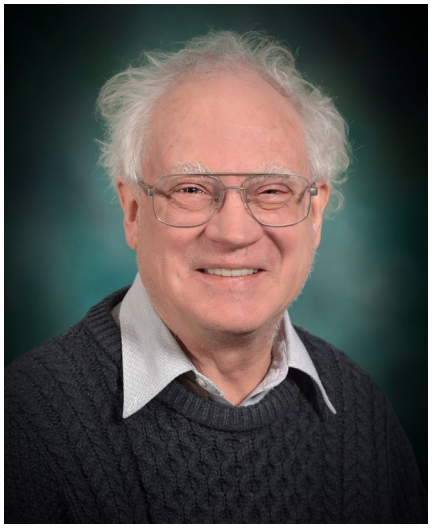
WASHINGTON STATE UNIVERSITY

WSU PLANT PATHOLOGY SEMINAR

November 17, 2025, 4:10 PM (Pacific)



The Soil and Root Microbiome of Eastern Washington Crops: Unraveling the Complexity and Meaning

Dr. Tim Paulitz
Research Plant Pathologist
USDA-ARS, Pullman, WA

Attend in Person

November 17, 2025 @ 4:10 pm
Clark 149, Pullman, WA

Attend on Zoom

Join Zoom Meeting from PC, Mac, Linux, iOS, or Android:
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ABOUT THE PRESENTER

Dr. Paulitz received his PhD from University of California Riverside, and postdocs at Colorado State and Oregon State. Dr. Timothy Paulitz is a Research Plant Pathologist with the USDA-ARS Wheat Health, Genetics and Quality Research Unit in Pullman, WA. He joined ARS in 2000, after spending 10 years at McGill University in Quebec as an assistant and associate professor. His research focus is on fungal and nematode root diseases of wheat, barley and other rotation crops, with an emphasis on the root and crown rotting fungi *Rhizoctonia*, *Pythium*, *Fusarium* and the nematode *Heterodera* (cereal cyst nematode). He has also worked extensively on root diseases in direct-seed cropping systems. In the last 15 years, he has investigated the bacterial and fungal communities in in the soil and roots of wheat cropping systems using next-generation DNA sequencing. He is currently working on soil health, how microbial communities and microbiomes benefit plant health by protecting against soil borne pathogens and drought stress.

ABSTRACT

Over the last 16 years, my lab has engaged in understanding the microbiome of major crops in the Pacific Northwest. This was facilitated by the development of next-generation amplicon-based sequencing, which for the first time enables an in-depth understanding of microbial communities on the roots and soil, including fungi and bacteria. But rather than simply describing communities, I used this as a tool to look at ecological and management questions. Much of my early research looked at how management practices such as herbicides, tillage, liming and biosolids shaped microbial communities. In this talk, I will focus on three crops – wheat, canola, and potato. I examined the wheat microbiome-the core, where are they found, when, and correlations with plant health. How do rotation crops affect the microbiome of the following wheat crop? Specifically, does canola suppress the beneficial microbiome of wheat? And how does cropping history of potatoes (native soil, continuously cropped or non-cropped agriculture) and soil factors shape the microbiome of potato and disease? What future questions remain to be answered as the technology evolves?