



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



# Georgia Cotton

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**CROP START. (Brown)** By May 12, at least 50 percent of an expected 1.3 million acre Georgia crop was in the ground. Through early May, most of the state was very, very dry, but the past week or so has brought relief and a hint of a shift in weather pattern. Climatologists report that the La Niña-like conditions, which created above average temperatures and below average rainfall during the winter and spring, have weakened and given way to daily variations that will likely produce normal rainfall. Rain has been a welcome sight.

The drought of April and early May meant that some cotton was planted in harsh conditions, including dry soils and heavy clods. Replanting may be slightly higher than normal, but growers should not jump the gun. Recent rains may add to existing sparse stands -- cotton seed can remain viable in the soil for several weeks and still emerge as healthy plants.

Attention to planting should not distract producers from addressing early season weed control. Research consistently demonstrates that in the absence of good, at-plant residual control, delaying initial glyphosate applications in Roundup Ready cotton until the 3<sup>rd</sup> or 4<sup>th</sup> leaf stage can result in significant weed competition and yield losses in excess of 25 percent. Most of our cotton is Roundup Ready (not RR Flex) and thus over-the-top applications should be completed by the time cotton reaches the 5<sup>th</sup> leaf. Two applications prior to the 5<sup>th</sup> leaf stage can go a long way towards achieving excellent weed control.

**SOLVING REPLANT RIDDLES. (Brown)** Below is an article written several years ago for a commercially sponsored newsletter.

*It was a cold and gray day in mid-April, 1978. I was on the edge of a 200-acre cotton field near Town Creek, Alabama., with an experienced, but anxious, farmer. He asked*

*me, the new county agent, fresh from the university and still wet behind the ears, “Should I replant this patch? If I’m going to do something, I need to do it NOW! What do you think?” I flinched, clinched my jacket tighter, looked at the struggling, weak stand and said hesitantly, “I’m not sure. Maybe you ought to wait.” The weather stayed cold and wet. The decision became obvious and he replanted.*

Replant decision can make even seasoned growers and advisors doubt themselves. Such situations involve the frustrations of an unsatisfactory first attempt, added expense, and future uncertainties. There is stress. There is urgency.

The logical starting point is to assess the existing stand in terms of plant number, skips and general health. A viable 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 per acre are often adequate, especially in environments with long growing seasons. As numbers of skips greater than 25 or 30 inches increase, so does incentive to replant. Where earliness is critical, perhaps more plants are required and fewer skips can be tolerated.

In addition to counting plants, evaluating seedlings for health and vigor is also important. Roots and stems should be examined for lesions and darkened areas indicative of seedling disease, and for other abnormalities such as root pruning. Check stems, foliage, and bud tissues for mechanical and chemical injury. Mechanical damage can be caused by insects, sand, wind, and hail; chemical damage by herbicides, insecticides, nematicides, and fertilizer.

Keep in mind that any mechanical injury that cuts the stem off below the cotyledon node effectively kills the plant because 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 strong, healthy color. Despite early problems, the appearance of normal, vigorous roots, stems, and foliage give cause to believe that the plants have “turned the corner” and are on the road to recovery. With healthy roots and slick, green emerging leaves comes confidence to keep a stand with a reasonable 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 the second time around. Irrigation makes these decisions easier. Tolerance for marginal population should also grow as the date gets later. Replanting a questionable stand may be a reasonable choice in mid-May, but unwise as it gets later and later in the month.

Should yield goal influence the decision? As a general rule, 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 per acre are often adequate for normal yield.

On this subject, I recall a replant question several years ago at a Georgia plantation that was producing cotton for the first time. The farm managers were under pressure to do a good job, have the crop looking good, and make big yields. They planted strip-till cotton in a deep furrow, which suffered some herbicide injury. They lost some stand and were ready to start over. While cotyledons were chlorotic, new leaves were showing signs of recovery. Independently, a

consultant and I both urged them to keep what they had and not replant. Having already replanted some cotton, they had a ready comparison. In the end, all the fields made just over 1,200 pounds per acre and were within 20 pounds per acre of each other.

If counting and looking and scratching and thinking and thinking some more still leaves the issue unsettled, apply the rule of thumb: **WHEN IN DOUBT, DON'T REPLANT.**

In ultra narrow row cotton (row spacing of 10 inches or less), stand density is so critical that a shortage cannot be tolerated. Stand establishment is absolutely critical to weed control, canopy height control, crop maturity and harvest-ability. If in doubt in UNR cotton, plant more seed!

