LOUISIANA CROPS NEWSLETTER

Cotton, Corn, Soybeans, Sorghum, and Wheat

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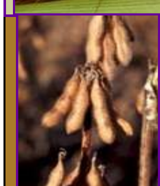
Inside this issue:



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Entomology Update

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Cotton

With the timely rains and warm temperatures experienced by much of Louisiana, the 2014 cotton crop has gotten off to a very good start and has the potential to be another record breaking year for producers. As such, weekly rainfall and limited use of broad spectrum insecticides such as pyrethroids and acephate has kept instances of spider mites very low around Louisiana. Of the applications that were made thus far, we only had one instance of an abamectin failure reported and that population was controlled by a rainfall event. However, producers and consultants should continue monitoring for spider mites as the season progress especially if the weather takes a dryer turn in the coming weeks.

Aphids are present in fields around Louisiana; however, many of these populations have either collapsed due to entomopathic factors or use of insecticides such as Transform for plant bugs.

Plant bug numbers are on the rise with much of the corn acres reaching maturity and many cotton fields at or very close to peak bloom. As stated above, the use of a pyrethroid or acephate early to mid-season is strongly discouraged due to pyrethroid resistance issues in tarnished plant bug populations and the flaring of secondary pests. These applications should be held off as long as possible to help avoid creating problems later season.

Soybeans

Soybean insect issues have been relatively minor in the past weeks. Fall armyworm populations are still present in the environment and younger replanted or double cropped beans are can still suffer excessive defoliation resulting in stand loss. Grass strain fall armyworms are very susceptible to pyrethroids and these insects typically migrate off of grass hosts once they have exhausted that resource or a herbicide application was made.

Unlike grass strain fall armyworms, corn strain fall armyworms typically arrive in late summer and are not susceptible to pyrethroids. Grass and corn strain fall armyworms are very difficult to distinguish from one another since they are physiologically the same insect but differ genetically. Corn strain fall armyworms will typically prefer corn, cotton and soybeans while grass strain fall armyworms typically prefer rice, broadleaf signal grass, Bermuda grass and Johnson grass. Products such as Belt, Besiege or Prevathon should be used to prevent excessive defoliation caused by corn strain fall armyworm.

Three-cornered alfalfa hopper numbers are increasing in many fields around the state. Preliminary research from the LSU AgCenter and Mississippi State University indicates that hoppers are causing less injury to reproductive soybeans (R1 and beyond) than previously thought. As a result, producers and consultants may want to take a less aggressive approach when making applications. The LSU AgCenter threshold for three-cornered alfalfa hoppers in soybeans is one insect per sweep at bloom (R1). This threshold is based on research conducted several years ago and does not reflect current state of production in Louisiana in terms of farming practices or varietal selection. Therefore, in light of current research, we are recommending a threshold of 2 hoppers per sweep in R1 soybeans. The risk of losing beneficial insects and causing secondary pest outbreaks such as soybean loopers and corn earworm outweighs the risks of yield loss caused by three-cornered alfalfa hoppers. However, this does not apply to soybean 8-10 inches in height. Hoppers can still cause significant stand and yield loss to seedling soybeans.

Sorghum

Over the past week (7/14 – 18), reports of control problems with applications of pyrethroids tank mixed with Transform for control of midge and white sugarcane aphid were expressed in North and South Louisiana. The use of a pyrethroid for control of sorghum midge is a common practice in Louisiana; however, pyrethroids are very toxic to beneficial insects and are very likely to flare white sugarcane aphids in grain sorghum. Co-appliations of Transform and a pyrethroid have led to white sugarcane aphids recolonizing fields very rapidly and often resulting in poor control of aphids overall.

Therefore, automatic insecticide applications for midge should be avoided, and applications should only be made if midge are present. The Louisiana threshold for midge in sorghum is at 25 – 30% bloom, treat for one or more midge per head. If midge and sugarcane aphids are present, tank mixed applications of chlorpyrifos and Transform will offer good midge control while also reducing the risk of flaring aphids. Chlorpyrifos may not be quite as effective as a pyrethroid for sorghum midge and large populations may require a second application 3 – 4 days later. Transform tank mixed with Dimethoate is another option for midge and aphid control; however, producers should be prepared to follow up with a dedicated midge application 3 – 4 days later.

