June 2006

Mississippi State University Extension Service

Agronomy Notes

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Soybeans
By Dr. Alan Blaine

This crop has experienced several extremes and we have yet to get very far into June. Early on it was wet, followed by cold, and then wet again. No one would have imagined they would be hollering for rain in less than a week after the big rains fell in mid-May.

Due to these extremes (stresses) some fields have shifted into the reproductive stage. Remember, the plants sole purpose in life is to make a seed. Stressed plants will bloom early because this is a survival mechanism. However, that does not mean they are through growing vegetatively.

The following comments are taken from an article in the Delta Farm Press written by Dr. Larry Heatherly, retired ARS Agronomist. Dr. Heatherly has summarized years of field notes regarding plant growth and development. I believe that after you read his comments, you will have a better appreciation for what you are observing in the field.

Flowering and Stem Termination in Soybeans

Planting soybeans early in the midsouthern USA raises concerns about both early flowering in indeterminate varieties and attaining sufficient height in determinate varieties for effective canopy formation and harvesting.

Early planting of soybeans will result in shorter plants regardless of maturity group (MG), variety, or stem type. Expected changes in soybean plant stature after R1 (beginning bloom) can affect choice of planting date, MG, row spacing, seeding rate, and management options.

Soybean varieties planted in late March and early April will take 10 to 14 days to emerge. Indeterminate MG IV varieties planted in this timeframe begin blooming about 40 to 45 days after planting. Thus, flowering of indeterminate varieties may begin within a month after emergence. Determinate MG V varieties begin blooming about 60 days after planting.

Soybean varieties planted from mid-April to early May will take 7 to10 days to emerge. MG IV varieties planted during this time begin blooming about 35 to 40 days after planting. Again, flowering of indeterminate varieties may begin a month after emergence. MG V varieties begin blooming about 52 to 55 days after planting.

Research conducted in the early 1970s in Kentucky compared MG IV varieties with similar maturity but different stem growth habits (indeterminate and determinate) for height and node production. The results indicated that a determinate variety reached more than 80% of its final height and produced more than 90% of its final node number by R1. In contrast, an indeterminate variety reached less than 50% of its final height and produced less than 60% of its final node number by R1. These results have been used to establish an expectation that all determinate varieties increase height very little after R1.

A recent study conducted in the central midsouthern USA using rows spaced 20 inches apart resulted in two main findings.

1) In early April plantings of indeterminate MG IV varieties, average height (6 inches) at R1 was 21% of the average height (29 inches) at stem termination. Plants added an average 10.5 nodes between R1 and stem termination (5.5 to 16). In early May plantings of MG IV varieties, average R1 height (9 inches)

was 24% of the 37-inch average height at stem termination. Plants again added an average 10.5 nodes (7.5 to 18) between R1 and stem termination.

2) In early April plantings of MG V determinate varieties, plants averaged 65% as tall at R1 (15.5 inches) as at stem termination (24 inches). Plants added an average 3 nodes between R1 and stem termination. In early May plantings of MG V varieties, R1 average height (19.5 inches) was 64% of the 30.5-inch average height at stem termination. An average 4 additional nodes were added between R1 and stem termination. Canopy closure of MG V varieties grown in 20-inch-wide rows had not been achieved at R1 regardless of planting date.

The above findings lead to two conclusions. 1) Indeterminate varieties grown in the midsouthern US will be short at R1, but should average at least a fourfold increase in height from beginning bloom to stem termination and more than double at-flowering number of nodes. 2) Determinate varieties grown in the midsouthern US should increase height by at least 50% from beginning bloom to stem termination and increase number of nodes by at least 3. These growth increases in determinate varieties result in canopy closure by stem termination time regardless of planting date.

We are continuing to monitor the state for soybean rust. Our sentinel plots are all in the reproductive stage and in addition we are looking at kudzu and other production fields. Reports indicate that urediniospore production in areas where it overwintered is still very low. At this time there is no rust in Mississippi or on soybeans anywhere in the continental United States. The following are reports from Alabama and Mexico:

- May 23, 2006: As of May 18, soybean rust has not been found in any sentinel plots, including the 22 sentinel plots in Alabama—a primary watch state for movement of disease causing spores. "So far the disease hasn't even moved in the kudzu patches that we are monitoring," notes Auburn University Plant Pathologist Ed Sikora. On May 18, Sikora checked kudzu patches and found only seven lesions in five patches. Soybean rust over-wintered in kudzu as far north as Montgomery, Ala., but the Auburn Scientist says as of mid-May the virus just hasn't moved at all. ***Farm Press Editorial Staff.***

"To access Louisiana and Mississippi up-dates dial 1-800-516-0865".

