

Mississippi Crop Situation

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This Weeks Planting Report

National Agriculture Statistics Services (Mississippi) Crop Progress for Week Ending 8/2/09

| Crop | This Week | Last Week | Last Year | 5- Year Average |
|------------------------|-----------|-----------|-----------|-----------------|
| Corn Dough | 98 | 96 | 99 | 97 |
| Corn Dent | 89 | 78 | 88 | 85 |
| Corn Mature | 19 | 6 | 33 | 34 |
| Cotton Squaring | 100 | 100 | 100 | 100 |
| Cotton Setting Bolls | 87 | 73 | 91 | 93 |
| Peanuts Pegging | 100 | 99 | 100 | -- |
| Rice Headed | 48 | 20 | 35 | 50 |
| Sorghum Heading | 98 | 81 | 91 | 96 |
| Sorghum Coloring | 23 | 15 | 51 | 48 |
| Soybeans Blooming | 98 | 91 | 96 | 98 |
| Soybeans Setting Pods | 86 | 72 | 84 | 89 |
| Soybeans Turning Color | 5 | 1 | 1 | 10 |

Soybean Rust Found In Holmes County on Soybeans

[Dr. Tom Allen](#)



Please read this through to its entirety. This is not intended to cause a panic. Yesterday (August 6, 2009), soybean rust was detected in two adjacent commercial soybean fields near Thornton, MS. This marks the first report of soybean rust in MS this season and the farthest north the disease has progressed in the U.S. to date. This was an irrigated field that had received an R3/R4 fungicide application and was presently at the R5.7 growth stage. Moreover, rust was detected underneath a power line in this particular field that likely did not receive fungicide during the application. Immediately across the road in a dryland field rust was additionally detected. In both locations incidence and severity was **VERY** low. However, the rust pustules were sporulating. Based on the level of infection in the sprayed field, under the power line, it is likely that the disease has been present in this particular location for about 4 weeks.

Following the conducive conditions that we have had over the past month this is not a surprise. At this point this is a **VERY** localized infection and rust has NOT been detected anywhere else in Holmes County or in Mississippi. Please continue reading for specific treatment suggestions which at this time are to NOT make a curative/preventive application.

There are a few comments I'd like to make about the detection of soybean rust at the field level. Firstly, you cannot detect rust by driving down the road. In some cases soybean rust will develop in a particular soybean field and be difficult to detect since it can be present at incredibly LOW levels. In addition, confirmation of the disease requires finding pustules on the underside of a soybean or kudzu leaf. Looking at symptoms on the upper leaf surface (as in the top photo) is NOT enough to confirm the presence of the disease. Uredinia, the pustule on the underside of the leaf, with urediniospores (spores) present can confirm the presence of the disease. In addition, field scouting for the disease must be done with a hand lens to identify the pustules on the underside of the leaf. Relying on the symptoms as observed by the naked eye is not enough to confirm the presence of soybean rust. In addition, please keep in mind that there are numerous other diseases in our production system that can look VERY similar at the field level. These include bacterial blight, downy mildew, cercospora blight (late-season cercospora), and septoria brown spot. If you have questions regarding whether or not what you are looking at is in fact soybean rust please do not hesitate to call.

Now, I'll try to answer a few of the most common questions:

What does a red county on the public website (www.sbrusa.net) map mean? When a county is turned red on the website this does **NOT** automatically trigger a fungicide application. A red county simply states that rust has been detected in a particular county. Several factors need to be considered to trigger a fungicide application including weather (past and present), local soybean growth stages, and the level of infection (the incidence and severity of the disease at that particular location). **ALL** of these particular factors will aid in determining the proper fungicide(s) to be used and whether or not they are necessary at all.

So what does this mean? As I said last week in the soybean rust update we knew that rust would turn up and was likely to be detected anywhere in the state. High temperatures (>90F) are not conducive for the development and spread of soybean rust. However, with nighttime temperatures in the low 70s the fungus can sporulate and cause disease. Essentially, at higher temperatures the disease will shut down during the day, require a period of time to start back up at night, but as temperatures increase throughout the day the fungus and disease will shut down and go dormant until more conducive conditions occur.

