Blacklands IPM Update

GENERAL:

Wheat harvest was well underway when rains over Memorial Day Weekend halted harvest operations. Wheat yield reports are ranging between 40 and 60 bushels per acre. The area corn crop is progressing nicely as the recent rains were timely with the early crop already past of currently pollinating, while the late planted crop is still a few weeks away from seeing tassels and silks emerging. There are a few issues in the area corn crop that need to be on our watch list, including northern corn leaf blight, rust, and spider mites. Cotton in the area ranges from 3 true leaf stage and still susceptible to thrips to pinhead squares. Cotton on the eastern side of the county that was planted late due to waterlogged soils is still battling thrips, while most of the cotton in the county is starting to set squares with minimal fleahopper issues currently. There are a few fields that were sprayed for thrips earlier in the year that now have white flies, but currently none of these fields are near the economic threshold for whiteflies.

COTTON:

The cotton crop is progressing nicely, and the majority of the fields in the area should be squaring in the next 7 to 10 days, although there is a handful of fields currently setting squares. The recent rains have created some fields to become waterlogged in spots leading to slower growth, and if these fields are not square yet need to be watched for thrips issues. Currently, the pest issues are much quitter this time of the year compared to last year. There are a few fields that are at threshold for thrips in the Southeastern area of Hill County, and a few fields in the north and western portions of the county that are at or near the economic threshold for cotton fleahopper. Fields that were treated for thrips earlier in the year also have low levels of both aphids and whiteflies, but are well below their respective economic thresholds. Beneficial insects are currently moving into area cotton fields where aphids are present.

The cotton fleahopper is a pale green with black spots and are roughly 1/8th of an inch long (**Figure 1**). The nymphs are also a pale green color with large red eyes. They feed on young tender tissue, especially small squares, the feeding on the small squares causes the plant to shed the squares, directly reducing the crops yield potential. The economic threshold for cotton fleahopper in the Texas Blacklands is 10-15 fleahoppers per 100 plants, and there are numerous insecticides labeled for fleahopper management some of which are soft on beneficials and have some residual activity. Setting square early in the growing season is key to maintain the crops yield potential, as the first few squares on the plant will become the biggest, most mature and worth more money than the squares and bolls set later in the season.

Figure 1. Adult cotton fleahopper. Photo credit: James Smith, Mississippi State University, Bugwood.org

Whiteflies and aphids have also been observed in a few fields that were sprayed for thrips at the seedling stage. Both the aphids and whitefly populations are below the economic thresholds and thanks to the beneficials moving into area fields should help keep their numbers suppressed for some time. In Texas the most common whitefly species are the silverleaf whitefly, and banded wing whitefly. Currently I am observing silverleaf whiteflies in some area cotton fields. The silverleaf whitefly has solid white wings and a yellowish body (**Figure 2**). The nymphs are flat scale like insects that are stationary on the lower leaf surface and are roughly 1/30th of an inch (**Figure 2**). This insect feeds on the cells of the plant on the underside of the leaf and can cause reduced plant vigor, stunted growth, premature defoliation, and the honey dew produced can cause sticky cotton if open bolls are present when the whiteflies are present. The economic threshold for whiteflies is dependent on the number of adults and nymphs present on the 5th node below the plant's terminal. There are a number of insecticdes labeled for whitefly management in cotton, many of which we also use for fleahopper management such as acetamprid (Intruder Max 70WP & Strafer Max), acephate (Orthene 97 and generics), thiamethoxam (Centic), and imidacloprid (Admire Pro and generics).

Figure 2. Adult whitefly and nymph. Photo credit: Pat Porter.

The presence of both aphids and whiteflies in area cotton fields is not a major concern for me, but their presence will need to be taken into consideration when choosing insecticides for future pest issues. Both aphids and whiteflies can reproduce rapidly, especially when beneficial insects are not in the field to help keep their population suppressed. In a field is at threshold for fleahoppers or another insect pest, fields should also be inspected for the presence of aphids and/or whiteflies and select an insecticide that will preserve the beneficial insect population or that will control the target pest and the aphids and/or whiteflies in the field while also trying to preserved the fields beneficial insect populations.

CORN:

The area corn crop ranges from the V6 growth stage to as late as the R2-R2 growth stage (blister to milk stage) and growing nicely thanks to the recent rains. However, these recent rains have also created a favorable environment for the development of diseases like northern corn leaf blight and common rust. Corn earworms are still being found in area corn that are either non-Bt or have only two Bt toxins. Spider mite populations were starting to be found prior to the recent rains, and colony growth has slowed thanks to the rain and cooler temperatures, but their presence in the corn fields should continue to be monitored as they can reach economic populations quickly during hot and dry weather.

Northern corn leaf blight (NCLB) has become active in area fields, especially fields that have already reach the reproductive stages where the canopy temperature can be lower and the humidity in the canopy be higher. Looking at the forecast for the next two weeks, it does not appear to be favorable for further disease development, so this disease could have a minimal impact on yield. Symptoms of NCLB start as long narrow tan lesions, and as they continue to develop the begin to produce the characteristic cigar shaped tan to grayish lesion (**Figure 3**). When the humidity is high the fungus will produce spores that are olive green to black in color, and these spores will give the lesion a dirty appearance. Northern corn leaf blight is favored by moderate temperatures between 64 and 81°F and wet, humid weather. Management options for NCLB include crop rotation to avoid corn behind corn, selecting hybrids with known resistance to the disease, managing infected residue, and the use of fungicides. Fungicides should only be used when the disease is present, and the environmental conditions are favorable for further disease development. I do not know of any data on how fungicides perform against NCLB in Texas, or how the use of fungicides against NCLB helps to prevent yield loss. Data from Purdue Extension shows that NCLB can reduce yield by as much as 30 percent when the disease is present prior to or at tasseling, it is important to know that this data is from an environment that is much more conducive to the development of NCLB. In Texas, this value is probably much lower, especially in central Texas where there is minimal irrigated corn and the weather is warmer than the optimal temperature range for disease development.