- May 30, 2006: A bout of Asian soybean rust left more than 20 soybean seed growers near Tampico, Mexico unexpectedly dealing with the disease. About 320 hectares, or 650 acres, were affected, resulting in defoliation and potential large yield losses. ASR infections began in January but became increasingly noticeable in March and April. "It caught these particular growers by surprise, and it hit them pretty hard," says Dr. Marty Wiglesworth, Syngenta technical brand manager, fungicides." ***The Corn and Soybean Digest.***

As an additional service, e-mail updates are available regarding rust as well as a 1-800 number for up-dates in Louisiana and Mississippi.

Growers interested in Asian Soybean Rust e-mail alerts should log on to http://www.sbrusa.net/. At the top right hand corner of the web page, there is a link that you can click on with your mouse called "Sign Up For Alerts" in red text. Click on this link and a dialog box will appear. In this box, you will need to fill in your e-mail address and regio n in which you are interested. If you are interested in all areas, you will need to sign up for the "National" region. This will provide you with alerts for other areas of the country. Alerts will be sent to the e-mail account that was provided.

Growers will receive an email alert once a county has a positive confirmation of Asian Soybean Rust. This alert will say that a county has been turned red or red checked. Red means that a positive confirmation of Asian Soybean Rust has been made in that county. Red checked means that a positive confirmation of Asian Soybean Rust has been made in that county and has been destroyed to prevent the further production of inoculum. The grower will need to return to http://www.sbrusa.net/ to get further information on the positive detection.

In addition, you will now be able to obtain state up-dates for Louisiana and Mississippi concerning ASR. This will be available June 1, 2006. This 1-800 number allows you to obtain the latest information of where ASR is environmental conditions, and management options. To access Louisiana and Mississippi up-dates dial **1-800-516-0865.**

PEANUTS
By Mr. Mike Howell

Peanut acreage in the state will increase this year from 15,000 to 20,000 acres. This is the fifth consecutive year we have seen an increase in acres in the state. At this time, most of the peanuts have been planted and are emerging. The season has gotten off to a shaky start. South Mississippi received little to no rainfall from mid February until the first of May. This delayed some early plantings in the area. The northern portion of the state began planting as early as April 20. These peanuts have been delayed in development by temperatures in the 40s and 50s, and some fields were damaged by hail storms. At this time, I am not overly concerned with these delays. Ideal planting dates for peanuts is mid May, and we still have a long season to make up for any delays.

The main focus for growers at this time should be weed control. Data has shown that the first six weeks are the most critical in terms of yield reduction. Weeds that emerge after this time can lead to harvest difficulties and grade problems, but seldom affect the yield. Keep fields clean for the first six weeks, and try to terminate any weed control applications before peanuts start to bloom.

When peanuts reach 60 days of age, it is time to begin fungicide applications for leaf diseases. These applications need to go out in a timely manner every 14 days. Several growers have asked about reducing or eliminating fungicide applications, especially on new peanut ground. If this is the first year that peanuts have been grown in an area, and there have been no soybeans in the area, this may work. If a grower decides to try to reduce fungicide applications, I strongly recommend that somebody check these fields at least once a week. Also, pay special attention to the weather forecast. If conditions become favorable for disease development, and it has been more than 10-12 days since a fungicide application has been made, I would recommend making an application. I do think that there is a possibility of reducing the number of fungicide application in certain conditions. However, we simply don't have the data needed to make these determinations at this time. I want to encourage growers to ask themselves if the reward outweighs the risk before making the decision to not make a fungicide application.

Corn and Grain Sorghum
By Dr. Erick Larson

Fungicides on corn? There is more interest in using fungicides on corn this season. Mississippi growers often use fungicides on soybeans and wheat, but have rarely used fungicides in the past on field corn. Obviously, timely fungicide application can help preserve corn yield potential or production fields when foliar disease threatens to reduce yield. However, I believe there is less likelihood of a profitable response to fungicide application on corn at a predetermined growth stage, such as tasseling/ silking, compared to soybeans or wheat grown in our region. During the last 11 years in Mississippi, only two years produced substantial corn foliar disease problems – Common rust in 1997 and Northern and Southern corn leaf blight in 2004. Thus, foliar corn diseases have not been consistently prevalent in our state. Our routine rotation of corn with other crops likely reduces likelihood of many foliar diseases which survive on corn residue, such as Northern and Southern leaf blight, Gray leaf spot, and Anthracnose, compared to the southern corn belt, where continuous corn, reduced tillage systems and these diseases are common. Furthermore, corn grain yield can be limited by stress over a much longer period than what a single fungicide application can provide protection. Accordingly, proper fungicide application timing largely determines the magnitude of crop response. During the seasons mentioned above, fungicide application at tasseling would have had little effect on disease development in either case, because the disease developed prior to tassel in 1997, or well after tassel (20-35 days) in 2004. Another threatening foliar disease, Southern rust,

