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AG FACTS

Oat Diseases

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This bulletin provides useful information for diagnosing crop diseases in the field and in the plant clinic laboratory. It will assist crop disease consultants, their scouts, state agricultural advisers, agribusiness representatives, pest control dealers and applicators, county agricultural agents, students in plant sciences and growers throughout Michigan.

The descriptions of symptoms, environmental conditions favoring disease, methods of transmission and recommended control are brief, but complete. The calendar indicates the month in which symptoms appear and the plant part showing the symptom. More detailed information, including photos of disease symptoms, is available in Extension bulletins. Contact your county Cooperative Extension Service office or the MSU Bulletin Office to obtain these publications.

For information on resistant hybrids and varieties, chemical control and other measures, consult recent literature, competent area specialists, Extension plant pathologists or informed seed suppliers.

OAT DISEASES

DISEASE	MONTH SYMPTOMS APPEAR							PLANT PART SHOWING SYMPTOMS				
	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	ROOTS	LEAVES	STEMS	HEAD	ENTIRE PLANT
Halo Blight		●	●	●					●			
Bacterial Stripe		●	●	●					●			
Crown Rust			●	●	●				●			
Stem Rust				●	●				●	●		
Helminthosporium Leaf Blotch		●	●	●					●			
Septoria Black Stem		●	●	●	●				●	●	●	●
Loose Smut				●	●						●	
Scab				●	●						●	
Red Leaf (BYDV)		●	●	●	●				●		●	●
Magnesium Deficiency		●	●						●			●
"Gray Speck" Manganese Deficiency		●	●						●			●

OAT DISEASES

DISEASE	SYMPTOMS	ENVIRONMENTAL CONDITIONS FAVORING DISEASE	METHOD OF TRANSMISSION	RECOMMENDED CONTROL	SPECIAL NOTES
Halo Blight *(Pseudomonas coronafaciens)*	Oval spots with gray or brown centers and clear or yellowish halos appear on the leaves.	Cool, wet weather.	Bacteria overwinter on seed and infected plant residue; can be spread easily by rain, wind and insects.	Plant clean, certified seed, sanitize fields and rotate crops.	
Bacterial Stripe *(Pseudomonas striafaciens)*	Water-soaked dots appear on blades that enlarge into water-soaked stripes extending the length of the blade with narrow yellowish margins. Scaly bacterial exude forms on stripes.	Cool weather.	Bacteria survive in infected residue; bacterial cells are splashed or blown onto leaves.	Manage stubble, if feasible; plant resistant varieties and rotate crops.	
Crown Rust *(Puccinia coronata)*	Small, oval, orange-yellow elevated pustules form on leaf and head.	Cool nights combined with warm days; 6 to 8 hours of free water on leaves; bright days.	Spores are wind-blown; new infections occur every 10 days.	Plant early maturing varieties. Avoid planting late.	
Stem Rust *(Puccina graminis avenae)*	Elongated, brick-red, ragged pustules form on the leaf sheath, blade and stem.	Cool nights combined with warm days; 6 to 8 hours of free moisture on leaves and stems along with bright days.	Spores are wind-blown; new infections occur every 14 days.	Plant early maturing varieties and avoid late planting.	
Helminthosporium Leaf Blotch *(Helminthosporium avenae)*	Reddish-brown spots develop on leaves and merging gradually into stripes.	Cool, wet weather.	Pathogen is seed-borne; conidia produced on leaf lesions are wind-blown to healthy leaves.	Treat seed; rotate crops and manage residue.	Occurs mostly in the upper peninsula
Septoria Black Stem *(Leptosphaeria avenaria)*	Elliptical to diamond shaped, chocolate, brown lesions develop on leaves and sheath. Severe stem infections can cause lodging; centers of spots contain small, black fruiting bodies (pycnidia). Stems are brownish-black.	Cool, wet weather.	Pathogen overwinters on stubble and straw left in field; in the spring spores are blown to green plants.	Plant resistant varieties; rotate crops; avoid spreading oat straw with manure on a field that will be planted to oats.	

OAT DISEASES *Continued*

DISEASE	SYMPTOMS	ENVIRONMENTAL CONDITIONS FAVORING DISEASE	METHOD OF TRANSMISSION	RECOMMENDED CONTROL	SPECIAL NOTES
Loose Smut *(Ustilago avenae)*	Grain is replaced by a sooty, powdery mass of black smut spores; usually, entire head is affected.	Cool, wet weather at the time of seed germination.	Smut spores are wind-blown to healthy heads, falling on or between the chaff of young kernels. Spores germinate immediately and grow into the hulls or seed coats. The spores remain inactive until the seed is sown.	Plant certified seed treated with a carboxin *(Vitavax).*	
Scab *(Fusarium* spp.*)*	Spikelets are bleached and ripen prematurely; hulls of seed are ashen gray, sometimes covered with pinkish mold.	Hot, humid weather during flowering through harvest.	Pathogen survives on the soil surface, on infected corn stalks and grass residues. Spores are wind-borne.	Rotate to crops other than wheat, corn, barley or rye. Clean plow.	Scabby seed is toxic to humans and farm animals.
Red Leaf ***(Barley Yellow Dwarf Virus)*** **(BYDV)**	Greenish-yellow blotches form near the tip of leaves and later turn red or reddish-orange; plants are stunted and sterility is common.	Foliar symptoms are favored by moderate temperatures.	Virus is transmitted by aphids only; the most common are: the Green Bug, Corn Leaf, English Grain, and Oat Bird-Cherry.	Plant early; avoid late planting.	All cereal crops and wild grasses are BYDV hosts.
Magnesium (Mg) Deficiency	Loss of a healthy, green color between veins followed by chlorosis (yellowing). Chlorosis starts on the leaf margins and progresses inward interveinally.	Deficiencies occur on acidic, coarse-textured soil.	Nonparasitic.	Test the soil regularly and systematically. Add Mg according to soil test recommendations.	
"Gray Speck" (Manganese Deficiency) (Mn)	Grayish oval or oblong spots or irregular streaks appear; mainly on the basal half of the leaf. They enlarge, become yellow, dry out and turn light brown. May cause stunting.	Most common in highly alkaline soils.	Nonparasitic.	Test the soil regularly and systematically. Add Mn according to soil test recommendations.	

See also Extension bulletin E-1424, *Oat Diseases.*

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