

Plant Disease Notes

Rhizoctonia Root Rot on Garden Beans

Rhizoctonia root rot, caused by *Rhizoctonia solani*, is common throughout the world. It is one of the most economically important root and hypocotyl diseases of beans. It has a broad host range that includes most annual and many perennial plants. Rhizoctonia root rot is particularly damaging on plants with tap roots.

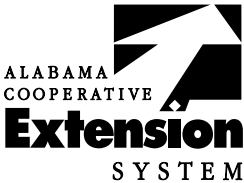
Symptoms. Typical symptoms of Rhizoctonia root rot include small, elongate, sunken, reddish-brown lesions on the roots and hypocotyls. Lesions often occur at the soil line and initially appear water-soaked, then turn dry and reddish-brown to brick-red with age. Lesions may girdle the seedling and cause stunting and death of plants. Infected plants often produce fibrous roots above the lesions and may appear to recover, but they remain stunted. Symptoms may resemble Fusarium root rot in some situations. Laboratory examination may be necessary to diagnosis Rhizoctonia root rot.

Persistence and Transmission. Generally, the pathogen survives between crops as sclerotia or mycelia in the soil. Sclerotia are dense, compacted aggregates of dormant hyphae, resistant to unfavorable environmental conditions. Sclerotia in infested soil or plant debris can be moved throughout the

field by wind, rain, irrigation water, and farm implements. Once soil becomes infested, it remains infested. Disease is most severe in cooler soils (around 60° to 65°F). Soil moisture conditions have little effect on disease severity. Plant age plays an important role in the development of the disease. Younger plants are very susceptible to infection and older plants generally are not.

Control. Rhizoctonia root rot can be controlled by using the following strategies:

- Plant in warm soil with good drainage. *Rhizoctonia* causes less damage under conditions that favor the growth of vigorous plants.
- Use shallow planting. Do not plant seeds too deeply.
- Use crop rotation. Do not plant beans in the same field for at least 4 years. The rotation system should include cereals, clover, or alfalfa.
- Soil solarization can be effective in sterilizing the soil when environmental conditions are favorable.
- Use seed treatment or soil drench applications of fungicides containing the active ingredient pentachloronitrobenzene (PCNB) to control the disease. On fungicide labels the active ingredient is usually listed below the brand name.



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Use chemicals only according to the directions on the label. Follow all directions, precautions, and restrictions that are listed.

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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