

# BLACKLANDS IPM UPDATE

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## GENERAL:

More rain over the last 7-10 days has led to excessive soil moisture, field flooding, and washouts within area fields. This wetter and cooler weather continues to have negative impacts on area fields, especially those that are planted with cotton. Corn and sorghum in areas that drain well are loving the recent and current weather pattern, however, these weather conditions have been favorable for leaf blight in sorghum, Northern Corn Leaf Blight in corn, and Southern rust in corn. Low lying fields and areas of the fields that tend to hold water like terrace channels have turned chlorotic and growth stunted due to prolonged periods of over saturated soils. Cotton growth remains slow across the area, and most fields are behind where they should be in plant development based on planting date. The cooler wetter weather has caused unfavorable growing conditions for cotton, and we could use a 1-2-week dry period with sunshine and warmer temperatures to dry fields out and get our cotton to grow better. When we get prolonged periods of wet and cool weather plants become very susceptible to thrips damage and seedling disease, both of which are currently impacting area cotton fields. Other downsides to the excess rain are issues with weed control as our preemergent herbicides have now played out, and delayed wheat harvest which can increase the risk of seeing wheat sprouting in the head.

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## SORGHUM:

The sorghum that I have checked looks good, except for low lying areas of fields and terrace channels which are stunted and turning chlorotic due to waterlogged soil conditions. Insect pests in sorghum remain quiet, but I have found some leaf feeding damage from either corn earworm or fall armyworm that is very minimal across both the fields and area. Sorghum aphids (formerly sugarcane aphid) have not been found in the fields I am regularly checking ([Figure 1](#)). I have also inspected Johnsongrass across the county and have not found sorghum aphid infesting johnsongrass in the roadside ditches. Their populations are starting to increase in portions of South Texas, so it is one insect we will need to keep an eye on as we progress through the season.



**Figure 1.** Sugarcane aphids on a sorghum leaf, with a winged adult. Photo credit: Xandra Morris.

This week while walking sorghum, I did pickup on some leaf blight in area fields ([Figure 2](#)). Leaf blight in sorghum causes lesions that are elongated with a gray center that is bordered by tan and reddish colors. This disease is caused by the same fungus as northern corn leaf blight and is favored by the same weather conditions including prolonged periods of moisture either from rain or dew, and temperatures between 65-80F. At this time the level of leaf blight I am seeing in area fields is extremely low, and we are still a little early in the season where a fungicide treatment would be of any benefit, if at all. This disease rarely reaches economic damaging levels in the Texas Blacklands, but if our weather pattern does not change soon, it is something we should keep on our radar.



**Figure 2.** Leaf blight of grain sorghum. Photo credit: Pioneer Hybrid, [https://www.pioneer.com/us/agronomy/diseases.html#LeafDisease\\_3](https://www.pioneer.com/us/agronomy/diseases.html#LeafDisease_3)

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## CORN:

For the most part corn across the regions looks very good thanks to the mild temperatures and consistent rainfall not allowing fields to become stressed by drought or high temperatures. With the current weather pattern though some disease risks have increased, mainly around northern corn leaf blight (NCLB) and southern rust. Nutrient deficiency is also a concern for some area fields, especially around Nitrogen which is highly mobile within soil water.

Northern corn leaf blight is not a new disease of corn for the Texas Blacklands. The most recent widespread occurrence of the disease was back in 2020, when we had growing conditions very similar to what we are in currently. The NCLB is characterized by elongated lesions that can resemble a cigar and can be tan to grayish in color. Eventually the fungus will start to produce spores within the lesion that can range from olive-green to black and can give the lesion a dirty appearance ([Figure 3](#)). This pathogen is favored by wet humid weather with mild temperatures, and the fungus does not do well once our temperatures start increasing above 80F. Historically, this disease has not been an economically important disease for corn thanks to our typical weather pattern getting drier and warmer during the key growth stage of tassel emergence through soft dough. Lesions from the disease will start in the lower canopy where humidity is usually the highest, and as weather conditions remain favorable will move up the plant. Much like with wheat where we want to protect the top few leaves, in corn we want to minimize the amount of disease on the ear leaf and the leaves above the ear, as they provide most of the energy the plant needs to fill out the kernels. Management options for NCLB include hybrid selection, crop rotation, and plowing under residue. Fungicide applications may be needed with a susceptible hybrid and favorable weather conditions. Hybrid selection is probably the most effective management option, as there are commercially available hybrids with varying levels of resistance to the pathogen. This pathogen will survive to the following year on infected crop residue, therefore management options like crop rotation and residue management can reduce the risk for NCLB. Rotating away from corn for one season should provide a good reduction in the inoculum load. Additionally, tillage that buries or speeds up the decomposition of infected crop residue can reduce the risk of a field becoming severely infected with NCLB. Fungicides can be used in corn to manage NCLB, but recent research by Dr. Tom Isakeit and myself did not see a benefit from a fungicide application in this area. This is due to our weather typically warming up and drying out causing an unfavorable environment for NCLB development. However, if our weather conditions remain mild and wet, we could see some fields that may benefit from a fungicide application, especially those fields that were planted with a hybrid that is very susceptible.



