February 10, 2017

Be prepared for early disease in wheat

Various rusts of wheat made a late fall appearance in areas of the central plains. Both Oklahoma State & University of Nebraska extension confirmed surprisingly strong infections of various rusts in November.

The winter has been fairly mild, so growers and crop consultants should be on the look out for early disease in wheat as the spring weather warms. In the last 2 years, stripe rust, which relatively favors early cooler weather, has gotten an early start and been particularly damaging in many areas of wheat production. 2016 USDA crop loss estimates below.

Disease protection in wheat generally focuses on protecting the flag leaf, which provides most of the energy for filling the kernels. In 2016 though, significant damage may have occurred earlier.
Wheat Disease Control Research in Kansas 2016

Anticipating last season’s impending stripe rust outbreak, some internal FMC research plots were established which included standard flag leaf applications of Preemptor™ SC fungicide and competitive products. Conversations with experts familiar with stripe rust in Texas suggested that for early onset stripe rust, one flag leaf application may not be enough. Therefore, sequential, ‘early and late,’ two pass treatments were added to the experiment. Results of a plot in Saline County are summarized below.

Stripe rust can be extremely aggressive, so the early, disease suppression application, followed by the essential flag leaf application provided more protection than single flag leaf application alone.

A similar trial at Kansas State U. -Ottawa was hailed out, but a University of Nebraska trial(left) confirmed the above results with yields taken.

The sequential applications of Topguard fungicide or Preemptor SC fungicides protected significantly more yield than flag leaf applications alone.
### FMC Fungicides for Stripe Rust in Wheat

**GV Farms - Salina KS 2016**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield Bu/Ac</th>
<th>Increase over check</th>
<th>Cost/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 oz Preemptor® SC fungicide tiller fb Preemptor SC fungicide</td>
<td>83</td>
<td>24</td>
<td>$24</td>
</tr>
<tr>
<td>5 oz TopGuard® fungicide tiller fb 5 oz TopGuard fungicide</td>
<td>79</td>
<td>20</td>
<td>$11</td>
</tr>
<tr>
<td>5 oz Preemptor SC fungicide flagleaf</td>
<td>70</td>
<td>11</td>
<td>$15</td>
</tr>
<tr>
<td>10 oz TopGuard fungicide flagleaf</td>
<td>69</td>
<td>10</td>
<td>$11</td>
</tr>
<tr>
<td>4 oz Tebuconazole fungicide, flagleaf</td>
<td>64</td>
<td>5.5</td>
<td>$5</td>
</tr>
<tr>
<td>Check</td>
<td>59</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Armour wheat Planted 9/27/15  
Tillering treatments Mar. 14th  
Flagleaf treatments April 10th*

Disease management application at tillering followed by flagleaf sequential application contributed considerable extra yield over flagleaf treatment alone.

**Return on investment in this experiment ($4 wheat)**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>~ Cost/acre</th>
<th>Yield</th>
<th>Return over check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preemptor SC fungicide fb Preemptor SC fungicide</td>
<td>$24</td>
<td>83</td>
<td>$76</td>
</tr>
<tr>
<td>TopGuard fungicide fb TopGuard fungicide</td>
<td>$11</td>
<td>79</td>
<td>$73</td>
</tr>
<tr>
<td>Preemptor SC fungicide 5 oz once at flagleaf</td>
<td>$15</td>
<td>70</td>
<td>$33</td>
</tr>
<tr>
<td>TopGuard fungicide once at flagleaf</td>
<td>$11</td>
<td>69</td>
<td>$33</td>
</tr>
<tr>
<td>Generic tebuconazole</td>
<td>$5</td>
<td>64</td>
<td>$19</td>
</tr>
</tbody>
</table>

*Returns from fungicide treatment can vary depending on disease pressure, variety and other factors.*
Preemptor™ SC fungicide should be applied preventatively, when conditions favor disease development.

- 3 oz/acre for early season control of tan spot, powdery mildew, septoria, suppression of rust plus plant health. Feekes 4-8. **May be mixed with herbicides or insecticides unless prohibited on mix partner label. Do not mix with bromoxynil based herbicides as crop injury could result.**
- 4-6 oz/acre (light ➔ severe pressure) leaf and stem rusts & other diseases at 50% to full flag leaf emergence. Feekes 9-10. **Do not apply past feekes 10.5 (flowering)**
- 3 oz late tiller/early joint followed by 5 oz full flag leaf emergence for maximum disease control and higher yields
- Thorough coverage is necessary for good disease control. Minimum 10 GPA by ground and 2 GPA by air.

