

# Agronomy Notes

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## Rice

By Dr. Nathan Buehring

With the dry weather we experienced last fall, most of the ground that will be planted to rice will require little to no tillage before planting. Therefore, a good burndown program will be the only thing necessary to get ready for planting. If you have a high population of winter weeds, I would rather spray a little earlier (Mid-February) than spray too late (Late-March). Eliminating these weeds early will help reduce the amount of residue left on the soil surface which could effect getting good seed furrow closure behind the drill. Letting these weeds go and allowing them grow can lead to a high residue situation that can be difficult to plant in.

In a stale seedbed program, a two shot program will sometimes be required. The first application is for the control of annual winter weeds and the second application is for the control of any weeds that may emerge following the first burndown application, such as smartweed or nutsedge. Most burndown programs begin with glyphosate and then other products, such as Valor or 2,4-D, are added to boost the control of weeds that are difficult to

control with glyphosate alone. Common winter weeds, such as annual bluegrass, buttercup, chickweed, dandelion, and bittercress, can generally be controlled with 1qt/A of glyphosate (0.75 lb ae/A). Other winter weeds, such as henbit, Carolina geranium, cutleaf evening-primrose, and ryegrass, will require some additional attention.

The addition of 2,4-D (1 to 2 pt/A) to the burndown program will help control henbit, Carolina geranium, and cutleaf eveningprimrose. Adding Valor (2 oz/A) to the program will help control henbit and cutleaf eveningprimrose. For annual ryegrass control, the best option is just adding more glyphosate in tank and getting the rate to  $\geq$  3pts/A.

Always read the label before using any herbicide. When Valor or 2,4-D is included in the burndown program, you will need to wait 30 days after the application before rice can be planted. These preplant intervals have been set for a reason; therefore, do not push them and plant any earlier than the label allows.

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Seed treatments are another item of consideration right now. We very seldom see a yield increase with the use of seed treatments because we plant about twice as much seed needed to establish an adequate for maximum yields and rice has the ability to compensate for thin stands. However, seed treatments are a very minimal cost in the overall rice production budget and they provide many agronomic benefits, such as having a healthy and uniform stand, that will help you sleep better at night during the planting season.

Fungicide seed treatments definitely need to be considered when planting rice in April on clay soils or on soils that have a historic problem with seedling diseases. Protection from *Pythium* seedling diseases is the main concern in rice.

For the money, products such as Apron XL LS and Allegiance have been doing a good job in giving us protection from *Pythium*. Apron XL LS is recommended at a rate of 0.32 to 0.64 fl oz/cwt and Allegiance is recommended at a rate of 0.75 to 1.5 fl oz/cwt.

Growth regulator seed treatments will also provide some agronomic benefits as well. The only recommended growth regulator seed treatment is gibberellic acid (GA) or Release. GA treated seed is recommended on semidwarf varieties, varieties with poor seedling vigor, clay soils, and early planted rice. GA treated seed has shown to be a benefit for uniform emergence, and an increased speed of germination and emergence.

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## Corn/Wheat

### By Dr. Erick Larson

#### Corn

##### Profitability Key in 2006

High fertilizer prices will definitely squeeze producers' profit margins during 2006. However, I believe there is great potential for many producers to significantly economize their fertility budget this year. Far too many producers apply fertilizer based upon a "maintenance" philosophy, which normally either fails to meet crop needs or exceeds them. This may work for a short while, but in today's agricultural world, where we are rotating crops and producing substantially higher yields every year, it is impossible to predict what maintenance crop needs are. Accordingly, the maintenance philosophy either results in poor crop yields or over fertilization. However, we have inexpensive technology available (which has been around for years) which can accurately predict soil nutrient

levels, so that you can make prescriptive fertility treatments on your fields before the crop or your pocketbook suffers. Of course, this technology is soil testing. The utilization of a sound soil testing program either single-handedly, or combined with grid sampling and variable rate technology may offer more potential to improve your profit margin than all other options this season.

