

# Agronomy Notes

April 2006

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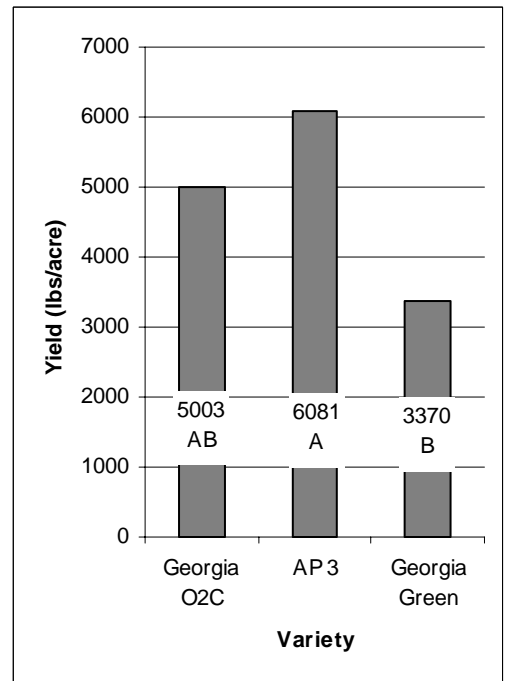
## Peanuts

By Mr. Mike Howell

Interest in peanuts as an alternative crop has increased during the past few years. Peanuts have proven to be a viable option in Southeast Mississippi for several years, and acreage is expanding across the state. Producers planning to plant peanuts this year should remember that the risk of tomato spotted wilt is higher for peanuts planted prior to May 1. Generally speaking, it is best to plant peanuts in early to mid May. Soil temperatures should be at least 65°F for five days with a good weather forecast. Planting into cool soils will delay emergence and result in skippy stands.

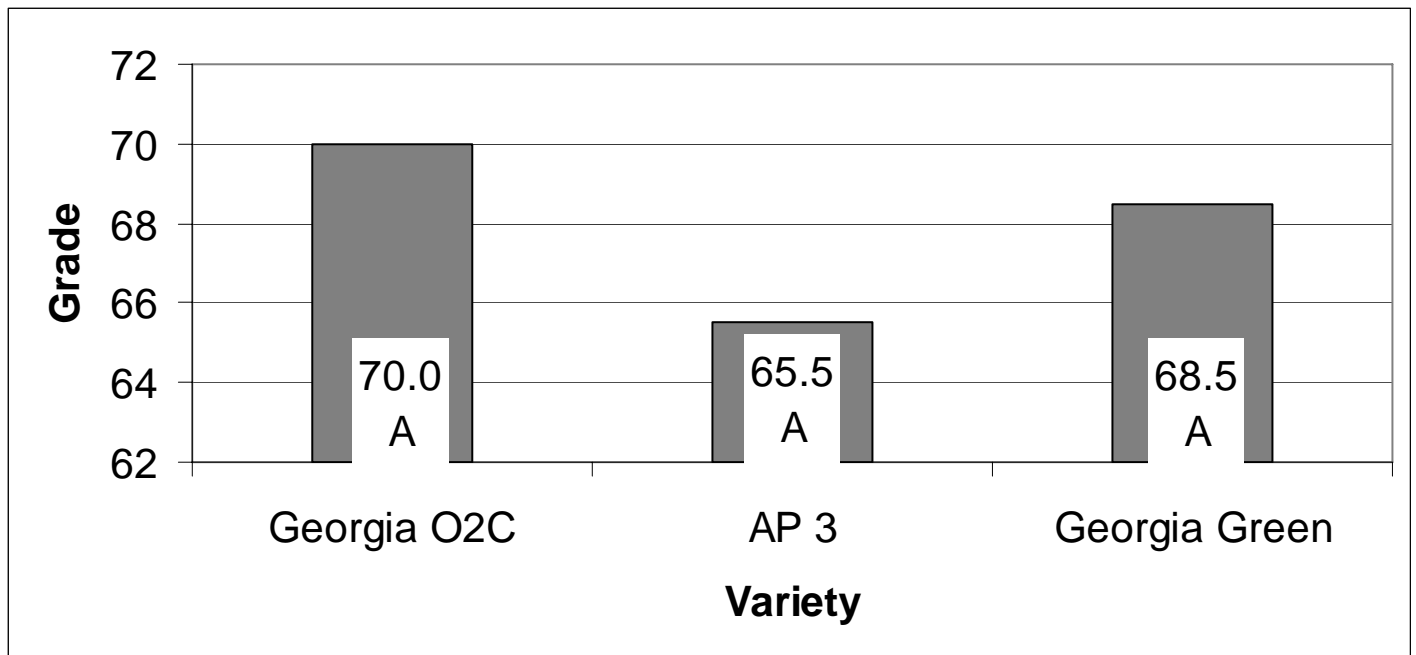
There are several new varieties that will be available for the 2006 growing season. These newer varieties have the potential for higher yields, but may not grade as well as the standard variety, Georgia Green. However, the increase in yield has been able to make up for the reduction in grades. As always, I recommend that producers select varieties based on variety trials and proven performers on their farm, and try new varieties on small acreage. To the right are yield and grade results from a variety trial conducted in Onward, MS last year.