Figure 3. Northern corn leaf blight lesions found in corn from Hill County.

The recent rains have also cause common rust to be found in area corn fields. There are two rust diseases that infect corn including common rust and southern rust. Common rust never reaches level to cause economic yield losses in Texas, but Southern corn rust can reach levels that will cause economic yield loss. Common rust pustules are dark red in color and oval to elongated in shape, while southern rust is pustules are circular, slightly raised and orange in color (**Figure 4**). Pustules of common rust is sparsely scattered across the leaf while southern rust pustules will be clustered together on the leaf. Southern rust infections begin in the lower canopy and progresses up the plant while conditions are favorable. In Central Texas is really common to find common rust in corn around this time of the year, but as the temperatures begin to get above 90°F the disease development will slow, but it is not common to see southern rust in Central Texas corn, as the weather conditions are not typically conducive for development. At this point in time I have not hear of any reports of Southern rust in the Central Texas area, or even down in South Texas where it is more common to find this disease. Tom Isakeit, Extension Plant Pathologist out of College Station has put together a good document about Southern rust, and this document covers when to spray based on current and future weather conditions and the crops growth stage and can be found at: https://agrilifecdn.tamu.edu/coastalbend/files/2017/05/Southern-Rust-of-Corn_2017.pdf

Figure 4. Southern rust (left) and common rust (right) on corn in Texas. Photo Credit: Tom Isakeit

Prior to the recent rains spider mite colonies were starting to be found in area corn fields, and earlier this week while looking at some corn field I found some small colonies low on the plant. The recent rains and cooler temperatures did suppress the spider mite population, but if the weather forecast hold true for the next 10 to 14 days we could seed spider mite colonies increase and become an economic issues, especially in our late plant fields. In Texas there are two common spider mite species that affect corn, and these are the Banks grass mite and the two spotted spider mite. Both species affect the plant the same, but it is important to get an accurate identification of the species before selecting a miticide, because some miticides are not effective against both species. To accurately identify the two species apart you will need a hand lens or magnifying glass that has at least 10x magnification. The Banks grass mite has its food sacks on either side of the body that extends the entire length of the body on both side of the abdomen, while the two spotted spider mite's food sack does not extend the full length of the body and give the mite the appearance of having two dots on either side of the body (**Figure 5**). Spider mites are found on the lower side of the leaf near the mid-rib and as the population grows the mites will eventually take over the entire leaf and then start moving up the plant. Symptoms of spider mite damage include a sliver to gray appearance of the lower leaf surface, webbing on the lower leaf, and yellowing of the upper side of the leaf where the spider mites have fed. Spider mite infestations can cause yield losses as much as 20 percent, but once plants reach the dent stage spider mite infestations do not cause a yield loss.

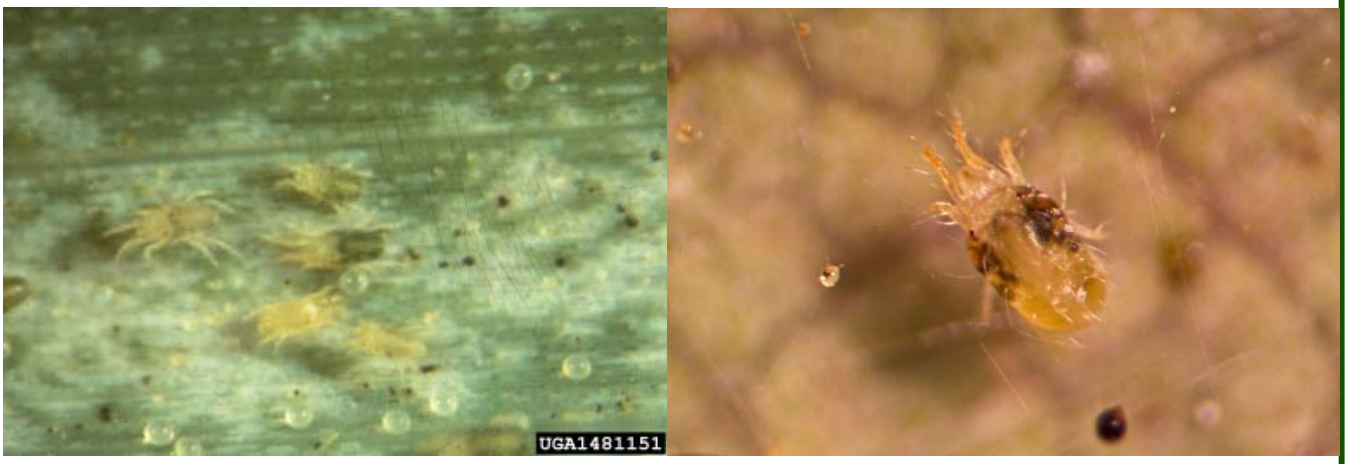

Figure 5. Spider mites on corn, Left is the banks grass mite and the on the right is the two spotted spider mite. Photo credits: Frank Peairs, Colorado State University, Bugwood.org (left) and Pat Porter (right)

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Authors:
Tyler Mays, Extension Agent-IPM Hill & McLennan Counties
Zach Davis, County Extension Agent-AG/NR

126 South Covington Street
P.O. Box 318
Hillsboro, Texas 76645
Phone: 254-582-4022
Fax: 254-582-4021
Mobile: 979-482-0111
Email:Tyler.mays@ag.tamu.edu