Mississippi State University Extension Service

AGRONOMY NOTES

February 2005

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CEU'S available at the MS Crop College

7 in Pest Management
7 in Crop Management
2 in Nutrient Management
3 in Soil and Water Management
Total = 19

MISSISSIPPI CROP COLLEGE PROGRAM

There is still time to register for the MS Crop College. Please visit www.maicms.org for a registration form or call Emily Rose at (662) 325-2701.

Tuesday, February 15, 2005

8:00 Registration (Lobby)
9:00 Welcome, *Dr. Larry Oldham*
Soybean Production Inputs, Dr. Dan Poston
9:30 Application Technology to Improve Crop Protection Efficacy While Minimizing Drift, *Dr. Robert Wolf*
10:30 Break
10:45 Soybean Rust Update, *Panel Presentation*
11:45 Lunch (Auditorium)
1:00 Effect of Foliar Fungicides on Soybean Yield and Net Returns, *Ben Spinks*
1:30 How Earliness Has Affected Our Production System, *Brian Ward*
2:00 Soybean Threshold and Insecticide Efficacy in the 2004 Season, *Dr. Angus Catchot*
2:30 Influence of Soybean Planting Date and Maturity Group on Stinkbug Populations, *Dr. Jeff Gore*
3:00 Break
3:15 Arthropod Populations in Early Planted Soybeans, Dr. Gordon Andrews, *Dr. Angus Catchot and Dr. Jim Robbins*
3:45 Building on Production Decisions of 2004 for the 2005 Crop, *Mitt Wardlaw*
4:15 Adjourn

Wednesday, February 15, 2005

8:00 Fertilizer Use Trends and Environmental Stewardship in Mississippi, *Dr. Larry Oldham*
8:30 Soil Fertility, Nutrient Management and Water Quality on the Other Side of the River, *Dr. Leo Espinoza*
9:10 Soil Fertility, Nutrient Management and Water Quality in the Bootheel, *David Dunn*
9:50 A Mid-South Region Perspective on Soil Related Environmental Issues, *Dr. Cliff Snyder*
10:15 Break
10:00-11:45 Reception for MS - ASA retirees in the Director's Conference Room, Room 205, Bost Extension Center.
10:30 Current Soil pH Management Issues, *Dr. Bob Thompson*
11:00 What is Really Happening at the Edge of the Field, *Dr. Seth Dabney*
11:45 Lunch: **Business Meeting of Mississippi Chapter of the American Society of Agronomy**
1:00 Louisiana Rice Breeding Update, *Dr. Steve Linscombe*
2:00 Louisiana Rice Verification Program, *Dr. Johnny Saichuk*
3:00 Break
3:15 Rice Production and Considerations for 2005, *Dr. Nathan Buehring*
4:00 Rice Fertility/Cultural Practices, *Dr. Tim Walker*
4:45 Adjourn

Thursday, February 17, 2005

8:00 Management to help prevent Corn Leaf Blight, *Dr. Erick Larson and Dr. Billy Moore*
8:45 Corn Nitrogen Management in Wet Conditions, *Dr. Erick Larson*
9:15 Weed Management Systems in Mississippi Corn and Cotton, *Dr. Dan Reynolds*
9:45 Evaluating Management Strategies for Plant Bugs in Cotton, *Dr. Scott Stewart*
10:15 Break
10:30 Product Efficacy, New Technology and Crop Losses, *Dr. Angus Catchot*
11:00 Evaluation of Agronomic Practices for Cotton, *Dr. Steve Nichols*
11:30 2004 Cotton Nematology Research of in Mississippi, *Gerry Ellis and Tyler Wilemon*
12:00 Lunch
1:00 Economic Analysis of Cotton Varieties , *Dr. Steve Martin*
1:30 New Transgenic Technologies for Cotton Production, *Dr. Johnny Jenkins*
2:00 Cotton Management Considerations for 2005 Growing Season, *Dr. Tom Barber*
2:30 Yield and Quality for 15 inch Spindle Picked Cotton Production Systems, *Herb Willcutt*
3:00 Adjourn

Soil and Nutrient Management
By Dr. Larry Oldham

Too good to be true is often really too good to be true when we talk about soil amendments and fertilizers. My favorite lines alternate between "it's so new the university has not heard of it" and "the university refused to test it unless we gave them a lot of money". Pay very, very close attention whenever these phrases come up.

