

Agronomy Notes

JUNE 2005

Charlotte Simmons Aultman retires after 26 years of service

Charlotte Simmons Aultman will retire June 30, 2005, after twenty-six years of service. Charlotte joined Mississippi State University and the Extension Service in 1979 serving as department head secretary for Dr. Kelton Anderson in the Agronomy Department. In 1992, the Agronomy department merged with horticulture and was moved to Plant and Soil Sciences in Dorman Hall where Charlotte held the position of Staff Assistant under Dr. Will McCarty. In 2003, Charlotte was promoted to Executive Secretary for the Plant and Soil Sciences department head, Dr. Michael Collins.

hard working, and gracious.

On Friday, June 17, 2005, we will honor Charlotte with a retirement reception from 2:00 to 4:00 p.m. at the Mitchell Memorial Library in the John Grisham Room at Mississippi State University.

Please join us on June 17th to recognize Charlotte's twenty-six years of service to Mississippi State University and the Extension Service.

Mrs. Charlotte, we will miss you and your friendly personality. Happy retirement and best wishes, the Department of Plant and Soil Sciences.

Inside this issue:

Weed Control	2
Irrigation	2
Soybeans	3
Cotton	5
Corn and Grain Sorghum	6

Charlotte has been involved with various aspects of the University and the Extension Service, working with Cotton, Soybeans, Corn, the Certified Crop Adviser Board and the Mississippi Soybean Association Board, just to mention a few. She has always provided competent friendly service to our clientele in the state as well as the industry.

During Charlotte's twenty-six years of service she has been dedicated,

Weed Control Update

By Dr. John Byrd

This year prices for both DF and Liquid formulations of Velpar will be reduced to match last year prices. I'm not going to quote the figure DuPont stated, but it will be a significant reduction compared to years past. This is especially helpful for producers that have smutgrass problems. The downside of Velpar treatment is the 60 day grazing and haying restriction. Earlier this year DuPont asked EPA to shorten the restriction to 30 days (in the early 1990's it was 37 days when we had a 24C label to use it for smutgrass). EPA said each state would have to review the entire data packet and make that decision. MDAC, like many other southern states, does not have adequate numbers of personnel to review the packet, so most will rely on the review done by the Florida Department of Agriculture. However, it will be next use season before the review is completed and a decision is reached. So, for this season, producers will face a 60 day grazing and haying restriction where Velpar is applied. While Velpar is the topic of discussion, we will repeat a study this summer to look at knotroot foxtail control in bermudagrass forages. Velpar alone or combined with several other treatments pro-

vided excellent foxtail control in a study we conducted last summer.

We've also got a study to evaluate treatments for bulrush (some people call it watergrass) control. I looked at the treatments one month after initial applications had been made and saw nothing that looked very exciting. Several of the treatments get sequential applications, so I'm hopeful improved control will be seen at later evaluation dates.

Dow is pushing Surmount and PastureGard hard this summer. Both looked excellent in our studies last summer. Surmount will be more expensive than Grazon P+D and PastureGard will be more expensive than Crossbow, but less than half the cost of Remedy. However, neither product contains 2,4-D so off target movement and damage to adjacent crops will be less likely with the new products than with the old standbys.

EPA has not acted on the section 18 for Maverick on bermudagrass to control johnsongrass.

Early Irrigation of Soybeans

By Jim Thomas

Recent hot weather and the lack of a much needed rainfall event have raised questions by many growers about irrigation of small soybeans. There are many concerns about scorching, stunting, killing beans at this stage that haunt growers and make them hesitant about irrigating at such an early stage. The key to an early irrigation is that it needs to be quick, 24 hours or less, and it needs to be done before the soybeans are stressed really badly. With furrow irrigation, border irrigation or sprinklers

it is not a question of re-filling a profile as much as it is giving a young tender plant without an expansive root system a quick drink of water. Growth and canopy are very important with the weed control programs used today. Keeping a plant in a good growing condition promotes canopy closure earlier or may even help it close versus not having plants large enough to lap and close a canopy. It also helps set the earlier blooms and blooming nodes a little higher on

Continued on page 3

the plant, which makes them more harvestable at the end of the season.

Early irrigation on small beans, providing water is not held too long or beans were not stressed severely when the irrigation started, has resulted in rapid growth in just a few days. After that, most small plants will root into the deeper moisture and additional irrigation will not be needed for 2-3 weeks. The key is starting before severe stress occurs and getting irrigation on and off the field in 24 hours or less, preferably 12 hours if possible. Large volumes should be used to accomplish this; slow run times do offer the opportunity for scald or even drowning in some fields. If soybeans are stressed severely then there will probably be some areas that die out from charcoal rot or Phytophthora, even if this occurs, good irrigation at the proper time after that on a good schedule will help overcome any areas that may have been weakened due to death or disease in the plant.

