



Cotton Comments



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Howdy!

I am Randy Boman, the new Research Director and Cotton Extension Program Leader at the OSU Southwest Research and Extension Center at Altus. I have been looking forward to getting closer to home and “making a hand” for OSU in the Oklahoma cotton industry. I believe that the experience I have gained thus far in my career will be of value to the industry in our state. This is the first issue of many newsletters that our group at Altus will generate to provide timely information to the Oklahoma cotton industry. As we move into the middle of March, producers in our region are looking to the skies with optimism for rainfall. Many are making crop insurance decisions and have booked or are booking planting seed.

Variety Selection Process

Selecting productive cotton varieties is not an easy task, especially in Oklahoma 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. At this stage of the game, I am not yet familiar with Oklahoma disease issues. However, I do know that Verticillium wilt and perhaps other diseases can put significant yield and perhaps quality pressure on susceptible varieties. **If you are aware of disease or nematode issues, don't forget to target specific diseased fields with the best varieties under those conditions.**

Variety Testing Publications

If disease issues are not concerning, then scrutinize all possible university trial data that are available to see how a specific variety has performed across a series of environments, and if possible, across years. It is best to consider multi-year and multi-site performance averages when they are available. However, due to the rate of varietal release, many new varieties are sold which have not undergone multi-year university testing, or perhaps no university testing at all. In 2010, Shane Osborne, Associate Extension Specialist and his group conducted

16 locations of replicated small plot trials (7 irrigated, 9 dryland) with 20 entries in producer fields. These trials were conducted under uniform, disease-free conditions. Shane has included summaries over locations for the dryland and irrigated locations. This is an excellent resource and provides much information on variety performance, including yield, lint turnout, and fiber quality. Individual site data as well as the 9-location means for dryland and the 7-location means for irrigated sites are included.

[2010 Extension Cotton County Variety Performance Report](#)

The Extension Cotton Research & Demonstration in Oklahoma 2010 Annual Report is available here:

www.ntokcotton.org

or at:

<http://osu.altus.ok.us/>

This report contains excellent information from various agronomic projects including plant population, nitrogen, and plant growth regulators. Weed control projects included horseweed control in no-till cotton, volunteer control in glyphosate tolerant cotton, morning glory control in furrow irrigated cotton using the Glytol/LL “stacked” technology, Prowl over-the-top in Roundup Ready Flex cotton, and preplant burndown of horseweed and common groundsel in no-till cotton. Reports from several defoliation studies are also included.

For those interested in management of specific cotton diseases and nematodes, Texas AgriLife Research (Dr. Terry Wheeler) and Texas AgriLife Extension Service (Dr. Jason Woodward) results from High Plains locations with Verticillium wilt, Root-knot nematode, and Bacterial blight comparisons among varieties are available. Although these trials were obviously not conducted in Oklahoma, it is the best available information pertaining to variety performance under these specific disease and nematode pressures. Of course one would want to determine if top performers under the specific disease or nematode pressure also rise to the top in Oklahoma variety performance tests.

These 2010 reports have been posted on the Lubbock Center Web site and are available here:

Verticillium wilt

<http://lubbock.tamu.edu/cotton/pdf/2010VERTICILLIUM.pdf>

Root knot nematode

<http://lubbock.tamu.edu/cotton/pdf/2009RootKnotNematode.pdf>

Fusarium wilt

<http://lubbock.tamu.edu/cotton/pdf/2009FUSARIUM.pdf>

Bacterial blight

<http://lubbock.tamu.edu/cotton/pdf/2010Bacterial.pdf>

Publication discussing the identification of vascular wilts in cotton:

<http://lubbock.tamu.edu/cotton/pdf/DiagnosisManagementVascularWiltsCotton.pdf>

When it comes to variety selection in Oklahoma, several factors are important to consider.

Maturity (Earliness)

Scrutinizing the relative maturity rankings provided by seed companies will be beneficial. Don't expect a mid-full season cotton variety to perform well in a short season environment where an early or early-mid might generally work best. Many longer season cotton varieties are better adapted to areas with longer growing seasons, although significant gains in yield may sometimes be obtained in years with warm September and October temperatures. Longer season varieties will typically do much better when planted earlier and then provided an excellent finish. For later plantings, early-mid maturity varieties may be better, and for late plantings or replant situations, early maturity varieties may be better. In years such as 2009, with a difficult finish due to poor maturing weather at the end, many fields planted to some of these varieties had somewhat lower yield and more immature fiber resulting in lower micronaire.

