

7.1 Background

Root lesion nematodes feed on the roots of crops. They are microscopic, worm-like organisms, less than 1mm in length, which use a syringe-like stylet to enter the roots and extract nutrients (GRDC 2015), causing significant damage as they feed. Each has a wide host range and can multiply on cereals, oilseeds, pulses and pastures as well as on broadleaf and grass weeds.

There are three main Root lesion nematode (RLN) species affecting broadacre crops in Australia. The most important species in eastern Australia are *Pratylenchus thornei* and *P. neglectus*, and in the western region *P. neglectus* and *P. quasitereoides* (formerly *P. teres*).

Choosing the right crop and variety to grow is the key to managing RLN.

A PREDICTA B test prior to sowing can identify the number of each RLN species present in the soil, and enable growers to make informed management decisions.

IMPACT

- In the northern region *Pratylenchus thornei* causes yield loss of 0% for the most tolerant varieties, 5 to 35% for moderately tolerant varieties and up to 60% for intolerant varieties. Currently 60% of current varieties are rated as moderately tolerant or better.
- Losses in the southern and western regions are still being determined; so far yield losses for the most intolerant varieties in the southern region range up to 15%.
- Yield losses may be additive when other root or crown diseases are also present.
- Damage to roots caused by RLN can increase symptoms of nutrient deficiency and restrict water uptake.
- Crops affected by RLN are less competitive with weeds, increasing weed seed set.

WHERE DAMAGE IS MORE LIKELY

- When pre-sowing nematode densities are high.
- In intensive cropping rotations with high frequency of susceptible crops and varieties.
- Where intolerant cereal varieties are grown on stored soil moisture.
- In paddocks with low fertility due to reduced ability of the root system to access soil nutrients.
- When crops are sown late.
- When crops are under stress due to other factors e.g. other diseases or nutrient deficiency.

WHY TEST?

- Knowing the levels of each RLN species present affects which crop and varieties to grow: as each species has a different host range, often spanning cereals, oilseeds and pulses.
- *Pratylenchus* symptoms are difficult to diagnose in the field. Yield losses can occur with no above ground symptoms.

Ch 1. Soil diseases in broadacre crops	6
Ch 2. Sampling for PREDICTA B	20
Ch 3. Cereal cyst nematode	32
Ch 4. Take-all	52
Ch 5. Rhizoctonia root rot	72
Ch 6. Crown rot	94
Ch 7. Root lesion nematode	114
Ch 8. Stem nematode	142
Ch 9. Blacks pot field peas	158
Ch 10. Long fallow disorder	174
Ch 11. Pythium root rot	190
Ch12. Common root rot	204
Ch 13. Eyespot	218
Ch 14. Yellow leaf spot	232
Ch 15. White grain disorder	248
Ch 16. Fusarium stalk rot	262
Ch 17. Charcoal rot	278
Ch 18. Ascochyta blight of chickpea	296
Ch 19. Phytophthora root rot	314
Ch 20. Sclerotinia stem rot	328
Ch 21. Biosecurity is important	346
Ch 22. Decision support	372
Ch 23. Further reading	390