Heavy rains, should they occur, followed by hot weather will probably have the same end result as a good irrigation. If drainage is taken care of, I do not hesitate to water small plants (2-3 inch plants) as long as the water can be removed quickly.

Keep in mind when making these early irrigations, the soil profile is not completely dry, and water will move through the field faster than it will when the beans get larger and the profile is depleted more. As the beans get larger and canopy, water use will also increase and demand will peak at about 0.25 inches per day. This is the target that growers should try to meet in season with irrigation for a return cycle using about 1.5-2 inches out of the profile between irrigations.

Major concern: Keep soybeans in a good growing environment at all times!

Soybeans

By Dr. Alan Blaine

Over the last several weeks I have attempted to clear the air about some issues. However, some of the things circulating regarding what needs to be done this growing season is totally off track.

You may be hearing that you should spray at R1. This is only true if rust is found early. If you want zero risk, this is the time that the majority of the spray programs begin in Brazil, therefore, this would be a potential starting point for us. However, in the absence of rust, it is premature.

A second spray would occur about 21 days later, which is the R3 growth stage. R1 represents first bloom and R3 is when developing

Pods are 1/4 to 3/16 of an inch in length. For those who have been around a while you may recall that R3 and R5 are the two timings we used when applying Benlate fungicide years ago.

Current research has shown no yield benefits from spraying fungicides prior to R1. While no one has really addressed it in any detail it is very understandable why this has been observed. When the plant begins blooming, its physiology changes. As fruiting structures begin to form, nutrients move from the leaves to developing pods. Most diseases do not express themselves until after R1 and rust appears to be no different.

Continued on page 4

There are three basic choices for rust: the triazoles, the strobilurins and mixes of the two. Keep in mind that rust is big business. Not doing your homework and getting caught up in the heat of the situation can get you in your pocketbook.

Not all materials are created equal. If you or your growers have questions, ask them. As I have stated before there is no such thing as a dumb question.

The triazoles are primarily curative. They can be used before rust is present or after it shows up. In addition, to the triazoles you can use a copack/premix to broaden the spectrum.

Our control guide breaks down the various spray options based on stage of growth and whether or not rust is present. I still contend that, if rust is not found, an R1 spray is premature. I do not consider that a risk but you may feel differently.

If you are being told that a triazole is all you need for your entire program, find someone else to listen to. I would (in a 2 shot program) consider a triazole followed by a copack/premix or a copack/premix twice. The main reasons to look at the mixes are cost and they are broad spectrum. We are hearing \$12 to \$14 for a copack/premix.

You must remember that the greatest yield increases have come from a Quadris based program applied at R3. We do not expect the triazoles to control other diseases like the strobilurins.

We currently have ranked the triazoles as follows: Folicur > Laredo = Domark > Tilt, Propimax or Bumper. These rankings are based on other countries' data but we feel we are on target based on current information. Some recent data has shown a significant increase in performance when adding 1% oil versus ½% oil or

a ¼% NIS to Quadris, Quilt, and Tilt.

Although Tilt is not the most efficacious triazole, it can do the job under heavy pressure. Based on this data we will be recommending adding 1% oil to these three materials. Oils could also increase the efficacy of other materials. In addition, they are often more consistent since surfactants are so variable. However, I expect that individual products will be making specific adjuvant recommendations in the near future.

Quadris and Headline should be fairly close in performance. The difference will be on certain other diseases, not rust. The strobilurin in Stratego does not appear to be as broad spectrum on other diseases but increasing the rate from 7 to 10 ozs. could change that scenario.

The biggest concern about the copacks/premixes is that they are mixed at rates lower than recommended when using either product alone. We will learn more in the future but the various companies contend that these are the rates being used to control rust in other countries. As we have observed numerous times when you mix various chemistries they appear to work better mixed than when applied alone. Just for comparison:

Quilt at 14 ozs. has 4 ozs. of Quadris + 4 ozs. of Tilt -

Headline SBR at 7.8 ozs has 4.7 ozs. of Headline and 3.1 ozs. of Folicur.

The use rate for both of these strobilurins (Quadris/Headline) is approximately 6.0 ozs. In the last several years we have done a good job with reduced rates of Quadris but we were not sure about these rates being adequate for rust. The companies representing these two products have assured us the ratio in these copacks/premixes is adequate.

Continued on page 5

It may take a full rate of a triazole to slow rust once it occurs but we feel the mix is adequate the residual will just be shortened. From a resistance management standpoint there are numerous options. Avoid spraying one chemistry back to back; applying a copack/premix twice does not cause a concern because you are using two different chemistries each application.

