

YOUR GUIDE TO MISSISSIPPI SOYBEANS

LOOK BACK AT 2014

2.2 Million Acres Harvested

52 Bushels-per-acre State yield average

Planting

Began *March 30*
50% planted by *May 11*
90% planted by *June 8*

Emergence

April 20, 2014

Harvest

Began *August 24*
50% *Sept. 28*
90% *Oct. 26*

SEED TREATMENTS

- **Insecticide:** Use only when you're confident that early-season insect damage will occur. Insecticide seed treatments do not replace late-season insect control.
- **Nematicide:** Seed-applied nematicides do not provide season-long control and do not replace the use of resistant varieties and crop rotation as the primary nematode-management methods.

Seed-treatment fungicide combinations (contact + systemic) available for broad-spectrum control of soybean seed and seedling diseases and organisms controlled or suppressed by each fungicide product as stated on its label* or in extension publications.

Trade name	Ingredients (Fungicide Resistance Action Committee Code)	Pathogens controlled or suppressed and efficacy rating*
ApronMaxx (RTA & RFC) & Warden RTA	Mefenoxam (4)+Fludioxonil (12)	Pythium (E), Phytophthora (E), Fusarium (G), Phomopsis (G), Rhizoctonia (G)
Bean Guard/Allegiance	Metalaxyl (4)+Captan (M4)+ Carboxin (7)	Pythium (E), Phytophthora (E), Fusarium (G), Rhizoctonia (G)
Prevail	Metalaxyl (4)+Carboxin (7)+ PCNB (F3)	Pythium (E), Phytophthora (E), Fusarium (U), Phomopsis (G), Rhizoctonia (G)
Trilex 2000	Trifloxystrobin (11)+Metalaxyl (4)	Pythium (E), Phytophthora (F), Fusarium (G), Phomopsis (G), Rhizoctonia (G)
Acceleron: DX-109, DX-309, DX-612	Pyraclostrobin (11)+Metalaxyl (4)+ Fluxaproxad (7)	Pythium (E), Phytophthora (E), Fusarium (G), Phomopsis (G), Rhizoctonia (E)
ILeVO	Fluopyram (7)	Fusarium virguliforme (VG), SDS pathogen

*Efficacy ratings: E = Excellent; G, VG = Good, Very Good; F = Fair; P = Poor; U = Unknown or Not Recommended. Only ILeVO has efficacy against *Fusarium virguliforme*, the causal agent of SDS (sudden death syndrome). Cautions: Check product label for compatibility with *B. japonicum* inoculant, and do not feed or sell treated seeds that are not planted.

Table 1

DISEASE CONTROL

Major Midsouth soybean diseases and potential methods of prevention.

Disease	Varietal Resistance	Foliar Fungicide	Additional Information
Anthracnose	No	Yes	Use seed treatment for early-season control
Soybean rust	No	Yes	Resistant germplasm is commercially available
Cercospora leaf blight, purple see stain	Yes (?)	Yes	Use seed treatment for early-season control
Charcoal rot	No	No	Prevent/reduce plant stress
Frogeye leaf spot (FLS)	Yes	Yes	Resistant to strobilurin fungicides has been identified and appears to be widespread
Phytophthora root rot	Yes	NA	Use seed treatment to prevent damping-off
Phomopsis seed decay	No	Yes (?)	Use seed treatment to prevent damping-off
Pod and stem blight	Yes	Yes	
Pythium seed decay, damping off	No	NA	Use seed treatment
Aerial blight	No	Yes	Strobilurin fungicides are the most effective, but resistance has been identified in Louisiana
Stem canker	Yes	No	Varietal resistance very effective
Sudden death syndrome	Yes	No	Use less-susceptible varieties, monitor for nematodes, specifically the soybean cyst nematode

Note: Responses with a (?) are still in question since little information exists regarding the field resistance of the varieties presently available with reported resistance to *Cercospora* blight. In addition, little if any information exists on the efficacy of fungicides to manage *Phomopsis* seed decay.

Table 2

MANAGING A SOYBEAN CROP THROUGH GROWTH STAGES

VEGETATIVE STAGES

Emergence to
Cotyledon

VE

Management Practices: Scout for adequate and uniform stand. If stand is poor, replanting may be necessary.

VC



First
trifoliolate to
Second
trifoliolate

V1

Management Practices: Scout for early-season weeds, insects and diseases.

V2

Apply post-emergence herbicides if needed to control small emerged weeds.



REPRODUCTIVE STAGES

Beginning
flowering to
full bloom

R1

Management Practices: Scout for insects and diseases. Spray foliar insecticide or fungicide, if needed. See Insect Control Guide for Agronomic Crops in Mississippi. Check soil moisture status using soil moisture sensors. Start/complete irrigation setup.

R2



REPRODUCTIVE STAGES

Beginning pod

R3

Management Practices: Scout for insects and diseases. Spray foliar insecticide or fungicide, if needed. Identify drought stress, which can affect pod formation. Beginning irrigation, if used, is critical at this stage.



Full pod to beginning seed

R4

Management Practices: Scout for insects and diseases. Late-season diseases and defoliation by insects can severely impact yields. Spray foliar insecticide or fungicide, if needed.



R5



Full seed

R6

Management Practices: Check soil moisture status for possible last irrigation.



Beginning maturity to full maturity

R7

Management Practices: Scout for issues before harvest, e.g. green stem syndrome. Utilization of desiccants is a viable option. If the plant is still green, the best option is to harvest slowly and make sure the harvesting equipment is sharp and in excellent condition.



