News Column

Stacy Campbell

K-State Research & Extension

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**Lots of curves in the road when farming**

You don't have to be a farmer to realize how challenging it is when dealing with mother-nature. That could not be further from the truth than right now for wheat growers in Kansas.

From the recent precipitation events the wheat crop in Ellis County was looking pretty good. But as I am writing this on Friday I am not quite as optimistic. Several things have been occurring to our wheat crop recently that just makes it even more of an uphill battle. Wheat viruses, such as Wheat Streak Mosaic Virus (WSMV) and Triticum Mosaic Virus (TriMV) have affected fields throughout much of Kansas. Due to above average precipitation during the growing season last year there was more volunteer wheat to control, which has led to increased amounts of wheat viruses to this year's crop. Volunteer wheat primarily and some other grasses can harbor wheat curl mites that can spread the virus to other wheat fields. Then the sub-freezing temperatures of Thursday night are of concern too. With the precipitation we received Thursday night and forecasts for more, foliar leaf diseases of stripe and leaf rust are of concern as well.

Growers need to be aware that there is more than just one wheat virus of the Great Plains. WSMV is the most common virus, but in 2006 at the Agricultural Research Center in Hays, Dallas Seifers, former plant pathologist and Joe Martin, former wheat breeder discovered a new wheat virus. They named it Triticum Mosaic Virus (TriMV). There is also to a much lesser extent the High Plains Virus (HPV).

Why is this important? If you are growing a variety that has resistance to WSMV and your wheat still gets a virus, it could be that it got one of the other viruses mentioned. All three viruses have symptoms that are similar in appearance, specific testing in the laboratory is the only way to distinguish between the viruses.

Romulo Lollato, Extension wheat specialist, sent out his general assessment of the effect of potential freeze injury based on the temperatures of the morning of April 27$^{th}$; also the duration of time and average crop growth stages are taken into consideration. Essentially for our area his general assessment of potential freeze injury is moderate. Ellis County's temperature was 30 degrees for 2.5 hours and the growth stage of the wheat on average is in the boot stage. His assessment can be arguable, as I have talked with another person, whom I respect their opinion and his assessment of the potential freeze injury is low, as is mine.

While the considerations are general and for a large area, the actual freeze damage potential will be field specific and depend on several micro-climate factors. Low areas of the fields might experience colder temperatures than those reported at nearby weather stations. Similarly, increased wind speed

might help warmer air make its way into the canopy, decreasing freeze injury potential. On the other hand, low wind speed might allow the canopy's microclimate temperatures to decrease more than those measured at nearby weather stations. Similarly, warm soils might help buffer some of the cold temperatures experienced in certain fields.

Soil temperature, which is affected by soil moisture status and by the presence of crop residue on the soil surface, can potentially help buffer cold temperatures. Moist soils will be able to hold warm temperatures better than dry soils.

After a freeze event ideally it takes 7 to 10 days before you can look at the heads to determine if there was freeze injury.

Lastly the potential for foliar leaf diseases of either stripe rust or leaf rust are of concern when temperature, humidity, and precipitation are favorable for their development. Mild weather 50 to 75 degrees with some precipitation and humidity is favorable for increasing stripe rust. Leaf rust on the other hand favors warmer temperatures of 65 to 85 degrees with some moisture and humidity.

Wheat variety also has considerable influence on the susceptibility and/or resistance to stripe and leaf rust. To check your varieties rating we have a publication called Wheat Variety Disease and Insect Ratings 2016, which can be found on our web site at www.ellis.ksu.edu

Currently in doing some field scouting I am seeing very low levels of stripe and leaf rust. Keep in mind this is my 30,000 foot view of looking at a very small percentage of the total wheat planted in the county. Individual field scouting, current weather conditions and forecasts, and a varieties disease rating should all be taken into consideration when determining a fungicide application.

If you need any assistance or have any questions, please don't hesitate to contact your local K-State Research & Extension County Office.