



The University of Georgia
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College of Agricultural and Environmental Sciences



Georgia Cotton

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REFLECTIONS ON QUALITY OF THE 2004 CROP. (*Brown*) Fiber quality of the 2004 Georgia crop was better than expected, especially considering the hot/dry conditions of July and August and the abundance of rain from three hurricanes during September. That 88 percent of the crop had a color grade of 41 or better was remarkable. Likewise, staple and strength were noticeably better than they have been in several years. An area that continues to cause concern was uniformity, which measures the variability of fibers and indirectly reflects short fiber content. Georgia uniformity was 1.3 below that of cotton from the Memphis Classing Office (80.6 versus 81.9). In terms of total cotton quality, Georgia ranked second only to California in percent of the crop meeting specifications of a No. 2 futures contract on the New York Cotton Exchange (83.9 versus 91.3 percent tenderable).

Credit for the better-than-expected quality can be attributed to superior management of stink bugs, improved timeliness of harvest, and fiber quality (length) advantages of DP 555 BG/RR vs DP 458 BG/RR.

Fiber Quality of the 2004 Crop from the USDA Classing Office in Macon.						
Color/leaf grade 31-3 or better, % of crop	Color/leaf grade 41-4 or better, % of crop	Staple, 32nds	Strength, g/tex	Mic	Uniformity	Tenderable on NYCE contract, % of crop
23.8	87.8	34.7	29.4	44	80.6	83.8
Reflects 1.79 million bales classed through Feb 17, 2005. Quality deductions for the total crop include 11 percent for short staple (< 34/32nds), 6.5 percent for high mic (> 49), 2.9 percent for bark, 0.2 percent for grass, and 0.8 percent for prep.						

Despite the adverse publicity this past summer about fiber quality, the numbers suggest a step in the right direction. As we look to the future there are significant challenges ahead since more and more U.S. cotton will be exported and since foreign mill expectations are towards a color/leaf grade 31-3 with a 35 staple and a uniformity of 81 or better.

WHY SHOULD I WORRY ABOUT FIBER QUALITY? (*Jost*) Recently it appears that no farm publication is complete without someone hammering fiber quality, and Georgia in particular. To that end, many growers have made the statements that “I sold my cotton this year, and I don’t get paid for quality anyway”. Both of these statements are true, the problem is that the fiber quality issue is one that we cannot ignore and hope will go away. We HAVE to export a majority of the cotton we produce. Foreign mills will buy cotton, of both high and poor quality. The issue becomes which supplier do you want to be. The other issue is what defines high and poor quality cotton. According to the U.S. loan chart, base grade is a 41-4 color, 34 staple, and 80 uniformity. Many foreign and some domestic mills have higher requirements. To meet the demands of high end mills we (as in all of the U.S.) need to produce the aforementioned 31-3, 35, 81+. Do we want to compete for market share of poor quality cotton where the cheaper it is, the quicker it will move, or on the high end where quality will demand a stable (if not better) price?

THE MOST EFFECTIVE AND ECONOMICAL CONSERVATION TILLAGE BURNDOWN PROGRAM STARTS WITH AN APPLICATION OF 2,4-D NOW! (*Culpepper*). Controlling cutleaf eveningprimrose and wild radish has proven difficult and often unsuccessful when relying on only glyphosate (Roundup, others) or paraquat (Gramoxone Max). The addition of a tank mix partner with glyphosate or paraquat or making sequential herbicide applications is recommended for controlling intense populations of these weeds in conservation tillage cotton.

The most consistent and effective herbicide program for Georgia growers, with or without a covercrop, is an application of 2,4-D in February or early March followed by either glyphosate or paraquat near planting. The second most effective program is mixing glyphosate or paraquat with 2,4-D and applying at least 30 days prior to planting (some 2,4-D products require application at least 90 days prior to planting, read and follow all label recommendations of the product you use).

2,4-D is a very economical and effective herbicide; however, be especially aware of drift to off-target crops as well as spray tank contamination. Amine formulations of 2,4-D are recommended for burndown applications to reduce the potential for off target injury from 2,4-D volatilization!

CLEAN THE 2,4-D RESIDUE FROM YOUR TANK. (*Culpepper, York*) If one applies 2,4-D at burndown, spray tank contamination issues must be addressed prior to using the same sprayer in sensitive crops such as emerged cotton.

