

Sclerotinia stem rot *in canola*

**NEW
FUEL
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These days canola is a very important crop and requires a lot of managerial inputs. There are certain fungal diseases that need to be controlled, as they have a huge impact on canola yield. One of the most important diseases is Sclerotinia stem rot.

Sclerotinia stemrot: What is it?

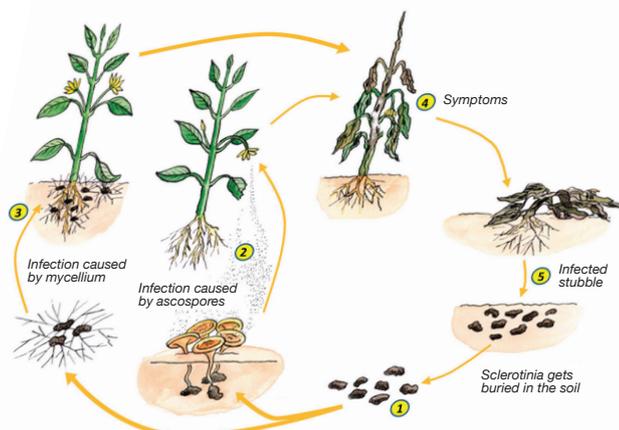
Sclerotinia is caused by *Sclerotinia sclerotiorum*. This fungus survives as sclerotia (resting structures) in the soil or in the stubble on the soil surface. The following environment conditions can lead to the development of Sclerotinia:

- // 25 - 50 mm of rain 10 to 14 days before the start of flowering, so wet climatic conditions for 10 days at the soil surface during mid until late winter. Temperatures of 11 - 15 °C are required for the sclerotia to germinate and release spores.
- // Prolonged wet periods during the flowering period, for petal infection.
- // Prolonged wet periods during petal fall. The fall of petals on the stem which can consequently cause stem infection. Strain lesion development is favored by humid / wet conditions and temperatures of between 20 - 25 ° C.

Moisture is an important requirement in the development of Sclerotinia. Good soil moisture conditions two weeks prior to flowering and continuing until after flowering will benefit the risk of the development of Sclerotinia. Alternatively, low rainfall and low humidity in this period will decrease the risk of disease development. Moisture could include rain, relative humidity of 80% and dew.

After appropriate rainfall and if conditions permit, it takes 10 to 12 days for the apothecia (fruiting bodies) to release the ascospores. The ascospores are spread by wind to nearby plants. Ascospores can't infect the plant directly, but need dead plant material (like petals) to develop. The dead petals enveloping the spores create an ideal micro climate for the disease to develop. They also supply the necessary energy to the ascospores to develop hifes (mycelium) which release oxalic acid in order to penetrate the plant material. When the fungus is within the plant, it grows up- and downwards, which constricts the flow of moisture and nutrients in the plant and could lead to the death of the plant.

Life cycle of *Sclerotinia sclerotiorum*:



When do I treat

Sclerotinia?

The time of application depends on the climatic conditions and could vary year on year. As a general guideline, you have to spray between 20-30% of flowering. In years where the climatic conditions aren't favourable to disease development, a later spray (no later than 50% of flowering) will be more ideal. If the conditions are still unfavourable for the development of the disease (warm, dry conditions) after 50% of flowering, a fungicide application will be unnecessary.

The reason being that after 50% of flowering (full bloom - brightest yellow) most of the flowers are on the side branches, meaning that the risk of petals falling on the main stem decreases.

% of flowering:

10% of flowering:

10 open flowers on the main haulm.

20% of flowering:

14-16 open flowers on the main haulm.

30% of flowering:

20 open flowers on the main haulm.

40% of flowering:

30 or more open flowers on the main haulm.



Photos provided by Piet Lombard

Newly formed pods and abscission flowers also counts as "open flowers". A 10% change in flower percentage takes approximately three to four days. The time of application is critical to control the disease effectively.

10% FLOWERING



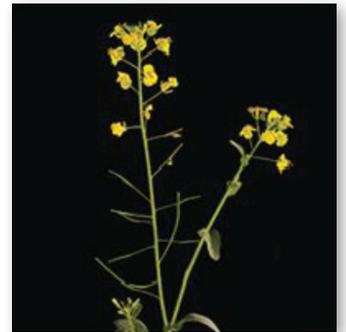
20% FLOWERING



30% FLOWERING



50% FLOWERING



Why spray during flowering?



Since the petal plays such an important role in the development of Sclerotinia, it is of utmost importance to do a fungicide spray during the peak flowering period of canola.

Fungicides do not heal, but prevent spores from growing on petals after the petals fell on leaves or stems. It is easier to spray flowers at the top of the plant during the peak of the flowering period than when it has already fallen. That is why flowers are the target.

Applications before 20% of flowering is not effective, since no flowers have fallen and no pods have formed yet. At 30% of flowering the flowers begin to fall. Most of the flowers fall during this period. An application between 20 and 30% of flowering ensures that a great amount of flowers are open and the application coats the petals before they fall.

Fungicides reduce the appearance of the disease but will not control Sclerotinia entirely (especially if conditions are favourable during the flowering period). As a general guideline, the yield loss is half the infection level. Thus, 20% infection causes 10% yield loss.



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