Much if not most of the wheat crop in the region is delayed due to either late planting and/or the colder than normal conditions that persisted during much of the past winter. For this reason many fields south of Lubbock are only now showing signs of jointing. In West Texas jointing historically occurs from about March 1 in the lower South Plains to about March 15-20 at the top of the Texas Panhandle. Jointing is the ‘signal’ by which we have historically timed our topdress N applications, but my observations over 15 years in West Texas suggest that the a significant portion of wheat fields for grain are probably fertilized a little late, and this is more of an issue as we move from north to south down the Texas High Plains.

Why is jointing important in relation to topdress N applications?

When jointing occurs on an individual stem, the growing point that was producing leaves has recently switched over to determining how many spikelets and potential seeds per spikelet the head will have. This is an important component of yield potential. When you see those first few joints across a field—it feels like a BB inside the stem—then that growing point is differentiating (or may be about done since the process lasts about 7 to 10 days) and many, if not most, of the rest of the major stems across the field, the ones that will significantly contribute to grain yield, have probably started differentiating.

Nitrogen applied and which is washed into the root zone (irrigation, rain, melting snow) by this time will enhance the potential number of spikelets and seeds per spikelet. Irrigation is important, too. The key is to remember that timing of the N so it is available to the plant is tied to a specific growth stage.

Spring top-dressing? Or late winter topdressing?

When the conversation turns to N topdressing, a convention across much if not most of the U.S. is to speak of ‘spring’ topdressing. But to some people that means March 21 on the calendar. If you top dress then in the Texas High Plains you are likely late with topdress N. Spring topdressing is OK in Kansas—the wheat is later, but here in the TxHP you would receive a reduced potential benefit.

Online resources for N topdressing wheat

Two Extension publications for the Texas High Plains have been prepared for explaining N topdressing practices and recommendations:

- Nitrogen Topdressing for Wheat is Critical — Sixteen Questions for N Timing
- Nitrogen for Texas High Plains Wheat – Is Your Top Dress N Late?

Both of these documents are available here on our website.

Irrigated Grain Sorghum Hybrid Results

I frequently receive questions on key grain sorghum hybrids for irrigated grain sorghum at the top end of the yield spectrum, namely Pioneer’s medium-long 84G62. It has been a yield leader for a decade in Texas AgriLife Research hybrid trials in the Texas High Plains.
In reviewing five years of AgriLife trial data from Hereford, Perryton, and Lubbock during 2009-2013, I note five hybrids, including Pioneer 84G62, where I have made 5 key head-to-head comparisons (for example the newer Pioneer medium-long 84P80; it exserts the head better up out of the whorl than 84G62 and thus can be easier to harvest) of leading hybrids. I do not intend to favor one company over another, but the information here highlights some key comparisons that producers are most interested in. I provide this information to producers without recommendation. If you have a hybrid you like for irrigated grain sorghum, continue to plant it,

but you may wish to also consider these hybrids. Not all companies enter these trials and I am sure there are other hybrids that would be on this list if we had data on them.
For the summary report that I compiled for the noted comparisons below, call or e-mail me. To see the full reports for each site, click here.

How the data below was summarized: I have selected the sites within the past five years where each of these pairs of hybrids were in the same trial. Then I calculated the numerical average. You can see the yield comparison, and also the yield of the individual hybrid vs. the trial average for the sites they were at. CT

Table 1. Yields of key irrigated grain sorghum hybrid comparisons of Texas A&M AgriLife Research High Plains hybrid trials, 2009-2013 (Perryton, Hereford, Lubbock).

Key Direct 1-to-1 Hybrid Comparison	**Maturity**	**# of Test Sites w/ Comparison**	**Yields (Lbs./A)**	**% Yield Advantage Within Pair**	**% Yield Advantage over Trial Average**
Pioneer 84G62	Med-Long	11	6,942	4.6%	10.6%
Pioneer 85Y40	Medium		6,640		5.8%
		Trial Average	6,276		
Dekalb DKS 49-45	Medium	6	7,055	8.0%	8.9%
Pioneer 85Y40	Medium		6,530		0.8%
		Trial Average	6,477		
Pioneer 84G62	Med-Long	5	7,198	2.0%	15.7%
Dekalb DKS 49-45	Medium		7,059		13.4%
		Trial Average	6,222		
Dekalb DKS 53-67	Med-Long	9	7,241	0.9%	12.7%
Pioneer 84G62	Med-Long		7,176		11.7%
		Trial Average	6,424		
Pioneer 84P80	Med-Long	7	6,450	1.0%	11.9%
Pioneer 84G62	Med-Long		6,384		10.8%
		Trial Average	5,762		

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Useful Web Links

Water Management Website, TAMU, Irrigation at Lubbock, IPM How-To Videos, Lubbock Center Homepage, Texas AgriLife Research Home , Texas AgriLife Extension Home, Plains Cotton Growers

County IPM Newsletters

Castro/Lamb, Dawson/Lynn, Crosby/Floyd, Gaines, Hale/Swisher, Hockley/Cochran, Lubbock, Parmer/Bailey, Terry/Yoakum