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Louisiana Crops NEWSLETTER

CORN • COTTON • GRAIN SORGHUM • SOYBEANS • WHEAT

ISSUE HIGHLIGHTS

Using soybean harvest aids

BY TODD SPIVEY, JOSH COPES, SEBE BROWN, DANIEL STEPHENSON AND DONNIE MILLER

In the past several weeks, we have received numerous calls about soybean harvest aid timing, products and general recommendations. The use of harvest aids in Louisiana soybeans has become a popular practice. Timely applications can improve seed quality and harvest efficiency while potentially resulting in a soybean harvest seven to 10 days earlier than non-treated beans. However, producers must be careful to not make these applications too soon, which can cause a reduction in yield.

Timing

Harvest aids promote an earlier, more efficient harvest. To achieve both, harvest aids must be applied in a timely manner. Once seeds have separated from the white membrane inside the soybean pod, they have reached physiological maturity and will no longer increase in size. At this time, soybean seeds are at about 50 percent moisture content and will begin to dry. Any use of a harvest aid prior to the majority of seeds reaching physiological maturity will result in a loss in yield.

Research conducted in Louisiana by Dr. Jim Griffin and Joey Boudreaux established that harvest aids could be applied to soybeans without yield penalty as long as the field is at reproductive growth stage R6.5 or later. At this growth stage, the soybean seeds have separated from the white membrane in the pod and seed margins are prominently defined (**Figure 1**). Plant appearance at growth

Figure 1. R6.5 soybean seeds.

stage R6.5 will vary by variety, so close attention should be paid to pods collected from the field and specifically whether seeds have separated from the white membrane (**Figures 2 and 3**).

Applying harvest aids too early not only goes against a product's label, but can result in significant yield loss due to reduced seed weight. Dr. Griffin and Joey Boudreaux's research showed that maturity group IV soybean yield was reduced by 15.4 percent when applied to soybeans at seed moisture of 60 percent before R6.5. Harvest aid application prior to R6.5, or 40 percent seed moisture, resulted in yield loss of 15.6 and 4 percent, respectively, for maturity group V and VI varieties.

Determining when a soybean reaches R6.5 is not the only consideration that must be made before making a harvest aid application. **Table 1** gives the label requirements for harvest aid application timing of several products labeled in soybean. Each product label provides the timing of when an application can be made. To gain the greatest advantage from a harvest aid application, producers should first determine when their field has reached R6.5, then the application should be made as soon as the label allows. Producers should also understand that if a harvest aid application is missed or delayed, it may be quicker to allow the field to naturally desiccate than to delay harvest by allowing for the required preharvest interval (PHI) associated with some products.

Figure 2. Soybean pods, with the youngest at left and oldest at right. The middle pod is at the R6.5 growth stage.

Figure 3. Opened soybean pods, with the youngest at left and oldest at right. The middle pod is at the R6.5 growth stage. Notice how the older pods have more clearly defined seed margins than the younger pods.

Table 1. Proper application timings based on labels of harvest aid products for soybeans.

GRAMOXONE SL (PARAQUAT)	
Indeterminate varieties	65 percent of pods have reached a mature brown color or seed moisture is less than 30 percent
Determinate varieties	Plants are mature, beans are fully developed, 50 percent of leaves have dropped and remaining leaves are yellowing
DEFOL 5 (SODIUM CHLORATE)	
All soybean varieties	Make application seven to 10 days prior to anticipated harvest
SHARPEN	
	Spray over the top of soybeans that have reached physiological maturity (all pods and seeds have no more green color)
Indeterminate varieties	Greater than 65 percent brown pods and greater than 70 percent leaf drop, or when seed is 30 percent moisture or less
Determinate varieties	Beans are fully developed, more than 50 percent leaf drop and leaves are yellowing

Products

Producers have several harvest aid options, with the typical application consisting of paraquat plus a nonionic surfactant or crop oil concentrate. In fields with excessive morningglory pressure, growers might consider including carfentrazone (Aim) or saflufenacil (Sharpen) with paraquat to improve desiccation of vines. In situations with high grass pressure, a tank-mix of paraquat with sodium chlorate may be warranted to improve the desiccation of grassy weeds prior to harvest.

Environmental conditions should be considered when choosing a desiccant. The Gramoxone SL label states it is rain fast in 15 to 30 minutes after application. Defol 5 label (sodium chlorate) states that applications should not be made if rainfall is anticipated within 24 hours, and as stated on the label, defoliation will be best on sunny, hot, humid days. The longer it remains on the plant, the better it will perform.

It is also imperative that producers consider the required PHI associated with each product. When using multiple products, the longest PHI must be adhered to. Labeled rates and comments are presented below in the excerpt from the 2018 Louisiana Suggested Weed Management Guide.

