



Louisiana Cotton Acres

Projected at 280,000—Sandy Stewart, Ph.D.

Projections from the USDA are for 280,000 acres of cotton to be planted in Louisiana in 2008. If realized this would be the smallest cotton plantings since USDA began keeping record. MS was also projected to have a record low cotton acreage of 420,000 acres, and Arkansas acres were projected to fall to 650,000.

In its March 31 Planting Intentions report, USDA estimated U.S. 2008 cotton plantings at 9.39 million acres compared to 10.83 million last year. Upland acreage was expected to total 9.19 million compared to 10.54 million in 2007. This would be the lowest upland plantings since 1983. Growers intend to decrease planted area in all states except GA and OK. The largest acreage declines were projected for AR, MS, TN and TX. American-Pima cotton growers intended to decrease plantings by 88,000 acres to 203,600 acres. CA producers expected to cut acreage the most with little change in other Pima producing states.

A major concern is the effect of these reduced acres, for two years in a row, on the cotton infrastructure in Louisiana. The

cotton infrastructure obviously includes gins and warehouses, but any reduction in cotton acres is also felt by crop consultants, dealers, distributors, the seed and chemical industry, and the economy in cotton producing parishes.

While the lower acreage is disturbing, it may also offer opportunities for higher levels of management of cotton that is planted. Crop rotation is needed in some fields and there should be ample opportunity for that. Additionally, cotton is a crop that responds to timely inputs and managing fewer acres should allow producers to maximize timeliness.

The Louisiana cotton industry has been resilient through the years and will be challenged to work through the issues of a 280,000 acre cotton crop.

A full report of the USDA and National Cotton Council's planted acreage forecasts can be found at <http://www.cotton.org/econ/cropinfo/production/prospective.cfm>.

(Jess Barr of the Louisiana Cotton Producers Association contributed to this article.)

"If realized, this would be the lowest US upland plantings since 1983."

Soil Temperature Effects on Cotton

Germination—Sandy Stewart, Ph.D.

Soil temperature is one of the main factors to consider when planting cotton, especially in early April. Planting forecasts routinely consider the 5-day forecast for temperature, expected accumulation of DD60s, rainfall, and potentially drying winds. The missing ingredient is usually soil temperature because it can vary from field to field based on soil texture, color, surface residue, bed preparation, and moisture. The following rules of thumb should be remembered:

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Upcoming Dates:

Northeast Research Station Field Day, St. Joseph—June 24

Louisiana Farm Bureau Annual Meeting, New Orleans—June 25-29

Dean Lee Field Day, Alexandria—Aug. 21

Soil Temperature Effects on Germination (cont'd from Page 1)

- Finer textured soils will warm slower than coarse textured soils due to greater water holding capacity. Water has a high heat capacity and can act as a thermal buffer to daytime heating.
- Well-drained soils typically warm faster than poorly drained soils.
- Raised beds warm faster than flat ground because of greater internal drainage, more surface area exposed to the sun and more aeration. The higher the bed, the faster it will warm.
- Dark colored soils warm faster than lighter colored soils because they retain heat from sunlight better.
- Surface residue will tend to retain soil moisture and shade the soil surface resulting in slower warming.

So, what soil temperature should be acceptable for planting cotton? Soil temperature should be a minimum of 65°F when planting cotton. Soil temperature will fluctuate daily with sunlight availability, but 65° should be considered a minimum. Soil temperatures below 65° can lead to chilling injury and greater vulnerability to seedling disease pathogens.

The key is to measure the soil temperature in the field in which you are considering planting. This advice may sound simple enough, but each field can be different due to soil type, surface residue, moisture, etc. Soil temperatures reported at various weather stations can be an indicator, but these values are usually measured on flat, bare ground and are accurate for only that specific location.

The only way to know for sure and make the best decision is to take the temperature in the field that is being considered for planting. Accurately measuring soil temperature is a key component of deciding whether or not to plant and should factor into every decision for early-planted cotton.



There is no substitute for good soil-seed contact in a warm, moist seed-bed to facilitate germination.

Management Options for Seedling Disease in 2008—Boyd Padgett, Ph.D.

Optimizing returns on your cotton crop begins with a uniform, healthy stand of cotton; however, seedling disease can interfere with this goal. When it comes to managing this disease, the saying ‘People don’t plan to fail, they fail to plan’ rings true. Effective seedling disease management begins with a well prepared strategy. An effective management strategy includes at least four components: 1. identifying what seedling diseases are a problem, 2. understanding what influences seedling disease development, 3. what

control options are available, and 4. which option is best for the situation at hand.