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has only typically developed very near the end of the corn growing season (50-60 days after tassel) in late July or August. Therefore, corn yield losses from Southern rust have been minimal. This suggests growers should scout corn fields for disease development throughout the season and make a timely fungicide application when disease first appears and environmental conditions threaten disease outbreak, rather than betting on disease development at a finite growth stage. Additionally, unlike Soybean rust, corn leaf diseases are generally quite visible, making scouting more practical.

Why is the corn tasseling early? Corn is maturing somewhat earlier than normal this year. This is primarily due to warmer than normal temperatures during April and late May. Mississippi growers also planted over 92% of the corn crop before April 16. The warm, dry weather prevalent during most of April promoted corn establishment and early growth. Thus, our corn crop didn't experience many of the typical early season problems associated with slow growth, underdeveloped root systems and nutrient deficiencies. This, combined with high temperatures during late May, has promoted early tasseling.

Crunch time for irrigation Corn's most critical and largest moisture requirement occurs during a four week period following tasseling, which will occur during June through mid-July for most of Mississippi's crop. Potential corn yield can be reduced up 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 almost 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.

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 and timely management decisions may be addressed throughout the entire growing season. The magnitude of crop response to many in-season inputs, such as irrigation, fertilizer, and pesticide applications is very dependent upon timing – and scouting can help vastly improve the timing of these inputs. 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. The second generation of corn borers will also 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. Water use 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.

Rice
By Dr. Nathan Buehring

This year we had a lot rice planted at the same time, which will come into play at harvest time. Some rice will be a little greener when you begin harvesting and a little drier when you finish harvesting. Managing a harvest schedule at the end of the growing season will be somewhat tricky to say the least. If you have a bunch of rice ready to harvest at the same time, the question would be where do I start. First, look at your varieties or hybrids that you have ready because this is how I would determine where to start. I would begin harvesting any of the hybrids first. They tend to have better milling yields when they are cut a little greener and dried in the bin. Next, I would cut varieties such as Wells and Priscilla, which also need to be cut a little greener. The last varieties on the list to harvest in order would be Cocodrie, Cheniere, CL 161 and Cl 131. These last varieties can stand to get somewhat drier than others without affecting milling yields.

Growers also have been interested in using sodium chlorate to desicate and dry rice. Sodium chlorate can be beneficial to increase harvesting efficiency on varieties that have a lot of green foliage and to dry high moisture rice in the field. However, there are some keys to being successful when using sodium chlorate: 1) apply sodium chlorate when rice grain is near 25% moisture and 2) harvest within seven days after application or before rice moisture drops below 15%. Rice will need to be harvested in a timely manner following a sodium chlorate application to prevent any reduction in head rice yields; therefore, do not get ahead of your combine capacity. Once rice moisture drops below 15%, rice is subject to rewetting and drying cycles caused by rain or heavy dews, which reduces head rice yields. Sodium chlorate can be an effective tool to assist producers through the harvest season. Producers should exercise caution when using sodium chlorate, especially in unsettling weather patterns, as we have seen this year.

Post-harvest management is a requirement for maximum milling yields. The following are tips to maximize milling yields: 1) avoid leaving high moisture (18-20%) rice on trucks or in combines for more than 24 hrs and low moisture (16-18%) for more than 48 hrs, 2) avoid using high heat (> 90°) and high volumes of air to dry high moisture rice (set temperature to 85 to 90° for rice that is above 15% moisture) 3) avoid placing rice with a moisture difference of 3% in the same bin, 4) avoid placing high moisture rice on top of low moisture rice in the bin. Keeping these key things in mind can result in a high quality crop.

