NISCHWITZ LAB
Plant pathology

UtahStateUniversity
DEPARTMENT OF BIOLOGY

WHO WE ARE





Lab members: Claudia Nischwitz, Savannah Gleeson, Elliot Roberts, Joshua Westhora; Not pictures: Luka Rompato and Haleigh Fors

RESEARCH INTEREST

- Detection, identification and management of plant pathogens (viruses, bacteria and fungi)
- Plant disease diagnostics

TECHNIQUES/APPROACHES

We use many different techniques. Fungi and bacteria are isolated and grown in culture. Identification is done by morphology and molecular tools (PCR and DNA sequencing). Viruses are detected by antibody based ELISA tests and molecular tools. Management of plant pathogens is conducted in field trials and USU research farms or grower fields. Occasionally testing can be done in the lab or greenhouse.

Candidatus Phytoplasma on cosmos plant

Zebra chip disease

Fire blight

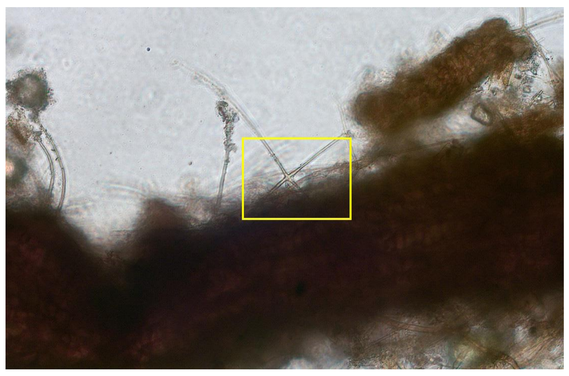
SUPPORT

Utah Dept. of Agriculture and Food
USU Extension
Utah Agriculture Experiment Station
Various USDA NIFA agencies

Root-knot nematodes on carrot

CURRENT PROJECTS

- Survey of grape diseases and pests
- Identification of phytoplasma diseases and leafhopper vectors
- Molecular identification of aphid species in alfalfa
- Beet leaf hopper and beet curly to virus in Utah
- Management and epidemiology of *Fusarium proliferatum* on onion



Cruciform hyphae of Phymatotrichum

Leafy gall

RESEARCH MILESTONES

- Identification of fungal root rot pathogen, Phymatototrichum omnivorum, in land scape plants in Southern Utah.
- Identification of bacterial and fungal pathogens in onion new to Utah.



RECENT PUBLICATIONS

Shin, G. Y., Asselin, J. A., Smith, A., Aegerter, B., Coutinho, T., Zhao, M., Dutta, B., Mazzone, J., Neupane, R., Gugino, B., Hoepting, C., Khanal, M., Malla, S., **Nischwitz, C.,** Sidhu, J., Machado Burke, A., Davey, J., Uchanski, M., Derie, M. L., du Toit, L. J., Stresow, S., Bonasera, J. M., Stodghill, P., & Kvitko, B. 2025. Plasmids encode and can mobilize onion pathogenicity in *Pantoea agglomerans*. The ISME Journal 19: (https://doi.org/10.1093/ismejo/wraf019)

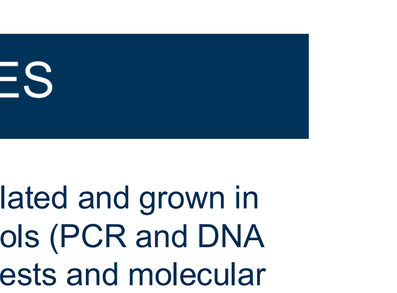
Stock, M., Oliver, F., and **Nischwitz, C**. 2024. Nitrogen management and virus incidence on cut flower production of dahlia. Journal of Environmental Horticulture, 42, 14-22.

Frantz, R., **Nischwitz, C**., Compton, T. and Gordillo, L. G. 2023. Modeling the spread of curly top disease in tomato crops. Letters in Biomathematics 10: 53-61

Nischwitz, C., Ferson, A., Romero-Jimenez, M.-J., Barney, K. & Newcombe, G. (2023) Confirmation of powdery mildew caused by *Podosphaera pannosa* on *Rosa canina* in North America. Australasian Plant Disease Notes (https://doi.org/10.1007/s13314-022-00487-7)

Nischwitz, C. 2020. Seed-transmitted Wheat mosaic virus in sweet corn. *Plant Health Progress, 21*(3), 212-213.

Barney, K., & **Nischwitz, C.** 2020. First report of powdery mildew (Sawadea bicornis) on bigtooth maple (Acer grandidentatum). *Plant Disease, 102*, 1541.



Brown rot of peaches

Tobacco mosaic virus on tomato

Tomato spotted wilt virus on pepper