Plant Pathology Seminar Series

Potato mop-top virus: Impact of seedborne virus infection and the search for resistant germplasm

Dr. Kylie Swisher-Grimm

USDA-ARS

Abstract:
Potato mop-top virus (PMTV) is a tuber necrotic virus transmitted by the *Spongospora subterranea* pathogen that causes powdery scab blemishes on tuber surfaces. Tuber defects caused by both pathogens can lead to severe economic losses for growers; the asymptomatic detection of PMTV has even negatively impacted foreign trade from the United States. For the past seven years, we have assessed the presence of PMTV entering Washington State commercial potato fields by testing seed lots submitted to the WSU Seed Lot Trial. We detected PMTV in the seed lots each year, ranging from 1.73 – 5.50%. Infected lots originated from across the U.S. and from Canada, and consisted of 23 different cultivars, indicating that virus infection is not limited to specific regions or seed producers. To assess the risk of planting this PMTV-infected seed in vector-free soil, we conducted transmission assays that determined the effect of PMTV on daughter tuber yield, symptom development and virus expression. The presence of PMTV (and not the presence of symptoms) in the seed piece led to increased PMTV detection in daughter tubers but did not have a significant effect on daughter tuber symptom development. Unfortunately, reliable tools to manage PMTV and *S. subterranea* are not readily available to growers, and as a result, the best management solution for these pathogens is the generation of resistant cultivars. We have designed and validated a greenhouse screen to identify PMTV- and/or *S. subterranea*-resistant plants, identifying potential sources of resistance in wild potato accessions originating from three different taxon. Validation of these results is underway and will not only aid potato breeders in generating PMTV/*S. subterranea*-resistant cultivars but will also help with the identification of resistance markers to assist in the selection of resistant material. These efforts will ultimately benefit the commercial potato grower by providing them with improved management options for PMTV and *S. subterranea.*

4:10 pm | April 17, 2023 | Plant Pathology 515, Spring 2023

Zoom Link: https://wsu.zoom.us/j/95501196325?pwd=aGdCeTZGM0pQaXZoY05qT3M0SFVHQT09

Meeting ID: 955 0119 6325 **Passcode:** 5498

Call in number: 1 253 215 8782

WASHINGTON STATE UNIVERSITY