Table 2. Preharvest dessicants.

ACTIVE INGREDIENT AND RATE	FORMULATED PRODUCT AND RATE	WEEDS CONTROLLED	REMARKS AND PRECAUTIONS
carfentrazone @ 0.023 lb/A	Aim 2EC @ 1.5 oz/A Add 1% v/v crop oil concentrate	Better on morningglories than pigweed, sicklepod, etc.	Apply after crop has matured and grain has begun to dry down. More effective on annual vines. Do not apply within 3 days of harvest. Apply in 10 gal. by ground, 5 gal. by air.
saflufenacil @ 0.022 - 0.045 lb/A	Sharpen @ 1 - 2 oz/A Add 1% MSO + 8.5 lb/100 gal AMS	Morningglories and other broadleaf weeds	Apply once soybean has reached physiological maturity (all pods and seeds have no green color). Indeterminate varieties: 65% brown pods, more than 70% leaf drop, 30% or less seed moisture. Determinate varieties: more than 50% leaf drop and remaining leaves are yellowing. Preharvest interval is 3 days.
paraquat @ 0.126 - 0.25 lb/A	paraquat (2 lb/gal formulation) @ 8 - 16 oz/A; paraquat (3 lb/gal formulation) @ 5.4-10.7 oz/A Add 0.25% v/v nonionic surfactant	Desiccation of weeds and soybeans only	Indeterminate varieties: 65% of pods are mature or moisture content is 30% or less. Determinate varieties: 50% leaf drop and remaining leaves are yellow. Some drought stressed weeds will not be desiccated. Do not graze or harvest for hay. Apply in 20 gal. by ground or 5 gal. by air. Preharvest interval is 15 days. Immature soybeans will be injured.
sodium chlorate @ 6 lb/A	6 lb/gal formulation @ 1 gal/A 5 lb/gal formulation @ 1.2 gal/A 3 lb/gal formulation @ 2 gal/A	Desiccation only. Level of weed control is affected by environmental conditions.	Apply 7-10 days before harvest. Apply in 20 gal. by ground, 5 gal. by air. Check label for environmental conditions most favorable for desiccation. Apply under high temperatures and humidity.

Redbanded stink bug considerations

Across the state, redbanded stink bug (RBSB) numbers are down in 2018 compared to 2017. As the season progresses, producers should continue monitoring RBSB levels and should not rule out the inclusion of an insecticide with the application of a harvest aid.

LSU AgCenter entomologists recommend the control of threshold populations of RBSB until the soybeans are out of the field. This means the inclusion of an insecticide for the control of RBSB with a harvest aid application could be necessary (sodium chlorate cannot be tank-mixed with any organophosphate insecticides).

It is important to keep in mind the restrictions on many of the products at this point in the season. These restrictions may include total active ingredient restrictions and PHIs. Acephate, a common recommendation for RBSB control, can only be applied up to 2 lb ai per acre per year in Louisiana. Another insecticidal option that has demonstrated late-season control of RBSB similar to acephate is Lannate. Lannate has the same PHI as acephate (14 days) and mixes well with paraquat. Lannate, however, is a restricted use pesticide that carries a poison symbol. Applicators should follow all label requirements and exercise caution when mixing, loading and applying. Other insecticides also have increased PHI, such as the pre-mix product Endigo, which has a PHI of 30 days.

It is important to read all label materials prior to any use of labeled product. When label restrictions prevent the inclusion of an insecticide with the harvest aid application, growers should not delay the harvest of soybeans so the seed can be removed from the field as quickly as the label allows. §

Dry weather leads to severe nematode damage

BY CHARLES OVERSTREET

Many soybean producers have observed serious damage in a number of fields this year from the common Southern root-knot nematode. Although this nematode is a problem every year, 2018 seems to be particularly severe. Dry weather is certainly a major contributor to the damage that is occurring this year.

Figure 1. Severely stunted and off-color soybeans damaged by Southern root-knot nematode.

The Southern root-knot nematode is widespread in the state, occurring in most parishes. This nematode seems to favor coarse-textured soils, such as sandy loams and some silt loams. These are the areas in a field that are more prone to drought damage and often show the most damage from this nematode.

Although the colder winter we experienced last year seemed to decrease the initial populations of this nematode in many areas that I observed, the nematode rebounded very quickly in fields. The life cycle of this nematode is fairly short and only takes about 25 days to complete. Because each nematode that successfully matures to an adult female lays about 500 eggs, large numbers can build up quickly in a field. These high populations can cause severe damage to the roots of soybean plants and cause them to die prematurely. Dead plants will have smaller seeds because they did not reach full maturity. Because damaged plants are ready to harvest several weeks before the rest of the field, pods may simply shatter during harvest and yield poorly.