They may be telling the truth, but they may not be telling everything they know. Every year brings a new crop of alternative fertilizers that will a) be more plant available, b) invigorate the soil, c) improve yields, or d) all of the above.

And the university has NOT heard of it because IF it were a true plant nutrition breakthrough, the excitement in the academic world would be palpable. Every academic plant nutritionist truly loves to test products or technologies which may legitimately help plant growth efficiency in both the agronomic and horticultural markets. There would be gung-ho researchers doing application rate tests on a number of soils using agronomic crops, vegetable crops, turf grasses, and ornamentals. Physiologists would be examining the mode of action at the molecular genetic level.

Fortunately, or unfortunately, depending on your point of view, very few products succeed in generating this type of interest. Science contradicts the utility of many suggested materials before it ever gets to the testing stage. There are certain laws of chemistry, biology, and physics that govern the behavior of all materials. Some claims out there need a little more scientific documentation (reverse the spin of electrons in the soil for example) before they can be supported.

It costs money for experimentation including capital equipment, current operating expenses, labor, and management. Basic soil fertility funding is not the leading investment by any university. Materials which come on the market other than through a well-documented scientific advance, are not necessarily a priority for researchers without support from an external body.

So if you are intrigued by a soil amendment or fertilizer product, test it yourself as you may already do with crop varieties. Do not bet the whole acreage on it. Perform a test on your own farm, applying the product in some strips and not in others, using your management system on your own soils, using your own irrigation scheduling, keep notes on it through the growing season, and look hard at the results in the combine or picker or baler next fall.

Soybeans
By Dr. Alan Blaine and Brian Ward

Well, another growing season is just around the corner, and we are having to deal with a "real" shortage of soybean varieties. Last year, it was the early MG IV's and this year it is both MG IV's and V's. This shortage was created by adverse weather that occurred on MG V's thus putting greater pressure on Group IV's supplies. If you have not booked your varieties by now, you are probably not going to get your first choice. Many will be forced to plant varieties that they have never seen in the field or have limited experience with due to the shortage. Attempt to match each variety to the proper scenario/soil type on your farm. In the case of wide rows, a later planting date will allow early maturing varieties the opportunity to reach their full height/growth potential. The biggest concern in wide rows is weed control or lack of due to an open canopy. If you do not want to delay planting there are still some good options for weed control, which are pre materials or the use of a directed spaying.

Stem canker was a major issue on MG V's, particularly in the Delta last growing season. If you had stem canker in a field and are going to plant soybeans in that field, use a resistant to moderately resistant variety. If you plant a susceptible variety where you had stem canker last year yields can be severely reduced if stem canker reoccurs. Variety selection, crop rotation and early planting will reduce the effects of this devastating disease.

Traveling around the state the last week in January, there were a lot of tractors and airplanes at work in the fields. It is very unusual to see this warm/dry weather in January, and we are glad to see many take advantage of this situation. This leads us to thoughts regarding burndowns.

The last couple of years, we have looked closely at fall burndowns. The need for fall burndowns has evolved because of the earliness of soybeans coming out of the field (which has allowed grasses and other weeds to regenerate and go to seed before a killing frost). We have looked at a lot of fields with glyphosate, Valor Goal or a combination and the results are all the same. Most everyone said that they wished they had put more out. Some of the fall burndowns occurred in September with glyphosate alone. This will eliminate a lot of fall vegetation and probably reduce some weed problems, especially if you kill the fall growth before it goes to seed. This is very economical but it will not keep you from putting out a spring burndown; because, the winter annuals have not yet emerged. If you go to a glyphosate + Valor or Goal combination a good time for application is around Thanksgiving through the first couple weeks of December. This allows you to control most all of the winter vegetation and avoid complaints in the spring.

There are many excellent options for spring burndowns. Scout your fields and determine the best treatment for each field. If you put out a burndown soon, remember it takes a while for it to work this time of year with the temperatures fluxuating so much.

Corn/Wheat
By Dr. Erick Larson

CORN

Managing Weather Limitations - 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. This 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 (this month) to gain these advantages.