Where do we go from here? At this time, since this is the **ONLY** location where soybean rust has been detected there is NO fungicide suggestion. This particular producer is aware of the situation and has agreed to treat the field to reduce the level of local inoculum and likely prevent further spread throughout the Delta. Only time will tell when and where more rust will be detected. Be aware that we are out scouting today and will be throughout the weekend and early next week. Further detection of the disease may in fact change this suggestion.

Fungicide suggestions? There are absolutely NO fungicide suggestions at this time based on the fact that rust has been identified in a localized situation and has not been detected outside of Holmes County. However, for soybeans in this particular area (Holmes County near Thornton, MS) that were going to receive an R3/R4 fungicide application the products of choice would be a pre-mix (strobilurin/triazole) if the application has NOT already been made.

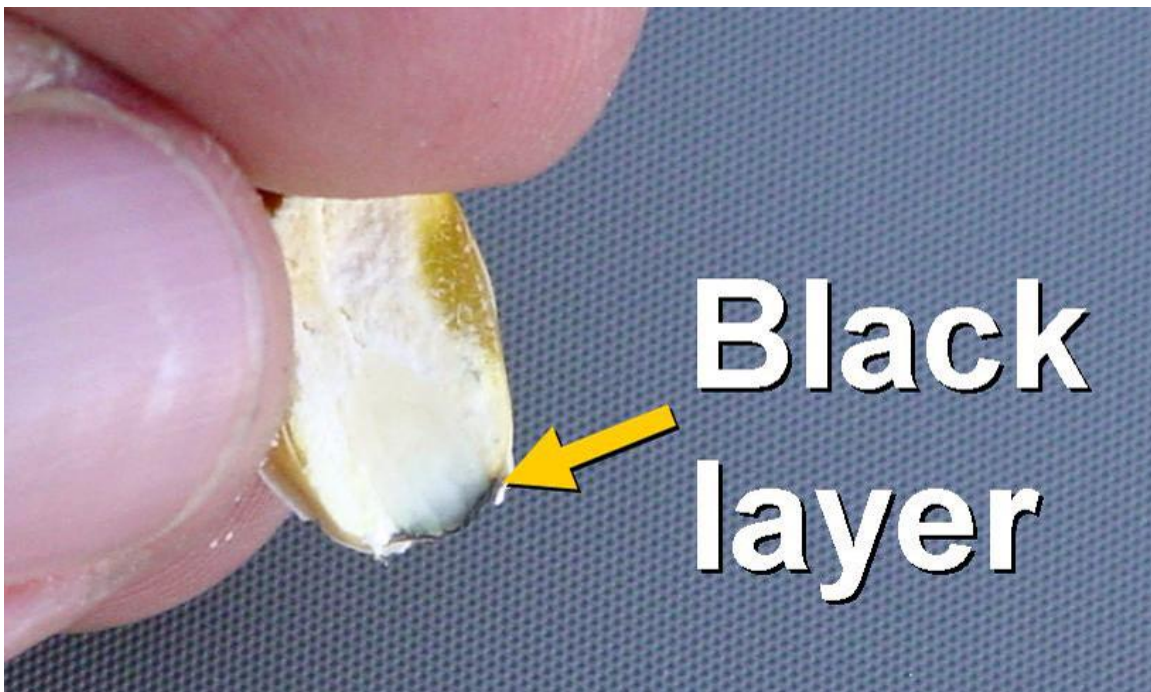
We will continue to update the Soybean Rust Hotline (1-866-641-1847) that has graciously been provided by the Mississippi Soybean Promotion Board and BASF as new information becomes available or if anything in particular changes. Please feel free to contact me with any specific questions or concerns (662-402-9995). Additionally, if you want to be added to my email update that is sent out regularly send me an email (tallen@drec.msstate.edu).

