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Sugarbeet Diseases

Michigan State University Extension Service

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AG FACTS

Sugarbeet Diseases

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This bulletin provides useful information for diagnosing crop disease problems in the field or 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 that

symptoms appear and the plant part showing the symptom. More detailed information, including photos of disease symptoms, is available in the sugarbeet disease compendium and 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.

SUGARBEET DISEASES

DISEASE	MONTH SYMPTOMS APPEAR					PLANT PART SHOWING SYMPTOMS			
	MAY	JUNE	JULY	AUG.	SEPT.	ROOT	LEAF	LEAF STEM	BEET
Seedling Black Root	•	•				•			
Rhizoctonia Crown Rot		•	•	•	•	•	•	•	
Tap Root Tip Rot		•	•	•	•	•	•		
Phoma Seedling Blight	•					•			•
Cercospora Leaf Spot		•	•	•	•		•	•	
Powdery Mildew			•	•	•		•		
Sugarbeet Nematode		•	•	•	•	•			•
Root-Knot Nematode		•	•	•	•	•			•

SUGARBEET DISEASES

DISEASE	SYMPTOMS	ENVIRONMENTAL CONDITIONS FAVORING DISEASE	METHOD OF TRANSMISSION	RECOMMENDED CONTROL	SPECIAL NOTES
Seedling Black Root (several fungi including: <i>Aphanomyces cochloides</i> ,* <i>Rhizoctonia solani</i> , <i>Pythium aphanidermatum</i>)	Seedlings and young plants have dark-colored hypocotyls that reduce to a black thread. Pre- and post-emergence damping-off.	Warm, wet soils.	Soil-borne causal fungi.	Treat seed with appropriate fungicide; use <i>Aphanomyces</i> tolerant varieties. Rotate crops and plant on well-drained soils.	
Rhizoctonia Crown Rot (<i>Rhizoctonia solani</i>)	Leaf stems blacken and outer leaves yellow; extensive rotting of crown and root tissue follows; infected leaves collapse.	High temperatures throughout the growing season.	Fungus survives in the soil and roots of many weeds.	Rotate crops, control weeds; avoid throwing cultivated soil in the crowns. Plant tolerant varieties when available.	
Tap Root Tip Rot (<i>Aphanomyces cochloides</i>)	Foliage yellows and wilts, unthrifty plant growth occurs, lateral roots and terminal portion of the tap root continually rot.	Warm, wet weather and poor drainage.	Soil-borne fungus enters the plant through the roots.	Plant early; provide good soil drainage; cultivate promptly to aerate the soil and rotate crops; plant tolerant varieties.	
Phoma Seedling Blight (<i>Phoma betae</i>)	Seedlings die before or after emergence; seedlings wilt; roots and lower portions of leaf stems rot.	Cool, wet weather and poor soil drainage.	Pathogens are seed-borne and will survive in sugarbeet plants that do not damp-off. This is a source of inoculum for storage rot.	Plant clean, disease-free seed.	
Cercospora Leaf Spot (<i>Cercospora beticola</i>)	Small, brown to gray spots with purple borders appear on leaves and leaf stem; spots emerge, leaves turn yellow to brown and finally collapse.	High temperatures and high humidity.	Fungus survives on crop residue; spores are wind-borne.	Plant disease tolerant varieties; rotate crops; clean plow to reduce crop residue; use foliar fungicides even on tolerant varieties.	
Powdery Mildew (<i>Erysiphe polygoni</i>)	Light gray mold growth covers leaf surface; leaves yellow, become dry and collapse.	Warm, dry weather.	Wind-borne spores.		Pathogen appears late in the season and causes little or no damage.

*This is the most serious of the root rots.

SUGARBEET DISEASES *Continued*

DISEASE	SYMPTOMS	ENVIRONMENTAL CONDITIONS FAVORING DISEASE	METHOD OF TRANSMISSION	RECOMMENDED CONTROL	SPECIAL NOTES
Sugarbeet Nematode (<i>Heterodera schachtii</i>)	In district field areas, plants appear stunted or dead; small pinhead-sized cysts attach to feeder roots; plants sprawl and turn yellow; leaf petioles wilt above ground.	Soil temperatures of 55° to 80°F.	Nematodes survive in soil as cysts and on weed hosts; spread by irrigation water and contaminated soil on machinery.	Use nematicides; rotate crops; sanitize fields; and control weeds.	
Root-Knot Nematode (<i>Meloidogyne</i> spp.)	Foliage yellows and wilts on warm days; galls form on tap and lateral roots.	Soil temperatures of 55° to 80°F.	Nematodes survive in soil as cysts and on weed hosts; spread by irrigation water and contaminated soil on machinery.	Use nematicides; rotate crops; sanitize fields; control weeds.	Evident in mid-season.

The 1986 sugarbeet compendium is available through the American Phytopathological Society, 3340 Pilot Knob Road, St. Paul, MN 55121. See also, NCR-140, *Sugarbeet Diseases of the North Central U.S.*



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