Cotton injury can occur from minute residues of 2,4-D in a sprayer. It is recommended that any sprayer previously used to apply 2,4-D not be used in cotton. If such a sprayer must be used, it should be washed thoroughly before spraying cotton. Special attention should be given to sprayers used to apply glyphosate products or emulsifiable concentrates because these products seem to be particularly effective at pulling 2,4-D residues out of a sprayer.

The following procedure is suggested for washing out sprayers that have been used to apply 2,4-D. Keep in mind this procedure may not totally remove 2,4-D residues. Dispose of rinsates in an approved manner.

1. Remove nozzles, nozzle strainers, and in-line strainers. Using a soft brush, wash the nozzles and strainers with soapy water. Be sure to remove any visible deposits.
2. Before replacing nozzles and strainers, fill sprayer tank with water and add a strong detergent such as 4 pounds of trisodium phosphate per 50 gallons of water or a commercial spray tank cleaner. Agitate for 15 minutes and then flush about one-fourth of the water-detergent mixture through the lines. Replace nozzles and strainers and flush remainder of water-detergent mixture through the nozzles.
3. Spray diesel fuel on the inside surfaces of the tank. Start the sprayer to fill the lines, and let the diesel fuel sit in the lines for several hours, preferably overnight. Then spray out the diesel fuel. **Note:** this step is suggested only if the sprayer has previously been used to apply an ester formulation of 2,4-D.
4. Fill the tank with water and add household ammonia at the rate of 1 quart per 25 gallons of water. Agitate for 15 minutes, spray a few gallons of the mixture through the nozzles, and let the remainder sit in the tank and lines for several hours, preferably overnight. Then spray out the remainder of the ammonia-water mixture.
5. Fill the tank with water and detergent. Agitate for several minutes and spray it out.
6. Fill the tank with fresh water and spray it all through the nozzles.

Also worth mentioning, Roundup itself is an excellent tank cleaner. Thus, one could take an additional step in removing 2,4-D from their sprayer by allowing a Roundup solution (mix

normal rates) to sit in the spray tank and lines overnight. Since this solution will likely be contaminated with 2,4-D, it should be applied to a fallow field or in burndown treatments at least 30 days in advance of planting cotton. Repetition of this process will possibly remove additional 2,4-D residues from the sprayer. Of course, the sprayer must now be cleaned to remove Roundup residue prior to making applications to sensitive crops.

TECHNOLOGY FEES AND SEED COSTS INCREASE IN 2005. (*Brown*) Technology charges per acre for Roundup Ready, Bollgard, and Bollgard/Roundup Ready varieties are listed in the table below. Fees for Roundup Ready and Bollgard/Roundup Ready varieties are up 96 and 12.5 percent, respectively, while the technology charge for Bollgard-only varieties is down 26 percent. The latter two variety/technology categories dominate the acreage, and currently, there are almost no Bollgard-only varieties available.

Technology Fees per Acre for 2004 vs 2005 and Percent Changes for Roundup Ready, Bollgard, and Bollgard/Roundup Ready Varieties.			
Technology	2004	2005	Change
Roundup Ready	\$17.68	\$34.67	+ 96 %
Bollgard	\$33.55	\$24.77	- 26 %
Bollgard/Roundup Ready	\$52.83	\$59.28	+ 12.5 %
Assumes planting rate of 52,000 seed/A or 3.6 seed/ft (36 inch rows) or 3.8 seed/ft (38 inch rows)			

Growers should be aware that Monsanto offers a program (“Roundup Rewards” program) that provides a cap on technology costs and several other advantages if producers use Roundup-brand glyphosate in RR cotton. The “cap” for RR cotton is \$28/A and \$48/A for Roundup Ready and Bollgard/Roundup Ready varieties, respectively. Participation in the program offers savings in technology fees if planting rates exceed 2.85 seed/ft.

Dow AgroSciences will offer Widestrike/Roundup Ready technology in Phytogen varieties on a very limited basis in 2005. Widestrike is a new two-gene Bt technology. Charges for Widestrike have not yet been made public.

Seed costs (not technology charges) are also up significantly. Per bag charges for seed now approach \$100, with DP 555 BG/RR at \$109.95 per bag.

DOES THE HIKE IN RR TECHNOLOGY FEES OPEN THE DOOR FOR LIBERTY LINK COTTON?

