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Cereal root eelworm

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CEREAL ROOT EELWORM* has recently been recorded from the older farming districts of Western Australia.

This eelworm can attack most cereals and grasses but is more damaging to wheat and oats. Although this disease is important in Victoria and South Australia the distribution in Western Australia seems to be very restricted.

Effects on crop

A crop of wheat or oats infested with cereal root eelworm usually shows patches of stunted, pale, greenish-yellow plants, sometimes tinged with red or purple. In appearance it therefore closely resembles nitrogen deficiency or waterlogging.

In severe cases, growth almost ceases when the plants are only a few inches high and yields are greatly reduced. The damage may cover extensive areas, even whole paddocks.

Affected areas soon become choked with weeds. (Fig. 1.)

Damage caused by cereal root eelworm can be distinguished from the similar symptoms caused by nutritional problems by examining the root system. Infested roots are very deformed, being short, thickened and abnormally branched compared with healthy roots. (Figs. 2 and 3). A couple of months after germination, shiny white bodies about half the size of a pin's head are seen projecting from the thickened areas of the roots. These are the female worms which later form cysts containing about 200 eggs.

Occurrence

In Western Australia, cereal eelworm has been found only on a few farms in the older farming districts such as the Dongara–Geraldton area and the Northam–York area. In 1966, damage in these areas was severe in some paddocks and yield reductions of 75 to 80 per cent were recorded.

* Heterodera avenae Wollenweber.
Conditions favouring the eelworm

Experiments in the Eastern States and overseas indicates that the degree of damage resulting from cereal eelworm attack will depend largely on weather conditions.

If early growth of the crop is slow because of cool conditions at the time of germination, damage is likely to be severe, as the eelworm is able to destroy roots as fast as they are produced.

The leaching effect of heavy autumn rains is also important in decreasing plant vigour, so favouring the eelworm.

Effect of multiple cropping

When cereal root eelworm is present in an area, continuous growing of susceptible plants such as wheat, oats and barley naturally increases the numbers of eelworms in the soil. When a legume-dominant pasture is included in the rotation, the eelworms are unable to invade the roots of the legume and consequently the hatched larvae die, resulting in a decrease of eelworm numbers.

This means that with regular use of a non-susceptible crop in the rotation, it is possible to keep the eelworms at a lower level of infestation and economic cropping of infested land is possible.

However if cereals are grown for several years in succession on infested land, the level of infestation becomes such that economic production is impossible.

Control

When cereal eelworm is definitely present, farmers are advised to refrain from multiple cropping of cereals and to include a legume pasture in their rotation.
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