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

Georgia Cotton

May 4, 2005 www.ugacotton.com

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COMMON PLANTING MISTAKES. (***Brown***) Wet, cool weather has delayed planting. As of April 24, we had planted only 4 percent of the crop compared to a 5-year average of 10 percent. With more rain coming the weekend of April 30, there are hints of nervousness. Still, we have a wide window for planting – from early April to the first week in June – so we still have significant time.

When we do get to the field, we have to be careful. In planting, a huge portion of our inputs are expended. Mistakes with a planter are often costly, and thus, it pays to make sure we have everything right as we put seed into the ground. The following represents a few common mistakes in planting.

Planting too deep. A 1-inch depth is proper in most situations. Being a little too deep, especially with DP 555 BG/RR because of its small seed size and limited vigor, can result in serious problems. Likewise, depths beyond 1.25 inches followed by packing rains can limit emergence and final stand. In situations of disappearing moisture, we sometimes plant on the boundary of dry and moist soil. That often brings disaster. Better to "dust in" the crop, put the seed in totally dry soil, than risk erratic germination and stand establishment.

Planting too fast. An easy remedy to being behind is to speed up the planter. This can leave seed on top of the ground and result in inconsistent soil/seed contact. Watch your speed!

Planting too thick or too thin. The cost of seed and technology virtually eliminates the problem of excessive seeding rates. A mistake of that sort might last for only a brief time, maybe a few

rounds…and is followed with a lot of choice muttering. In recent years, we have significantly reduced planting rates; so much so, that there is really no room to cut them further. Rates of 2.5 to 3 seeds/ft should be the minimum. No less.

Flow problems with fertilizer applicators and insecticide hoppers. Muddy conditions and high humidity sometimes cause problems with insecticide tubes. In the presence of serious thrips pressure, a stopped up tube is more than obvious. The same is true with starter fertilizer applicators. Make sure tubes are clear and gauge wheels remain relatively clean.

Failure to get back with in a timely manner with initial herbicide applications. Concentrating on getting the crop planted can result in neglect for early stands. Delaying initial postemergence weed control in RR systems (particularly in the absence of preemergence treatments) can result in significant yield losses. Control weeds early!

APPLY VALOR THROUGH YOUR COTTON SPRAYER? (*Culpepper*) Valor is a very effective herbicide used commonly as a burndown herbicide treatment as well as at planting in peanuts. It is absolutely critical that one follows the sprayer cleanup directions on the Valor label if that sprayer is to be used to apply a pesticide overtop of a sensitive crop, such as cotton. Below are several key steps that must be followed to potentially avoid significant crop injury. Clearly, there is only one method that can guarantee no injury and that is for growers to have a dedicated sprayer just for products such as Valor (also recommended for 2,4-D).

Spray equipment must be cleaned <u>EACH DAY</u> after use.
1) Completely drain the spray tank, rinse the sprayer thoroughly, including the inside and outside of the tank and all in-line screens.
2) Fill the spray tank with clean water and flush all hoses, booms, screens, and nozzles.
3) Top off tank, add 1 gallon of 3% household ammonia for every 100 gallons of water, circulate through sprayer for 5 minutes, and then flush all hoses, booms, screens and nozzles for a minimum of 15 minutes.
4) Drain tank completely.
5) Add enough clean water to the spray tank to allow all hoses, booms, screens and nozzles to be flushed for 2 minutes.
6) Remove all nozzles and screens and rinse them in clean water.
7) Inspect all sprayer components including the inside of hoses for a whitish residue. If residue is present, repeat all steps as noted above.

If these steps are not followed then one should not use the sprayer to make applications overtop of any sensitive crop as significant crop injury will likely be observed.

LENGTH OF WEED CONTROL OFFERED BY THE YELLOW HERBICIDE (*Grey and Culpepper*). The yellow herbicides pendimethalin (Prowl® 3.3 EC, Prowl® H2O, Pendimax® 3.3 EC) trifluralin (Treflan®, Trifluralin®), and ethalfluralin (Sonalan®) are commonly applied for grass

and small seeded broadleaf weed control. Application rate will be dependent on the herbicide and soil type. In sandier soils, less yellow herbicide is used to avoid crop injury.

The main difference between yellow herbicides is their volatility. Pendimethalin has the lowest volatility as compared to trifluralin or ethalfluralin allowing it a little more flexibility on how quickly incorporation should occur (irrigation, rainfall, or mechanical). Irregardless of which yellow herbicide is used, without incorporation weed control will likely be reduced and thus incorporation should occur as soon as possible after application. After incorporation, the yellow herbicides remain in the top layer of soil because they have low water solubility or are bound to organic matter or clay particles in the soil.

