

# Managing Diseases in Potatoes

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Thank You!





## Pink Rot



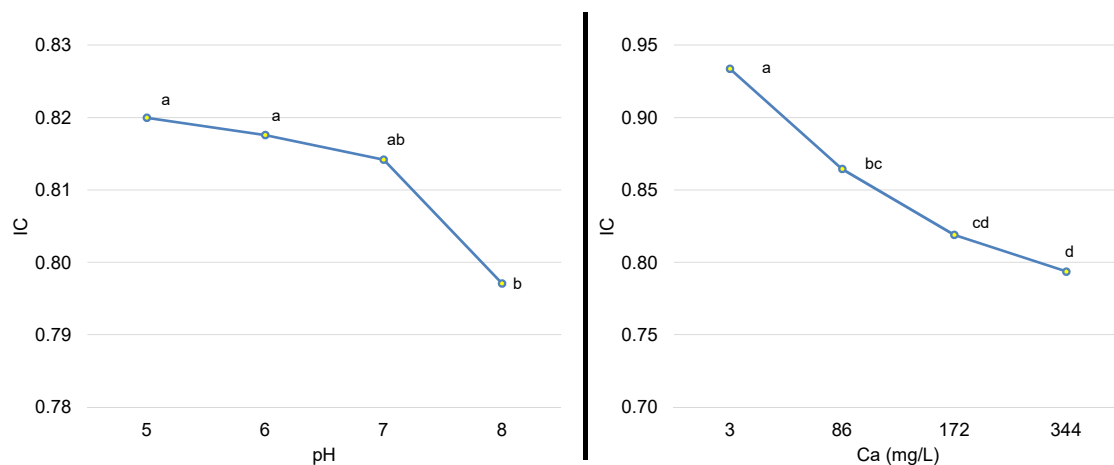


## Pink Rot Management

1. Field selection/crop rotation
2. Adjust soil pH by lime application in low pH soils
3. Plant less susceptible varieties
4. Proper irrigation management
5. Use appropriate fungicides
6. Avoid "disease-favorable" conditions at harvest
7. Apply post-harvest fungicides
8. Grade out infected tubers going into storage
9. Reduce tuber pulp temperatures to 55 F or lower



