

STORAGE DISEASES

When the potatoes have been harvested, graded and put into storage a great weight has been lifted. The spuds aren't going to be stuck in the ground due to late season rain. Grubs and bugs aren't going to start affecting the tubers, and it looks like most of the disease issues have been avoided. They're safe. Except there is another consideration, and that is storage diseases.

Most postharvest pathogens are weak organisms, incapable of penetrating a tuber's skin directly. Instead, they rely on wounds as entry points, especially in moist conditions, for example, condensation.

Decreasing the temperature of stored potatoes diminishes the risk. Typically, the colder the storage temperature, the slower the pathogen's growth. However, the temperature needed to completely halt pathogen growth is often lower than what's ideal for other quality parameters. Development of many of the diseases listed here virtually stops below 4.4°C, however temperatures this low may not be practical or advisable.

Lowering humidity levels also helps reduce the risk of disease, but can cause dehydration.

SOFT ROT

(*Pectobacterium* spp., *Dickeya* spp.)

Soft rot bacteria can survive long periods in soil or on tubers without causing disease. However, periods of extended wetness can allow the bacteria to rapidly multiply and spread in the bacterial ooze created.

If rotten tubers are found at harvest, you should dry all other tubers as soon as possible to reduce further losses.

Temperatures below 10°C reduce the activity of soft rot bacteria, while spread virtually stops below 4.4°C.

Conversely, storage temperatures above 16°C and/or low oxygen levels will promote bacterial growth. The progression of soft rots can become extremely rapid as the temperature increases.

EXPLORE THE TOPIC FURTHER BY CLICKING THE TITLE BELOW

FACTSHEET: Pink rot

FACTSHEET: Black dot

WEBINAR: Dry rot

Australian Potato Growers Manual

SOURCES

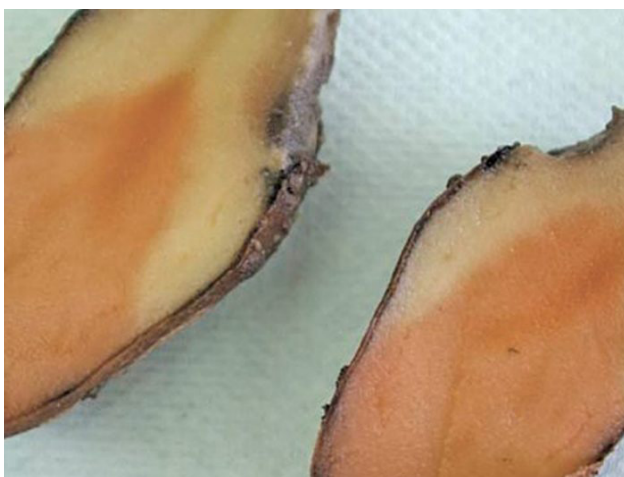
- The Australian Potato Grower's Manual (2022)



PINK ROT

(Phytophthora erythroseptica or P. cryptogea)

Storage temperature is critical to managing pink rot, with growth inhibited below 10°C. Temperatures below 5°C will inhibit the proliferation of pink rot. Depending how prevalent the disease is within the stored tubers, additional drying through ventilation with reduced humidity air may also be beneficial.



GANGRENE

(Phoma exigua var. foveata)

Gangrene primarily infects potato tubers through wounds. Fast and effective wound healing will limit its onset. Susceptibility increases during storage and the pathogen can continue to grow even at low temperatures. Keeping temperatures as low as possible in long-term storage will help slow the development and spread of gangrene.



BLACK DOT

(Colletotrichum coccodes)

Black dot infection occurs in the field. Infection can occur through the soil or when spores are washed off infected haulms onto the tubers below by irrigation or rain. Tuber symptoms reduce the marketability of washed potatoes grown for the fresh market.

The development of black dot symptoms on the skin of tubers is promoted by harvesting during hot conditions (>25°C). Rapidly cooling the harvested crop to 3.5°C or below will help to minimise disease severity. The severity of black dot symptoms increases at the temperatures used for skin curing (typically 10 to 15°C).



SILVER SCURF

(Helminthosporium solani)

Initial infection by silver scurf mainly occurs in the field. Moisture on the potato surface, caused by fluctuating temperatures and high relative humidity, allows spores to germinate and infect other tubers in storage. This makes avoiding condensation in storage critical.

Tubers should be stored at the lowest temperature possible, depending on market requirements. Maintaining lower humidity (<90%) will help control the spread of silver scurf by preventing spores from forming on any infected tubers.



PYTHIUM LEAK OR LEAK ROT

(Pythium spp.)

Pythium spp. mainly infects tubers through wounds caused during harvest. Rots then develop during storage, especially if the potatoes are wet due to condensation. As with pink rot, additional drying through ventilation with reduced humidity air may be beneficial if infection rates are low.

Temperatures below 5°C will inhibit development of leak rot. In contrast, storage at 16°C, or under warmer ambient conditions, will greatly increase progression.



FUSARIUM DRY ROT

(Fusarium spp.)

Fusarium infection usually occurs through wounds and the rot then expands within the tuber flesh. Susceptibility increases during storage.

If dry rot has been identified as a problem for a crop going into storage, fast and effective wound healing is required to limit onset. Storage temperatures below 8°C reduce disease progression while temperatures below 5°C greatly inhibit growth of this pathogen.