From 1998 through 2003 dry weather persisted and farmers depended on mechanical or irrigation means to incorporate the yellow herbicides, which provided typical grass and small seeded broadleaf weed control. However, in 2005 we have seen significantly increased spring rainfalls and cool weather. The typical half-life (time period which is required for degradation or breakdown of half the amount of product sprayed) of yellow herbicides ranges from 42 to 60 days. This can be slightly increased if the product is incorporated into the soil. Degradation from sunlight is relatively minor; however, losses through volatilization and anaerobic conditions can be much more severe. As previously described, volatilization can be managed in many situations by incorporation through mechanical practices or by irrigation. However, breakdown of these herbicides from anaerobic conditions are more complicated and less manageable.

Anaerobic conditions occur when the soil is either at 100% field capacity or standing water is present. The duration of anaerobic conditions is dependent on the persistence of rain or location in the field. Low lying areas and depressions can be under anaerobic conditions longer than other parts of a field. This has been quite common during the past month. With respect to the yellow herbicides, data has indicated that these products can breakdown as quick as 7 days when faced with conditions where the field is at 100% field capacity or standing water is present. Research studies have indicated that this rapid increase in breakdown is not by microbes, but by chemical processes called *reduction*. The process of reduction of the yellow herbicides occurs in soil saturated conditions due to the minerals found in soil, primarily oxides of iron and other metals. After this process has occurred, the compound no longer has herbicidal activity and the period of weed control maybe greatly reduced. So take note of the fields you start to see early season weed pressure: was there a time after applying your yellow herbicide when excessive water stood in that field?

WHY USE A YELLOW HERBICIDE IN 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 could be 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.** Although many growers have effectively controlled small pusley with Roundup during the past couple of years, this weed CAN NOT be consistently controlled

after it has emerged especially if conditions are somewhat dry. 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 herbicides, glyphosate applied twice prior to the fifth leaf of cotton development following label recommendations will be needed on approximately 40% of our acres to avoid yield loss (23% to 32%) 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.

BT COTTON REFUGE (*Roberts*) The Bollgard 2005 IRM Guide can be found at the following website:
http://www.monsanto.com/monsanto/us_ag/content/stewardship/irm/2005/bollgard.pdf

EARLY SEASON THRIPS (*Roberts*) Thrips are the most consistent and predictable insect pest of cotton in Georgia. Since damaging thrips infestations occur in nearly all fields, a preventive systemic insecticide such as Temik applied in-furrow at planting is recommended. In addition to thrips activity, Temik also has activity on nematodes. Seed treatments, such as Cruiser, Gaucho, and Orthene are also options for thrips control and offer convenience of application. However, the seed treatments do not provide the residual control as seen with Temik. Cruiser and Gaucho provide thrips control for about 3 weeks after planting whereas Temik provides thrips control for 4-5 weeks (rate dependent). Extended residual control is needed for slow growing stands since the window of susceptibility is greater compared with vigorously growing cotton. Seedling cotton is most susceptible to thrips injury when plants are small, excessive thrips injury on 1-2 leaf cotton will cause greater yield loss than on 3-4 leaf cotton. Treatment is rarely necessary after plants have 5 true leaves and are growing vigorously. Crinkled and deformed leaves and stunted seedling growth is indicative of thrips damage. In severe cases, loss of apical dominance and stand loss may occur. Excessive thrips damage also reduces yield potential and delays maturity. Cotton should be scouted at least weekly for thrips and damage. Treatment is recommended when 2-3 thrips per plant are found, especially if immature or wingless thrips are found. The presence of immature thrips suggest that the preventive treatment is failing (i.e. eggs hatched and immatures are developing on plants). Systemic insecticides such as Orthene, Bidrin, or dimethoate are recommended as foliar applications for thrips. Thrips infestations are generally lower in reduced tillage systems compared with conventional tillage systems, however

preventive at plant treatments are still needed. Other potential early season insect pests include cutworms and grasshoppers which are sporadic and much less predictable.

A THREE-STEP APPROACH TO MANAGING NEMATODES IN GEORGIA (*Kemerait*) Effective management of parasitic nematodes that infest cotton roots is important to obtain maximum yield and also helps to improve fiber quality. At the cornerstone of nematode management in cotton production is crop rotation. Rotating a non-host crop with cotton is an effective tactic to keep nematode populations from reaching damaging levels.

Unfortunately, many growers are not able to practice effective crop rotation, primarily because there is not a non-host crop that fits well into their production practices. In the absence of effective crop rotations, growers must focus on two strategies to reduce the damage caused by nematodes: 1) use of nematicides and 2) reduction of stresses on the crop. Nematicides provide temporary protection for the young cotton crop, allowing the root system to reach a greater stage of development before it is attacked by nematodes. Nematodes are typically stress pathogens, rarely killing cotton plants unless accompanied by Fusarium wilt. Instead, nematodes cause extensive damage to the root systems that hinders the uptake of water and nutrients by the plant and can lead to lower yields, poorer fiber quality, and pre-mature cutout.

