*Growth Regulators for 2003. D. Monks and D. Delaney*

Cotton grown where moisture and nutrients are not limiting or where fruit set is low can produce excess vegetation called “rank” growth. Rank cotton often results in boll rot, increased insect pressure, and decreased picking efficiency and lint quality. Over the past several seasons, drought conditions have limited use of growth regulators in many areas of the state. Mepiquat chloride has been the most common product used to regulate growth by reducing excessive vegetative production resulting in shorter plants. Shorter plants allow more air movement and sunlight penetration, reducing the potential for boll rot. Fruit retention can be higher on lower fruiting branches, resulting in increased earliness. The effect on final yield can be variable.

There are several products available that contain mepiquat chloride. “Pix”, a product marketed by BASF, has historically been the most recognizable trade name in the growth regulator market. The “evolution” of their products includes Pix (mepiquat chloride), Pix Plus (MC + Bacillus cereus), Pix Ultra (MC + boron), and Pentia (mepiquat pentaborate). There are other MC containing products on the market including Mepex and Mepichlor. Some of the new varieties on the market this year may benefit from more aggressive management of growth regulators. For example, according to seed company recommendations, producers should watch DP 555 and Stoneville 5599 BR for conditions and growth that warrant treatment.

*Nitrogen Fertilizer Loss and Disease Pressure Due to Recent Rains in North Alabama. C. Burmester*

Nitrogen Loss: My fields have been saturated with water for two weeks and part of the field stood in water for three days. The cotton is still alive, but how much of the 80 pounds of nitrogen I put down at planting is still available for the cotton? How much nitrogen should I use as a side-dress treatment? This is a common example of the many questions north Alabama cotton farmers are asking after two weeks of rainfall, totaling over 10 inches in most areas.

As with many biological processes, there is not a simple answer. We know that we have lost a great deal of nitrogen in the soil due to “denitrification”. The ground is waterlogged and bacteria use the oxygen on the nitrate fertilizer ($\text{NO}_3^-$) as their oxygen source. This causes a conversion to nitrogen gas which is lost to the atmosphere. The more organic material in the surface soil and the higher the temperature, the more rapid this process occurs. Most nitrogen fertilizers are quickly converted to the nitrate form (5-7 days) under our spring planting temperatures.

Since nitrogen soil testing is generally unreliable on our soil, we are left to use results of past experiences and some assumptions. My experience with flooded fields in north
Alabama indicates that most of the nitrogen fertilizer is lost rapidly. Where cotton has been flooded 2-3 days, and the cotton survives, it often develops nitrogen deficiency symptoms very quickly. In fields that have stayed saturated for many days nitrogen loss has also occurred, but probably to a lesser extent.

I suspect that most cotton fields will benefit from additional nitrogen fertilizer, especially if we have good growing conditions in June and July. I would recommend increasing side-dress nitrogen treatments by at least 10-20 pounds per acre over original plans. Areas replanted due to flooding or where there was standing water for 2 or more days should receive at least 40-60 additional pounds of nitrogen. Since cotton's peak demand for nitrogen is not until bloom this additional nitrogen could be delayed until the field has a good stand and the cotton is growing normally.

Tissue sampling of cotton leaves to determine nitrogen levels may also be done as cotton approaches first bloom. On dry-land cotton this will often indicate the nitrogen status of the plant better than petiole sampling.

**Disease Pressure:** As cotton fields dry out, several reports of seeding diseases and some wet weather blight attacking cotton has been reported in northern Alabama. Night temperatures in the low 50's recently increased this problem.

Rhizoctonia fungi in the soil are the most likely cause of the black lesions on cotton stems at the soil surface. This often kills the plant rapidly as it grows through the stem.

In many fields, cotyledons and lower true leaves have disease spots that have fallen out or the whole leaf has fallen off. This is often call Ascochyta blight or wet weather blight. Usually this disease is transferred from the soil surface by soil splashing up on the cotton leaves. Some black lesions on the upper stem are often noted especially where the leaf petiole joins the main stem. Although this disease can kill plants it seems to be mainly affecting lower leaves at this time.

There is no treatment the farmer can apply to control these diseases at this time. Warm dry weather will be the best medicine.