##### Fertility Keys for Corn

Everyone knows nitrogen is considered the key nutrient for corn production, so accordingly, I believe Mississippi producers generally do a very good job of addressing corn nitrogen needs. In fact, nitrogen problems don't usually even make the top five frequent fertility problems I annually see in fields. We are much more likely to overlook other major fertility

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needs and sometimes micronutrients, particularly at high crop yield levels. The first fertility issue that must be addressed before any other supplemental nutrients are applied is low soil pH (below 6.0). Low pH will substantially restrict nutrient availability and stunt crop growth drastically (resulting from increased availability of toxic elements) when pH is below 5.5. Corn requires nearly twice as much phosphorus and about 40-50% more potassium, compared to cotton and soybeans. Corn potassium deficiency often occurs following a high-yielding soybean crop, since soybeans remove double the potassium from the soil as a cotton crop. Potassium deficiency is particularly prevalent in no-tillage systems, where uneven soybean residue distribution (windrowing) may occur by the combine spreader during soybean harvest. Sulfur, magnesium and zinc deficiencies are also becoming more common. These nutrient needs, except for sulfur, can be proactively addressed by a sound soil testing program. Plant tissue analyses during the crop season will indicate sulfur availability and will be helpful in confirming plant uptake for all nutrients.

### **Managing Limitations/Early Planting**

Growing corn in Mississippi can be very profitable, but does have considerable risk, which producers should address with management practices. The primary environmental risks include wet springs and hot, dry summers. Growers should utilize raised beds on fields with marginal drainage to relieve potential waterlogging and warm the soil to promote better seedling establishment and vegetative development. Early burndown herbicide application helps both these problems because it promotes warmer, drier seedbeds during the spring and encourages earlier planting. Early planting helps corn avoid stress associated with mid-summer drought. Irrigation can help alleviate water stress, but does not over-ride the importance of early planting (because of heat stress).

### **Burndown Herbicide Timing**

Moist soil conditions often severely restrict

planting time during the optimum corn planting period. Utilizing a late winter burndown herbicide to control winter vegetation allows producers to manipulate soil moisture and encourage earlier planting. Killing winter weeds several weeks before planting allows the soil to absorb much more solar energy, compared to soils covered by a blanket of lush weed vegetation until immediately prior to planting. Killing these weeds warms and dries the soil, which allows earlier planting and promotes corn seedling vigor. Burndown herbicides utilizing glyphosate should be applied four to six weeks before planting to gain these advantages.

### **Risk of Ultra-Early Planting**

Abnormally warm, dry conditions sometimes allow for an opportunity to plant corn during late February or early March. Although early planting is a critical component of successful corn production, planting corn extremely early (well before recommended dates), even if soil temperatures are warm, provides little if any crop development advantages, while risking stand failure. Extraordinarily early planting enhances maturity very little, because corn growth rate is correlated to temperature, and heat unit accumulation (GDD 50) is historically very low during early March.

### **Guidelines for Corn Planting Date**

The standard guideline for determining earliest planting date is when morning soil temperature at a two-inch soil depth is 55 degrees F or 50 degrees F at a 6-inch soil depth. Planting before the soil temperature is warm enough for germination greatly increases the potential for stand failure, because germination growth rate is dependent upon soil temperature. Soil temperature may vary considerably depending upon amount and type of plant residue, soil texture and slope. Thus, randomly measuring soil temperature with a thermometer within a field should provide a reliable indicator of desirable conditions for stand establishment. Corn produces highest yields when planted within 4-5

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weeks after soil temperature is warm enough for germination. This has historically corresponded with the following calendar dates:

Geographical Region of Mississippi:

Southern : February 25-March 15

Central: March 5-April 10

North-Central: March 15-April 20

Northern: March 20-April 25

## **Wheat**

### **Wheat Nitrogen Fertilization**

In the mid-south, nitrogen application timing typically has a significant effect on wheat productivity, since nearly all nitrogen is applied in the spring. The initial topdress of a split application should be applied when dormancy breaks in late winter during tillering stages (Feekes growth stage 3 or 4 - normally early February) and not exceed 50% of the total seasonal amount. Producers may need to make this initial application earlier this season, because dry fall conditions hampered tillering last

fall and late January temperatures have been warmer than normal, so wheat growth is occurring now. The purpose of the first application is to promote tillering and head size. Delayed spring nitrogen application will cause wheat yields to suffer substantially, because tiller development (potential head number) ends when stem elongation begins. The final topdress application should be applied by the time the first node appears at the beginning of stem elongation (jointing, Feekes growth stage 6). This application delivers the main nutritional needs of the crop and generally occurs in early March. Growers who choose to apply spring nitrogen in a single application should time it at Feekes growth stage 4 or 5. Recommended spring nitrogen rates generally vary from 90-140 lbs./a. with higher rates within this range recommended on clay soils and high yield potential wheat.

