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Blacklands IPM Update

Texas IPM Partners With Nature

Texas A&M AgriLife Extension

GENERAL:

Some much-needed rain was received across the area last week with some area getting over 1.5" of rain, snow, and ice. That moisture will help improve the small grain crops condition, and the rain prior to the snow and ice provided some protection against the low temperatures received during Thursday and Friday. Based on the crop's growth stage prior to the cold front moving in most of the wheat in the area should be safe from widespread freeze damage. There are some pests in area wheat fields, including bird cherry oat aphids, Hessian fly, and leaf rust. All these pests currently are well below any level that would justify treatment.

WEATHER:

I have not yet found any wheat that has started to joint, which is good as the crop can tolerate freezing temperatures down to about 18F for about two hours. The temperature experienced during this last freeze were likely not cold enough for a long enough period to cause death of the plants growing points, and the snow/icy cover prior to the coldest temperatures acted as a blanket and shielded the plants growing points from the extreme temperatures. Additionally, after this last cold front and looking at the 10-day forecast, vernalization should be completed shortly and will likely start seeing some jointing in our earliest planted fields and earliest maturing varieties.

INSECTS:

Portions of the Texas Blacklands are seeing more issues with Hessian fly than normal. Most of the reports of heavy Hessian fly infestations is coming from portions of he Southern Blacklands around Taylor and Thrall. I suspect there are Hessian fly in wheat in Hill and McLennan Counties, but I normally do not scout wheat for Hessian fly until later in the season as there are no management options once the crop is established. Currently I have not seen any field either in Hill/McLennan Counties or in the Southern Blacklands that has an infestation high enough to lead to a significant yield loss. Signs of Hessian fly infestations include unexplained tiller death, stunted growth, and lodging later in the season. The Hessian fly cause their damage in the larva stage, which is a creamy white cigar shaped maggot with a light green steak down the back (**Figure 1**), and after feeding for a period they form the puparium which resembles a flack seed and is dark brown to black in color (**Figure 2**). Management options for Hessian fly included crop rotation, planting a resistant variety, breaking the green bridge, insecticide seed treatment, and delayed planting to minimize the number fly flights experienced during the fall. More information on Hessian fly in wheat can be found in the Texas Row Crop Newsletter at https://agrilife.org/texasrowcrops/2022/02/07/hessian-fly-article/.

Figure 1. Hessian fly larvae feeding on wheat stem.

Figure 2. Hessian fly puparia on wheat stem.

Bird cherry oat aphids (**Figure 3**) were found in all but two wheat fields in the scouting program prior to the cold front last week. There populations were very light and no where near treatable levels. Prior to the freeze our beneficial population was very high with a lot of parasitized aphids being found in wheat fields across the area, and high number of predators like lady beetles. We will have to see what impact the freezing weather last week had on our beneficial insect population, mainly our lady beetles and lace wings, as our parasitic was can withstand temperatures much lower than what we experienced last week. As people start top dressing wheat, with the price of agriculture chemicals I high recommend avoiding including an insecticide with the fertilizer for two reason, one they are not needed at this time, and secondly they kill our beneficial insect populations that can be used to help keep aphid numbers below the economic threshold. The economic threshold for bird cherry oat aphid in wheat currently is at 20 aphids per tiller. I would also like to remind everyone that as of February 28th of this year the residue tolerances for chlorpyrifos (Lorsban) will be revoked, and starting March 1st you will not be allowed to use any chlorpyrifos based pesticides on any crops that can be used as food. There are still a number of insecticides that can be used for aphid management in wheat including dimethoate, lambda-cyhalothrin and other pyrethroid insecticides, and our neonicotinoids like Sefina.

Figure 3. Bird cherry oat aphid.