The cost of the copacks/premixes has really gotten our attention because we have become comfortable using reduced rates of Quadris as most of you are. Spending the same amount of money on a strobilurin plus getting a triazole thrown in for the same price is worth looking at for sure.

Many have asked how we see Chlorothalonil fitting in to the rust picture. It is a less costly option but has neither curative nor preventative

properties. It is what we refer to as a protectant. Its residual will be 7 to 14 days so repeated applications will be required. One company we spoke with is recommending that Chlorothalonil be used from V5 to R1. If you recall I stated earlier that consistent yield increases have not been obtained when spraying prior to R1, so why spray earlier? I feel that due to the short residual and the suggested use timeframe it will not garner wide scale use even given the price. However, we will be looking at it and it may play a role in the future from a resistance management standpoint and by possibly aiding in lowering the inoculum potential.

I hope these points have helped shed some light on this subject. If you have additional questions, please give us a call. As we learn more and as additional products become available, recommendations will be updated.

Cotton

By Dr. Tom Barber

The major problems that have occurred with cotton so far have been related to the slow start. The cooler temperatures early and the current moisture problems have resulted in cotton remaining in the seedling stages for several weeks. The slow start has also used up most of the seed treatments and one to two Thrips applications have been made on most of the Mississippi crop. These dry conditions have also led to scattered problems with Spider Mites. I have seen several fields in the south delta that have had high enough populations to warrant sprays. In some fields the Spider Mite injury is severe enough that seedling disease has taken over and killed plants in spots.

What about irrigating pre-square cotton? Normally this is not a common practice and for the most part water requirements for pre-squaring

cotton are low. In fact the deeper moisture will allow for a better root system. The majority of root growth will occur within the first forty days after emergence. There is still moisture present in the bed, it is just deeper than we would like especially to get a stand after replanting. However for the cotton that is up the roots will grow down with the moisture which will provide good root systems for the critical boll fill period. Irrigating this cotton that is cotyledon to 5 leaf will be expensive and time consuming. The benefit will be a quicker grow off time to squaring and improved nitrogen uptake. The downside will be weed flushes that emerge after the cotton is passed the Roundup restriction and the costs associated with watering with little returns. For the most part the cotton will be fine as long as the roots are growing down to the moisture. If

Continued on page 6

we receive no rainfall and the moisture drops below the root zone, irrigation will be needed for growth and development.

What about watering cotton to a stand? This practice is very risky especially if furrow irrigation is used. Yes, you can water cotton up with furrow irrigation. However, it is not a common practice and you must run the water long enough to insure that the top of the beds are fully saturated with enough water to germinate the seeds. If the water is cut off too soon, then the seeds may simply swell and die. The optimal practice for planting with low moisture and furrow irrigation is to irrigate the field before

planting, knock the beds down to the moisture and plant into good moisture. This procedure may lead to planting later, but will insure a better stand.

A little rainfall will solve a lot of our problems for us. Remember rain or irrigation may lead to weed flushes after the five leaf stage. Dual (metolachlor) applied at this time will give you extended control if a rain or irrigation occurs by squaring. This will give you an advantage over grasses and pigweeds. For other broadleaves, Envoke or Staple can be used over the top if the glyphosate restriction has been reached.

Corn and Grain Sorghum

By Dr. Erick Larson

CORN

Irrigation needs - Corn's most critical and largest moisture requirement occurs during a four week period following tasseling, which should occur during June through mid-July for most of Mississippi's crop. Potential corn yield can be reduced to 4 - 8 percent per day due to water deficit during this period. Thus, insufficient irrigation water and/or slight delays can quickly reduce yield potential and evaporate profitability. Corn plants use about 1.50-1.75 inches of water per week during peak water use, so producers nearly always must supplement rainfall with irrigation to meet crop demand during this extremely critical period. Therefore, growers using irrigation should begin incrementally meeting crop demand before irrigation system capacity cannot replenish soil moisture, especially with center pivot irrigation systems.

Will irrigation or rainfall hurt pollination?
Corn possesses a vast overabundance of pollen

and several traits, which make the pollination process relatively immune to overhead irrigation or rainfall disturbance. Corn produces a huge overabundance of pollen grains (more than 4000 pollen grains per silk). Physical disturbance caused by overhead irrigation occurs over a very short time period in relation to corn pollination capacity. Pollen shed normally lasts 5 to 8 days, during which pollination may occur at any time. Corn plants also have an innate ability to stop pollen shed when the tassel is too wet or dry and trigger pollen shed when conditions are favorable. Additionally, silks are quite sticky, which makes pollen grains hard to wash off after they land on a silk. Thus, the physical disturbance caused by rainfall or overhead irrigation will not reduce corn pollination in a normal field environment.

