



Rust of Faba Bean

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*Rust, caused by the pathogen *Uromyces viciae-fabae*, is a serious disease of faba beans grown in Victoria, New South Wales and South Australia. It can be controlled through use of resistant varieties and the strategic use of foliar fungicides.*

Symptoms

On the leaves there are numerous, small, orange-brown pustules, each surrounded by a light yellow halo (Figure 1). As the disease develops, severely infected leaves wither and may fall from the plant. On stems, the rust pustules are similar, but often larger than those on the leaves. Isolated rust pustules may also appear on the pods. Severe infection may cause premature defoliation, resulting in reduced seed size.



*Figure 1. Leaf symptoms of rust pathogen *Uromyces viciae-fabae* pustules established on leaf of young faba bean plant).*

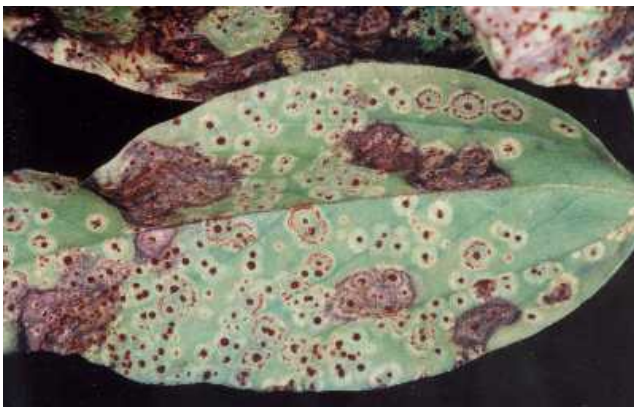


Figure 2. Leaf symptoms of Teliospores of the rust fungus established on mature faba bean leaf.

Economic Importance

Rust can be prevalent in all areas where beans are grown and may significantly reduce yields. On its own, the disease has caused yield losses of up to 30%, while in combination with chocolate spot, yield reductions of over 50% have been reported. Control measures need to be taken before the disease becomes established in order to minimise crop losses.



Figure 3. Leaf symptoms of rust on a young faba bean plant.

Disease Cycle

The fungus survives on stubble and self-sown volunteer bean plants. The teliospores produced can infect volunteer bean plants directly without the need for an alternate host (Figure 2). Infection of volunteer faba bean plants is thought to be an important factor in the early development of rust epidemics. Rust spores from stubble and volunteers are blown onto new crops by the wind and infect plants. New spores form in rust pustules on infected plants. Secondary spread of the disease occurs when these spores become air-borne and then spread to other plants (Figure 4).

Rust commonly occurs late in the growing season during podding, resulting in premature leaf drop which can reduce seed weight and size. Humid and warm (more than 20°C) conditions promote its spread.

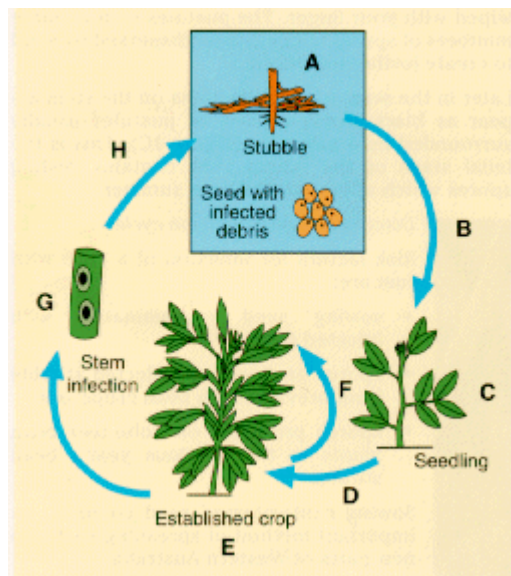


Figure 4. Generalised life cycle of rust disease Uromyces viciae-fabae of faba bean. (Source: Bill MacLeod, Department of Agriculture, Western Australia).

- A The resting stage (telia) survives in a semi-dormant state over summer in crop residues both in the paddock and on seed.
- B Teliospores produced on residues are blown by wind and infect volunteer plants and seedlings.
- C Aecia are produced on seedlings.
- D Aeciospores spread rust within the crop and to other faba bean crops.
- E Uridinia are produced on stems and leaves.
- F Urdiniospores spread the disease through the crop canopy.
- G Telia form on stems and leaves late in the season.
- H Disease infested stubble remains after harvest, and some dust and trash is taken with the harvested seed.

Management

Because the spores of the fungus can travel long distances to infect a new crop, prevention is difficult.

Before sowing

Paddock selection

A break of at least 3 years between faba bean crops is recommended. Aim for a separation of 250m from the previous year's faba bean paddock. Do not sow adjacent to last year's faba bean stubble.

Variety selection

Faba bean varieties are currently available with improved resistance to rust. These include: Cairo, Icarus and Nura.

After sowing

Chemical control

Foliar fungicides can be used to control the disease and prevent a rust epidemic developing. Crops should be monitored closely if warm (approx 20°C) temperatures and very high humidity occurs. Successful fungicide application relies on crop monitoring and timeliness of application with the right product effective against rust. Several products are registered for use against rust.



Figure 5. Rust symptoms on faba bean plant.

Further Information

More information on faba beans and their diseases can be found at <http://www.dpi.vic.gov.au/notes> (click on Crops and Pastures, then select Legume Crops)

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