

Commercial Crop Production

Field Crops - Wheat

DISEASE

Symptoms, source of inoculum and management of wheat diseases.

Leaf Rust (*Puccinia triticina*)

Symptoms: Leaf rust is widespread and probably is a destructive disease on wheat in Louisiana. The leaf rust fungus produces small, yellowish-orange pustules on the leaves. These masses of spores turn dark as wheat matures. Infection usually begins on lower leaves and spreads upward. Infected leaves turn yellow and die.

Management: Resistant varieties are the most practical approach. Some seed treatments provide early season suppression, but foliar-applied fungicides are most effective (Tables 1 and 2).

Stem Rust (*Puccinia graminis tritici*)

Symptoms: Elongated, reddish-brown pustules occur on the stem, leaf sheaths, leaf blades and glumes. Pustules rupture the epidermis to expose a powdery, reddish-brown mass of spores. Fragments of epidermis adhere to sides and ends of pustules to give them a ragged appearance.

Source of Inoculum: Has alternate host species of *Berberis* and *Mahonia* where new races may occur but spread in this area primarily is from wheat to wheat.

Management: Stem rust can be a serious problem in some years in localized regions of Louisiana. Resistant varieties are the most practical approach for control of this disease, although fungicides may be used (Table 2).

Stripe Rust (*Puccinia striiformis*)

Symptoms: The first sign of disease is individual yellow pustules, usually at the tip of the leaf. Later, pustules develop in rows, giving the characteristic of striped appearance. Leaves, sheaths, stems and glumes may be attacked.

Management: Resistant varieties are the most practical approach for control of this disease, although fungicides may be used (Table 2).

Powdery Mildew (*Erysiphe graminis tritici*)

Symptoms: Powdery mildew usually is found on leaves but may attack all aboveground parts of the plant. It first appears as small irregular or circular light gray spots on the upper leaf surface. Later, the plant is covered with a "floury" appearance. Leaves eventually become misshapen and die.

Management: The application of fungicide for the control of powdery mildew has rarely been economical.

Bacterial Streak/Black Chaff (*Xanthomonas campestris* pv. *translucens*)

Symptoms: Symptoms on leaves begin as dark green, water-soaked spots that eventually become necrotic and develop into streaks. On the heads, black chaff appears as stripes on the glumes, but blackening may be total.

Management: Use crop rotation, clean tillage and pathogen-free seed.

Fusarium Head Blight/Scab (*Fusarium* spp.)

Symptoms: The symptoms after flowering appear as a bleaching of the glumes, spikelets, areas of the head or even the entire head. Salmon-red or pink-red spore masses frequently form on infected heads.

Management: Well-timed, foliar-applied fungicides only suppress disease incidence (Table 2).

Leaf and Glume Blotch (*Stagonospora* sp.)

Symptoms: The disease appears on the chaff and may be seen as small, irregular, grayish or brownish spots or blotches, which enlarge and become chocolate brown. As the spots age, their centers turn grayish-white and may include tiny, round, raised black spore-bearing bodies. Ordinarily, only a few glumes in a head become infected, but in severe cases the entire head is attacked and turns dark brown. Spots on the sheaths are dark brown and often include most of each sheath. Spots on leaves are light colored and usually surrounded by a brown border.

Management: Varieties differ in tolerance to leaf and glume blotch. Consult variety recommendations. For fungicide recommendations, please refer to (Table 2).

Take-all (*Gaeumannomyces graminis*)

Symptoms: Affected plants have shortened, bleached heads that stand erect, and the affected plants are distributed irregularly throughout the field. The stem base is blackish-brown, and the roots show dark discoloration and are extensively rotted.

Management: Maintain balanced soil fertility and some labeled seed treatment fungicides for suppression only.

Tan Spot (*Pyrenophora tritici-repentis*)

Symptoms: Tan spot first appears on the lower leaves as small yellowish-brown spots that develop into oval spots. Lesion centers become tan and usually are surrounded by a yellow border or halo. As the leaf declines, the spots expand and merge into irregular tan to brown lesions.

