

Rhizoctonia Root and Stem Rot

Disease Facts

- Caused by the soil-borne fungus *Rhizoctonia solani*
- Pathogen causes damping-off, root and stem rot, and foliage blight
- Disease is favored by heavy, poorly drained soils and delayed emergence.
- May attack soybeans from planting to mid growing season.
- Most prevalent on seedlings and young plants when prolonged wet periods are followed by warm and dry weather.
- Yield reductions can range from as little as 5% to more than 50% depending on severity.

Conditions Favoring Disease Development

- This pathogen is favored with high soil moisture and warm soil temperatures, around 81°F (27°C).
 - Because of this, it is common in late planted soybean fields.
- Commonly occurs on heavy, poorly drained or compacted soils.

Rhizoctonia Symptoms

- Infects young seedlings, causing damping off.
- Infection is characterized by a shrunken, reddish-brown lesion on the hypocotyl at or near the soil line.
- Infection may be superficial, causing no noticeable damage, or these firm, dry, brick-red lesions can join to girdle the stem and kill or stunt plants
- Soybeans can also appear stunted, chlorotic, and wilted as a result of root decay.
- Severely affected plants may lose their leaves.
- Wilted and or dead plants often occur in small patches.
- Stems weakened by infection can cause infected plants to break at the soil line under stormy conditions.

Disease Cycle

- Disease-causing fungus survives as resting mycelium or sclerotia in the soil.
- When soils warm the fungus becomes active, and infection can occur.
- At optimum temperatures, 77-84 ° F (25-29 °C), disease severity increases.
- Infection occurs under wet conditions, but symptoms become evident under drought stress.



Soybean plants showing symptoms of damping off due to rhizoctonia root rot disease. *Rhizoctonia solani* can cause seed rot, root rot, and reddish-brown lesions on hypocotyls at the soil line.

Management

- **Seed Treatments** - Offer some measure of protection and increase emergence.
- **Crop Rotation** - Limited in its effectiveness as many strains of *Rhizoctonia* can infect corn, alfalfa, dry bean, and cereals.
- **Field Drainage and Soil Structure** - Improve field drainage and remediate compaction and hardpan layers if possible.
- **Planting** - Avoid planting under cool wet conditions.



Red discoloration at soil line due to *Rhizoctonia solani*.



Close up of red discoloration due to *Rhizoctonia solani*.

Author: Laura Sharpe

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