CEREAL CYST NEMATODE—SOUTH AUSTRALIA

Key points
- Cereal Cyst Nematode, *Heterodera avenae*, (CCN) infects cereal roots and can cause serious yield losses in wheat and oat crops in the southern region.
- CCN is most likely to become a problem in intensive cereal programs.
- CCN is most damaging in low rainfall districts/seasons, especially with late breaks.
- CCN is effectively managed through strategic use of non-host crops and resistant cultivars.

Symptoms
Cereal cyst nematode infection appears in the paddock as areas of stunted chlorotic growth (figure 1). Field symptoms of CCN infection can resemble symptoms of other diseases or soil constraints, so examination of roots is important.

Plant root symptoms include knots in wheat, barley and triticale (figure 2) and stunted root growth on oat (figure 3). Short matted root growth indicates severe infection.

White cysts are visible on the knots around the time of head emergence (figure 4). As the crop matures the cysts turn brown (figure 5). The mature cysts contain several hundred eggs, so populations can increase rapidly on susceptible cereals.

Life-cycle and infection
Cereal cyst nematodes have only one generation per year. The juveniles hatch in response to low temperatures and autumn rains. Hatching is delayed by late breaks and this increases the risk of crop damage. Cysts are particularly hardy and remain in the soil over summer. CCN populations in soil are not affected by summer rain.

Management
Cereal cyst nematode multiplies on susceptible cereals and wild oats and is best controlled by rotation with non-host crops, for example, oilseeds and pulses, and use of resistant cereal varieties. Only 50–80% of the nematode eggs hatch in the following season, so a 2-year break is needed to reduce high populations to non-damaging levels. It is important to control susceptible cereals and wild oats in break crops, fallows and pastures.

To reduce yield losses when CCN populations have reached damaging levels and cereals have to be sown, consider using tolerant varieties/crops, sow early and provide adequate nutrition. Make sure the variety is also resistant to prevent CCN increasing further—see current crop disease variety guides. Sowing between the rows of the last crop also helps to reduce the risk of infection.

CCN populations can be assessed during summer/autumn through the PreDicta B soil test service.

Figure 1: Patches of yellowed, stunted growth in a wheat crop due to CCN infection.
Cereal Cyst Nematode—South Australia

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Further reading and references


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Figure 2: CCN infection causes knots in the roots of wheat, barley and triticale. (Photo: Vivien Vanstone)

Figure 3: CCN infection causes stunted growth on oat roots. (Photo: Hugh Walwork)

Figure 4: Characteristic white cysts (about the size of a pin head) are visible on the knots around the time of head emergence. (Photo: John Fisher)

Figure 5: Cysts turn brown when the crop matures; each cyst contains 200 to 300 eggs. (Photo: John Fisher)

Further reading and references


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