

Management of Powdery Scab and Potato Mop Top Virus

Jeff Miller



1

Spongospora subterranea subsp. *subterranea* (Protozoa)



Photo from Ueli Merz

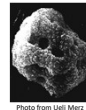


Photo from Ueli Merz

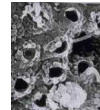


Photo from Ueli Merz



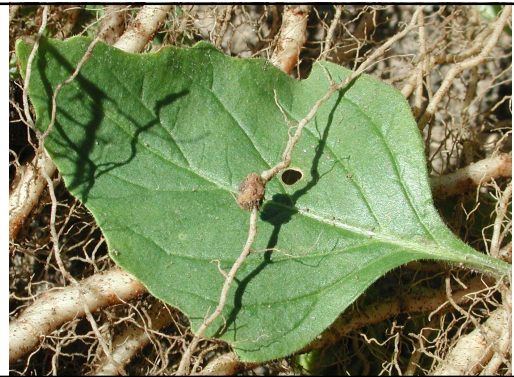
Photo from Ueli Merz



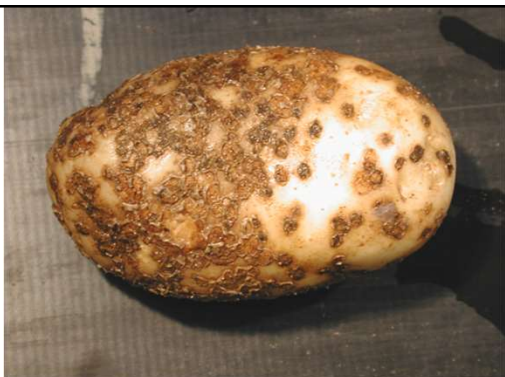
2



3



4



5



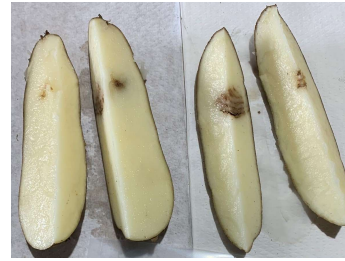
6

Potato Mop-Top Virus (PMTV)

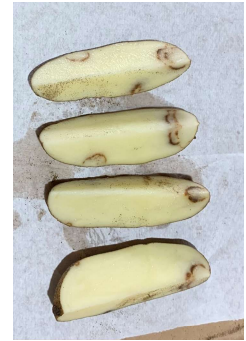
- Foliar symptoms not associated with primary infection.
- Foliar = similar to calico.
- Symptoms favored by cool weather.
- Tuber = necrotic arcs (may require alternating storage temperatures to develop).
 - Can look like TRV, PVY^{mtn}, internal brown spot
- Symptoms increase with time in storage
- Can cause external symptoms

7

PMTV



TRV

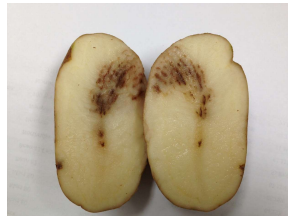


Photos courtesy of Jonathan Whitworth
Which one is PMTV? TRV?

8



Photo courtesy of Jonathan Whitworth



9

Powdery Scab Management Recommendations

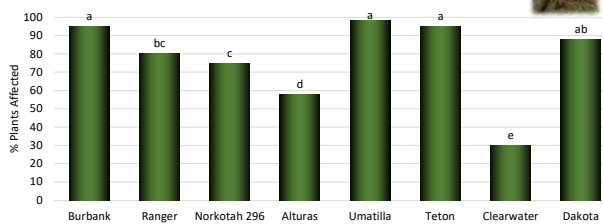
1. Plant disease-free seed
2. Avoid planting in contaminated, poorly drained soils
3. Avoid the use of manure if animals have ingested infected tubers
4. Rotate out of infested fields for 3-10 years
5. Plant resistant cultivars
6. Avoid tomato in crop rotation and control nightshade
7. Manage irrigation water

From Compendium of Potato Diseases, 2nd Ed.