Figure 1. Mean Yield (lbs./acre) of Selected Varieties.



LSD (P=0.01) SE = 637  
 Means followed by the same letter do not differ significantly.

Figure 2. Mean Grade of Selected Varieties.



LSD (P=0.01) SE = 1.75

Means followed by the same letter do not differ significantly.

## Forage By Dr. Richard Watson

**North Mississippi Forage Field Day to Focus on Forage Quality Research.** A field day will be held at the MAFES Holly Springs Branch Station in Holly Springs, MS on May 11<sup>th</sup> this year. The focus of this day will be to highlight some of the cutting edge grazing research being conducted at the North Mississippi Research and Extension Centers, and give producers the chance to see first hand some of the new technologies being evaluated. The objectives of these grazing studies is to address two of the greatest challenges in Mississippi forage production: 1) maintaining forage quality through the summer, and 2) bridging the forage production gaps between warm-season and cool-season production.

### Chicory grazing research

Chicory, a high quality summer-active and drought-tolerant forage herb, is being evaluated as a forage crop for beef cattle production. It is hoped that chicory might offer an option for improving summer forage quality, and providing a more reliable source of

forage from the end of warm season production until the winter forages (e.g. annual ryegrass) are ready to graze. The Holly Springs field day will give producers the opportunity to see the chicory grazing trial for themselves. Stocker cattle have been grazing the chicory pastures for the last year, and we now have a fairly good picture of how this forage crop might perform in the north Mississippi environment, and how it might be utilized for beef cattle production. Aspects covered at the field day will include establishment, crop and grazing management, and some of the economic implications of using chicory as a forage in stocker cattle production.

**Brown-midrib (BMR) sudangrass**—The evaluation of sudangrass lines with the Brown Midrib (BMR) trait is being conducted at the MAFES Prairie Research Unit. These highly productive annual warm-season grasses have potential as a summer forage crop for both stocker cattle and cow-calf production.

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The BMR trait is a natural mutation that gives these lines a lower lignin level. Lignin is a plant fiber that cannot be digested by ruminant livestock. Therefore, lower lignin forage crops tend to be higher in nutritional quality (specifically digestibility). It is possible that BMR lines of these summer grasses could be used as a high quality summer crop to address the summer forage quality problems that are inherent in Mississippi. While this grazing research is being conducted at the Prairie Research Unit, the different lines will be growing at the Holly Springs Field day for demonstration purposes and a session will be held to discuss the result of the Prairie trial as well as the management aspects and potential use of these crops for beef cattle production.

**Grazing-tolerant alfalfa adapted for the south**—Alfalfa is a high quality legume crop that is often hard to grow reliably in the environment of the southeast. Not only is alfalfa vulnerable to the disease and low soil pH conditions that dominate in the south, it also typically has a fairly low tolerance to high grazing pressure. It is possible that new alfalfa lines that are developed in the southeastern environment with a higher grazing tolerance might offer a greater opportunity to use this high quality crop in Mississippi. Eight acres of a new southern adapted grazing tolerant alfalfa has been established at the Holly Springs Station for field day participants to view.