R8





WEED CONTROL









- Start clean by applying a burndown and a residual herbicide or tillage.
- Use different herbicide modes of action prior to planting and throughout the growing season.
- Scout fields and document weed species escapes present in individual fields.



INSECT CONTROL

- Soybean insects can be grouped into three classes – stem feeders, fruit feeders and foliage feeders. To control insects in each of the classes, use criteria in Table 3 for each species to determine when insecticide applications are warranted.

Major insect pests of soybeans, their treatment thresholds and classes of insecticides that can be used for control. Three-cornered alfalfa hopper (TCAH) is a stem feeder; the other insects are classified as foliage feeders.

Insect	Thresholds	Insecticide Classes*
 TCAH	Plants less than 10 inches tall, check for stand reduction. Plants more than 10 inches tall, treat when scouting results in 50 hoppers per 25 sweeps.	OP, P
 Bean leaf beetle	Apply insecticide: Before bloom – defoliation reaches 35%. After bloom – defoliation reaches 20%. When 50% of plants show feeding injury on one or more pods per plant.	C, OP, P
 Velvetbean caterpillar (pictured), Green Cloverworm (GCW)	Apply insecticide: Before bloom (R1) – when there are 75 worms per 25 sweeps, or 35% defoliation After bloom (R1) – when there are 38 worms per 25 sweeps, or 20% defoliation	C, D, IGR, OP, OX (GCW), P, SPN
 Soybean looper	Apply insecticide: Before bloom (R1) – when there are 38 worms per 25 sweeps, or 35% defoliation. After bloom (R1) – when there are 19 worms per 25 sweeps, or 20% defoliation.	C, D, IGR, OX, SPN
 Corn earworm	Before bloom (R1), treat at 35% defoliation. After bloom (R1), treat when there are nine worms per 25 sweeps.	C, D, OX, P, SPN
 Beet armyworm	Before bloom (R1), treat at 35% defoliation. After bloom (R1), treat at 20% defoliation.	C, D, IGR, OX, SPN
 Fall armyworm	Before bloom (R1), treat at 35% defoliation. After bloom (R1), treat at 20% defoliation.	C, D, IGR, OP, OX, P, SPN
 Stink bugs (southern green, brown)	Apply insecticide: Before R6: when there are 9 bugs per 25 sweeps. After R6: use double the normal thresholds for next 7-10 days to prevent damage to seed.	OP, P

*Rotate insecticide chemistries for resistance management and always be aware of the class of insecticide used at each application. C=Carbamate; D=Diamide; IGR=Insect Growth Regulator; OP=Organophosphate; OX=Oxadiazine; P=Pyrethroid; SPN=Spinosyn • Photo credits: Velvetbean Caterpillar, Fall Armyworm: Scott Stewart, Univ. of Tennessee. All other photos: Mississippi State University.



IRRIGATION

- Irrigation should begin at a pre-determined soil-moisture threshold, regardless of growth stage, and is best determined by soil-moisture sensors that are placed at appropriate depths for the various soil textures in a field.

Initiate irrigation no later than the listed centibar reading

Growth Stage	Centibar Threshold Reading
V1-R3	80-90
R3-R6.5	60-70
R6	Can apply last irrigation to maintain moisture to R6.5
R6.5	Terminate irrigation

*These recommendations are guidelines based on available data. Plants can tolerate moderate stress up to R3 but are less tolerant from R3-R6. Table 4

*These recommendations are guidelines for clay, clay loam and silt loam soils.

*Base reading off weighted average within the active rooting zone.

- Irrigation can likely be terminated at the R6.5 growth stage under these conditions:
 - Soybeans have begun to recede from the pod membrane
 - Adequate soil moisture is available



SOIL FERTILITY

- Potassium (K) is the primary nutrient deficiency in Mississippi soils. Soybeans remove approximately 1.2 pounds K₂O per bushel of harvested yield, which is more than any other row crop produced in Mississippi.
- Use Table 5 below to estimate how many pounds of nutrients are removed from fields based on documented yield levels.

Yield	Nutrient Removal (lbs. per bushel across the 1:1 rotation)			Fertilizer Replacement (lbs. product)		Dollar Value
	P ₂ O ₅	K ₂ O	S	TSP*	MOP**	
Corn : Soybean						\$
150:40	82	86	19	178	143	85.36
180:50	100	105	23	217	175	104.34
210:60	117	125	28	254	208	123.32
225:70	130	140	31	283	233	137.58
250:80	146	159	34	317	265	154.98

*Triple super phosphate **Muricate of potash

Table 5



HARVEST

- Harvest desiccants should be applied when 70 percent of the leaves have fallen from the plant and/or when at least 65 percent of the seed pods have reached a mature brown color.
- Consider using a desiccant if any of these conditions exist in your fields:
 - If there has been weed resurgence before soybeans have matured.
 - If pods are mature and ready to be harvested but leaves and stems are still green.
 - If weed density is high enough to increase the amount of foreign material in harvested seed.
 - If weed density will decrease harvest speed or efficiency.
 - If wet weather will significantly delay harvest.

Technical editing. The Mississippi Soybean Promotion Board (MSPB) and the soy checkoff work to increase the profitability of soybean production in Mississippi. MSPB is made up of 12 farmer-directors who oversee the investments of the soy checkoff on behalf of all Mississippi soybean farmers. For more information on MSPB and the soy checkoff, visit www.mssoy.org. The Mississippi Soybean Promotion Board/soy checkoff neither recommends nor discourages the implementation of any advice contained herein, and is not liable for the use or misuse of the information provided.

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