Resistance is one of the best methods of dealing with the Southern root-knot nematode in soybeans. Although there are not many resistant varieties, resistance really can be very effective. Even varieties that are considered to have moderate resistance can still be beneficial. Moderate resistance may still support some galling, but damage is usually not as severe on these plants. Resistant varieties can also reduce the populations of nematodes in a field and enhance production the next year if a susceptible crop is produced.

Crop rotation is not as effective against this nematode because most crops grown in Louisiana are susceptible. Even corn is a good host and can certainly maintain populations of the nematode in fields. Cotton and sweet potatoes are severely damaged by this nematode as well. The only truly immune crop that we produce is peanuts, of which we have only limited acreage.

We currently are on the lookout for a new nematode called the guava root-knot nematode. The damage will be more severe than even the Southern root-knot nematode. The guava root-knot nematode will be able to break resistance of any of the varieties that are normally resistant to root-knot nematodes.

If you have planted a resistant variety of soybeans and experienced severe damage, please contact your local AgCenter agent so we can investigate. So far, we have not experienced any issues with varieties that are resistant, and these varieties have been performing fine. §

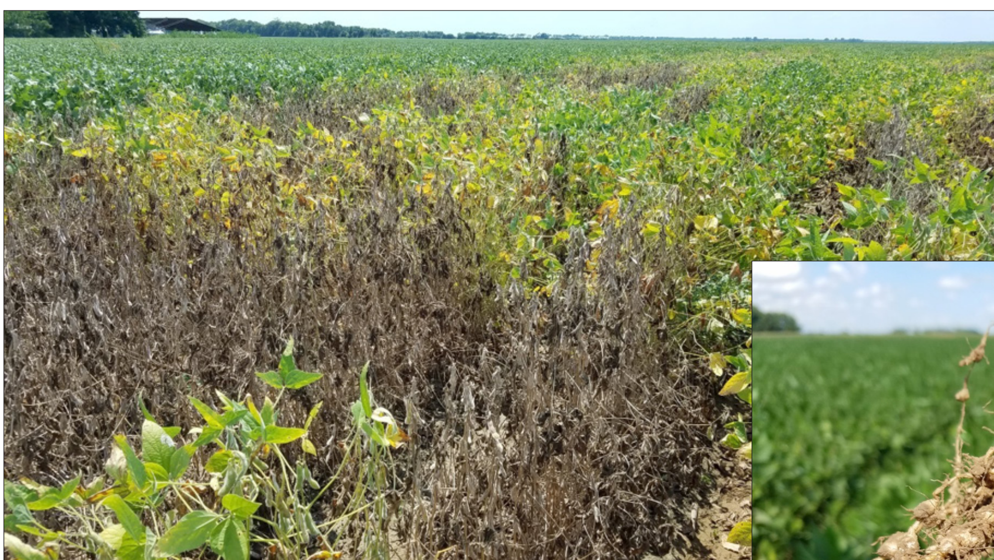


Figure 2. Field showing severe symptoms and early plant death in the sandy areas of a field from Southern root-knot nematode.

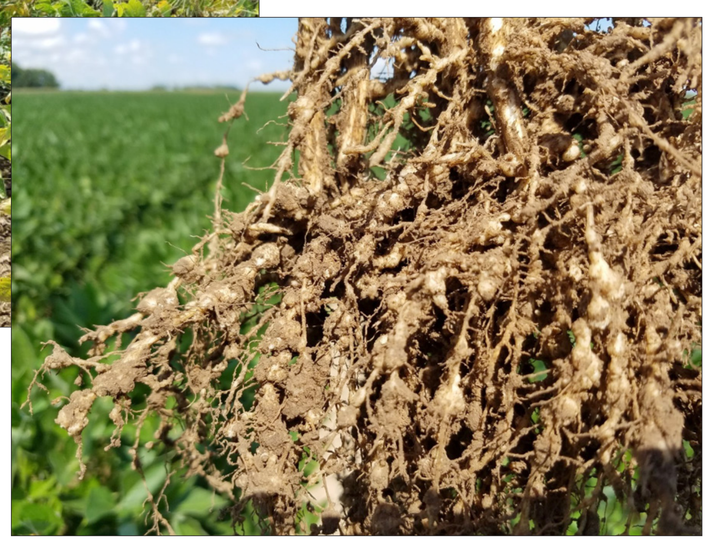


Figure 3. Severe galling from the Southern root-knot nematode evident on the roots of a soybean plant.

Mid- to late-season soybean disease guide

BY BOYD PADGETT AND TREY PRICE

For most of the growing season, soybean diseases haven't been much of an issue. However, in the past two weeks, we have observed low to moderate levels of aerial blight, charcoal rot, frogeye leaf spot, target spot and taproot decline.

