Black leg of cabbage and related plants

G C. MacNish

Follow this and additional works at: http://researchlibrary.agric.wa.gov.au/journal_agriculture4

Recommended Citation


This article is brought to you for free and open access by Research Library. It has been accepted for inclusion in Journal of the Department of Agriculture, Western Australia, Series 4 by an authorized administrator of Research Library. For more information, please contact jennifer.heathcote@agric.wa.gov.au, sandra.papenfus@agric.wa.gov.au.
IMPORTANT DISCLAIMER

This document has been obtained from DAFWA's research library website (researchlibrary.agric.wa.gov.au) which hosts DAFWA's archival research publications. Although reasonable care was taken to make the information in the document accurate at the time it was first published, DAFWA does not make any representations or warranties about its accuracy, reliability, currency, completeness or suitability for any particular purpose. It may be out of date, inaccurate or misleading or conflict with current laws, polices or practices. DAFWA has not reviewed or revised the information before making the document available from its research library website. Before using the information, you should carefully evaluate its accuracy, currency, completeness and relevance for your purposes. We recommend you also search for more recent information on DAFWA's research library website, DAFWA's main website (https://www.agric.wa.gov.au) and other appropriate websites and sources.

Information in, or referred to in, documents on DAFWA’s research library website is not tailored to the circumstances of individual farms, people or businesses, and does not constitute legal, business, scientific, agricultural or farm management advice. We recommend before making any significant decisions, you obtain advice from appropriate professionals who have taken into account your individual circumstances and objectives.

The Chief Executive Officer of the Department of Agriculture and Food and the State of Western Australia and their employees and agents (collectively and individually referred to below as DAFWA) accept no liability whatsoever, by reason of negligence or otherwise, arising from any use or release of information in, or referred to in, this document, or any error, inaccuracy or omission in the information.
BLACK LEG OF CABBAGE AND RELATED PLANTS

By G. C. MACNISH, Plant Pathologist

BLACK LEG is a disease which attacks many kinds of cruciferous plants. Under certain conditions it can cause serious damage. In Western Australia it has been recorded on cabbages, cauliflowers and kales. The dry rot form damages swedes.

If correct control measures are carried out black leg is not important, but faulty seed treatment and wrong rotations can lead to heavy losses.

SYMPTOMS

Any part of the plant can be attacked by black leg.

Stems

Early stem attacks appear as blackened dry areas, shown in Fig. 1. Oval areas (Fig. 2) appear as the disease advances. The centres of these lesions gradually turn to an ash-coloured grey.

The oval areas become studded with many black spots about the size of a pin point (Fig 3). These are fruiting bodies (pycnidia) of the black leg fungus.

The lesion may enlarge, causing complete girdling of the stem. Plants so affected will die.

Roots

When black leg attacks the roots the root system may be blackened and largely destroyed. New roots produced above the diseased area may keep the plant alive.

Plants badly affected on the roots may keep growing until a fair sized head has formed, then topple over when the decaying roots can no longer support the head weight.
The disease is usually introduced to clean areas by the use of untreated seed collected from diseased plants.

When seeds carrying the fungus are planted in the seedbed they die soon after germinating. Water splashing the spores (fungus seeds) from these dead plants on to healthy ones spreads the disease in the seedbed.

If these infected seedlings are planted out the disease soon appears in the field, where it can be very destructive. Damage may be more severe if conditions are wet and drainage is poor.

Spread in the field often follows rain or sprinkler irrigation due to spores being splashed from diseased to healthy plants.

Leaves

Leaf lesions, if present, are similar to those seen on the stem. The diseased areas may be larger and well defined. A cauliflower leaf showing symptoms is seen in Fig 4. Small black spots are again seen in the enlargement of a leaf lesion shown in Fig. 5.

The affected leaves remain attached to the stem. This helps to distinguish black leg from the common black rot disease, which causes the leaves to fall off.

