



WASHINGTON STATE
UNIVERSITY

WSU PLANT PATHOLOGY SEMINAR
October 27, 2025, 4:10 PM (Pacific)



Managing soilborne potato pathogens through cropping system design

ABOUT THE PRESENTER

Kenneth Frost is an Associate Professor in the Department of Botany and Plant Pathology at Oregon State University (OSU). His program is based at the Hermiston Agricultural Research and Extension Center in Hermiston, OR. Since joining OSU in 2015, he has led a research and extension program focused on developing practical, economical, and environmentally compatible disease management strategies for potato and other high-value crops. His work integrates plant pathology, microbial ecology, and epidemiology to understand how crop management and environmental factors influence pathogen dynamics, soil health, and disease suppression. Frost also directs a diagnostic laboratory that provides plant disease identification services for growers. He earned his M.S. and Ph.D. in Plant Pathology from the University of Wisconsin–Madison and currently serves on the Annual Meetings Board of the American Phytopathological Society and on the Board of Directors of the Potato Association of America.

Dr. Kenneth Frost
Associate Professor
Department of Botany and Plant Pathology, Oregon State University

Attend in Person

October 27, 2025 @ 4:10 pm
Clark 149, Pullman, WA

Attend on Zoom

Join Zoom Meeting from PC, Mac, Linux, iOS, or

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<https://wsu.zoom.us/j/95376827690?pwd=eHZ8VAU74O44bzDcjokV0oVoUKo7Q6.1>

Meeting ID: 953 7682 7690

Passcode: 4886

ABSTRACT

Soilborne diseases cause significant yield and quality losses to potato production in the Pacific Northwest. Although crop rotation, fertility and irrigation management, and use of resistant cultivars can help reduce soilborne disease pressure, soil fumigation remains a commonly used and effective management practice. There is evidence that potato soilborne diseases can be suppressed using cultural practices, some of which are known to enhance soil health. This raises the possibility of reducing reliance on soil fumigation by modifying existing rotations to include practices detrimental to soilborne pathogens. In this seminar, I will discuss our research on how key potato cropping system components, including fumigation, biofumigation, compost amendments, and rotation length, affect soil health indicators, microbial communities, and soilborne pathogen abundances. Even though some agricultural practices improved soil health indicators and altered soil microbial structure, these changes did not always translate to improved potato yield and quality. We also found that yield varied interactively as a function of fumigation and rotation length, likely due to reduced pathogen pressure with longer rotations. However, yield did not always correlate with soilborne pathogen abundances, leading us to explore if the addition of soil microbiome data can improve our ability to predict potato yields.