



The University of Georgia  
**Cooperative Extension Service**  
College of Agricultural and Environmental Sciences



# Georgia Cotton

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***PLANTING TIP:*** Do not plant small seeded varieties too deep. Small seeded varieties typically have less vigor and less “pushing power” than larger seeded ones. Routine planting depth for small seeded cultivars such as DP 458 B/RR and DP 555 BG/RR probably should not exceed 1 inch. (*Brown*)

**2003 Planting Intentions – How much cotton will be planted?** (*Shurley*) Last season, US farmers planted 13.96 million acres of cotton. This was down 1.8 million acres (11.5%) from 2001. On March 31, USDA released their annual *Planting Intentions* report. This report is the result of a survey of farmers taken in early March. Farmers were asked to report their *expected* acres to be planted to various crops. Of course, weather, prices, and other factors during the planting season can alter farmers’ intentions. USDA will release the first estimate of actual acres planted on June 30.

For 2003, US farmers said they expect to plant 14.25 million acres of cotton-- 2.1% above last year. Georgia farmers said they expect to plant 1.4 million acres-- down 50,000 acres (3.4%) from last year. If realized, this would be the lowest Georgia acreage since 1998.

It is likely that both Georgia and US cotton acreage will be above intentions. Weather in many parts of the cotton belt, has not been cooperative for earlier planted crops such as corn. This delay in planting has likely forced some acreage to other crops such as cotton. Cotton states with significant peanut acreage introduce another source of uncertainty. Peanut acreage is expected to be down in all major producing states. Cotton prices have

increased relative to alternative crops and continue to hold at relatively good levels with 2003 contract opportunities now at or near 60 cents per pound. Actual 2003 cotton acreage may be close to 14.5 million acres.

In the previous 5 years (1998-2002) actual acres planted have been above planting intentions 2 years and below planting intentions 3 years. When actual acreage is less than intentions, it has averaged about 2% less. When actual acreage has been above intentions, it has averaged about 4% higher.

**US Cotton Acres, Comparison of Planting Intentions and Actual Acres Planted.**

	1998	1999	2000	2001	2003	2003
Planting Intentions <sup>1</sup>	13.42	13.94	15.56	15.61	14.77	14.25
Actual Acres Planted <sup>1</sup>	13.39	14.87	15.52	15.77	13.96	
Actual/Intentions	99.8%	106.7%	99.7%	101.0%	94.5%	
<sup>1</sup> Million acres . Source: USDA						

Actual plantings of 14.25 to 14.5 million acres, with average abandonment and yield, could produce a crop of about 18 million bales. If foreign acreage and production also increase, it could be difficult to maintain strong US exports and prices at current levels. Price protection on a portion of the expected 2003 crop at currently attractive levels might be prudent.

**Replant Decisions.** (*Brown*) Replant decisions can make even seasoned growers and crop advisors scratch their heads. Such situations involve the frustrations of an unsatisfactory first attempt, added expense, future uncertainties, and the urgency of trying to make up for lost time.

The logical starting point is to evaluate the existing stand in terms of plant health and consistency. A viable, healthy plant every 12 to 15 inches is usually sufficient for normal yields. Stand uniformity is important. Fairly consistent stands that have at least 10,000 to 15,000 plants/A are often adequate, especially in environments with a long growing season. As numbers of skips greater than 2 feet increase, so does the incentive to replant. Where earliness is critical, more plants are required and fewer skips can be tolerated.

Besides counting plant stand, assessing seedlings for health and vigor is also important. Roots and stems should be examined for lesions and darkened areas indicative of seedling diseases. Check stems, foliage, and bud tissues for mechanical and chemical injury. The former damage can be caused by insects, sand, wind, and hail; the latter by herbicides, insecticides, nematicides, and fertilizer. Keep in mind that any physical injury that cuts the stem off below the cotyledon node effectively kills the plant – there are no buds beneath that point to regenerate growth. Chemical injury on the cotyledons or first true leaf may be inconsequential IF new growth displays a strong, healthy color. Despite early problems, the appearance of normal, vigorous roots, stems, and foliage give reason to hope that the plants have “turned the corner” and are on the road to recovery.

With healthy roots and slick, green emerging leaves come confidence to keep a field with a reasonable stand density.

Prevailing weather and the calendar must also be considered. A grower may keep a sparse, substandard stand if sustained dry weather casts doubt upon the likelihood of success of replanting. Irrigation makes these decisions easier. Tolerance for a marginal population should grow as the date gets later. Replanting a questionable stand may be a reasonable choice in mid-May but unwise as it gets later.