Also, pyrethroid applications for the headworm complex in grain sorghum are strongly discouraged. Pyrethroid resistance is very common in sorghum webworm and corn earworm in Louisiana, and insecticides such as Belt or Prevathon should be used for headworms. These chemistries are Lepidopteran specific and will not harm beneficial insects or flare sugarcane aphids.

Managing Southern Corn Rust in Louisiana

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We have scouted several corn fields concerning reports of southern corn rust (SCR). These reports and field visits reveal an epidemic of southern rust across the state but in particular the south central and central corn growing regions. Field surveys indicate that SCR has been reported in 25 of 64 parishes and might be in more but have yet to be surveyed. The LSU AgCenter does not recommend an automatic fungicide application to corn. However, when disease epidemics are progressing up to and including the soft dough stage, an application of a labeled fungicide can protect yield and quality and still be economically viable.

Ideally, fungicides should be applied prior to disease onset, but realistically, fungicides are usually applied at or just after onset. Therefore, individuals should make efforts to detect and treat diseases as early as possible to prevent losses to yield and quality. When it is determined an application is needed, a premix fungicide will offer wide spectrum activity (examples are: Headline AMP, Stratego YLD, Quilt, and Quilt Xcel). Follow label instructions for application timings, rates, etc. In most cases, a single application at tassel is justified when disease is present and active. The decision to apply a fungicide should be made on a field-by-field basis. The remainder of this newsletter will address disease identification and management considerations.

Southern corn rust can be found in Louisiana corn fields every year, but its impact on grain quality and yield is dependent on several variables. Although there is some level of resistance, it seems very low. What hybrids were considered to be resistant to SCR in the past are no longer, due to new race development found in Georgia four years ago. Therefore, the decision to manage SCR with fungicides should be based on a solid understanding of disease initiation and development. While this disease rarely develops to statewide damaging levels in most years, disease incidence and severity in individual fields may warrant a fungicide application. However, before applying a fungicide, several factors need to be considered. These include: disease identification, environmental conditions favoring disease development, and the relationship between disease severity and yield loss.

Southern corn rust is caused by the fungus Puccinia polysora. Initial infections are caused by wind-blown spores. This is a warmer-season rust, therefore, usually occurs late season and does not always have adequate time to impact yield. However, this rust is very aggressive and if disease epidemics initiate early (prior to or at tasseling), yields could be reduced.

Conditions favoring development include, temperature of 80-90oF with high relative humidity or abundant rainfall. Once established the spores can survive, spread and germinate up to temperatures up to 104oF.

Southern rust produces small circular to oval pustules and contain orange to light brown spores (Figure 1). Pustules are usually more abundant on the upper leaf surface and may also be found on the leaf sheath and husks when disease is severe.

Risk and Management

Risk to disease is influenced by several factors including: genetic resistance, tillage practices, planting date, and environmental conditions. Later planted corn can also heighten risk to SCR.

The first line of defense for managing any corn disease should be selecting a disease-resistant hybrid. Since commercially available resistance is not an option, a fungicide may be needed. However, when SCR is not present a fungicide is not necessary. Another factor to consider is when SCR epidemics initiate relative to crop growth stage. The potential for yield loss is high when SCR develops prior to tasseling and conditions remain favorable for development during the growing season. When the rust initiates after tasseling, the potential for disease loss decreases.

The relationship of yield and defoliation can be found in Table 1 adapted from the National Crop Insurance Service 'Corn Loss Instruction'.

Table 1. Estimated % corn grain yield loss due to defoliation at various growth stages.

	% Defoliation									
Growth Stage	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**
Tassel	3	7	13	21	31	42	55	68	83	100
Silked	3	7	12	20	29	39	51	65	80	97
Silks Brown	2	6	11	18	27	36	47	60	74	90
Pre-Blister	2	5	10	16	24	32	43	54	66	81
Blister	2	5	10	16	22	30	39	50	60	73
Early Milk	2	4	8	14	20	28	36	45	55	66
Milk	1	3	7	12	18	24	32	41	49	59
Late Milk	1	3	6	10	15	21	28	35	42	50
Soft Dough	1	2	4	8	12	17	23	29	35	41
Early Dent	0	1	2	5	9	13	18	23	27	32
Dent	0	0	2	4	7	10	14	17	20	23
Late Dent	0	0	1	3	5	7	9	11	13	15
Nearly Mature	0	0	0	0	1	3	5	6	7	8

Adapted from the National Crop Insurance Service's 'Corn Loss Instruction' to represent the leaf collar growth staging method. Included in the Mississippi State University, Grain Crops Update June 4, 2010, Erick Larson.