Corn Agronomics

Dr. Erick Larson

Field grain drying rate – Corn normally dries about 0.6% per day in Mississippi after it reaches physiological maturity or black layer (when grain moisture is around 30%) down to 15% moisture. The “black layer” is an abscission layer that effectively cuts off moisture and nutrient transfer between the plant and the grain. Thus, corn grain drying rate after physiological maturity is primarily dependent upon environmental conditions. Although recent rainfall and below average temperatures have kept many fields green, using a harvest aid to kill green corn leaf tissue will have little or no significant effect on grain drydown rate, since there is no longer any active moisture transfer between plant and grain, and husks senescence (naturally die) near physiological maturity. Some plant characteristics, including husk coverage/thickness/tightness and ear orientation may influence drying rate, but these characteristics generally are less important than weather conditions. Given normal environmental conditions, corn should dry faster than normal at high moisture and slow as grain moisture evaporates and becomes closer to equilibrium with the environment. However, when rainfall persists, along with cloudy days, high humidity and low temperatures, grain drydown will slow considerably or be suspended, much like last August and early September. Late-maturing corn will likely dry slower than normal also, because temperatures are usually cooler. In summary, there is little you can do now to effect corn grain drying rate in the field.

Figure 1. A cross-section of a physiological mature corn kernel showing the “black-layer.” After the black layer forms, grain drying rate is dependent mostly upon environmental conditions. Frequent rainfall, low temperatures, and high humidity will slow grain drydown considerably, compared to normal Mississippi August weather.



Aflatoxin tips – Aflatoxin is a wildcard that can substantially complicate harvest timing and grain management. If aflatoxin is present during harvest, there are several things you can do to reduce the threat of a problem.

Aflatoxin is a naturally occurring chemical by-product from *Aspergillus* fungi, which commonly infect corn. However, fungal presence does not necessarily mean aflatoxin will develop. Historically, aflatoxin contamination is most likely to occur during seasons with extreme drought stress in dryland fields. Therefore, if you suspect any problems, harvest visibly drought-stressed, stunted or damaged areas and field edges separately from good areas or irrigated corn.

You should also be keenly aware that aflatoxin can develop either in the field and/or storage. I believe many problems encountered last season were likely related to harvest of high moisture corn, resulting from slow drydown during last August's rainy weather. Problems can quickly develop when harvesting high moisture corn because 18-20% grain moisture accompanied by warm temperatures (80-90 deg F) are ideal for aflatoxin development. Thus, aflatoxin level can escalate very quickly during the harvesting, handling and delivery stages when grain is being transferred to storage before it is thoroughly dried and aerated. If you are hauling high moisture corn directly to an elevator, deliver it absolutely as quickly as possible for the reasons noted above. Do not store grain in trucks, combines, bins, or any non-aerated site for more than 4 to 6 hours.

These same precautions should be followed if you intend to dry it on farm. Corn should be dried to less than 15% moisture with 24 hours after harvest. High capacity continuous flow driers are generally capable of immediately drying corn to 15 percent moisture or less, but the corn should also be cooled thereafter as well. Fungal growth and subsequent aflatoxin development is dormant when grain moisture drops to about 12 percent, especially when grain temperatures decline to around 55°F, so this should be your goal for long-term storage (through the fall-winter).

Drying grain using in-bin systems are considerably more challenging because of the inherent drying limitations of these systems. These systems rely on air flow through a large grain mass to slowly dry grain as it reaches equilibrium with the air. Therefore, in order to dry grain within the necessary constraints previously noted, you must normally minimize grain depth (commonly 3-6 feet deep) to quickly dry high-moisture corn. As grain depth increases, static pressure against the fan increases, decreasing air output and grain drying capability. Supplemental heat and use of stirring devices will assist drying but cannot overcome air flow limitation that extends drying time in deep-layered grain. Producers should also thoroughly sanitize all handling and storage facilities before and during harvest.

We have limited experience with storing corn in poly bags, particularly related to aflatoxin contamination, so producers should utilize considerable caution and sound grain storage principles with these systems.

Fungal infection is more likely in underdeveloped, shriveled, cracked kernels and foreign material. Also, the percentage of kernels generally contaminated by aflatoxin is very small. Thus, grain quality may be significantly improved by removing these potential sources of contamination from your grain. You should carefully adjust, monitor and operate your combine so that it not only threshes, but also effectively cleans grain while minimizing kernel damage. Cleaning small grain particles and foreign material from the grain is very dependent upon proper sieve and fan settings. A post-harvest mechanical cleaner or gravity separator may also help clean contamination sources from your grain. Combine efficiency is best when ground speed is sufficient to keep the machine full, without overloading. Excessive cylinder or rotor speed is the leading cause of kernel damage during combine harvest. Kernel damage during harvest and handling should be avoided because fungi infect broken kernels more readily than intact ones.