**Cow-herd management**—Area Animal Science/Forage Extension Agent, Mike Howell has been managing a cow-herd at the Holly Springs Branch Station. The objectives of this herd are to demonstrate the benefits of “Best Management Practices” to small herd producers, who make up a large proportion of the beef cattle operations in the state. Mike will discuss some of these management practices, such as genetic improvement through artificial insemination and setting breeding objectives, herd health programs, nutritional management, and marketing strategies. This will be a great opportunity for small herd owners to learn about and discuss options for improving their productivity and profitability.

So if you want to see what’s new in forage technology, please join us at the Holly Springs Branch Station on May 11<sup>th</sup>. Registration begins at 9.00 am and the program will conclude at 2.00pm. There is no charge and we will provide lunch and refreshments for participants. We do ask that interested people pre-register with Ms. Mary Minor at the Marshall county extension office (PH: 662-252-3541) so we can plan for lunch numbers. The Holly Springs station is located on Highway 7 (take Exit 30 off US78) about 3 miles north of the town of Holly Springs. For more information on the field day you can also contact Richard Watson at 662-325-5463, or any county office of the Mississippi State University Extension Service.

## Corn and Grain Sorghum

### By Dr. Erick Larson

**Nitrogen rate recommendations**—MSU has implemented a new, more conservative nitrogen rate recommendation for use on corn for several years now. This recommendation results from several years of research evaluating nitrogen rates in high-yielding irrigated Mississippi environments and is not influenced by high nitrogen prices. Growers should generally apply 1.3 pounds of nitrogen per bushel of yield goal. However, growers can reduce nitrogen rates 10-15% from the standard recommendation when growing corn on lighter, sandier soil types. Nitrogen recommendations for corn in the South are based entirely upon corn yield goal, since our warm, wet winter climate minimizes nitro-

gen carryover, compared to the Midwest, where consistent cold, dry conditions effectively retard nitrogen loss during the winter.

**Nitrogen sources and application**—Utilizing an appropriate nitrogen source and application method may influence corn grain yield much more than the actual applied nitrogen rate. No-tillage research studies in Missouri and Tennessee show UAN (N-sol) and urea (urea-containing nitrogen sources) broadcast on the soil surface reduced corn yield potential 9-23% compared to ammonium nitrate broadcast, N-sol injected, or anhydrous ammonia in-

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jected. This can reduce economic returns from \$30-\$115 per acre compared to ammonium nitrate or N-sol injected. The urea-containing nitrogen sources reduce corn yield potential because they are subject to volatilization loss when applied to the soil surface. Surface-applied urea sources readily volatilize when substantial crop residue or vegetation is present on the soil surface, temperatures exceed 55 degrees F, and when rates exceed 100 lbs. N per acre, until rainfall incorporates the nitrogen. Thus, corn producers should minimize or eliminate surface application of N-sol or urea in their fertility program.

**Nitrogen application timing**—Split application of nitrogen fertilizer generally improves corn nitrogen use efficiency in the Mid-South. Corn uses about two-thirds of its seasonal nitrogen needs during a 40-day period beginning at least 30 days after emergence. Thus, early fertilization can waste considerable nitrogen, before rapid corn growth begins particularly if wet weather prevails. Corn extracts less than 10% of its seasonal nitrogen uptake before rapid vegetative growth begins. Thus, producers could improve their nitrogen use efficiency considerably by applying only a minimal portion of nitrogen shortly after emergence, followed by the bulk of their nitrogen fertilizer just prior to this period of maximum crop demand. Our standard nitrogen recommendations specify applying no more than 1/3 of the total N near planting/crop emergence and applying the remaining N about 30 days later.

**Nitrogen placement**—Nitrogen fertilizer placement in relation to the crop row is relatively insignificant. Nitrogen fertilizer is relatively very mobile in the soil, compared to many nutrients. Thus, rainfall will distribute nitrogen readily through the soil, so fertilizer placement rarely improves plant uptake. In fact, skip-row nitrogen application is often successfully employed in some regions of the country. Fertilizer injection knives close to rows may actually be quite harmful, because of substantial root pruning. The root system of young corn plants should extend away from stalk nearly as far as the plant is tall. Thus, I strongly recommend side-dressing in the middle of the row.

