Ministry of Agriculture and Food

Potato Wart

June 2024

Potato wart, caused the fungus *Synchytrium endobioticum*, 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, 2014, 2020 and 2021, where it remains under regulatory control by the Canadian Food Inspection Agency (CFIA). Potato wart has never been detected in British Columbia (B.C.).

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.
On stems, 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.

On tubers and stolons, eyes develop cauliflower-like swellings (Figure 1); 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.
On aerial buds - Small greenish warts form in the position of the aerial buds at the stem bases.

Life cycle

Synchytrium endobioticum is an obligate parasite which does not produce mycelium like other fungi. Infection causes host cells to proliferate into a warty gall containing spore-baring 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* occur around the world,

including four knowns in Newfoundland. Potatoes that are resistant to one pathotype may be susceptible to another.

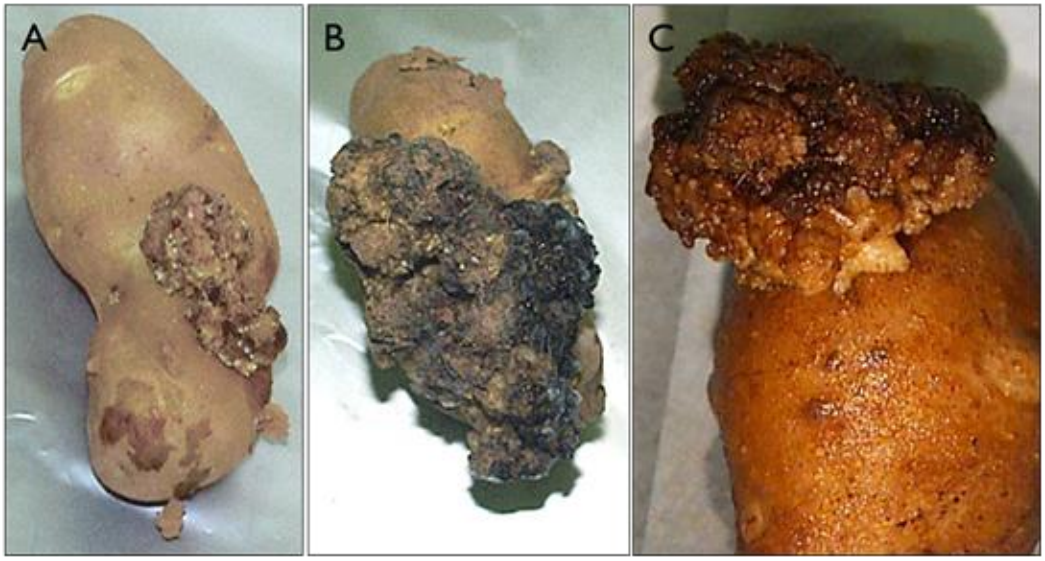

Figure I. Symptoms of potato wart on tubers. Photo credit: (A-B) L. Ward from the APS digital image collection CD Diseases of Root and Tuber Crops 2002, and (C) the Canadian Food Inspection Agency.

Prevention

The pathogen is highly persistent as resting spores in soil once introduced. It can be spread to new areas with infected seed potatoes and contaminated soil, farm equipment (tools, machinery, etc.), and manure from animals that feed on infected potatoes. Any findings will trigger regulatory actions around movement of soil and farm equipment, and land-use restrictions to prevent its spread. Therefore, plant only B.C. certified seed potatoes. Avoid using table stock for seed or importing seed from other areas for planting in B.C.

Disease Confirmation and Regulatory Action

If the disease is suspected, please contact the local CFIA office or B.C. Ministry of Agriculture and Food, before submitting suspected samples to the Ministry of Agriculture and Food - Plant Health Laboratory or to a federal (CFIA) plant diagnostic laboratory. Currently, under the Potato Wart Order (Ministerial Order), restrictions are in place to restrict the movement of potato within and outside of the province of P.E.I.

For Further Information

Potato Wart or Potato Canker - *Synchytrium endobioticum* - Canadian Food Inspection Agency

Potato Wart – American Phytopathological Society publication
https://www.apsnet.org/edcenter/apsnetfeatures/Pages/PotatoWart.aspx

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