Cotton Agronomics

Dr. Darrin Dodds

Crop Update: The latest National Agricultural Statistics Service crop report indicates that 56% of the crop is in good to excellent condition. The percentage of the 2009 crop rated as good to excellent has been hovering around the 50% range for the duration of the growing season. The

way things are shaping up, the true story behind many crops in 2009 will be moisture. We started the season late due to excess moisture then went through a four-to six-week dry spell in many areas of the state. However, since

Table 1. Cotton growth and development throughout Mississippi.

| Location | Height | Total Nodes | Internode Length | NAWF |
|------------|--------|-------------|------------------|--------|
| | Inches | Number | Inches | Number |
| Sledge | 41 | 18 | 2.8 | 6 |
| Mattson | 33 | 18 | 2.0 | 5 |
| Glendora | 43 | 18 | 2.5 | 6 |
| Greenwood | 38 | 18 | 1.9 | 5 |
| Indianola | 35 | 18 | 2.0 | 5 |
| Inverness | -- | -- | -- | -- |
| Hollandale | 41 | 18 | 1.6 | 4 |

the third week of July rainfall has been plentiful to excess in many areas of the state. As a whole, I would rate the crop as slightly above average. However, we are approximately two to three weeks behind were we normally are at this time of year.

Verticillium Wilt: Reports out of Arkansas indicate that verticillium wilt has been appearing in cotton over the past couple of weeks. Although no reports of this have surfaced in Mississippi to date, it may be beneficial to keep an eye out for it. Verticillium wilt is known to infect over 200 woody and herbaceous plant species and was first reported in cotton in Virginia in 1914. Verticillium is caused by the soil borne fungus, *Verticillium dahliae*, which enters the roots and grows into the vascular system of the plant. Symptoms of verticillium may range from chlorotic and necrotic areas on leaves to wilting of the leaves. Discoloration of the vascular tissue is also associated with verticillium infection. Visual symptoms of verticillium usually begin on the leaves and petioles. The leaves are at first a darker green color which is quickly followed by chlorosis and in severe cases, necrosis of the leaf tissue. Vascular discoloration typically begins

to occur at the same time as symptoms are developing on the leaves and petioles. *Verticillium dahliae* is capable of surviving in the soil as well as on dried leaves and stems for in excess of 10 years. Verticillium can reduce cotton growth and development as well as lead to shed of young squares. Yields tend to be less affected by late-season infection compared to infection earlier in the season. Verticillium also tends to be more pronounced during cool, wet seasons. As previously noted, moisture in late July moisture was abundant. Air temperatures in July were also more moderate than normal with the 87°F being the average daily high and



Vascular discoloration due to infection by *Verticillium*.

