

Mississippi Crop Situation

August 1, 2008

Mississippi State University Extension Service

Number 19

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This Weeks Planting Report

National Agriculture Statistics Services (Mississippi) Crop Progress for Week Ending 7/27/08

Crop	This Week	Last Week	Last Year	5- Year Average
Corn Dough	97	88	97	94
Corn Dent	78	53	84	73
Corn Mature	13	6	26	14
Cotton Setting Bolls	81	61	86	85
Peanuts Pegging	99	91	92	--
Sorghum Heading	92	83	98	97
Sorghum Coloring	55	29	27	50
Soybeans Setting Pods	86	71	87	88
Soybeans Turning Color	1	0	7	11
Sweet Potatoes Planted	99	98	100	100

Corn Agronomics

Dr. Erick Larson

Wind-damaged corn fields: Severe thunderstorms passing through localized areas in the state recently caused substantial corn root lodging in some fields. Root lodging occurs when environmental forces exceed the ability of the root system to provide lateral support to the corn plant. This causes the entire corn stalk to lean or collapse from ground level, usually dislodging part of the root system from the soil. Root lodging often results in sizable portions of a field where all plants lodge from the weight of adjacent stalks falling onto others – essentially a “domino effect”. Root lodging often occurs as plants approach physiological maturity (when plant is still green), because the mass of the plant is more than any other time during the season (maximum ear weight and the stalk is full of water). Thus, less force, usually in the form of wind, is required to push stalks over. Because of these factors, there is also little opportunity for plants to re-right themselves. Of course, exposure to strong winds, coupled with soggy soils, primarily determine the degree of root lodging. However, many types of stress or pest damage, including excessive plant population, inadequate fertility, rootless corn syndrome, excessively wet or dry soil, insect damage can restrict root development and/or encourage late-season root rot and thus, promote root lodging. This growing season, excessive rainfall during the early season might have limited root development in many fields. Corn hybrids also differ considerably in their characteristics and ability to resist root lodging. Poor brace root development, tall plant height and high ear placement all increase the likelihood of root lodging. Thus, many seed companies rate root and stalk lodging separately from stalk lodging. I encourage you to evaluate hybrids in strip trials or side-by-side comparisons, since root-lodging differences are often quite apparent in many trials.

Figure 1. Large tracts of corn often root lodge when exposed to high wind when corn is physiologically mature. Green, tall, high yielding fields are quite vulnerable because plants are very heavy.



Photo courtesy of Jimbo Burkhalter - MSU Extension Service, Tallahatchie Co.

Figure 2. Root lodging occurs when wind pushes the entire stalk down, often dislodging nodal roots. Poor brace root development greatly increases corn vulnerability to this type of lodging.



Although corn appears flattened, growers can usually salvage the crop relatively well, but you should expect to make some considerable harvest adjustments. You should generally begin harvest as quickly as practical, if you have had considerable lodging. Harvest progress of lodged corn may be up to five times slower than normal, so you should aggressively harvest lodged fields, particularly if a large acreage is damaged. You should take this action because the

likelihood of grain quality deterioration and harvest losses are much higher than normal, and may increase substantially if wet weather is prevalent. Field drying rates of severely lodged fields will likely be much slower, compared to normal (0.6% moisture per day), because aeration is reduced. Furthermore, as average daily temperatures begin to drop, field drying may slow even more.

You must usually slow combine speed to a crawl in order to pick up and feed the tangled, fallen corn into the machine. Combine harvest is generally more efficient when traveling opposite the predominant direction the corn stalks are laying. For example, if the stalks are lying towards the west, drive the combine in the east direction. Soybean platform headers may actually work more efficiently than corn heads on nearly flattened corn (less than six inches above ground level).

Figure 3. A combine slowing picking up root lodged corn.



Pre-harvest herbicide application may be necessary to kill morningglories or other troublesome weed species, which could hamper harvest considerably. Herbicides applied as a harvest aid should be applied after corn grain is physiologically mature (normally less than 30% moisture and black layer is present at the base of kernels), and several days to weeks prior to grain harvest (please check specific product labels for specific restrictions).

Several types of aftermarket attachments are manufactured to assist corn headers gather fallen corn. These devices are generally designed to help pull lodged stalks along the snouts into the feeder mechanism. These attachments are most helpful when roots are not anchored well in the soil and/or stalk quality is badly deteriorated. These conditions cause stalks to be pulled loose into the header, potentially obstructing flow.

Figure 4. A combine equipped with a reel-type attachment harvests root lodged corn.



