

Target Diseases and Application Timing Information for Foliar Fungicides Labeled for Use on Wheat in Missouri

Information taken from current pesticide labels- April 2009

To be legally used in Missouri a fungicide product must have both federal and state registration. Some products with federal labels have not been registered with the Missouri Department of Agriculture so are not included in this table.

Many of these products now have supplemental labels in addition to their initial federal label. Be sure to check for supplemental labels which may contain updated information on target diseases, application timing and preharvest intervals.

Product active ingredient (Company)	Target Diseases Listed on Label	Application Timing Recommendations and Restrictions Preharvest Interval (PHI)
Strobilurin Products		
Headline pyraclostrobin (BASF)	Black point (<i>Alternaria</i> spp., <i>Helminthosporium</i> spp.), leaf rust (<i>Puccinia triticina</i>), powdery mildew (<i>Erysiphe graminis</i> f. sp. <i>tritici</i>), Septoria leaf and glume blotch (<i>Septoria</i> spp., <i>Stagonospora</i> spp.), stem rust (<i>Puccinia</i> <i>graminis</i> f. sp. <i>tritici</i>), stripe rust (<i>Puccinia striiformis</i> f. sp. <i>tritici</i>) and tan spot (<i>Pyrenophora</i> spp.) Headline does not control Fusarium head blight (head scab) or prevent the reductions in grain quality that can result from this disease	For optimal disease control, begin applications of Headline prior to disease development. To maximize yields in cereals, it is important to protect the flag leaf. Apply Headline immediately after flag leaf emergence for optimum results. Do not harvest wheat hay or feed green-chopped wheat within 14 days after last application. Apply no later than the beginning of flowering (Feekes 10.5 or Zadok's 59).
Quadris Flowable Fungicide	Leaf rust (<i>Puccinia triticina</i> = <i>Puccinia</i> <i>recondita</i> f. sp. <i>tritici</i>), stripe rust	Quadris should be applied prior to disease development up to late head emergence (Feekes 10.5 or Zadok's 59).

azoxystrobin (Syngenta)	<i>(Puccinia striiformis)</i> , stem rust (<i>Puccinia graminis</i>), Septoria leaf and glume blotch (<i>Septoria tritici</i> , <i>Septoria nodorum</i>), tan spot (<i>Pyrenophora tritici-repentis</i>) and powdery mildew (<i>Erysiphe graminis</i>)	<p>Do not apply within 14 days of harvest for forage and hay.</p> <p>Do not apply later than Feekes growth stage 10.5 (Zadok's growth stage 59). Do not apply within 45 days of harvest for grain and straw.</p>
Triazole Products		
Bumper 41.8 EC propiconazole (Makhteshim Agan of North America, Inc.)	For control of rusts (<i>Puccinia</i> spp.), powdery mildew (<i>Erysiphe</i> spp.), leaf blight and glume blotch (<i>Septoria</i> spp.) and tan spot (<i>Pyrenophora teres</i>)	<p>Highest yields are normally obtained when Bumper 41.8 EC is applied to the emerging flag leaf. Bumper 41.8 EC may be applied earlier if disease symptoms appear (especially applicable to barley).</p> <p>Do not graze or feed livestock treated wheat forage or cut the green crop for hay or silage. After harvest, the straw may be used for bedding or feed.</p> <p>For wheat only, Bumper 41.8 EC can be applied until full head emergence (Feekes growth stage 10.5). Do not apply after the specified growth stage to avoid possible illegal residues.</p>
Caramba metconazole (BASF)	Black point (<i>Alternaria</i> spp., <i>Cochiobolus sativus</i> , <i>Helminthosporium</i> spp.), powdery mildew (<i>Erysiphe graminis</i>), rust (<i>Puccinia</i> spp.), Septoria leaf and glume blotch (<i>Septoria</i> spp., <i>Stagonospora</i> spp.), and tan spot (<i>Pyrenophora trichostoma</i>) Suppression only - Head scab (<i>Fusarium</i> spp.)	<p>For optimal disease control, begin applications of Caramba prior to disease development. To maximize yields in cereals, it is important to protect the flag leaf. For diseases other than head scab (<i>Fusarium</i> head blight), apply Caramba immediately after flag leaf emergence for optimum results.</p> <p>For optimum suppression of <i>Fusarium</i> head blight (head scab), apply Caramba at the beginning of anthesis.</p>