**Cotton Scout Schools. R. Smith**

Cotton scout schools for the 2003 season are planned as follows:
- June 10: Monroe County Extension Office, Monroeville;
- June 11: Wiregrass Research and Extension Center, Headland;
- June 12: Autauga County Extension Office, Autaugaville;
- June 17: Tennessee Valley Research and Extension Center, Belle Mina

All training sessions will begin at approximately 8:30 AM and will end by 2:00 PM. No pre-registration is required and everyone is invited. Ten points towards recertification for Alabama commercial applicators license will be earned. For more information, call Ron Smith (334.844.6394), Barry Freeman (256.353.8702), or Leisha McDaniel.
*Marestail and General Weed Control. M. Patterson*

We won’t be getting Envoke herbicide for use this year. The EPA denied the request. Hopefully Envoke will be registered this winter and available next season.

Many acres are being replanted now following heavy rains in north Alabama. The question of adding more preemergence herbicide after replanting has been asked. If Roundup Ready cotton is being used, then I wouldn’t apply any additional soil-applied herbicide. If a conventional non-transgenic variety is being used, then the addition of a half rate of fluometuron on the band may be justified. Staple would be a viable option behind the planter also. Killing the emerged cotton plants from the initial planting can be accomplished by using paraquat (Gramoxone or Boa) or prometryn (Caparol, Cotton Pro, etc.) following the replanting but before the new cotton emerges.

If you have a workable stand of cotton now, early season weed control is important. Roundup Ready cotton that did not receive a soil-applied herbicide at planting (Trifluralin, Prowl, fluometuron, etc.) will probably need a shot of glyphosate at the 1 to 2 leaf stage. Don’t wait until the weeds are as tall as the cotton to make this application. If grasses and pigweed are problems in young RR cotton now then consider adding some Dual Magnum to this treatment. If morningglory and sicklepod (coffee weed) are the main weed problems then consider adding some Staple to the initial glyphosate treatment. Conventional variety cotton will benefit from a postemergence Staple treatment now if morningglory and pigweed are coming up. Adding a pint of MSMA to the Staple will help control small sicklepod.

Glyphosate resistant marestail/horseweed is becoming a problem in the Tennessee valley area. Some no-till fields have good populations of this weed currently growing in small cotton. Bob Hayes with the University of Tennessee at Jackson has done a good bit of work controlling this weed postemergence after cotton emergence. Fluometuron (Cotoran, Meturon, etc.) plus MSMA post-directed in young cotton will help beat the marestail back. MSMA alone in warmer weather will help. A follow up treatment of diuron (Karmex, Direx, etc.) plus MSMA post-directed or under hoods will hopefully finish the marestail off. This treatment should be kept on the lower third of the cotton stalk. Staple apparently has little activity on marestail. Marestail control should be addressed in the burndown treatment before planting minimum till cotton. A phenoxy herbicide (2,4-D, Clarity) sprayed in late January or early February followed by glyphosate plus diuron or paraquat plus prometryn at planting or shortly before planting should provide good control of marestail and other winter weeds.

Liberty-Link cotton experiments are being planted at the Tennessee Valley Substation, E.V. Smith Research Center, and Wiregrass Substation this year and will be available for inspection if you can make any of the field days scheduled this summer.

*Timeliness in Pesticide Applications. B. Goodman*
I gave a talk to some aerial applicators last week, and I talked mostly about cost of application of pesticides. The theme of the talk was how in a low-spray system like we have now, the fixed costs of sprayer ownership can be quite large. If you are only going over the field with a sprayer once or twice your fixed costs per acre-application can be well over the price of custom application. That’s not news to anybody, but in developing the information I used in the talk, I asked Ron Smith some questions about timeliness in insect control. What he told me really made me think twice about my notions of what good management is, in terms of pest control.

Ron said that a budworm or bollworm will destroy a combination of 7 bolls and squares before it cycles out. If you do the numbers, that means at 5% infestation with 50 cent cotton, you are losing about $27 worth of cotton. In other words, the cost of control is less than the value of the cotton you would lose, and the correct management decision is to spray the cotton. Nothing new about that, but what interested me was that Ron said that the worms will do about 70% of their damage in the first week or so. They will destroy 5 or 6 young squares in the top of the plant before they move down the stalk and find some bigger boles to finish up on. Well, if you work out the numbers you see that on a daily basis, they eat through a lot more cotton early on than late in the cycle. According to my estimates, they eat through over $3.50 worth in the first day. They eat over $3 per day for the first several days. After five days, they would have eaten over $15 worth of 50 cent cotton. In fact, at that point if you leave them alone they will only destroy another $12 worth of cotton. The cost of control after 5 days is greater than the potential damage. The correct decision is to withhold treatment.