And if you replant, how should you proceed? There are 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.

A couple of years ago, I visited a field representing 600 acres in which young seedlings were chlorotic, burned and withering. The farmer had overdosed almost two-fold the nitrogen in his starter fertilizer application. Even though it was nearly June and very dry, he had no choice but to till it again and replant.

Tillage is the best means to destroy an old stand. Herbicides are less effective. Even non-selective products such as glyphosate and paraquat are erratic, especially if the crop has several true leaves. But of the two, paraquat is slightly more effective in suppressing or killing young seedlings. [Ignite is superior to either product, except, of course, for Liberty Link cotton varieties.] Remember, the many glyphosate products have zero effect on Roundup Ready cotton.

**MORE ON REPLANTING (*Jost*)** Challenging conditions in April through early May have led to some suspect stands. Comments made in the previous section such as plant health, injury, weather and soil moisture conditions should definitely be taken into consideration when replant decisions are made. Often times though the question ultimately becomes, “Will this stand yield more or less than a replanted stand?” For the past two years trials have been conducted here in Georgia as well as South Louisiana to evaluate how a skippy stand yields in relation to a replanted stand. As you might expect, the stand has to be pretty bad to make a replant worth it.

Below is an equation that has been developed from this research that may be useful when considering a replant. Before this equation is discussed a couple points should be made. In these trials the original stand was planted the second week of May, and the replant plots were planted the first couple days of June. Please keep this in mind as cotton planted in June “generally” does

not perform as well as earlier planted cotton. We are currently establishing a trial in which cotton was planted the last week of April with a replant occurring mid-May. Furthermore, the data presented from Georgia was from irrigated trials. Dryland trials are being established this year.

In these studies varying ratios of Liberty Link (LL) and non-LL cotton were planted and then sprayed with Ignite. This allowed for the establishment of skips of varying length and frequency. *Note – the plants remaining were otherwise healthy; there was no mechanical damage or disease problems.* At harvest all skips greater than 1 foot in length were documented. The yield of these skippy stands was then related to the yield of a replant. As mentioned in the previous article, it was determined that skips had to be at least 3 feet in length to be of any significance. Thus if the skippy stand does not contain a significant number of 3 foot skips, LEAVE IT!

Through two years of data in Georgia the following equations were developed....

$$\begin{aligned} 2004 \quad \% \text{ of Replant yield}^1 &= 1.06 - 0.01934 * (\# \text{ of 3 ft skips in 80 foot of row})^2 \\ 2005 \quad \% \text{ of Replant yield} &= 1.16 - 0.01934 * (\# \text{ of 3 ft skips in 80 foot of row}) \end{aligned}$$

<sup>1</sup> If this number is greater than 1 the existing stand is predicted to yield more than a replanted stand. If this number is less than 1 a replant is predicted to yield more than the existing stand.

<sup>2</sup> A skip of 3 feet is given a value of 1, a skip of 9 feet is given a value of 3. Thus in field evaluation skips greater than 3 feet are summed and divided by 3. The resulting number is inserted into the equation.

As an example, in 80 foot of row if there are 30 feet occupied by skips of at least 3 feet then the number 10 should be entered in the equation. The resulting numbers would be as follows....

Using 2004 data	$1.06 - 0.01934*(10) = 0.86$ (existing stand would yield 86% of a replanted stand)
Using 2005 data	$1.16 - 0.01934*(10) = 0.96$ (existing stand would yield 96% of a replanted stand)

The discrepancy between the 2004 and 2005 data is due to weather patterns. In 2004 multiple hurricanes late in the season caused more damage to the earlier maturing initial stand leading to higher relative yields in the replanted plots. In 2005 late summer and early fall was dry with optimal conditions for the original stand leading to higher relative yields in the original stand. Thus for irrigated cotton the real number probably lies between the two generated from these models.

While this is most definitely not a perfect data set it does begin to lay some ground work and will hopefully be helpful when making difficult replant decisions.

**ADDRESSING A FEW WEED QUESTION OVER THE PAST TWO WEEKS. (Culpepper and MacRae)**

1. *What are Reflex injury symptoms?* Figure 1 notes typical Reflex injury on cotton. Injury of this nature is usually transient and cotton should grow normally. However, more significant injury can occur when heavy rains cause soil treated with Reflex to splash on newly emerging cotton (Figure 2). Again, the cotton should recover when a favorable environment returns but growth may be slow for a short period of time.

