1-1-1960

Bacterial wilt of potatoes

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Recommended Citation
Department of Agriculture, Western Australia (1960) "Bacterial wilt of potatoes," Journal of the Department of Agriculture, Western Australia, Series 4: Vol. 1 : No. 6 , Article 12.
Available at: http://researchlibrary.agric.wa.gov.au/journal_agriculture4/vol1/iss6/12

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BACTERIAL WILT OF POTATOES
BY THE PLANT PATHOLOGY BRANCH

EACH season, Bacterial Wilt causes heavy losses to individual growers in several of the potato districts throughout the South-West of the State. The disease is incited by the bacterium Pseudomonas solanacearum E.F.Sm. and is most prevalent in the districts of Donnybrook, Pemberton and Manjimup as well as in the area between Waroona and Dardanup. It is a tuber-borne disease which is extremely difficult to eradicate, once it has been introduced on to a property.

Usually the disease becomes evident in a crop during the warm weather when single stalks on whole plants show signs of wilting (Fig. 1). In the earliest stages, only the terminal leaflets may be affected, but as the organism multiplies within the sap-conducting tissue, this symptom becomes more general. Yellowing of leaves sometimes precedes wilting, but it may not occur when the onset of the disease is sudden.

The sap-conducting tissues of the stems, stolons, roots and tubers (Fig. 2) turn brown, and frequently a whitish bacterial slime exudes from these organs when cut. A symptom of the disease in tubers is often referred to as “sore-eye” (Fig. 3). It is characterised by the blackening of eye tissue and the exudation of bacterial slime. Soil particles commonly adhere to this slime on the eyes of freshly dug potatoes.

INTRODUCTION AND CARRY-OVER
The disease is introduced mainly by infected seed-potato tubers and its initial spread occurs in the process of cutting these tubers. Occasionally the introduction occurs through infected tomato trans-
plants. The subsequent development of the organisms is favoured by warm moist conditions.

Following the collapse and decay of affected plants, the bacteria pass into the soil where they may persist for several years and act as sources of infection for future crops.

The disease may also be perpetuated by alternate hosts as the organism has been recorded on many different species throughout the world. However, in Western Australia, tomato and tobacco are the only other species that have been recorded as hosts of Bacterial Wilt.

**PREVENTION AND CONTROL**

1. Use only clean seed-potato tubers. Do not plant tubers from an affected crop.
2. Use sterile knives when cutting tubers. Boiling water, 2 per cent. Formalin or 1 per cent. Cetrimide may be used for sterilisation. Diseased tubers found when cutting setts, should be destroyed by boiling.
3. Adopt a rotation of at least five years on contaminated land.
4. Where necessary, improve the drainage of land that has borne a diseased crop.

Fig. 2.—Section of tuber affected with bacterial wilt. The discoloured ring of tissue contains a bacterial slime which will ooze out if the cut tuber is squeezed gently.

Fig. 3.—"Sore-eye" condition of tuber, caused by bacterial wilt. Note blackening of eye tissue.

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