BLACKLANDS IPM UPDATE

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GENERAL:

Field operations remain limited due to excessive soil moisture. The persistent rainfall has led to corn in the high ground of field to look good, but hopefully we continue to receive timely rains during grain fill as the plants likely do not have much of a root system. Portions of the Central Blacklands have received some severe weather over the last couple of weeks including high winds, large hail, and in some areas tornados. This has led to some significant damage in area crops including corn, wheat, and some cotton that was planted back in April. Disease issues in corn are minimal in the fields I have checked, but there is some Northern Corn Leaf Blight and common rust present. After getting some drying and finally seeing the sun for a day or so cotton has grown and starting to get to the point where thrips are no longer an issue. The wheat in the area is ready for harvest, but due to the recent rains fields have been too wet for harvest across most of the area. With the recent moisture and the dewy morning recently, there is a risk for wheat to have issues like light weight grain and possibly pre-harvest sprouting.

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CORN:

Outside of the low-lying areas of fields, or fields that poorly drain the area's corn crop looks good. With all the rain we have received this year we are seeing an impact on soil Nitrogen loss. Most of the corn in the Central Blacklands has tasseled or will be tasseled in the next couple of days. Last week we did have some severe weather that moved through the area and damaged some area corn fields. Most of the damage to corn over the last couple of weeks was due to hail damage and high winds. There are a lot of fields that experience leaf shredding from hail damage, however, there are some fields in the area that had plants snapped due to large hail and high winds. Assessing the amount and severity of the hail damage is important to get an idea of the fields' yield potential to help decide what additional inputs you want to put into the crop. Hail damage assessment should be postponed until about 7 days after the hail even to give the crop a chance to recover, so you can get an idea of what plants may have been killed by a potential hail strike. Hail damage impacts corn yields through reduction in plant stand, defoliation, and direct damage. The first step in evaluating the yield impact of hail damage is to estimate the reduction in plants per acre. Second you need to estimate the percentage of leaf area that was lost due to the hail. When estimating leaf area lost, include the area of the leaf that is no longer green, but is still attached to the plant. Sometimes leaves can get shredded and severely mangled, but still be attached to the plant. This leaf area that shredded but remains green and still attached to the plant should not be considered lost. Since both plant stand and leaf area are both important for yield, you need toad the estimated losses together. For example, if you estimate that the yield potential was reduced by 10 percent due to plant loss the fields yield potential the new yield potential is 90 percent. If you then estimate that there was an additional 20 percent yield loss from defoliation, you calculate the loss based on the 90 percent yield remaining after the impact of the plant stands was subtracted. I you are interested in assessing hail damage to your crop, there are tables available that provide estimated loss to yield cause be defoliation and plant stand loss.

Hail damage can not only cause direct yield loss from reduction in plants per acre and leaf area, but also through creating wounds on the plant that some diseases can use as a route of entry into the plant. Our common foliar diseases like Northern Corn Leaf Blight (NCLB), common rust, and southern rust can infect the plants without wounds being present on the plant. Fungal pathogens like common smut and stalk rot pathogens need wounds like these to infect the plant and are not effectively controlled using foliar fungicides. With that being said, the application of a fungicide to corn should be based on the presence and severity of foliar diseases on the plant, and not that the plants were damaged by a hailstorm. As we approach harvest it will be important to scout these hail damaged fields for stalk rots, so you can prioritize the fields for early harvest, or to be harvested first to avoid additional yield losses from stalk rots.

Outside of the hail damage, other issues I am observing in area corn fields include NCLB (**Figure 1**), and common rust (**Figure 2**). Northern corn leaf blight is present in some of the fields that I have walked in, but still at low levels that would not justify an application of a fungicide. Common rust occurs in our corn crop every year, but it has never reached a level that would cause economic loss. The pustules produced by common rust are elongated in shape and are a dark reddish-brown to rusty color. Common rust pustules can be found on both the upper and lower leaf surface, as well as on the leaf sheaths, and is favored by cool moist weather conditions. Looking at the extended forecast for the area, it appears that the development and spread of both diseases will being to decrease over the next couple of days as our temperatures start reaching the upper 80s and low

Figure 1. Northern corn leaf blight lesions on corn. Photo credit: Daren Mueller, Iowa State University, Bugwood.org

Figure 2. common rust on corn. Photo credit: Adam Sisson, Iowa State University, Bugwood.org

COTTON:

Cotton that has been planted is finally starting to grow and reaching the 4th true leaf stage in the fields that I have been scouting. Last week thrips pressure was heavy in these fields, and were treated. Looking at these fields this week the thrips populations were effectively controlled with 8 ounces of Acephate. I have started to pick up some sporadic aphid colonies in these fields, and currently these aphid populations are well below the economic threshold. Their presence may be beneficial at this time as they are attracting and providing a food source for beneficial insects. Currently the colonies are being attacked by parasitic wasps (**Figure 3**) and lady beetle larvae (**Figure 4**). Currently the cotton that is growing is starting to get to the point where we need to be closely watching for both pinhead square and fleahopper populations. At this time, it is starting to look like it is going to be a heavy fleahopper year, as I can find them easily in roadside ditches.

Figure 3. Aphid mummies caused by parasitic wasp. Photo credit: Pat Porter

Figure 4. Aphid colony being prey on by scymnus lady beetle larvae. Photo credit: John Jackman

For the cotton acres that are not yet planted but are going to be planted when fields dry out, I would suspect that thrips will not be much of an issue for the crop. This is because we will/should be planting cotton in great weather conditions that would lead to rapid early season growth. Cotton can outgrow thrips populations without the need for a foliar insecticide application, especially if the field has adequate moisture and warm temperatures where we are picking up 18-20+ heat units per day. Fleahopper populations should be watched closely in this late planted crop because we will 1) have a shorter season and will need to hold on to the early set squares to make a good profitable crop. Fleahopper can be devastating to late planted cotton and dryland cotton in the Texas Blacklands because we tend to run out of soil moisture and experience high temperatures that can cause square loss in July and August, reducing the ability of the plants to compensate for early season square loss like other cotton producing regions of the state.

Historically, we have recommended to treat fleahopper populations when there are 10-15% infested terminals, or 10-15 fleahoppers per 100 plants. I, along with Dr. David Kerns and Stephen Biles have been working on a project looking at the relationship between lint yield and fleahopper populations over the last 5 or 6 years. This allowed us to reevaluate the economic threshold for fleahoppers in cotton, and the data indicates that under water deficit production our current thresholds are too high. Based on the data, in production systems that experience water deficits, the economic threshold for cotton fleahopper is closer to the 3-6 fleahopper per 100 plants, depending on the cost of control. The lower cost of control lowers the threshold, and higher the cost of control higher the threshold.