

Seed Treatment Fungicides for Wheat Disease Management 2020

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Fungicide seed treatments are an important part of wheat production in Kansas. Seed treatments can effectively manage seed-borne disease, such as common bunt, flag smut, and loose smut; generally improve stand establishment; suppress the development of root rot diseases; and inhibit the development of foliar diseases in the fall. Products containing insecticides also can reduce fall aphid populations and lower the risk of severe barley yellow dwarf.

Priorities for use of wheat seed treatment fungicides:

1. Seed lots from fields known to have low levels of loose smut, flag smut, or common bunt.
2. Wheat intended for seed production in following years.
3. Seed lots that have low germination caused by seed-borne *Fusarium* or other fungi.
4. When adverse weather delays planting and necessitates planting wheat into cool/wet soils.

Suggestions for seed treatment success:

1. Select a product with active ingredients that match the diseases or pests that you are trying to control, or that have been problematic in the past.
2. Start with well-cleaned seed. Chaff or excess dust reduces product adherence to the seed.
3. Make sure products have been mixed according to label instructions. Seed treatments that are an incorrect consistency may not successfully coat seed. Excess water may cause seed to clump, or flow poorly through planting equipment.
4. Ensure all seeds have uniform coverage. Spotty coverage on individual seeds, or treatment that has only treated a portion of seeds results in reduced efficacy.

Table 1. Seed treatments may contain one or more active ingredients, which fall into different treatment types. Most seed treatments include more than one active ingredient to increase the spectrum of disease and pest control. While this is not a complete list of active ingredients labeled for use in Kansas, it reflects the products widely marked in the state.

| Fungicide ^a | | |
|-------------------------------------|------------------|-----------------------------|
| Tebuconazole | Fluxapyroxad | Pyraclostrobin |
| Difenoconazole | Penflufen | Fludioxonil |
| Triticonazole | Sedaxane | Ipconazole |
| Mefenoxam | Metalaxyl | Prothioconazole |
| Insecticide ^b | | |
| Imidacloprid | Thiamethoxam | |
| Plant Growth Regulator ^c | | |
| Cytokinin (kinetin) | Gibberellic Acid | Indole-3-butyric Acid (IBA) |

a Fungicides labeled for a broad range of fungal pathogens that cause poor emergence, as well as seedborne pathogens that may lead to smuts/bunts. Some of these fungicides may control individual pathogens more effectively than others. For example, the active ingredient sedaxane is mainly effective against *Rhizoctonia* spp., while mefenoxam is effective against *Pythium* spp.

b Insecticides may suppress fall aphid populations, and reduce the risk of yield losses to barley yellow dwarf virus.

c Plant growth regulators promote stand establishment and emergence by influencing plant physiology. These products do not suppress pests and pathogens.

Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned. Persons using such products assume responsibility for their use in accordance with current label directions of the manufacturer.

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Table 2. *Wheat seed treatments frequently used for wheat disease management in Kansas.*

| Product | Active ingredients | Rate (fl oz/100 lbs seed) | Seed-borne Diseases | | | | Seedling Diseases | | | Root Rots | | | General seed rot | Fall leaf disease | Grazing restriction ¹ |
|-------------------------------------|--|---------------------------------|---------------------|--------------|---------------|------------------------|------------------------|----------------------------|--------------------|----------------------|----------|----|---------------------|----------------------|-------------------------------------|
| | | | Common bunt | Flag smut | Loose smut | Seed-borne Fusarium | Pythium damping-off | Rhizoctonia damping-off | Common root rot | Fusarium root rot | Take all | | | | |
| Cruiser Maxx Vibrance Cereals | Sedaxane 0.72% Difenoconazole 3.34% Mefenoxam 0.86% Thiamethoxam 2.78% | 5.0 – 10.0 | C | -- | C | C | C | C | S | S | S | C | S ² | -- | |
| Evergol Energy | Metalaxyl 5.74% Penflufen 3.95% Prothioconazole 7.18% | 1.0 | C | C | C | C | C | C | S | C | -- | C | S | -- | |
| Gaucha XT | Tebuconazole 0.62% Metalaxyl 0.82% Imidacolprid 12.7% | 3.4 – 4.5 | C | C | C | S | C | C | S | S | -- | -- | S | 45 days | |
| Rancona Crest | Ipconazole 0.42% Metalaxyl 0.56% Imidacolprid 14.1% | 5.0 – 8.3 | C | C | C | C | C | C | S | S | -- | C | -- | 45 days | |
| Raxil Pro MD | Prothioconazole 1.47% Tebuconazole 0.29% Metalaxyl 0.59% | 5.0 – 7.5 | C | C | C | C | C | C | S | S | -- | C | S | 31 days | |
| Sativa IMF Sembolite Max | Tebuconazole 0.45% Metalaxyl 0.60% Fludioxonil 0.36% Imidacolprid 11.16% | 3.4 – 5.0 | C | C | C | -- | C | C | S | S | -- | C | S | 45 days | |
| Salient TMI | Tebuconazole 0.38% Metalaxyl 1.78% Difenoconazole 3.46% Imidacolprid 5.57% | 5.0 – 7.5 | C | C | C | C | C | C | C | C | -- | C | S | 55 days | |
| Stamina F4 Cereals | Pyraclostrobin 1.57% Triticonazole 1.57% Metalaxyl 0.94% Fluxapyroxad 0.78% | 4.6 | C | C | C | C | C | C | C | S | -- | C | -- | -- | |
| Vibrance Extreme ³ | Sedaxane 1.22% Difenoconazole 5.86% Mefenoxam 1.46% | 2.8 – 5.6 | C | C | C | C | C | C | S | S | S | C | S ² | -- | |
| Warden Cereals 360 | Mefenoxam 0.87% Difenoconazole 3.47% Thiamethoxam 5.79% Cytokinin 0.054% Gibberellic Acid 0.018% Indole-3-butyric Acid 0.027% | 5.0 | C | C | C | C | C | C | S | S | S | C | S | -- | |

C = Product labeled for control or management of this disease problem.

S = Product labeled for suppression or partial control of this disease problem. The level of control provided may be insufficient when conditions are highly conducive for disease development.

-- = Product not labeled for this disease or information was not specified on label.

¹ Days after planting.

² Suppression only at high application rate specified on label.

³ Multiple products containing the same active ingredients also may be available (e.g. Warden Cereals II).