

Agronomy Notes

May 2006

Inside this issue:

Soybeans	2
Corn and Grain Sorghum	3
Rice	5
Soil Testing	6
Forage	6

Cotton

By Dr. Tom Barber

Cotton planting this year has been at a faster rate than I can remember, especially for early April. The USDA Agricultural Statistics Service has Mississippi at 57% planted at the end of April. This is high for this time of year compared to our 5-year average of 38%. We enjoyed warm, un-seasonal temperatures at the first to middle part of April which has resulted in the larger number of acres that have been planted. But as usual we experienced a cool snap towards the end of April. The cotton that was up at the time of the cool snap will fare much better than the seed that was planted just before the cool temperatures.

I have seen and heard several cases of seedling disease pop up in areas where no fungicide was used. I looked at most of these fields before or during the cool snap, and I am sure there will be more reports once we get a good look this week. The majority of the seedling disease that we are picking up this year is "sore shin" caused by *Rhizoctonia*. There is no doubt this disease can take out a completely fine stand of cotton. But it can also cause some non-lethal effects that you may not notice as much. The plants that are affected and do not die will have a reduced ability to compensate for other stresses like, Thrips, spider mite damage, drought etc. The end result could mean a delay in maturity and yield reductions. Take the time to make a close inspection after this cool spell,

especially if you did not include a fungicide treatment on seed or in furrow.

Let's hope we don't have to make a decision to replant; but if we do, it is often a difficult one to make. In fields with questionable stands, you must consider several things before making a replant decision.

1. What is the calendar date?
2. What is the population of plants that will survive?
3. What is the health of those plants, especially their roots?
4. What is the population uniformity, are there large skips and frequent skips?
5. What is the productive capability of the soil, and is the field irrigated?
6. What variety is planted in this field, the surrounding fields, the rest of the farm and what seed are available at the critical time?

A big consideration is soil type and moisture. If the soil type is one that dries quickly, replanting decisions must be made ASAP and carried out before moisture falls out of the beds. If plant distribution is fairly uniform in fields on productive soils, good yields can be made with low plant populations, perhaps in the low 20,000 plants per acre range, or as low as one per row-foot with no or few skips. If the stands are broken with numerous skips, replanting is in order at populations below 30,000

Continued on page 2

plants per acre, depending on the size and frequency of skips. Some interesting data has come out of Louisiana and Georgia on skip size and replanting. The preliminary data suggests that if you have 10-12 skips that are 3 foot or longer in 80 foot of row, then a re-plant will probably be justified. In some cases a grower may "spot-in" areas of the field with his planter. Calendar date is significant; a stand you would plow up on May 1 would probably be kept on May 25.

If replanting is necessary, continue to use fungicides, especially if the first stand died from seedling

disease. Use a burn-down herbicide to kill the old stand of cotton and any weeds that may have emerged on the row.

Always remember "If you have enough cotton left to make the decision difficult, you probably have enough to keep."

Soybeans

By. Dr. Alan Blaine

Two-thousand and six has set another early planting record for Mississippi. Although our earliest planted soybean crop ever, it has not been the easiest we've ever dealt with. As a matter of fact this is probably the most difficult ever.

The crop report ending April 30th had MS 87 percent planted versus our five year average of 58 percent. Due to numerous factors it would not surprise me if 20 percent of this planted acreage had to be replanted.

Normally, March and April are a couple of our wettest months; however, that was not the case this year. Ironically, the earliest planted acreage experienced fewer problems and this has been more of the norm the past few years. Although concerns existed regarding cold weather the earliest plantings have been our most trouble free and highest yielding in recent years.

Acreage planted prior to April 1st fared pretty well but plantings after that experienced erratic emergence due to a shortage of moisture and soil crusting. Many areas dried out pretty fast and on top of a moisture shortage a hail storm that hit the state on April 7th compounded the problem.

Plantings that occur early have several advantages versus plantings in late May/June, but I observed several in field problems that were avoidable.

1. As moisture became limiting many increased

planting depth. I understand the concern but this is not a practice to utilize early in the year as opposed to late. I might plant 1 ½ inches deep but that would all depend on the five day forecast. Dry, shallow plantings are preferred versus deep planting, early. Just as soon as you plant deep you will get a hard packing rain complicating emergence.