Cotton
By Dr. Tom Barber

According to this week's crop condition report from the Mississippi Agriculture Statistics Service, approximately 11% of the Mississippi cotton crop is squaring. This is good considering the shape we were in a week or 2 weeks ago. The dryer, warmer weather has finally made the cotton look like cotton. I have been asked several questions about early season growth regulator (pix) applications. This year has been an extremely hard year on early season cotton. With the stresses from cool conditions, sand blasting, hail, etc. this cotton is still recovering. I would be extremely cautious in making growth regulator applications. Previous data from many years shows that applications made at the pin-head square stage are more likely to stunt the cotton and may result in premature cutout. Moisture supply, high nitrogen availability, and heat generally result in vigorous growth conditions in early season. Plant height may easily exceed 30 inches at bloom in some fields. Needless to say it is important to monitor plant growth and fruit retention in every field. Variety, history of vigorous growth, and the current moisture and crop condition are the major factors in helping to select the proper growth regulator program, or decide if it is needed at all.

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The more indeterminate type varieties such as DP 555 BGRR have historically responded better to pix when earlier low rate multiple applications of growth regulator are made. However, caution should still be used if the field has been dry for a long period of time and the plants are under stress. In fields that have caught rains and have a history of rank growth, early lower rate applications may be warranted. The safest bet on timing application is waiting about 14 days after first square or about 10 days prior to bloom.

I have been asked some questions regarding **Stance.** Stance is a new plant growth regulator that will be marketed in 2006. Stance is a mixture of mepiquat chloride (0.736 lb/gal) and cyclanilide (0.184 lb/gal). Cyclanilide is also the synergist that is mixed with ethephon in the defoliant Finish. Do not worry, Stance will not defoliate cotton, however, because Stance contains a higher percentage of mepiquat chloride with the synergist, the application rates will be different from other mepiquat products. The labeled rates of Stance are 2-3 oz/A. I have included a table with Stance height reduction data and comparisons with other products that I conducted last year. Most of these applications began at match head square. This is just 1 year of data; I do not have enough experience or data to make early season recommendations with Stance. It is crucial to understand the rate structure for early season applications because the correct rate is critical to prevent stunting or reduce probability of early cutout. I will not recommend applying Stance at pin head or match head square applications until I have more data on the rate structure for early season. However if you want to try Stance as an alternative, I would begin applications approximately a week to 10 days prior to bloom if the application is warranted. Last year no negative effect was noticed in my data, but again it is 1 years worth of data. I along with other colleagues at Mississippi State will continue to evaluate Stance to determine the best fit in Mississippi cotton production.

The table below contains 3 different timing methods: Match head square, followed by another application 14 days later, and followed by an application at early bloom. In this trial the 3 applications of Stance at 2 oz/A is comparable to 3 applications of Mepex or Pentia as far as height reduction. There were no significant differences in yield, therefore yield was not included.

Treatment	Rate		Growth Stage	Height (in) August
Untreated				52.125
Mepex	4	fl oz/a	Match Head	
	4	fl oz/a	14 Days Later	
	8	fl oz/a	Early Bloom	47.688
Mepex	8	fl oz/a	Match Head	
	8	fl oz/a	14 Days Later	
	16	fl oz/a	Early Bloom	43
Stance	2	fl oz/a	Match Head	
	2	fl oz/a	14 Days Later	
	2	fl oz/a	Early Bloom	43.25
Stance	2	fl oz/a	Match Head	
	3	fl oz/a	Early Bloom	44
Pentia	4	fl oz/a	Match Head	
	4	fl oz/a	14 Days Later	
	8	fl oz/a	Early Bloom	47.688
Pentia	8	fl oz/a	Match Head	
	8	fl oz/a	14 Days Later	
	16	fl oz/a	Early Bloom	44.313

Calendar of Events

June

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

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

26th-28th-Southern Conservation Systems Tillage Conference, Amarillo, TX, Fifth Season Inn. For additional information contact Normie Buehring at (662) 566-2201.

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

July

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

20th-DREC Crop Field Day, Stoneville, MS, Charles W. Capps Entrepreneurial Center. Registration will begin at 8:00 a.m. Lunch will be provided. There will be poster presentations and optional field tours after lunch. For additional information contact (662) 686-9311.

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

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

August

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

10th-North Mississippi Research and Extension Center Agronomy Row Crop Field Day, 8:00 a.m. For additional information contact Normie Buehring at (662) 566-2201.

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

To receive the Agronomy Notes via email please contact Emily Rose at (662) 325-2701 or at erose@pss.msstate.edu.

This issue of Agronomy Notes was edited by Kayla Mayo

Plant and Soil Sciences
Box 9555
Mississippi State, MS 39762
(662) 325-2701

Dr. Michael Collins
Department Head