Figure 1: Typical Reflex injury on cotton cotyledons caused by water splash..



Figure 2: Occasional severe Reflex injury caused by soil containing Reflex splashed in the stem.



Figure 3: Stem lesion caused from the Reflex contained in the soil



2. *What does the latest research suggest is the most effective tropical spiderwort program?* Research during 2006 suggested that several effective programs can be implemented to manage tropical spiderwort in cotton, and yes they are costly. It is important to remember that the effectiveness of these programs rely on the residual herbicides being activated by rainfall or irrigation.

The three most effective programs in 2006 research were as follows:

- A. Roundup + Dual Magnum (12 oz/A) early postemergence and Direx + MSMA + Dual Magnum (12 oz/A) directed at layby. The layby mixture in this program is not currently labeled but should be labeled during May (check with your local Extension Agent).
- B. Roundup + Dual Magnum (12 oz/A) early postemergence and Roundup + Aim + Dual Magnum (12 oz/A) directed at layby. We suggest the layby mixture be applied with hoods or to the bottom 2 inches of barked cotton that is at least 20 inches in height.
- C. Roundup + Dual Magnum (12 oz/A) early postemergence and Roundup + Direx + Dual Magnum (12 oz/A) directed at layby.

3. *What if I have tropical spiderwort and morningglory issues?* Growers will have to address tropical spiderwort as addressed above. DO NOT mix Staple with any metolachlor (Dual products) products to improve morningglory control as severe cotton injury can occur. Thus, one will have to implement a tropical spiderwort program utilizing Dual and then either add a residual morningglory herbicide behind the press wheel or they will have to apply Staple or Envoke postemergence. Staple or Envoke should not be applied within 5 days of a Dual type products.

4. *Volunteer peanuts are everywhere?* There are several effective programs to control peanuts in cotton and include the following options:

1. Two applications of Roundup will provide good to excellent volunteer peanut control. One application should be made prior to one-leaf cotton when peanut is small followed by a second application 11 or more days later but prior to cotton reaching the 5 leaf stage (except in Flex cotton where Roundup can be applied overtop of cotton after the 5 leaf stage).
2. Ignite applied as a burndown prior to cotton emergence will provide excellent control of volunteer peanut that is emerged at that time. One can, of course, apply Ignite in a Liberty Link cotton crop.
3. Cotoran or diuron applied behind the press wheel prior to peanut emergence followed by Roundup (Roundup Ready cotton only) after peanuts emerge will provide good control.

Keep in mind, if one relies on Roundup to control peanut it will usually take two Roundup applications at the full rate. So those peanuts that emerge after the first application will require a layby treatment to obtain acceptable control.

**MONITOR EARLY SEASON INSECTS: (Roberts)** A preventive insecticide is used at planting for thrips control in most fields, however seedlings should be monitored for thrips and thrips injury until plants reach the 5-leaf stage and are growing rapidly. Cutworms, grasshoppers, and false chinch bugs are also potential early season pests. Cutworms are sporadic pests and most infestations occur in reduced tillage fields (especially if fields were not burned down in a timely

manner). Field situations in which the risk of cutworm infestation are high include: 1) green vegetation is present at planting, 2) reduced tillage, 3) cotton following a legume cover crop.

Grasshoppers are potential early season pests and tend to be more of a problem following dry winters (which we had). Grasshoppers will feed on foliage and more importantly will sometimes feed on the main stem of seedlings. Grasshopper feeding damage on the main stem will resemble cutworm damage, but often grasshoppers will not completely chew through the main stem. This type damage weakens the stem and plants will “tip” over at the feeding site and either die or be nonproductive. Like cutworms, grasshoppers are a more common pest in reduced tillage systems. This is most likely due to the biology of grasshoppers. Grasshoppers overwinter in egg cases deposited in the soil. In reduced tillage systems little mechanical mortality of the overwintering eggs occurs. Immature grasshoppers will emerge over an extended period of time. Both adults and nymphs will feed on seedling cotton. Nymphs are relatively easy to control with insecticides, however adults can be difficult to control. Although we have limited field experience with grasshoppers, high rates of pyrethroids appear to be a good option when targeting adults. Treatment is suggested when damage is occurring, grasshoppers are present, and the stand is threatened.

