

Potato Storage Diseases and Management

General Strategies to Reduce Storage Diseases:

- **Use seed piece treatments** to protect against any diseases that have caused issues in the past.
- **Sample potatoes** in the field prior to harvest to identify tuber disease issues and prepare accordingly.
- **Minimize harvest injury** (i.e. bruises and cuts). This decreases disease entry and reduces water loss.
- **Sanitize** seed handling equipment and storage facility often, especially before use.
- **Harvest at pulp temperatures between 10-15°C.**
- **Maintain temperature** at 10°C during wound healing period before lowering to 7°C for processing, 4°C for fresh market, and 3°C for seed for long term storage.
- **Maintain relative humidity** (97-98%) to prevent dehydration. Condensation, not humidity, favours disease.
- **Provide adequate ventilation** and air flow through the piles, it is essential to limit condensation.

Common Potato Storage Diseases:



Late Blight (*Phytophthora infestans*)

Symptoms: External – Irregular brown/purple depressions

Internal – Tan/red, granular dry rot with “finger-like” projections into healthy tissue

- Avoid planting inaccessible or low/wet areas.
- Apply fungicides at regular intervals during the growing season.
- Spreads during harvest if foliar infections are present and conditions are wet; Kill vines 2-3 weeks before harvest.
- Assess pre-harvest levels in the field. If high, post-harvest phosphoric acid application can prevent spread during storage.



Fusarium Dry Rot (*Fusarium* spp.)

Symptoms: External – Dark bruised depressions, wrinkled skin

Internal – Dry brown/black discolouration and cavities

- Spores are persistent in the soil for long periods of time.
- Dry rot usually develops at sites of injury and bruising; It provides a route for invasion and spread of other diseases.
- Disinfect equipment often during seed cutting and planting.
- Harvest with tuber temperature between 10-15°C, after skin-set.
- This disease shows up later in the storage period and leads to heavy losses in seed-piece survival after planting next season.



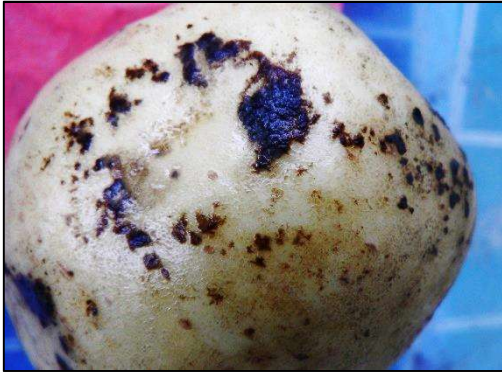
Pythium Leak (*Pythium* spp.)

Symptoms: External – Grey/Brown watery lesions.

Internal – Rot is brown with a dark margin;

Applying pressure causes clear fluid to exude

- Widely distributed in soil and spreads through storage rapidly; it will only infect wounds, cannot penetrate healthy skin.
- High temperature and humidity at harvest are major risk factors.
- Minimize damage: avoid drops higher than 6 inches, use slower harvester speeds.
- Start cooling tubers in storage sooner than normal.



Black Scurf (*Rhizoctonia solani*)

Symptoms: External – Raised or flat black patches on the tuber surface, can often scratch patches off

- Infection can occur from soil or seed but it will not spread during storage.
- Infection most likely at soil temperatures between 7-25°C and when moisture is high.
- Long rotations with sod/cereal crops will help reduce incidence.
- Use fungicides applied in-furrow or as seed treatments.
- Harvest as soon after vine-kill as possible.



Silver Scurf (*Helminthosporium solani*)

Symptoms: External – Silver-grey circles with dark margins
In russets, it may appear as dark spots

- Ensure seed is free of the disease when planting. Use proper seed treatments and beware of fungicide resistance.
- Spreads rapidly in the field as well as in storage.
- Rotate problem areas out of potatoes for two years; the pathogen can't survive longer without its host.
- Sort tubers by disease severity, store separately if possible; use tubers with high levels first to reduce disease storage length.



Soft Rot, Blackleg, Aerial Rot (*Pectobacterium* spp.)

Symptoms: External – Soft, wet, cream/tan coloured lesions

Internal – Entire tuber becomes soft; unpleasant smell

- Bacterial infection; widely distributed in soil.
- Calcium applications during bulking can strengthen cell walls in the tuber skins and reduce infection risk.
- Do not harvest when tubers are wet and temperatures are high.
- Risk is increased when temperatures are above 21°C during and after harvest; bacterial growth is inhibited below 7°C.



Pink Rot (*Phytophthora erythroseptica*)

Symptoms: External – Normal shaped tuber with dark outer skin

Internal – Infected area turns pink with a dark margin after 20 minutes of air exposure; applying pressure causes clear fluid to exude.

- Infection occurs through wounds and eyes on the tuber.
- Pre-harvest fungicides may help if detected in the field early.
- High temperature (above 20°C) and humidity at harvest increase risk.
- Cool tubers in storage sooner than normal if levels are high.
- Temperatures below 7°C inhibit growth and spread in storage.

Photo credit: Pythium- OMAFRA, Others- E.S. Cropconsult

For more information, consult the BC Potato Production Guide <http://productionguide.agrifoodbc.ca/guides/17>

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