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

# Georgia Cotton

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**FEARS AND FOUL-UPS OF A DRY SPRING.** (***Brown***) Much of the state is terribly dry. Drought complicates planting. In fact, while growers in other states routinely fret over cool soil temperatures in early spring, our biggest, most frequent planting challenge is marginal soil moisture. Such is the case thus far in 2006.

Projections are that Georgia producers will plant 1.3 million acres of cotton over the next few weeks. If drought persists, that prediction could be woefully high.

The most obvious advice: ***Dry land producers should be ready to plant anytime in April when a good soaking rain occurs.***

With the high cost of seed, planting involves considerable outlay of the total crop budget, which is all the more reason to exercise great care and diligence in the planting process. A few planting DON'TS are listed below.

*Don't plant too deep.* A 1-inch depth works in most situations. Being a little too deep can result in inadequate stands. DP 555 BG/RR, because of its limited vigor, is especially sensitive to excessive depths – a slight adjustment can mean the difference between success and failure. Regarding of variety, planting depths beyond 1.5 inches often result in erratic emergence. In situations of disappearing moisture, better to "dust in" the crop with shallow planting than risk erratic germination and poor stands.

*Don't plant too fast.* An easy remedy to being behind is to plant faster. The bump and bounce of excessive ground speeds can leave seed on top of the ground and result in inconsistent soil/seed contact. Watch your speed! Be particular careful in high residue, reduced-tillage settings. Also, take the time to make sure gauge wheels remain clean.

*Don't plant too thick or too thin.* High seed/technology costs have made thick stands are rarity. On the other, more common extreme, we have reduced rates so there is no room to cut further. Farmers have learned how low we can go. Rates of 2.5 to 3 seeds/ft should be the minimum. No less.

*Don't neglect insecticide hoppers and fertilizer applicators*. In the presence of serious thrips pressure, a clogged tube is more than obvious. The same is true with starter fertilizer applicators. Make sure tubes are clear, that pumps work. Under dry conditions, the perils of getting fertilizer too close to the see are even greater than normal, so be conservative with placement.

*Don't be tardy with early post initial herbicide applications.* Concentrating on planting can distract attention of early stands. Delaying initial postemergence weed control in Roundup or Liberty systems (particularly in the absence of preemergence treatments) can result in significant yield losses. Control weeds early! Dry conditions increase the premium for timeliness – weed response to post herbicides declines with increasing moisture stress and increasing size. Likewise, the severity of competitive effects of weeds in cotton increases with increasing drought stress.

**2006 GEORGIA COTTON ACREAGE AND CROP TRENDS.** ***(Shurley)*** USDA's March 31 *Prospective Plantings* report shows that Georgia farmers intend to plant 1.3 million acres of cotton this year– up 80,000 acres or 6.6% from last year. Peanut acres are expected to be down 125,000 acres. Acreage of corn, peanuts, and soybeans– the major crops that compete with cotton for acreage is expected to be down a total of 165,000 acres compared to the increase of only 80,000 acres in cotton. Obviously there are other crops and land use unaccounted for, but the comparison shows it is likely that a portion of crop land will be idled or taken out of production.

**Georgia Crop Bases and Acres Planted, Major Row Crops 2005 and 2006** [1]

| Crop | DCP Base Acres | Estimated Payment Acres | 2005 Actual Acres Planted | 2006 Planting Intentions |
|---|---|---|---|---|
| Corn | 531 | 452 | 270 | 260 |
| Cotton | 1,537 | 1,306 | 1,220 | 1,300 |
| Peanuts | 519 | 441 | 755 | 630 |
| Soybeans | 113 | 96 | 180 | 150 |
| **Total** | **2,700** | **2,295** | **2,425** | **2,340** |

[1]/ SOURCE: USDA-FSA and USDA-NASS. All acres are thousand acres. DCP Base and Payment acres are as of December 2005.