Pounds

Yield potential is probably the single most important agronomic characteristic, because pounds do drive profitability and provides for the safety net of higher actual production history (APH) in case of catastrophic loss of acres. The benefit this can provide from the crop insurance perspective is important in our high risk area. Yield stability across environments is going to be important, and basically what we want to find is a variety that has the ability to provide high yield across varying water inputs.

Fiber Quality

Producers should also consider lint quality. We have made a lot of progress in terms of fiber quality over the last several years. We have seen significant improvements in overall fiber quality packages associated with our modern varieties. Staple is generally good to excellent for many varieties. A lot of things can affect crop micronaire. These factors can include overall environment, planting date, variety, early season fruit loss with later compensation, excessive late season irrigation or rainfall, seedling disease, early season set-backs due to hail damage, blowing sand, thrips, etc. Fiber strength has also significantly improved and many newer varieties tend to be at least 30 g/tex. Length uniformity can be affected by staple, maturity, and harvest method (picker harvested typically higher than stripper harvested). Higher maturity fiber

generally results in a better uniformity. Leaf grade can be affected by density of leaf hairs on specific varieties in some years. Generally, cool, wet fall conditions can lead to lower quality leaf grades for varieties which tend to be hairy. In drier harvesting environments these differences tend to diminish. Color grades are basically a function of weathering or exposure of the fiber on the plant to wet conditions. The highest quality that a cotton boll can have is on the day that it opens. After that if conditions favor microbial growth (warm, wet conditions) or if an early freeze affects immature cotton, then color grade quality will likely be reduced. Bark contamination is generally also driven by significant late season rainfall followed by a freeze. In some years this can't be easily managed if stripper harvested. Conversely, picker harvesting can many times significantly reduce or eliminate bark contamination.

Storm Resistance

Storm resistance is still a concern for growers in our area. Even though many producers have adopted less storm resistant cotton varieties over the last several years, and generally done well with those, the overall management system the producer adopts can be important. Under significant moisture stress on dryland, some newer varieties may provide an unacceptable level of storm resistance, especially if the field is "left to the freeze." Producers planning to execute a sound harvest aid program as soon as the crop is

mature can probably grow some fields of less storm resistant cotton. However, having large acreages of low storm resistant varieties might be a prescription for disaster if the right environmental conditions align at harvest. Do not plan to leave looser open-boll cottons in the field until a freeze conditions the plants for harvest. Unacceptable pre-harvest lint loss is likely to result. Higher storm resistant varieties are better adapted to our harvesting conditions and they are more likely to survive damaging weather prior to harvest without considerable lint loss. Inquire about the storm resistance of any variety on your potential planting list. If you do choose an open-boll variety, plan and budget ahead for a good harvest aid program that will let you achieve an early harvest. Good storm resistance data are now being provided by most companies. For those planning to harvest with spindle pickers, higher storm resistant varieties may possibly result in reduced picker harvesting efficiency.

Disease and Nematode Resistance/Tolerance

Producers should likely not plant the farming operation to one cotton variety. A question should be "do I have plant diseases or nematodes in this specific field?" One thing to consider is whether you know which disease is present. If you have a problem with a wilt disease and don't know what it is, then you need to have the problem identified. If known Verticillium wilt pressure is present, then take a look at Dr. Terry

Wheeler and Dr. Jason Woodward's data from several locations investigating variety performance under constraints from this particular disease. The same should be considered for Fusarium wilt/Root-knot nematode issues. Many times varieties which do well under Verticillium wilt pressure may not be the same ones which rise to the top with Fusarium or Root-knot nematode pressure. Bacterial blight is an occasional problem in the region. There are several varieties out there that can provide high levels of resistance/immunity.

