



Sclerotinia of Chickpeas

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Updated: June 2008

AG0453

ISSN 1329-8062

Sclerotinia is an occasional disease of chickpeas which can cause significant crop losses in eastern Australia. It can be managed by use of clean seed and crop rotation.

Symptoms

Affected plants first wilt and rapidly die, often without turning yellow (Figure 1). Later, as the plant dries out the leaves turn a straw colour.

On the surface of the root, just below ground level, small black fungal bodies called sclerotia which are irregular in size and shape, can sometimes be seen mingled with white cottony fungal mycelium (Figure 2).

In spring many water-soaked spots first appear on the stems and leaves. Affected tissues develop a slimy soft rot from which droplets of a brown liquid may exude. Infected tissues then dry out and may become covered with a web of white mycelium growth.



Figure 1. Early symptoms of plants affected by sclerotinia.

Economic Importance

Sclerotinia has caused significant crop losses where a substantial amount of the crop is infected. This disease has caused total crop failure where chickpeas were sown in the same paddock in successive years. However in many situations it only affects a small proportion of plants within the crop.

Kabuli chickpeas are most susceptible to this disease though desi chickpeas can also be badly affected under conditions favorable for the disease. Dense crops are likely

to be the most severely affected, particularly under moist conditions.

Grain quality can be decreased when infected with sclerotinia. It causes poor colour and shrivelled seed.



Figure 2. Sclerotinia stem infection of chickpeas. White fluffy mycelium and sclerotia formation are evident.



Figure 3. Early symptoms of stem infection by sclerotinia. White mycelial growth starting to develop.

Disease Cycle

Sclerotinia, is caused by the fungus *Sclerotinia sclerotiorum* and *S. trifoliorum*.

The disease is usually established from sclerotia (survival bodies of the fungus) present in the soil or introduced with contaminated seed. Outbreaks are most common when very wet conditions occur in mid to late winter (July/August).

The sclerotia germinate in moist soil and either directly infect roots or produce air-borne spores which attack the above ground parts of the plant.

Once established, the fungus rapidly moves to adjacent healthy tissue. Within a few days of infection, plants start to wither then die. Sclerotia formed on infected plant enable the fungus to survive in the soil until the following year. Individual seeds can be infected with the fungus and/or sclerotia may be present in the seed sample.

Soil-borne sclerotia are the more important disease source for causing damage to following crops. Seed infected with sclerotinia is the source of establishing the disease in otherwise sclerotinia-free areas.

Management

Before sowing

Use clean seed.

Use of disease-free seed minimises the risk of disease and prevents establishment into a new area. It is important to avoid sowing chickpeas in areas where the disease is known to be present. The seed harvested from infected crops should not be used for sowing.

Crop rotation

Crop rotation is the best method of control once the disease has become established. Cereal crops are not affected by sclerotinia and provide a good disease break. Pulse crops, oilseeds, legume based pastures and capeweed are all good hosts to this disease (Table 1).

Table 1. Disease effect on crops

CROP	SCLEROTINIA	
	Potential severity of disease on crop	Disease host
Wheat	None	No
Barley	None	No
Oats	None	No
Canola	Moderate-Severe	Yes
Safflower	Moderate	Yes
Sunflower	Severe	Yes
Linola	Moderate	Yes
Field pea	Minor	Yes
Chickpea	Moderate-Severe	Yes
Faba bean	Minor	Yes
Lupin	Moderate-Severe	Yes
Lentil	Moderate	Yes
Vetch	Minor	Yes
Legume pasture	Minor	Yes

If a severe sclerotinia problem does occur, a four year break from susceptible crops is required to substantially reduce the number of sclerotia in the soil. The most practical option is to use cereals and legumes such as field peas or vetch which have some resistance to sclerotinia. In addition, burning of the disease infected stubble should be

considered. Deep ploughing (5cm) will also reduce the number of sclerotia, and so minimise disease carry over.

Where a minor sclerotinia problem occurs, a two year break from susceptible crops is advisable.

No commercial seed treatments or fungicides are known to manage this disease in crop.

Further Information

www.dpi.gov.au (click on Agriculture and Food, then Information notes then Crops and pastures, then select Legume crops)

Wurst M, Hawthorne W, Nikandrow N, Ramsey M, (2002) *Winter Pulse Disorders: The Ute Guide*.

[Victorian Winter Crop Summary](#)

Acknowledgement

This Information Note was originally written by Trevor Bretag and prepared with assistance from Wendy Bedgood. The previous version was written by Kurt Lindbeck and Kristy Hobson and was published in May 2007.



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