2. Another problem was inadequate planting depth. As soil conditions change during the day or on varying soil types it is imperative that depth be monitored. Many fields have skippy stands because the seed was too deep or on top of the ground.
3. As seedlings struggled in many fields a hail storm compacted soils making emergence even more difficult. Rotary hoeing helped in many situations but additional moisture was needed to complete germination/aid in softening some soil types.
4. Where it remained dry many needed to wait until we got a rain to see what would emerge. Some pulled the replanting trigger too quick. Where it was dry and emergence would not continue until it rained replanting should have followed a rain event versus planting dry twice.
5. Seed quality varied among some varieties. For this reason I would try to take delivery of seed

Continued on page 3

as early as possible. This would give you an opportunity to conduct further vigor tests if you so desired. If not, at least ask for the latest test not one four months old. Seeds are live organisms and every day they have the potential to go down in quality. Utilizing up-to-date tests is good business as is keeping a sample from every lot.

One positive point regarding what we experienced this spring is plant populations. We have a great amount of variability that we often fail to recognize as far as plant populations are concerned.

Several calls have come in regarding lack of control of marestalk control. It appears that either it is resistant or due to a late burndown it might have escaped. I spoke with Dan Poston (DREC) and he tells me he is seeing escapes in his research plots based solely on timing.

If you suspect marestalk might be present change

your control strategy next year. I continue to question why so many wait until late March even April to get burndown materials out. Earlier applications will help bare up the ground allowing it to warm and dry faster. Early burndowns also let you avoid drift to other crops. However, if marestalk is present you should incorporate other materials in order to obtain effective control.

It has been very quiet as far as soybean rust is concerned. We have finalized setting up the 800-number and email advisory for Mississippi. My plans are to release the contact information later this month. The 800 number will be available for you to call 24 hours a day, seven days a week for up-to-date information on what is going on in Mississippi and surrounding areas regarding rust. The email advisory will link you to the USDA site and will send you warnings as events occur. Both should provide helpful information. Remember we are only a phone call away if you need us, (662) 325-2701.

Corn/Grain Sorghum

Dr. Erick Larson

Roundup Ready Recommendations

Using a Roundup Ready program in corn may present a few more difficulties than with soybeans. Many problems often develop from late or poor application timing. This often results from rainfall/wet soils delaying herbicide application and/or corn growth rapidly accelerating during early May. In fact, corn may grow from 12-inches to exceed the V8 growth stage or 30-inches tall (the maximum legal height to broadcast glyphosate on Roundup Ready corn) in less than 10 days. Thus, all glyphosate applications should be completed by this time, unless growers are prepared to use drop-nozzles to avoid leaf contact. Drop-nozzles will improve herbicide coverage when corn gets tall, so they are good for any late-postemergence applications, particularly when targeting morningglories. I highly recommend supplementing your Roundup Ready corn system with atrazine or other herbicides which offer residual broadleaf weed control. Atrazine greatly enhances the effectiveness of the Roundup Ready system by providing economical residual weed control of some key weeds, such as

morningglories, that glyphosate may have difficulty controlling. Atrazine may be tank-mixed and applied with glyphosate on Roundup Ready corn less than 12-inches tall. The first glyphosate application timing should be based primarily upon emerged weed species, size and density, as these factors affect competition. Precise timing of the first Roundup application is critical to minimizing early weed competition, which can drastically affect corn yield potential. I believe residual control of broadleaf weed species is more important than grass species for most Mississippi growers using Roundup Ready Corn. Glyphosate is extremely effective on most grass species and timeliness should not be as difficult for most growers this year, since corn acreage is down considerably. Furthermore, grass species are normally less competitive than broadleaves after corn canopies, and grasses generally cause little harvest difficulty.

Continued on page 4

Not Growing Off Well?