Should yield goal influence the decision? Generally, no. Research and experience indicate that a wide range of populations can make comparable yield. As stated earlier, even densities down to 10,000 plants/A are usually adequate for normal yield. If counting and looking and scratching and thinking and thinking some more still leave the issue unsettled, apply the rule of thumb: WHEN IN DOUBT, DON'T REPLANT.

And if you replant, how should you proceed? There are many, many ways. Each field has to be handled according to the problems present. Often, the best approach is to do as little as possible, to replant on the existing bed or tilled strip with little or no soil disturbance. This is particularly true where soil moisture is limiting. Believe it or not, you can plant new seed right on top of existing plants, but of course, that creates the challenge of a stand of varying age. Conversely, if a stand has been lost to seedling disease, aggressive tillage and an in-furrow fungicide may be needed.

If chemical injury has occurred, you must consider the persistence of the compound involved. Some products may have been sufficiently degraded, diluted, or dissipated so as not to pose a threat. Sometimes tillage is warranted. Sometimes a field must be abandoned.

Tillage is the best means to destroy an old stand. Herbicides, even non-selective products such as glyphosate and paraquat, are erratic, especially if the crop has several true leaves. Of these two products, paraquat is slightly more effective in suppressing or killing young seedlings. Remember, glyphosate products have zero effect on RR cotton.

**Bt Cotton IRM Guide** (Roberts) Recently we have received requests for information on refuge options when utilizing Bt cotton. Monsanto's [2003 IRM Guide](#) can be found on-line.

**When do I need a foliar insecticide for thrips on seedling cotton?** (Roberts) Thrips are an annual pest of seedling cotton and most growers utilize a preventive treatment at planting for control of these pests. However, some fields may also need a foliar insecticide treatment for additional protection. Fields should be scouted at least once a week for early season thrips. Seedlings are vulnerable to thrips attack until plants reach the 5-leaf stage and are growing rapidly. The threshold for thrips is 2-3 thrips per plant. Treatment will definitely be needed on fields where immature or wingless thrips are observed at threshold levels. The presence of immature thrips suggests the preventive treatment is failing. Damage from thrips includes crinkled and distorted leaves, delays in maturity, plant stunting, and potentially loss of apical dominance or stand loss.

**Cotton Recovery from Loss of Early Leaves** (*Brown*) We've long believed that early season stresses rarely doom final cotton yield if the plant shows signs of reasonable recovery. Signs of recovery include the development of healthy new leaves and brightly colored, healthy roots. The common observation has been that early injury from thrips, herbicides, hail, etc., is not insurmountable, though some stresses such as sustained weed competition or severe thrips damage can reduce yields in excess of 25 percent. Given time, general plant health, and good growing conditions, a crop can bounce back and produce acceptable yield even after considerable early troubles.

Last year we clipped (removed) cotyledons from a few plants shortly after emergence and were surprised as to the effect – the plants were stunted significantly for weeks. Experiments in the 1990s in Arkansas by Longer and Oosterhuis revealed similar results. The more foliage removed, the more severe the effect. Removal of cotyledons and initial true leaves resulted in severe height reductions at pinhead square and first bloom, particularly when seedlings were subjected to heat and drought. Conversely, recovery as measured by plant height, leaf area, and boll production was much better when favorable growing conditions followed.

Longevity of season is also an important factor in south Georgia cotton. The time afforded by a long growing season helps overcome early stress, but this generality should be mixed with common sense. We should intervene where possible to remove or minimize serious threats to early season plant health.

**Irrigation:** (*Jost*) They said the drought was over. Hopefully a center pivot will not be the sole source for moisture for this year's cotton crop.

For the past several years many growers have stated that they have not significantly improved yields with irrigation. No doubt, a portion of this problem can be attributed to poor, or no subsoil moisture. However, some of it may also be due to the timing and amount of irrigation that is applied. Currently, there is much effort going into determining "how to irrigate".

One way of thinking about pre-bloom cotton irrigation is to wait until the cotton stresses or wilts before watering. From one physiological perspective this seems to make sense. A natural defense that plants have against water stress is the production of deeper roots. A deeper root system could be beneficial. However from another physiological perspective this line of thinking may be detrimental. Recent research has shown that by the time we "see" the evidence of water stress the plant has already been stressed for a significant period of time. So then the question becomes "is early-season stress a good thing"? If we were trying to grow plants to be able to withstand stress in the future a little early stress may not be bad. However, we are trying to produce yields, and these yields are reduced by stress. Therefore, the goal should be to grow these plants in the least amount of stress as possible. Thus initiating irrigation earlier, prior to the time the entire field is dying of thirst, may be a better option.