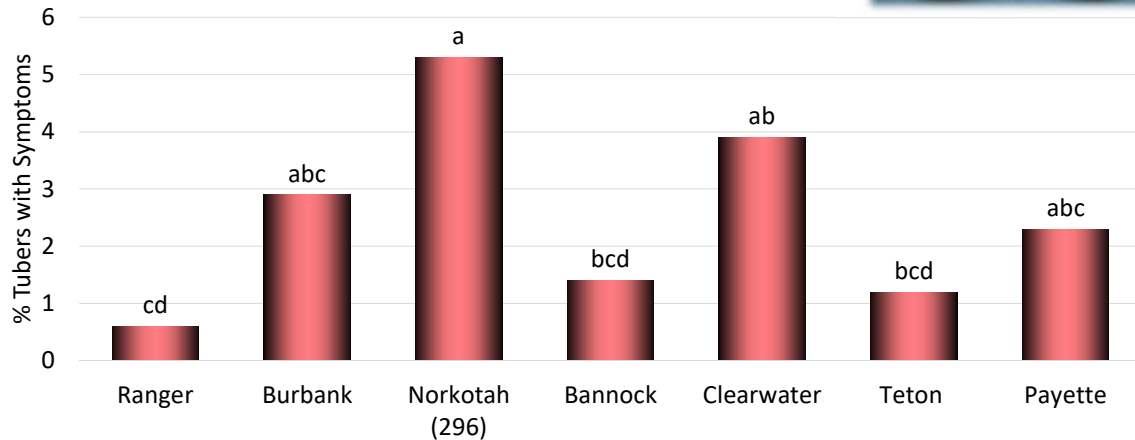
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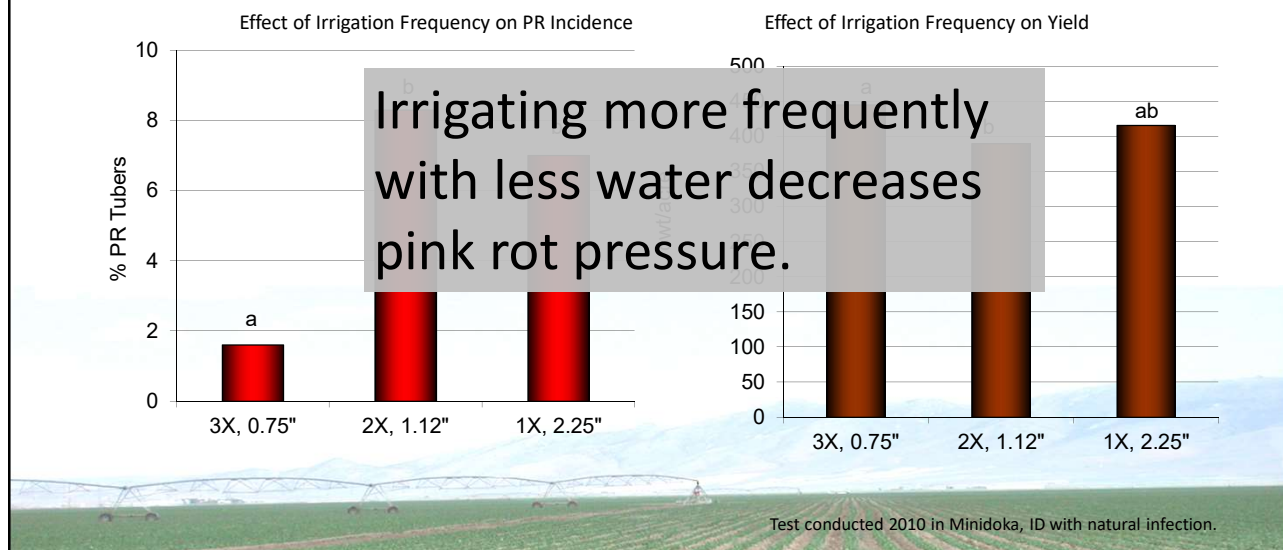
From Benson et al., 2009, Am. J. Potato Res. 86:472-475  
and Benson et al., 2009, Am. J. Potato Res. 86:466-471



