



Pacific Northwest
Vegetable Extension Group

Identification & Management of Emerging Vegetable Problems in the Pacific Northwest

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Seedborne Potato Virus Y (PVY)

Affected plant species:

This virus has the greatest impact on potatoes, but can infect other solanaceous plants such as tobacco, tomato, and pepper.

Common name of the causal organism:

Potato virus Y or PVY

Latin binomial:

This virus does not have a Latin binomial. PVY belongs to the family “Potyviridae” and is in the genus Potyvirus.

Symptoms & key characteristics for identification:

Symptoms of seedborne PVY infections vary depending on the potato cultivar and the PVY strain. Symptoms of PVY infection include:

- *Poor or slow emergence* – in a commercial field, poorly emerging plants will usually be randomly distributed across the field, and will not show up in patches or strips
- *Mosaic coloration/pattern on leaves* (Fig. 1) – sometimes so mild that the leaves may just have a yellow tint
- *Leaf necrosis* (Fig. 2), *veinal necrosis* (Fig. 3) and *stem necrosis*
- *Tuber necrosis* (Fig. 4)
- *Stunted and deformed plants and leaves* – usually only seen in certain cultivars infected with certain PVY strains

Biology/epidemiology:

PVY is spread from plant to plant by aphids in a non-persistent manner. Aphids that are searching for a host on which to feed, probe infected potato plants with their stylets (needle-like mouth parts). The virus sticks to the stylet and, as soon as the aphid flies to a different plant and probes that plant, the virus is introduced. The aphids that spread this virus do not actually feed on the potato plants or ingest the virus into their body. Sometimes PVY can infect daughter tubers which then grow into infected plants (seedborne PVY). However, whether infected plants originate from infected seed tubers or are volunteers from the previous year, aphids spread the virus to the current season potato crop.

Management:

- Plant certified seed, and manage potato volunteers.

- Insecticides are not very effective in controlling the spread of PVY due to the non-persistent manner in which aphids spread the virus.

Selected references:

German, T. L. 2001. Diseases caused by viruses and viroids: Potato virus Y. In W. R. Stevenson, R. Loria, G. D. Franc, and D. P. Weingartner (Eds.) Compendium of Potato Diseases, 2nd ed., pp. 69-71. APS Press, St. Paul, MN.

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http://mtvernon.wsu.edu/path_team/vegpath_team.htm

PNW VEG Photo Gallery at http://mtvernon.wsu.edu/path_team/diseasegallery.htm



Fig. 1. Leaf mosaic caused by PVY. Photo Source: Jordan Eggers, OSU.



Fig. 2. Leaf necrosis caused by seedborne PVY. Photo Source: Jordan Eggers, OSU.



Fig. 3. Leaf vein necrosis caused by PVY. Photo Source: Jordan Eggers OSU.



Fig. 4. External and internal necrosis of daughter tubers grown from PVY infected seed. Photo Source: Jordan Eggers, OSU.