**Pre-Harvest Interval (PHI) – 40 days** for grain or straw, 15 days for hay or 7 days forage. Minimum Spray interval is 14 Days. Apply no more than 6 oz per application, nor more than 12 oz/A total per year. REI is 12 hr.

---

**TOPGUARD**

Foliar protection early or for fusarium head blight (scab) suppression at flowering with shorter PHIs & spray intervals

Apply preventatively when conditions are favorable for disease development

- 10-14 oz/acre for control of rust, powdery mildew and septoria leaf and glume blotch.
- 5oz Topguard® fungicide at late tiller/early joint followed by 10 oz Topguard fungicide or 5 oz Preemptor SC fungicide at full flag leaf for maximum disease control and higher yields.
- 10-14 oz/acre for suppression of fusarium head blight(scab) at feekes 10.51 (flowering). Spray nozzles should be oriented to provide maximum coverage of wheat heads.
- **May be mixed with other fungicides, herbicides or insecticides unless prohibited on mix partner label.**
- Thorough coverage is necessary for good disease control. Minimum 10 GPA by ground and 2 GPA by air.

**Pre-Harvest Interval (PHI) – 30 days** for grain, 15 days for hay or 0 days forage. Minimum Spray interval is 7 Days. Apply no more than 14oz per application, nor more than 28 oz/A total per year. REI is 12 hr.

Always read and follow label directions. NOTE REGARDING RESTRICTED USE PESTICIDES: Anthem ATZ herbicide; Athena insecticide, Brigade 2EC Insecticide/Miticide, Brigade WSB Insecticide/Miticide, Brigadier Insecticide Capture 3RIVE 3D insecticide, Capture LFR Insecticide, Declare insecticide, Hero Insecticide, Mustang Insecticide, Mustang Maxx Insecticide, Pounce 25WP Insecticide, Stallion Brand Insecticide, Temtril LFR Insecticide/Fungicide, Triple Crown Insecticide, Ethox XB Insecticide/Fungicide and Gladiator Insecticide/Miticide are **Restricted Use Pesticides.** NOTE FOR CALIFORNIA: Accurate Extra herbicide, Aim herbicide, Aim EC herbicide, Aim EW herbicide, Anthem herbicide, Anthem ATZ herbicide, Anthem Flex herbicide, Anthem MAXX herbicide, Authority Assist herbicide, Authority Elite herbicide, Authority First DF herbicide, Authority MAXX herbicide, Authority MTZ DF herbicide, Authority XL herbicide, Cadet herbicide, Chisum Herbicide, Command 3ME microencapsulated herbicide, Crusher Herbicide, Edition Broadspec herbicide, Edition Tankmix Herbicide, Marvel herbicide, Nimble Herbicide, Nuance Herbicide, Preemptor SC fungicide, Report Extra Herbicide, Solstice herbicide, Spartan 4F herbicide, Spartan Charge herbicide, Spartan Elite herbicide, Temtril LFR Insecticide/Fungicide, Topguard EQ fungicide, Zeus Prime XC herbicide, Zeus XC herbicide, Capture 3RIVE 3D insecticide, Ethox XB Insecticide/Fungicide, Hero Insecticide, Mustang Maxx Insecticide, Display cotton harvest aid, Zoro Miticide and VGR Soil Amendment are **not registered for sale or use in California.** Topguard is only registered in CA on soybeans and apples. VGR Soil Amendment is not a pesticide. Beleaf and Carbine are trademarks of Ishihara Sango Kaisha, Ltd. Cercobin is a trademark of Nippon Soda Co., LTD. Sovran is a registered trademark of BASF. FMC, 3RIVE 3D, Accurate, Aim, Anthem, Athena, Authority, Brigade, Cadet, Capture, Chisum, Command, Crusher, Declare, Display, Edition, Ethos, Preemptor, Fracture, Fyfanon, Gladiator, Hero, Koverall, LFR, Marvel, Mustang, Nimble, Obey, Pounce, Report, Rhyme, Rovral, Shark, Solida, Solstice, Spartan, Stallion, Temtril, Topguard, Topguard Terra, VGR and Zeus are trademarks and HatchTrak and Investing in farming’s future are service marks of FMC Corporation or an affiliate. ©2016 FMC Corporation. All rights reserved. 11/16

Priaxor is a trademark of BASF. Quilt is a trademark of Syngenta Group Co.