		<p>No livestock feeding restrictions.</p> <p>Minimum time from application to harvest is 30 days.</p>
<p>Folicur 3.6 F tebuconazole (Bayer CropScience)</p>	<p>Rusts: leaf, stem and stripe (<i>Puccinia</i> spp.)</p> <p>Head blight or scab (<i>Fusarium</i> spp.)- Suppression</p>	<p>Rusts: Apply Folicur 3.6 F at the earliest sign of rust pustules on foliage.</p> <p>Fusarium head blight: Optimal timing of Folicur 3.6 F for Fusarium head blight suppression is the beginning of flowering on the main stem heads (Feekes 10.51).</p> <p>Straw may be used for bedding. Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment with Folicur 3.6 F.</p> <p>Do not apply within 30 days of harvest.</p>
<p>Muscle 3.6F tebuconazole (SIPCAM AGRO USA, INC.)</p>	<p>Rusts: leaf, stem and stripe (<i>Puccinia</i> spp.)</p> <p>Scab or head blight (<i>Fusarium graminearum</i>)- Suppression</p>	<p>Rusts: Make an application of this product at the first sign of rust pustules on foliage.</p> <p>Fusarium head blight: The best time to apply this product to suppress Fusarium head blight is at the beginning of anthesis (flowering) of the main head, Feekes growth stage 10.51.</p> <p>Do not allow livestock to graze or feed green forage to livestock prior to 6 days after application of this product. Straw cut after harvest may be fed or used for bedding.</p> <p>PHI: 30 days.</p>
<p>Orius 3.6F tebuconazole (Makhteshim Agan of</p>	<p>Rusts: leaf, stem and stripe (<i>Puccinia</i> spp.)</p>	<p>Rusts: Apply Orius 3.6F at the earliest sign of rust pustules on foliage.</p>

North America, Inc.)	Head blight or scab (<i>Fusarium</i> spp.)- Suppression	Fusarium head blight: Optimal timing of Orius 3.6F for Fusarium head blight suppression is the beginning of flowering on main stem Feekes 10.51). Straw may be fed or used for bedding. Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment with Orius 3.6F. Do not apply within 30 days of harvest.
Proline 480 SC prothioconazole (Bayer CropScience)	Leaf and stem diseases: leaf rust (<i>Puccinia recondita</i> f. sp. <i>tritici</i>), Septoria leaf and glume blotch (<i>Septoria tritici</i> , <i>S. nodorum</i>), stem rust (<i>Puccinia graminis</i>) and tan spot (<i>Pyrenophora tritici-repentis</i>) Fusarium head blight (<i>Fusarium</i> spp.) (Suppression only)	Leaf and stem diseases: Apply Proline 480 SC as a preventive foliar spray when the earliest disease symptoms appear on the leaves or stems. Fusarium head blight (suppression only): Apply Proline 480 SC within the time period from when at least 75% of the wheat heads on the main stem are fully emerged (~Feekes Growth Stage 10.4) to when 50% of the heads on the main stem are in flower (~Feekes Growth Stage 10.52). Optimal timing of application may be at or around 15% flower (~Feekes Growth Stage 10.51). Proline 480 SC may be applied up to the point where wheat heads are in the full flower growth stage (Feekes 10.52). Do not apply within 30 days of harvest.
PropiMax 3.6 EC propiconazole (Dow AgroSciences)	Early season suppression of glume blotch (<i>Stagonospora nodorum</i>), leaf blight (<i>Septoria tritici</i>), powdery mildew (<i>Blumeria</i> spp. and <i>Erysiphe</i> spp.) and tan spot (<i>Pyrenophora tritici-repentis</i>)	For early season suppression of listed diseases apply in the spring. Follow up with a second application up to Feekes growth stage 10.5 for season long control. The minimum retreatment interval is 14 days.

