BLACKLANDS IPM UPDATE

D. TYLER MAYS, EXTENSION AGENT-IPM, HILL AND MCLENNAN COUNTIES
ZACH T. DAVIS, CEA-AG/NR, HILL COUNTY

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GENERAL:

Thanks to our mild temperatures and recent moisture wheat across the area looks good and is starting to take off. There are fields in the area that have started jointing this week, while others are approaching the jointing stage. Pest activity in the area wheat, however, has also started to increase. Aphid numbers have started to increase in area fields, with some reaching the populations that justify treatment. True armyworm moths are starting to be common across the area, and winter grain mites are starting to be seen in a few area fields thanks to the damp and mild weather pattern we are currently in. Wheat disease activity is also starting to pick up, with stripe rust in powdery mildew being found in some area fields, and with the current weather pattern could become an issue.

Figure 1. wheat leaf colonized by bird cherry-oat aphids and english grain aphids.

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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

APHIDS:

Aphid numbers are starting to increase in area fields, and this issue seems to be a somewhat Blacklands wide problem as I have heard of reports of high aphid numbers south of Waco, and down into the Southern Blacklands around Taylor. Current aphids being found are the bird cherry oat aphid (**Figure 2**) and the English grain aphid (**Figure 3**). The predominant paid is the bird cherry oat aphid, with eh English grain aphid just starting to move into some are wheat fields. Currently, aphid populations are variable between fields, and very sporadic across most fields. However, there are a few fields that have enough aphids to justify insecticide applications. Most of these fields with high aphid populations have very dense canopies. Unfortunately, we currently do not have a published economic threshold for bird cherry oat aphids or English grain aphids in wheat, but it is recommended to follow the threshold established by the University of Nebraska (Table 1). There are several insecticides labeled for the management of these aphids in wheat, but probably the most utilized would be dimethoate which provide a quick knockdown but does not persist in the crop for very long and will also kill the beneficial insects currently in your field. Insecticides like Sivanto and Transform are labeled for these aphids in wheat, and will provide good control, have residual activity, and not disturb what beneficials insects are out in the field.

Figure 2. Picture of a bird cherry-oat aphid showing the reddish-orange coloration around its cornicles.

Figure 3. Picture of english grain aphids, showing their long black cornicles. Photo credit: J. P. Michaud, Kansas State University

WINTER GRAIN MITE:

The winter grain mite is mite species that is commonly found in wheat fields across the Blackland Prairie, that is favored by damp, mild weather conditions much like what we have experienced the last few weeks. The body of a winter grain mite has orange-colored legs, a body that is dark brown to black in color and has two spots on it back one that is a cream color and another that is orange in color (**Figure 4**). This mite rarely reaches levels or causes enough damage to justify treatment, and most of the insecticides that we use to treat aphids will either manage or suppress their population. Winter grain mites cause the leaves of the plant to develop a silver-grayish appearance and burned leaf tips, and this damage can stunt tillers. Treatment for winter grain mites is justified when the mites are present with visible symptoms of feeding damage on the plant. Currently the only product labeled for winter grain mite management is malathion at 1.5 pints/acre, but there are other insecticides that list just "mite spp" on the label that could possibly be used.

Figure 4. Picture of a winter grain mite on a leaf ,and showing the silverish to gray coloration of the leaf caused by their feed. Photo credit: University of Nebraska Department of Entomology.

STRIPE RUST AND POWDERY MILDEW:

Stripe rust is starting to show up in area wheat fields, and currently being seen in low levels in fields that were planted to a susceptible variety. Stripe rust produces pustules that can be found on both the leaf blade and leaf sheath. These pustules are elongated in shape and form stripes that follow the direction of the leaf veins, are yellowish orange to light orange in color (**Figure 5**). The current weather pattern we are in is highly conducive for the development of stripe rust, which is favored by extended periods of leaf wetness, high humidity, and temperatures between 45-70°F. This disease has the potential to greatly impact wheat yields, especially when infections start in late winter/early spring. Stripe rust can cause yield losses between 25% and 85% can be seen when infection starts at Feekes 6 (jointing, first node visible) in a resistant and susceptible variety, respectively. If the infection of the field first starts at the mid-flowering stage (Feekes 10.5.2) the potential yield loss is reduced drastically from 0% in a resistant variety and 12% in a susceptible variety. Fungicides are an effective management option for stripe rust when the potential for disease is high like our current weather conditions.