The point of all this is to underscore the value of timeliness. A famous Alabama cotton farmer once showed me his crop management plan, and at the top of the sheet was written “Time is your most important asset – use it wisely”. It seems to me that if I was a cotton farmer and I had a scouting report in my hand for worms that needed spraying, I would want to spray them today. If I couldn’t get over the field in time, I would hire it done.

There is a lot more to this decision that what has been mentioned here, and I will get around to it soon. There is a lot more to be said on this issue about the dynamics of worm hatch distributions, the discounted value of bolls and squares lost, issues of the probability of re-infestation and the optimal timing of insecticide applications. The information presented here indicates you can be too late. The question remaining is can you be too early? Stay tuned.

*Early Season Cotton Management in the Wiregrass. W. Birdsong*

There is nothing that impacts the overall potential that a cotton crop has other than early season management. This management really began back in January when the grower was planning for the upcoming season.

Thrrips are no doubt the earliest pest on cotton. Some thrrips control materials can be used with Roundup applications to help “clean up” fields with thrrips damage (where
allowed by the manufacturer’s label). The only problem is a lot of damage has already occurred to the cotton if no thrips control measures were taken at planting.

**Three Cornered Alfalfa Hoppers:** I have received reports about this insect in some cotton fields girdling the young seedlings. Usually, this is not an economic problem and does not require treatment. Once the stems get “woody” these leafhoppers can not damage the plants.

**Weed Control in Roundup Ready Cotton:** Roundup can be applied over the top of Roundup Tolerant cotton until the 4th leaf stage and the fifth leaf is the size of a quarter. For volunteer peanuts (a big problem in peanut country), the addition of ammonium sulfate will improve control close to 100 % if the peanuts are not too large. Timing of this treatment is important. I noticed a delay in crop maturity last year when this was not followed.

**Fertility:** Late nitrogen application has shown to have reduced benefits in some Florida tests. Therefore, application of total nitrogen should be applied by the time the plant is at the 8th to 10th leaf stage. Usually, cotton starts fruiting on the 5th to 7th node. The standard treatment is 90 lb N per acre total for the season. Usually, this is split applied with 20 to 30 lb/A applied at planting. The total amount may be increased or decreased by 30 lb/a depending on soil type, etc. The P and K should be applied at planting according to soil test recommendations.

**Growth Regulators:** I highly recommend multiple rate applications of growth regulator if needed. This should begin at early square if the plant is not under any stress. This could be nutrient, soil compaction, drought, insect, etc. The reason I like this method is because applications can stop if a stress does occur and if the plant starts to fruit it can act like “Pix” for itself and growth regulators may not be needed. Also some varieties need growth regulators more than others. For example: DP 555 BRR needs watching and FM 989 BRR does not require a lot of growth regulator.

For cotton to produce well and mature for earlier harvest, the management that the crop receives early in its development is essential to obtaining high yields and quality cotton.

*2003 Cotton Calendar. **D. Monks**

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<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Contact Person</th>
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<tbody>
<tr>
<td>June 10</td>
<td>Cotton Scout School: Monroe Ext. Office</td>
<td>Ron Smith, A. Wiggins</td>
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<tr>
<td>June 11</td>
<td>Cotton Scout School: Wiregrass Research and Extension Center, Headland</td>
<td>R. Smith, W. Birdsong</td>
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<td>June 12</td>
<td>Cotton Scout School: Autauga Ext. Office</td>
<td>R. Smith, L. Kuykendal</td>
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<td>June 17</td>
<td>Cotton Scout School: Tenn. Valley R &amp; E, Station, Belle Mina</td>
<td>B. Freeman, C. Burmester</td>
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<tr>
<td>July 31</td>
<td>TN Valley Research and Ext Cotton Day</td>
<td>Chet Norris</td>
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<tr>
<td>July 31-Aug 3</td>
<td>ALFA Commodity Conf., Mobile</td>
<td>ALFA</td>
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*CA- county agent.

If you are interested in weekly updates for the state’s cotton crop, there are several
sources for that information. The DTN terminal at your local supply dealer has a
category called “Local Information”. The state agricultural statistics reporting service has
a website update at:

www.nass.usda.gov/weather/cpcurr/al-crop-weather

Our website also has the same update plus other information at:
www.acesag.auburn.edu/dept/cotton

Updates are sent each Monday morning to these services and DD60s are updated at the
end of each week. These updates will begin with the start of the planting season or
shortly thereafter.
*Reference Number: PSK-6-03, D. Monks and C. Burmester, editors

ALABAMA A&M AND AUBURN UNIVERSITIES, AND TUSKEGEE
UNIVERSITY, COUNTY GOVERNING BODIES AND USDA COOPERATING

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