Pulse Crops

Damping-Off and Seedling Blight of Pea

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Identification and Life Cycle

Damping-off and subsequent seedling blight of pea can be caused by several soilborne fungi and fungus-like pathogens including *Pythium* spp., *Rhizoctonia solani*, *Thielaviopsis basicola*, and *Phoma medicaginis* var. *pinodella*. Damping-off is most often associated with soil conditions unfavorable for seed germination and emergence, such as cool soil temperatures and excessive soil moisture. Pathogens associated with damping-off are common soil inhabitants and can survive in soil as dormant resting structures, pathogenically on alternate hosts and weeds, and saprophytically on crop residues.

Plant Response and Damage

Damping-off can occur before or after crop emergence. Pre-emergence damping-off results in a brown, gelatinous rotting within the seed coat. Radicles and cotyledons may become brown and soft after germination, but fail to emerge. Water-soaked, greasy lesions may form at the soil line and on roots after emergence when infected with *Pythium* spp. causing plants to collapse and wither. Patches of seedlings can be girdled and killed. Root rot and seedling blights often make it difficult to establish uniform plant stands in the Northern High Plains if proper control strategies are not practiced.

Management Approaches

Biological Control

No biological control strategies have been developed for damping-off and seedling blight of pea.

Cultural Control

Plant high quality seed uniformly into firm, well-prepared seedbeds at optimum pH, soil temperature (at least 55ºF), and fertility level for rapid germination and growth. Apply adequate but not excessive nitrogen fertilization. Avoid compaction, poorly drained fields, herbicide carryover, and excess irrigation that can favor damping-off pathogens. Crop rotation may provide some disease control, but some damping-off fungi such as Pythium spp. have broad host ranges and can survive long periods of time as oospores in the absence of a host. Crop rotation of five years or longer to small grains can reduce some pathogen populations. Tillage and burial of crop debris provides a practical control measure for Rhizoctonia solani.

Chemical Control

Chemical controls are most effective when integrated with sound cultural practices. Mixtures of fungicides may be necessary to suppress the spectrum of damping-off pathogens that can attack pea.

Product List for Damping-Off and Seedling Blight:

Common/ Trade Name	**Product per 100 pounds seed**	**Remarks**
Azoxystrobin		
Protégé	0.153-0.763 fl oz	Broad spectrum suppression of seed decay and damping-off pathogens
Captan		
Captan 30-DD	2 fl.oz	Broad spectrum suppression of seed decay and damping-off pathogens
Captan 400	2.5 fl.oz	Broad spectrum suppression of seed decay and damping-off pathogens
Fludioxinil		
Maxim	0.08-0.16 fl oz	Suppression of Rhizoctonia and Fusarium spp.
Mefenoxam/Metalaxyl		
Allegiance	0.10 – 0.375 fl.oz	Suppression of Pythium sp.
Apron FL	0.75–1.5 lb/100 fl.oz	Suppression of Pythium sp.
Apron XL LS	0.32 – 0.64 fl.oz	Suppression of Pythium sp.
Apron 50W	0.5 – 1.0 oz	Suppression of Pythium sp.

Thiram		
Thiram	3 oz	Broad spectrum suppression of seed decay and damping-off pathogens
In Furrow Treatments		
Azoxystrobin		
Amistar	0.125-0.25 oz/1000 feet	In furrow treatment for Rhizoctonia suppression
Quadris	0.4-0.8 fl oz/1000 feet	In furrow treatment for Rhizoctonia suppression
Mefenoxam		
Ridomil Gold EC	½ -1 pt per acre in a 7” band	Suppression of Pythium sp.; Incorporate mechanically or by irrigation

Categories: Pulse Crops, Disease, Damping-Off, Seedling Blight, Pea

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