Swedes

Swedes are attacked by the dry rot type of black leg. Leaf and stem lesions similar to those described above may develop and root cankers (Fig. 6) often appear in the crop before harvest. If healthy roots come in contact with diseased ones during harvesting a storage dry rot may follow.

CAUSE AND SPREAD

Black leg is caused by the fungus *Phoma lingam* (Tode ex Fr.) Desm.

This fungus can be carried by seed, both on the outside of the seed coat and inside
2. Seedbeds should be established well away from cruciferous crops. The soil should be new or taken from areas that have not grown other cruciferous crops. Soil carrying the fungus can *only* be used if it is disinfected. Formalin solution, or methyl bromide are both good disinfectants to use.

After a diseased crop the ground carries black leg for several years, the number of years depending on the time required for the remains of old infected plants to decay. Healthy seedlings planted in the field straight after a diseased cruciferous crop will almost certainly become infected.

Implements, tools and gardeners' boots may also spread the disease from infected areas to clean fields.

**CONTROL**

Black leg and the more common disease black rot are controlled by similar measures:

1. **Seeds must be hot water treated.** Steep seed in water at 122° F (= 50° C) for 25 minutes for cabbage and 15 minutes for all other cruciferous plants. Spread the seeds out thinly to encourage quick drying. Dusting with an organic mercury dust just before sowing gives added protection.
3. Seedlings should be protected from water splash. If seedbed covers are being used they should be applied during rainy weather to protect the plants from rain splash. Care to prevent splashing of seedlings during watering is recommended.

4. Seedlings should be transplanted into the field as soon as possible. Remove and destroy any plants showing black leg symptoms or stunted unthrifty growth.

5. Practice a rotation including not more than one cruciferous crop in three or more years.

6. The likelihood of disease is reduced if fields are kept clean. Remove and burn all stalks, butts and other residue of diseased crops. This will reduce the carry-over of the fungus in the soil. Encourage rotting of any root residue left in the soil by rotary hoeing it in. Tools and machinery from fields carrying black leg should be cleaned down before moving them to new areas. Do not feed remains of diseased plants to cattle. This would lead to spread of the fungus around the garden in manure.
for TOP DRESSING at the RIGHT PRICE!

BOOK NOW
for friendly, efficient
DOGGETT service!

No connection with any other service
Only address—MAYLANDS AIRPORT
Phone 71 2280, 71 5648; After Hours 64 3170 for
STAN DOGGETT (Managing Director) or 29 1360
for PETER HUTCH (Operations Manager).

There is nothing as good as
the original . . .

WILLYS
VEHICLES
PIONEERS in 4-WHEEL DRIVE

★ Produced in
Australia
★ Unsurpassed by
any other vehicle
of its type

Powered by the mighty 6
cylinder "Super Hurricane"
motor, the 6-226 can be used
as a 1-ton truck, station
wagon, panel van, all-steel
pick-up or any other body
configuration to meet indivi-
dual needs. Fast, comfort-
able . . . with 4-wheel drive
go-anywhere ability!

Arrange a demonstration NOW! . . . with
BRITISH TRACTOR & MACHINERY Pty. Ltd.
1275 Hay Street, West Perth, 21 2215, 21 2216 or your nearest Willys Dealer

Please mention the "Journal of Agriculture of W.A.,” when writing to advertisers

Journal of Agriculture Vol 4 No 3, 1963
With a new B414 tractor you will "BE ON TARGET" with your work schedule all year round. The B414 has all the features you want. With no other tractor will you receive so many benefits. Check these "bullseye" features:

- 4 cylinder 40 h.p. diesel engine
- "Vary-Touch" position and draught control 3-pt. linkage
- Live hydraulic system, independent of clutch
- No gap working speeds—0.5 to 7 m.p.h.
- 540 r.p.m. constant running P.T.O.
- Differential lock as standard equipment
- 12 months warranty. High resale value

BE ON TARGET—see your local IH dealer and arrange a work-test of the B414, the tractor with everything you've wanted most!