**Scout fields**—Scout corn for stand, weed and insect problems every 2 to 3 days until corn is about 12 inches tall, and be prepared to take control

measures. Insects or weeds may quickly ruin a good stand or become too developed to control. Timely problem identification allows specific treatment selection and application timing, which likely will improve control and lower expenses.

**Why is my corn not growing off like it should?**—Slow growth during early growth stages is often a result of insufficient fertility, combined with sparse root growth. This rarely results from the nutrient many associate with slow growth – nitrogen. Early season growth is rarely limited by nitrogen availability, because corn demand for nitrogen during early growth stages is low (less than 30 lbs./a. when corn is less than 30-inches tall ) and nitrogen mobility in the soil solution is relatively high. The most prevalent fertility problems limiting early corn growth in Mississippi are low soil pH and/or inadequate levels of phosphorus, potassium, magnesium or zinc. These problems can be diagnosed by analyzing soil and plant samples from specific stunted areas. Supplemental fertilizer application will likely provide an economic yield response, particularly if the problem is addressed before corn enters the rapid vegetative growth stages.

## GRAIN SORGHUM

**Don't plant too early**—Grain sorghum will not germinate at soil temperatures less than 65 degrees F. Thus, planting before minimal soil temperatures are stabilized above this threshold will greatly increase likelihood of stand failure. Furthermore, sorghum does not possess as much seed vigor as you may be accustomed to with corn. Thus, the optimum planting dates for sorghum are similar to those for cotton: April 20 to May 15. Optimum seeding depth is 1 ¼ - 1½", rather than a shallower depth at which cotton and soybeans are seeded.

**Don't plant too much seed** - A final plant population ranging from 40,000 to 70,000 plants per acre should produce optimum grain sorghum grain yields grown in dryland culture. Grain sorghum has tremendous ability to increase yield potential if given favorable environmental conditions, especially if plants are uniformly spaced. However, excessive stands compound drought stress, reduce stalk/plant health and increase disease likelihood. Sorghum seeding rate should exceed the population goal by

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10 to 20% depending upon seedbed conditions and planting date. This over-planting rate is relatively high because sorghum's seedling vigor is only mod-

erate, compared to corn.

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## Wheat

By Drs. Erick Larson and David Ingram

**High-yield wheat management**—Using fungicides properly can play a significant role in managing wheat grown in the Mid-South for high yield potential. However, all wheat fields will not necessarily need to be sprayed to optimize economic return. Fungicide application helps preserve yield potential of production fields when disease threatens to reduce yield – in other words, fungicides do not actually “enhance” yield potential, they merely limit disease development, which can reduce yield. This is why field scouting and knowledge of your varieties' responses to specific diseases are extremely important. Early spring cool snaps have held development of stripe rust and leaf rust to minimal levels thus far. However, growers should now closely monitor wheat health during the next several weeks and be prepared to make timely fungicide applications if diseases arise, particularly in susceptible va-

rieties with good yield potential. Fungicide application around the “boot” stage to initial head emergence generally provides maximum wheat yield response. Many wheat producers apply fungicides far too late (near flowering) to gain the optimum benefit. Please remember, fungicides' primary activity is to protect leaves from future disease infection, rather than cure an existing infection. Furthermore, many diseases have a considerable latent period before new infections are actually visible to the eye. Therefore, if disease is present in the field, the weather is conducive for disease development, the variety is susceptible to the disease, and the crop is at a growth stage when that disease could hurt yield, then spray a fungicide capable of preventing that specific disease. If any one of these parameters is not met, then fungicide application will likely accomplish little.

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## Rice

By Dr. Nathan Buehring

Rice planting has begun in several places throughout the delta area. The last week in March began the planting season for most producers South of Highway 82. It is still anybody's guess on how many acres Mississippi will plant this year. Nonetheless we are still going to grow rice in Mississippi.

