# APHID PRESSURE AND POTATO VIRUS Y IN POTATOES IN THE COLUMBIA BASIN

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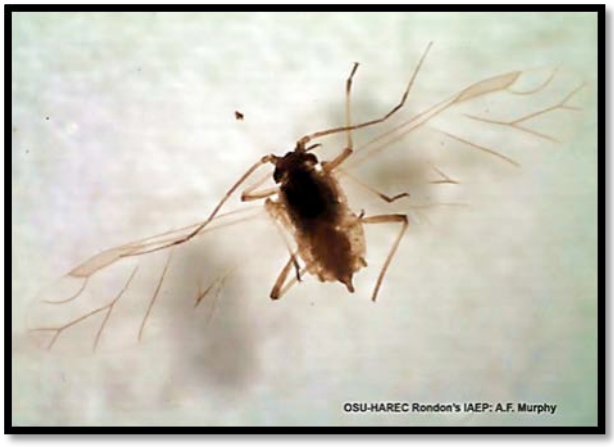
*Potato virus Y* (PVY) is consistently a problem in potatoes in the Pacific Northwest. While there are several strains of PVY, the necrotic strains ($PVY^{N}$ and $PVY^{NO}$) are the most problematic, particularly since these strains have been increasing in the region (Crosslin et al. 2006). All strains of PVY reduce yields and affect tuber quality (Hamm et al. 2010). In Europe, where N-strains are most abundant, several weed species have been identified as alternative hosts for PVY, including lambsquarters (*Chenopodium album*), prickly lettuce (*Lactuca serriola*), redstem filaree (*Erodium cicutarium*), tumble mustard (*Sisymbrium alissimum*), and bittersweet nightshade (*Solanum dulcamara*) (Kazinczi et al. 2004, Kaliciak and Syller 2009). These same weed species are problematic in Oregon and Washington.


*Potato virus Y* is vectored mainly by aphids in a non-persistent manner. Virus may be acquired and transmitted in seconds, but aphids are only able to transmit the virus for a short period of time. Besides Green Peach Aphid (*Myzus persicae*) and Potato Aphid (*Macrosiphum euphorbiae*), many other non-colonizing aphids could vector PVY while migrating through a field. Additionally, insecticides are rarely effective at controlling the disease since aphids vector the virus before the insecticide takes effect (Collar et al. 1997). Since many different aphid species migrate through potatoes in the Pacific Northwest, this study was designed to identify some of the major non-colonizing and colonizing aphid species found in potatoes.




Eight potato fields were surveyed for aphid vectors using green tile traps and yellow buckets in the Columbia Basin in 2013. These eight fields were sampled throughout the season in

conjunction with neighboring weed sites that included the following species: lambsquarters, prickly lettuce, redstem filaree, tumble mustard, and bittersweet nightshade. Weed sites were sampled for aphids using an inverted leaf blower and berlese funnels. Each weed species was also sampled for PVY. Wheat fields and alfalfa fields were sampled for aphids as well. Over 80 sites were monitored in the Columbia Basin, 35 in the Klamath Basin, and 25 in Union and Baker counties in Oregon.

In the Columbia Basin, approximately 7,000 aphids were collected with the inverted leaf blower and 2,000 were collected in berlese funnels on weeds and rotation crops. Redstem filaree, prickly lettuce, alfalfa, and wheat provided a large percentage of these aphids. Over 30 aphid species have been indentified from the aphids collected in potato fields with green tile traps. The most abundant species included *Rhopalosiphum* spp., *Hyalopterus pruni* and *Ovatus crataegarius.*

**References**

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