High Yield Key: Someone recently asked for a hybrid suggestion that had 250 bushel per acre yield potential. Actually, nearly all corn hybrids possess the potential to yield well more than 250 bushels per acre. In fact, a hybrid available in Mississippi produced a world record 408 bu/A a few years ago in east central Iowa. It's our responsibility to manage our corn crop so that it will produce as much grain as "mother nature" will support. Without downplaying the importance of hybrid selection - insufficient fertility may limit corn yields statewide more than any other management input. Everyone knows corn requires substantial nitrogen application, however, my observations indicate nitrogen is not normally the nutrient limiting yield. Corn requires nearly twice as much phosphorus and about 40-50% more potassium, compared to cotton and soybeans. Additionally, low soil pH (below 6.0) substantially restricts nutrient availability and stunts crop growth drastically (resulting from increased availability of toxic elements) when pH is below 5.5. These needs are best addressed through a sound soil testing program, which provides corn fertility recommendations for your cropping system and yield goal.

Risk of ultra-early planting: Abnormally warm, dry conditions sometimes allow 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 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. The purpose of this application is to promote tillering and head size. 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. This 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.

Forage
By Dr. Richard Watson

Hay Crops and Grazing Schools

Focus for 2005 hay season should be quality not quantity: Hay continues to be a significant commodity crop in Mississippi. Statistics released late last year by the Mississippi Agricultural Statistics Service and the Mississippi State University Department of Agricultural Economics, estimate the 2004 crop to be worth around $85-$90 million. This represents about 2.1 million tons of hay production off 720,000 acres. Overall, the number of acres is down about 30,000 acres on 2003 but the moist summer lifted yields to an average of 2.9 tons/acre, resulting in total production that was 200,000 tons above 2003 estimates. While yields in 2004 were generally good, the wet summer also created many problems with quality, and many producers lost one or more cuttings to the frequent rainfall. Therefore, hay stocks will be generally adequate from a tonnage standpoint, but finding good quality hay will be more of a challenge. This means that cattle producers will require more supplemental feeds for their cattle this winter.

The focus for 2005 hay season should be lifting the overall quality of hay produced in the state rather then trying to maximize tonnage. The humid Southeast will always have its challenges for hay production. Some producers are minimizing the negative impacts of weather on hay production by producing high moisture wrapped hay or baleage. This method of forage storage is particularly effective for spring harvests of annual ryegrass and other high-moisture crops, for the first cutting of bermudagrass, or even for a hay crop where the weather has prevented effective drying.

For more information on hay production practices that will optimize your quality and yield, contact your local county extension office.

South Mississippi Spring Grazing School

The Mississippi State University Extension Service, in conjunction with the USDA-NRCS, will be conducting a grazing school this spring for livestock and hay producers in Southern Mississippi. The two-day school will be conducted on the 17th and 18th March 2005 at the Mississippi State University White Sands Beef Cattle Research Unit near Poplarville, MS.

The program will include practical courses on the management of forage crops important to South Mississippi. This includes the grazing and fertility management of annual ryegrass, bermudagrass, bahiagrass, and clovers. Other topics include weed control, and animal nutrition. The program will cater for all types of forage-based livestock, including beef cattle, dairy cattle, sheep/goats, and horses. The school will offer demonstration and hands-on activities to allow participants to put many of the forage management principles into practice. Practical exercises will include pasture allocation to livestock, balancing your forage and feed rations, and the calibration of spray and fertilizer spreading equipment.

Participants will be provided with lunch and refreshments on both days, and course materials will include a grazing school booklet with summaries of the information covered in the school, a copy of the Southern Forages Pocket Guide, a forage measurement stick, and a pocket calculator for calibration and allocation exercises.

People interested in participating are asked to register for the school by sending in a registration form by March 10, 2005. A registration fee of $25 is required to cover the cost of course materials, and the fee also includes a year membership to the Mississippi Forage and Grassland Council, as well as the American Forage and Grassland council, which provides quarterly publications highlighting innovations and news in the forage industries.

The White Sands Research Unit is located on MS HWY 26 about 10 miles West of Poplarville.

For further information on the grazing school, and registrations forms, please contact your local county extension office or Dr Richard Watson; Phone (662) 325-5463; Email: rwatson@pss.msstate.edu.

REGISTRATION DETAILS (please print clearly):

NAME_____

POSTAL ADDRESS_____

PHONE_____

PAYMENT ENCLOSED ($25/person):_____$_____
(Please make checks payable to Spring Grazing School)
Mail Completed registration to:

Dr Richard Watson, 117 Dorman Hall, Mail Stop 9555, Mississippi State University, Mississippi State, MS 39762.