In California, a common method to determine the time of the first irrigation is to measure the plants water potential. Once the plants water potential irrigation decreases to a certain point, irrigation begins. Basically those folks do not wait until the plants wilt.

Irrigating cotton continues to be a challenging task. But the primary goal of irrigation is to remove water stress from the production equation no matter if it occurs early- or late-season.

**Reconsider using a yellow herbicide in Roundup Ready cotton.** (*Culpepper*) Many growers have removed the yellow herbicide (Prowl, Treflan, etc.) from their Roundup Ready cotton weed management programs. In many Georgia fields, this is a big mistake. A few reasons to consider the use of a yellow herbicide, even in Roundup Ready cotton, are listed below:

1. Control of Florida pusley. This weed CAN NOT be consistently controlled after it has emerged. An effective soil-applied herbicide, such as a yellow herbicide, is STRONGLY encouraged prior to pusley emergence.
2. Alleviation of early-season weed competition. Without the use of a yellow herbicide or other soil-applied herbicide, glyphosate applied twice prior to the fifth leaf following label recommendations will be needed on approximately 40% of our acres to avoid yield loss to early season weed competition.
3. The yellow herbicides are very economical and if activated by rainfall or irrigation offer control or suppression (depending on application method) of many of our more common weeds including Florida pusley, Palmer amaranth, and Texas panicum.
4. Increased Flexibility and Insurance. Environmental, labor, or equipment issues do occur and often delay an intended timely application of glyphosate. A yellow herbicide offers some flexibility in the application timing by reducing weed size and populations at time of the first glyphosate application. Of course, with or without the use of a yellow herbicide glyphosate should not be applied topically after the fifth leaf stage of Roundup Ready cotton.

**Managing or at least trying to manage tropical spiderwort in cotton.** (*Culpepper and Flanders*) Published data is not available for management of tropical spiderwort in cotton. Studies evaluating response of tropical spiderwort to herbicides and herbicide systems have been conducted in Georgia over the past three years (2000-2002) and will be discussed. However, one must emphasize that conclusions based on these trials will be altered as future data is collected.

Preemergence or Delayed Preemergence Applications: Residual control of spiderwort appears to be the backbone for a successful cotton weed management program due to spiderwort's ability to continually emerge throughout the season. One issue to date is determining when to apply an effective residual herbicide. For instance, should these herbicides be applied at planting, early postemergence, and/or late postemergence? While we continue to search for answers, our research has determined the response of spiderwort to several soil-applied residual herbicides. For example, Staple preemergence provides less than 40% control of tropical spiderwort (Table 1). However, other conventional chemistry such as Cotoran, Command, Dual Magnum (do not apply Dual preemergence to cotton), and Zorial offer good to excellent residual spiderwort control for at least 25 days assuming rainfall or irrigation activates the herbicide within 5 days of application. Command and Dual were the most effective materials at 55 days after

application. Direx, at these two locations, was less effective than Cotoran at 25 days after treatment but control was similar by 55 days after treatment.

<b>Table 1.</b> Response of tropical spiderwort to residual herbicides applied prior to emergence.*		
Herbicide	Percent control	
	25 day after treatment	55 day after treatment
Command 3 ME (2.5 pt/A)	93 a	87 a
Cotoran 4 L (3 pt/A)	89 a	75 b
Direx 4 L (3 pt/A)	73 b	70 b
Dual Magnum** 7.62 EC (1 pt/A)	99 a	85 a
Staple 85 SP (0.8 OZ/A)	37 c	34 c
Zorial 80 WDG (1.75 LB/A)	90 a	73 b

\*Data pooled over two locations in Grady County during 2002. *Irrigation or rainfall occurred at each location within 5 days of herbicide application.* Numbers within a column followed by the same letter are not different at P = 0.05.  
 \*\*Do not apply Dual preemergence in cotton.