Manufacturers include:

Kelderman Corn Reel
<http://www.keldermanairride.com/category.php?id=57>
2686 Highway 92 East
Oskaloosa, IA 52577-9685
1-800-334-6150

Minden Machine Shop Inc.
<http://www.mindenmachine.com/cornreel.htm>
1302 K Road
Minden, NE 68959
1-800-264-6587

Corn Saver
<http://www.cornsaver.com>
5200 N. Columbia St.
Plainview, TX 79072
800-536-1022

Roll-A-Cone
http://www.roll-a-cone.com/harvesting_attachments.htm
7655 Roll-A-Cone Road
Tulia, TX 79088
(806) 668-4722

Meteer Manufacturing
<http://meteer.com/ag/combine/reels/reels.html>
RR1 Box 221
Athens, IL 62613
Phone (217) 636-8109

Hawkins Corn Reel
http://hawkinsmfg.com/corn_reel.htm
Hawkins Manufacturing Inc.
2120 East 4th Ave.
Holdrege, NE 68949
1-800-382-6178

Bish Built
http://www.harvsfarmssupply.com/html/bish_down_corn_reels.html
Harv's Farm Supply Inc.
508 South "D" Road Giltner, Nebraska 68841
Phone: 402.849.2674
Fax: 402.849.229

DG Crop Sweeper
<http://www.cropsweeper.com/>
205 46th Ave.
Minot, North Dakota 58702
701-852-1876

Cotton Insects

Angus Catchot, Dr. Jeff Gore, and Dr. Don Cook

Spider Mites: We have many fields across the delta that have had multiple spider mite applications to date and we can find mites spotted in almost every field we enter. We are devoting the cotton insect section this week to spider mite research findings. One of the first things we would like to address is the potential yield loss associated with late season spider mites in Mississippi. Every year about this time we get lots of calls on spider mites in cotton that is at or just beyond cutout and whether or not it is worth treating them this late in the season and how long do you have to protect the foliage. First, we know that we need foliage for photosynthesis to occur to finish filling out the bolls. Up until last year we really had did not have a good feel for how these late season mites correlated to yield loss. Also, once the symptomology occurs on the leaves late in the season after the crop has “squared off” and we quit getting new nodes added the damage is irreversible. Just keep in mind that the symptomology is what we are trying to avoid and more importantly we are trying to avoid large portions of the field from getting symptomology. The sporadic “hot spots” are unavoidable, and occasional small areas in a field will not impact yield but when these spots become numerous and large areas are turning red from spider mites yield loss is highly likely.