	<p>Control of leaf diseases: glume blotch (<i>Stagonospora nodorum</i>), leaf blight (<i>Septoria tritici</i>), powdery mildew (<i>Blumeria</i> spp. and <i>Erysiphe</i> spp.), rust (<i>Puccinia</i> spp.) and tan spot (<i>Pyrenophora tritici-repentis</i>)</p> <p>Fusarium head blight suppression</p>	<p>Protecting the flag leaf is important for maximizing the potential yield. Highest yields are normally obtained when PropiMax EC is applied when the flag leaf is 50% to fully emerged. The minimum retreatment interval is 14 days.</p> <p>Apply at approximately 50% flowering for Fusarium head blight suppression. Adding a penetrating type of adjuvant may increase Fusarium head blight suppression.</p> <p>Do not apply within 30 days of harvest for forage, 40 days of harvest for grain and straw and 45 days of harvest for hay.</p>
<p>Prosaro 421 SC prothioconazole + tebuconazole (Bayer CropScience)</p>	<p>Leaf and stem diseases: Powdery mildew (<i>Blumeria</i> spp. <i>Erysiphe</i> spp.), rusts (<i>Puccinia</i> spp.), Septoria leaf and glume blotch (<i>Septoria tritici</i>, <i>S. nodorum</i>) and tan spot (<i>Pyrenophora tritici-repentis</i>)</p> <p>Fusarium head blight (<i>Fusarium</i> spp.)- Suppression only</p>	<p>Leaf and stem diseases: Apply Prosaro 421 SC as a preventive foliar spray when the earliest disease symptoms appear on the leaves and stems.</p> <p>Fusarium head blight (suppression only): The optimal time to apply Prosaro 421 SC is as a preventative foliar spray at early flower (Feekes Growth Stage 10.51).</p> <p>Straw may be fed or used for bedding. Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment with Prosaro 421 SC.</p> <p>Do not apply within 30 days of harvest.</p>
<p>Tebuzol 3.6F tebuconazole</p>	<p>Rusts: leaf, stem and stripe (<i>Puccinia</i> spp.)</p>	<p>Rusts: Apply Tebuzol 3.6F at the earliest sign of rust pustules on foliage.</p>

<p>(United Phosphorus, Inc.)</p>	<p>Head blight (<i>Fusarium</i> spp.)-Suppression</p>	<p>Head blight: Optimal timing of Tebuzol 3.6F for <i>Fusarium</i> head blight suppression is the beginning of flowering on main stem heads (Feekes 10.51).</p> <p>Straw may be fed or used for bedding. Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment with Tebuzol 3.6F.</p> <p>Do not apply within 30 days of harvest.</p>
<p>Tegrol 3.6F tebuconazole (Luxembourg-Pamol, Inc.)</p>	<p>Rusts: leaf, stem and stripe (<i>Puccinia</i> spp.)</p> <p>Scab or head blight (<i>Fusarium</i> spp.)</p>	<p>For rusts: Apply at the earliest sign of rust pustules on foliage.</p> <p>For scab or head blight: Apply once as a preventive spray at the beginning of anthesis (flowering), Feekes growth stage 10.51.</p> <p>Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment with Tegrol 3.6F. Straw cut after harvest may be fed to livestock or used for bedding.</p> <p>Do not apply within 30 days of harvest.</p>
<p>Tilt propiconazole (Syngenta)</p>	<p>Early season suppression of glume blotch (<i>Stagonospora nodorum</i>), leaf blight (<i>Septoria tritici</i>), powdery mildew (<i>Blumeria</i> spp. and <i>Erysiphe</i> spp.) and tan spot (<i>Pyrenophora tritici-repentis</i>)</p> <p>Control of leaf diseases: glume blotch (<i>Stagonospora nodorum</i>), leaf blight</p>	<p>Apply Tilt in the spring. Follow up with a second application up to Feekes growth stage 10.5 for season long control. Applications may be made no closer than a 14-day interval.</p> <p>Protecting the flag leaf is important for maximizing the potential yield. Highest yields are normally obtained when</p>

