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

Georgia Cotton

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Cotton Research Tour, August 21, Tifton. Mark your calendars for the Cotton Research Tour scheduled for the morning of August 21 in Tifton. Featured projects will include cotton genetics, nematode management, insect management, N management, and plant growth regulators. The printed schedule is forthcoming. The tour will conclude with a lunch sponsored by the Georgia Cotton Commission.

Crop Situation. (*Brown*) Last week USDA released the crop planting report indicating an overall reduction of 28 percent in cotton across the U.S. and the lowest since 1989. The U.S. total for 2007 is 11.1 million acres, while Georgia is estimated to be 1.05 million acres, down from about 1.4 million in 2006 (see the final article). Over the weekend, some areas received rain, and the forecast for this week calls for more. Prior to these showers, moisture conditions were deteriorating rapidly, resulting in significant stress as non-irrigated fields were advancing to 1st flower. There have been some fields abandoned because of dry weather and minimal stands, particularly in west and southwest portions of the state. Other than early thrips, insect pressure has required almost no intervention. Properly managed, irrigated cotton is in good to excellent condition. Gaining the upper hand on weed control, especially pigweed, remains a challenge.

Timing Critical for Nematode Management. (*Kemerait*) Many cotton growers in Georgia are interested in, or *should* be interested in, applying a second nematicide treatment to their crop following emergence. The primary objective of a second nematicide application (following Telone II, Temik 15G, AVICTA Complete Pak, AERIS Seed Applied System, or N-Hibit) is to extend the window of time in which young cotton roots receive some protection from nematodes.

To maximize effectiveness of a nematicide on cotton after emergence requires careful timing of the treatment. Appropriate timing helps to improve the chances of additional root protection and minimizes the risk for damage to the roots during application of Temik.

Currently, there are three products marketed for application after cotton emerges for additional nematode control or suppression. These include a side-dress application of Temik 15G (aldicarb), a foliar application of Vydate C-LV (oxamyl), and a foliar application ProAct (harpin protein).

In trials conducted by researchers and Extension specialists at the University of Georgia, side-dress applications of Temik 15G (5 to 7 lb/A) applied prior to the pinhead-square growth stage often result in improved yields where nematode populations are at a damaging level. Growers who use side-dress applications should do so before plants reach pinhead square, as the granules are "knifed-in" on the side of the cotton plants. If a root system is too developed, root-pruning may occur and cause damage to the crop. Also, the side-dressed Temik requires adequate soil moisture to be activated. Temik side-dress applications can be effectively used after fumigation with Telone II, at-plant applications of Temik, and use of seed treated with AVICTA Complete Pak or AERIS seed applied system.

NOTE: Bayer CropScience has several Temik side-dress applicators that can be borrowed by growers. In order to make timely applications, growers should get on a "waiting list" early to insure that the applicator is readily available when needed.

Cotton growers in the mid-South (e.g. Mississippi) report effective use of Vydate C-LV for management of parasitic nematodes in cotton. It has been more difficult in Georgia to determine how to best use Vydate for nematode management on cotton in our state. For unknown reasons, we can rarely demonstrate a yield benefit from this product for control of nematodes in cotton. Growers who use Vydate C-LV for management of nematodes on cotton should first use a nematicide like Temik 15G or a nematicide seed treatment at planting time (or fumigate with Telone II prior to or at planting). Vydate is then applied between the 2nd and 5th true leaf stage at 17.0 fl oz/A, or Vydate can be applied at 8.5 fl oz/A between the 2nd and 5th true leaf stage and again (8.5 fl oz/A) 10 to 14 days later.

ProAct is a product labeled for suppression of nematode egg production. It is applied at a rate of 0.5 to 2 oz/A on the cotton between the 2nd true leaf and mid-bloom growth stages following an earlier use of an effective nematicide. We are currently trying to develop more efficacy data for this product.

Nitrogen Management (Sidedress) for Late-Planted Cotton, with Uneven Stands, and with New Products. (*Harris*)

N for Late-planted cotton : Cotton planted after June 1, or right after Tropical Storm Barry, should be ready to sidedress soon, depending on how many scattered showers have been received. Even though the window for sidedressing is normally from first-square to first bloom, plan to sidedress late-planted cotton more toward first square. This will help push the crop along in a timely fashion and also help take advantage of scattered showers on dryland. Also, as stated in a previous newsletter article this year, be more conservative with N rate on late-planted cotton.

The rule of thumb is to reduce the total N rate by 25 percent as compared to "early-planted" cotton. Another way to look at this is by yield goal. Late-planted cotton normally has lower yield potential, so adjust accordingly. The bottom line is that rate and timing of N on late-panted cotton is more critical compared that which is planted in the normal window.