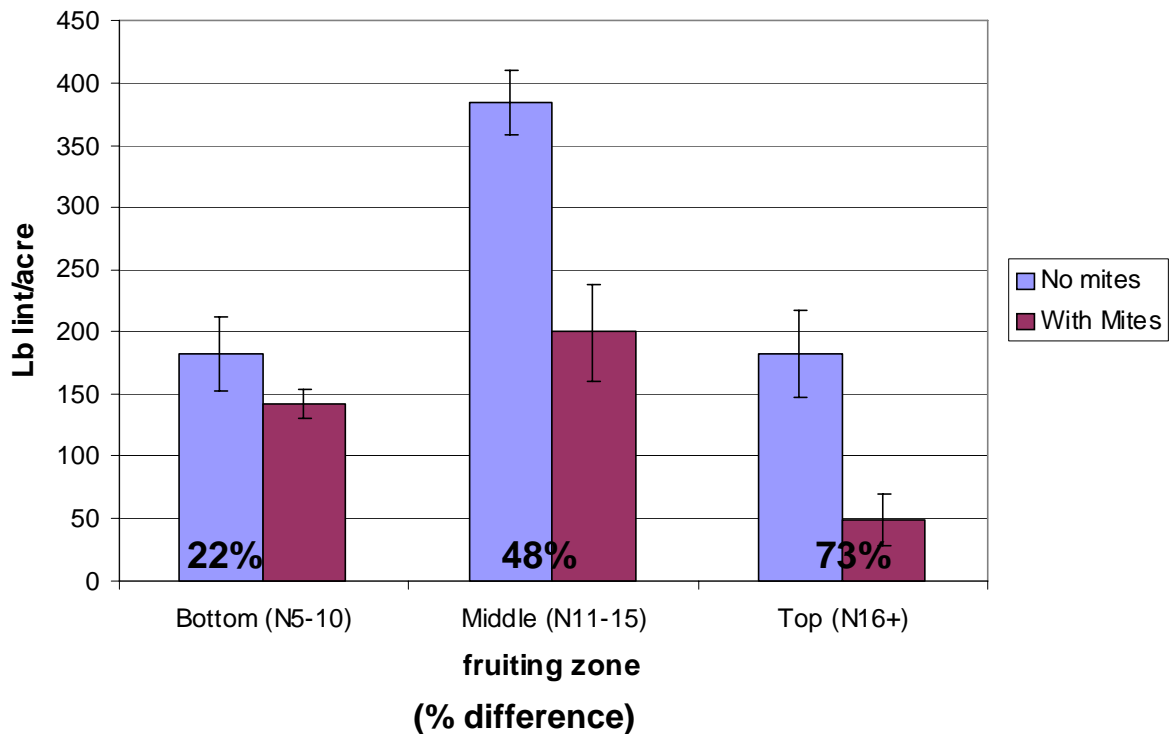
To address the question about late season spider mites, John Smith “Smitty” (PhD student working on spider mites) identified 2 fields last year where symptomology began to show up about cutout time. One field was dry land the other was irrigated. We went into these fields and identified areas that had symptomology in both locations and flagged these areas. We also flagged areas as close to these as possible with none or very little symptomology for comparison. We replicated this 6 times in each field and harvested these areas. In the dry land field we had a 50% yield loss in the areas of the field that had spider mites and a 10% yield loss in areas of the irrigated field that had spider mites. Keep in mind that this was only in the mite areas and the symptomology did not occur until about cutout. We also flew images of these fields and were able to determine that 15.8% of the dry land field had spider mite symptomology at levels similar to the areas we took yield from. When we diluted this out across the whole field we had an average yield loss of 80 lbs per acre of lint, which would more than justify treating these fields. Although the irrigated field had only 10% yield loss in mite infested areas, the yield potential was much higher and equated to 135 lbs of lint in the areas where there were mites compared to no mites. Smitty plans to expand this work to more fields this year but last years data shows that even as late as cutout we are seeing yield reductions from spider mites and it is important that we do not let large portions of the field late season develop severe spider mite symptomology before bolls are filled out. Also, spider mite damage is always worse on stressed plants (like in the dry land field). This is very apparent when irrigation pipe is into the field a little ways and the cotton on the dry side will often completely defoliate itself from spider mites where its compounded with drought stress. As expensive as spider mite materials are, the decision to treat a field can be difficult for a producer because sometimes you can get a big rain event that may temporarily reduce numbers or for some reason the spots do not seem to spread across the field. However, our experience over the last 4 years of intense spider mite pressure is more times than not they will spread across the field and the rain never comes when needed. It is still critical to treat spider mites when you can find them in 40-50% of the field and before you get bad symptomology. The sooner you treat the better when infestations occur.

The graph below shows yield loss in the dry land field by fruiting zone. As expected since the mites infested the field late in the year, yield loss was greater in the top of the plant. The

numbers on the graph represent the % yield loss by fruiting zone where mites were present compared to no mites.

Yield by Fruiting Zone

Dry-land Field - Greenwood



Below are efficacy results from some spider mite trials conducted by Dr. Gore, Dr. Don Cook, and myself over the last couple years. Numbers are mites per 5 sq. in. of leaf in most all of the trials listed below. It is important to note that never do you ever zero mite populations out, rather we reduce them to manageable levels.

2008 - Stoneville

Treatment	Rate	7 DAT1	10 DAT1
Oberon	4 fl. oz./A	2.8b	8b
Oberon	6 fl. oz./A	3.3b	10.8b
Oberon +	3 fl. oz./A		
Oberon (5 DAT1)	3 fl. oz./A	2.5b (2 DAT2)	12.5b (5 DAT2)
Oberon +	4 fl. oz./A		18.8b
UAN 32%	2.5%	6.5b	
Oberon +	6 fl. oz./A		10.5b
UAN 32%	2.5%	4.5b	
Portal	16 fl. oz./A	1b	14.5b
Non-treated		18.5	47.0a

Amory, MS

Treatment	Rate	3 DAT1	7 DAT1	12 DAT1
Zephyr	4 fl. oz./A	33.0 bcd	14.5 c	34.3 de
Zephyr + Zephyr (6 DAT 1)	2 fl. oz./A	41.3 bc	58.5 b	58.0 bc (6 DAT 2)
Oberon +	3 fl. oz./A	28.5 cd	25.0 c	
Oberon (6 DAT1)	3 fl. oz./A			19.0 e (6 DAT2)
Portal	16 fl. oz./A	26.3 d	21.8 c	32.3 de
Zoro	4 fl. oz./A	29.3 cd	38.5 bc	42.5 cd
Zoro	6 fl. oz./A	41.0 bc	22.5 c	33.8 de
Brigade	6.4 fl. oz./A	45.3 b	56.8 b	72.5 b
Oberon	4 fl. oz./A	21.0 d	20.5 c	22.8 de
Oberon	6 fl. oz./A	30.5 cd	22.3 c	31.5 de
Zeal	1 oz./A	41.5 bc	21.8 c	20.0 e
Non-treated		86.8 a	93.0 a	101.5 a