### 3. Pink Rot Susceptibility – 2018

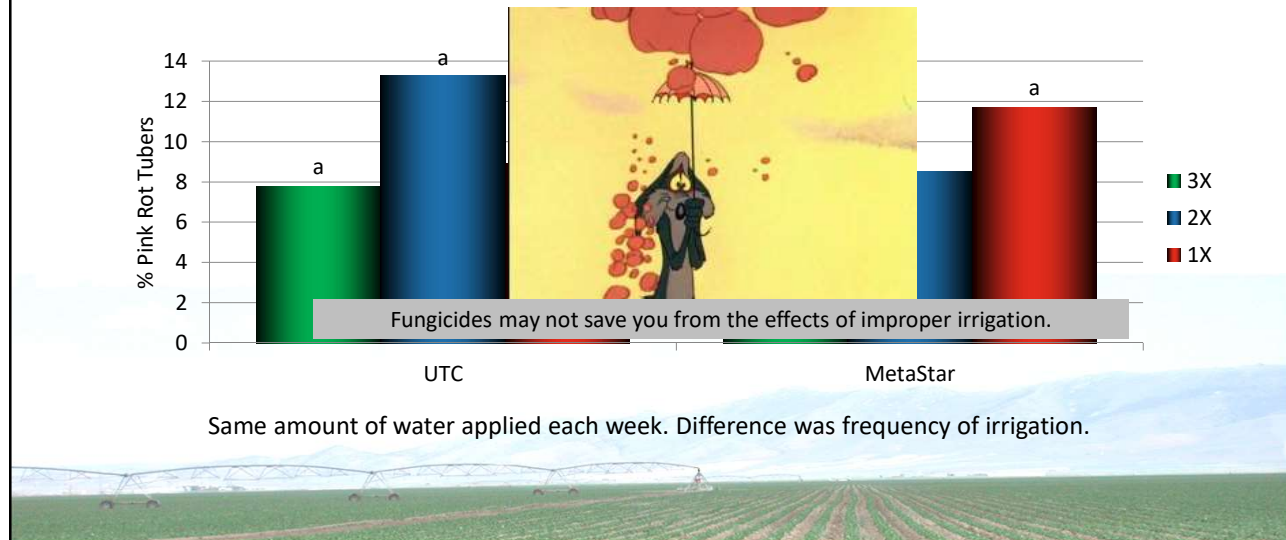


### 4. Proper Irrigation Management





## 4. Effect of Irrigation Frequency on Pink Rot

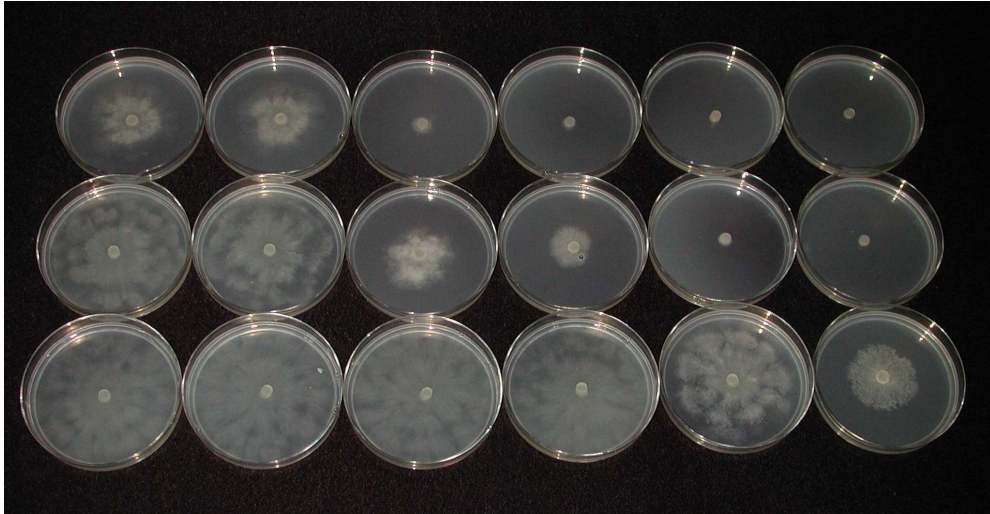


## 5. Use Appropriate Fungicides

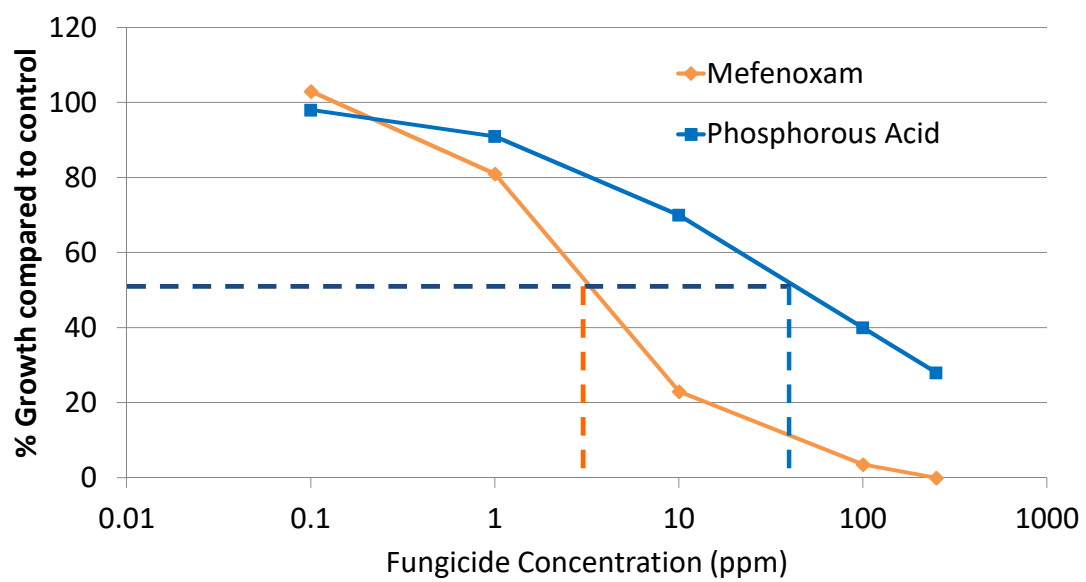
- Mefenoxam/metalaxyl
  - Ridomil Gold products
  - Ultra Flourish
  - MetaStar
- Phosphorous acid
  - Phostrol
  - Resist 57
  - Phiticide
  - Others
- Oxathiapiprolin + Mefenoxam (in-furrow only)
  - Orondis Gold
- Cyazofamid
  - Ranman
- Ethaboxam
  - Elumin