(*Brown*) Increases in technology fees for RR cotton stimulate an interest in alternatives. An obvious possibility is Liberty Link (LL) cotton which is tolerant to Ignite (glufosinate) herbicide. Dr. Stanley Culpepper has provided considerable information on the relative activity of Ignite versus Roundup in previous newsletters and in the Georgia Cotton Production Guide. Simply stated, TIMELINESS is more critical with LL systems than RR programs, especially on annual grasses and pigweeds. Ignite is superior to glyphosate on species such as morningglories, volunteer peanuts, and cutleaf eveningprimrose.

In 2005, LL technology will be offered in two Fiber Max varieties, FM 958 LL and FM 966 LL. These are early to mid-maturity cultivars that are competitive with many RR-only varieties, but supply for 2005 is limited. Varieties possessing both Liberty Link and Bollgard technology are expected to be available in 2006.

DOES THE HIKE IN RR TECHNOLOGY FEES RESURRECT INTEREST IN CONVENTIONAL VARIETIES? WILL THERE BE CONVENTIONAL OPTIONS FOR 2005 AND BEYOND? (Brown)

Supply of conventional varieties is extremely limited in 2005, and until the recent announcement of the escalation of RR technology fees, interest in conventional options had continued to dwindle. At UGA, we are exploring the possibilities of re-releasing GA 161, GA King, and perhaps newer lines.

WHAT A SELECTION OF VARIETIES. (Jost) Currently there are more than 50 varieties on my running list available for planting in Georgia. All of these are, for the most part, competing for those acres not planted to DPL 555. Below are a few comments on some of the newer varieties available for planting this year. As a note of caution, most of the experience with these varieties is an examination of their performance in the Statewide Variety Trials.

Conventional

Very few conventional varieties are available anymore. In fact, only DPL 491, DPL493, and DPL 393 are “new” seed. These varieties possess superior fiber quality but do not tend to yield as well as adapted BGRR varieties. There are also still a few conventional varieties available from FiberMax.

RR and LL

In the RR technology there are several newer varieties that performed well in last years trials. PHY410RR is an early to mid-season variety that performed well in the irrigated trials, and appeared to have pretty good fiber quality. DPL494RR is a full season variety that also yielded well in comparison to other RR varieties and exhibited improved fiber quality. ST6848RR is a full season variety that had average yields but tended have good fiber quality characteristics. The Liberty Link varieties FM958LL and FM966LL, as mentioned previously, competed well with other RR-only varieties; however, overall supplies of these varieties are limited.

BGRR

Two new stacked varieties that exhibited high yields in the State Wide Variety trials in 2004 were ST6636BR and DP488BR. Both of these varieties tended to exhibit some positive trends in fiber quality as well.

BGIIR and WR

The widestrike technology was not tested in the State Wide Variety Trials last year, thus there is limited data on the performance of these varieties in relation to others. In addition, while none of the BGIIR varieties were exceptional performers in 2004, the BGII technology is most likely the future. Thus, this technology does deserve a look.

TWO-GENE Bt COTTONS. (Roberts) Bollgard cotton has been commercially planted since 1996. During this time we have learned what this technology can provide in terms of insect management. We know that Bollgard provides excellent control of tobacco budworm and good control of corn earworm, however supplemental treatment of corn earworm is sometimes needed. We also learned to focus scouting efforts for corn earworm near blooms and bloom tagged bolls. Armyworms and loopers may also require treatment when high infestations occur. Since its introduction we have seen no change in terms of efficacy of Bollgard on target caterpillar pests. Two new Bt cottons, Bollgard II and WideStrike will be commercially available during 2005. Both Bollgard II and WideStrike are two-gene Bt cottons.

Bollgard II was commercialized during 2003 and has been planted on a limited basis. In addition to the Cry1Ac toxin found in Bollgard cotton, Bollgard II also expresses a Cry2Ab toxin. The addition of the Cry2Ab gene has enhanced the efficacy and spectrum of activity on caterpillar pests compared with single-gene (Cry1Ac) Bollgard cotton. Based on research and field observations, we do not anticipate there will be a need to treat a high percentage of Bollgard II cotton for caterpillar pests. However, the potential for economic damage from caterpillar pests in Bollgard II remains and scouting will still be needed.

A second two-gene Bt cotton (WideStrike) will be commercialized for the 2005 season. In addition to Cry1Ac, WideStrike also expresses a Cry1F toxin. The addition of Cry1F gene also enhanced the efficacy and spectrum of activity compared with single-gene (Cry1Ac) Bt cotton, especially on loopers and armyworm species. As with other Bt cottons, all fields should be scouted for caterpillar pests and treated on an as needed basis.

