



# Vegetable -Matters-of- Facts

## Bacterial wilt of potatoes

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### Control of bacterial wilt

- Rotate potato crops with non-solanaceous (crops other than capsicum or tomato).
- Use certified seed.
- Plant crops in areas where bacterial wilt has not previously occurred.
- Disinfect all machinery and equipment that has entered infected paddocks or been in contact with infected material.
- Prevent run-off from infested paddocks or wash down areas from entering dams or waterways.
- Good management practices are the only effective control

### Bacterial wilt of potatoes

Bacterial wilt (also known as sore eye, jammy eye and brown rot) is one of the most serious diseases that affects potatoes. Outbreaks impact on all sectors of the industry and can prevent the export of fresh and seed potatoes from Victoria. The disease is known to infect over 200 plant species throughout the world.

Bacterial wilt is caused by the bacterium *Ralstonia solanacearum*. Disease development is favoured by warm temperatures of 25°C - 30°C and poor drainage and is limited by temperatures below 10°C.



Fig 1. Symptoms of a plant infected with bacterial wilt



Fig 2. Weeping eyes on a potato



Fig 3. Internal brown rot and degradation of a potato tuber caused by bacterial wilt

### Symptoms:

The bacterium multiplies within the water-conducting vessels of host plants, restricting the movement of water and nutrients, which causes the plant to wilt and die (Figure 1).

### Leaf Symptoms:

- Severely affected plants wilt during hot weather; this is most evident on the terminal leaflets of single stalks. Wilting may not occur during cool weather or in potato varieties that have resistance to the disease.
- Leaves may appear yellow before the plant begins to wilt, beginning at the base of the stem and continuing upwards. The leaves will eventually turn brown and fall off.
- The interior of stems and roots will be brown in colour.
- Tissue breakdown resulting from the bacteria will create a creamy-white slime that exudes from the tissue.

### Tuber symptoms:

Diseased tubers have weeping 'jammy eyes' and brown rot in the vascular ring (Figures 2 & 3), which is evident when the tuber is sliced in half. At a later stage, a thick creamy mucus fills the inside of these tubers.

Infected tubers will externally display brown-grey areas, which are more pronounced where the stolon was attached.

# POTATO

## Disease Spread

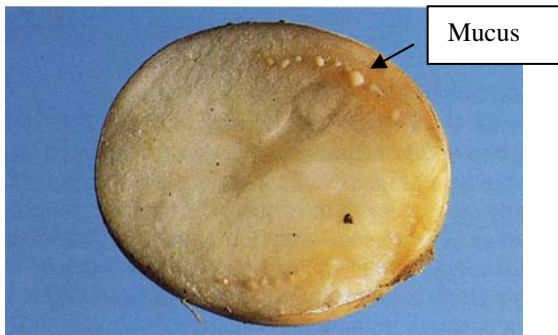
Bacterial wilt can be spread by:

- Infected tubers (seed or commercial)
- Infested soil where bacteria enter roots at weak points such as wounds
- Contaminated water
- Infected plant debris
- Contaminated machinery
- Insects and nematodes
- Contact between roots
- Rain droplets or in dust particles carried by wind.

Slightly infected tubers that show no external symptoms may have a high potential to spread the disease through infected seed being planted at other locations.

Bacterial wilt is able to survive in bare fallow soil for 2-3 years and longer periods in soils when any other crops are grown.

The bacterium can survive on volunteer potatoes or related species such as tomato, nightshade, thornapple and Narrawa burr.



### Further information:

De Boer, D., Al Soboh, G., 2000, Managing bacterial wilt of potato, DNRE, Knoxfield.

Osborn, R., 1995, Agriculture Notes: Potatoes-bacterial wilt, Department of Primary Industries, Knoxfield.

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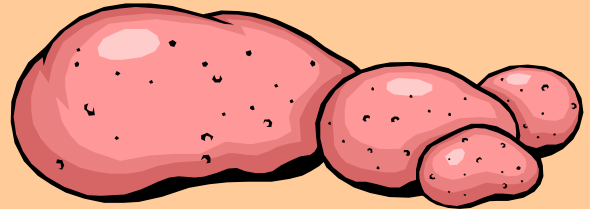
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## Managing Bacterial wilt

No effective chemical treatments for bacterial wilt exist. Good management practices are critical.

1. Seed  
Seed produced in infested soil can carry the bacterium into a subsequent crop. Therefore only certified seed should be used.
2. Irrigation water  
Prevent run-off from infested paddocks or wash down areas that may contaminate irrigation dams or channels.
3. Crop rotation and weeds
  - Rotate potato crops with pastures and cereals to break disease cycles over five years.
  - Do not replant potatoes for at least two years (preferably five years) after an outbreak.
  - Control self-sowns and solanaceous weed hosts after cropping potatoes and along irrigation channels.



4. Crop management
  - Regularly inspect crops and remove and destroy diseased plants and immediate neighbouring plants.
  - Do not return waste to the paddock.
  - Use livestock to remove discarded tubers and crop debris.
  - Avoid deep-ploughing, as the bacterium survives in the deep, cool layers of soil.
5. Machinery and equipment hygiene
  - Do not allow dirty machinery and bins into your paddocks.
  - Wash and disinfect machinery when moving between paddocks.
  - Wash-down and disinfect bins, grading equipment and seed cutters between different tuber lots.
6. Movement of people and animals
  - Do not allow visitors to wander freely around your property.
  - Use footwear that can be disinfected when entering and leaving the property or disposable overshoes.
  - Avoid moving grazing animals from infected to clean paddocks.

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