Management: Deep plow crop residues. Fungicides may be used.

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Yellow Dwarf (barley yellow dwarf virus or BYDV)

Symptoms: Leaf discoloration in shades of yellow, red or purple, especially from tip to base and from margin to midrib. Stunting and excessive tillering are noted. White sterile heads may develop. The virus is spread by some species of aphids.

Management: No adequate controls are available at this time.

Table 1. Fungicides available to manage seed and seedling diseases in wheat.

Product ¹	Rate ²	Disease
Apron XL LS	0.0425-0.085 fl oz	Pythium damping-off
Charter F2	5.4 fl oz	Common bunt, flag smut, Fusarium seed rot, Fusarium
Charter	3.1 fl oz	Common bunt, flag smut, Fusarium seed rot, Fusarium seedling blight, loose smut
Dividend XL RTA Dividend Extreme	5-10 fl oz 2-4 fl oz	Common bunt, dwarf bunt, loose smut, flag smut, seed-borne Septoria, general seed rots, Fusarium Seed scab, Pythium damping-off
ManKocide	4 oz	Bacterial diseases, common bunt
Manex	3.5-5.2 fl oz	Damping-off, seed rot, seedling blight
Maxim 4FS Maxim XL	0.08-0.16 fl oz 0.167-0.334 fl oz	Damping-off
Raxil 2.6F	0.1 fl oz	Stinking smut, flag smut, loose smut, early season Septoria disease complex, early season Rhizoctonia root rot, early season common root rot, early season Fusarium foot rot, early season suppression of powdery mildew, early season suppression of wheat leaf rust
Stamina	0.4-0.8 fl oz ³	Dry seed decay, Rhizoctonia seed and seedling disease
Stamina F3	4.6 fl oz	Common bunt, common root rot, dry seed decay, flag smut, Fusarium seed rot, Fusarium seedling blight, loose smut, Pythium damping off, Rhizoctonia root rot
Vibrance Extreme	2.8-5.6 fl oz ³	General seed rots, seedling blight, root rot and damping-off caused by seed- and soilborne Fusarium spp. or Rhizoctonia spp. seedling blight, root rot and damping-off caused by soil-borne Pythium spp. seed-borne Septoria, Septoria leaf blotch common bunt, dwarf bunt, karnal bunt, flag smut, Fusarium seed scab, loose smut, Pythium damping-off

¹Reference to commercial or trade names is made with the understanding that no discrimination or endorsement of a particular product is implied by LSU or the LSU AgCenter. Labels are subject to change and users should always read the label before applying a pesticide.

²Rates are the amount of formulation (product) per-hundredweight unless otherwise noted.

³Consult label for specific rates.

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Table 2. Recommended fungicides, rates and application timing for wheat diseases.

