

Pulse Crops

Nematodes

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Identification and Life Cycle

Various nematodes can attack pea, including the pea cyst nematode (*Heterodera goettingiana*), root-knot nematode (*Meloidogyne incognita*), and root-lesion nematode (*Pratylenchus penetrans*). The life cycle of different nematode species vary, and may include feeding on the outside of roots or penetration and development within roots. The cyst nematode is one of the most damaging nematode pests of pea. Cysts are the dead bodies of females and may contain up to 300 eggs. Cysts are very persistent in the soil, surviving more than 12 years, and can be spread by moving contaminated soil on plant parts, equipment, and irrigation water. Cool soil temperatures promote root invasion. Nematodes survive between susceptible crops by feeding on other crops and weeds, and, sometimes, as dormant cysts.

Plant Response and Damage

Above ground symptoms of nematode injury appear as patches of stunted or dying plants. When roots are examined they appear pruned, but some nematodes (such as the cyst nematode) can cause a proliferation of lateral feeder roots. Other nematodes can cause a round to spindle-shaped galls on roots (root-knot) and reddish-orange to brown lesions (lesion). Infected plants may wilt when stressed by high temperature or moisture stress.

Cyst nematode symptoms include yellowing of foliage that spreads rapidly from the bottom of the plant to the top. Affected plants lack fibrous roots and nitrogen-fixing nodules. Tiny (less than 0.02 inches) cream-colored, lemon-shaped cysts can be found embedded in root tissue, but once cysts mature and turn dark brown, they detach easily from root systems and are difficult to detect. Nematode damage to pea has not been investigated thoroughly in the High Plains.

Management Approaches

Biological Control

Incorporation of green manure crops such as sudangrass, sesame, rapeseed, white mustard, or perennial ryegrass the season before a pea crop is planted can reduce some nematode populations.

Cultural Control

Prevent the introduction of nematodes in clean fields by thoroughly cleaning equipment between fields. Plant peas when soil temperatures are warm, but be aware of other production problems associated with late pea plantings. Avoid the reuse of irrigation water. Provide adequate fertilizer and irrigation for crop development to reduce the impact of nematode feeding. Sprinkler irrigation tends to be more effective than furrow irrigation for supplying even water to nematode-damaged plants. Practice a five-year or longer crop rotation to non-hosts such as small grains; avoid vegetable crops, faba bean, and vetch in rotations. Control weeds that may serve as alternate hosts of nematodes. Promptly incorporate crop residues after harvest to limit nematode reproduction.

Chemical Control

No nematicides are registered for pea.

Categories: Pulse Crops, Disease, Nematodes

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