A lot of this year's rice ground has been ready to plant without much or any tillage this spring. When planting, be sure to keep an eye on your seeding depth. Most of the varieties that we grow can germinate and emerge from over an inch deep. I would rather plant the seed a little deeper and get it up from soil moisture than having to flush. Also, when changing from field to field, check the seeding depth to make sure that it does not need to be adjusted.

Since we are planting, we need to think about weed control. Early season grass control is critical for not only maximizing yields, but also maximizing economic returns. This is one thing that was proven years ago and has not changed. The keys to being successful in a grass control program is starting early, knowing when more grass is coming and being ready to hit it again.

Small grass is easier to kill than bigger grass. Once the grasses get big, you will never catch back up and get a good handle on them. These clay soils, on which we grow a majority of our rice in Mississippi, will generally require a two shot herbicide program, and I would add something in the tank that has residual grass control each time an application

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is made if you are not going to flood up immediately. Do not hesitate in making that second application and just say we will just get it in the flood, especially if there is a high population of grasses present.

I like to incorporate a Command PRE application at planting into my weed control programs. One key to making Command work is flushing when necessary. If you are not committed to flushing when necessary, Command will not perform as well under dry conditions.

With Clearfield rice, the Newpath label now states that you can make two 6 fl oz/A applications. Two timely 4 fl oz/A applications have done well for red rice and grass control. There are those times where the applications are not as timely, which is the reason for the rate increase up to 6 fl oz/A. If the red rice or grass is a little bigger than it needs to be, I would encourage bumping the rate up.

## Cotton

### By Dr. Tom Barber

It looks like cotton acreage will be up this season, but not as high as I first thought. According to the March 31<sup>st</sup> planting intentions from the USDA, Mississippi cotton acreage will be up only 1% or 1,220,000 acres up from 1,210,000 acres last year. Initially, I thought that this number would be a little higher based on decreasing corn acres. Evidently there will be more corn planted than previously thought, and soybeans may take the majority of the reduced corn and rice acreage.

Last month I focused on seed quality, planter operation and weather conditions at planting. I continue to get a number of calls on seeding rates. Planting enough seed is crucial in stand establishment, management and yield. There have been numerous studies conducted to determine the optimum seeding rate of cotton. This is a difficult problem to define because it can vary with variety, environmental conditions and management practices. In general, the recommendation has been plant to achieve a final live plant population of 3 plants per foot on a 38 in row or about 41,000 plants per acre. I hear too often, "with the increases in tech fees and seed treatment costs the only place I have left to cut costs is in seeding rates". This is a dangerous game to play. Yes we can achieve high yields with populations as low as 25,000 plants per acre as long as the stand is even and no skips are present. A good target for a compromise would be to plant for a final stand of 2.5 to 3 live plants per foot of row (38 in). That does not mean 2.5 to 3 seed per foot. Depending on the quality and percent cool germ of the variety planted, this may range from 3.4 up to 4

seed per foot or more in order to achieve a relative final population. The planters used today are more precise than ever and can be adjusted to deliver seed accurately down the row. However they should be calibrated every time the variety is changed due to seed size.

Planting date and conditions at planting need to be considered before drastically reducing seeding rates. Cool soil temperature will slow the germination process, thus increasing the opportunity for soil born pathogens to attack the seed and reduce survivability. When planting early I would not recommend cutting seeding rates, because there is a greater chance that germination will be lower under the cooler conditions. When the temperatures warm up and we move toward the first part of May, conditions will be more favorable and the chances of making it with reduced seeding rates are much better. However, I would not recommend planting any lower than 3.4 seeds per foot (38 in row). Adding 0.5 to 1 seed per foot is cheap insurance (\$5-10/A) on getting a good start with even cotton emergence and a good stand across the field.

Fungicides either in-furrow or on the seed are crucial in stand establishment especially for early planted cotton. I have stated that in-furrow sprays or granules provide better protection than the seed treatments offered. The current seed treatments available are good for protection in areas with moderate disease pressure. Under high pressure situa-

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tions, in-furrow sprays or granules may perform a little better. The one that gives us the most trouble year in and year out is *Rhizoctonia* or “sore shin”. Under moderate pressure the current seed treatments available give good protection from this pathogen; however, we may pick some up if we have extended cool / wet conditions this spring.