2008 - Stoneville

Treatment	Rate	2 DAT	4 DAT	7 DAT
Portal	16 fl. oz./A	18.5b	3.5b	12.8b
Zephyr	6 fl. oz./A	17.5b	2.3b	4.0c
Zephyr	4 fl. oz./A	15.0b	3.5b	5.5c
Dicofol 4	32 fl. oz./A	20.5b	6.0b	6.3c
Oberon	8 fl. oz./A	29.8b	2.5b	4.0c
Comite II	36 fl. oz./A	15.8b	4.5b	5.0c
Non-treated		74.5a	28.5a	24.5a

2008 - Stoneville

Treatment	Rate	3 DAT	6 DAT
Portal	16 fl. oz./A	1.0b	3.7b
Zephyr	6 fl. oz./A	2.3b	7.0b
Brigade	6.4 fl. oz./A	8.0b	4.3b
Docofol 4	32 fl. oz./A	2.3b	4.3b
Oberon	8 fl. oz./A	4.7b	9.0b
Oberon	4 fl. oz./A	5.7b	16.3b
Comite II	36 fl oz./A	0.3b	9.0b
Zeal	1 oz./A	6.3b	6.0b
Non-treated		22.0a	59.7a

2007 - Stoneville

Treatment	Rate	8 DAT
Oberon	4 fl. oz./A	8
Oberon	6 fl. oz./A	4.5
Oberon	8 fl. oz./A	4.5
Comite II	36 fl. oz./A	7
Acramite	24 fl. oz./A	7
Comite II +	16 fl. oz./A	
Acramite	10 fl. oz./A	4
Zephyr	6 fl. oz./A	5.5
Capture	6.4 fl. oz./A	6
Non-treated		24

2006 - Stoneville

Treatment	Rate	6 DAT
Capture	6.4 fl. oz./A	23.3ab
Comite II	24 fl. oz./A	34.8a
Comite II		22b
Curacron	1 lb ai/A	47a
Denim	12 fl. oz./A	14.5bc
Intruder	0.6 oz./A	30.3ab
Intruder	0.8 oz./A	46a
Kelthane	48 fl. oz./A	7.8c
Non-treated		43.3a

2006 - Stoneville

Treatment	Rate	6 DAT
Acramite	16 fl. oz./A	35.5a
Acramite	24 fl. oz./A	27a
Comite II	24 fl. oz./A	29.5a
Kelthane	32 fl. oz./A	12b
Oberon	4 fl. oz./A	17.5b
Oberon	6 fl. oz./A	17.8b
Zeal	1 oz./A	25.5ab
Zephyr	4 fl. oz./A	13.5b
Zephyr	6 fl. oz./A	13.3b
Non-treated		32.5a

2006 - Stoneville

Treatment	Rate	3 DAT	6 DAT	13 DAT
Acramite	24 fl. oz./A	58.8a	87.5a	33ab
Capture	6.4 fl. oz./A	28.1b	59ab	29.3ab
Comite II	36 fl. oz./A	28.1b	41.5b	21.5b
Curacron	1 lb ai/A	65.8a	115.8a	44a
Denim	12 fl. oz./A	38.3ab	60.8ab	24b
Fujimite	16 fl. oz./A	38.8	44b	17.3b
Oberon	6 fl. oz./A	23.6b	33.5b	10.8bc
Zeal	1 oz./A	21b	26.8b	8.5c
Zephyr	6 fl. oz./A	43.1ab	38b	10.8bc
Non-treated		54.3a	88.5a	44.8a

2006 - Stoneville

Treatment	Rate	7 DAT
Temik Side-Dress	4 lb/A	13b
Temik Side-Dress	10 lb/A	11b
Non-treated		32.5a