Today, most growers who use nematicides in their cotton crop rely on either Temik 15G or Telone II. Vydate (Oxamyl) is also labeled for use to control nematodes in cotton, but is applied only after Temik or Telone II has been applied earlier. I believe that there are many growers in the state who could benefit from using increased rates of Temik or using Telone II, but who do not do so. Typically growers do not use optimum rates of Temik or Telone because a) they are not aware of the severity of the nematode problem in their field, and/or b) they do not think that they can afford the added cost of the nematicide in their production program.

Growers who have noted a decline in yields in their fields despite adequate fertility and areas of poor growth should consider sampling their field for nematodes. Although poor growth in a field can be caused by any number of problems, to include pH and fertility issues and herbicide injury, growers must consider that nematodes may also be a considerable part of the problem. When problem areas arise in the field, growers or consultants should pull multiple soil samples for nematodes analysis from the root zones in both symptomatic and "healthy" areas to allow for a comparison of nematode populations. This will allow the grower to determine what role, if any, nematodes have in poor performance of a cotton crop.

There is no doubt that nematicides add expense to a cotton production program; however the use of nematicides is often a very sound investment. As I say at my cotton production meetings, "It is not what you spend up front on nematicides, but the return in income they provide to you at harvest that matters most". The decision to use nematicides is based primarily on the knowledge that a grower has of his field. For example, if fall nematode samples indicate that nematodes are present, but at a level below the economic threshold value, the grower should plan to use at least 3.5 lb/A of Temik for thrips control and added nematode benefit as well. Where nematode

populations are above the threshold level, the grower needs to consider using higher rates of Temik and perhaps Telone II to maximize their yields and to minimize damage from nematodes. A difficult aspect in the management of nematodes is that once the furrow is closed at planting, options with the use of nematicides becomes much more restricted.

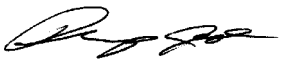
As mentioned earlier, nematodes are stress pathogens that affect the ability of the root system to provide the cotton plant with needed nutrients and water. Therefore, anything that a grower can do to reduce stress on the cotton plant will allow for improved performance by the crop, even when the function of the root system has been compromised to some degree. Effective ways to reduce stress on a crop obviously include irrigation and needed, maintenance of proper pH levels and fertility. Other ways to reduce stress may include sub-soiling to break up hardpans that restrict root growth, use of conservation tillage, which can increase moisture holding capacity of the soil and encourage growth of beneficial microorganisms, and the use of poultry litter which has been shown in some instances to reduce the severity of nematodes in a field.

Cotton growers throughout Georgia must work to manage nematodes as best as they can. Nematode management today can be thought of as composed of three strategies: crop rotation, use of nematicides, and reduction of stress on the crop. Growers who are able to take advantage of these strategies should be able to minimize the threat of losses to parasitic nematodes.

COTTON SCOUT SCHOOL – TIFTON (*Roberts*) The annual Cotton Scout School will be held at the RDC in Tifton on Monday, June 6th, 2005. Each person planning to attend the training needs to pre-register (registration form attached). Feel free to duplicate this form.

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

Edited by: **Philip H. Jost**, Extension Agronomist-Cotton & Soybeans



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2005 COTTON SCOUT SCHOOL

TIFTON CAMPUS CONFERENCE CENTER at the
RURAL DEVELOPMENT CENTER, TIFTON GEORGIA
Pre-Registration Required for <u>TIFTON ONLY</u> due to Limited Seating
JUNE 6, 2005

Name _____ Email_____
Mailing Address _____ Phone_____
City _____ County _____ State_____ Zip_____

Special arrangements for people with disabilities will be made if requested in advance. For these arrangements or for more information, call the Conference Office at (229) 386-3416

REGISTER EARLY! SEATING IS LIMITED.

____ $7.00 - Monday, June 6, 2005 (Before May 31, 2005)

Make checks payable to COTTON SCOUT SCHOOL / RDC and mail to Cotton Scout School, Rural Development Center, Conference Office, P. O. Box 1209, Tifton, GA 31793. IF REGISTERING FOR MORE THAN ONE PERSON, BE SURE TO INCLUDE ALL THE ABOVE INFORMATION FOR EACH PERSON. This form may be copied.

Cancellation Policy: Requests for cancellation must be received in writing prior to May 31, 2005. A $5.00 processing fee will be assessed for Refunds. Registrations canceled after 05/31 are NON-REFUNDABLE. You may have someone substitute for you. In the unlikely event that the school is canceled or rescheduled, registrants will be notified by telephone.