

6.1 Background

Crown rot is a stubble-borne disease of all winter cereals and grass weeds. The disease, caused by *Fusarium pseudograminearum*, *F. culmorum* and/or *F. graminearum*, can reduce yields by up to 80 per cent in durum and 40 per cent in bread wheat. It can also decrease grain size and increase screenings.

The most obvious symptom of crown rot is whiteheads. These develop when water flow through the stem is restricted by the fungus causing the head to hay-off prematurely. Whiteheads are more likely to develop in a dry spring.

Crown rot survives for up to four years in infected plant residues/stubbles. Infection occurs when plants come in close contact with infected residues. Crown rot levels generally increase in intensive cereal rotations.

Since whiteheads only appear in seasons with a dry finish, the absence of whiteheads does not indicate a freedom from crown rot. A more reliable diagnostic feature is to check for browning of the stem base.

PREDICTA B can assess the risk before sowing when the correct sampling protocol is followed, which includes adding cereal and/or grass stubble to the sample.

IMPACT

- Yield losses strongly depend on spring conditions with hot/dry finish exacerbating losses. Losses can be up to 80 per cent in durum, 40 per cent in bread wheat and 30 per cent in barley.
- Significant variation in the extent of losses can occur between individual bread wheat and barley varieties see cereal variety guides for resistance ratings.
- The crop usually appears normal up to heading stage, when whiteheads appear.
- Yield losses are greater in drier springs. Losses are often negligible in seasons with a wet finish, but inoculum levels still increase.
- While all cereals can be affected, durum is very susceptible.

WHERE DAMAGE IS MORE LIKELY

- *F. pseudograminearum* is the main cause of crown rot across Australia. *F. culmorum* can be important in the higher rainfall areas in South Australia, Victoria and southern areas of Western Australia.
- Most damaging in the northern region, but can cause large losses in all regions.
- In cereal intensive cereal rotations.
- Where plant available soil water is low in spring.
- Where there is a lot of infected residue.
- Where infected stubble has been mulched or cultivated close to sowing.

WHY TEST?

- To avoid planting cereals, especially durum and bread wheat, in high-risk situations.
- Check impact of break crop in reducing inoculum levels.
- Check inter-row risk when inter-row sowing.
- To assist crop/variety choice.
- Check for other soilborne pathogens that may increase crown rot risk, e.g. root lesion nematodes.

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