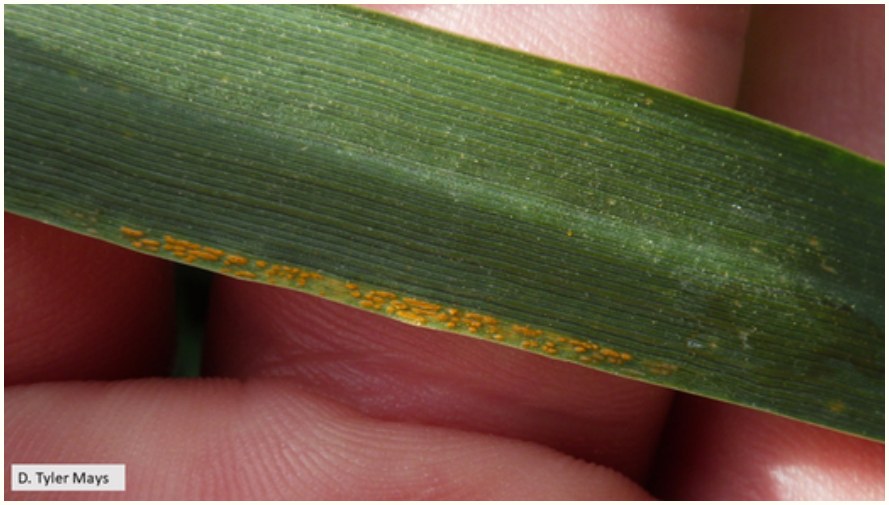

Figure 5. Stripe rust of wheat, showing the light orange, elongated pustules

Powdery mildew is another disease that is being found in some wheat fields across the region, in varying levels of severity. Currently, powdery mildew is not widespread across the Texas Blacklands nor is it widespread across the fields they are currently being found in. The fields and the areas of fields where I am currently finding powdery mildew have very dense canopies where the seed drill overlapped, or where nitrogen fertilizer applications overlapped. Symptoms of powdery mildew infection include fluffy white fungal growth on the leaf blade or leaf sheath (**Figure 6**). As the infection ages the fungal mass changes from white to a grayish brown, and develops small black dots within the fungal masses which are alternative fruiting bodies called cleistothecia. Wheat fields are most susceptible o infection during periods of rapid growth, such as Feekes 5-Feekes 10.5 (stem elongation -head emergence), which is the growth stage range for most of out wheat. Favorable environmental conditions for the disease include temperatures between 59-71°F and high humidity. Unlike other foliar fungal diseases of wheat, powdery mildew does not require extended periods of leaf wetness to aid in the infection process. Fields that are planted using high seeding rates or have received high rates of nitrogen fertilizer have a higher risk of seeing powdery mildew than fields that are planted at optimum seeding rates and receive the lower adequate N fertility. Management options for powdery mildew include avoiding excessive Nitrogen fertilization rates, avoiding high seeding rates, host plant resistance, and fungicide applications. There are some varieties that are known to have some degree of resistance to the powdery mildew pathogen, but due to the low frequency of powdery mildew in our wheat, and the ability to economically and effectively control the disease with fungicides it is not recommended to select a variety to plant solely based on it level of resistance to powdery mildew. There are several fungicides labeled for use in wheat that can control powdery mildew.

If your field(s) need to be sprayed for powdery mildew, it is important to take into consideration that other foliar disease are likely to develop, and depending on the crops growth stage it maybe beneficials to apply a fungicide that contains both a strobilurin active ingredient and a triazole active ingredient. Strobilurin based fungicides inhibit the fungi's ability to produce energy to grow, and work best when applied before the disease infection takes place. Triazole based fungicides on the other hand manage the disease by inhibiting sterol production in the fungi, and will manage infections that have already happened. If the current weather conditions persist into the next few weeks, we could easily see more wheat fields become infected with powdery mildew, and the incidence and severity of powdery mildew to increase in fields already infected

Figure 6. Photos of powdery mildew of wheat. Left- up close picture of powdery mildew on a wheat leaf, right- photo of what powdery mildew looks like when you pull open the canopy.