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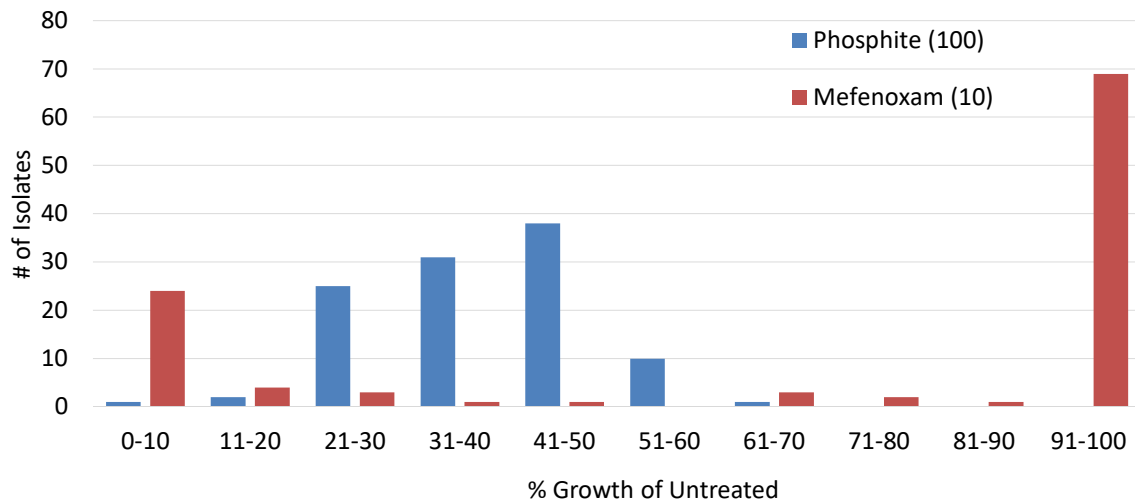


Effect of Phosphite and Mefenoxam on *P. erythroseptica* Growth





## *P. erythroseptica* Isolate Sensitivity, 2018



It does not appear that *P. erythroseptica* is resistant to phosphite fungicides.

## Phosphorous Acid Mode of Action

- Fungicide
  - Relatively weak
  - Active against mefenoxam-resistant organisms
- Systemic properties
- Induces systemic acquired resistance
- Relatively safe
  - LD50 > 5,000 mg/kg (absorption/ingestion)
  - Signal word = Caution

