# Blacklands IPM Update

**GENERAL:**

Corn planting was winding down and cotton planting was starting prior to the rain moving through on Tuesday night. Some producers on the Western and Northern portions of the county were able to finish cotton planting earlier this week. The storms that blew through overnight Tuesday and into Wednesday morning is going to be both beneficial and harmful at the same time. Some of the corn in the area was in need for some moisture on some of our lighter soils, and some cotton ground was a little drier than desired to plant cotton into and these acres will benefit the most from the rain. The rain and wind could negatively impact the wheat crop by delaying crop maturity and causing some lodging in area fields. There is a disease present in a few fields in the area that I need to address because talking with some other people that are checking wheat, they too are observing the symptoms making this disease more widespread. About 2 weeks ago I was observing head showing symptoms of Fusarium head blight and submitted samples the Texas High Plains Plant Disease Diagnostic Lab, and late last week I received the results that confirmed it was FHB I was seeing in area wheat fields. The fungus that cause FHB can produce the mycotoxin deoxynivalenol (DON) which is also called vomitoxin, which just like aflatoxin and fumonisin can have impact on the marketability of wheat grain.

**WHEAT:**

The area wheat crop looks god with fields turning color quickly thanks to warmer rain free weather we had for the last 10 to 14 days. The wheat across Hill County ranges from the late milk to early dough stage in some of our younger wheat fields to a firm/hard dough in our later wheat. The rains received over Tuesday night and into Wednesday morning were not helpful for the area wheat crop. This rainstorm is going to extend the time for our wheat crop to mature and dry down to a harvestable moisture content and will cause it to sit in the environment at be at risk of yield loss caused by environmental conditions. This rain even could also spread some head diseases such as black chaff which is widespread across the area for the second year in a row, as well as Fusarium head blight which in present in some area wheat fields. Black chaff is widespread in area wheat fields again for the second year and we need to start taking records of what fields have symptoms of black chaff so w know which fields not to keep seed from to use for planting in the fall.

Fusarium head blight (FHB) or sometimes commonly called head scab is caused by the fungus *Fusarium graminearum* which can also be found infecting corn, oats, and other grass plants in the environment. In Texas FHB is not a common wheat disease, but in other wheat producing states FHB can cause a significant loss in both yield and grain quality. This disease just like Aspergillus and Fusarium ear rot in corn, can be an indication of a potential mycotoxin issue.

Symptoms of FHB are mainly found on the wheat head and grain but can also be observed on the peduncle. The symptoms of FHB is first noticed as bleaching of some or all of the spikelet on wheat head (**Figures 1 & 2**). As the infection progresses the fungus moves into the rachis (Stem that the spikelet attaches to), and spikelets above and/or below the initial infection site can become infected. If the spikelet is inspected with a hand lens you may be able to observe spore masses that are pink to orange in color, and these spore masses are typically produced when the environmental conditions are wet and/or humid. Kernel produced in infected spikelets are discolored, shriveled, and light weight and are commonly referred to as tombstones.


**Figure 1.** Bleached spikelets caused by an infection with Fusarium head blight.


**Figure 2.** Fusarium head blight infected wheat head. Notice the pink to orange discoloration of the spikelets in the red circle. This discoloration is caused by the fungus producing spores.

Fusarium head blight is favored by temperatures between 75°F and 85°F, with as little as two or three days of light to moderate rain around pollination. The wheat plant is susceptible to FHB from flowering through the early dough stage (Feekes 10.5.1 and Feekes 11.2). The fungus that causes FHB can carry over from one crop to the next on infected residue. When spring arrives and conditions become humid and frequent rains are received the fungus on the infected crop residue will produce and release spores that are then moved to a susceptible wheat crop by wind currents. Most of the wheat in our area follows corn, which is commonly infected with Fusarium ear rot, and when we leave a lot of residue on the soil surface our chance for FHB in wheat is increased.