Biotech Trait Types

Producers need to ask themselves several questions. Do I want a herbicide-tolerant variety, if so, which system? Weed control has been catapulted forward by the advent of transgenic Roundup Ready Flex and Liberty Link cotton varieties. The agronomic capabilities of Roundup Ready Flex cotton varieties continue to improve and the weed control system it enables is very effective if properly executed. The Liberty Link system has thus far been more widely adopted in other regions, perhaps due to our tough early season environment in some years. The widely anticipated GlyTol, the proprietary glyphosate tolerance trait from Bayer CropScience (BCS) has been approved by regulatory agencies and will be launched first in varieties generally more adapted to the High Plains region than ours. However, this technology is headed our way. Also, in 2011, there will be a limited amount of a GlyTol/Liberty

Link "stacked" variety. This one will also be more adapted to the Texas High Plains. Again, varieties with this technology better adapted to our area will be available soon. As for insect protection, the Bollgard II and Widestrike technologies have provided outstanding lepidopteran pest control. Based on our local pricing, these technologies should be considered, especially for irrigated farms. Because of the lack of disruption of beneficial arthropods by insecticides used to target bollworms, etc., aphids will likely not be flared.

Seed and Technology Cost

Cost should not necessarily be the primary reason for selecting a variety, but it is important. The value of a high yielding cotton variety with biotech traits to ease management requirements across a large number of acres is a serious consideration. Over the last several years, we have seen significant producer gravitation to transgenic varieties. We have a large number of commercial varieties from several companies being sold in our region in 2011. About 110 varieties are available. Many of these contain Roundup Ready Flex technology, many contain Bollgard II/Roundup Ready stacked traits, some with Liberty Link and Liberty Link/Bollgard 2 stacked, some with Widestrike /Roundup Ready Flex stacked, etc.

When considering the cost of transgenic varieties, the Plains Cotton Growers 2011 Seed Cost Comparison Worksheet can certainly

be useful. Oklahoma is in the same seed/technology pricing zone as the Texas High Plains. Shawn Wade developed the Microsoft Excel spreadsheet which can be used within your Web browser, or downloaded and saved to your computer. Nearly all of the commercial varieties available in our region are listed. The user can select up to 9 varieties to simultaneously compare total seed and technology fee costs based on a specific seeding rate. The row spacing and seed per row-ft can be entered by the user. This then calculates a seed drop on a per acre basis. Then, based on published pricing for the various seed varieties and technology fees, the cost per acre is automatically calculated.

The 2011 Plains Cotton Growers Seed Cost Calculator Excel Worksheet is available here:

www.plainscotton.org

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Preplant Control of Horseweed in Limited Tillage Cotton

Many producers in Oklahoma have adopted limited or no-till production techniques. Due to the lack of tillage in these systems, producers often experience an increase in winter and spring annual weed problems including horseweed, Russian thistle, and kochia. Consequently, preplant burndown herbicides are essential to replace tillage as the primary weed management tool in these systems.

Two of the most troublesome winter/spring weeds present in limited tillage or no-till cotton fields are Russian thistle and horseweed. Weed management research conducted by Dr. Wayne Keeling in the High Plains has focused on the evaluation of different products for the control of Russian thistle. In his research, paraquat (Gramoxone Inteon, Firestorm, Parazone, etc.) has shown excellent activity on Russian thistle, but has not been effective on horseweed. In Oklahoma, glyphosate applied alone has proven very inconsistent at best when trying to control horseweed. In addition, the recent confirmation of glyphosate resistant horseweed in Oklahoma magnifies the importance of additional chemistries.

Studies conducted in Oklahoma have shown that effective control of horseweed can be achieved by including Dicamba (Banvel, Clarity, etc.) or 2,4-D with glyphosate. However there are some caveats that go along with their use. First, weed size at application time is critical for success. Excellent control of horseweed has been observed when applications have been made to horseweed in the rosette stage (flat or prostrate, prior to bolting or vertical growth). Secondly, it is important to take note of the plant back restrictions required for both Dicamba and 2,4-D. When using Dicamba, planting may occur 21 days after an application as long as 1 inch of rainfall has been received within that period. In addition Dicamba is not recommended for use in areas that receive less than 25 inches of annual rainfall. For 2,4-