An effective disease management strategy incorporates the following components: disease identification, cultural practices, genetic resistance and fungicides. Proper disease identification is crucial for effective management. This will determine which cultural practices are implemented, which varieties are selected, and the choice of fungicide and application and timing.

Here are some common diseases observed in mid- to late-season soybeans.

Foliar and stem diseases

Aerial blight can spread rapidly in soybeans if not properly managed. This disease is caused by the fungus *Rhizoctonia solani* and is favored by warm overcast days and extended periods of leaf wetness. This is the same fungus that incites sheath blight in rice. Initial symptoms appear as reddish-brown (sometimes water-soaked, greasy) blotches on leaves, usually in the lower to mid-canopy (**Figure 1**). As the disease progresses, white cottony fungal mycelium may cause adjacent leaflets to adhere together (**Figure 2**). If favorable conditions persist, the foliage becomes brown and blighted, and pods may have reddish-brown lesions. If the disease continues to progress, pods may be aborted. The disease is usually evident during early reproductive stages of growth and later. The potential for risk increases when soybeans are rotated with rice. This disease can spread rapidly and should be managed immediately upon detection if the crop is in the late vegetative or reproductive growth stages.

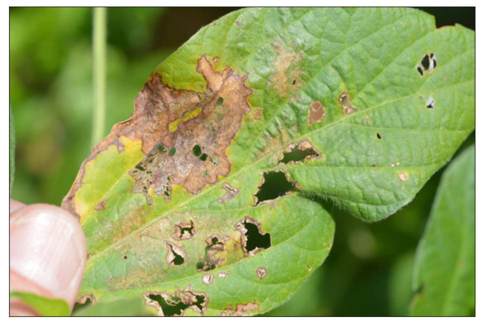


Figure 1.

Figure 2.

Bacterial pustule is caused by the bacterium *Xanthomonas axonopodis* pv. *glycines*. Symptoms of this disease are very similar to soybean rust. The disease, while found most years, is not a major disease of Louisiana soybeans. Symptoms begin as small pale green, water-soaked spots with elevated centers on the upper and lower leaf surfaces. As the lesions (spots) mature, they turn brown with elevated volcano-like pustules on the lower leaf surface and are easily confused with rust (**Figure 3**). Careful examination with a dissecting microscope or a 20X hand lens is required to distinguish between these two diseases. Pustules are dry in appearance and may be found on pods in susceptible varieties. Disease development is favored by temperatures between 85 and 90 degrees Fahrenheit and wet weather. The bacterium, which may be seedborne, survives on surface crop residue, on wheat roots and in weed hosts such as red vine. The bacterium may be dispersed by splashing water or windblown rain.

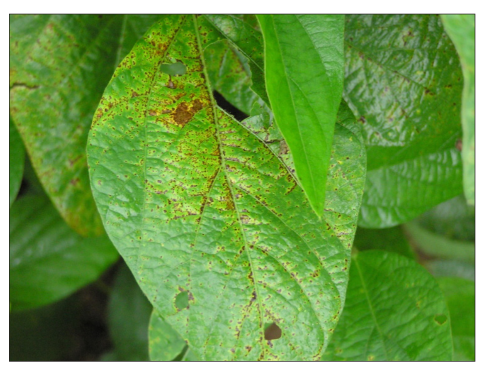


Figure 3.

Cercospora blight, or purple seed stain, is the No. 1 soybean disease in Louisiana. The disease is caused by at least three different Cercospora species. The fungus can infect seedlings, resulting in plant death, or possibly remain latent and not produce symptoms until R5. Initial symptoms appear as small chocolate brown or purple lesions on the petioles near the base of the leaflet (**Figure 4**). As the disease progresses, foliar symptoms are expressed as a reddish-brown, tan or purple discoloration on the upper leaf surface in the upper canopy. Leaves may have a leathery appearance (**Figure 5**). The fungus can sporulate in older lesions, and spore masses resemble ashes. Advanced stages of this disease result in premature defoliation, discolored pods and reduced seed quality. The seed phase of this disease is evidenced by purple-stained seed at harvest. Seedling infection is favored by moderate temperatures (70 to 80 degrees) and extended periods of leaf wetness (eight to 16 hours). However, petiole and leaf symptoms during late reproductive growth stages, including defoliation, are favored by hot, dry conditions. The pathogen may be seedborne and survives on plant debris in the soil. The fungus also has been isolated from some weeds.