Growers are encouraged to plant a portion of their acreage in Bollgard II and WideStrike cottons. This will offer the opportunity to see how these technologies perform on their farm. Additionally, observation by county agents, consultants, scouts, and other industry representatives in multiple and diverse environments will help us understand the nuances of the respective technologies. It is likely that two gene Bt cottons will displace single gene cottons in the marketplace sometime in the future. Refuge requirements for Bollgard II and WideStrike are similar to those for Bollgard cotton.

PROTECTING SEED AND SEEDLINGS IN THE 2005 COTTON CROP. (Kemerait and Seebold)

Starting the 2005 cotton season off right with healthy plants, strong root systems, and good stands is critical for achieving high yields at harvest. A number of fungal pathogens exist in the soil that can produce seed rot. Seedling diseases caused by fungal pathogens such as *Rhizoctonia solani* can lead to seedling death and weaken those seedlings that do survive. In fields where nematodes are a problem, developing root systems can be damaged and compromised early in the season, potentially severely reducing the yield potential for the crop.

To minimize the risk of seed rot and seedling diseases, growers should plant only high quality seed, paying particular attention to the COLD germination percentage often available through the seed dealer or seed supplier. Seed that germinates more vigorously at cooler temperatures may be better able to withstand pressure from fungal pathogens in the soil. Growers should also try to plant cotton seed when soil temperatures are above 65°F and when a cold front and heavy

rainfall are not forecasted for the following week. Even in the absence of seedling disease, research has shown that planting just prior to colder temperatures and heavy rain can severely reduce stands. Of course all seed should be treated with fungicides, typically a combination of fungicides, before planting. All commercial seed is delivered pre-treated with very effective fungicides.

In addition to the fungicide seed treatments that come on the seed, growers have the opportunity to purchase additional fungicide “over coats”, hopper box treatments, and in-furrow fungicides. Data generated at the University of Georgia shows that when seedling disease potential is severe, e.g. high levels of *Rhizoctonia solani*, poor weather conditions, poor crop rotation, etc., the use of additional fungicide treatments, including the fungicide “over coats”, can be beneficial and increase stand and sometimes yield. However for most growers in Georgia who plant cotton when conditions are favorable for rapid germination and emergence, the fungicide that come pre-treated on the seed generally provides yields equal to those where additional treatments are added.

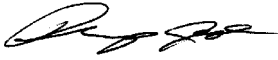
Nematodes are an important management consideration for cotton growers across Georgia. Growers whose fields have had a history of nematode damage and/or who found elevated nematode populations in fall soil samples should consider use of nematicides such as Temik 15G or Telone II at the beginning of the season to manage these pests. More information on rates and timing of application are available through the Cooperative Extension Service.

The Cotton variety ST 5599BR has been marketed for “tolerance” to the southern root-knot nematode, which is a key problem in Georgia. Tolerance does not mean “resistance”, but suggests that the variety may perform better than non-tolerant varieties where southern root-knot nematode is a problem. Tests in 2004 in Laurens and Coffee Counties demonstrated that under moderate-to-high root-knot nematode populations, ST 5599BR and DP 555BR yielded about the same. Because environmental stresses were low in these fields, the importance of “tolerance” may have been less significant than in fields where environmental stress was a factor. We will continue this study in 2005; however in 2004, ST 5599BR did not offer any clear advantage over DP 555BR in fields infested with southern root-knot nematode.

Finally, a new product from Eden BioScience, N-Hibit, is being marketed as a seed treatment for the control of nematodes on cotton in Georgia. N-Hibit should NOT be confused with “STAN”, a seed treatment nematicide that is being developed by Syngenta and is being studied extensively in Georgia. At this point, we know very little about N-Hibit and have not evaluated it in any trials. Because of this lack of information, the UGA cotton team has no recommendations for the use of N-Hibit on cotton seed for the management of nematodes. Growers who choose to use N-Hibit should do so with caution.

D&PL HIRES UGA COTTON BREEDER LLOYD MAY. (*Brown*) In mid-January, Delta and Pine Land Company announced the hiring of Dr. Lloyd May to become part of the breeding program at the D&PL research facility in Tifton. May, who replaced long-time cotton breeder/researcher Shelby Baker, came to UGA in 2000 after serving several years in the USDA Cotton Breeding/Genetics program in South Carolina.

Your local County Extension Agent is a source of more information on these subjects.
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