N with Uneven Stands: A lot of early-planted dryland cotton resulted in skippy or uneven stands where some plants are much taller and further developed than others. The rule of thumb for sidedressing nitrogen in this situation is to fertilize according to the "majority." In other words, if more than 50 percent of the crop in a field is between squaring and first bloom, go ahead and sidedress. The "shorter" cotton should not suffer from being sidedressed early unless very high N rates are used (over 100 lb N/A). Also, the drawback of waiting until the shorter cotton is ready is that you may sacrifice some yield on the older, taller cotton. Sidedressing cotton after the 3rd week of bloom has shown to be very ineffective, i.e. it is too late. If taller cotton is looking healthy and green, you can delay sidedressing more toward first bloom so the shorter cotton will be further along. If taller cotton is looking pale yellow early (around first square), go ahead and sidedress.

New N Products: As the price of nitrogen fertilizers remain high, there are a number of new nitrogen fertilizer products available or being tested that are designed to increase efficiency or plant uptake. With more granular urea replacing ammonium nitrate as a broadcast sidedress source, a major focus is on reducing volatilization losses using urease inhibitors. Nitrification inhibitors and other additives to reduce nitrate leaching are also available. And some of these products contain both urease inhibitors and nitrification inhibitors. Not only is this going to be confusing to growers but it is also going to take some time to determine exactly which of these products work under which conditions.

Urease inhibitors: Urease inhibitors reduce the potential of any urea-containing N fertilizer to lose nitrogen into the air as ammonia gas (NH_3) during volatilization. Therefore, these materials work on granular urea and also UAN (urea ammonium nitrate) N solutions such as 32-0-0 and 28-0-0-5(S). Urease inhibitors do not work on N fertilizers like ammonium nitrate or ammonium sulfate since they do not contain urea. Urease inhibitors are also more important on granular urea versus liquid N since the liquid N is only 50 percent urea-N and is usually applied in a concentrated band which automatically helps reduce volatilization.

The urease inhibitor product that we have the most experience and data on at this point is one called "Agrotain." The original Agrotain is a liquid that can be coated onto granular urea (usually by the dealer) or simply mixed in with liquid N solutions. Data from across the southeast show that adding Agrotain to urea fertilizers makes them comparable to ammonium nitrate in effectiveness. Untreated urea typically is not as an effective N source as ammonium nitrate.

Urease + Nitrification Inhibitors: Nitrification inhibitors reduce the potential for nitrogen in the ammonium form (NH_4) from being converted to nitrate (NO_3). The advantage of these products is to reduce potential nitrogen loss from nitrate leaching. Some think that plants can only take up nitrate. This is not true. Plants can take up ammonium as well as nitrate. In fact, plants prefer ammonium since the first thing they have to do with nitrate is use energy to convert nitrate back

to ammonium once it's inside the plant. Plants end up taking mostly nitrate up into roots simply because ammonium is converted to nitrate fairly rapidly in our soil conditions.

Examples of urease + nitrification products being tested on cotton (and corn) this year include Agrotain Plus, a powder that is added to liquid N; Agrotain Super U, a granular product that has the urease inhibitor and nitrification inhibitor incorporated into each granule during the manufacturing process; and Nutrisphere N (or "NSN"), a product is made by a company called Specialty Fertilizer Products which is impregnated onto granular urea by the dealer. It is being marketed in Georgia by the Southern States Coop. There were no data in the Southeast on this product prior to its release this year. They also have a liquid product that can be added to liquid N and is in the testing phase. A fourth product is Excelis, a liquid which is mixed with liquid N and marketed by a company called Timac.

There are also some products containing calcium such as calcium chloride, calcium nitrate, and calcium thiosulfate that are being tested as additives to liquid N in the hope of reducing nitrate leaching. These are in the testing phase at this point. In addition there is a clay product that can be added to liquid N for the same reason that is currently being tested.

Slow Release/Coated: ESN, which stands for Environmentally Smart Nitrogen, is a new product from the Agrium Company that is currently being tested on cotton in Georgia. It is a polymer coated granular urea (the coating is not unlike polyurethane) that is truly a slow release N product. While it does not claim any urease or nitrification inhibition per se, by virtue of it being slow release it should reduce N loss by both of these mechanisms. The challenge with this product is to release the N when the plant needs it. The release is supposedly more dependent on temperatures than moisture, so testing it in the Southeast is imperative (most of the testing to this point has been in the Midwest and Great Plains). Preliminary data last year showed that this product might be valuable as a preplant N source (probably in combination with some untreated urea) where you eliminate the sidedress application.

Corn Earworm Control. (*Roberts*) During 2005 and 2006, UGA scientists measured changes in susceptibility of corn earworm (CEW) to pyrethroids. Elevated ED50s to pyrethroids (the dose required to control 50 percent of a population) suggest that CEW are becoming more difficult to control. In 2005 and 2006, we observed reduced field efficacy in some areas when pyrethroids were used for control of CEW. In most situations, acceptable but not excellent control of CEW in Bt cotton was observed with multiple applications of pyrethroids.

