PVY incidence and aphid populations in the San Luis Valley

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We are in the 2nd year of our study in the SLV, which aims to understand the effects of crop diversity on PVY spread and aphid communities. This project involves sampling potato fields and testing for PVY using TAS-ELISA biweekly, and trapping and identifying aphids weekly. For PVY sampling, we take tissue from 20 plants per field and flag them so that we can test the same plants throughout the season to detect any PVY spread. We are collaborating with Agro Engineering for aphid trapping and identification. We are using a combination of trapping methods to monitor aphid populations - 30 yellow pan traps at 10 locations and four suction traps at four of these locations. We will publish our findings in the Agro Engineering newsletter, but if you would like additional information do not hesitate to contact us.

![Map of Pan Trap Locations in SLV](image1)

**Figure 1:** Pan trap locations in SLV. Potato tissue sampling for PVY was conducted at fields near the pan trap locations.

![Graph of PVY Incidence: June - July 2021](image2)

**Figure 2:** PVY incidence from the past four sampling dates in 2021. Average incidence of all fields in red.
PVY Incidence

PVY incidence has been extremely high this season. Nine potato fields were sampled on July 21st/22nd. A total of 7 out of 9 fields tested positive for PVY, and 4 of these fields showed an increase in PVY incidence (Figure 2). Incidence in all fields ranged from 0% to 70%, with the average incidence per field at 18.3%. This is extremely high, but we want to emphasize that we are sampling 20 plants per field. We will sample again on August 3rd, and will communicate those results through this newsletter.

Aphid Vector Populations

Aphid vector populations have been increasing. From our most recently analyzed suction trap data (7/21/21), the bird cherry-oat aphid (*Rhopalosiphum padi*) has been abundant. This aphid has been common in pan traps as well. This aphid lives on wheat and barley, and is a known vector of PVY. We have found a few pea aphids (*Acyrthosiphon pisum*) in suction traps. Populations of green peach aphids (*Myzus persicae*), potato aphids (* Macrosiphum euphorbiae*), and cannabis aphids (*Phorodon cannabis*), have been low through our most recently analyzed pan trap data (7/7/21).

It is reasonable to believe that the high PVY incidence observed so far this season is due to the planting of seed that was infected by aphid spread from the 2020 season. There were extremely high numbers of pea aphids (*Acyrthosiphon pisum*) in 2020, and this species is known to vector PVY.

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