



Technical Update 12

Foliar Diseases in Peas

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A wide range of localised climatic effects on both vining and combining peas can influence the development of foliar diseases. In certain circumstances fungicides have been shown to be useful in controlling pea diseases. However, responses to treatment can only be expected if weather conditions favour disease development. Routine or prophylactic treatments do not produce an economic return year after year.

Downy mildew (*Peronospora viciae*)

The fungus is soil borne and primary infection takes place early in the season. Primary infected plants are stunted and covered on the underside of the leaves with grey coloured mycelial growth. Primary infected plants often die. They are the source for secondary infection of older plants by producing air borne spores, especially under cool and humid conditions. Pods develop yellow blotchy patches on the surface. Seeds fail to develop properly and are often blemished. Differences in susceptibility to downy mildew exist in commercial varieties and are described in the Descriptive Lists.

Grey mould (*Botrytis cinerea*)

The fungus is attracted first to wet flower petals which, after pod set, either become detached and lodge in the leaf axils or remain stuck to the developing pods. Once *Botrytis* comes into contact with green plant tissue via the rotting flower petal, it can penetrate and cause a rot of the stems or pods. Infected stems die prematurely, and pods may either abort, or the disease can rot the seeds within the pods and the pod itself. As well as a direct effect on yield, produce may be blemished, thereby reducing the quality of peas for processing or for seed.

Leaf and pod spot (*Didymella pinodes*, *Didymella pinodella* and *Ascochyta pisi*)

Severe infection usually occurs after a prolonged period of wet weather and may appear on crops at a slightly later stage than *Botrytis*. Often the disease is observed as a purple - brown flecking of the leaves and a more general browning or blackening of the stem, before lesions develop on the pod. The fungi are seed-borne and if infected seed is sown the following year, seedling losses, and later development of leaf and pod spotting, can result in more serious yield loss.

Sclerotinia (*Sclerotinia sclerotiorum*)

Sclerotinia is favoured by warm, wet conditions. Infection occurs during flowering when sections of stems of individual or groups of plants, become bleached and wilt or collapse. The fungus produces a fluffy white mycelium over the infection site. Pods can also become infected. Black, elongated sclerotia develop within the stem or on pods and these can contaminate the harvested produce.

Powdery mildew (*Erysiphe pisi*)

Plants become covered with a white film of powdery mildew late in the season, particularly following warm days and cool, humid nights. Late maturing combining peas and late sown vining peas are most susceptible. Differences in susceptibility to powdery mildew exist in commercial varieties and are described in the Descriptive Lists.

CONTROL

Botrytis and leaf and pod spot cannot be successfully controlled once established. Preventative sprays have been shown to be more useful than curative treatments. However, the decision to use fungicides must be based on the weather conditions at the time of flowering and pod set. In combining peas, yield responses can only be expected in seasons where unsettled weather prevails during these critical periods of growth. However, in dry seasons, no benefits can be expected.

In vining peas, responses to treatment have also been restricted to circumstances which encourage *Botrytis* or *Sclerotinia*. Routine treatment to every drilling every year is clearly not justified.

COMBINING PEAS

Downy mildew and Botrytis are the main foliar diseases.

Details of the relative resistance to downy mildew are published in the current PGRO Descriptive List of Peas and the PGRO Descriptive List of Vining Peas.

There are no longer any fungicidal seed treatments to prevent primary infection with downy mildew or Ascochyta leaf and pod spot. To prevent development of Ascochyta infection in crops, seed should be tested before planting, and used only when levels of infection are 5% or below. Foliar applied fungicides are available in peas to control leaf and pod spot.

If the outlook is for changeable weather at the first pod set stage (when the very first pods on the lowest nodes are visible) then a spray should be applied at that time to control Botrytis and Sclerotinia. If the weather is settled at either of these timings, then spraying is unnecessary.

Where a risk of powdery mildew is anticipated, application of sulphur will reduce the risk of infection.

VINING PEAS

Downy mildew is the main disease with incidences of powdery mildew increasing over recent years.

There are no longer any fungicidal seed treatments to prevent primary infection with downy mildew or Ascochyta leaf and pod spot. To prevent development of Ascochyta infection in crops, seed should be tested before planting, and used only when levels of infection are 5% or below. Foliar applied fungicides are available in peas to control leaf and pod spot.

Botrytis is a common problem in wet weather. Again, the timing of the spray is important and if the outlook is for changeable weather at the first pod set stage, then a single spray should be applied at that time. Where there is a high risk of Sclerotinia, azoxystrobin or cyprodinil + fludioxonil will provide a satisfactory level of protection when the products are used at the recommended rates. As often there are several drillings of vining peas reaching the first pod set stage in sequence, the weather conditions should be reviewed regularly. There is seldom a need to treat all sowings of vining peas routinely.

Where a risk of powdery mildew is anticipated, application of sulphur will reduce the risk of infection.

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