

# Blacklands IPM Update

## GENERAL:

Wheat across the region is growing nicely thanks to the rain received last week. Some wheat fields across the area are starting to have heads emerge from the boot, and currently pest issues in the Northern McLennan and Hill County area are low. Insects wise there are sporadic populations of bird cherry oat aphids, English grain aphids, and greenbugs, with some fields having all three species. Current disease issues include powdery mildew in a handful of fields, Septoria leaf blotch in a few fields, and stripe rust in a handful of fields. I have also received reports of leaf rust activity starting to pick up in the McGregor area

## INSECTS:

Aphids continue to hang around in area wheat fields not recently treated, but these fields have a good population of beneficials helping keep the aphid population below their respective economic thresholds. As our area crop reaches the boot and moves into the heading stage the economic thresholds for these aphids start to decrease (**Table 1 & 2**). Aphids currently being observed include bird cherry oat aphids (**Figure 1**), English grain aphids (**Figure 2**) and greenbugs (**Figure 3**). Bird cherry oat aphids range in color from yellowish green to a dark green and have an area of reddish-orange around the base of their cornicles. English grain aphids are a light green to brown with antennae, cornicles and legs that are long and black. The greenbug is a pale green with a darker green stripe down the middle of their back, and their cornicles are hard to see as they are short and the same color as their body.

**Table 1. Economic threshold for bird cherry oat aphid and English grain aphid**

Aphid Species	Seedling to Boot	Boot to Heading	Flowering	Milk Stage to Medium Dough
Bird Cherry Oat Aphid	20	30	>5	10
English Grain Aphid	30	50	5	≥10
Modified from University of Nebraska –Lincoln's Crop Watch, Identifying and Treating Aphids in Wheat.				

**Table 2. Economic threshold for greenbugs in Texas small grains**

Plant Height	Number greenbugs per linear foot
3-6 inches	100-300
4-8 inches	200-400
6-16 inches	300-800



**Figure 1.** Bird cherry oat aphid, photo credit: D. Tyler Mays, Texas A&M AgriLife Extension



**Figure 2.** English grain aphids. Photo credit: University of Nebraska Entomology Dept.



**Figure 3.** Greenbug, photo credit: Rick Grantham, Oklahoma State University

Armyworms typically show up around the heading and flowering stage, which are growth stages some of our wheat is at, and most will be there soon. The armyworm we deal with in this region is the true armyworm which can attack wheat in large numbers. Larvae reach a length of roughly 1-1/2 inches when fully grown and can be anywhere from green to brown with lighter stripes running the length of the body (**Figure 4**). Their head capsule is a tan to light brown with a pattern of narrow lines giving it a net like pattern and lack the prominent white inverted Y like the fall armyworm. They are favored by cool damp weather, and do not fare well once the daily high temperatures start getting to 88°F or higher. They will typically first be seen in area where the canopy is tall and/or thick, as this provides them shade during the day. When scouting during the day you will need to check around the base of the plant, as true armyworms hide there during the day and move up the plant to feeding during the late afternoon and night. Much like our disease pests it is important to avoid extensive damage to the top two leaves from damage. Fields should be treated for true armyworms when there is four to five larvae per square foot, with evidence of defoliation in the lower canopy. Since they are an insect pest occurs this close to harvest when selecting an insecticide, it is important to read the label and understand the preharvest interval, as some products may carry a 30 day preharvest interval.



**Figure 4.** True armyworm larvae. Photo credit: Roger Schmidt, University of Wisconsin-Madison, Bugwood.org.

## DISEASE:

Wheat disease issues have been lower this year compared to the previous two years, mostly due to the drier winter and early spring. There are a few diseases present and some we need to continue to watch for. Currently, I am picking up some powdery mildew, Septoria/Stagnospora leaf blotch, and stripe rust in a few fields around the area. Additionally, we need to continue to watch for stripe rust and leaf rust moving into more fields in the area.

Powdery mildew is present in some area wheat fields currently at levels that are not worth spraying yet. In fields with powdery mildew, it is being found in areas where the canopy is very thick, because this increases the canopy humidity which favors infection. Symptoms of powdery mildew include powdery fungal growth that ranges from white to gray in color, and can be found infecting the leaf, sheath, and stem. It is worth noting that some labels of both tebuconazole and propiconazole have taken powdery mildew off the labeled due to reduced efficacy in other wheat producing regions. For a list of fungicides for use in Texas wheat visit: <http://varietytesting.tamu.edu/files/wheat/otherpublications/2019-Registered-Fungicides-Wheat.pdf>.

