

Potato XXII

Rhizoctonia Stem Canker

Howard F. Schwartz and David H. Gent

Identification and Life Cycle

Rhizoctonia stem canker is caused by certain strains of the fungus *Rhizoctonia solani*, and occurs wherever potatoes are grown. *R. solani* has a very broad host range, but the strains that attack potato (mainly AG-3) generally do not attack other hosts. Disease is initiated from soil-borne or seed-borne sources that infect developing sprouts, stolons, and roots. Infection may occur any time during the season, but young tissues are most susceptible and are most severely infected when emergence is delayed in cool soils. The pathogen can survive several years as mycelium or dormant resting structures (sclerotia) in soils, organic matter, and crop debris. Soil-borne and seed-borne inoculum can both be important in the development of Rhizoctonia stem canker.

Plant Response and Damage

Disease symptoms associated with Rhizoctonia stem canker include reddish brown to black, sunken lesions that form on sprouts, stolons, and roots. Large lesions may girdle the stem and kill the sprout. Infected plants may appear stunted and chlorotic. Leaf rolling, purple pigmentation of leaves, and aerial tuber formation are also common foliar symptoms of Rhizoctonia stem canker. The disease delays emergence, reduces stands, and weakens plants, resulting in reduced tuber yield and grade. *R. solani* can also attack tubers, causing black scurf.

Management Approaches

Biological Control

No biological control practices have been developed for Rhizoctonia stem canker.

Cultural Control

Plant high quality seed free from the Rhizoctonia stem canker pathogen in warm, well prepared soils that promote rapid germination. If soils are cool (below 46°F), shallow planting (2 inches from the surface) will reduce time to emergence and sprout infection. Crop rotations of at least 2 years between potatoes will reduce soil-borne inoculum, but longer rotations may be necessary in cool, wet production areas. Potato varieties vary somewhat in their reaction to Rhizoctonia stem canker; highly susceptible varieties should be avoided if possible.

Chemical Control

Fungicides applied as broadcast, in-furrow, or seed treatments reduce *Rhizoctonia* stem canker severity, but are most effective when combined with cultural practices that reduce seed and soil-borne inoculum.

Common/Trade Name	Rate	Remarks
Fludioxonil		
Maxim	0.5 lb per 100 lb seed potatoes	Also controls <i>Fusarium</i> dry rot, and seed-borne <i>Helminthosporium solani</i> (Silver scurf); Does not control bacterial diseases; Resistance is possible.
Maxim MZ	0.08 – 0.16 fl.oz per 100 lb seed	Also controls <i>Fusarium</i> dry rot, and seed-borne <i>Helminthosporium solani</i> (Silver scurf); Does not control bacterial diseases; Resistance is possible.
Maxim 4FS	0.08 – 0.16 fl.oz per 100 lb seed	Also controls <i>Fusarium</i> dry rot, and seed-borne <i>Helminthosporium solani</i> (Silver scurf); Does not control bacterial diseases; Resistance is possible.
Maneb		
Seed Treatment for Potatoes LD (plus Streptomycin Sulfate)	1 lb per 100 lb of seed	Also controls <i>Fusarium</i> dry rot and blackleg; Apply for thorough coverage to whole or cut seed.
Thiophanate-methyl		
TOPS 2.5D	1 lb per 100 lb of cut seed	Also controls <i>Fusarium</i> dry rot; Treat cut seed; resistance of some organisms is possible.
TOPS 5	0.5 lb per 100 lb of cut seed	Also controls <i>Fusarium</i> dry rot; Treat cut seed; resistance of some organisms is possible.
TOPS MZ (plus Mancozeb)	0.75-1.0 lb per 100 lb of cut seed	Also controls <i>Fusarium</i> dry rot and seedborne silver scurf and late blight; Treat cut seed; TOPS MZ is not efficacious against systemic seed-piece infections or airborne (secondary inoculum. Resistance is possible.

In-furrow fungicides

PCNB

Blocker 10G and 4F	Apply as in-furrow granular 1.65 lb/1000 linear ft. of row (25 lb/A) in 8.5" bands or as in-furrow. Spray 5.2-10.4 fl.oz/1000 linear ft. of row (5 – 10 pt/A) in 8.5" band. Cover during hilling. Use 10 – 2- gal water carrier.	Do not harvest within 45 days of application
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Azoxystrobin

Quadris	Apply 0.4 – 0.8 fl.oz/1000 linear feet of row in 5–15 gallons of water in 6-7" band. Cover during hilling.
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Categories: Potato, Disease, Rhizoctonia Stem Canker

Date: 03/29/05