Mid-season supplemental nitrogen: Dry weather during the last 40 days has restricted mid-season nitrogen loss problems, like what has occurred the previous two years, until this

Continued on page 7

point. Thus, although the need for additional nitrogen fertilizer generally looks minimal now, I will mention some suggestions about this subject. Mid-season supplemental nitrogen should be applied one to two weeks prior to tassel (or heading for sorghum) for optimum crop utilization and grain yield response. Nitrogen should not be applied to saturated soils. Granular ammonium nitrate is generally the preferred nitrogen source for mid-season application because it is not subject to volatilize, compared to urea. Urea volatility can be substantial when temperatures are warm and rapid evaporation occurs. However, urease inhibitors on urea fertilizer may reduce volatility. Granular nitrogen fertilizer sources will burn plant leaf tissue where granules lodge in the whorl. Thus, application should be limited to around 200 lbs. of fertilizer per acre if the corn is less than three feet tall or 100-150 lbs. per acre if the corn exceeds three feet tall.

Foliar nitrogen sources - University research generally indicates little or no corn yield response to foliar nitrogen fertilizer sources. Many foliar nitrogen sources only supply 2 to 5 pounds of nitrogen per acre, which may limit corn or sorghum response, since that is a minimal proportion of nitrogen needs. Thus, granular nitrogen sources are generally suggested when mid-season nitrogen supplementation is warranted.

Scouting Needs - You don't have to be a corn specialist to effectively scout corn, but you should continue walking fields, closely looking for problems, so that appropriate management decisions may be addressed throughout the entire growing season. Producers with irrigation capacity should monitor soil moisture status nearly daily during the sensitive early reproductive period. Scouting should also reveal fertility deficiencies and prevalent weed competition problems. Weed problems can often be suppressed by applying various timely layby treat-

ments, if you have equipment capable of applying directed sprays. Leaf blights were quite prevalent last year, and could pose problems again, if abundant rainfall returns. The second generation of corn borers will occur late this month. Also, monitor fields for postemergence herbicide injury and drift.

Grain Sorghum

Irrigation timing - Grain sorghum is very drought-tolerant. However, it will respond positively to supplemental irrigation during droughty conditions. These characteristics make grain sorghum well suited for limited irrigation. Grain sorghum is most dependent upon moisture around the boot stage. The boot stage is characterized by the head swelling inside the flag leaf sheath, immediately prior to heading. Grain sorghum water use is maximized from rapid vegetative growth stages through the soft dough stage. Water use during this time typically peaks at about 1.5 inches per week and rapidly declines after the soft dough stage. Therefore, a furrow-irrigation application just prior to the boot stage, followed by another at bloom (if needed) should provide nearly the entire yield potential of full irrigation. Center-pivot irrigation systems typically require several applications since total water application is limited (compared to furrow irrigation) by runoff potential.

This issue of Agronomy Notes was edited by Emily Dabney.

Calendar of Events

JUNE

3-4 Mississippi Cattlemen's Association Summer Conference, Eola Hotel, Natchez, Mississippi. For more information contact missca1@bellsouth.net.

17 Charlotte Simmons Aultman Retirement Reception, Mitchell Memorial Library, John Grisham Room, Mississippi State University, 2:00 to 4:00 p.m. For additional information, contact Emily Rose (662) 325-2701.

JULY

9 Mississippi Boll Weevil Management Annual Meeting, Holmes Community College Forum, Grenada, MS, 10:00 a.m. For more information contact Jeannine Smith (662) 325-2993 or email msbwmc@ext.msstate.edu.

20 Cotton Field Day, Delta Research and Extension Center, Stoneville, Mississippi, 8 a.m.-noon. For more information contact Dr. James Smith (662) 686-9311.

21 Rice/Soybean Field Day, Delta Research and Extension Center, Stoneville, Mississippi, 8 a.m.-noon. For more information contact Dr. James Smith (662) 686-9311.

27-30 Mississippi Agricultural Industry Council and the Mississippi Seedsmen's Association Annual Summer Meeting, Orange Beach, AL. For more information contact Tracy Gregory (662) 325-3992 or visit MAIC's website at www.maicms.org.

AUGUST

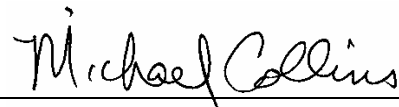
4 Agronomic Practices Research and Demonstration Tour for Cotton, Soybeans, Corn and Sweet Potatoes, Pontotoc Ridge Flatwoods Branch Experiment Station, Pontotoc, MS, 7:30 a.m. For more information contact Dr. Mark Shankle (662) 566-2201.

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Dr. Michael Collins

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