

# TECHNICAL BULLETIN

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## Late Season Disease and Insect Control in High Management Wheat

As we approach pollination in wheat, now is an excellent time to consider the advantages and benefits of a fungicide and insecticide application in wheat, especially where wheat has been managed for high yield potential:

- Late season foliar disease control including powdery mildew, septoria, stagonospora and rust
- Protection of the head from diseases including head scab and septoria glume blotch
- Extended grain fill period
- Control of / residual activity on late season insect pests such as armyworm and cereal leaf beetle.

The above advantages often result in improved yields (~10+ %) and improved grain quality. With several new fungicides being labeled for use at Feekes 10.51 in recent years, we now have tools that can greatly reduce the incidence of head scab in wheat. The following table lists fungicides which can be considered for use up to Feekes 10.51:

**Efficacy of Fungicides for the Control of Wheat Diseases\***

Fungicide	Use Rate/A	Powdery Mildew	Septoria Leaf Blotch	Stagonospora Leaf Blotch	Rust <sup>1</sup>	Glume Blotch	Head Scab
Caramba <sup>®</sup>	14 ozs.	VG	VG	VG	E	VG	G
Onset <sup>®2</sup>	4 ozs.	G	VG	VG	E	VG	F
Prosaro <sup>®</sup>	6.5 ozs	G	VG	VG	E	VG	G

P =poor, F=fair. G=good, VG=very good, E=excellent

\* Adapted from the North Central Regional Committee on Management of Small Grain Diseases – Wheat Foliage Diseases and Their Management.

<sup>1</sup> Includes Stripe Rust, Leaf Rust and Stem Rust. <sup>2</sup> AgriSolutions™ Onset<sup>®</sup>; the same ai as Folicur<sup>®</sup>.

AgriSolutions™ Adjuvant recommendations for the above products are:

**Ground** - Preference<sup>®</sup> @ 1 pt/100 gal + InterLock<sup>®</sup> @ 2 oz/A

**OR**

PowerLock<sup>®</sup> @ 4 oz/A @ 15 GPA; PowerLock<sup>®</sup> @ 6 oz/A @ 20 GPA

**Aerial** - Preference<sup>®</sup> @ 1 pt/100 gal + InterLock<sup>®</sup> @ 2 oz/A

PowerLock<sup>®</sup> is not recommended for aerial application as the amount of NIS would exceed label rates.

Given the wet conditions it is likely that most of these applications will be made by air. Coverage with these products is important especially for the head scab activity so an application premium to apply at least 3 GPA is well worth it in my opinion. There was little difference in the results with this treatment between



ground versus aerial applications from 2008 and 2009

It is important to understand that the organism that causes head scab is the same organism that was responsible for fusarium ear rot of corn (pink mold) that we encountered in many areas last fall, so we have a source of inoculum. The weather conditions at this date (cool cloudy overcast, frequent showers) are less than ideal for head scab ONLY because of the cool temperatures. If the weather forecast for later this week - warmer temperatures and rainfall Friday and Saturday materializes, this could very well increase the risk of head scab, with much of the wheat quite possibly flowering during this time.

The Feekes 10.51 timing is the ideal timing for this application. The importance of application timing is key to maximizing the activity of these products on head scab. The pictures on the following page (courtesy of Bayer CropScience) show the timing of fungicide application in relation to wheat pollination.



**Too early**

**Feekes 10.51**

**Too late**

The wheat head pollinates in thirds, with the center pollinating first, followed by the bottom and lastly the top. With tiller development occurring over a period of time, not all heads will be exactly at the same growth stage.

I have had quite a bit of experience with ProSaro<sup>®</sup> at the Feekes 10.51 application timing the past two seasons with very good results. For all the side by sides I am aware of, the treatment has always resulted in a yield response of at least + 10%. Onset<sup>®</sup> will provide late season foliar disease control very similar to ProSaro<sup>®</sup> or Caramba<sup>®</sup> but if scab becomes a problem, expect Onset<sup>®</sup> to have less activity than either Caramba<sup>®</sup> or ProSaro<sup>®</sup>.

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***Why is it you are so passionate about a fungicide application at Feekes 10.51 but seem to have little interest in fungicide applications earlier in the season?***

As a plant pathologist by training and as someone who understands wheat growth and development, I consider the following facts when determining the timing of a fungicide application on wheat:

- The vast majority of the soft red winter wheat varieties (including all the CROPLAN GENETICS® varieties) grown in the eastern cornbelt have good to excellent host plant resistance to the foliar diseases we commonly encounter.
  - When we rely on host plant resistance for disease control, realize that as the crop approaches maturity the host plant resistance mechanism begins to wane.
  - Wheat is an interesting crop in that it is attempting to fill grain and mature at relatively the same time, so keeping the plant healthier later into the grain fill period becomes the goal.
- Our environment + late season disease pressure results in a very small window for grain fill
  - in a growth chamber where you can control the environment, the grain fill period in wheat can last for 45-50 days.
- The flag leaf + the leaf below the flag leaf account for ~ 90% of the yield. A fungicide application at Feekes 10.51 protects the flag leaf and the leaf below the flag leaf.
- Keeping the foliage healthy and photosynthesizing for just a few more days will result in increased yields.
- In addition to foliar disease control afforded by the fungicides listed in the table above, they provide good – very good activity on head scab. Realize that there is no silver bullet for head scab.

***Do I need to apply an insecticide with this treatment?***

Insecticides are not always necessary. This is a “game time decision” that needs to be made in consultation with the grower giving consideration to current insect activity realizing that the cost of a second application should insects become a problem is more than the cost of the insecticide.

At this time, I have had several calls this spring regarding cereal leaf beetle and in the past two days a few calls on armyworms. The University of Kentucky newsletter of 5/18\* reports about normal numbers of armyworm moths in their traps which would suggest we could see some armyworm activity but not the huge numbers we had to deal with in 2008.

There are numerous insecticides labeled for use in wheat. At this point in time my recommendation is AgriSolutions™ Grizzly® Z insecticide @ 3.2 oz/A which will provide residual activity should armyworms become a problem later in the season. At this point in time we can still meet the 30 day PHI with Grizzly® Z insecticide, however should you need to treat armyworms later in the season you will need to pay attention to the PHI which can limit your choices if you are inside of 30 days to harvest.

I hope that you find the above information helpful. As always, contact me with questions.

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Always read and follow label directions.

\*<http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/pdf/KPN1230.pdf>

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