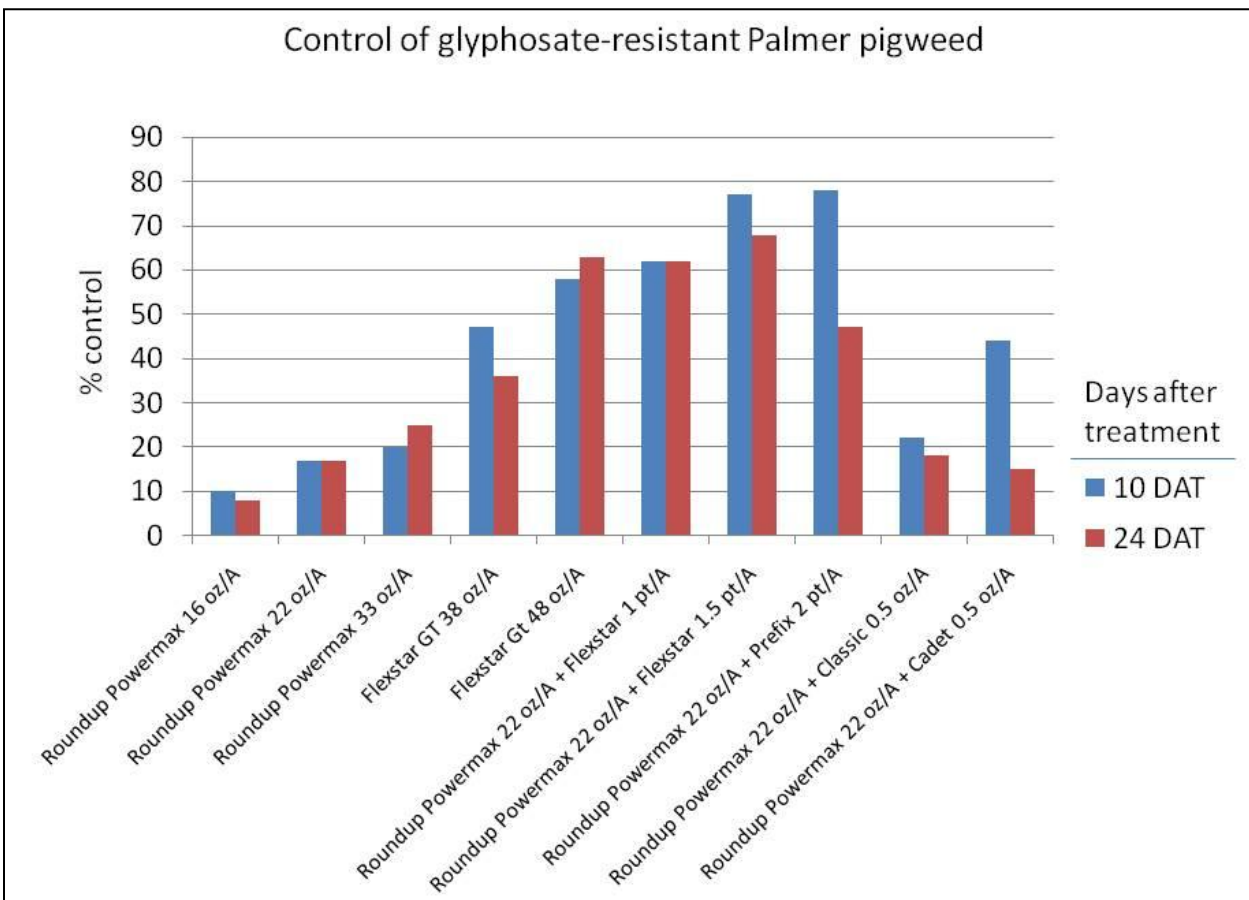
69°F being the average daily low. The combination of lower temperatures and adequate to abundant moisture is likely fostering development of this disease. Practices that promote rank growth and delayed maturity may also promote Verticillium. Varieties tend to vary in their susceptibility to intensity of infection and susceptibility to damage due to verticillium wilt. Verticillium tends to be more pronounced in soils that are low in potassium. No chemical controls exist for verticillium. Crop rotation is effective for reducing the severity of verticillium on subsequent cotton crops.

Soybean Agronomics

Dr. Trey Koger

Soybean: control of glyphosate-resistant Palmer pigweed

Large Palmer pigweed that is resistant to glyphosate is very difficult to nearly impossible to control once it gets much larger than 12 inches tall. The graph below is for a trial conducted in Sunflower county in which a population of glyphosate-resistant Palmer pigweed was treated with several different treatments. The variation in size of the Palmer pigweed plants at the time of applying the treatments had the most influence on control levels. The 1 and 1.5 pt/A rates of Flexstar provided the highest level of control at 24 days after treatment. However, even these treatments only provided 62 to 68% control. Flexstar GT at 48 oz/A provides 1 pt/A of Flexstar. This is why the Flexstar GT treatments provided less control than the 1.5 pt/A rate of Flexstar. This data demonstrates why it is so important to utilize residual herbicides to help in controlling Palmer pigweed and to control Palmer pigweed when it is small with postemergence herbicides like Flexstar GT, Flexstar, or Reflex.



Soybean Insects

Angus Catchot

Bean Leaf Beetles have been exploding in the north delta in the last 7 days. I have gotten numerous reports of numbers exceeding sweep net thresholds (**50 per 25 sweeps**) by 2 and 3 times. Bean leaf beetles are primarily foliage feeders but will occasionally go down the plant and feed on pods. Although we have a sweep net threshold, defoliation levels are what we should key in on. The defoliation threshold for soybeans is 20% after bloom. The reason I recommend you pay closer attention to your defoliation than actual numbers at this time is due to the steady migration into these fields right now. We have beetles emerging and beetles moving out of maturing fields. If you jump out and spray a 50/25 sweep net count with little defoliation, you may get excellent control and still spray them again next week as more move into the field. We have seen this in August now for the last four years. Again, watch your defoliation and pod feeding, if it is OK, ride them as long as you can and you could save a spray. A threshold of bean leaf beetles will not go from 5 to 50% defoliation in a week. I have mentioned before that we caught a 3X population (150/25 sweeps) moving out of maturing group 4 beans in to a field of group 5 beans. It took this 3X threshold about 12 days to go from 0 to 20% defoliation. This is simply an observation and in no way scientific but does give an idea of how long it takes for defoliation to occur.