Soybean Agronomics

Dr. Trey Koger and Dr. Jim Thomas

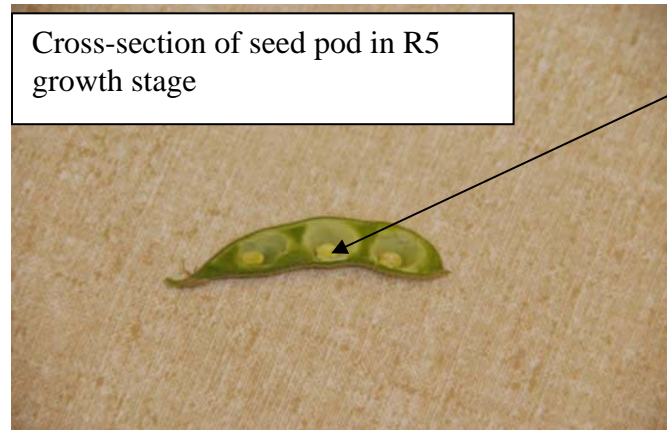
Irrigation Termination: Widespread hot and dry weather along with extreme fuel prices have led to a common question over the past few weeks. When can I stop irrigating these soybeans? This question is going to be even more common over the next several weeks as most of our irrigated April and early May planted soybean crop approaches the end of seed fill and maturity. This is a good opportunity to discuss when it is appropriate to terminate irrigation. We don't want to spend money that will not give us a return on the investment, but we also don't want to leave any yield on the table. In many cases, we have observed significant yield increases with irrigating later than what may be considered the norm. It is important that the plant has sufficient moisture to completely fill out the uppermost youngest pods. Research conducted in Arkansas and field evaluations in Mississippi have consistently shown an 8 to 10 bu/acre yield increase with irrigation applied after the R6 growth stage. Initial stages of the R6 growth stage occurs when the seed in the uppermost fully developed pods are touching one another. Applying irrigation so that ample soil moisture is available through the entire R6 growth stage up to the R7 growth stage contributes to optimal yield potential and accounts for this significant yield increase. Soybean planted in April and May is often going through the seed fill period during the hottest months of the year. The seed fill period is a critical water requirement growth stage. It is imperative that we provide ample soil moisture through the entire seed fill period to obtain maximum yields.

Following are several general rules of thumb to consider when making irrigation termination decisions. These guides should be used to ensure that adequate soil moisture is available through the entire seed fill period.

- 1) The decision to terminate irrigation should be made on a field by field basis.** Conditions can change from one field to another. Soil type and existing moisture in the soil profile affect the timing of irrigation termination.
- 2) Irrigation should be terminated so that adequate soil moisture is available for approximately two weeks after you see the following characteristics:**
 - a. *For indeterminate varieties:* the leaves on the bottom half of the plant should be yellow and beginning to fall from the plant, and leaves on top of the plant should begin to turn yellow in color. Most group four varieties exhibit an indeterminate growth habit.
 - b. *For determinate varieties:* leaves up and down the main stem should be turning yellow and beginning to fall from the plant.
 - c. *For all maturity groups:* Seed in pods of the uppermost (youngest) four nodes have completely filled all available space in the pods.
- 3) The final irrigation should take place in close proximity to the seed consuming all available space in the pods of the four uppermost (youngest) nodes.** This will provide ample soil moisture is available for optimal test weights and yields.

Below are several pictures and descriptions to support the above general rules of thumb and help in making the decision to terminate irrigation easier. Seed still have a significant amount of growth to go once the seed initially touch within the pod. Providing sufficient soil moisture through irrigation is critical until the seed have completely filled all available space within the pod. Soybean plants go through a critical water use period during the pod fill period. It is critical that we provide sufficient soil moisture from the R5 through the full R7 growth stages. See pictures and descriptions below for details on proper timing of irrigation termination.

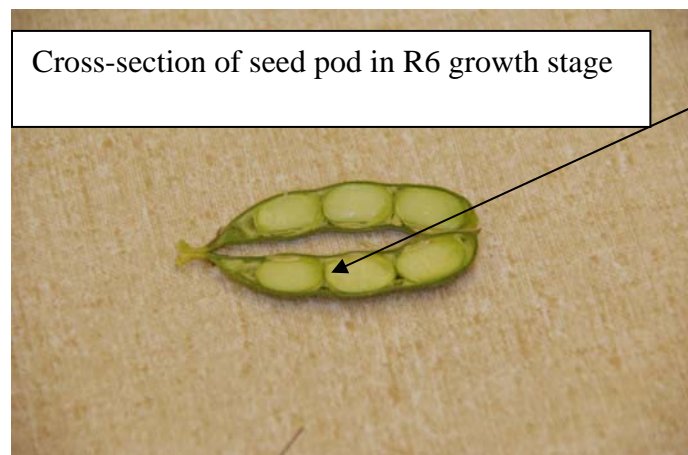
R5: is beginning seed development within pods of the four uppermost (youngest) nodes. Providing ample soil moisture through the entire seed fill (R5 through R6) and beginning maturity growth stages (R7) is critical.



Small seed inside seed pod

- Typically, it takes 35 to 40 days to go from initial R5 to beginning R6.