Early Postemergence Applications: Spiderwort should be less than two inches at time of post-emergence herbicide applications. Even with timely applications, spiderwort can tolerate several of the more common herbicide options. Postemergence-directed applications of Cotoran plus MSMA would likely be the most effective early postemergence treatment. However, most growers are not willing to make directed applications to small cotton. Other options include Staple in conventional or transgenic cotton. In Roundup Ready cotton, glyphosate, glyphosate plus Staple, or Touchdown plus Dual Magnum are some options. Staple at 1.2 oz/A has been 10 to 20% more effective than glyphosate alone in controlling emerged spiderwort (data not shown). The addition of Staple at 0.6 oz/A to glyphosate also improved spiderwort control by 7% when compared to glyphosate applied alone (Table 2). Similarly, mixing Dual with glyphosate improved control compared to glyphosate alone. Dual does not provide postemergence control but offers good to excellent residual control thus reducing the continued spiderwort flushes.

<b>Table 2.</b> Response of 1- to 3-inch tropical spiderwort to topical cotton applications.*	
Herbicide	Percent control
	21 day after treatment
Roundup UltraMax (26 oz/A)	53 c
+ Staple (0.6 oz/A)	60 b
+ Dual Magnum** (1 pt/A)	80 a
<p>* Data pooled over four locations in Grady County during 2001 and 2002. <i>Irrigation or rainfall occurred at each location within 7 days of herbicide application.</i> Numbers within a column followed by the same letter are not different at P = 0.05.</p> <p>**Do not apply Dual preemergence in cotton.</p>	

Directed Applications: MSMA is more effective than glyphosate when directed in Roundup Ready cotton (Table 3). The addition of herbicides such as Aim, Caparol/Cotton-Pro, or Direx with glyphosate will improve spiderwort control compared to glyphosate alone and will provide control similar to that observed with MSMA alone. Mixing Caparol/Cotton-Pro or Direx with MSMA tends to be more effective than MSMA applied alone. At this time, Harvade and Cobra mixed with MSMA or glyphosate do not appear to improve spiderwort control.

<b>Table 3.</b> Response of 1- to 3-inch tropical spiderwort to cotton layby herbicide applications.*	
Herbicide	Percent control
	21 day after treatment
Roundup UltraMax (26 oz/A)	70 c
+ Aim 2 EC (1 oz/A)	80 ab
+ Direx (1 pt/A)	79 ab
+ Harvade (8 oz/A)	75 bc
MSMA (2.67 pt/A)	78 ab
+ Direx	83 a
<p>*Data pooled over four locations in Grady County during 2001 and 2002. Irrigation or rainfall occurred at each location within 7 days of herbicide application. Numbers within a column followed by the same letter are not different at P = 0.05.</p>	

**Cotton Scouting Schools** (*Roberts*) Cotton scouting provides timely information which allows growers to make well informed insect management decisions. For maximum profitability, insect scouting is a must. All fields, both Bt and non-Bt cotton should be scouted. Non-Bt cotton should be scouted twice a week or at least every 4 to 5 days. Once a week scouting is unacceptable for non-Bt cotton. Tobacco budworm and corn earworm eggs will hatch in three days or slightly less, therefore it is possible that a grower may encounter 4 day old larvae which will be difficult to control if scouting on a seven day interval. Larvae, which are three days of age or less, should be targeted with insecticide and this will not be possible if non-Bt fields are scouted once per week. Experience has proven that once a week scouting is acceptable (but not preferred) for Bt cotton. There are some associated risks with once a week scouting of Bt cotton. One example is the presence of small larvae (<1/4 inch in length). Will they be controlled by the Bt? Infestations of fall armyworm, historically we have attained good control of falls *when detected early*. Can we detect falls in a timely manner with once a week scouting? Early plant bugs, and others can also be a concern.

From an insect management standpoint, hiring a good, experienced scout or consultant is money well spent. Several insect scouting schools are scheduled to provide an introduction to insect scouting for first timers or a review for experienced scouts. The annual Cotton Scout School will be held at the RDC in Tifton on Monday, June 2<sup>nd</sup>, 2003. Each person planning to attend the school in Tifton needs to pre-register. There are several additional scout schools which will be held in county extension offices. The dates, locations, and contacts are as follows.

June 2, 2003 - Rural Dev. Center, Tifton, Phillip Roberts (229) 386-3424  
June 11, 2003 - SE GA Br. Expt. Sta., Midville, Richard McDaniel, (706) 554-2119  
June 12, 2003 - Evans Co. Extension, Claxton, Mike Dollar, (912) 739-1292  
June 16, 2003 - Jeff Davis Co. Extension, Hazlehurst. Tim Varvedere (912) 375-6648

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