“Planting when conditions are ideal will lessen or eliminate the need for additional fungicide at planting.”

Correctly Identifying Seedling Disease and Development

Most plant disease epidemics occur when conditions favor the development of the disease causing organism (pathogen). In contrast, seedling disease is most severe when conditions are unfavorable for both the crop and

Seedling Disease (cont'd from page 2)

the pathogen. However, the pathogen is able to survive during these conditions better than the crop and seedling disease results. Another characteristic making seedling disease hard to manage is the potential number of pathogens involved. Most plant diseases are caused by a single pathogen, but several pathogens have been implicated in seedling disease. These epidemics can result from infection by a single pathogen or from several pathogens. Several fungicides may be needed; therefore, determining what fungal pathogen(s) are involved in problem fields is the first step toward effective seedling disease management.

Most seedling disease is caused by *Rhizoctonia solani*, *Fusarium* spp., and *Pythium* sp. While each pathogen is capable of causing seedling disease, the conditions favoring their development differs. Therefore, strategies targeting their management will differ among the pathogens. Soil temperature and soil moisture are the driving forces behind seedling disease. Specific soil temperatures and soil moisture regimes will dictate the rate of disease development. If these conditions are not present, disease will not progress.

***Rhizoctonia solani*:** Seedling disease caused by this pathogen is often referred to as 'Rhizoc', 'soreshin', damping-off', or 'wirestem'. *Rhizoctonia* is the most prevalent of the three pathogens. The organism infects numerous host plants other than cotton, and is able to develop over a wide range of temperatures and moisture regimes. *Rhizoctonia* is most severe when soil temperatures are between 64-91oF, and excessive soil moisture is not necessary for infection. The fungus can colonize organic matter and is more predominant in fields managed using reduced or no-till practices. Resistance of the cotton seedlings to *Rhizoctonia* increases with age.

Preemergence damping-off is typically not associated

with this pathogen, but when it occurs it is difficult to distinguish from other seed rots. Cotton attacked by this pathogen will usually emerge. Cotyledons of infected seedlings are usually pale green or yellow and stems typically have a sunken reddish-brown lesion at the soil line. This is usually a dry lesion that may girdle the plant. In some cases, roots may have necrotic lesions. Severely infected plants often die and those that survive rarely reach their potential.



***Rhizoctonia solani* damping off.**

***Fusarium*:** Environmental conditions favoring development are not fully understood. The fungus survives in the soil and in the debris of non-host

plants. Cotton seed infected with *Fusarium* exhibit symptoms similar to those infected with other seedling disease pathogens. Infections can result in seed rot and plant death. Affected seedlings are often yellow and stunted. The roots may have necrotic lesions and a dark-colored lesion may be present on the hypocotyl.



Close-up of stem lesion from *Rhizoctonia solani*

***Pythium*:** *Pythium*, also referred to as 'Root rot', is not as prevalent as *Rhizoctonia*, but it can inflict serious losses if conditions favor its development. This organism infects a wide range of plants and survives on organic matter. Therefore, fields in which reduced or no-till practices are used may be more problematic than conventionally-tilled fields. Conditions

favoring the development of *Pythium* are cool temperatures and wet soils. Unlike *Rhizoctonia*, excessive moisture is necessary for *Pythium* to develop. *Pythium* develops best when temperatures range between 61-68oF. Seedling disease caused by this organism is usually most severe in poorly-drained fields.

Seedling Disease (cont'd from page 3)

Most cotton seed infected with *Pythium* never emerge and usually exude a toothpaste-like substance when squeezed. *Pythium* has also been implicated in post-emergence damping-off. During favorable conditions, affected seedlings usually have a water-soaked lesion at the soil line. This is in contrast to the dry lesion associated with *Rhizoctonia*.

Seedling Disease Management

The best practice for managing seedling disease is to plant high quality seed during conditions that favor quick seed germination and plant establishment. Generally speaking, a producer should plant high quality seed (80% germination / 60% cold germination) when soil temperature (4-inch depth) has been 65oF or greater for several days, and there is no approaching cold front or excessive rains.

Planting when conditions are ideal will lessen or eliminate the need for additional fungicide at planting. However, since we don't live in a perfect world and can't predict the weather with 100% accuracy, an additional fungicide is necessary sometimes. Determining when additional fungicide is needed should be based on several factors: seed quality, soil temperature, soil moisture, seeding rate, planting date, field history, tillage system, and five-day weather forecast.

