

FACT SHEET | OCTOBER 2021



POTATO LINK
AUSTRALIAN POTATO INDUSTRY
EXTENSION PROJECT

PINK ROT

(*Phytophthora erythroseptica*)

WHAT IS IT?

Pink rot is an important global soil-borne storage disease. It is caused by *Phytophthora erythroseptica* an Oomycetes (also known as water mould) which is a fungi-like organism that is responsible for many plant diseases. It can also be caused by *Phytophthora cryptogea*. Often, the disease is associated with secondary infections caused by soft rot bacteria.

KEY POINTS AND RECOMMENDATIONS

- Initial Infection occurs in the field where the disease can persist for up to seven years. Significant disease spread can occur during storage in moist low ventilation conditions
- Remove all potential hosts of the pathogen (volunteer, host crops and weeds)
- Avoid storing crop from affected area with other crops
- Biofumigants, such as mustard, can be effective as a cover crop. Use these to best practice advice.

DISEASE CYCLE

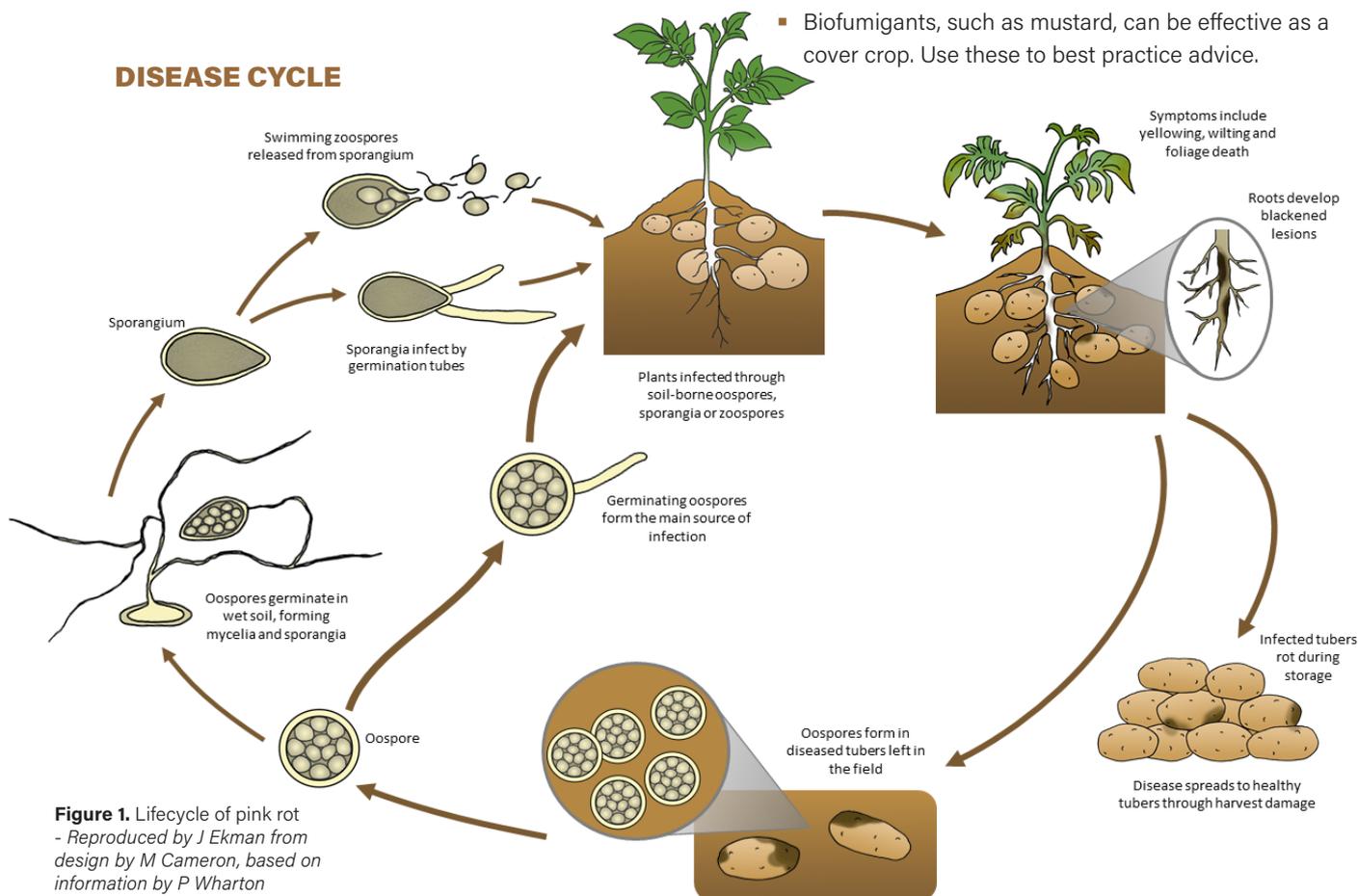


Figure 1. Lifecycle of pink rot
- Reproduced by J Ekman from
design by M Cameron, based on
information by P Wharton

WHAT TO LOOK FOR?

