

Lettuce

Bottom Rot

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Identification and Life Cycle

Bottom rot is caused by the soil-borne fungus *Rhizoctonia solani*, and is found wherever lettuce is grown. Infection occurs when sclerotia (dormant resting structures) germinate and produce mycelium that penetrates healthy or wounded tissue. The pathogen infects lettuce over a wide range of temperatures, but is favored by warm (77 to 81°F), moist conditions. *Rhizoctonia solani* is a very common soil inhabitant, and some strains of the fungus can attack other hosts including potato, onion, dry bean, wheat, corn, and several weeds. The pathogen survives between lettuce crops as sclerotia or mycelium in soil and crop debris, pathogenically on alternate hosts, but can also be introduced into a field by wind- or water-disseminated spores (basidiospores).

Plant Response and Damage

Bottom rot symptoms typically develop first on lower leaves in contact with the soil, and appear as small, rust-colored brown spots, primarily on the underside of leaf midribs. Symptoms generally are most pronounced at heading. Bottom rot can rot midribs and lettuce leaf blades rapidly when conditions are favorable; stems are relatively more resistant to bottom rot and are the last portion of the head to decay. Decaying heads are at first slimy and brown, but become dark brown to black as they collapse and dry. A webbed network of white to brown mycelium often grows over lesions, and small gray brown sclerotia later are apparent.

Management Approaches

Biological Control

No biological control strategies have been developed for bottom rot.

Cultural Control

Plant lettuce varieties with an upright architecture to reduce foliage contact with the soil. Practice a three-year or longer rotation to non-hosts. Destroy crop residues by plowing deeply after harvest to reduce pathogen survival. Practice effective weed control to eliminate alternate hosts between lettuce crops. Plant lettuce on high beds to promote air movement, drainage, and minimize foliage contact with the soil. Avoid irrigation near harvest.

Chemical Control

Fungicides are most effective when used in combination with cultural control strategies. Proper placement and timing of fungicide applications are essential for effective disease control.

Trade Name	Product per Acre	Application Frequency (days)	Remarks
Azoxystrobin			
Amistar	0.125-0.25 oz/100'	Planting time	0.93 lbs per season maximum; 0 day PHI
Quadris Flowable	6.2-15.4 fl oz	7-14 days	Maximum of 3 applications or 1.44 quarts per season; Do not make more than 2 sequential applications before rotating to a fungicide with a different mode of action; 0 day PHI
Boscalid			
Endura	8-11 oz	7-14 days	Suppression only; Maximum of 22 oz or 2 applications per season; 14 day

PHI

Iprodione—not all formulations listed

Rovral 50	1.5-2 lb/40 gal	10 days	Apply at thinning and 10 days later; Maximum of 3 applications; 14 day PHI
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Vinclozolin

Ronilan DF	1-2 lb	14 days	Maximum of 6 pounds per season; 28 day PHI
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Categories: Lettuce, Disease, Bottom Rot

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