

# Vegetable -Matters-of- Fact

Number 20  
January  
2005



# POTATO

## Black Scurf

Rhizoctonia solani

### Key Points:

- Getting potato plants to emerge quickly in the spring is the key to reducing damage.
- Avoid planting into cold soil, slow sprout growth increases the disease risk.
- Use certified seed - healthy tubers are critical for new ground.
- Fungicides can provide some protection at the sprout emergence stage.
- Harvesting tubers as soon as possible after skin set reduces black scurf significantly.
- Good crop rotation can reduce Rhizoctonia fungus on potatoes.



The Rhizoctonia disease - Black Scurf  
Inset : Sprout "nipping"

### Black Scurf & Rhizoctonia ... in brief

Black scurf is a threat to all Victorian potato growing areas. It is caused by the soil fungus *Rhizoctonia solani*.

The name "Black Scurf" refers to the presence of hard brown/black sclerotia which stick so tightly to the tuber skin that they can't be washed off. These sclerotia are the dormant stage of the fungus which allow it to survive in the soil for several years. While the sclerotia are only superficial and don't damage the tuber internally, they are major sources of the disease if it is used as seed.

Black scurf is the most recognisable symptom of **Rhizoctonia**. The disease can setback the development of all underground parts of the potato plant. Emerging sprouts can be killed (see inset opposite) resulting in uneven crops. Other symptoms include stunted plants and fewer medium size tubers. The disease can significantly reduce marketable yield.

**Rhizoctonia can cause significant damage when weeks of cold weather follow planting.**

The importance of this disease is easily underestimated in potato crops since the symptoms develop underground and are not seen until harvest.

# Key Management Strategies

Control measures attack the main sources of infection.

An integrated approach uses our knowledge of each stage of the disease to reduce its severity.

- **Planting:** Emerging sprouts can be killed by fungus present on the seed tubers (nipping). Persistent wet and cool weather (with soil temperatures around 18°C) is favourable for infection of young sprouts.

Once green leaves develop on sprouts, stem tissues are much less susceptible to infection. Therefore, the faster a plant emerges, the less chance there is for infection to occur.

When possible:

- Delay planting until conditions favour rapid growth of potatoes.
- Shallow planting (50-75mm) will promote rapid emergence. This reduces sprout damage and stem cankers.
- Plant fields with coarse soils first because they are less likely to become waterlogged and will warm up faster.
- Allow time out of cool storage for the seed to begin moving before planting.

**Certified seed:** Using clean seed, rotating crops, and controlling volunteers? will reduce the initial amount of infection and help to control the disease. Using certified seed, free of black scurf, is critical when planting on new land. In old, infected ground, use of scurf free tubers alone will not assure control.

- **Chemical control:** Fungicide treatments applied to tubers can help suppress tuber-borne inoculum but are not a replacement for clean seed.

Control may be achieved by applying fungicide dust to whole seed or to dry cut sets prior to planting. Fungicide liquid may be applied to the seed pieces and the furrow from spray jets set up on the potato planter.

Fungicides may provide some relief from the sprout nipping stage, particularly when potato seedpieces are contaminated with the fungus. However, a fungicide seed treatment is often ineffective if the soil is infested with high levels of the *Rhizoctonia* fungus.

**For more information please contact:**

**Dolf deBoer or Nigel Crump**  
at  
**DPI-Knoxfield 03 9210 9222**

- **Early harvest:** Black scurf begin to form on tubers as the vines die off, becoming larger and more numerous with time.

The formation of Black scurf on tubers is associated with the onset of cool, wet conditions which occur near the maturity of the plant.

Potatoes should be harvested as soon as the skin is set to minimise disease and reduce bruising.

- **Crop rotation:** The fungus can survive in the soil for several years and good crop rotation plays an important part in reducing their buildup in the soil.

*Rhizoctonia* in the soil are greatly reduced by competing microbes. Accelerating the rate of crop residue decomposition and increasing the amount of soil organic matter can reduce the growth of *Rhizoctonia*.

Different soils and different crops incorporated into the soil have varying effects on *Rhizoctonia* growth and development. Prior cropping with onions, corn, grasses or cereals has been found to effectively reduce the carry-over of sclerotia.

Where possible, plant in fields without a history of severe *Rhizoctonia* disease and practice a 2 to 3-year rotation without potatoes. Leave at least 3-5 years between potato crops if *Rhizoctonia* becomes troublesome.

- **Control of volunteers?** *Rhizoctonia* can survive on tubers left in the soil from previous crops providing a source of infection for this and many other diseases.

## The following websites have been used in the preparation of this factsheet.

<http://www.ces.ncsu.edu/plymouth/pubs/scurf.html>  
<http://www.umext.maine.edu/onlinepubs/htmpubs/2273.htm>  
[http://vegetableonline.ppath.cornell.edu/factsheets/Potato\\_Rhizoctonia.htm](http://vegetableonline.ppath.cornell.edu/factsheets/Potato_Rhizoctonia.htm)  
<http://ohioline.osu.edu/hyg-fact/3000/3108.html>  
[http://mtvernon.wsu.edu/path\\_team/diseasegallery.htm](http://mtvernon.wsu.edu/path_team/diseasegallery.htm)  
<http://www.dpi.vic.gov.au> and follow the links to:  
agriculture & food > factsheets > horticulture > pests & diseases

## Are you on our mailing list?

If you would like to receive your own copy of **Vegetable Matters-of-Facts** or have changed your address, please contact the editor: **Rob Dimsey T: 03 5152 0600**

## Check us out and view our other fact sheets:

<http://www.dpi.vic.gov.au/agvic/ihd/projects/vchq.htm>

**For more information please contact your local VegCheque officer :**

Neville Fernando	Gippsland	5152 0600
Sally-Ann Henderson	Northern Vic	5051 4500
Bruce Fry	South West Vic	5233 5510
Craig Murdoch	Melbourne	9210 9354

*Vegetable Matters-of-Fact* is published as part of DPI's VegCheque extension program.

**Editor: Rob Dimsey T: 03 5152 0600**

*Disclaimer: This publication may be of assistance to you but the state of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purpose and therefore disclaims all liability for any error, loss or other consequences which may arise from you relying on any information in this publication.*

□ The State of Victoria, Department of Primary Industries, 2005.

ISSN: 1445-5676