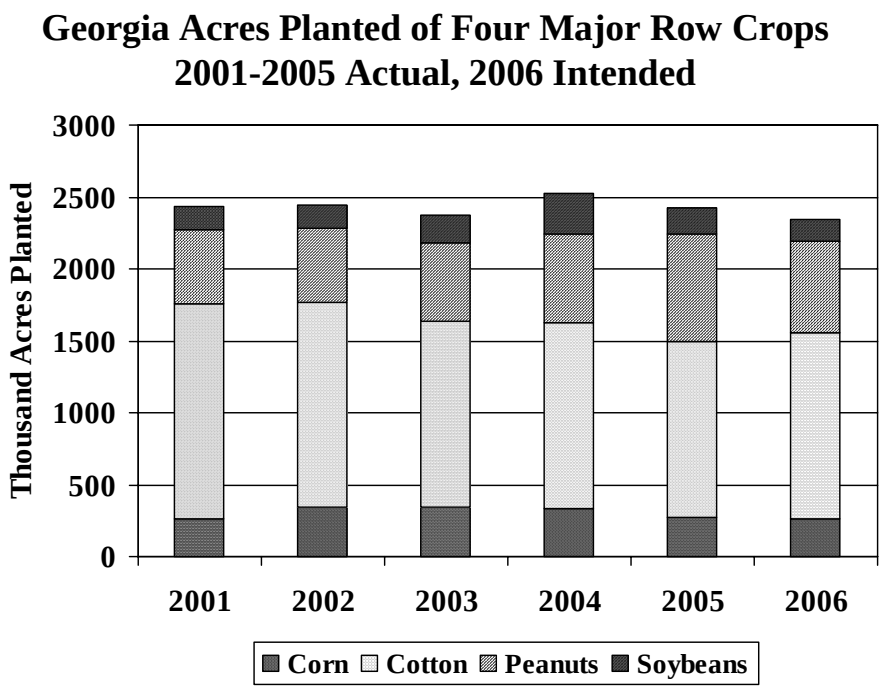
If realized, 1.3 million acres of cotton planted in 2006 would compare to 1.537 million acres of base and 1.306 million DCP payment acres (roughly 85% of base acres). Peanut acres, according to farmer's intentions, may be down in 2006. But 755,000 acres planted in 2005 and 630,000 this year would compare to only 519,000 acres of peanut base in the state. Cotton

acreage planted has been less than base acres and peanut acreage has been more– suggesting that some peanut acres is being planted on cotton base acres.

Since passage of the 2002 farm bill, cotton acreage has trended lower, mostly in favor of peanuts which for some farmers have had a profit advantage under farm bill peanut loan rate. Much of the peanut expansion has occurred in eastern Georgia which did not have large quota under the previous peanut program.

If farmers intentions of 1.3 million acres planted is realized for 2006, acreage would still be less than DCP Payment Acres. This means that on average, statewide that farmers are not planting an acre of cotton that doesn't qualify for DCP payments (Direct and Countercyclical payments). DCP payments and LDP's provide an important income support for producers. Such payments have also contributed to higher land rents for the land owner.

Cotton remains, by far, the state's top crop in acreage and value. Acreage has declined but is expected to increase in 2006. Increased production costs, particularly for items like fuel and fertilizer will tighten profit margins further for 2006. High yields and careful marketing will be important keys to profit in 2006.



**SEEDING RATES (*Jost*)** Obviously one of the easiest ways to reduce the pain of seed costs and technology fees is to reduce seeding rates. Georgia growers have been doing this for the past several years and are closely reaching a danger point. The seeding rate issue has been researched extensively in the past by the University of Georgia and others. The bottom line is that a UNIFORM stand is the key. A uniform stand as low as 1 plant per foot will generally yield as well as 3 or 4 plants per foot. The key to the last statement is PLANTS per foot. While many times it appears that all the seed planted emerged, it is not wise to assume this will happen every time. It could be argued all seed emerging is less likely during dry conditions similar to what we have now.

Our standard recommendation, as financially painful as it may be, is to plant 2.5 to 3 seeds/foot. Most growers are getting by much less than that. In a hill-drop system I have routinely heard about 2 every 12 inches, 2 every 14 inches, and even more spread out more than that. Caution is advised; replanting is expensive, and weed control can be more of a challenge in thin stands. The following table lists various hill-drop and equivalent sowed seeding rates and their associated costs per acre.

Seed drop rates, seed costs, and technology fees for DP 555 BGRR[1], 2006 prices.

| No. seed | Hill-drop spacing (in) | Equivalent Seed/ft | Seed/A | Seed cost/A | Technology fee | Seed + Technology Fee |
|---|---|---|---|---|---|---|
| 2 | 8 | 3.0 | 43560 | $20.91 | $49.00[2] | $69.91 |
| 2 | 10 | 2.4 | 34848 | $16.73 | $40.56 | $57.29 |
| 2 | 12 | 2.0 | 29040 | $13.94 | $33.80 | $47.74 |
| 2 | 14 | 1.7 | 24891 | $11.95 | $28.97 | $40.92 |
| 2 | 16 | 1.5 | 21780 | $10.45 | $25.35 | $35.81 |

[1] Assumes a seed cost of $120/bag and a technology fee of $291/bag
[2] Roundup Rewards program cap is $49/A technology fee.