Many corn fields differ in early plant health. These growth problems can be caused by a multitude of factors, but can normally be attributed to nutritional limitations and/or poor root development. Many initially believe these problems result from inadequate or poor nitrogen availability, but this is rarely the case. Nitrogen is very mobile in the soil and corn requires relatively little nitrogen until rapid growth begins, so nitrogen fertilizer placement and amount rarely limit early season corn growth. However, soil pH, phosphorus, potassium, magnesium and zinc commonly limit early season corn growth in Mississippi. Field scouting will frequently reveal symptoms indicating a specific problem. However, the best method to diagnose fertility limitations is to collect soil and plant tissue samples from stunted and adjacent healthy field areas and submit these samples to a soil testing laboratory, such as the MSU Soil Testing Lab, for analysis and recommendations. This method is particularly useful for identifying marginal problems, which may not show up when using a composite soil-sampling technique.

Purple Corn

Young corn plants appearing stunted with purple lower leaves are likely suffering from phosphorus deficiency. This deficiency is especially prevalent when corn is grown following a rice crop. New leaves emerging from the whorl are usually green, but may turn purple shortly thereafter. Phosphorus deficiency symptoms often occur as young plants are exposed to warm, sunny growing conditions following cool and wet conditions. This results in a lag phase where vegetative growth exceeds the roots' ability to supply phosphorus. Young plants are especially vulnerable because their root systems are small and phosphorus is immobile in the soil solution. Any cultural or environmental factors capable of limiting root growth will magnify deficiency symptoms. Examples of such conditions include: cool temperatures, very wet or dry soil, compacted soil, herbicide injury, insect damage, and root pruning by side-dressing knives or cultivators. Acidic soil will also substantially intensify phosphorus deficiency symptoms. Low soil pH severely limits phosphorus availability to plants, which may cause deficiency symptoms even where high soil test phosphorus levels exist.

Correcting Phosphorus Deficiency

Phosphorus deficiency symptoms normally slowly

disappear when favorable growing conditions promote more root growth. However, phosphorus deficiency will likely reduce yield by delaying maturity, decreasing root and stalk development, and reducing energy transfer and storage. Treatment options to remedy phosphorus deficiency produce gradual results, particularly compared to nitrogen application, because phosphorus is immobile in the soil solution. Thus, plant roots must grow into the zone where fertilizer was applied before phosphorus uptake and plant response will occur. Surface application of phosphorus fertilizer will limit availability to the top couple inches of soil. Thus, broadcast phosphorus application would be best suited to irrigated and/or minimum tillage fields with substantial crop residue on the soil surface, where these factors would promote soil moisture, root activity and nutrient uptake in the upper few inches of soil. Phosphorus injected as a side-dress treatment would generally increase availability to roots in most situations, particularly in dryland fields. However, be extremely careful not to prune roots when sidedressing. Corn root diameter is generally similar to plant height, so don't sidedress much closer to the row than the plant height.

When should I start irrigating?

Dry early season conditions sometimes prompt growers to consider beginning irrigation in May. Drought stress can potentially reduce corn yield anytime during corn's developmental stages. Therefore, irrigation should commence whenever soil moisture becomes limiting. Since corn's water requirement increases with plant size during vegetative stages (from emergence until tassel), plant growth stage does play a determining role, but there is not a definitive growth stage when irrigation should commence. Irrigation initiation is most dependent upon seasonal rainfall and temperatures. Corn's most critical and largest moisture requirement time interval is from tasseling through milk stages.

Grain Sorghum

Sorghum establishment

Scout sorghum fields diligently during establishment for stand, insect and weed problems. Sorghum seedlings have considerably less vigor than corn, which often translates to more difficult stand estab-

Continued on page 5

May 2006 Agronomy Notes

ishment. Chinch bugs also prefer sorghum compared to corn and since chinch bug populations thrive during warm, dry conditions like we have experienced during April, they can cause major sorghum establishment problems. Postemergence herbicide options for sorghum are quite limited, so timely identification and response is also imperative to control weed problems. Scout sorghum fields at least twice a week until sorghum exceeds six inches in height to identify and manage field problems.

Minimum Stand

Grain sorghum has a tremendous ability to compensate for low stands by producing tillers, especially if plants are spaced uniformly. Thus, the optimum plant population for sorghum is very broad, ranging from 40,000 to 70,000 plants per acre for dryland production. Replanting would be required only if stands were reduced to less than two plants per foot of row or skips exceeding five linear feet occur in adjacent rows.

