



Fig. 1. *Pratylenchus penetrans*: Lesions on potato tubers (a & b); Root lesion nematodes emerging from lesion tissue (c); Mature female (d). Photo credits H . Golzar and H . Hunter

Common Name: Root lesion nematode

Classification: K:Animalia, P:Nematoda, C:Adenophorea, SC:Diplogasteria, O:Tylenchida, F:Pratylenchidae

A number of *Pratylenchus* species infest potato tubers (*Solanum tuberosum* L.) but *P. penetrans* is one of the most common root lesion nematode causing damage to potato crops in Australia and other temperate regions of the world.

Host Range:

P. penetrans is a cosmopolitan plant parasitic nematode that attacks underground plant organs including roots, tubers and rhizomes. It has an extremely wide host range in both horticulture and broadacre crops. This nematode can produce several generations within a growing season. Both juvenile and adult stages can penetrate and damage underground plant tissues (Fig. a,b,c, d).

Impact:

P. penetrans can reduce yields of potatoes by 50%. The damage threshold of potatoes to *P. penetrans* is reported to be of 100 nematodes per 250 g soil of infested field soil in Europe (Holgado *et al.* 2009). Similar research is required for Australian conditions. *P. penetrans* and fungal pathogens such as *Verticillium dahliae*, *Fusarium spp.*, common and powdery scabs can co-infect the potato roots and tubers. The interaction of *P. penetrans* with these microorganisms can induce diseases expression and decrease yield, quality and marketability of potato tubers.

Symptom:

P. penetrans invades the feeder roots, stolons and tubers. Affected plants turn yellow, lose vigour and

may produce undersize tubers. Symptom on tubers appear as superficial lesions with depressed borders ranging in size of 1 to 4 mm in advanced lesions (Fig. a, b). Tuber lesions may be confused with symptoms of common or powdery scabs.

Control:

P. penetrans has an extremely large host range so it is a challenge to incorporate rotation in to the integrated pest management for this nematode. Information on resistance and tolerance of potato varieties to *P. penetrans* is limited however some horticulture or broadacre crops have been reported to be tolerant (see DAFWA website for more information. Soil amendments to increase organic material and soil fertility can reduce populations of *P. penetrans* and increase the vigour and tolerant of the plants against this nematode. Although the use of infested tubers in the already infested soil by *P. penetrans* will be of little concern but it can initiate new soil infestation (Olthof *et al.* 1991).

Application of pre-plant nematicides and fumigation of infested soil may reduce the nematodes population but will not eliminate the nematodes from the soil. They are costly and environmentally not safe approach in preventing yield losses.

Further Reading:

Holgado *et al.* (2009) *Nematol. medit.* , 37: 25-29.

Olthof *et al.* (1991) *Can. J. Plant Sci.* 71: 1251-1256

www.agric.wa.gov.au

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