D, studies have shown that planting may occur 30 days after application without concerns of crop injury or yield reduction. In addition to these products, BASF has recently released the new product, Sharpen. Sharpen is considered a PPO (protoporphyrinogen-oxidase) inhibitor and provides both burndown (postemergence) and residual (preemergence) activity on many broadleaf weeds. Sharpen applied to horseweed in the rosette stage when tankmixed at 1 oz/A with either glyphosate, Dicamba or 2,4-D has provided excellent control. Growers interested in trying Sharpen need to be aware of a few important facts regarding this herbicide. The label states that 42 days and 1 inch of rainfall must occur after application before cotton may be planted (for applications at 1 oz/A). In addition it is very important growers take note of the recommended adjuvants when using this product. The label recommends the addition of an MSO (methylated seed oil) or crop oil concentrate along with ammonium sulfate. Substituting other adjuvants is not recommended and will definitely reduce the effectiveness of this herbicide. Growers should also take note of the restrictions on coarse soils (cotton injury may occur on coarse soils with less than 1.5% organic matter). In addition the label states that growers should not apply Sharpen in areas where an at-planting application of an organophosphate or carbamate insecticide is planned or severe injury may result.

Since Sharpen is relatively new to the market (only a few years of local data) we certainly cannot refer to it as a "standard." However, results thus far suggest that it can definitely help growers control horseweed in limited or no-till cotton. Several years of information qualify the inclusion of 0.25 lb ai/A of Dicamba or 1.0 lb ai/A of 2,4-D (with the usual 1.0 lb ai/A of glyphosate) as standards for horseweed control.

[Horseweed Control in No-Till Cotton](#)

Regardless of which herbicide program growers choose, the most important thing to remember is that the key to successful horseweed control revolves around the weed size at application.

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Horseweed in the rosette stage

Horseweed beginning to bolt

Cotton insecticide shortage will impact growers at planting

At planting insecticide availability may be severely limited for the 2011 planting season. Temik in-furrow granules are not being produced due to a stop manufacturing court order. Product will be limited to what was in storage prior to the February court order. This will create demand for other products this season. Methods

of protecting seedling cotton include in-furrow granules and seed treatments as well as foliar sprays at crop emergence.

In-furrow granules include Temik 15G and Thimet 20G; it's possible that Thimet will be the only product available at planting. Temik has been the standard for years but Thimet may be the only product available (table 1). Thimet has not performed as well as Temik and it doesn't have activity on nematodes. In addition Thimet should be Applied as a T-Band to prevent contact with the seed to avoid germination issues. Another product used in past years was Payload (orthene) granules. This product is no longer produced for cotton production.

TREATMENT	THRIPS	NEMATODES
Temik 15 G	Good	Good
Thimet 20G	Fair	No Activity

Table – 1 Granular Products for use on cotton

Seed treatment also offers insect and nematode control. Insecticide control of thrips is available in Gaucho Grande and Cruiser. If insect and nematode control is needed then Aeris or Avicta are available. These products can be applied by your seed company or local chemical distributors. Table 2 shows the level of protection of these products for cotton pests.

TREATMENT	THRIPS	NEMATODES
Gaucho Grande (imidacloprid) Acceleron I	Poor	No Activity
Cruiser (thiomethoxam)	Fair	No Activity
Aeris (imidacloprid + thiodicarb)	Good	Good
Avicta (thiomethoxam + abamectin) Acceleron N	Good	Good

Table – 2 Seed Treatment products for cotton.

Foliar sprays may also be used to control thrips, but sprays have no nematode control. Products available for foliar sprays include: Bidrin, Dimethioate (Cygon), Centric, Orthene, and Phaser. As with the in-furrow products your selection of product may be determined by what is available at your Ag Chemical dealer.

Nematode control products include Temik, Telone LL and Vydate CLV. Telone LL has historically been used in the vegetable industry due to its higher cost and need for application equipment. This product is applied prior to planting. Recent trials at the University of Arizona with precision agricultural technology have provided control with fewer products used per acre. This technology makes application only to the areas of field with damaging levels of nematodes. The result lowers the cost of chemical/acre. Vydate CLV is applied as a foliar spray following the use of an in-furrow treatment such as Temik or a soil fumigant like Telone LL. This will help improve performance on Lance, Reniform and Root-knot nematodes. TP

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