**Figure 3.** Northern corn leaf blight in corn.  
Photo credit: Daren Mueller, Iowa State University, Bugwood.org

Another disease we need to be on the lookout for is southern rust, which is being found in South Texas and the Lower Rio Grande Valley. This disease can cause economic loss to susceptible corn in the Texas Blacklands if not treated. The action threshold for spraying is when about 50% of plants in fields reach roughly 5% leaf area covered with rust, between the silking and grain fill growth stages. Southern rust should not be confused with common leaf rust which occurs in the Blacklands just about every year, but never develops to economical levels. Southern rust pustules are orange in color and circular and tend to be more densely located on leaf tissue (**Figure 4**). Common leaf rust tends to be a darker red color with elongated pustules that are spread out across the leaf surface. Depending on when the southern rust infection occurs during the growth of the crop, a fungicide application could be beneficial to both yield and economic return. Southern rust infections start in the lower canopy and move upwards when weather conditions remain favorable for disease development. The two management options for southern rust in corn include hybrid selection and fungicide applications. Southern rust resistance ratings for hybrids can be obtained by looking on the seed company's website or reaching out to your seed representative. Fungicides are highly effective against southern rust, but timing can be critical. If fungicides are applied too early (prior to silking), there may need to be a second application. (**Table 1**).



**Figure 4.** Southern rust (left) and common leaf rust of corn (right).  
Photo credit: Tom Isakeit



TABLE 1. POSSIBILITIES OF BENEFITS OF SPRAYING FOR SOUTHERN RUST DEPENDING ON THE CROP STAGE WHEN IT IS FIRST DETECTED.		
CROP STAGE	POSSIBLE BENEFIT FROM SPRAYING	COMMENT
Vegetative	None	
VT (tasseling)	Maybe, with a late-planted and very susceptible hybrid	May need a second spray
R1 (silking)	Yes	May need a second spray
R2 (blister)	Yes	Less likely to need a second spray
R3 (milk)	Yes	No second spray needed
R4 (dough)	Maybe, with severe disease pressure	No second spray needed
R5 (dent)	Less likely	No second spray needed
R6 (black layer)	None	

## FUNGICIDE TIMING & SELECTION:

Fungicide timing is critical in managing the disease and minimizing yield loss by the target disease(s). For both NCLB and southern rust depending on the severity of the disease fungicides applied around the time of tassel or silk emergence will typically provide the highest efficacy and economic return. Product selection can also determine how well your fungicide will protect the plant from either disease. Most fungicides used in corn production belong to one of three fungicide classes including triazole, strobilurin, and SDHI; all have different modes of action against fungi. The triazole class of fungicides inhibits ergosterol synthesis which inhibits the ability of the fungal cell to be produced. The triazole class of fungicides mainly controls diseases that are already actively infecting the plant, which is why this class is commonly called a curative fungicide. This refers to microscopic, invisible infections; visible pustules will not be killed and can still produce spores. The one downside to the triazole class of fungicides is their length of residual activity, which is roughly 14 days. The strobilurin class of fungicides inhibit spore germination as the fungus is trying to infect the plant and is why they are commonly referred to as preventative fungicides. The benefit of using a strobilurin class fungicide is their length of residual activity, which can be about 4 weeks after application. The last fungicide mode of action class commonly used in row crops is the SDHI class. Fungicides in the SDHI class control fungi by inhibiting electron transfer that is important for energy production. The benefit of the SDHI and Strobilurin class of fungicides is their length of residual activity, and that if applied prior to infection can stop the disease from infecting the plant which is why they are commonly classed as preventative fungicides. When dealing with both NCBL and Southern rust, depending on application timing it may be more cost effective to apply a fungicide that contains a triazole fungicide and at least a strobilurin based fungicide as this would provide control of the fungi already infecting the plant, and control any new spores trying to infect the plant.

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## COTTON:

Cotton across the areas is still suffering from cooler temperatures and excess soil moisture. Due to this current weather pattern, we are seeing cotton growing much slower than we would like and have made thrips a very big issue over the last 14 days. Currently thrips populations are low compared to last year ranging from 0.6 per true leaf to 2 thrips per true leaf in some areas, but compared to last year their damage is much more severe. Some fields were sprayed last week, but the bulk of the fields were sprayed this week. Those fields that were sprayed last week with 4 oz of acephate are starting to see adult and immature thrips moving back into the field and risking the fields needing to be sprayed again. It is not uncommon to see multiple insecticide applications for trips when we get weather patterns like we have been in for the last 3-4 weeks. The economic threshold for thrips is recommended at 1 thrips per true leaf but when we get into periods of very slow growth it may be necessary to bump the economic threshold down to 0.5 to 0.75 thrips per true leaf to avoid anymore delay in maturity and avoid economic loss. Insecticide options for trips that are highly effective include acephate, dimethoate, Bidrin, Intrepid Edge and Radiant.

Another insect pest being found in area cotton fields is aphids. It is not uncommon for aphids to be present in seedling cotton in the Texas Blacklands, especially when the weather is cool and wet, stressing the plant. Currently, the aphid numbers are so low that I am not making pesticide recommendations to control thrips and try to suppress aphid populations. I am finding them mainly in the terminal and the newest leaf that is starting to unfurl. Other places we can see aphids feed include the underside of leaves, the leaf petiole and stem. Signs on the plants that there is a heavy infestation including honeydew on leaves below the aphid colony, and infested leaves starting to cup downward. Feeding from aphids removes carbohydrate from the plant that it would have otherwise used to set fruit or growth new nodes and stress the plant. As we progress through the growing season, we need to keep an eye out for aphids, and make pesticide selection for fleahoppers and may a second thrips shot based on the occurrence and population size of aphids in the field(s), so we can avoid the plant being stressed another factor especially one that we can control.