Blacklands IPM Update

GENERAL:

Wheat across the area looks good, with most fields in the scouting program flowering. The recent rains have been both good and bad for the wheat crop, providing enough moisture to finish off the crop, and creating a favorable environment for disease development. The wet and mild weather over the last month has allowed diseases like Septoria/Stagnospora leaf blotch, glume blotch, tan spot, and powdery mildew to become established in area wheat fields. If this wet weather continues over the next few weeks, we could see bacterial leaf streak/black chaff in area wheat fields again this year. True armyworms are present in area fields with most of the fields in the scouting program well below the economic threshold. I know of two fields in the region that have been sprayed for true armyworms, on in the Northern Hill County area at the other in the northwestern McLennan County area. Corn that has emerged looks good, with the only issue I am seeing is waterlogged soil inhibiting growth or preventing seedlings from emerging. The cold front that moved into the area last Friday brought a big temperature drop overnight on Friday, but thanks to most of the crop being in the V1 to V3 growth stage the plants growing point is protected from cold temperatures.

WHEAT:

In the last issue I mentioned that the current weather conditions were favorable for an outbreak of true armyworms. During my scouting last week and the first part of this week, I have found true armyworm larvae in a handful of fields in the scouting program. I do know of two fields in the area that have been treated for true armyworm larvae, one was in northern Hill County and the other in northwestern McLennan County. Most of the fields in the scouting program are averaging less than 1 larvae per square foot, which is well below the true armyworm economic threshold of 4-5 true armyworm larvae per square foot. Fields need to be scouted for true armyworms for two reasons, first the wet mild weather pattern is favorable for true armyworms, and secondly early detection of true armyworms will minimize the potential damage and improve insecticide efficacy due to it being easier to control smaller larvae.

I have yet to see any active leaf rust pustules but have received reports of some rust being present in southern and western McLennan County. I have seen leaf flecking which can be caused by a leaf rust infection or just physiological leaf spot. Physiological leaf spot is believed to be caused by two different factors including a chloride deficiency and excessive radiation. Over the last month we have experienced a lot of cloudy days followed by sunny weather. Given where our wheat crop is at this point, most of the fields in the area are almost to the point where a leaf rust infection will not lead to an economic yield loss. Data from research in early 2000 indicate that when 10 percent of the flag leaf is infected with leaf rust at the soft dough stage can cause about 1 percent yield loss, while 100 percent of the flag leaf infected at the soft dough stage will cause about a 10 percent yield loss. Since the majority of the wheat in the area is flowering or will start to flower within the week, our crop will be in the soft dough stage within about 10-14 days.

Powdery mildew (**Figure 1**) is starting to come back in a few area fields. The need to treat for powdery mildew should be based on how the disease is spreading within the field, if the weather forecast is predicted to be favorable for powdery mildew development, and the crop growth stage. Looking over the 10 day forecast, despite the temperatures being in the upper 80s and lower 90s on Tuesday and Wednesday the weather conditions over the next 7 to 10 days our environment will remain favorable for powdery mildew development, but depending on our growth stage the potential for yield loss can vary. Fields should be monitored for powdery mildew on a regular basis to prevent the disease become severe enough to cause an economic loss.

Figure 1 Powdery mildew infecting a wheat leaf.

The amount of rain we have received over the last month along with the prediction for above average rainfall for the next month, plus our temperatures appears to be creating a favorable environment for bacterial leaf streak/black chaff across the area (**Figure 2**). I have seen a few leaves in a few fields in the scouting program that appears to be infected with the bacterial leaf steak/black chaff pathogen. If we continue to see above average rainfall with mild temperatures, we could see bacterial leaf streak/black chaff be an issue in area wheat again this year. The most susceptible fields will be those that were planted with seeds harvested last year from fields infected with black chaff, wheat fields that are wheat behind wheat that was infected with black chaff last year as the bacterium that causes this disease is capable of surviving on infected wheat stubble. The symptoms of the bacterial leaf streak phase include water soaked light brown elongated lesions that are restricted to the space between the leaf veins, but lesions can coalesce to cover large area of the leaf (Figure 1). Under humid conditions the lesions can be seen exhibiting a bacterial ooze that give the lesion a shiny appearance, and as this ooze dries it will form tine granules or flakes that have a yellowish tint. Symptoms of the black chaff phase include dark longitudinal streak on the glumes and a purple to black discoloration on the awns, the stem (peduncle) between the flag leaf and head, and on the head. There are no in season management options for this disease, but management options include planting disease free seed, tilling infected crop residue, and rotating away from a susceptible crop which includes barley, oats, rye, and triticale.

Figure 2. Black chaff symptoms (above) and bacterial leaf streak symptoms on wheat leaf (right).

Septoria leaf blotch also called Stagnospora leaf blotch is still being found in area wheat fields, but currently I am not seeing any lesion on the flag leaf or F minus 1 leaf. At first lesions of Septoria/Stagnospora leaf blotch are small chlorotic spots, but as the lesion grows in size and age the lesion becomes develops a light tan color. Mature lesions will contain small fruiting bodies that are black to brown in color. The same fungus can also infect the glumes and is then called glume blotch. Glume blotch affects yield by causing the grain to shrink and shrivel leading to a lower test weight. Symptoms of glume blotch is distinct when compared to other wheat head diseases, the infected glumes and lemmas (chaff around kernel) will turn dark brown to black in color and can sometime have a purple tint. Once the glumes are infected the tissue will turn a grayish brown to chocolate brown color, and just like the leaf blotch phase will have small black dots within the lesion called pycnidia. These pycnidia can be seen with a simple hand lens. Disease development is favored by temperatures between 68°F and 82°F, along with frequent rain and high humidity. Looking at the weather forecast, it is predicting that conditions will remain suitable for glume blotch development, and the predicted rains will potentially help spread the spores to new glumes. Management options include planting varieties with resistance to Septoria/Stagnospora leaf blotch or glume blotch, rotating away from small grains. It can also be managed chemically with a fungicide application between head emergence and mid flowering.

Figure 3. Glume blotch symptom on wheat seed. Note the light colored lesion with a dark border.

CORN:

Corn around the area that has emerged looks good and ranges from V1 (1 leaf collar visible) to the V3 growth stage, and I have not seen any pest issues in the corn fields I have scouted. A cold front moved in on Friday afternoon dropping overnight temperatures into the upper 30s and low 40s across the region. Thankfully, at these growth stage the corns' growing point is still below the soil surface and protected from temperature swing like this one. For producers that were able to get corn in the ground on Thursday and Friday morning may see some chilling injury from the rain and temperature drop, and corn that was starting to emerge may become susceptible to seedling diseases depending on the type of fungicide seed treatment used and the rate of the fungicide seed treatment on the seed. Looking at the 10-day weather forecast our temperatures will bounce back to the mid-70s to 80s by the middle of the week, so this cold front should have little impact on our corn crop.

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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