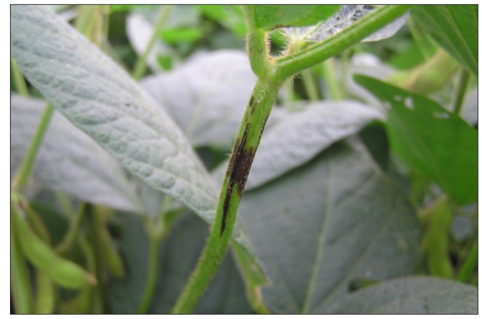


Figure 4.

Figure 5.

Downy mildew is caused by the fungus Peronospora manshurica. Currently, this disease is not a major threat to soybeans produced in Louisiana. Symptoms may be confused with those produced by soybean rust. Symptoms initiate as small pale green to yellow spots on the upper leaf surface (**Figure 6**). Older lesions or spots may turn gray to dark brown. When the disease is active, grayish tufts of fungal mycelium (similar to dryer lint) can be found on the underside of the leaf opposite the yellow spot. The disease develops rapidly when temperatures are between 50 and 77 degrees in the presence of extended periods of high relative humidity.

Figure 6.

Frogeye leaf spot is caused by the fungus Cercospora sojina. Symptoms are found predominately on the leaves but may also appear on the petioles, stems and pods. Initially, small chocolate brown spots can be found on the leaflets. If the disease continues to develop, mature lesions have light brown to gray centers with a reddish-brown margin (**Figure 7**). During favorable conditions, black fungal spores are produced in the center of the leaf spots (**Figure 8**). Stem lesions are rare and are elliptical with red centers and dark brown to black margins. Pod lesions are circular to elliptical, sunken and light gray to brown. Disease development is favored by warm, humid weather and frequent rainfall. The pathogen can survive on seeds and in infected plant debris.

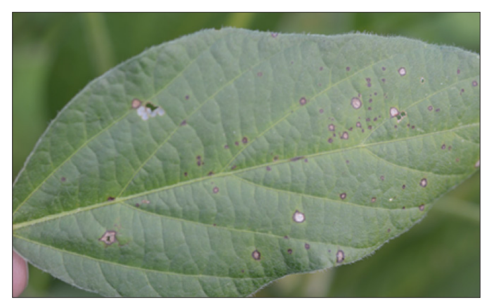


Figure 7.

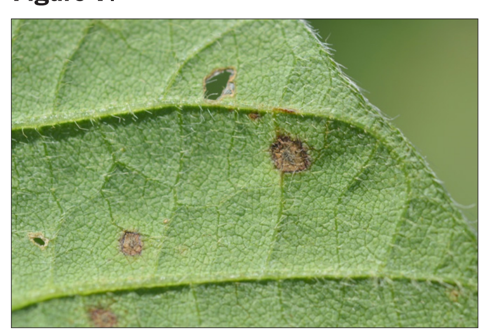


Figure 8.

Soybean rust is caused by the fungus *Phakopsora pachyrhizi*. Symptoms initiate in the lower canopy and begin as small, brown to tan raised (volcano-like) pustules on the lower leaf surface (**Figure 9**). Spores produced in these pustules resemble grains of sand and are tan when young. Older spores are darker in color. As the disease progresses, pustules may coalesce into blighted leaflets, causing the leaflets to defoliate. Symptoms are usually evident when soybean is in the mid (R3) to late (R6) reproductive growth stages. Pustules can also be present on petioles and pods when disease is severe. Kudzu is another host for this fungus. The disease develops rapidly when temperatures are between 59 and 77 degrees and when leaves remain wet for six to 10 hours.

Figure 9.

Target spot has been observed in many fields in Louisiana; however, the disease has not been severe as it was in the northeastern corner of the state in 2016. Target spot symptoms include concentric rings within lesions that are surrounded by yellow halos (**Figure 10**). Affected leaflets may turn yellow and fall off, with defoliation progressing from the lowest leaves upward. Petioles in the lower canopy may exhibit small CLB-like lesions caused by the target spot pathogen. Symptomology may vary with variety. Target spot can be a problem when very susceptible varieties are subjected to optimal conditions (frequent rainfall events) for disease development. This disease is probably one of the most common foliar diseases of soybean in the southern United States. It is observed annually, usually during late stages (R6 and beyond), but is rarely yield-limiting. Based on very limited data, fungicides, particularly SDHI compounds, may be effective on target spot; however, applications must be made prior to canopy closure to deliver the product low enough in the canopy to slow upward progression. Based on ongoing research in other states, it is very likely that resistance to strobilurin fungicides exists in this pathogen population. The odds of a return on investment are low when treating for target spot, as severe disease pressure is the exception rather than the rule.