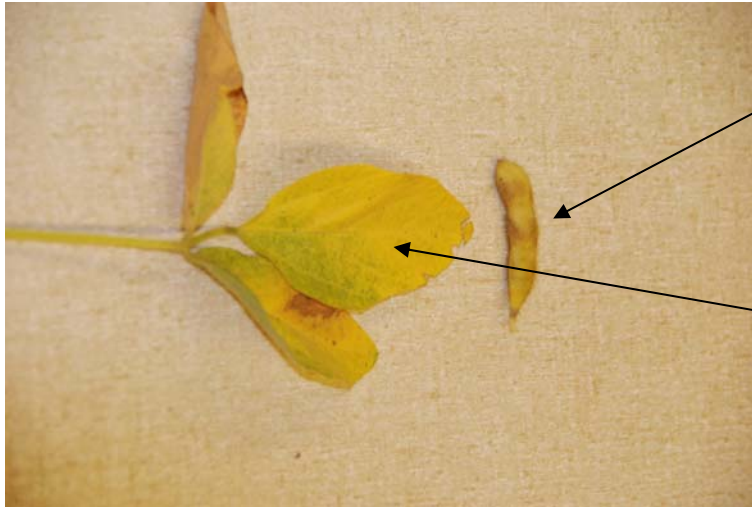
R6: Initial phase of R6 is when the seed barely touch in the uppermost fully developed pods. Full R6 is when the pods consume all available space within the uppermost fully developed pods. It is critical to provide ample soil moisture through irrigation during this critical water use period. For optimal yields is vital that irrigation is terminated so that ample soil moisture exists for at least 10 days after seed have consumed all available space in uppermost pods.



Seed are touching one another inside seed pod and close to consuming all available space within seed pod.

- If adequate soil moisture is not present once the seed consume all available space within the uppermost pods, a final irrigation is likely needed to ensure adequate soil moisture for at least 10 days after complete seed fill.
- It may take two to three weeks for the seed pod to go from initial R6 to complete seed fill when ample soil moisture is present.

R7: Begins when pods on the main stem reach mature color (grey, brown, to tan) and youngest uppermost leaves will be begin to turn color from green to yellow or yellow/purplish in color. In most cases, bottom leaves will have fallen off plants. Dry matter content in seed peaks at R7. Seed within these pods that have changed color will have lost all their green color and will appear yellow. Stress after this point will have essentially no negative impact on yield. **Ample soil moisture is not required after the plant reaches the initial R7 growth stage.**



Seed pod in R7 growth stage that has turned to mature color

This is a leaf from the top of the plant. Leaves from bottom of the plant have likely begun to fall off, especially for indeterminate varieties.

R8: Full maturity. Approximately 95% of pods will have reached mature color (grey, brown, to tan). Often only five to ten days of good drying weather after this state are required to have the soybean at 15% or less moisture.



For optimal yields, it is crucial that ample soil moisture is provided through entire seed fill period (R5-R6). Irrigation should be implemented to provide ample soil moisture up to the initial R7

Soybean Insects

Dr. Gordan Andrews

The following tables contain data collected from three tests, which are being conducted in the Mississippi delta this growing season. The objectives of these tests are to look at insect populations and soybean yields produced by two soybean insect management strategies on large (40-50 acre) fields. Strategy/treatment 1 requires no insecticide treatment until published thresholds are sampled from the fields except for three cornered alfalfa hoppers which will be treated at a lower threshold of 40 adults or 2 nymphs per 100 sweeps. Strategy/treatment 2 requires an application of insecticide at the R-3 stage of development and the use of published insect treatment thresholds for the remainder of the season. Test 1 is near Lake Washington in Washington County, test 2 is near Cruger in Holmes County, and test 3 is near Gunnison in Bolivar County.

Test 1

Date	Growth Stage	GSB ³		BSB ⁴		3CAHA ⁵		3CAHI ⁶		LFB ⁷		GH ⁸		LFC ⁹	
		T1 ¹	T2 ²	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
6/10/2008	R-2	0	7	1	1	0	5	0	0	4	2	0	3	4	4
6/17/2008	R-3	0	4	2	2	1	2	0	0	8	8	1	4	3	3
Insecticide application on 6/17/2008 of 1pound AI Orthene/acre to treatment 2 (after sample)															
6/24/2008	R-4	0	0	0	0	0	0	1	0	17	6	3	0	2	0
7/1/2008	R-4	0	0	0	0	9	5	0	0	20	19	3	0	1	0
7/8/2008	R-5	0	0	1	0	25	17	0	0	16	6	5	2	3	0
7/15/2008	R-5	3	1	2	1	19	13	0	0	18	4	0	0	5	2
7/21/2008	R-5	17	4	0	2	38	35	2	0	5	2	1	1	4	7
Insecticide application on 6/22/2008 of 1pound AI Orthene/acre to treatment 1															
7/29/2008	R-6	2	9	0	2	7	42	0	0	2	7	0	4	19	24