On the plant

- Stunting and wilting late in the growing season
- Found in poorly drained parts of the field
- Wilting from the base of the stem
- Leaf yellowing, drying and defoliation due to wilting
- Vascular discolouration and blackening of underground stems
- Roots turning brown or black
- Development of aerial tubers.

On the tubers

- Decay at or near the stem or the stolon end of tuber
- Infected tissue becomes rubbery
- Rotten portion delimited by a dark line visible through the tube skin (Figure 2) when cut
- Tuber skin (periderm) over rotted portion is light brown in white-skinned cultivars
- Tissue becomes spongy but remains intact
- Internal tissue is cream coloured. When exposed to the air, tissue progressively changes to salmon pink over 15-30 minutes. After an hour, the tissue turns brown and then black.
- If a cut tuber is squeezed, a clear liquid may ooze out of the cut surface.



Figure 2. In the early stages of pink rot infection, the rotted portion of the tuber is delimited by a dark line.

Secondary infection

- Infected tissue is easily invaded by secondary pathogens such as soft rot bacteria (*Pectobacterium* and *Dickeya* spp.), which produce the slimy symptoms often found in potatoes with pink rot (Figure 3).

HOW DOES IT SPREAD?

The disease can survive for long periods in the soil, even up to seven years.

Waterlogged fields allow for the movement of the zoospores which cause infection through tuber eyes and lenticles. Areas of compacted soil can also allow for easier movement of the pathogen.

Infected tubers will rot during harvest and handling. Wounds and bruises on tubers, caused by harvesting and handling, provide entry points for the pathogen into healthy tubers. Because of this, post-harvest rotting is usually more severe than field infection.

Infected tubers can spread the disease in moist storage conditions with poor ventilation.

WHAT CONDITIONS ARE OPTIMAL FOR THE DISEASE?

- Soil temperatures between 10-30°C – highest infection rates occur at 25°C
- Wet conditions allow free movement of the zoospores that cause infection
- Waterlogged and compacted areas of a field.



Figure 3. Pink rot infection is usually followed by secondary infection by soft rot bacteria. These turn the tuber tissue soft, creamy and mushy.

WHAT CAN YOU DO?

- Biofumigants such as mustards have been shown to be effective but should be used according to best practice advice
- Disease incidence is greater in soils with a pH <5 and decreased above pH 7. The use of lime to manage soil pH may assist in reducing disease
- Low levels of free calcium in the soil solution are linked with higher disease incidence. The application of soluble calcium fertilisers may reduce this risk
- Avoid planting in a field with a previous crop rotation that included hosts (crop, volunteer or weed) of the disease. Further information can be found [here](#)
- Avoid mixing tubers from contaminated areas with other tubers during storage or avoid harvest of contaminated tubers
- Use certified seed
- Avoid damage as much as possible during harvesting and handling by minimising drop heights on harvesters and grading machines
- Use Metalaxyl, Metalaxyl-M or Amisulbrom* according to label instructions
- Improve soil drainage to prevent water pooling around developing tubers.

PreDicta® Pt POSSIBILITIES

PreDicta® Pt allows for population density testing of soil. And while no direct relationship between pathogen level and yield loss has been determined, it can still help to monitor the disease levels in a paddock over several years. Consider visiting [this site](#) if this service appeals to you.

FURTHER READING

https://www.soilwealth.com.au/imagesDB/news/Pinkrotfactsheet20200409_1.pdf

Chemical control

<https://www.syngenta.com.au/news/potatoes/controlling-pink-rot-potatoes>

Management strategies including chemical control

<https://www.syngenta.com.au/news/potatoes/reducing-risk-pink-rot-infection-season>

Hort Innovation reports on InfoVeg website

<https://ausveg.com.au/infoveg/infoveg-database/>

2000 PT97026 Developing soil and water management systems for potato production on sandy soils in Australia (a useful guide to ripping)

2001 PT97004 Potato pink rot control in field and storage, also available here: <https://ausveg.com.au/app/data/technical-insights/docs/PT97004.pdf>

2002 PT01042 Control of pink rot in potatoes Management strategies including chemical control in the US*: https://millerresearch.com/wp-content/uploads/2019/01/WA_OR_Pink_rot_management.pdf

CropLife Australia

Management strategies: https://www.croplife.org.au/wp-content/uploads/2021/07/CL_RMS21_web2.pdf

Fungicide activity groups: <https://www.croplife.org.au/resources/programs/resistance-management/fungicide-activity-group-table-2-draft/>

Symptoms and disease cycle information

Adapted from: https://www.canr.msu.edu/resources/potato_diseases_pink_rot_e2993

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