



Blacklands IPM Update



GENERAL:

The area wheat crop looks good thanks to the weekly rains that we have been receiving that has delayed corn planting. I am starting to find a few tillers in wheat fields in some fields that are jointing but the whole field on average is not yet jointing, but this does indicate that joint is just around the corner. As I drive between fields in the scouting program it appears that most of the wheat fields in the area are very close to jointing. Bird cherry oat aphids are still around in area wheat fields, but thanks to our roller coaster weather the last few weeks their populations have not grown too much of a concern, I did find a few army cutworms in a couple of fields in the northern portions of the county as well as winter grain mites which should be playing out shortly as our temperature rise. Corn planting is still delayed thanks to weekly rains, soil temperature and weather forecast. Looking at the 10-day forecast and the soil temperature trend we could see optimum soil temperature and soil moisture for corn planting next week, I have include a table with the soil temperature and another table with weather data for Hillsboro at the end of this

WHEAT:

The forecast this week is calling for a potential freeze on Wednesday night into Thursday morning, luckily enough for us our crop is not far enough along to sustain damage from the temperatures predicted by the forecast. When wheat is around the jointing stage it can withstand temperatures as cold as 24°F for up to two hours before seeing damage (**Figure 1**). Based on the forecast, if we don't see a drastic change between now and then our wheat crop will escape this cold from without damage.

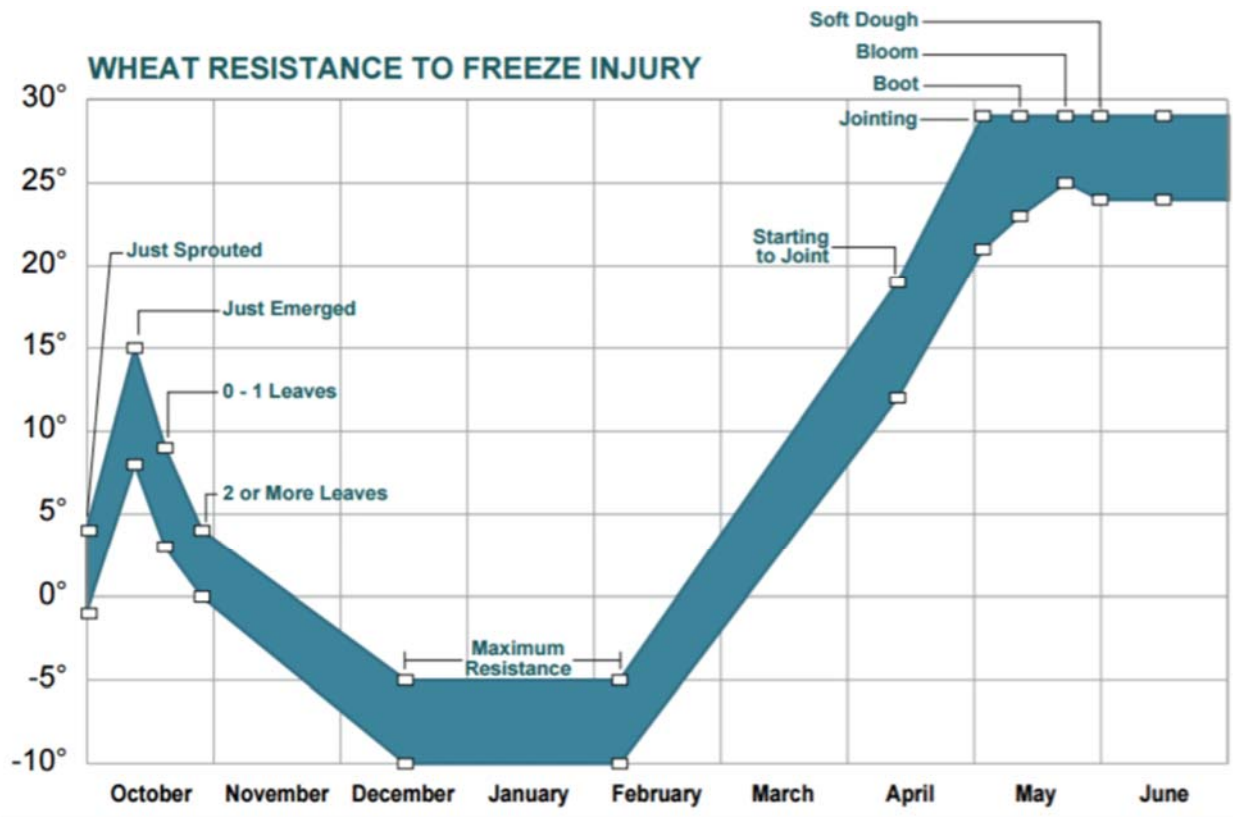


Figure 1. Graph show susceptibility of wheat to freeze injury based on temperature and growth stage. (Graph adapted from A.W. Pauli)

Bird cherry oat aphids are still being found in the scouting program fields but thanks to beneficial insects, and adverse weather conditions their populations have not built to a size that needs to be treated. The periodical cool temperatures we have experienced have slowed down their reproductive rate, while the more humid and mild weather conditions at time has allowed for beneficial insect like lady beetles, lacewings and some parasitic wasp move in and help keep the populations in check. As a reminder, there is no established economic threshold in Texas for Bird Cherry Oat aphids in wheat, but it is recommended to follow the economic threshold developed by the University of Nebraska that is 20 or more Bird Cherry Oat aphids per tiller in the pre-boot stage (**Table 1**).