Rice
By Dr. Nathan Buehring

There has been a rapid adoption of stale seedbed and minimum tillage programs in Mississippi rice production. For most of you this has been a no brainier because spring tillage on heavy buckshot soils can often lead to baseball size clods that a jack hammer cannot even brake up. Also, this transition has been made easier with better grain drills and glyphosate being cheaper than diesel fuel. With this adoption, we are becoming more reliant on the use of burndown herbicides in rice. The options for winter weed control in rice is not as wide or flexible as in other crops such as soybeans and cotton. However, there are enough options to be very successful in a burndown program.

There are two major things to consider when putting a burndown program together. First, what is your target planting date from the time of the burndown application? This will either narrow or widen your herbicide options. Second, what is your winter weed spectrum? Certain herbicides are more effective on certain winter weeds.

When looking at the target planting date, I have three categories: less than 4 weeks, 4 to 6 weeks, and greater than 6 weeks before planting. With a planting date of within 4 weeks, there are only two herbicide options, glyphosate or paraquat. Glyphosate can do a good job with 3 to 4 weeks before planting. However, anything less than 3 weeks would need a good dose of paraquat to get the ground ready for planting. Once target planting date is over 4 weeks, two more herbicides become an option to use, 2,4-D and Valor. Harmony Extra is another option if the target planting date is over 45 days. One of these herbicides is generally tank-mixed with either glyphosate or paraquat to expand the weed control spectrum. In the 4 to 6 week window, these are good options to use. Once the planting window exceeds 6 weeks, some residual weed control maybe needed, therefore, a glyphosate plus Valor is good option.

Proper identification of winter weeds is a key to coming up with best control program. Common winter weeds, such as annual bluegrass, buttercup, chickweed, dandelion, and bittercress, can be controlled with either 2 pints/A of paraquat (Gramoxone Max) or 2 pints/A of glyphosate (0.75 lb ae/A). This is why most winter weed control programs begins with either paraquat or glyphosate. Other winter weeds, such as ryegrass, Carolina geranium, cutleaf eveningprimrose, and henbit, are more difficult to control which will require more attention for the best results.

Ryegrass seems to becoming a more difficult weed to control, but the best herbicide option is still glyphosate. However, the rate of glyphosate will need to be increased to at least 3 pints/A (1.125 lb ae/A). Increasing the rate of glyphosate can add a lot more in weed control and not crunch your budget with the price of glyphosate being as low as $3/pint.

The best control options for Carolina geranium will be a tank-mix of paraquat or glyphosate with either 2,4-D (1 to 2 pints/A). For cutleaf eveningprimrose control, 2,4-D will be the best option to include into the program. Glyphosate plus Valor (1 to 2 oz/A) will be a good option as well. Henbit control becomes a little more difficult once it reaches the flowering stage. Therefore, a tank-mix of glyphosate with either Valor or 2,4-D will give you better results.

Also, there are minor winter weed problems in rice with curly dock, clovers/medics, and horseweed (Mares tail). These are not problem weeds as long as 2,4-D is included into the program.

There are a few other considerations to make in winter weed control program. When using paraquat, adequate spray coverage is essential. Use a spray volume of 20 gal./A (GPA) by ground and 5 GPA by air. Also, when using 2,4-D, a total of 2.5 pints/A can be applied per a growing season. So if you plan on using 2,4-D later on in the season, you may want to consider another product for your winter weed control program. As allows, please read and follow label instructions before using any product.

Cotton
By Dr. Tom Barber

As we approach yet another season following a record yield of approximately 1034 lb/A, I for one am very excited considering this is the first full season that I will serve as your Cotton Specialist. I personally think we have nowhere to go but up.

Several decisions need to be made before planting. The low prices of cotton and corn, the possibility of Asian soybean rust, coupled with the increase in fertilizer, seed and technology fees have many growers pondering over which crop to plant. I feel that cotton acres in the state will remain flat to possibly up towards 1.2 million. Two main things growers should be focusing on at this time are soil fertility and selecting cotton varieties. If you are practicing a crop rotation program, especially cotton:corn, **soil pH is critical**. Neither cotton nor especially corn, are tolerant of low pH conditions. The previous crop will also play a role in the amount of nutrients removed from the soil. It is important to make sure that your fertility program is balanced to favor crops grown in rotation. The following tables show the nutrient requirements for several crops.