Rice

By Dr. Nathan Buehring

With the high cost of inputs for the upcoming crop, rice producers are looking for areas where they can trim costs without affecting yield. Nitrogen fertilization is not an area where we can trim unless you are above our current recommendations. As a rule of thumb for current varieties grown in Mississippi, we recommend a total of 180 lb N/A for clay soils and 150 lb N/A for silt loam soils. For semi-dwarf varieties (CL 131, Cocodrie, Cheniere, and Priscilla) on clay soils, we recommend 120 to 150 lb N/A applied pre-flood followed by 30 to 60 lb N/A at midseason. For varieties that are susceptible to lodging (CL 161 and Wells) on clay soils, decrease the nitrogen rate to 90 to 120 lb N/A at pre-flood followed by the remaining at midseason to help reduce the potential for lodging. On silt loam soils, we recommend 90 to 120 lb N/A at pre-flood and 30 to 60 lb N/A at midseason for all varieties.

The key to getting the most out of your nitrogen is a timely flood. Ideally, we would like to have a flood established within five days after the nitrogen has been applied. Getting a flood established outside that 5-day window can lead to nitrogen loss due to volatilization. If you find yourself outside that window, there are a couple of things you can do to help prevent losing your valuable nitrogen. I would first consider multiple-inlet irrigation. This will help you get the flood established quicker and allow for more flexibility in your irrigation program. The second thing to consider is using Agrotain treated urea. Agrotain will protect the urea from volatilization up to

10 days after application and will be the most beneficial on the areas of the fields that are not flooded within five days.

One area for potential savings is using ground applicators on precision graded fields. Last year a pre-flood nitrogen application, using an airplane, was approximately between \$12.50 and \$15.00 an acre. Applying the pre-flood nitrogen with a ground applicator could save you between \$8.50 and \$13.00 an acre. One word of caution with any application is get it applied uniformly as possible across the field. Improper applications can end up costing you more money than they are worth.

Soil Testing

By Dr. Keith Crouse

Soil samples in the laboratory have slowed down. This spring we averaged a three to four working days turn around time once the soil sample was received in the laboratory. If you have a client in your county who has submitted a soil sample and it has been five to seven days since it was mailed, please call us at 662-325-3313 because the soil analysis probably has been completed or we have not received the samples.

We are receiving more samples without payment, therefore causing the fertility recommendations to be delayed. We are still receiving cash in the mail

for soil test payments. Please encourage your clientele to submit payment with the samples and to use checks or money orders. Remember, soil samples submitted for troubleshooting need to be submitted in the county agent's name and not the client's. Soil test results and recommendations can be accessed through the extension intranet for county offices. Clientele can access their results via the Internet at: www.ext.msstate.edu/special/soiltest.cgi however, the client must know his customer and AAA numbers.

Forage

By Dr. Richard Watson

Reducing Production Costs on the Farm This Summer

High nitrogen fertilizer costs

I have already discussed the role that legume crops can play in offsetting the significant costs of N as well as improving nutritional quality. However, the fact remains, especially with the warm-season dominated pastures we have in the south, that some N fertilization will always be necessary. The important thing to do is to set yourself a yield goal (i.e. how much grass you need to grow this summer and when do you need it). You can then use a ballpark figure of 50 lb of actual N/acre for every ton of bermudagrass growth required of that acre. With our warm-season dominated pastures, summer yield is generally not a problem when meeting our animal's grazing needs. The major problem arises in the need to put up a significant quantity of hay to feed back in the winter, which ultimately greatly raises our yield requirements over and above grazing. Adding cool-season production (i.e. tall fescue pastures and overseeded annuals) has the dual effect of reducing hay feeding (a problem we will discuss in the next section) and lowering summer yield requirements and hence N fertilization requirements. Your yield goal will depend on stocking rate to a large extent. For example if you are running one spring calving cow on two acres then you are going to require about 3-4 tons of dry matter production

per acre (taking into account some wastage from grazing and winter hay feeding) from your summer-grass pasture which will mean a 150-200 lb/A N requirement. Incidentally, an overseeded annual clover could significantly reduce this requirement even though it is not growing during the summer.