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## **Cotton**

### **By Dr. Tom Barber**

The start of a new year may bring forth many questions and uncertainties for the next season. There will be numerous opportunities to gather up-to-date and important information through numerous local grower and state-wide meetings . I encourage you to attend at least one meeting that focuses on cotton to get updated on new technology and practices you might want to consider. One operation that will be here before we know it is the need for burn-down applications.

Timely burndown applications are important. Applications need to be made at least 4 weeks before planting and in some cases earlier. Gly-

phosate resistant horseweed has become a major problem in many of our cotton growing areas in the delta. In these fields where horseweed is present you need to pay close attention and burndown with a phenoxy type herbicide mixed in the tank. Clarity at 8 oz per acre is my first choice because cotton is not as sensitive to this product as 2,4-D and the label is very clear on the pre-plant interval of 21 days plus 1 inch of rain. 2,4-D is another option that can be used and is probably the number one herbicide tank-mixed with glyphosate at burndown. If you are going to use 2,4-D for burndown of horseweed, the rate needs to be a full quart or 32oz

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per acre and you need to wait at least 30 days before planting cotton. Horseweed size is just as important as the chemicals used to kill it. Horseweed control can be tricky. Don't let the horseweed get too big before you spray it, but at the same time it dies much better if it is actively growing. If horseweed gets too big, either of these herbicides may kill the terminal, but the horseweed will not die. Therefore a timely burndown will solve a lot of problems. Ignite and Gramoxone may also be considered to kill horseweed. A couple of things to keep in mind with these two products: 1. Ignite does not work as well under cool temperatures (below 60). 2. Both of these products look better tank-mixed with Clarity or 2,4-d for horseweed control.

If there has been a history of horseweed coming up after you get a stand of cotton, a residual will need to be considered at burndown. Adding a residual to the tank will give you approximately 40 to 50 days control of horseweed, thus moving you through the early in-season period. Herbicides that can be utilized in this application are: Caparol, Cotoran, Diuron, Prowl or Valor. The main thing to watch with these products is the pre-plant interval. Always read the

label to make sure you have enough time before you plant. Other options to control horseweed in season are residuals applied PRE (preemerge). Not many growers apply a PRE herbicide any more but they can pay off many seasons. The flush of grasses that you may be starting to see in your fields is most likely due to the fact that residuals have for the most part been removed from the system. A yellow herbicide (Prowl) can give you good, cheap weed control of grasses and small broadleaf weeds including residual control of in-season horseweed.

Glyphosate plus 2,4-D or Clarity is a burndown mixture that will work well on most any winter annual burndown situation. Regardless of the burndown program you choose to utilize, timely applications can make all the difference. By making these timely applications you will dry down the current vegetation making it easier to plant into, and allow the seedbed temperature to increase at a faster rate, thus increasing the chances for an even cotton germination and stand.

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## Forage

By Dr. Richard Watson

Spring can be one of the most challenging times from a management standpoint, as the weather can be extremely variable leading to a broad range of growth conditions. Early spring is generally a time of making the forage we have last until the rapid growth of mid to late spring starts. Hay reserves may be running low by this time and spring calves may already be hitting the ground, putting further pressure on the forage supply. Conversely, late spring is a time of dealing with excess growth and preparing our warm season pastures for the summer growth season. Here are some things to think about/do during the spring period.

### Early Spring Fertilization

Weather and ground conditions permitting, February is a good time to get the first nitrogen (N) application out of cool-season grasses (annual ryegrass and tall fescue). The cool-season grasses will grow up to two thirds of their total annual yield during the spring period, so it is important that the nutrients are available. Depending on weather (growth) conditions and the rate applied, N fertilizer will be used over a 4-6 week period so the total spring N application should be split up in several applications every

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month or so. Total N application over the spring, on ryegrass and tall fescue (assuming no clover), should be in the range of 100-150 lb N/A since we generally have a large surplus of forage which makes additional fertilizer inputs uneconomical. Ideally, this 100-150lb N/A will be made in 2-3 split applications, with the February application at around 33 lb N/A (100 lb ammonium nitrate) and the remaining amounts given in one of split application in March and April. Maintenance phosphate and potassium (according to soil test recommendations) can also be put out in March or April with the N.

