

Managing Bacterial Wilt of Potato

Bacterial wilt (also known as sore eye, jammy eye and brown rot) is one of the most serious diseases of potatoes. Outbreaks affect all sectors of the industry and can prevent the export of fresh potatoes, especially seed, from Victoria.



*Tubers with “sore eye” & brown rot
Picture courtesy of NSW Agriculture*

THE ORGANISM & THE DISEASE

Bacterial wilt is caused by bacterium *Ralstonia solanacearum* (formerly called *Pseudomonas solanacearum*).

Infection of plants and tubers can occur via

- **Soil**, where bacteria enter weak points in the root system such as root emergence sites or wound sites caused by soil abrasion or by nematodes;
- **Infected mother tubers** (seed tubers)

The bacterium spreads from infected roots or mother tubers via the vascular system to the rest of the plant

Severely affected plants can **wilt** during hot weather. Diseased tubers have “**jammy eyes**” and a **brown rot** in the vascular ring which is seen when the tuber is sliced in half. At a later stage, a thick creamy mucus fills the inside of these tubers.

Wilting may not occur during cool weather or in potato varieties that have some resistance to the disease.

Disease development is favoured by **warm temperatures** (25-30°C) and is limited by temperatures below 10°C. **Soil moisture** is important as the bacterium cannot tolerate dry soil conditions.

SPREAD & SURVIVAL

Bacterial wilt can be spread by:

- infected tubers (seed or commercial)
- infested soil
- contaminated water
- plant debris
- contaminated machinery
- insect pests and nematodes
- contact between roots
- rain splash or in dust particles carried by wind

The bacterium can survive on:

- volunteer potatoes and on
- related species such as tomato, nightshade, thornapple and Narrawa burr.



*Bacterial wilt symptoms in a potato crop
Picture courtesy of NSW Agriculture*

MANAGING BACTERIAL WILT

There are no effective chemical treatments for bacterial wilt. The disease must be controlled through the use of good **CROP ROTATION** and **HYGIENE** practices.

It is important that all personnel involved in your farm operations are familiar with your farm hygiene procedures.

CLEAN SEED IS ESSENTIAL

Seed produced in infested soil can carry the bacterium into the subsequent crop

- **Only use seed from a reputable source (e.g. Certified Seed)**

IRRIGATION WATER

Be careful of your source of irrigation water. The bacterium can be spread in irrigation water. Irrigation dams & channels can become contaminated by:

- run-off from infested paddocks
- run-off from wash-down areas
- infected weed hosts growing along channel banks

CROP ROTATION & WEEDS

- **Rotate** potato crops with pastures and cereals
- **Do not** replant potatoes for **at least 2 years** (preferably 5 years) after an outbreak
- Control **self sowns** and solanaceous **weed hosts** (nightshade, thornapple, Narrawa burr) after cropping potatoes

CROP MANAGEMENT

- Regularly inspect crops for disease symptoms
- Carefully remove and destroy diseased plants and their immediate neighbours
- Do not return waste to the paddock
- Use sheep to clean up chats, discarded tubers and crop debris
- Avoid deep-ploughing as the bacterium survives in the deep, cool layers of soil.

HYGIENE-MACHINERY & EQUIPMENT

- Do not allow dirty machinery and bins into your paddocks
- Provide a special wash-down area with a sealed surface
- High pressure wash and disinfect machinery when moving between paddocks
- Wash-down and disinfect bins, grading equipment and seed cutters between different tuber lots

MOVEMENT OF PEOPLE & ANIMALS

- Do not allow visitors to wander freely around your property.
- Use footwear that can be washed & disinfected.
- Clean and disinfect footwear when entering and leaving the property.
- Disposable overshoes for workers, contractors and visitors are an option.
- Avoid moving grazing animals from infected to clean paddocks.

[Source: Brochure by G.Al Soboh and R.de Boer, 2000 (Agriculture Victoria, Knoxfield)]