Management of FHB requires an integrated approach utilizing host plant resistance, cultural control, and chemical control if weather conditions are conducive for disease development. The first line of defense against FHB is selecting a variety with resistance to the FHB pathogen. Currently there are no commercially available wheat varieties with a high degree of resistance to FHB, but there are varieties that are more susceptible than others. These resistance ratings will have to be obtained from your seed dealer or seed representative since currently the Small Grains Program within Texas A&M AgriLife Extension does not publish FHB resistance ratings on commercially available wheat varieties in their variety characteristic guide. The second line of defense is crop residue management. Since this disease is capable of overwintering on infected crop residue burying residue from the previous crop will greatly reduce the inoculum load in the environment and reduce the risk of FHB in the subsequent wheat crop. Most of the wheat in our area is planted behind corn, and we need to do our best to minimize the amount of corn residue that could be harboring the Fusarium graminearum fungus to minimize our risk of seeing FHB in our wheat. Crop rotation is a third management practice we could utilize to minimize the risk of FHB in our wheat crop and would include planting wheat behind a crop that is not a host of the fungus like cotton. This will be a difficult management option to implement because of when we need to plant our wheat crop and when our cotton crop is harvested. The last management option we must manage FHB is the use of fungicides. Depending on the timing of application, disease pressure, and the spray coverage, FHB can be suppressed with the application of fungicides. Research conducted in Indiana by Purdue University Plant Pathologist showed that the most effective time to apply fungicides to suppress FHB was the early flowering stage (Feekes 10.5.1), but applications made after the early flowering stage can still suppress FHB as long as the environmental conditions remained conducive for disease development. There is a risk assessment tool available online that can help determine the risk of FHB and if a fungicide application is warranted. The downside of this tool is that Texas is not included, it does include Arkansas, Louisiana and Oklahoma, and going back three to four weeks this tool had a moderate to high risk for FHB along the Texas border in all three states. Upon doing some investigation the reason Texas is not included is because FHB is not typically an issue in Texas because our weather around flowering is typically warm and dry, which is not conducive for FHB infection. Research conducted in the Midwest indicate that fungicide in the triazole family (tebuconazole, propiconazole, etc.) are the most effective at managing FHB, while strobilurin fungicides (azoxystrobin, pyraclostrobin trifloxystrobin, etc.) should be avoided and data has indicated that it could increase the level of DON contamination.

The fungus that causes FHB has the ability to contaminate the grain with DON, but having FHB symptomatic heads does not mean you will have DON contaminated grain. The fungus can produce DON until the grain's moisture content falls below 13 percent. Some ways to minimize the risk of DON contamination after the flowering stage include harvesting early and artificially drying the wheat grain to a moisture content below 13 percent. By harvesting the wheat crop before it reaches 13 percent moisture and artificially drying the grain reduces the amount of time the fungus has to produce DON and contaminate the grain. The second option to minimize DON contamination is to increase the combine's fan speed. Typically DON is concentrated in the shriveled discolored kernels called tombstones, and when you increase the fan speed on the combine you are able to separate the shriveled light weight potentially DON contaminated kernels from the heavier and probably non DON contaminated kernels. The last way to minimize DON contamination is to properly store the wheat grain. When wheat is stored properly at a moisture content at or below 13 percent moisture the level of DON will not increase while the grain is in storage.

**CORN:**

The corn crop looks good with the crop ranging from just planted to as old at the V8 growth stage in some of our earliest planted fields. Field work has been going for the last 10 to 14 days to get the emerged corn side dressed and some operations have started to apply their Afla-Guard or Aspergillus Flavus AF36 Prevail to help minimize the risk for aflatoxin contamination. Corn earworms have moved into the area, and I am currently seeing some whorl feeding in the non-Bt corn crop. I have not observed any feeding damage in the Bt corn I am looking at, but if you are seeing any damage please let me know because if there is enough damage I may be interested in collecting larvae from the field for resistance screening.

**COTTON:**

Cotton planting is in full swing, and some of the early planted fields are were starting to emerge earlier this week. We need to keep a close eye on thrips in this young cotton, as our winter and early spring moisture has led to an abundant amount of grasses and other plants growing along roadsides and in bar ditches. The areas wheat crop is also starting to dry down as our cotton is starting to emerge, and the thrips in these wheat fields will soon be looking for new tender tissue to have as a food source. Thrips feeding damage can stunt the plant, delay maturity, cause a loss of apical dominance leading to a bushy plant, and in the worse worst case plant death. The economic threshold for thrips is 1 thrips per true leaf, so if a field in still in the cotyledon stage and average 1 or more thrips per a plant, an insecticide application is warranted to manage the thrips population.

**SCOUTING PROGRAM:**

The cotton, corn and sorghum scouting program is still open for fields to be signed up with plenty of room left. If you would like to sign up acres, please contact me by email or phone. The current rate is $6.00 acre for all crops.

Blacklands IPM Update is a publication of Texas A&M AgriLife Extension IPM Program in Hill & McLennan Counties.

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