A seed treatment or in-furrow insecticide is equally important in maintaining a cotton stand early. Early insect problems, such as Thrips or Spider Mites, like we experienced last year can lead to seedling disease and death of the cotton plant, resulting in skippy stands and yield loss. The lower the seeding rate the more important it is to protect the seed that is planted because there is no room for error. Below is a chart describing rates in seed per foot and how they calculate into seed populations per acre.

Seeding Rate Per Acre				
Seeds Per Row Foot	15-in Rows	30-in rows	38-in rows	40-in Rows
1	34,848	17,424	13,756	13,068
1.5	52,272	26,136	20,634	19,602
2	69,696	34,848	27,512	26,136
2.5	87,120	43,560	34,389	32,670
3	104,544	52,272	41,267	39,204
3.5	121,968	60,984	48,145	45,738
4	139,392	69,696	55,023	52,272
4.5	156,816	78,408	61,901	58,806
5	174,240	87,120	68,779	65,340

## Soybeans

By Dr. Alan Blaine

Planting is well underway. As a matter of fact, I have spoken to several producers who finished planting soybeans by early April. This represents a significant change in the Mid-South, but a positive change. Once again we have experienced some shortages of specific varieties. We have plenty of seed, just shortages of the most sought-after varieties. I realize we see failures to provide adequate supplies of some varieties every year, but it appears that some seed quality issues continue to exist year after year. This problem can be corrected in my opinion, but those advising those growing seed need to seek out some advise on improving seed quality in an attempt to meet the market demand.

A lot of interest has been generated regarding twin row plantings in the last couple of years. This system will prove to be beneficial, especially for those growers growing beans on wide rows. Yield data this past season has shown approximately an 8% increase in yield for twin rows compared to wide row beans. Previously, yield data has shown approximately a 5-10% increase in yield for beans grown in 30-inch rows or narrower versus wide rows. This increase is approximately the same as that ob-

served with twin rows. Additional advantages will be observed based on the advantage of a row versus flat and possibly uniform seed spacing. The increased use of wide beds will probably prove to be comparable to a row with twin rows. Uniform seed spacing might prove to be beneficial but, given a soybean plant's ability to compensate, I doubt it will be as positive a response as corn, if at all.

We have all our rust sentinel plots planted. We began in late February and finished by the 20<sup>th</sup> of March. It appears everything is going to be fine – no replanting required. Since the state sentinel plots proved to be helpful last year, we will attempt to utilize this option again.

I would encourage you to allow us to help you make a timely decision regarding when to spray if needed. I believe in fungicides, but the proper timing and use of the proper materials is essential to maximize returns.

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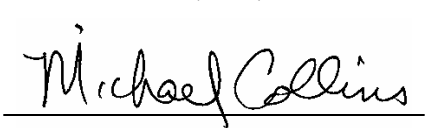
In order to help you, we plan on offering the following services this coming season:

- We are available seven days a week. Contact your county extension office, dealer, consultant, or us directly and we will be happy to provide you an update on what is occurring statewide.
- Very soon we will be publicizing information regarding how to sign up for an automatic email response/warning throughout the year.
- A 1-800 phone line is being set up and will be ready for use from June through mid-September.
- Weekly radio programs with the Mississippi Network will air brief updates on rust.

I just returned from a trip to Argentina and Bolivia. It was good to follow up on what we have heard regarding South America. Our observations ranged from zero rust finds in Argentina to 3-5 sprays in Bolivia. Bolivia has a more tropical environment than Argentina but every field I looked at had excellent rust control.

Mississippi will find ourselves more comparable to Argentina than Bolivia. Last year, there were approximately 70+ positive finds reported in Argentina; this growing season, zero. This made me feel more confident about our thoughts regarding this new disease. In addition, growers there are planting earlier and using earlier maturing varieties in order to increase yields and minimize concerns regarding rust. These inputs are quite familiar for us in the Mid-South, and maybe other areas of the southern United States will one day decide that these options have merit for them also.

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