Target	Product Choices ¹ and Product Mode of Action Group ²	Rate ³	Time of Application	PHI ⁴	
Leaf and Glume Blotch (<i>Phaeosphaeria nodorum</i> ⁵)	Adastrio	3,7,11	5-9 fl oz	Consult label	30
	Aproach	11	6-12 fl oz	Consult label	45
	Aproach Prima	3,11	3.4-6.8 fl oz	Consult label	45
	Propiconazole Products				
	Bumper 41.8EC	3	4 fl oz	Consult label	-
	PropiMax	3	4 fl oz	Flag leaf emergence	-
	Tilt	3	4 fl oz	No applications past Feeke's 10.54	-
	Caramba	3	10-14 fl oz	Protect as flag leaf emerges	30
	Delaro	3,11	8 fl oz	Consult label	35
	Headline	11	6-9 fl oz	No later than Feeke's 10.5	-
	Lucento	3,7	3-5.5 fl oz	Consult label	30
	Miravis Ace	3,7	13.7 fl oz	Do not apply after Feeke's 10.5.4	-
	Priaxor	7,11	4-8 fl oz	No later than Feeke's 10.5	30
	Proline 480 SC	3	4.3-5 fl oz	First appearance of disease but not past Feeke's 10.5	30
	Prosaro 421 SC	3	6.5-8.2 fl oz	Consult label	30
	Prosaro Pro 400 SC	3,7	10.3-13.6 fl oz	Consult label	30
	Quilt Xcel	3,11	10.5-14 fl oz	No applications past Feeke's 10.5	7
	Sphaerex	3	4.0-7.3 fl oz	Consult label	30
	Stratego YLD	3,11	4 fl oz	Consult label	35
	Twinline	3,11	7-9 fl oz	No applications past Feeke's 10.5	-
Rust	Adastrio	3,7,11	5-9 fl oz	Consult label	30
	Aproach	11	6-12 fl oz	Consult label	45
	Aproach Prima	3,11	3.4-6.8 fl oz	Consult label	45
	Priaxor	3,7	4-8 fl oz	No later than Feeke's 10.5	-
	Propiconazole Products				
	Bumper 41.8EC	3	4 fl oz	Consult label	-
	PropiMax	3	4 fl oz	Flag leaf emergence	-
	Tilt	3	4 fl oz	No applications past Feeke's 10.54	-
	Caramba	3	10-14 fl oz	Protect as flag leaf emerges	30
	Delaro	3,11	8 fl oz	Consult label	35
	Headline	11	6-9 fl oz	No later than Feeke's 10.5	-
	Lucento	3,7	3-5.5 fl oz	Consult label	30
	Miravis Ace	3,7	13.7 fl oz	Do not apply after Feeke's 10.5.4	-
	Proline 480 SC	3	4.3-5 fl oz	First appearance of disease but not past Feeke's 10.5	30
	Prosaro 421 SC	3	6.5 to 8.2 fl oz	Consult label	30
	Prosaro Pro 400 SC	3,7	10.3-13.6 fl oz	Consult label	30
	Quilt Xcel	3, 11	10.5-14 fl oz	No applications past Feeke's 10.5	7
	Stratego YLD	3,11	4 fl oz	Consult label	35
	Tebuconazole Products				
	Folicur 3.6F	3	4 fl oz	Consult label	30
	Orius 3.6F	3	4 fl oz	Consult label	30
	Tebustar3.6F	3	4 fl oz	Consult label	30
	Monsoon	3	4 fl oz	Consult label	30
	Muscle 3.6F	3	4 fl oz	Consult label	30
	Tebuzol 3.6F	3	4 fl oz	Consult label	30
	Sphaerex	3	4.0-7.3 fl oz	Consult label	30
	Twinline	3,11	7-9 fl oz	No applications past Feeke's 10.5	-
Scab	Caramba ⁶	3	10-14 fl oz	Consult label	30
	Proline 480 SC ⁶	3	4.3-5 fl oz	Consult label	30
	Prosaro 421 4C	3	6.5 to 8.2 fl oz	Consult label	30
	Prosaro Pro 400 SC	3,7	7.3 fl oz	Consult label	30
	Tebuconazole Products ⁶				
	Folicur 3.6F	3	4 fl oz	Consult label	30
	Orius 3.6F	3	4 fl oz	Consult label	30
	Tebustar3.6F	3	4 fl oz	Consult label	30
	Monsoon	3	4 fl oz	Consult label	30

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	Muscle 3.6F	3	4 fl oz	Consult label	30
	Tebuzol 3.6F	3	4 fl oz	Consult label	30
	Miravis Ace	3, 11	13.7 fl oz	Do not apply after Feeke's 10.5.4	-
	Sphaerex	3	7.3 fl oz	Consult label	30

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²Mode of action groups are determined by the Fungicide Resistance Action Committee (FRAC).

³Rates are the amount of formulation (product) per acre unless otherwise indicated.

⁴Preharvest interval (PHI) is the minimum number of days allowed between the last application and harvest. If not listed consult label.

⁵Formerly *Stagonospora nodorum* and *Septoria nodorum*.

⁶Suppression only.

The wheat section was revised October 2022 by Boyd Padgett.