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Ascochyta blight disease and its management in faba beans

DPIRD-52

This factsheet summarises the symptoms, disease risk, infection cycle and control measures for Ascochyta blight (*Ascochyta fabae*) in faba bean compared to the diseases, *Alternaria* and *Cercospora*.

Symptoms

Ascochyta blight occurs in all faba bean growing areas of Western Australia (WA). The crop is best suited to being grown in the medium and high rainfall areas. The minor, usually non-yield limiting diseases, *Alternaria* and *Cercospora*, can be confused with Ascochyta blight.



Image 1: Seed infected with Ascochyta blight have dark lesions that result from pod infections

Plant

- Ascochyta blight usually appears within 8 weeks of sowing.
- The first symptoms are grey spots, which show through both sides of the leaves.
- As the spots on leaves, stems, and pods enlarge, they develop grey centres, which contain many black specks. These are the fruiting bodies (pycnidia) of the fungus. The fruiting bodies may fall out to produce a 'shot hole appearance'.
- Infected seed have dark lesions that result from pod infections.
- *Alternaria* spots have a red-brown margin and contain obvious concentric rings. The spots do not develop black specks (pycnidia).
- *Cercospora* spots are darker and have irregular edges. They may develop a ring pattern inside the spots, but do not develop black specks on a grey centre.
- Herbicide damage (particularly simazine) can be mistaken for Ascochyta blight, but it does not have the grey centre with black specks and is usually confined to the edges of leaves.

Background – where did it come from?

A faba bean crop may be infected by Ascochyta blight from 2 major sources:

1. Sowing infected seed. This is the primary way Ascochyta blight is introduced into new areas. In areas where faba beans have been grown for several years it is not a significant cause of infection.
2. Spores produced on stubble from the previous year's faba bean crops are the main cause of infections.

Factors favouring disease risk and spread

- Weather is the principal factor in translating disease risk into disease severity.
- The disease is favoured by the prevailing rainfall and temperature conditions in the high rainfall (above 450 mm) areas.
- Infection can occur at any stage of plant growth following rain or heavy dew.
- Ascochyta blight requires cool conditions for infections to grow and promote the development of ascospores.
- Frequent rain moves spores about and provides moist conditions for their germination, as leaves remain wet for longer periods.

Infection cycle

The Ascochyta fungus survives on faba bean stubble for 2 to 3 years. After autumn rains and exposure to cold temperatures (less than 10°C), wind dispersed spores (ascospores) are produced in fruiting bodies (pseudothecia) on the stubble. They can be blown further than a kilometre, but most land within a few hundred metres of the source. Ascospores are the main way new crops become infected.

After the initial infection, the disease spreads within the crop. Spores (conidia) are produced in leaf and stem infections. These spores are splashed by rain to adjoining leaves. Some spores may be blown several metres by the wind that accompanies rain fronts. After landing on a susceptible leaf, the spore will germinate and initiate a new infection if the leaf surface remains wet for 12 to 24 hours.

Yield and quality losses

Yield losses of 10 to 30% were common, but with the improvement in variety resistance of the faba beans commonly grown in WA the impact of this disease is now lower.

Pod infections can lead to discoloured seed, which results in quality losses.

Monitoring

Ascochyta blight is most likely to be found in the southern agricultural region and becomes evident in the first month or 2 after sowing. Many newer varieties have excellent Ascochyta resistance, and it is less common to see symptoms, but monitoring is still recommended.

Diagnosis

Photographs of infected leaves and pods can be submitted via the PestFacts WA Reporter app – refer to the department website at dpird.wa.gov.au to use or download the app.

DDLS Plant pathology services can confirm disease diagnosis as a charged service.

Call DDLS Plant pathology services on +61 8 9368 3721 or email DDLS Plant pathology services at <mailto:DDLS@dpird.wa.gov.au> for information about plant disease and virus testing, sample submission forms, and sampling techniques.

Integrated disease management strategies

The best management of Ascochyta blight in faba bean is achieved via an integrated disease management strategy including using resistant varieties, rotating crops to avoid stubble-borne infection, using clean seed and foliar fungicides.

Use varieties that have some resistance

New bean cultivars have superior disease resistance to those widely grown in the 1990s. Combined with advances in fungicide and spray technology, the risk of epidemics like those seen in the late 1990s are now much lower.

For variety resistance details, refer to the current Western Australian crop sowing guide on the website at dpird.wa.gov.au.

Rotate crops

- Avoid paddocks in which faba bean has been grown in the past 2 to 3 years or within 500 m of stubble from the previous year's crop.

Use clean seed

- In areas where faba bean has never been grown, or has not been grown for several years, take care not to introduce the disease by sowing infected seed.
- If growing faba bean in the central or northern agricultural areas, avoid buying seed from the southern regions.
- No seed treatment is recommended.

Foliar fungicide

- Ascochyta blight fungicides are best applied in the early vegetative stage before canopy closure. Only apply if disease is apparent within the crop. The fungicides that are registered for Ascochyta blight will also provide protection against *Cercospora*.
- Many of the fungicides applied during flowering for management of chocolate spot will provide some protection against Ascochyta blight pod infections.

- For information on the foliar fungicides that are registered for Ascochyta blight on faba bean, refer to the department website at dpird.wa.gov.au and search for 'Registered foliar fungicides for broadacre crops in Western Australia'.

Contact us

Jean Galloway, Grains Principal Research Scientist)
+61 8 9690 2172 | [Email Jean Galloway](#)

Stacey Power, Grains Research Scientist
+61 8 9690 2168 | [Email Stacey Power](#)

More information

Refer to the department website at dpird.wa.gov.au for more information about the following:

- Faba beans
- Diseases and pests of faba beans

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