Diseases:

Leaf rust has been found in a few wheat fields in the area, and it is not uncommon to see either leaf rust (**Figure 4**) or stripe rust (**Figure 5**) this early in the year especially when January and December are mild. However, seeing rust this early is not a cause of major concern as the spread of these diseases are slowed down dramatically when cold fronts move in and drop temperatures into the low 50s as daily high temperatures. Leaf rust is being found infecting multiple different varieties, and it is mostly lower leaves that later in the season will not contribute to the energy needed to fill out the grain in the head. It is too early for the resistance genes in most of our Hard Red winter wheat varieties to kick in as most of their resistance is adult host plant resistance which does not start working until temperatures are warmer and the plants have jointed and are approaching head emergence. Seeing the amount of leaf rust this early could however be a sign that we may have a heavy leaf rust year, and preparations for at least one or two fungicide sprays to be needed. As of right now I have not seen a disease issue in wheat that would justify treatment, but with the recent rains, and our warming temperatures if there is any wheat following wheat it is highly recommended to watch these fields for development of diseases like septoria leaf blotch, tan spot, and a few other foliar and crown/root diseases.

The table below is a summary of a applied research trial conducted last year evaluating three different fungicide programs on their ability to 1) reduce the severity of stripe rust, and 2) reduce the amount of yield loss caused by stripe rust infection. These results indicate that all fungicide programs can significantly reduce the severity of stripe rust compared to the untreated. However, grain yields were significantly higher than the untreated check when the fungicides Trivapro and Alto were used. Net returns were not significantly different, but there were some large numerical differences between the various fungicide programs.

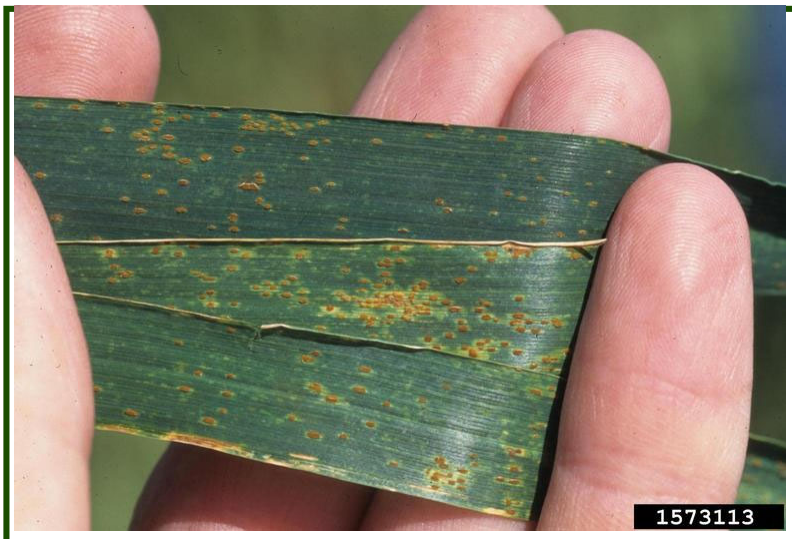

Figure 4. Leaf rust on wheat leaf. Photo credit: Gerald Holmes, Strawberry Center, Cal Poly San Luis Obispo, Bugwood.org

Figure 5. Stripe rust on wheat leaf.

Table 1. Stripe Rust Severity, Yield, and Net Returns of three fungicide programs in Wheat, Hill County, TX, 2021

Treatment and rate/A (Feekes growth stage)	Stripe Rust Severity (% of flag leaf)					Yield (bu./acre)	Fungicide Cost ($/acre)[1]	Net Return ($/acre)[2]
	22 March	1 April	9 April	14 April	26 April			
Untreated Check	0	0	1.6	11.6	83.3 a[3]	45.26 b	$0.00	$271.53
propiconazole 4 fl. oz. (7) tebuconazole 4 fl. oz. (10.5)	0	0	0.9	3.5	24.3 b	55.35 ab	$3.56	$328.51
Alto 3 fl. oz. (7) Trivapro 13.7 fl. oz. (10.5)	0	0	0.9	5.0	7.3 b	60.28 a	$19.89	$341.76
Trivapro 9 fl. oz. (7) Alto 3 fl. oz. (10.5)	0	0	0.2	3.5	2.4 b	62.82 a	$14.34	$362.55
LSD (p=0.05	*ns*	*ns*	*ns*	*ns*	*31.92*	*11.62*	*ns*	*ns*

[1]Average cost of product from three local ag retailers.
[2]Net return was calculated by subtracting the fungicide cost from the gross return which was calculated on $6.00 wheat at local elevator.
[3]Means in the same column followed by the same letter are not statistically different based on F-protected LSD (p=0.05).

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