

Identifying Soils and Soil Properties Suppressive to Powdery Scab

Daniella Echeverria, echeverd@oregonstate.edu
Graduate Student, Oregon State University - Frost Lab



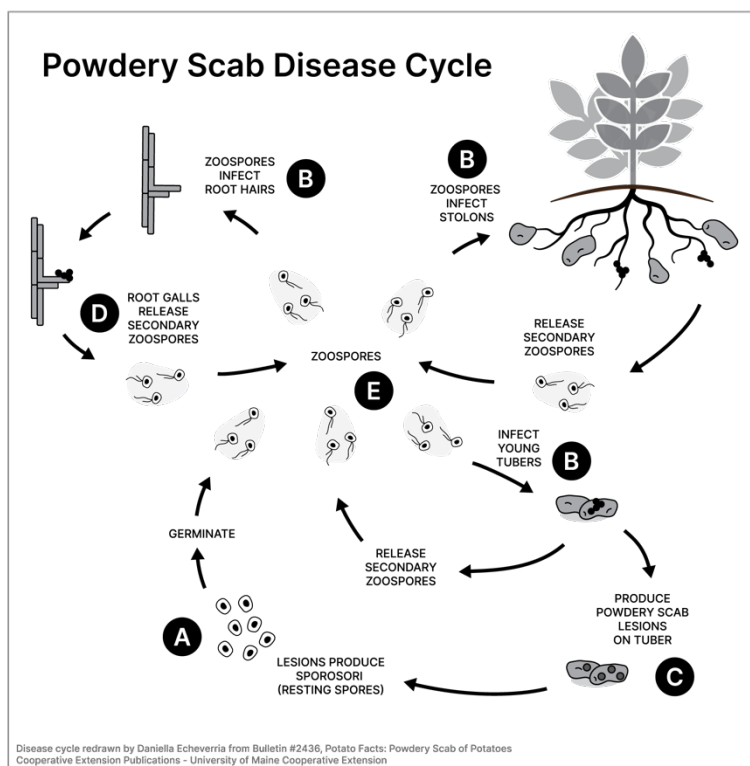
Important Facts about Powdery Scab

1. Vector for Potato Mop Top Virus, causes end of season losses
2. No management or chemical control
3. Data suggests that its currently in 80% of all fields in the Columbia Basin
4. Present on seed tubers
5. Multiple cycles of reproduction and infection within one growing season

Powdery Scab Disease Cycle

- Powdery Scab is caused by the plasmodiophora, *Spongospora subterranea* f. sp. *subterranea*

- A. Zoospores germinate in the field when the optimum soil temperature and moisture levels are met.
- B. Zoospores infect root hairs, stolons, and young tubers.
- C. Powdery lesions containing the spores form on tubers and release secondary zoospores.
- D. Root galls release secondary zoospores.
- E. Zoospores are spread within the field through water movement, such as irrigation.



Current research efforts

We seek to identify soils suppressive to powdery scab and identify soil physical, chemical, and biological properties associated with the suppressive activity.

Soil Microbial Communities	Soil Physical Properties	Management Strategies
We are investigating the role that microbial communities play in suppression of powdery scab. We aim to identify of beneficial microbial communities that are associated with suppressive activity.	We expect that soils suppressive to powdery scab exist in the PNW. These soils are expected to have diverse microbial communities and a range of physical and chemical attributes that effectively inhibit powdery scab.	This project aims to develop innovative strategies or tactics for effective powdery scab suppression that can be incorporated into comprehensive potato disease management programs.