	<p>(<i>Septoria tritici</i>), powdery mildew (<i>Blumeria</i> spp. and <i>Erysiphe</i> spp.), rust (<i>Puccinia</i> spp.) and tan spot (<i>Pyrenophora tritici-repentis</i>)</p> <p>Fusarium head blight suppression</p>	<p>Tilt is applied when the flag leaf is 50% to fully emerged. Applications may be made no closer than a 14-day interval.</p> <p>Apply Tilt at approximately 50% flowering for Fusarium head blight suppression. Adding a penetrating type of adjuvant may increase Fusarium head blight suppression.</p> <p>Do not apply within 30 days of harvest for forage and 45 days of harvest for hay.</p> <p>Tilt may be applied through full head emergence (Feekes growth stage 10.5). Do not apply after this stage to avoid possible illegal residues.</p>
<p>Toledo Agricultural Fungicide tebuconazole (ROTAM North America, Inc.)</p>	<p>Rusts: leaf, stem and stripe (<i>Puccinia</i> spp.)</p> <p>Head blight or scab (<i>Fusarium</i> spp.)- Suppression</p>	<p>Rusts: Apply Toledo Agricultural Fungicide at the earliest sign of rust pustules on foliage.</p> <p>Fusarium head blight: Optimal timing of Toledo Agricultural Fungicide for Fusarium head blight suppression is the beginning of flowering on main stem heads (Feekes 10.51).</p> <p>Straw may be fed or used for bedding. Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment with Toledo Agricultural Fungicide.</p> <p>Do not apply within 30 days of harvest.</p>
Premix or Combination Products Containing Fungicides with Mixed Modes of Action		
<p>Quilt azoxystrobin +</p>	<p>Early season suppression of glume blotch (<i>Stagonospora nodorum</i>), leaf blight</p>	<p>Apply Quilt in the spring for suppression of early season diseases. Follow up with a second application for full season</p>

<p>propiconazole (Syngenta)</p>	<p>(<i>Septoria tritici</i>), powdery mildew (<i>Blumeria</i> spp. and <i>Erysiphe</i> spp.) and tan spot (<i>Pyrenophora tritici-repentis</i>)</p> <p>Control of leaf diseases: glume blotch (<i>Stagonospora nodorum</i>), leaf blight (<i>Septoria tritici</i>), powdery mildew (<i>Blumeria</i> spp. and <i>Erysiphe</i> spp.), rust (<i>Puccinia</i> spp.) and tan spot (<i>Pyrenophora tritici-repentis</i>)</p>	<p>control.</p> <p>Protecting the flag leaf is important for maximizing the potential yield. Highest yields are normally obtained when Quilt is applied when the flag leaf is 50% to fully emerged. If disease pressure is low, 10.5 fl. oz./A may be applied. Applications may be made no closer than a 14-day interval.</p> <p>Quilt may be applied through full head emergence (Feekes growth stage 10.5). Do not apply after this stage to avoid possible illegal residues.</p>
<p>Stratego Fungicide propiconazole + trifloxystrobin (Bayer CropScience)</p>	<p>Glume blotch (<i>Stagonospora nodorum</i>), leaf blight (<i>Septoria tritici</i>), powdery mildew (<i>Erysiphe graminis</i>), rusts (<i>Puccinia</i> spp.) and tan spot (<i>Pyrenophora tritici-repentis</i>)</p>	<p>Begin applications preventively when conditions are favorable for disease development. A second application (minimum interval of 14 days) may be made if needed.</p> <p>If one application or a total of 10 fl oz of Stratego Fungicide per season are applied, do not allow livestock to graze within the treated area 30 days after application, and do not harvest the treated crop for forage within 30 days after application or for hay within 45 days after application. If two applications or a total of 20 fl oz of Stratego Fungicide per season are applied, do not allow livestock to graze within the treated area and do not harvest the treated crop for forage or hay.</p> <p>Do not apply after Feekes growth stage 10.5 (full head emergence). Do not apply within 35 days of harvest.</p>
<p>TwinLine pyraclostrobin + metconazole</p>	<p>Black point (<i>Alternaria</i> spp., <i>Cochiobolus sativus</i>, <i>Helminthosporium</i> spp.), powdery mildew (<i>Erysiphe graminis</i>), rust</p>	<p>For optimal disease control, begin applications of TwinLine prior to disease development. To maximize yields in cereals, it is important to protect the flag leaf. For diseases other</p>

(BASF)	<i>(Puccinia spp.)</i> , Septoria leaf and glume blotch (<i>Septoria spp.</i> , <i>Stagonospora spp.</i>), stripe rust (<i>Puccinia striiformis</i>) and tan spot (<i>Pyrenophora trichostoma</i>)	than head scab, apply TwinLine immediately after flag leaf emergence for optimum results. Apply no later than the beginning of flowering (Feekes 10.5 or Zadok's 59).
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This table was prepared using current company product labels and manufacturers' web sites. The information is provided only as a guide. It is the responsibility of the pesticide applicator by law to read and follow all current label directions. Product names have been used for clarity. Reference to specific trade names does not imply endorsement by the University of Missouri, nor is criticism meant for products not listed.