**Phostrol**<sup>®</sup>  
Agricultural Fungicide

**RESIST**<sub>57</sub><sup>TM</sup>

**Drexel**  
**Phiticide**<sup>™</sup>

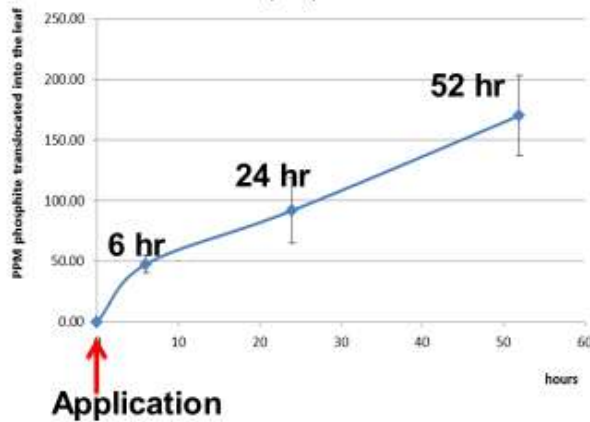




### Maximum translocation to inside of leaves requires up to 2 days

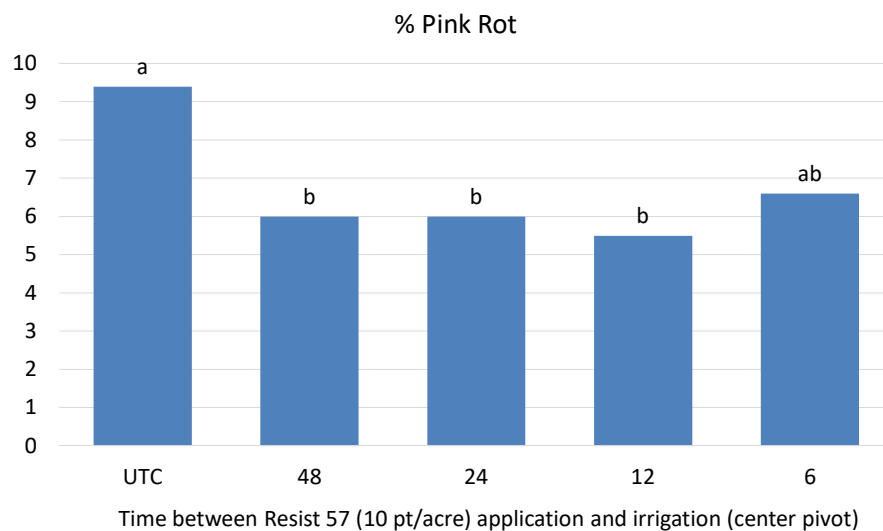
Gefu Wang-Pruski, Dalhousie, NS

Kinetics of phosphite translocation



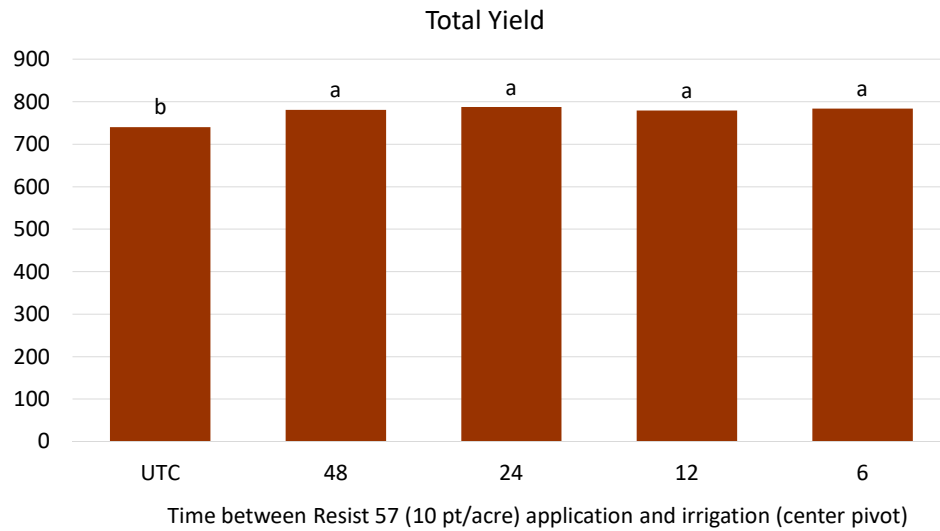
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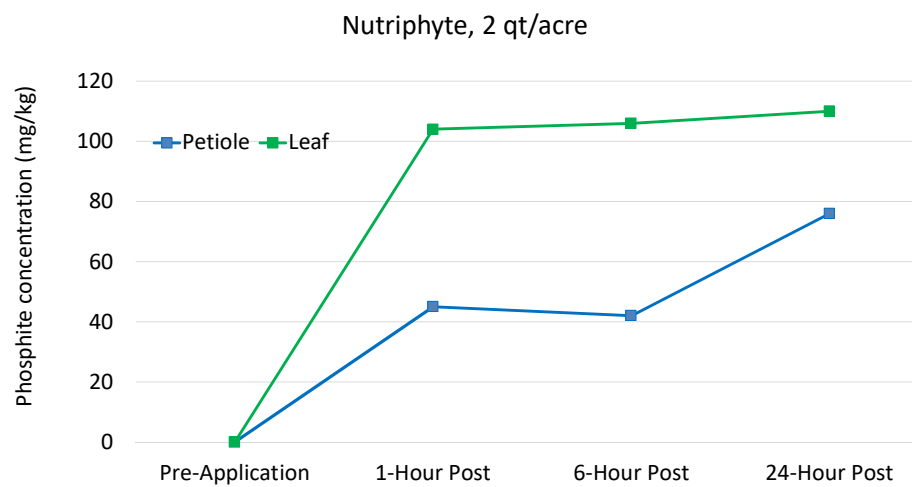