While yield is one issue to be considered when reducing seeding rates, we should also think about what affect this practice may have on fiber quality. Several trials were conducted across Georgia last year to examine the effect of seeding rate on quality. In these trials final plant stands generally ranged from 1.1 to about 2.7 plants/foot. When cotton from these different plant densities were moduled and ginned on commercial gins micronaire, staple, and strength were unaffected. Fiber uniformity tended to increase as the final plant stand increased. Of course the potential premium incurred, or deduct avoided, in no way came close to paying for the increased cost of more seed. While this data is difficult to build a case with for increasing seeding rates, it is important to keep in mind that factors such as seeding rate may influence quality.

**"LA NIÑA" MAY SPELL "T-R-O-U-B-L-E" FOR NEMATODE CONTROL IN 2006 (*Kemerait and Paz*)** The University of Georgia now has an Extension climatology specialist housed in the Department of Biological and Agricultural Engineering. Dr. Joel Paz, located in Griffin, has played an active role training county agents and growers this season and an important part of his message is simple and direct. "Bob, we can't tell the growers when it will rain or what the temperatures will be weeks in advance. However, based upon data from the equatorial Pacific Ocean, climatologists are confident that we are experiencing a "La Niña" phenomenon in 2006."

Over the past 25 years, the "El Niño" effect has gained a lot of press coverage and many are familiar with the term. "La Niña", "the young girl", has been described more recently and is basically the opposite of El Niño. When a La Niña year is predicted, growers can expect that spring and early summer will be both warmer and drier than normal. Most will agree that such a prediction has been all too accurate in 2006.

The most obvious consequences of warm, drought-like conditions early in the season are delays in land preparation and difficulties in getting a good plant stand. These environmental conditions can also have effects on disease and nematode control as well.

Seedling diseases of cotton are favored by cool soil temperatures that slow the growth and development of the young plants and by excessive soil moisture that favor growth of the fungal pathogens. "Soreshin" caused by *Rhizoctonia solani* often thrives in warm, wet soils; however warmer soils give the seedlings a chance to grow more quickly and escape some of the damage. In our current "La Niña" season, warmer, drier soils will reduce, but not eliminate, the threat of seedling disease.

Managing nematodes in spite of La Niña

An important consideration for growers who must plant when the soil is dry is optimizing nematode control. Growers who hope to manage southern root-knot, reniform, or Columbia lance nematodes in their cotton fields typically use Telone II, Temik 15G, or Avicta Complete Pak early in the season. Proper soil moisture is absolutely critical to getting optimal benefits from Telone II and Temik 15G and benefits the effectiveness of Avicta Complete Pak as well.

***Telone II*** is a fumigant used to manage nematodes in cotton production. To obtain maximum benefits from this product, growers must insure that soil conditions are favorable for the fumigant to move up and spread out through the soil from the point of injection on the shank. Telone II is injected as a liquid, but quickly volatilizes to a gas that then dissolves in moisture surrounding soil particles, killing the nematodes that live in this film of water. If the soil is too dry within 8 hours or so after Telone II is applied, the product will likely escape without adequately eliminating the nematodes.

To maximize the benefits of Telone II, there should be enough moisture so that a handful of soil "sticks" together when gripped in a fist, but the soil should not be excessively wet or muddy. Telone does not fumigate effectively in soils that are too wet. If a grower is applying Telone II and the soil will be too dry at the time of application, he should consider the following options to improve product performance. This is especially important in conservation tillage where the soil is not bedded as the fumigant is applied.

1. To optimize soil conditions for fumigation, the grower can apply 1 inch of water prior to application of Telone II.
2. If the grower can complete irrigation of the field within 8 hours after fumigation, then he can wait to begin watering the field until Telone II is applied.

3. If irrigation of the field cannot be completed in 8 hours, then it will better to apply ½ inch prior to fumigation and ½ inch after fumigation, or apply an inch of water prior to fumigation as described above.
4. Growers must remember that the Telone II label requires a waiting period between time of fumigation and planting to eliminate the chance of damage to the cotton plants from residual product in the soil.

***Temik 15G*** is commonly applied in-furrow by cotton growers to control not only thrips, but nematodes as well. Temik is a granular product that requires moisture in the soil for "activation". Once activated, Temik is absorbed by the roots and also diffuses into the ambient soil for additional nematode control. If the soil is too dry at planting, the Temik may not perform as expected until the moisture content increases. There is the possibility that in a dry soil, there will be just enough moisture to germinate the seed, but not to fully activate the Temik leading to a reduced level of nematode control. For this reason, growers who are planting into dry soil should consider irrigating not only to aide in germination, but to also improve efficacy of the Temik as well.