Figure 1. Southern corn rust. Spores are orange.

Frogeye Leaf Spot Prevalent in Louisiana Soybean

Trey Price, Assistant Professor, Field Crop Pathology, Macon Ridge Research Station

Over the past two weeks, many reports of frogeye leaf spot have been coming in from all soybean growing areas in the state. Overall disease severity in susceptible varieties has been light to moderate. The disease is caused by a fungus, *Cercospora sojina*, and has the potential to reduce yield by reducing leaf area and causing defoliation. Losses of up to 30% have been reported in the past. The disease may also cause discoloration of seed reducing seed quality. When scouting for frogeye, initial foliar symptoms are dark, water-soaked spots (1 to 5 mm) which later progress to lesions with gray to brown centers and reddish margins. Symptoms will be evident usually around R3, but may appear earlier or later. The disease may progress with more lesions developing, which may coalesce resulting in large necrotic areas on leaves. If infection is severe, frogeye may cause defoliation of soybeans. Young leaves are infected more readily than older leaves, and patterns of varying degrees of disease severity may be observed within canopy levels. Closer examination with a hand lens, or sometimes with the naked eye, will reveal gray to black conidiophores (reproductive structures) within the center of lesions. The disease is spread by windblown or rain-splashed conidia (spores) formed on the conidiophores. Conditions favorable for disease development have been prevalent in our current weather pattern of consistent rainfall, high humidity, and warm temperatures.

Figure 1. Frogeye leaf spot lesions.

Figure 2. Coalescing frogeye leaf spot lesions (note the gray coloration near the centers

Figure 3. A moderate infection of frogeye leaf spot.

Frogeye leaf spot may be managed by a number of methods. The first line of defense is planting a resistant variety and pathogen-free seed. Although our data is limited on varietal susceptibility, in 2013, we were able to rate soybean varieties for frogeye at Dean Lee Research Station in Alexandria. Results of those ratings are posted at: http://www.lsuagcenter.com/MCMS/RelatedFiles/%7B271517B6-5563-4FB9-BF4F-3D211119F027%7D/Dean-Lee-OVT.pdf. Another list from our friends in Mississippi and Tennessee is located at: http://www.mississippi-crops.com/wp-content/uploads/2013/07/2013-soybean-short-list-frogeye-responses.pdf. If your variety of interest was not included in these sources, please contact your seed representative for more information.

Sometimes a fungicide application may be warranted for management of frogeye leaf spot in susceptible varieties when disease severity is moderate to heavy and conditions favor disease development. One important consideration when making application decisions is the fact that strobilurin fungicide resistance is likely in this pathogen population, and has been confirmed in 9 parishes in Louisiana. Even if strobilurin resistance has not been confirmed in your parish and if strobilurin fungicides have been routinely applied in the area, it is likely that the majority of the pathogen population has become resistant. In some cases we have seen reduced efficacy of strobilurin fungicides (Aproach, Evito, Gem, Headline and Quadris) on frogeye leaf spot. In our trials in 2013 and others conducted throughout the United States, we have seen consistent reductions in disease severity when using triazole products such as Domark, Proline, and Topguard. Additionally, pre-mixes containing these triazoles have shown reductions in disease severity. Data is limited for Louisiana, and we have trials at several research stations examining fungicide efficacy for these products as well as others not listed.

Other considerations should include application coverage as it relates to nozzle type and water volume. Fungicides usually require a minimum of 10 gallons/A by ground and 5 gallons/A by air. Hollow cone or flat fan nozzles are recommended to achieve optimum droplet size. When applying fungicides, rotate chemistries to avoid resistance issues and prolong the usefulness of products. Please do not hesitate to contact LSU AgCenter via your parish agent, specialist, or nearest research station for additional information.