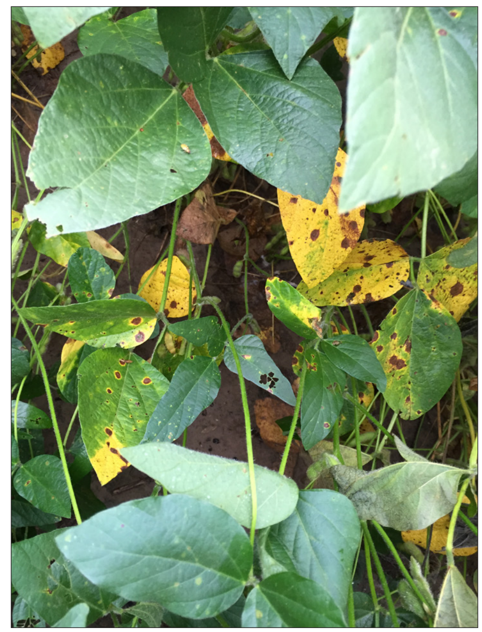


Figure 10.

Pod and lower stem diseases

Anthracnose is caused by the fungus *Colletotrichum truncatum*. Early infections can result in pre- and postemergence damping off. Foliar symptoms include petiole cankers, leaf rolling, necrosis of the laminar veins and premature defoliation. The fungus can produce acervulli (fruiting bodies that resemble black specks) on stems and pods (**Figure 11**). These bodies occur randomly — not in linear rows, as is the case with pod and stem blight. If the disease continues to develop on pods, seed quality will be compromised. The disease is favored by high relative humidity. Infection occurs throughout the growing season, and the fungus overwinters in crop debris and infected seed.

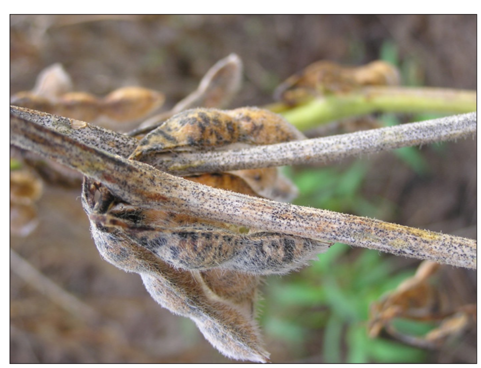


Figure 11.

Charcoal rot is caused by the fungus *Macrophomina phaseolina*. Infected seed may not germinate, and seedlings may die soon after emergence. Infected plants die prematurely during hot, dry weather. Symptoms occur in dry, sandy areas in a field. The roots and lower stems are deteriorated, and the epidermal and sub-epidermal tissue will be silvery and dotted with black pepper-like sclerotia (survival structures) (**Figure 12**). Seed from infected plants are usually smaller than normal but are not discolored or shriveled (**Figure 13**). Disease development is favored by hot, dry weather (82 to 95 degrees). The fungus can survive in the seed coat, host residue or soil.

Figure 12.

Figure 13.

Pod and stem blight occurs most frequently on pods and stems. The disease is caused by the fungus *Diaporthe phaseolorum* var. *sojae*. Infection may occur early in the season; however, signs of the disease are not evident until late season (R7). Pycnidia (fruiting bodies that resemble black specks) occur in linear rows on the stems and pods. If favorable conditions persist, seed quality will be compromised. This disease is favored by warm, wet weather, and the fungus overwinters in crop residue or infected seed.

Figure 14.

Red crown rot is caused by the fungus *Calonectria ilicicola*. Root infections may occur soon after planting, but initial symptoms are usually not evident until soybeans are in mid to late reproductive growth stages. Roots become black with rotted segments, and the base of the stem at the soil line may be covered with brick red reproductive structures (usually most evident when soil is very moist) (**Figure 14**). Foliar symptoms are characterized by interveinal yellow or brown blotches (**Figure 15**). Moderate temperatures and wet soil conditions at planting promote disease development. Maximum root infections occur when soil temperatures are 77 to 86 degrees. The fungus may overwinter in the soil and in infested plant debris on and in the soil.

Figure 15.

Taproot decline (TRD) is prevalent in northeast Louisiana again this year. This disease was formerly called black root rot or mystery disease. Symptoms of TRD may occur at any point in the growing season, with foliar symptoms of interveinal chlorosis or necrosis most evident (**Figure 16**). Plants adjacent to those exhibiting foliar symptoms may have died earlier in the season, often unnoticed. When pulled, affected plants may break off at the soil line. When excised, the surfaces of tap and lateral roots will exhibit black, discolored growth (**Figure 17**). If stems are split at the crown, there is often a white, cottony growth in the centers. In most cases, this disease goes completely unnoticed until pod fill (R5 to R6), where it appears at a distance as early cutout. It is often confused with sudden death syndrome. Very limited data — as well as ample observations — indicate rotation to corn or grain sorghum will reduce disease incidence and severity. Tillage also may lower the chances of TRD occurring. Results from greenhouse variety screening trials indicate that resistant varieties may be available.