## How important is the time between application and irrigation?

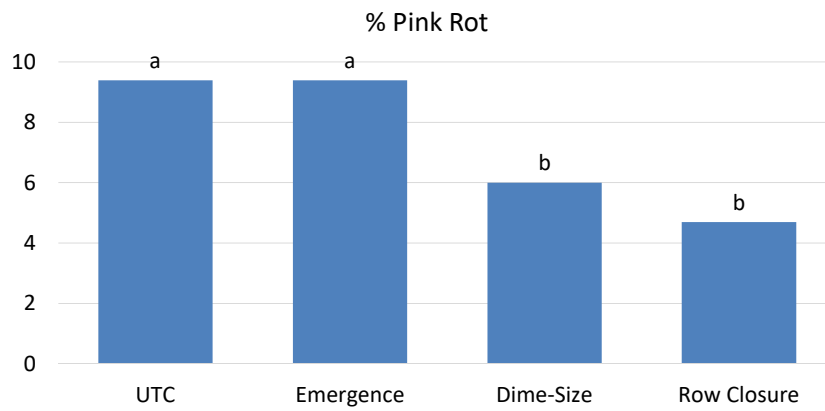


## Phosphite uptake through time



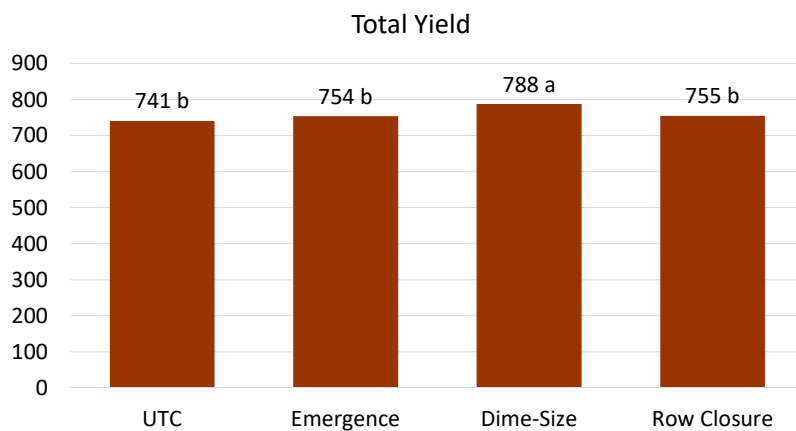


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Stage when the Resist 57 program (10 pt/acre, 3X, every 14 days) was started

