

# Onion

## **Fusarium Basal Plate Rot**

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### **Identification and Life Cycle**

Fusarium basal rot is caused by *Fusarium oxysporum* f. sp. *cepae*, a soil-borne pathogen that can survive in soil for many years as chlamydospores or as a saprophyte on crop residues. The pathogen infects the onion root and basal plate area, causing a dry rot. The disease is more serious when soil temperatures exceed 80°F and soil moisture is high. Maggots are attracted to rotting bulbs and may contribute to secondary breakdown by bacteria and other organisms. The pathogen can be spread within and between fields by equipment and irrigation water.

### **Plant Response and Damage**

Fusarium basal rot symptoms appear as a pinkish brown rot that becomes covered with a whitish mycelium. Leaf tips yellow, entire leaves wilt beginning with the older outer leaves, scattered plants are stunted, and eventually die. A semi-watery decay progresses from the basal plate upward and secondary invaders (bacteria) cause a watery, foul-smelling breakdown. Infected plants may appear after bulbs develop, and are easily pulled from soil as most of the root system becomes rotted. Late-season infection may not be visible until storage. The disease can be very damaging to susceptible varieties in fields with a history of Fusarium basal rot.

### **Management Approaches**

#### **Biological Control**

Biological controls have not been developed for Fusarium basal plate rot.

#### **Cultural Control**

Practice a four-year or longer rotation to non-hosts such as small grains and corn. Plant transplants and seed free of the pathogen in well-prepared seedbeds with adequate drainage. Avoid aggravating plant stresses such as soil compaction, root pruning during cultivation, pink root infection, and moisture extremes. Nitrate fertilizers tend to reduce disease severity as compared to ammonium fertilizers.

Resistant varieties have been developed and should be planted in fields with a history of the disease. Avoid reuse of irrigation water, as the pathogen is readily moved in water.

### Chemical Control

Chemical controls are most effective when combined with sound cultural practices. Fields can be quickly infested following fumigation.

*Product List for Fusarium Basal Plate Rot:*

Pesticide	Product per acre	Remarks
<b>Fumigant</b>		
Telone II	9-15 gal	Restricted use; Preplant application, aerate 7-14 days.
Telone C-17	10-17 gal	Restricted use; Preplant application, aerate 7-14 days.
Vapam	40-100 gal	Restricted use; Preplant application, aerate 7 days.
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