Bacterial Blight (Angular Leaf Spot) Observed in Louisiana Cotton Fields

Trey Price, Assistant Professor, Field Crop Pathology, Macon Ridge Research Station

Bacterial blight was once (prior to 1991) a major disease of cotton causing average annual losses of as much as 3.4%. In severe cases, losses ranged from 50 to 70%. From 1991 to 2000, average losses due to bacterial blight averaged 0.1%. Over the past few years, a resurgence of the disease has been noted in the Mid-South. Since 2009, the disease has been observed on many different varieties in many counties in Texas, Mississippi, Arkansas, and Missouri. This year the disease has been observed in three parishes to date. The causal agent of the disease is a bacterium, *Xanthamonas campestris* pv. *malvacearum*. This pathogen may affect all plant parts of cotton causing seedling disease and/or infection of leaves, vascular tissues, stems, petioles, bracts, and bolls. Foliar symptoms begin with small, water-soaked lesions on the underside of leaves that are "angular" because of leaf veins that restrict the movement of the bacteria. The lesions become visible on the upper surface of leaves and become necrotic (Figure 1), and the pathogen also may affect vascular systems in leaves resulting in purplish lesions that follow veins (Figure 2). Severe infections may result in defoliation. Stems and petioles also may be infected causing lodging, loss of branches, and/or leaf drop (Figures 3 and 4). Bolls also may be infected resulting in stained lint and possible transfer of the bacterium to seed.

Figure 1. Angular lesions caused by bacterial blight.

The pathogen may be seedborne, and in the past was successfully managed by acid-delinting and chemical treatments of seed. Infection occurs through natural openings or wounds to cotton plants. Survival of the pathogen on plant debris in the field may serve as initial inoculum the following cropping year. The bacterium is spread by wind, rain, insects, and equipment. Overhead irrigation or wind-driven rain will spread the bacterium during an active epidemic. Optimal conditions for disease development are high relative humidity (>85%) and temperatures ranging from 86-97°F.

Figure 2. Bacterial blight lesions following leaf veins.

Figure 3. Angular leaf lesions infection of petiole, and leaf drop.

Figure 4. Infection of stem and petioles causing leaf drop.

Planting acid-delinted or chemically-treated seed will reduce the chances of infection. Sanitary measures to avoid spreading the bacterium should be used in fields where infection has occurred. Rotation to a non-host or planting resistant varieties also are management options. Turning under plant debris will help by reducing the number of bacteria that serve as primary inoculum at the beginning of the next growing season. Avoiding rank canopy growth will reduce leaf wetness periods and may help to reduce disease severity. Managing insect pests will likely lessen the spread of the pathogen. Do not stop irrigating, but do not over-irrigate. Water stress could be more detrimental than the disease, and cotton plants may compensate for foliage loss. Most importantly, there are varieties available that are resistant to bacterial blight. Below are some external sources with more information. Please contact your local parish agent, specialist, or nearest research station if you suspect bacterial blight or require additional information.

http://lubbock.tamu.edu/files/2011/11/2010Bacterial.pdf

http://www.mississippi-crops.com/2012/07/13/bacterial-blight-of-cotton-update-july-13-2012/

http://www.arkansas-crops.com/2011/07/20/alert-bacterial-blight-of-cotton-found-in-arkansas/

Soybean Planting Dates – Optimal

Date of planting study – 12 varieties MG3, MG4 and MG5 soybeans planted ~every 2 wks.
Beginning March 21st, the last planting June 15th . 4 Replications

Early planting of soybeans has increased in Louisiana over the last several years because of grower success. Despite cold soil temperatures and slow plant growth of seedlings, producers have seen a yield advantage from early planting.

Optimal seeding dates for each maturity group planted in Louisiana are:

- Group III – April 15-May 10
- Group IV – April 15-May 10
- Group V – March 25-May 5
- Group VI – March 25-April 30

Upcoming Calendar of Events

Aug. 7, Sweet Potato Field Day at the Sweet Potato Research Station, Chase.

Oct. 9, Landscape Horticulture Field Day at the Hammond Research Station, Hammond.

For additional calendar information on LSU AgCenter Parish and Statewide events, visit our website at www.lsuagcenter.com/calendar

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http://louisianacrops.com

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