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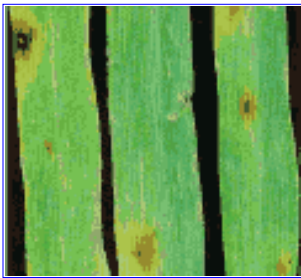


Figure 1. Symptoms of
spot-type blotch.

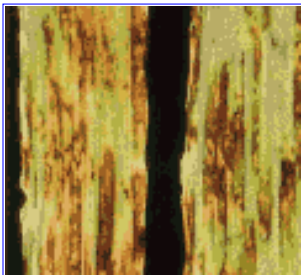


Figure 2. Symptoms net-type
net blotch.

Farmnote

Spot-type net blotch leaf disease of barley

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The foliar disease spot-type net blotch has become a major limitation to malting barley production on the south coast and adjacent areas of Western Australia. The disease has increased with the adoption of stubble retention practices and with the increase in area sown to with the barley varieties Franklin and Gairdner barley varieties.

Why manage this disease?

Spot-type net blotch (*Drechslera teres f.sp. maculata*) is a serious disease of barley resulting in premature leaf death and poor grain development. Management in disease prone environments is vital, as severe infections reduce grain size, which leads to a high level of screenings and the downgrading of malt varieties to feed grade.

Research in the northern agricultural region has demonstrated shown yield losses of 3 to 22 per cent from the disease. In the southern region, yield losses have not been accurately measured but may be 50 per cent or more in the long season humid environment of the south coast, where extremes of disease have been observed.

Symptoms

Spot-type net blotch appears as [elliptical dark brown spots with yellow edges](#). As infections age they may elongate and join together causing blotch symptoms. The elongated spots are the most distinctive features compared with the closely related net-type net blotch (*Drechslera teres f.sp. teres*) which has [long rectangular lesions with dark vertical and horizontal lines creating a net-like appearance](#). Symptoms of both pathogens can vary with varietal resistance.

Spot-type net blotch is different from spot blotch, a leaf disease occurring in the eastern states of Australia.

Distribution

Originally restricted to northern agricultural areas, spot-type net blotch has also shown particular adaptation to coastal and adjacent environments of southern Western Australia.

Survival and spread of the fungus

The fungus survives on infected barley stubble over summer. With autumn rains, the fungus produces asexual spores that are dispersed by

wind and can be blown a moderate distance (kilometres) onto young barley crops. Rain and heavy dew provide ideal conditions for this primary infection.

As the disease develops, spores of the fungus are produced on killed leaves. Secondary infections develop when these spores infect newly developing leaves. Wet weather encourages this. Disease severity will generally be higher in well-grown crops that have a dense canopy that retains moisture on the leaves for a longer period of time. Drying spring conditions slow the cycle of infection.

Management options

Limited options exist for the management of spot-type net blotch. [Rotation is the most important means of management](#) but effective long-term control will be based on growing [resistant varieties](#).

Management options for spot-type net blotch and their effectiveness	
Management option	Effectiveness
Resistant varieties	High*
Crop rotation	Moderate
Destroying barley residues	Moderate
Avoid very early sowing	Moderate
Foliar fungicide	Slight
Seed or fertiliser-applied fungicide	Nil
Soil fertility	Nil
*Depending on resistance level	

Effective disease management requires a combination of these options.

Crop rotation

This is a key aspect of spot-type net blotch management. In environments favourable for to the disease development, we recommend following a crop rotation of at least 1 one in three years of barley in the same paddock. Longer rotations increase the distance that the new barley crop is from the primary infection source.

Unfortunately, spores produced from infected stubble are readily dispersed by wind and spores from neighbouring crop stubbles, or even those several kilometres away, can still initiate disease. Nevertheless, the risk of early disease diminishes with increased distance from the previous season's stubble. Crops that are placed upwind (for winds prevailing during the early stages of crop development) will be less prone to early infection than down wind crops.

Stubble destruction

Destroying previous season's stubble that is close to new barley paddocks can reduce early disease happening. Soil erosion risks should be considered.

Sowing of resistant varieties

Growing resistant varieties is probably the most appealing management option. At present, all varieties currently now grown in W.A. are susceptible to spot-type net blotch with the exception of Schooner and Onslow.