By mid to late spring, it is also the time to start thinking about fertilizing warm-season pastures. Overseeded Bermudagrass and Bahiagrass will generally pick up enough residual N from the ryegrass application to give them a kick start but non-overseeded Bermudagrass will need a 30-50 lb/A application in mid-late April (or as soon as you see green up in the stolons) to kick start summer growth.

### **Spring Weed Control**

The most obvious spring weed problem in Mississippi, judging from the abundance of golden fields, is buttercup (aka yellow top). While it appears to be a big problem, buttercup is actually one of the easiest and most economical weeds to control with a 1-2 pint/a of 2-4-D doing the trick at a cost of no more than \$2/A. Where most of us go wrong is in the timing of that application. If we wait to apply our herbicide until we see the yellow flowers we are wasting our money because we have failed to eliminate the next generation. It takes buttercup about 5 days from flowering to produce viable seed, so a post-flower application is generally too late to prevent this. Buttercup, as with many other annual broadleaf weeds, will begin to germinate and grow during the early spring period, well before summer-grass pastures are growing and even before the growth has picked up in the cool-season grasses. It is at this early stage of growth that the plants need to be hit with herbicide. While it is too late now, you should also

check your pastures in the fall as buttercup and other broadleaf weeds, such as henbit, will often germinate then and may offer a better opportunity for weed control.

In addition to chemical control, not overgrazing cool-season pastures (i.e. leaving 3-4" of growth) can often reduce the amount of weed infestation and give the grass a better chance of competing for nutrients.

### **Spring Grazing Management**

In the early spring we are generally trying to ration out our ryegrass or tall fescue until the spring flush comes. In a cow-calf system, cows that are due to calve or have calves at foot can be limit grazed for a few hours a day and supplemented with hay to make the grass last longer. The time spent grazing will depend on the amount of grass you have per cow. Pasture growth rates during February can be between 5 and 25 lb dry matter/A/day, which can generally hold a dry cow without reducing the pasture base too much. Obviously, if you have lactating cows and/or less than one acre per cow you will need to start to restrict access and make up the difference in feed requirement with hay.

When the calves are a bit older, you can use a creep-gate or electric wire set at a height that will let the calves have access to the ryegrass or tall fescue but not the cows. This creep grazing method will allow the calves to benefit from the good quality grass while also making it last longer.

In the late spring period, we are more concerned with utilizing surplus forage and keeping quality in our pastures. Most of the surplus growth can be accumulated on a designated area of the farm for hay or baleage production, which will allow you to maintain quality on the other areas. Use a leader-follower system of grazing where younger stock (e.g. replacement heifers or stocker steers) have first access to the pasture and can pick out the best forage. Then follow the young stock with mature cows

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who can “clean up” all the forage not wanted by the young stock. This method of grazing will help keep your pastures in a higher quality state by promoting leafy growth and reducing the amount of dead matter in the grass.

### **New MaxQ Tall Fescue Seedlings**

Many of you may have planted MaxQ™ tall fescue last fall and will need to be careful of during its 1<sup>st</sup> year. As last fall was very dry, many of the tall fescue stands are probably not as strong as they might have been in a ‘normal’ year so they will require even more care this spring and summer. A 30-50 lb N/A application in late February and another one in late March will help give new seedlings a much needed boost. You can begin giving your new tall fescue light grazing when it reaches 6-8” but do NOT graze it lower than 3-4” during its first spring. Using young animals such as replacement heifers or creep-grazed calves can also reduce damage to the stand that might be caused by heavier mature cows. The most important thing is to have at least 5” of growth accumulated before June 1<sup>st</sup> and then to lock the gate and do not graze until September (DO NOT MAKE HAY IN THE STANDS 1<sup>st</sup> YEAR). If you look after your tall fescue this first year, you will ensure that it remains healthy and productive for many years to come.

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