

Sunflower XIV

Damping-Off and Seedling Blight

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Identification and Life Cycle

Damping off is a disease of seeds (pre-emergence damping-off) and seedlings (post-emergence damping-off or seedling blight) that can be caused by many fungi, primarily *Pythium* spp. and *Fusarium* spp., but also *Penicillium* spp., *Rhizoctonia* spp., *Aspergillus* spp., *Alternaria* spp., and others. These fungi are common soil inhabitants in soils worldwide and have a broad host range. They survive between crops as dormant resting structures (oospores, sclerotia), in crop debris, saprophytically, and pathogenically on weeds and other hosts.

Plant Response and Damage

Pre-emergence damping-off results in seed rot and seedlings that never emerge. Initial root rot symptoms appear as elongated water soaked areas on roots one to three weeks after planting. The pathogen will extensively prune roots, reduce overall plant growth, and can destroy much of the main root system. The water-soaked region may extend several inches above the soil line, with little, if any, visible evidence of the fungus. The water-soaked area eventually dries out, becomes somewhat sunken, and tan to brown in color. Above ground symptoms include stunting and yellowing; eventually plants wilt and die. Damage usually is most common when seed quality is poor and/or seed has been damaged by freezing, herbicides, or the presence of other pathogens. Slow germination and poor drainage typically result in damping off and seedling blight.

Management Approaches

Biological Control

T-22 Planter Box (*Trichoderma harzianum* strain KRL-AG2) is registered as a seed treatment for damping off diseases. Do not use in alkaline soils or if soil is below 50°F.

Cultural Control

Plant high quality seed into well prepared seedbeds under conditions that promote rapid seed germination and seedling emergence. Avoid compaction, poor drainage, herbicide injury, and other stresses that delay germination and thus increase the chance for seed and seedling infection. Very little or no information is available on resistant varieties. Crop rotation may provide some control of some of the pathogens involved in the damping off complex, but will not suppress pathogens such as *Pythium* spp. that have very broad host ranges. Increased seeding rates will partially compensate for seedlings that are killed.

Chemical Control

Treat seed with a broad-spectrum fungicide to suppress damping off pathogens. Seed treatments provide early season suppression of damping off fungi, but often lose their effectiveness as the plant roots grows.

Product List for Damping-Off and Seedling Blight:

Pesticide	Rate per 100 lb seed	Application Frequency (days)	Remarks
Captan			
Captan 75	6-9 oz	Seed treatment	Broad spectrum, but weak against <i>Pythium</i> and <i>Phytophthora</i> spp.
Captan 30-DD	1.25 fl oz	Seed treatment	Broad spectrum, but weak against <i>Pythium</i> and <i>Phytophthora</i> spp.
Captan 400	1-2 fl oz	Seed treatment	Broad spectrum, but weak against <i>Pythium</i> and <i>Phytophthora</i> spp.
Captan 400-C	1-2 fl oz	Seed treatment	Broad spectrum, but weak against <i>Pythium</i> and <i>Phytophthora</i> spp.
Fludioxonil			
Maxim 4FS	0.08-0.16 fl oz	Seed treatment	Suppression of <i>Fusarium</i> and <i>Rhizoctonia</i> spp.
Metalaxyl/Methoxonam			
Allegiance FL	1.5-3.0 fl oz	Seed treatment	Suppression of <i>Pythium</i> and <i>Phytophthora</i> spp.
Allegiance LS	2.4-4.9 fl oz	Seed treatment	Suppression of <i>Pythium</i> and <i>Phytophthora</i> spp.
Apron XL LS	1.28 fl oz	Seed treatment	Suppression of <i>Pythium</i> and <i>Phytophthora</i> spp.
Thiram			
42-S Thiram	8 fl oz	Seed treatment	Broad spectrum
Thiram 50WP	8 oz	Seed treatment	Broad spectrum

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container and any supplemental labeling and rules of state and federal pesticide regulatory agencies. State rules and regulations and special pesticide use allowances may vary from state to state: contact your State Department of Agriculture for the rules, regulations and allowances applicable in your state and locality.

Categories: Sunflower, Disease, Damping-Off, Seedling Blight

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