<i>Resistance of barley varieties to spot-type net blotch (1-9 where 9 = immune)</i>	
Variety	Resistance Rating
<i>Malting</i>	
Schooner	6
Stirling	4
Unicorn	4
Harrington	3
Franklin	3
Gairdner	3
<i>Feed</i>	
Onslow	5/6
Doolup	5
Moondyne	5
Fitzgerald	4
Mundah	4
O'Connor	4
Molloy	4
Skiff	3
Yagan	3

Selecting a plump-grained variety reduces the risk of down grading of malt varieties to feed grade. For example, high levels of this disease in the crop may reduce grain weight by 10 per cent. This may have a major impact on the quality of narrow-grained varieties, such as Gairdner, by

increasing screenings from 10 to 40 per cent. For plump-grained varieties, such as Stirling, this may give only a minor increase in the level of screenings.

Time of sowing

Very early sowing worsens the disease. This is because mild autumn conditions favour early disease development. With a favourable start, spot-type net blotch can then progress at the same rate as crop growth throughout the season. This results in maximum disease impact on grain yield.

Seed treatments

Seed infection is not important in initiating seasonal epidemics. No seed dressing fungicides are effective in suppressing seedling infections that arise from airborne spores.

Foliar fungicides

The disease is difficult to control chemically and cost-effective treatments are being investigated. No foliar fungicides are currently available in Australia for the control of spot-type net blotch.

To manage spot-type net blotch

- In disease prone areas, [grow barley no less than one in three years in the same paddock](#);
- [manage barley residues](#);
- [avoid very early sowing](#);
- [select less prone varieties](#).

Further reading

- '*Cereal leaf and stem diseases*', 1992. (ed. H. Wallwork) Grains Research and Development Corporation. (Available from Kondinin Group.)
- '*Cereal diseases: The Ute guide*'. Grains Research and Development. (Available from TopCrop Western Australia)
- Farmnote 35/86 '[Identifying leaf diseases of barley](#)'

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Farmnote 107/99 : Spot-type net blotch leaf disease of barley : Figure 1



Figure 1. Symptoms of spot-type blotch.

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Farmnote 107/99 : Spot-type net blotch leaf disease of barley : Figure 2

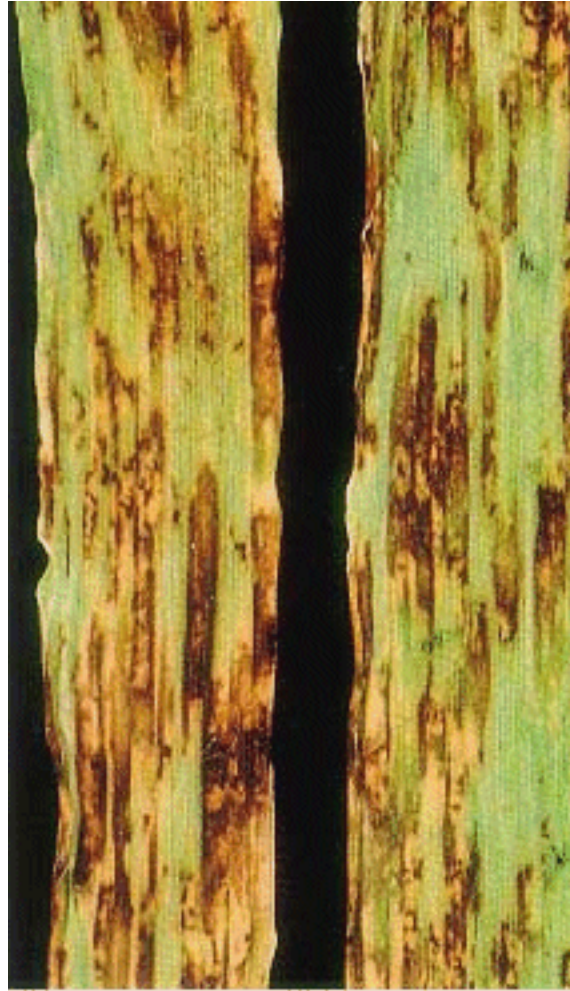


Figure 2. Symptoms net-type net blotch

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