BLACKLANDS IPM UPDATE

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GENERAL:

Warmer than normal weather along with a much-needed period of dry weather allowed for a vast majority of our area's corn to get planted in the last 10-14 days. This weather pattern has also benefited our wheat crop, allowing us to get in and finish topdressing wheat, and allowing the wheat to finally start growing good. Most of the wheat I have looked at this week is just now starting to joint (Feekes 6), but there are fields that are already approaching Feekes 8 and some fields still lagging in Feekes 4-5. Pest issues in wheat have been rather calm up to this point in the growing season, but as we continue to get rain and spring like temperatures, pest issues in area wheat crops could start increasing. The biggest pest issues we have currently are leaf rust and stripe rust. Bird cherry oat aphids remain present in low levels in fields across the region thanks to either beneficial insect populations or insecticide applications, but one insect we need to keep an eye on is the true armyworm which I started picking up earlier this week. While the rain this week will greatly benefit most of our corn and wheat in the area, it will also lead to our disease issues increase in prevalence and severity.

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RUSTS

Currently we have active infections of both leaf rust (**Figure 1**) and stripe rust (**Figure 2**) across the Texas Blackland Prairie. To date, the furthest North I have received reports of leaf rust is the Southern and Western regions of McLennan County, especially around the McGregor area, while I have observed stripe rust as far north as Itasca. We are quickly approaching flag leaf emergence with some field being their in a few days, and most fields reaching that stage within the next two weeks. This is the time when we will typically see the best economic benefit from a single application of fungicide, especially if our weather condition remain favorable for disease development. Based on the 10 day weather forecast we have another chance of rain late next week which will keep our environment favorable for leaf and stripe rust for an extended period of time. Given where we are in the growing season, it is important to get out there and watch for the development of rust in your field(s) to make timely applications of fungicides. Fungicide applications are recommended when the environmental conditions are conducive for disease development and there is active rust infestation in your field(s) or in nearby fields.

Figure 1. Wheat leaf rust. Photo credit: Donald Groth, Louisiana State University AgCenter, Bugwood.org

Figure 2. Stripe rust pustules forming on the upper leaf surface of wheat.

There is a long list of commercial wheat varieties that are grown in the Texas Blacklands with genetic diversity on their reaction to leaf rust and/or stripe rust infections. Varieties that are known to be susceptible or tolerant to either rust pathogen are the varieties where you will see the biggest economic return from the fungicide application if weather conditions remain favorable for disease development. As we get out and start watching fields for rust, it is important to remember that resistance to rust pathogens in wheat fit into two categories which can impact when the genes are effective. These two categories of resistance include All Stage Resistance where the resistance genes are active at all plant stages, and Adult Plant Resistance which is where the resistance genes do not start being effective until after the plants reach the stem elongation stage, becoming stronger at the season progresses. The Hard Red Winter wheat varieties we commonly grow in this region utilize Adult Plant Resistance, and if wheat has not started joint yet you can see rust infection on varieties that are labeled resistant. Another reason why you could be seeing rust in a variety that is labeled as resistant is that there was a genetic shift in the specific rust pathogen, that makes the rust able to infect the plant with certain resistance genes. Earlier this week, I found stripe rust in a popular wheat variety grown in our region that was previously labeled as resistant to stripe rust. This field was at Feekes 7 indicating that the resistance genes should be conferring resistance to the pathogen, and this finding indicates that there was likely a recent change in the rust strains in our area. Based on this finding it is important to check all wheat fields for leaf or stripe rust regardless to the varieties resistance rating. When it comes to fungicides, all labeled products perform well against both leaf rust and stripe rust, however, you get what you pay for. While the older chemistries of tebuconazole and propiconazole are still effective on both rust pathogens, they have a short residual activity and are only effective on fungi after the have infected the plant. As you increase you investment in fungicides you get newer chemistries and multiple modes of action which can prevent new infections from occurring and control fungi that recently infected the plant, and you can get a longer residual activity out of these newer modes of actions.

TRUE ARMYWORM:

I have started finding some true armyworms (**Figure 3**) in some area wheat fields, but these fields are currently well below the economic threshold. However, these observations should be a warning sign that we could see a true armyworm issue in wheat this year, and scouting for them should start if not already started. When scouting for true armyworms focus first on areas of the field where the canopy is the densest, as they tend to prefer these areas because of the large amount of available food, and the dense canopy help the larvae hide from the sunlight during the day. To scout you will need to shake plants in a 1 square foot area, and then pull back the canopy and look for larvae on the soil surface near the base of plants and under crop debris as they can hide under this debris during the day. Treatment for true armyworms is justified when the field averages 4-5 true armyworms per square foot, with extensive defoliation of the lower canopy.

Figure 3. True armyworm larvae. Photo credit: John Capinera, University of Florida.

APHIDS:

Bird cherry oat aphids (**Figure 4**) are present and have been present in area wheat fields for almost 2 months now, but all the fields I am looking at their numbers are well below the economic threshold. I currently am finding them in fields that have not been sprayed with insecticide, and there are a good number of beneficials in these fields helping to keep these aphid populations below the economic threshold (**Table 1**).

Figure 4. Bird cherry oat aphids infesting wheat.

We are getting to that point in the growing season where we start seeing English grain aphids sowing up in fields across the region. This aphid is fairly large aphid, and has a light green body, with long and black antennae, cornicles (stovepipes) and legs (Figure 5). This pest feeds primarily on the developing kernels but can also be found feeding on the stem and leaf. The feeding can cause kernels to be shrunken and low test weight, but rarely do they cause economic damage to wheat and other small grains in Texas. In my time here I have yet to find an English grain aphid population that would justify an insecticide application. Currently, in Texas we do not have an established economic threshold for the English grain aphid, and it is recommended to use the economic threshold established by the University of Nebraska-Lincoln as a guideline (Table 1). If for some reason you do get an English grain aphid population that needs to be treated, since the application will be made after head emergence it is important to keep in mind the estimated days until harvest and that you pay attention to the product's pre-harvest interval. This is important because most of the insecticides we have for aphid management carry a PHI of 30 days, however there are products that have PHIs of 14 days (alpha-cypermethrin, zeta-cypermethrin) and 7 days (malathion, Sivanto Prime).

Table 1. Recommended Economic thresholds for bird cherry oat aphid and English grain aphid in Texas wheat.

Species	Seedling	Boot to Heading	Flowering	Milky Ripe	Milk to Medium Dough
Bird Cherry Oat	20	30	>5	10	>10
English Grain	30	50	5	10	>10