***AVICTA Complete Pak*** is a new seed treatment package from Syngenta that includes a nematicide component. The exact mechanism for the movement of the nematicide from the seed to the developing root system is not fully understood (at least by me). However, I believe that the grower can expect better performance out of AVICTA Complete Pak with adequate soil moisture to aide in the translocation of the nematicide to the roots.

**CONTROL EARLY SEASON THRIPS (*Roberts*)** Thrips are a predictable pests of seedling cotton and all cotton should be treated with a preventive thrips insecticide at planting. The use of systemic insecticides at planting for thrips control consistently increase yields and profitability. Treatment options include Temik 15G applied in-furrow at planting and the seed treatments Cruiser, Gaucho Grande, and Orthene. Orthene treated seed provides limited control, typically 7-10 days. The seed treatments Cruiser and Gaucho generally provide control for about 3 weeks. Avicta Complete Pak should provide thrips control similar to that of Cruiser. Temik tends to provide longer residual control of thrips compared with the seed treatments. Seedlings are most susceptible to thrips during the early stages of seedling development. Similar numbers of thrips will reduce yields much more on 1-2 leaf cotton versus 3-4 leaf cotton. It is unlikely that thrips will impact yields once plants attain 5 true leaves and are growing rapidly.

In some situations foliar treatment of thrips will be needed, even if preventive insecticides were used at planting. The current threshold is 2-3 thrips per plant. The presence of immature or wingless thrips is an indication that the preventive treatment is failing. In reality, most foliar sprays are based on plant injury ratings. Thrips injury can be recognized by crinkling or malformed true leaves. When scouting pay close attention to newly forming leaves as thrips typically feed on and damage unfurled leaves in the bud of seedlings. Foliar sprays for thrips control include Orthene, Bidrin, and dimethoate. Automatic foliar sprays for thrips are discouraged. Unneeded sprays may potentially flare other pests such as aphids and/or spider mites.

**CUTTING BACK ON POTASSIUM MAY REDUCE YIELDS (*Harris*)** Fertilizer prices are up and a lot of the focus for cotton is on nitrogen...and rightfully so. The next nutrient in line that is likely to cause problems in Georgia cotton is potassium. Low soil test K, short season varieties and limited soil moisture are all key factors that can lead to potassium deficiency. And of course -- underfertilization.

Back when fertilizer prices were cheaper, even when the soil test level of K was high and no potassium fertilizer was called for, many growers would still apply 30-50 lb $K_2O$/A on cotton. In the words of a very well-established and respected county agent in a major cotton county in Georgia, "I don't do zeros on potassium on cotton". However, now with potassium fertilizer a good bit higher, growers are taking a closer look.

The official recommendation from the University of Georgia soil test handbook says that if your soil test levels of K are "high", you have sufficient levels to supply the crop requirement without additional applied K fertilizer. Expected (yield) response to applied K fertilizer is less than “10 % of the time". (This holds true for P as well, but K deficiency is much more likely than P deficiency on Georgia cotton).

Some growers might not want to risk that 10 % chance, and that is fine. By all means, if the soil test level of K is medium or low, you better put out the recommended rate of K. In addition, don't forget those key factors where K deficiency is more likely to show up – again -- short season varieties, low soil test K and limited soil moisture, (i.e..dryland).

In 2005, potassium deficiency was not a major issue. One theory for this was that we planted over 70 % of our acres to a long-season variety (DPL 555 B/R) and we had very adequate rainfall. Hopefully this does not lead us into a false-security where potassium fertilization is concerned. If it stays as dry as it is right now during the spring preplant period there will be major challenges getting soil and fertilizer K into the cotton plants.

Another issue concerning potassium fertilization involves split applications. Split applications are highly recommended for nitrogen. What about splitting potassium fertilization? A study done back in 1998 on a irrigated Tifton soil with a medium soil test K level indicated that splitting the recommended potassium fertilizer (90 lb $K_20$/A), half at planting and half at sidedress actually caused a decrease in yield. In fact, the best treatment in that study was to apply all of the recommended K at planting and then add some foliar K during the early bloom period.

The question of splitting K fertilization on deep sands however still remains. Deep sands (technically defined as a soil that does not have any subsoil clay in the top 20 inches) are also most likely to have low soil test K to begin with and be very responsive to K fertilization. So until a research study like described above is done on a deep sand, split applications of K on deep sands should be considered. In addition, foliar K on deep sands or any time you battle K deficiency has proven to be effective in research trials and according to grower experience.

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