UNIVERSITY OF ILLINOIS EXTENSION
College of Agricultural, Consumer and Environmental Sciences

report on
PLANT DISEASE

RPD No. 1353
December 2025

DEPARTMENT OF CROP SCIENCES
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

BEET RHIZOCTONIA ROOT AND CROWN ROT

Rhizoctonia root and crown rot, caused by the fungus *Rhizoctonia solani*, is the most common and most serious root disease of beets. This disease occurs worldwide and caused crop losses. Up to more than 50% of crop losses have been reported caused by this disease.

Figure 1. Wilting beet plants caused by Rhizoctonia solani (Taken by Haque 2018)

Symptoms

The first aboveground symptoms are sudden wilting and chlorosis of foliage and black necrosis of petioles near the crown. Wilted leaves subsequently collapse and die (Figure 1).

Crowns and roots may become partially or wholly rotted. On the root surface, infected areas develop that are dark brown to black (Figure 2, A). Infected tissues within roots develop a light to dark brown dry rot (Figure 2, B). Deep fissures often appear at or near crowns (Figure 2).

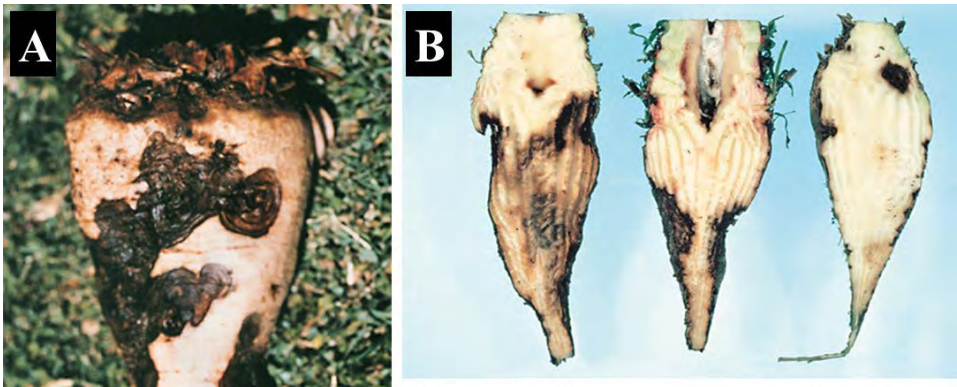

Figure 2. Rhizoctonia root and crown rot of beet, caused by Rhizoctonia solani*. A, APS (M. E. Stanghellini); B, APS (E. G. Ruppel).*

Disease Cycle

Rhizoctonia solani occurs in agricultural soils throughout the world and attack many crop species. It overwinters in soil as bulbils, or thickened hyphae in plant depris. In spring and summer, the fungus resumes growth through the soil and infects beet through leaf peioles, crowns, or rots. Fairly warm weather (77-92°F) favors the development of root and crown rot. The disease occurs in most types of soil but is most severe in heavy, poorly dained soils, especially in low areas.

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Disease Management

- Crop rotation for 3-5 years with nonhosts, such as cereals, is crucial.
- Planting beets directly after snap beans or soybeans should be avoided.
- Soil drainage to lower soil moisture is highly recommended.
- Supply adequate nutrition as needed, to promote good crop growth, but avoid excess nitrogen.
- Control weeds, such as pigweed.
- Certain table beet cultivars may provide a level of resistance to infection by *R. solani*.
- When hilling, avoid pushing soil into the crowns because the petiole and crown are the point where most pathogens infect.
- Maintain a 6- to 8-inch plant spacing.
- Consider deep tillage to burry infested crop residues and sclerotia.
- Fungicide applications may be considered. Elatus, Excalia, Proline, Quadris, and Vertisan fungicides have been mentioned for use for managing the disease.