

Fungicidal Control Of Fusarium Head Blight And Deoxynivalenol In Wheat



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DR. DON HERSHMAN

PRINCETON, KY.

Fusarium head blight (FHB) of wheat, and deoxynivalenol (DON) accumulation in harvested grain, are periodically very serious problems throughout the *MidAmerica Farmer Grower* readership region. Current weather patterns (late April-

early May) suggest that FHB/DON could be issues in certain states, but probably not region-wide. By the time you read this, the "jury" will probably be "in" on the course FHB took this year. Nonetheless, reviewing the following information will give you a better understanding of FHB and its control and why it was or was not a problem in your particular area.

Recently, several new fungicides received Section 3 labels from EPA for use in suppressing FHB/DON. They are: Caramba (BASF), Prosaro (Bayer), Proline (Bayer) and several tebuconazole products (e.g., Folicur [Bayer]). Previously, various propiconazole products (e.g., Tilt – Syngenta) were available for FHB suppression. The Regional Wheat Disease Committee, NCERA 208, has reviewed existing efficacy data and has concluded that Caramba, Prosaro and Proline provide "good" control of FHB and DON. Tebuconazole fungicides were given a "fair" rating, and propiconazole products were given a "poor" rating. Note: none of the products provide excellent control of either FHB or DON. Thus, it is still possible to take a serious yield and quality hit if FHB pressure is high. Fungicides are certainly not the silver bullet for FHB management. In fact, they work best when applied to wheat varieties that have at least some resistance to FHB. This is what we call "integrated control".

Excellent fungicide coverage on wheat heads is crucial to achieve the greatest possible FHB/DON suppression. This is no small challenge since most spray systems used in wheat were developed to deliver pesticides to foliage (horizontal structures). In order to maximize coverage on heads (vertical targets), significant changes in one's sprayer boom system (ground application) are often needed to facilitate optimal coverage of heads. Changes may include replacing single, down-facing nozzle types with those that have a fore-aft configuration. In addition, it is usually necessary to replace exist-

ing spray tips with those that put out a smaller spray droplet. Also, discipline must be exercised to ensure that proper sprayer pressure and volumes are used. Years of ground application research have taught us that failure to pay attention to these fine details can spell the difference between good and poor control. Aerial application to wheat tends to be a bit more forgiving since the airplane disturbs the canopy sufficiently to facilitate more even coverage of heads. The bottom line with both ground and aerial application is sufficient deposition of fungicide spray on the heads. Do not expect fungicide applied to the leaves to move into the heads in sufficient quantity to effect FHB/DON suppression. It just isn't going to happen.

One desire we all have is for fungicides to be used only when needed. Regular field scouting for foliar fungal diseases has been successfully used by growers for many years to determine if and when to spray fungicides in wheat. However, this is not possible with FHB because once symptoms are present it is TOO LATE to spray. This has been a difficult challenge to overcome in light of the fact that FHB is not a consistent disease problem from year to year. Thus, it would not be prudent to make preventative applications ever year, which would result in a lot of un-necessary sprays being made. To help with this, an exciting new web-based tool has been developed to forecast FHB risk. The tool, which is based on cumulative hours of humidity (@>80%), temperature (@43.2-86oF), and rainfall over a 7-day period, was made possible through a joint effort by Penn State University, The Ohio State University, Kansas State University, and the U.S. Wheat and Barley Scab Initiative. Additionally, scientists at numerous land grant universities provided essential epidemiological data to develop the FHB predictive model on which the tool is based. The model utilizes real-time weather data from numerous National Weather Service stations and airports within each state. Go to www.wheatcab.psu.edu/ and click on "Risk map tool". This tool is still under development and is not perfect, but it is research-based and it has performed reasonably well over the past several years. Again, by the time you read this article you will know how the tool performed for 2009. Δ

Dr. Don Hershman is Extension Plant Pathologist with the University of Kentucky at Princeton.