Test 2

Date	Growth Stage	GSB ³		BSB ⁴		3CAHA ⁵		3CAHI ⁶		LFB ⁷		GH ⁸		LFC ⁹	
		T1 ¹	T2 ²	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
6/18/2008	R-3	0	1	0	0	1	3	0	0	38	25	0	0	0	0
6/25/2008	R-3	0	1	0	2	3	4	0	0	48	52	0	0	0	1
Insecticide application on 6/25/2008 of 0.025 pounds AI Mustang Maxx/acre to treatment 2 (after sample)															
7/1/2008	R-3	0	0	0	0	1	1	0	0	15	8	3	0	2	0
7/9/2008	R-4	0	0	1	0	30	14	0	0	30	20	1	0	5	1
7/15/2008	R-4	0	0	0	2	46	20	5	0	35	91	7	0	7	5
Insecticide application on 7/17/2008 of 0.025 pounds AI Mustang Maxx/acre to treatment 1															
7/22/2008	R-5	0	0	0	0	0	14	0	0	2	123	0	0	2	6
7/30/2008	R-5	2	1	0	2	5	13	0	0	15	111	0	2	5	27

Test 3

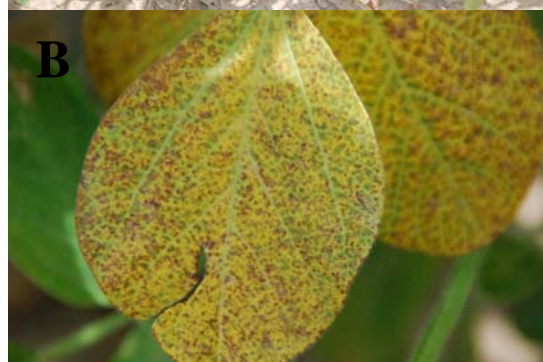
Date	Growth Stage	GSB ³		BSB ⁴		3CAHA ⁵		3CAHI ⁶		LFB ⁷		GH ⁸		LFC ⁹	
		T1 ¹	T2 ²	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
6/26/2008	R-3	0	4	1	1	3	4	0	0	8	23	2	0	0	1
Insecticide application on 6/26/2008 of 0.02 pounds AI Baythroid XL/acre to treatment 2 (after sample)															
7/2/2008	R-4	1	0	1	0	3	0	0	0	38	8	2	0	2	0
7/10/2008	R-5	0	0	1	0	20	3	1	0	47	27	2	0	7	0
7/16/2008	R-5	2	0	1	0	39	2	2	0	101	38	1	0	3	0
Insecticide application on 7/16/2008 of 0.02 pounds AI Baythroid XL/acre to treatment 1 (after sample)															
7/23/2008	R-5	1	0	0	0	5	4	0	0	92	125	0	0	0	0
7/31/2008	R-6	0	0	3	3	8	13	0	0	164	151	0	1	4	1

¹T1=treatment 1, ²T2=treatment 2, ³GSB=Green stinkbugs/100 sweeps, ⁴BSB=Brown stinkbugs/100 sweeps, ⁵3CAHA=Three cornered alfalfa hopper adults/100 sweeps, ⁶3CAHI=Three cornered alfalfa hopper immatures/100 sweeps, ⁷LFB=Leaf feeding beetles/100 sweeps (includes spotted and banded cucumber beetles, bean leaf beetles, and grape colapis), ⁸GH=Grasshoppers/100 sweeps, ⁹LFC=Leaf feeding caterpillars/100 sweeps (includes green clover worms, alfalfa caterpillar, loopers, and salt marsh caterpillars)

Things of interest this week is the leaf feeding caterpillars (mostly loopers) and three cornered alfalfa hoppers in test 1 and 2. We are dealing with some tough leaf feeding beetles (mostly bean leaf beetles) in test 3. Baythroid XL at a gallon to 50 acres is not a light dose. In case some are wondering the leaf feeding beetles in test 2 are mostly grape colapis. The other interesting question which might be asked is: Where are the stinkbugs?

Soybean Disease

Dr. Tom Allen



Over the past two years I have received numerous calls regarding a disease of potentially unknown origin. I am initially calling this Fusarium wilt/blight (or just simply soybean wilt) based on symptomology and the cultural analysis that I have conducted over the past two seasons. However, I'm not positive if this is a truly new disease or something we haven't encountered much in the past. I am in the process of collecting as much information as I can about the varieties exhibiting symptoms, however, when this newsletter goes out I suggest that there are no tolerant varieties, but it is possible that symptoms will appear a little different between varieties and soil types. These observations are only based on two years of information.

