

Potato Wart

(*Synchytrium endobioticum*)

March, 2016

Potato wart is a serious disease of cultivated potato that has been detected worldwide, but generally with limited distribution due to stringent quarantine and regulatory measures. In Canada, it has been found in Newfoundland in home gardens since the early 1900's. Subsequently, it was detected in Prince Edward Island in 2000, 2012 and 2014, where it remains under regulatory control by the Canadian Food Inspection Agency (CFIA). Potato wart has never been detected in British Columbia.

Hosts

Cultivated potato, tomato, other solanaceous plants and wild *Solanum* species.

Potential Damage/Impact

Tubers are disfigured by the growth of warty galls, which may not be apparent until after harvest. Severe infestations can destroy the potato crop by preventing tuber production. Financial impacts are compounded by quarantine measures and loss of export markets.

Symptoms

- Potato wart symptoms can be found on all underground plant parts except roots.
- Stem – Galls form at the base of the stem; initially white, but turning black when decaying; may be as small as a pin or as large as a fist; surface is rough and corrugated-warty in appearance.
- Tubers - Eyes develop cauliflower-like swellings; when formed underground, they are the same colour as the potato skin, darkening with age, or green if exposed to light. Typical warts are soft and pulpy and easier to cut than a healthy tuber.
- Stolons - Symptoms similar to tubers.
- Aerial buds - Small greenish warts form in the position of the aerial buds at the stem bases.



Potato wart on tuber. Photo courtesy of the Canadian Food Inspection Agency

Life cycle

The causal agent, *Synchytrium endobioticum*, is an obligate parasite which does not produce fungal-like mycelium. Infection causes host cells to proliferate into a warty gall containing spore-bearing structures called sporangia. In the spring, when temperatures are above 8°C and given sufficient moisture, sporangia in decaying warts each release zoospores, which infect potato growing points including buds, stolon tips and leaf primordia. The infection cycle continues while conditions are favourable. Resting, or winter sporangia are formed as the galls decay, and can remain viable in soil for up to 40-50 years. There are over 20 strains, or pathotypes, of *S. endobioticum* that occur around the world, including four known in Newfoundland. Potatoes that are resistant to one pathotype may be susceptible to another.

Prevention

Potato wart can be spread to new areas with infected seed potatoes, contaminated soil, contaminated tools and machinery, and manure from animals fed on infected potatoes.

Plant only B.C. certified seed potatoes. Avoid using table stock for seed or importing seed from other areas for planting in B.C.

If symptoms of potato wart are observed, please notify the B.C. Ministry of Agriculture or the Canadian Food Inspection Agency immediately. Early detection is critical to prevent establishment and spread. Samples may also be submitted to the provincial [Plant Health Laboratory](#).

Further Information

[Potato Wart or Potato Canker - Synchytrium endobioticum](#) - Canadian Food Inspection Agency

Potato Wart – American Phytopathological Society publication
<http://www.apsnet.org/publications/apsnetfeatures/Pages/PotatoWart.aspx>