

Visual Quick GUIDE

Paul Esker

This reference guide provides information regarding symptoms, risk factors, and management options in order to help improve diagnoses of the most common diseases observed during the growing season.

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Common wheat diseases in Wisconsin



Wheat Leaf Rust (*Puccinia triticina*)

Symptoms: small, reddish orange spore mass (pustules) occurring on leaves; initial symptoms will begin in the lower canopy and progress upwards; older pustules will appear dark gray to black

Risk factors: survives in living host tissue as mycelia or on infested dead leaves as urediniospores; infection is favored by 6–8 hours of dew and temperatures from 60 to 80°F (generally, cool nights and warm days); excess nitrogen also favors infection

For seasonal information about wheat leaf rust distribution, check the USDA Cereal Rust Laboratory: www.ars.usda.gov/Main/docs.htm?docid=9757.

Management: resistant varieties; properly timed fungicide applications



Wheat Stripe Rust (*Puccinia striiformis*)

Symptoms: yellowish pustules that occur in long stripes between veins on leaves and sheaths; in young plants, appears in blotches, but in older plants, parallel striping is distinctive; differs from wheat leaf and stem rust by the absence of reddish brown spores; differs from septoria leaf blotch by the lack of a gray leaf blotch with black fruiting body

Risk factors: inoculum overwinters as urediniospores in crop residue; spores form during cool, wet weather and are wind-dispersed; infection is favored by 4–6 hours of leaf wetness and temperatures from 50 to 60°F

Management: resistant varieties; properly timed fungicide applications



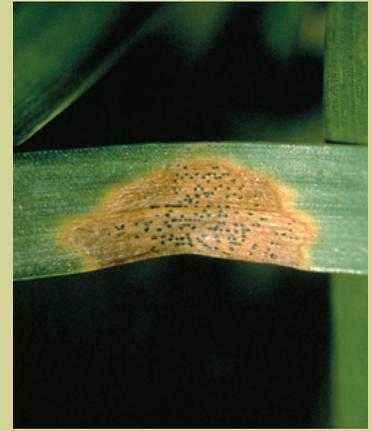
Wheat Stem Rust

(*Puccinia graminis*)

Symptoms: round lesions that can occur on the leaf, true stem, and spikes and are brick red in color; on leaves, lesions can be found on both surfaces; the infected area can have a coarse and grainy appearance

Risk factors: windblown urediniospores from early maturing wheat in the south are the primary source of inoculum in the north; barberry is an alternate host; favored by hot days (77–86°F) and mild nights (59–68°F) and nighttime dew; excess nitrogen also favors infection

Management: resistant varieties; properly timed fungicide applications



Fusarium Head Scab or Blight

(*Fusarium graminearum*)

Symptoms: any part or all of wheat head may be bleached; often, part is bleached, part is green; salmon-colored spore masses occur on infected spikelets and glumes; stem may be infected having brown or purplish discoloration just below head

Risk factors: inoculum sources include crop residue or organism surviving in soil; same organism that causes gibberella stalk rot in corn; spores are wind- or rain-disseminated; infection favored by prolonged periods of rain (dew), high relative humidity, and temperatures from 65 to 85°F; toxin development is a major problem; in-season disease forecasting is available at: www.wheatscab.psu.edu

Management: rotation, especially avoid wheat after corn; properly timed fungicide applications



Septoria Leaf Blotch

(*Septoria tritici*)

Symptoms: symptoms often part of complex with glume blotch; light green to yellow spots between leaf veins on lower leaves; as symptoms elongate, become irregularly shaped lesions that are tan to red brown; distinctive characteristic is presence of black speckles (pycnidia) on lesion

Risk factors: inoculum is from pycnidia that survive on infested residue or mycelia in diseased live wheat; infection requires six hours of leaf wetness and temperatures from 59 to 68°F (cooler than stagonospora); seed can harbor disease for one or more years (seedborne)

Management: certified seed; fungicide seed treatment; rotations of at least two years; properly timed fungicide applications

Glume Blotch

(*Stagonospora nodorum*)

Symptoms: symptoms often part of complex with septoria leaf blotch; brown spots on glumes (outer chaff), lemmas (inner chaff), and awns; damage is observed later, near maturity; symptoms most common at tips; does produce small black specks (pycnidia) but these can be difficult to see with the naked eye

Risk factors: primary inoculum from seed or crop residue; spores are dispersed via wind or rain; infection requires leaf wetness of 6–16 hours and temperatures from 68 to 81°F (warmer than septoria)

Management: certified seed; fungicide seed treatment; rotation of at least two years; properly timed fungicide applications



Powdery Mildew

(*Blumeria graminis*)

Symptoms: powdery white to gray fungal growth that can appear on the leaves, stems, and heads; typically, pustules first observed on lower leaves; in late symptoms there can be small, black fruiting bodies (cleistothecia) that contain spores (ascospores)

Risk factors: primary inoculum is from spores on volunteer wheat or spores contained within cleistothecia; infections in winter wheat first occur in fall; spores are dispersed by wind; infection is favored by wet weather, high relative humidity, and temperatures from 50 to 71°F; excess nitrogen also favors infection

Management: resistant varieties; fungicide seed treatments; properly timed fungicide applications [(between Feekes 6 (1st detectable node) and Feekes 8 (flag leaf is visible)]

Tan Spot

(*Pyrenophora tritici-repentis*)

Symptoms: small tan spots that are round to oval with a yellow halo; will often appear lens-shaped; the center spot can often appear diamond-shaped; as plant matures, symptoms in straw will include tiny black, raised fruiting structures (pseudothecia); in severe infections the seed can have a red smudge

Risk factors: greatest risk is with continuous wheat; primary source of inoculum are spores (ascospores) found in crop residue; infection is favored by cool, cloudy, humid weather and frequent rains

Management: resistant varieties; properly timed fungicide applications; use of tillage and rotation can help reduce survival and infection



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Author: Paul Esker, Assistant Professor, UW-Madison, and Field Crops Plant Pathologist, UW-Extension: pde@plantpath.wisc.edu, 608-890-1999. Cooperative Extension publications are subject to peer review.

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For additional information, visit the UW-Madison and UW-Extension Field Crops Plant Pathology web site (www.uwex.edu/ces/croppathology) and the UW-Madison Nutrient and Pest Management Program (ipcm.wisc.edu/Default.aspx?tabid=62).

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