Highlights from the
Potato Virus Initiative: Developing Solutions

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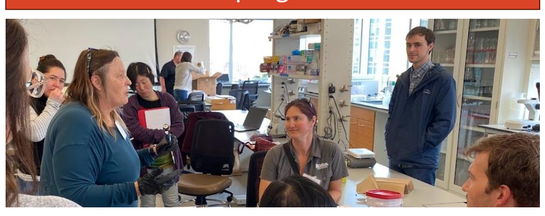
Description of research: The federally funded research and extension project "Potato Virus Initiative: Developing Solutions" focused on developing virus management strategies to produce a sustainable, profitable, and high-quality potato crop. The two viruses being studied are potato virus Y (PVY) and potato mop top virus (PMTV). The main objectives include improvements in virus detection and potato certification, in in-season spread management, in search for and introgression of new resistance sources, and ways to access and disseminate the data among growers and industry personnel.

POTATO VIRUS INITIATIVE
DEVELOPING SOLUTIONS

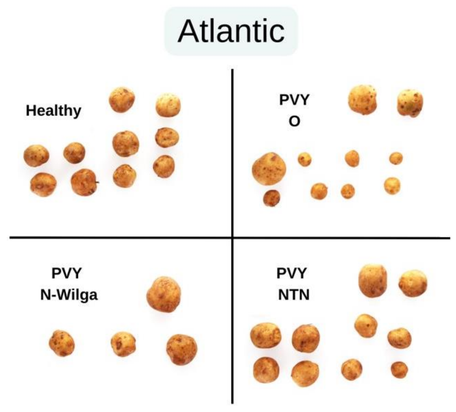
Objective 1: Improvements in virus detection and provide training to seed potato certification

Direct Tuber Testing Workshop in Wisconsin helped explain the benefits of incorporating post-harvest testing into seed certification programs across the US.

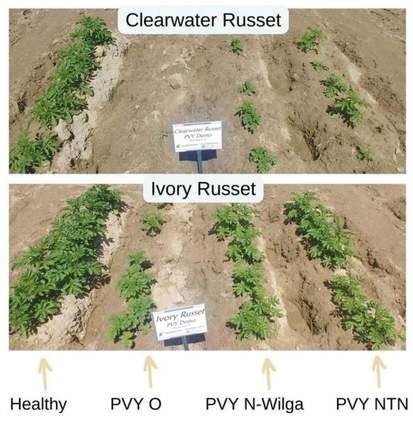


2022 demonstration plots provided a real learning moment to visually compare how PVY strains affect individual varieties. This provided training to certification inspectors and seed growers to visually see the response to aid in rogueing seed fields.

Mark your calendars! Summer of 2024
Washington, Maine, and Wisconsin will have PVY demonstration plots.



Check out the website for more examples of how cultivars respond to different PVY strains.

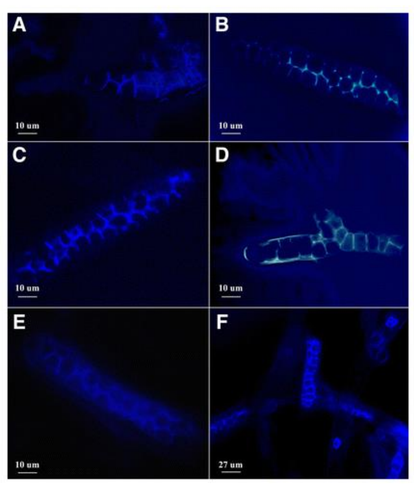


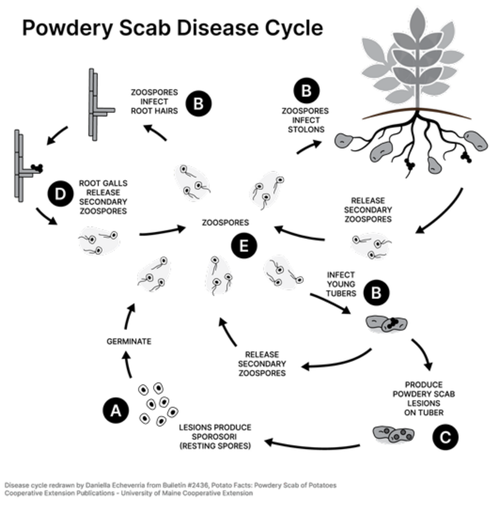
Objective 2: Improvements in virus-vector management: Developed epidemiological models and research-based recommendations

Buckwheat, legumes, and barley are not hosts for *S. subterranea* and could be used as cover crops in potato rotations. Plus, peat-based potting mix should not be used in greenhouse seed potato production.

Scan to read more in this published work!

Scan me!





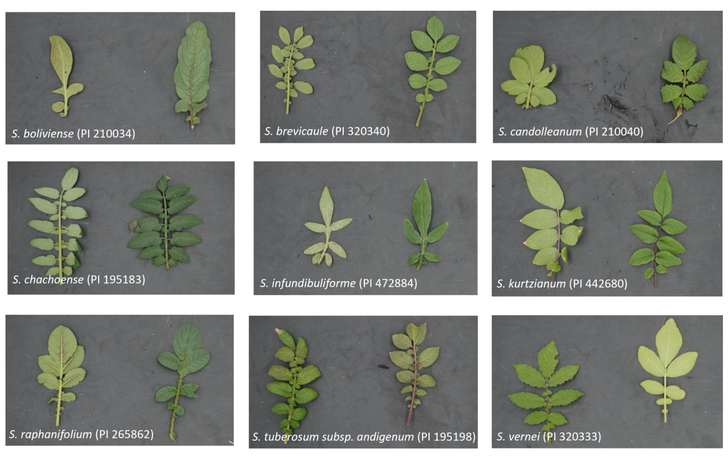
The life cycle of powdery scab was redrawn by Daniella Echeverria, a graduate student funded by this project.

Areas of research include:

- Using crop oils to target aphid transmission
- Plant maturity and PVY resistance
- Suppressive soils for PMTV and powdery scab

Objective 3: Develop molecular markers for resistance genes against PVY, PMTV and *S. subterranea* (powdery scab)

USDA-ARS researchers developed a protocol to screen for resistance to *Spongospora subterranea* and PMTV in commercial cultivars and wild potato accessions.



Two promising candidate genes have been cloned into an agrobacterium vector for functional testing to determine if any have PVY resistance properties. This aids the breeders in assessing PVY resistance.

Mesa Russet and **Teena** are going to be parents! – These two cultivars are being used to help identify resistance in PMTV in commercial cultivars.

Objective 4: Facilitate access to and disseminate the data among growers and industry personnel

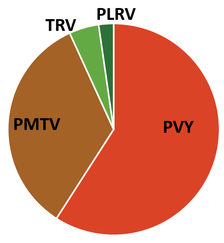
Our website provides up to date research and resources for you to use! Scan to go straight to it!
www.uidaho.edu/cals/potato-virus-initiative

University of Idaho

Our goal is to educate growers, processors, researchers, and extension agents in new approaches and tools to mitigate effects of the two viruses on tuber yield and quality.

Feedback from the industry

What potato viruses are of most concern to you?



Top 4 disease concerns
PVY (21%)
Early Blight (15%)
Powdery Scab (12%)
CRKN/nematodes (12%)

Top 4 production concerns			
Yield, Storability / quality (21%)	Pesticide restrictions or resistance (12%)	In field diseases (9%)	Irrigation management (9%)

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