Additional fungicides should be considered when the following conditions exist.

Poor quality seed. Avoid using poor quality seed; however, if you are forced to plant this seed, plant when conditions favor germination and plant establishment.

Planting when conditions are cool and wet. Planting during cool, wet conditions is risky even with additional fungicides. If the soil temperature (4-inch depth) is below 60oF, germination is dramatically reduced making the seed especially susceptible to seedling disease pathogens. Cool, wet soils will reduce germination and create an environment favorable for the development of *Pythium*.

Planting date. Consider an additional fungicide if planting early. Fields planted before or on the early side of Louisiana's recommended planting window may need an additional fungicide.

Reduced seeding rate. Producers should consider using an additional fungicide if the seedling rate is less than 3 seed per foot of row.

Field history. Field history is not as important as once thought. Problem fields should be planted after conditions become favorable for rapid germination and plant establishment and an in-furrow applied fungicide may also be needed. If a producer must plant when conditions are not ideal, a full labeled rate of an in-furrow applied fungicide is justified.

Tillage system. Seedling disease pathogens colonize organic matter and the potential threat of seedling disease is greater in reduced or no-till fields. The benefits of using reduced or no-till practices should not be abandoned; however, producers need to realize the added risks to seedling disease. It may be necessary to use an additional fungicide at planting.

Fungicides

Fungicides increase the likelihood of obtaining an acceptable plant population. In some cases a yield increase results, but this is not typical. As mentioned previously, a healthy uniform stand carries monetary benefits not manifested in final yield. For example, replanting costs producers time and is costly. Therefore, additional fungicides may be justified in the appropriate situation(s). Realize: NO FUNGICIDE will ensure an adequate stand if an extended period of inclement weather occurs. If the decision is made to use an additional fungicide at planting there are two types: 1. Hopper-box or seed treatment fungicides and 2. In-furrow applied fungicides.

Seed treatment / Hopper-box treatments: Keep in mind, seed treatment fungicides do not provide the degree of protection afforded by in-furrow applied products. In-furrow products treat the seed and adjacent soil. Seed treatment fungicides do not treat the surrounding soil. These products are most beneficial during short periods (several days) of inclement weather.

In-furrow Fungicides: In-furrow applied products offer the most protection, but are typically the most expensive. The barrier of protection extends beyond the seed. Producers should consider using these products when conditions conducive for seedling disease

Seedling Disease (cont'd from page 4)

are predicted to extend more than several days, but not for a week or longer.

Finally, all these products have their limitations. In-furrow and seed-applied fungicides offer added protection, but they don't last forever. Do not expect these products to protect against seedling disease for extended periods. Producers should always strive to plant when conditions favor rapid germination and seedling establishment. For additional information on seedling disease management producers can visit internet sites and contact their local county agent.



Reduced stand from seedling disease.

Watts and Burns Join County Agent Ranks

Over the past several months, the LSU AgCenter has filled two county agent positions in major cotton producing parishes. Cliff Watts began in the fall of 2007 as county agent in Catahoula Parish. Among other duties, Watts will have cotton responsibilities and looks forward to working with cotton growers in Catahoula. Cliff is a native of Madison Parish and has previously worked for the LSU AgCenter in the Master Farmer program.

Earlier this year, Dennis Burns was appointed county

agent in Tensas Parish. Dennis is a native of Tensas and has worked previously for LDAF and more recently as a Research Associate at the Northeast Research Station. He has extensive experience in cotton production in Tensas Parish and we look forward to having him as a county agent.

Contact information for both Cliff Watts and Dennis Burns can be found on the back page of this newsletter.

Roy Vidrine Retires after 36 years with the LSU AgCenter

Professor Roy Vidrine retired from the LSU AgCenter on April 2, 2008 after a long and distinguished career as a weed scientist. Roy spent more than 30 years at the Dean Lee Research Station. Vidrine's accomplishments in the field of weed science are numerous; he was one of the first to work with Roundup Ready technology in Louisiana, and contributed greatly to cotton weed control research during his tenure. More recently, Roy held a partial extension appointment, which really only made

official the work he did over the years in serving Louisiana farmers, particularly in the Red River Valley. His easygoing style and knowledge endeared him to more than a generation of Louisiana growers. He will be missed, but we wish him and "Miss T" a happy and fruitful retirement.



Roy Vidrine, Professor of Weed Science.



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