Table 2. University of Nebraska Bird-Cherry Oat Aphid Threshold

Average number of Bird-Cherry Oat Aphid per tiller to meet threshold				
Preboot	Boot to Heading	Flowering	Milky Ripe	Milk to Medium Dough
20	30	>5	10	10

Modified from: Gary Hein and John Thomas. May 4, 2006. Insecticides for Control of Aphids in Wheat. <https://cropwatch.unl.edu/insect/wheataphids>

Last week I did pick up a few army cutworm larvae in a couple of fields on the northern side of Hill County, but right now they have not become a big issue. These observations were one or two army cutworms per field which is well below the economic threshold of four to five per square foot. Army cutworm larvae are brown to black in color and the older larvae have a greasy or shiny appearance (**Figure 2**). They damage the plant by clipping the above ground parts from the root system at or just below the soil surface. During the day the larvae will hide in crop debris close to the base of the plant or under soil clods and move back up into the canopy during dusk and overnight. Considerable damage can be seen if large populations around, as many as 10 to 20 per square foot have been seen during outbreak years, and their damage can lead to defoliation and stand loss. Fields that thin, planted late, or tillered poorly are most vulnerable to cutworm damage, as they are not able to take much damage before economic stand loss is done. There are a number of insecticide options including pyrethroids, chlorantraniliprole based products like Prevathon or Coragen, and chlorpyrifos.



Figure 2. Army cutworm larvae. Photo credit: Whitney Cranshaw, Colorado State University, Bugwood.org

Winter grain mites have been around in a few of few of the scouting program fields, but have not been an issue. This insect is worst in fields that are wheat behind wheat, and are most active during cool wet weather. The winter grain mite is small between 1/32 of an inch and 1/16 of an inch in size, with a dark brown to black body and four pair of bright reddish orange legs (**Figure 3**). They are sensitive to light and are often found low in the canopy with the best time to scout for them being the early morning hours, late in the evening or on cloudy days. When feeding they puncture plant cells and this result in a stippling effect on the leaf, and as the injury continues the leaves take on a grayish to silverfish cast (**Figure 4**). Fields that are drought stressed or deficient in nutrients are typically more susceptible to damage from this mite. There is no established economic threshold for winter grain mites in wheat, but Oklahoma State University recommends treating when population reach ~10 per plant with plant injury. Malathion is the only labeled insecticide for winter grain mites, however insecticide used for aphid management should also help manage winter grain mite.



Figure 3. Winter grain mite. Photo credit: Oklahoma State University.



Figure 4. Winter grain mite damaged field. Photo credit: Jeff Edward, Oklahoma State University

Table 2. Four-inch soil temperature for Hillsboro, Texas

Date	Daily Average (°F)	5-Day Avg. (°F)	5-Year Avg. (°F)
14-Feb	43	46.8	52.2
15-Feb	48	45.6	55.4
16-Feb	57	47.8	53.6
17-Feb	62	50.8	54.4
18-Feb	59	53.8	55
19-Feb	50	55.2	56.8
20-Feb	47	55.0	57.4
21-Feb	46	52.8	52.8
22-Feb	47	49.8	51.2
23-Feb	51	48.2	53.4
24-Feb	58	49.8	54.2

Table 3. Weather data for Hillsboro, Texas from Feb. 14-March 3, 2020. Shaded boxes are forecasted data, and may change.

Date	Daily Low	Daily High	GDD50 per day	5 day GDD50 accumulation
17-Feb	56	79	17.5	39
18-Feb	50	67	8.5	47.5
19-Feb	43	51	0.5	46
20-Feb	36	54	2	42
21-Feb	32	51	0.5	29
22-Feb	40	59	4.5	16
23-Feb	55	62	8.5	16
24-Feb	46	73	11.5	27
25-Feb	43	62	6.0	37
26-Feb	29	48	0	30.5
27-Feb	37	58	4	30
28-Feb	40	65	7.5	29
29-Feb	43	67	8.5	26
1-March	51	69	10	30
2-March	54	70	12	42
3-March	49	67	8.5	46.5

Data was collected from weather underground at wunderground.com

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