We have observed false chinch bugs in some areas during recent weeks. False chinch bugs are a sporadic and uncommon pests generally associated with reduced tillage fields and dry conditions. Adult false chinch bugs are slender, about 1/8 inch in length, and grayish with clear wings. Nymphs are brownish-gray in color and scurry around quickly on the ground. False chinch bugs are sucking bugs and consume plant sap when feeding on the leaves and main stem. In severe situations (many false chinch bugs per plant), stand loss may occur due to the added stress resulting from feeding (this is a rare event). Stand loss problems I have observed have generally occurred on cotyledon cotton. Based on field observations during previous years, cotton which has attained 4-5 true leaves and is growing rapidly is unlikely to suffer economic damage.

**Scout Schools:** Locations and dates for scheduled Cotton Scout Schools are as follows. Individuals planning to attend the school in Tifton need to pre-register.

Tifton	June 8, 2006	Contact Debbie Rutland	(229) 386-3424
Jeff Davis Co.	June 12, 2006	Contact Tim Varnedore	(912) 375-6648
Midville	June 15, 2006	Contact Will Duffie	(706) 554-2119
Macon Co.	June 16, 2006	Contact Jeremy Kichler	(478) 472-7588

**MANAGING NEMATODES AFTER SEEDLING EMERGENCE (*Kemerait*)** In addition to good crop rotation, the most effective management of parasitic nematodes in cotton fields occurs by using an appropriate nematicide at an appropriate rate either before planting (e.g. Telone II) or at planting (e.g. Temik 15G or Avicta Complete Pak). Such treatments can help the young seedling establish a root system before attack occurs from the nematodes. Such development is critical to producing acceptable cotton yields despite the presence of the nematodes in the field.

Many growers are interested in applying a nematicide to the field after the cotton has emerged. Growers typically look for this option when either 1) they know the nematodes are at high levels in the field and that they need extra protection, or because 2) they didn't use a nematicide earlier in the season and they should have.

The goal of applying a nematicide after planting is typically to either extend the window of protection provided by the earlier use of a nematicide or to provide a "salvage" treatment for a crop that was not initially protected with a nematicide.

In the first situation, a nematicide such as Temik 15G, 5.0 lb/A, can be used to effectively extend the window of protection provided by the earlier nematicide. This has been most clearly demonstrated when 5.0 lb/A Temik 15G is applied side-dress after 5.0 lb/A in-furrow. However, the side-dress Temik treatment could also benefit earlier applications of Telone II and perhaps use of Avicta Complete Pak, though this is speculative for Avicta. To be most effective, the side-dress of Temik must be applied prior to pin-head square and when the plants are small enough to avoid root-pruning when the Temik is incorporated into the soil.

Growers may also choose to use Vydate CLV (17.0 fl oz/A) when the crop has reached the 4<sup>th</sup>-8<sup>th</sup> true leaf stage AFTER using a nematicide earlier in the season. It has been more difficult to document the benefits of Vydate in the field for nematode management than it has been to show the benefits of Temik side-dress. Still Vydate may be beneficial for some growers.

Growers who do not use a nematicide prior to, or at, planting may discover quickly after emergence that they should have used one. Symptoms of early season nematode damage may include stunting and numerous galls on the developing root systems. When such damage occurs in the field, there is the understandable hope to apply a nematicide quickly to reverse the damage. Unfortunately, it will be impossible to correct the earlier mistake of not using a nematicide, or using the wrong nematicide. We have little data to demonstrate the benefit of applying a side-dress application of Temik 15G without an earlier application of a nematicide. However, "testimonials" from desperate growers indicate that in some situations, such use of Temik 15G may be beneficial. We are working to gather more data on such salvage treatments in the future.

**RELIEF IN SIGHT? LA NIÑA FADES AWAY (*Paz*)** The Southern Climate Consortium (SECC) recently announced that the sea-surface temperatures in the Pacific are going back to normal. The La Niña event that we have experienced the past few months has died down. The outlook for the coming months is calling for Neutral conditions in the equatorial Pacific.

Last month, temperatures were warmer than normal and rainfall was way below normal in many parts of South Georgia. Several locations received less than 2 inches of rainfall, and growers are anxious for more rain. The end of La Niña phase could very well mark a return to more seasonable temperatures and rainfall in our region. For detailed rainfall and temperature predictions for individual counties, you can use the climate risk tool developed by the SECC at the AgClimate web site (<http://www.agclimate.org>). For more information about rainfall amount, soil moisture and soil temperature in your area, please visit the Georgia Automated Environmental Monitoring Network web site (<http://www.georgiaweather.net>).



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