Pyrethroid Resistance Update: On Monday of this week we made two bean leaf beetle collections from fields in Shelby, MS approximately 5 miles apart. BLB's in the first field had a 17X tolerance to pyrethroids and the second field had a 40X tolerance compared to a susceptible population collected from the hills. The field with 17X tolerance had received no pyrethroid applications prior to collection and the field with 40X tolerance had received one pyrethroid application approximately 2 weeks prior to application.

Control Options: I would not treat bean leaf beetles in the delta areas of MS with a straight pyrethroid with the exception of bifenthrin. Bifenthrin is the only straight pyrethroid that our field testing has shown good control with, at rates of 1:30 -1:20. There are several options that have performed well on pyrethroid tolerant beetles. Orthene at .75 -1.0 lb, Endigo at 4-4.5 oz, Bifenthrin products at 1:30-1:20, Leverage 3.8 oz, Sevin 1 qt, and Larvin 24-30 oz. and Orthene + pyrethroid mixtures. I would encourage you to recheck your worse fields 2-4 days after application to evaluate control. We have seen excellent control 2-3 days after treatment with these products and complete reinfestation at 7 days where it would appear that the products did not perform but it was actually reinfestation not product failure. As always, adjust your rate based on the pressure.

Termination of Insecticides Spays for Defoliators: For defoliating insects in soybeans we recommend you protect foliage until plants reach R7. This is extrapolated from data from LSU where researchers working with harvest aids determined it was safe to apply a harvest aid when plants reached R7 (one normal pod on main stem has reached mature color). Keep in mind the harvest aid work would also represent the most extreme cases of defoliation. It is likely that lower levels of defoliation would result in very little to no yield loss shortly after R6.

2009 Bollworm/Budworm Trap Captures

| Ryan Jackson USDA Trap line | | | | |
|------------------------------------|---|-----------------|--|----------------|
| August 3, 2009 | | | | |
| County | This Week last Year Bollworm | Bollworm | This Week last Year Budworm | Budworm |
| Washington | 15 | 40 | 0 | 0 |
| Sharkey | 76 | 17 | 0 | 0 |
| Humphreys | 32 | 0 | 0 | 0 |
| Yazoo | 42 | 21 | 0 | 0 |
| Holmes | 35 | 0 | 0 | 0 |
| Leflore | 63 | 103 | 0 | 0 |
| Tallahatchie | 29 | 127 | 0 | 0 |
| Coahoma | 62 | 63 | 8 | 0 |
| Bolivar | 42 | 497 | 0 | 0 |
| Sunflower | 41 | 207 | 0 | 0 |

| Fred Musser Trap line | | | | | |
|------------------------------|---|-----------------|--|----------------|------------|
| August 5, 2009 | | | | | |
| County | This Week last Year Bollworm | Bollworm | This Week last Year Budworm | Budworm | BAW |
| Grenada | 60 | 19 | 73 | 1 | 0 |
| Hinds | 71 | 325 | 0 | 9 | 4 |
| Madison | 85 | 46 | 8 | 4 | 5 |
| Rankin | 62 | 59 | 16 | 6 | 4 |
| Oktibbeha | 175 | 200 | 0 | 9 | 7 |
| Noxubee | 8 | 37 | 2 | 9 | 0 |
| Lowndes | 41 | 47 | 1 | 4 | 0 |
| Lee | 50 | 45 | 13 | 14 | 3 |
| Prentiss | 65 | 6 | 24 | 4 | 3 |
| Chickasaw | 130 | 9 | 45 | 0 | 58 |
| Calhoun | 47 | 81 | 7 | 18 | 74 |
| Webster | 37 | 33 | 3 | 25 | 36 |

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