In 2007 the disease exhibited symptoms in field soils with a history of cotton that were recently planted to soybeans, and had been cropped in beans continuously for a few years. Initially it was believed that the disease would only appear on irrigated cotton soils now cropped with beans. Numerous fields in and around the Inverness area were observed to have plants exhibiting these symptoms as early as 2004. However, in 2008 this disease started showing up in more and more places, on numerous soil types, but again was only observed in irrigated, high yielding soybean fields. Louisiana is also reporting something similar from their soybeans. I have been in touch with members of their extension service throughout the summer and we are working together to determine what this disease is and where it is occurring most frequently. I have now heard from at least 8 people from several different locations including Clarksdale, Cruger, Inverness, Isola, Moorhead, Schlater, and Tchula, that they are finding plants with the symptoms I will describe below.

Symptoms at this time of year are quite similar to sudden death syndrome (SDS). However, the symptom development throughout the season differs between the wilt and SDS. Shortly after seedling emergence the symptoms of soybean wilt will be observed on the first true trifoliate leaves. The leaves will initially turn an orange/yellow color (see attached photos that go from top to bottom as **A**, **B**, **C**, and **D**) and contain interveinal chlorosis. If you look closely at photo **A** you can see interveinal chlorosis beginning to develop on some green leaves, and also the orange/yellow leaves in the lower canopy. Photo **B** shows a blow up of leaves from the lower canopy of the same field. In some

field situations this might be difficult to observe depending on the row spacing. As the disease progresses, and if you split the stems in these early stages, the vascular tissues will appear slightly stained. Roots, if left intact on plants that are removed from the soil will have a black, rotten appearance (photo C). Additionally, in some cases (I have found this on numerous plants in the past two years as I look at this disease) plant stems will have a white fungal growth at the soil line which will appear in an area that has an old canker/lesion on the main stem (photo D). I've had calls concerning this issue, and there are some folks in the field that might be referring to this disease as southern blight. This is NOT southern blight. Southern blight will produce white sclerotia at the soil line that can easily be confused with the structure on these wilted plants. These are not sclerotia but are in fact sporodochia of *Fusarium*. As plants mature over the season the disease will progress up the plants, changing leaves into the orange/yellow color. As the season continues, the leaves that are affected (showing symptoms) will drop, leaving the petiole on the plant stem. As plants reach physiological maturity, approaching R6-7, the upper leaves of the plants will appear to have symptoms that are very similar to SDS. Leaves with interveinal chlorosis will appear out the top of the plant canopy. Currently, this is the major symptom that is being reported from across the Delta. Plants at these later stages will be easy to pull out of the ground (very similar to SDS). Roots may break off in the ground when plants are pulled on, and in some cases the plants that are affected have an "L" root taproot. When the plants are removed from the soil, the roots, if left intact, will be black, rotted, and have very few laterals remaining (photo C). Stripping the bark off of the plant will reveal a darkened vascular tissue which will be stained brown. If you continue stripping the bark and are able to remove lateral roots, the area where the root attaches to the main stem will be darker brown. This darkened vascular tissue will again appear to be very similar to SDS. In some situations, plants that are removed from the soil may also appear to have a sunken lesion at the soil line.



To compare and contrast the wilt disease and SDS:

- SDS infected plants have leaves with interveinal chlorosis, and necrotic areas in between the veins. The wilt disease will only have interveinal chlorosis without necrotic regions (compare photos E and F, E is the wilt disease, while F is SDS).
- SDS symptoms normally develop during reproductive growth stages with symptoms in MS developing during flowering. The wilt disease will develop symptoms earlier.
- SDS-infected plants will have interveinal chlorosis that will coalesce and may become necrotic, with leaves turning brown and drying up (photo F).
- In cases where a nematode is involved (SDS can be closely associated with the soybean cyst nematode) SDS will appear in sizeable areas with more than one plant affected in an area the size of a truck or larger. Some areas with SDS can be as large as a football field. However, this is where SDS can be confusing. SDS can also occur in fields where high yielding beans are grown. In these cases, the disease is not associated with a nematode and random plants can be seen throughout a field. This new wilt disease normally occurs randomly throughout a field, with either single plants affected/exhibiting symptoms, or a cluster of two or three plants together. Please note, I

have more cultural work to do to determine if this is the same fungus causing the wilt disease as can cause SDS. Right now I'm not convinced that it is the same species of *Fusarium* but need to isolate the SDS causal agent to make comparisons. This will take some time and I will more than likely be conducting this work over the fall and winter months.

-In both diseases the root mass will appear decreased in size

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