Despite additional application costs, it is still better to split your N applications into 2 or 3 applications during the summer as there is less risk of N loss and it will spread out your yield distribution thereby improving both forage quality and utilization. It is also a good idea to perhaps concentrate your fertilizer efforts on the most productive land rather than spread it over the whole farm. Better land will often have a high yield potential and will make better use of the N. The idea is to get twice the production off half the acreage, which saves you on application costs. Nitrogen utilization and plant growth is also affected by other limiting nutrients (e.g. P and K) and soil pH, so putting N on poor fertility land can be a waste. Plant species and variety can also affect N utilization. Plant species with a higher yield potential will often make better use of N inputs relative to poorer producing species or varieties. An example would be hybrid or improved seeded bermudagrasses having a greater yield potential than much of the common bermudagrass grown.

Continued on page 7

Grazing is always better than hay production in terms of N recycling so you can generally get away with less N (as well as P and K) on a grazed pasture than on a hay field for the same yield.

Reducing hay production

This is becoming the most significant cost in beef cattle production in the south. The irony is that it is probably the one we can do most about. Bermudagrass and bahiagrass are great summer producers but we generally have too much of both in our pasture systems leading to high winter hay feeding. If you have land that can grow tall fescue I strongly urge you to consider planting the novel endophyte tall fescues. You may think the seed costs a lot but it does not take a big reduction hay feeding to more than cover the seed costs. An acre of stockpiled tall fescue can provide enough forage to winter a dry cow without any need for hay. For those of us not able to grow tall fescue, then overseeded annual grasses and legumes are our cool-season forages. There is more risk with these and annual costs may be greater due to establishment, but I would again suggest you at least compare the costs to a hay system. Another option for the non-fescue areas is to consider 'stockpiling' bermudagrass in the fall for winter grazing. Dr Larry Redmon and Texas A&M has shown that grazing stockpiled bermudagrass during October, November, December, and January can reduce per cow costs by about \$70 when compared to a hay feeding system. The common misconception is that the bermudagrass loses too much quality during stockpiling. The data show that protein levels change very little and do not get below 8%, and while energy does fall during the winter it is usually as good if not better than hay and more than adequate for dry cows.

The total elimination of hay is not practical, and in fact quite dangerous given the chance of drought and other climatic extremes. Hay is always necessary as an 'insurance policy' but we can certainly reduce how much we need to feed each year, and I think even get away without having to feed hay in most years.

Calendar of Events

May

9th-South MS Forage-Tested Bull Sale, 12:15 p.m., Tylertown, MS, Livestock Producers Association #1 Sale Facility. For additional information contact Lamar Adams at (601) 876-4021.

25th-Statewide Dairy Field Day, 8:30 a.m.-2:00 p.m., Tylertown, MS, Southwest Events Center. For additional information contact Lamar Adams at (601) 876-4021.

30th-Gardening Programs at the Magnolia Botanical Gardens, Verona, MS. For additional information contact (662) 566-2201.

June

10th-Walthall County June Invitational Dairy Cattle Show, 9:00 a.m., Tylertown, MS, Southwest Events Center. For additional information contact Lamar Adams at (601) 876-4021.

22nd-Mississippi Agricultural Economics Association Meeting, Starkville, MS, Franklin Center. For additional information contact John Black at (662) 325-7989.

27th-Gardening Programs at the Magnolia Botanical Gardens, Verona, MS. For additional information please contact (662) 566-2201.

July

15-Boll Weevil Annual Meeting, 10:00 a.m., Grenada, MS, Holmes Community College Forum. For more information contact Jeannie Smith, (662) 325-2993.

20th-DREC Crop Field Day, Stoneville, MS, Charles W. Capps Entrepreneurial Center. For additional information contact (662) 686-9311.

25th-Gardening Programs at the Magnolia Botanical Gardens, Verona, MS. For additional information please contact (662) 566-2201.

26th-29th-Mississippi Agricultural Industry Council and Mississippi Seedsmen's Association, Perdido Beach Resort, Orange Beach, AL. For additional information contact Tracy Gregory at (662) 325-3992.

August

4th-Row Crop and Hay Day, 8:00 a.m., Raymond, MS, Brown Loan Experiment Station. More information contact Dr. Don Parker at (601) 857-2284.

30th-Gardening Programs at the Magnolia Botanical Gardens, Verona, MS. For additional information please contact (662) 566-2201.

For additional events, visit <http://msucares.com/calendar/index.html>.

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