Septoria leaf blotch and stagnospora leaf blotch are also being found in area wheat. I have seen this disease complex the last couple of years, and only observed levels worth treating twice, both of which were wheat fields planted behind wheat. This disease complex is more severe in wheat following wheat, but I have started picking up some lesions in the lower canopies of fields that were planted to corn or cotton last year. Septoria is favored by temperatures between 50-68°F while stagnospora is favored by temperatures between 68°F and 81°F, and both require wet and humid weather to spread and cause new infections. Septoria leaf blotch symptoms initially are small chlorotic flecks that will grow into irregularly shaped lesions that are brown to reddish brown in color (**Figure 5**). As the septoria lesion ages it will develop small dark brown to black speck in the lesion which are fruiting bodies of the fungus. Stagnospora lesions start as oval shaped with a dark brown color and is often bordered by a yellow halo. Lesions caused by stagnospora leaf blotch eventually enlarge into irregular shaped lesions with a dark brown center. Both stagnospora and Septoria lesions can grow together on a leaf, creating identification hard.



**Figure 5.** Progression of Septoria leaf blotch symptoms from left to right. Photo credit: Ponomarenko et al. 2011; APS images. <https://www.apsnet.org/edcenter/disandpath/fungalasco/>



**Figure 6.** Stagnospora leaf blotch symptoms. Photo credit: Heather Kelley, University of Tennessee <https://guide.utcrops.com/wheat/wheat-disease-identification/diseases-affecting-leaves/stagonospora-nodorum-blotch/>



Rust diseases are starting to pick up following the rains last week (19-23 March). I started picking up some stripe rust in wheat in various fields throughout Northern McLennan and Hill Counties this week. Currently I am finding stripe rust on wheat varieties including WB Cedar, WB 4699, and WB 4515, stripe rust is also present in the uniform variety trials, but I did not take note of what varieties they were in. Fields with stripe rust are around Itasca, Hillsboro, Abbot, and Malone. I have yet to find any fields with leaf rust I am checking, but I have received reports that leaf rust activity has started to increase at the McGregor Research farm in breeder plots and the uniform variety trials. Leaf rust could soon be infecting area wheat fields, and this is my annual reminder to understand your varieties level of susceptibility to leaf rust. These rating can be found in the “2020 Texas Wheat Uniform Variety Trails” results book on page 9 found here: <http://varietytesting.tamu.edu/files/wheat/2020/2020-Texas-Wheat-Variety-Trial-ResultsAug312020.pdf>. Estimating potential losses due to stripe and/or leaf rust can be difficult because there are multiple factors that can affect the amount of yield lost. These factors include time of infection, severity of infection, variety susceptibility, and environmental conditions following initial infection. For stripe rust with most of our crop somewhere between Feekes GS 9 (flag leaf emerged) to 10.3 (mid heading) yield loss can be anywhere from 1% in older wheat that is resistant, up to 75% in younger wheat that is susceptible (Table 3). Leaf rust potential yield loss varies based on the area of the flag leaf covered by leaf rust at various growth stages (Table 4) Now is the most important time to scout wheat to avoid yield loss from diseases and insects that can be avoided.

**Table 3.** Potential percent yield loss caused by stripe rust based on variety susceptibility and time of infection

Growth Stage	Susceptible	Moderately susceptible	Moderately resistant	Resistant
Flag leaf (Feekes 9)	75	45	15	5
Mid-Boot (Feekes 10)	65	25	7	2
First Awns visible (Feekes 10.1)	50	10	3	1
Mid heading (Feekes 10.3)	40	5	2	0
Mid Flowering (Feekes 10.5.2)	12	2	1	0

Modified from Ron French, <https://amarillo.tamu.edu/files/2016/11/Wheat-Fungicides-AmarilloFarm-Ranch-Show-2016.pdf>.

**Table 4.** Potential percent yield loss caused by leaf rust based on growth stage and percent flag leaf infected.

Growth Stage	10%	25%	40%	65%	100%
Flowering	10	15	20	30	35
Milk	2	5	8	14	20
Soft Dough	1	3	4	7	10
Hard Dough	1	1	1	3	5

Modified from Ron French, <https://amarillo.tamu.edu/files/2016/11/Wheat-Fungicides-AmarilloFarm-Ranch-Show-2016.pdf>.

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