Harvested Nutrients

Crop	Yield	N	P_2O_5	K_2O
	bu or lb/A	--------	lb/A	----------
Corn	**180**	**136**	**80**	**52**
Soybean	**55**	**220**	**44**	**78**
Wheat	**70**	**80**	**38**	**24**
Cotton	**1000**	**64**	**28**	**40**

Nutrient Uptake for Selected Crops

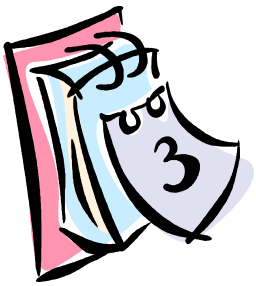
Crop	Yield	N	P_2O_5	K_2O	S	Mg
	bu or lb/A	----------		lb/A		----------
Corn	**180**	**240**	**102**	**240**	**30**	**58**
Soybean	**55**	**288**	**54**	**188**	**18**	**22**
Wheat	**70**	**130**	**48**	**142**	**18**	**22**
Cotton	**1000**	**160**	**48**	**140**	**24**	**22**

Cotton variety selection is one of, if not the most important decision to maximize yield and **high quality** potential. I emphasize quality in the last sentence; because, we can no longer continue to produce average cotton quality and expect to be a key player in the foreign market. Two-thirds of our cotton is sold overseas, quality must be factored in when considering which variety to plant. Balancing quality and yield is very difficult to do, but we must strive to set a higher standard on Mississippi Cotton. Review cotton variety trial data carefully and select a variety mix that will spread risk and result in improved average quality. Contact your local county extension office for copies of the 2004 Cotton Variety test results or visit http://msucares.com/pubs/crops3.html. This will lead you to a PDF copy of the 2004 Variety Test Results.

Another topic that I have many calls on is nematode resistant varieties. There are currently no varieties resistant to the reniform nematode. However, there are some varieties, ST 5599 BR for example that have some tolerance to root knot nematode populations. It is imperative that you take soil samples to determine which nematode you have.

Drainage: Adequate drainage in a cotton field is critical. You must be able to move water off the field quickly. Decreased drainage can lead to poor root systems, nutrient deficiencies and delayed cotton maturity. Make sure drain furrows and tale ditches are clean for rapid water removal.

Burndown: It is the time of year to be thinking about what burndown program to use. Always keep in mind your pre-plant restriction intervals. For 2,4-D and Valor the pre-plant interval is 30 days, Clarity is 21 days and Harmony GT has a supplemental label reducing the pre-plant interval to 7 days. If you have a horseweed (Mares tail) problem, I would recommend either 2,4-D or Clarity tank-mixed with glyphosate or Gramoxone. If you have a heavy infestation of horseweed, and have had previous problems in season, you might want to consider adding a residual with your burndown to prevent in-season flushes. Both Diuron and Valor have excellent residual activity on Horseweed.



MARK YOUR CALENDAR

FEBRUARY

7-10, ***Weed Science Society of America Annual Meeting***. *Honolulu, Hawaii. More details visit http://www.wssa.net/.*

15-17, ***Mississippi Crop College*** (*formally Mississippi Professional Continuing Education Workshop). Mississippi State University,* Bost Extension Center. On the 15th will be Soybean Short Course. To register please visit www.maicms.org. For additional information contact Emily Rose at (662) 325-2701.

16-17, ***Louisiana Agricultural Technology and Management Conference***, Best Western Conference Center, MacArthur Drive, Alexandria, LA. Contact glpblues@bellsouth.net or log onto www.laagcon.org.

19-21, ***MS Seedsmen's Association Winter Meeting***, Grand Convention Center, Tunica, MS. Contact Richard Taylor at msseed@techinfo.com for additional information.

24-26, ***Commodity Classic***, Austin, TX. For more details please visit www.commodityclassic.com.

MARCH

17-18, ***South Mississippi Spring Grazing School***, Mississippi State University White Sands Beef Cattle Research Unit near Poplarville, MS. For further information and registration forms, please contact your local county extension office or Dr. Richard Watson, (662) 325-5463, rwatson@pss.msstat.edu.

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