As in recent years, we plan to run Adult Vial Tests (AVTs) to monitor pyrethroid susceptibility of CEW in the field. AVTs are conducted by collecting CEW moths in pheromone traps and placing individual moths in glass vials which have been treated with a consistent dose of cypermethrin (pyrethroid). Percent survival 24 hours after exposure in pyrethroid-treated vials gives an indication of pyrethroid susceptibility. During May and June, CEW populations were low, too low to conduct AVTs. However, we anticipate numbers increasing in the coming days and weeks. Results of AVTs will be communicated in future newsletters, especially if unusually high survival in AVTs is observed.

Recommendations for control of corn earworm in 2007 include the use of medium to high rates of pyrethroids for low to moderate infestations (avoid low rates). Under heavy pressure, consider adding an ovicide or another larvacide with the pyrethroid. Efficacy of pyrethroid sprays should be evaluated three days after application. If poor control of corn earworm is observed and other factors of poor control (coverage, rate, timing of application) can be ruled out, a non-pyrethroid insecticide should be used. We cannot predict if this problem will develop further or if, when, or where it may occur.

Pondering the Future and Stability of Georgia's Cotton Acreage. ***(Shurley)*** In 1995, Georgia farmers planted a modern day record 1.5 million acres of cotton. This record acreage would again be reached in 2000 and then just 10,000 acres shy of the record again in 2001. After 2001, Georgia cotton acreage trended downward about 18 percent until rebounding to 1.4 million acres last season.

On June 29th, USDA released its estimate of acreage planted for 2007. It is estimated that Georgia farmers planted 1.05 million acres of cotton this year—down 350,000 acres or 25 percent less than last year. Some acres intended for cotton and peanuts were prevented from being planting due to drought. Otherwise, cotton acres from 2006 were switched to corn and soybeans due to attractive prices for those crops.

Total US cotton acres for 2007 are down 28 percent from 2006. Over the past 10 years or so, Georgia cotton acreage has tended to follow the national trend but has been more stable—not declining as much compared to other states when prices are low.

The final numbers may differ from USDA's estimate. Regardless, ***Georgia being able to hold above 1 million acres in the face of stiff competition from $4 corn and $8 soybeans has to be regarded as testament to the stability of cotton as the top crop in the state…*** but, it does make us wonder about the future of the state's top crop and U.S. cotton in a broader sense.

The recent run in cotton prices (December futures have made a nice run over the past month and are currently above 63 cents) has somewhat restored faith in both the market and the near-term future of U.S. cotton. The U.S. is the world's largest supplier of cotton for the export market and apparently it DOES make a difference when what happens in the U.S. results in an adjustment on the supply side in the face of strong demand. For a while, many were wondering if the market was asleep at the wheel and oblivious to common sense economics.

It is very important to note that ***the shift in acres that occurred in 2007 was the result of improvement in other crop prices, not cotton***. The cotton market did not respond with improved prices until after the planting season. Further, even when cotton prices are low, producers do not base decisions solely on price… potential LDP's are also taken into consideration.

Corn and soybeans are not consistently profitable crops for most Georgia farmers. If they were, we would have been growing more acres of them long before 2007. But the reduction in cotton acres and increase in corn and soybean acres is good for crop rotation and good for crop diversity and risk-management on Georgia farms. It is good to see more Georgia farmers have an

opportunity to profit at crops other that the top two – cotton and peanuts (corn acreage is actually more than peanut acreage this year).

Crop acreage decisions are a function of expected prices, expected yields, cost of production, risk management (contracts, crop insurance, etc.), government programs (payments received on actual production like LDP's), and weather. In this respect, ***Georgia farmers and the state's agriculture have much at stake in the next farm bill***. Agronomically and economically, cotton and peanuts have an advantage on many Georgia farms. Policy decisions that would impact that are as vital as markets and costs.

Cotton faces its own challenges including increasing cost of production, unstable markets dependent on exports, and policy concerns such as WTO and the 2007 farm bill. Unless corn and soybeans can remain at relatively high/attractive prices, cotton and peanuts will remain the mainstay of row crop agriculture in the state. The state's cotton acreage has not declined significantly until this year, and it took $4 corn and $8 soybeans to do it.

Is agriculture in a "transition" due to energy-driven markets and prices? Is the decline in Georgia and U.S. cotton acreage this year just the beginning of a possible, more permanent adjustment? If changes in the next farm bill result in lower net returns (through lower LDP) and the safety-net for cotton and peanuts, concerns will grow. This year, strong corn and soybean prices gave Georgia farmers an attractive and beneficial alternative. ***The recent improvement in cotton price is good to see. Low cotton prices in the future, however,*** without adequate program benefits and without profitable choices (if corn and soybeans prices should decline to pre-2007 levels, for example) would leave many Georgia farmers with few or no agronomically feasible and profitable alternatives.

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