10

Powdery Scab - Variety

% Incidence

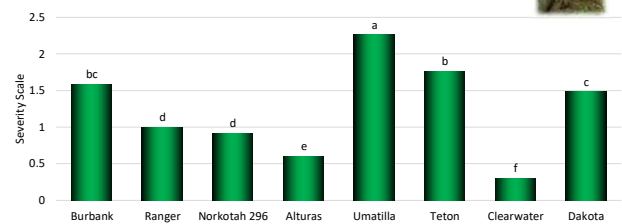


Interaction between variety and treatment was not significant.

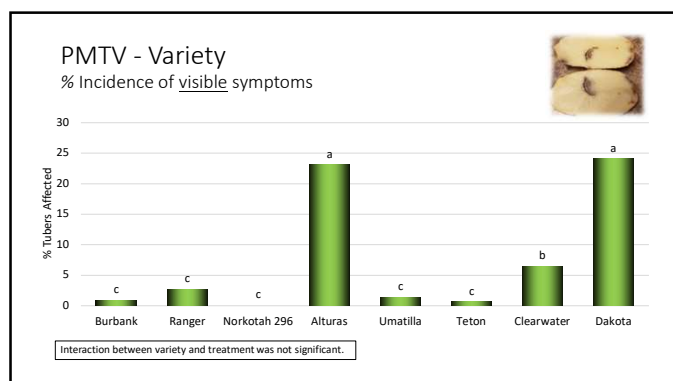
11

Powdery Scab - Variety

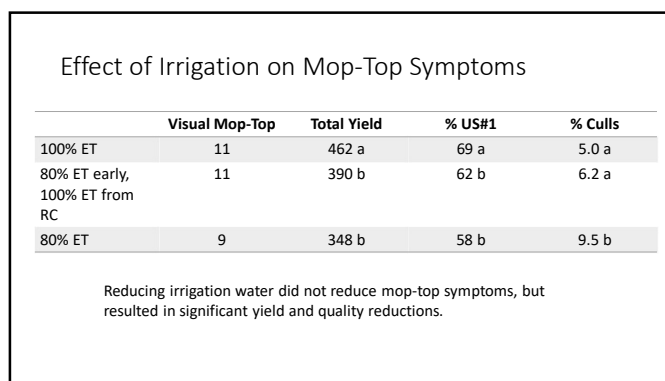
Severity (0-5)