Figure 16.

Figure 17.

Table 1. Conditions favoring development of diseases found in Louisiana soybeans.

DISEASE	TEMPERATURE (F)[1]	MOISTURE (RH or HR)[2] or DESCRIPTION
Foliar and stem		
Aerial blight	68 to 86	High RH or extended leaf wetness
Bacterial blight	85 to 90	Wet
Cercospora foliar blight	70 to 80	8 to 16 HR
Downy mildew	50 to 77	
Frogeye leaf spot	68 to 86	90 to 100 percent RH
Soybean rust	59 to 77	6 to 10 HR
Pod and lower stem		
Anthracnose	77 or greater	8 to 12 HR
Charcoal rot	82 to 95	Dry
Pod and stem blight	59 to 68	Wet
Red crown rot	77 to 86	Moist to wet

[1] Favorable temperatures for optimum disease development. Disease may continue to develop when temperatures are near the optimum range.

[2] RH = relative humidity, HR = hours of leaf wetness. §

Pay attention to insects in soybeans, cotton

BY SEBE BROWN

Soybeans

As Louisiana progresses into late summer, producers and consultants should be wary of late-season defoliators such as soybean looper, velvet bean caterpillar and lingering populations of corn earworms.

Soybean loopers (SBL) have the ability to build large populations quickly and are exaggerated by the use of broad-spectrum insecticides for three-cornered alfalfa hoppers and stink bugs. The threshold for SBL in Louisiana is 150 worms in 100 sweeps or eight worms that are one-half inch or longer per row foot. Because SBL are foliage feeders, adequate insecticide coverage is essential to limiting defoliation and reducing population numbers. Soybean loopers often initiate feeding in the lower portion of the canopy, defoliating soybean plants from the inside out. This cryptic behavior allows SBL to stay protected from some predators and insecticide applications in the dense canopy of soybean plants. Thus, good insecticide coverage is essential for optimal control of SBL. Insecticides currently recommended for use against SBL in Louisiana include Prevathon, Besiege, Intrepid Edge and Steward. Once soybeans reach R6.5, yield is set and protection from soybean looper defoliation is no longer critical.


Soybean looper.

Velvetbean caterpillars (VBC), like soybean loopers, can build large populations quickly and defoliate large portions of soybeans in a limited amount of time. The Louisiana threshold for VBC is eight worms that are one-half inch or longer per row foot or 300 worms in 100 sweeps. Unlike loopers, VBC are easily controlled with pyrethroids, and applications for insects such as stink bugs effectively control this pest.

As stated above, numbers of corn earworm (CEW) moths are declining, and instances of CEW infesting soybean fields around the state are becoming fewer. Of the previously mentioned caterpillar pests, CEW is the only insect that feeds on fruiting structures of the soybean plant. The Louisiana threshold for CEW is three worms per row foot or 38 in 100 sweeps after bloom. Corn earworms in Louisiana have the highest levels of pyrethroid resistance in the United States. Therefore, control of CEW with the use of a pyrethroid alone is strongly discouraged. Products recommended for control of CEW in Louisiana are Prevathon, Besiege, Intrepid Edge, and acephate plus pyrethroid.

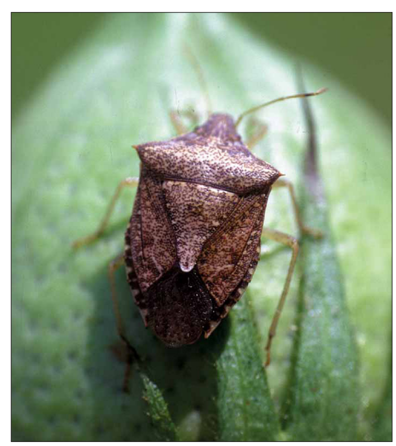
Finally, when making insecticide application decisions for caterpillar pests in soybeans, consider the insect species present, insect numbers present and defoliation percentage. After bloom, soybeans can tolerate 20 percent defoliation and not experience a significant yield loss. With insects such as CEW, pod and seed injury can occur without excessive defoliation.

Stink bug issues have been minor this season in most of Louisiana's soybeans. Brown stink bugs have been the predominate species found in north Louisiana, with increasing reports of redbanded stink bugs occurring as the season progresses. Brown and redbanded stink bugs can be difficult to control with pyrethroids, and acephate plus pyrethroid would a better control option in fields with populations of these insects. The Louisiana threshold for brown stink bugs is 36 insects in 100 sweeps, and the redbanded threshold is 16 insects in 100 sweeps.