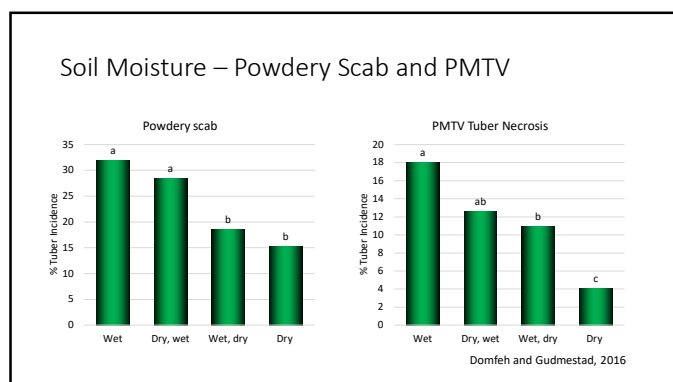
12



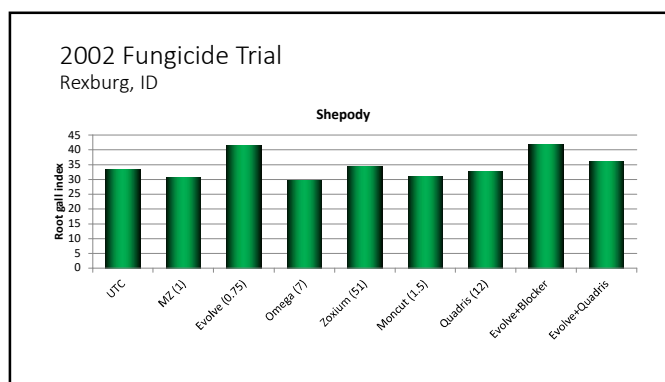
13



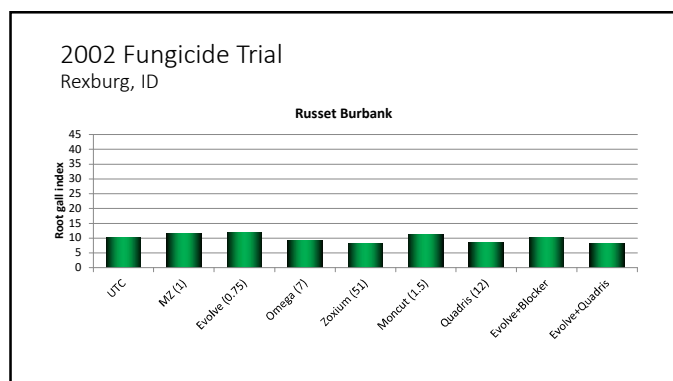
14



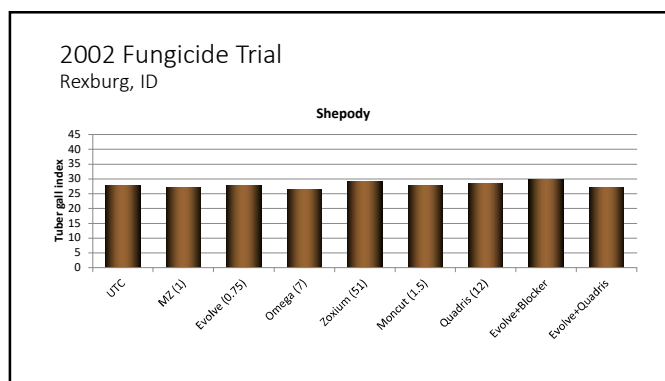
15



16

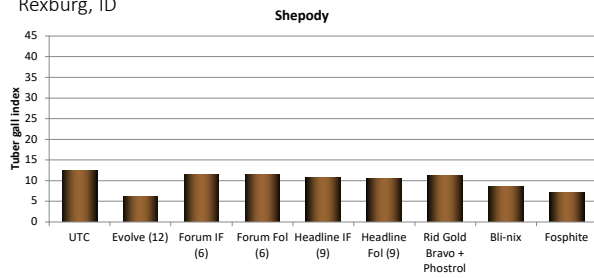


17



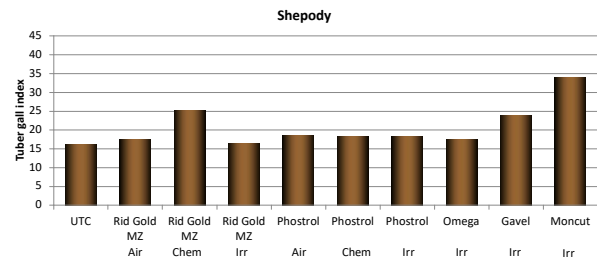
18

2005 Fungicide Trial Rexburg, ID



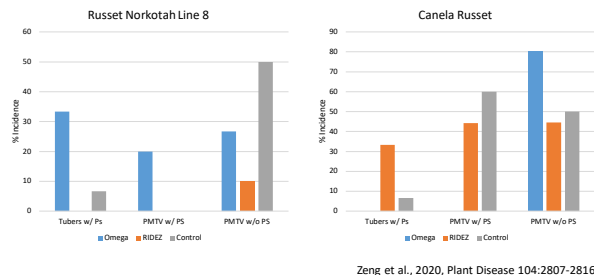
19

2003 Fungicide Trial Minidoka, ID



20

Effect of Chemical Treatment on Scab and PMTV



21

Take Home Message

- Variety selection is the most effective way to manage powdery scab and mop-top.
 - Reduced irrigation reduced yield and quality but not disease!
- Irrigation management was not effective.
- Fungicides are generally not effective against powdery scab and mop-top.

22