Cotton

With much of Louisiana's cotton well beyond cutout, insect management decisions should be based on protecting existing harvestable bolls and insects present in the field. Once cutout (average of five nodes above white flower) is reached, growers and consultants can calculate the daily heat units (DD60s) from cutout and determine insecticide applications accordingly. Fields that have accumulated 325 DD60s are safe from plant bugs, and fields that have accumulated 350 DD60s are safe from first and second instar cotton bollworms. Fields accumulating 475 DD60s are protected from stink bugs.

Plant bugs have been persistent in many fields throughout the growing season, with insect numbers often reaching five to 10 times the threshold. Larger, more mature bolls are typically less susceptible to plant bug injury while smaller, less mature bolls may still be susceptible to adults and large nymphs. Overall, most of the harvestable bolls we now have should be safe from most plant bug injury, although adults and large immature plant bugs may still be a problem in later planted cotton. Therefore, plant bug treatment thresholds can be increased by 2.5, and small first and second instar nymphs can be omitted when determining insecticide applications.



Stink bug on cotton boll.

Brown, green and southern green stink bug numbers will often increase as corn is harvested and the cotton crop matures. The Louisiana threshold for stink bugs in cotton is when one adult or nymph is found per 6 row feet, 5 percent adults or nymphs are in sweep nets or 15 to 20 percent of 12- to 16-day-old bolls have internal injury. Late-season applications of acephate plus pyrethroid, ULV malathion and Bidrin XPII give satisfactory control of stink bugs and plant bugs. §

How to estimate cotton yields

BY DAN FROMME

Due to the promising 2018 cotton crop that is still out in the field, questions about estimating cotton yields have been asked. The old rule of thumb is about 10 to 12 bolls per foot of row will equal one bale per acre on 40-inch rows. The following table may be used to help make estimates of yields. §

Table 1. Bolls per row foot necessary to produce one bale (480 pounds) per acre at various row spacings and boll weights. Boll weight is expressed as grams of seed cotton. Lint percent is assumed to be 35 percent.

		BOLL WEIGHT (grams of seed cotton)		
ROW WIDTH (inches)	ROW (feet/acre)	5.0 grams	4.5 grams	4.0 grams
40	13,068	9.5	10.6	11.9
38	13,756	9.1	10.1	11.3
36	14,520	8.6	9.5	10.7
30	17,424	7.1	7.9	8.9

Watch for signs of cotton potassium deficiency

BY DAN FROMME

Late-season potassium deficiency symptoms are present throughout the state. Symptoms are seen in the upper third of the canopy and are characterized initially as yellowing between the leaf veins followed by a rapid change in leaf tissue to a red, orange or bronze coloration. The affected leaves continue to deteriorate, eventually showing brown necrotic lesions and leaf margins. Generally, secondary foliar pathogens such as Alternaria, Cercospora and Stemphyllium can be isolated from affected leaf tissue. These are not considered primary pathogens, but they attack these debilitated plants and contribute to leaf senescence and defoliation (**Figure 1**).

It is important to test the soil annually to determine seasonal crop needs. In addition, annual soil testing will provide a good history for tracking nutrient levels over time. §

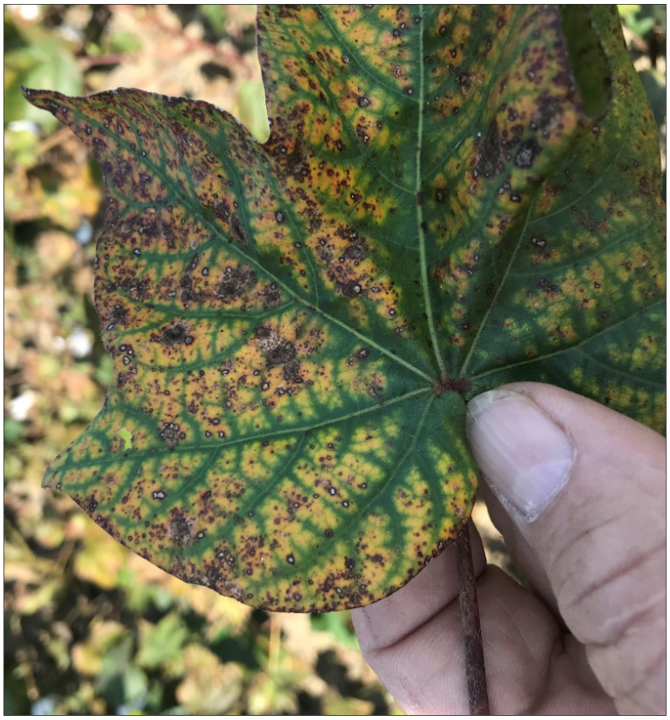


Figure 1.

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