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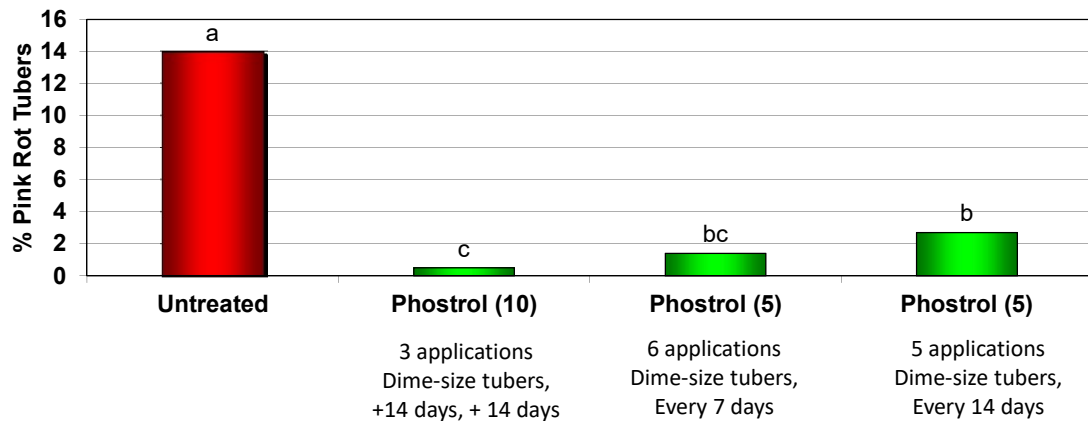


Stage when the Resist 57 program (10 pt/acre, 3X, every 14 days) was started

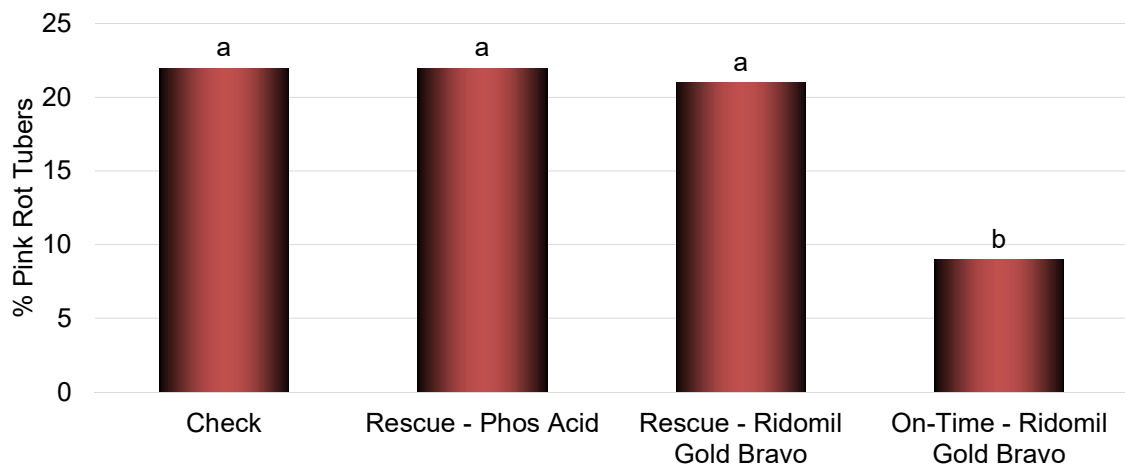


### Effect of Phosphite Rate and Timing on Pink Rot

Russet Norkotah, natural infection, Minidoka, ID, 2008



### Effect of Fungicide Timing on Pink Rot



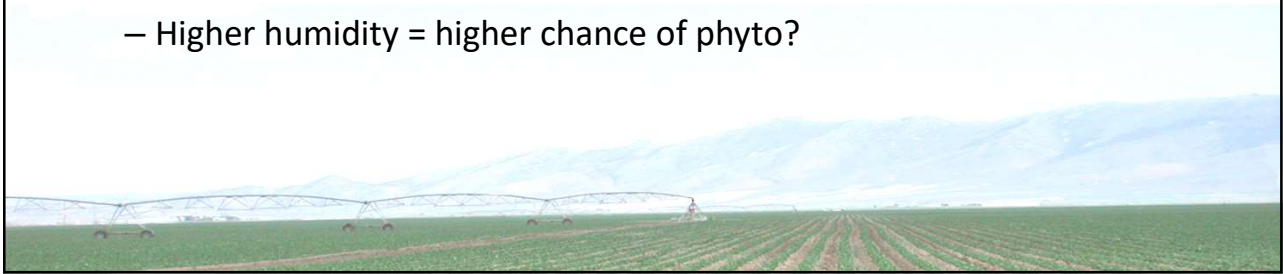
On time = June 21, July 3

Rescue = July 30, August 6, August 13

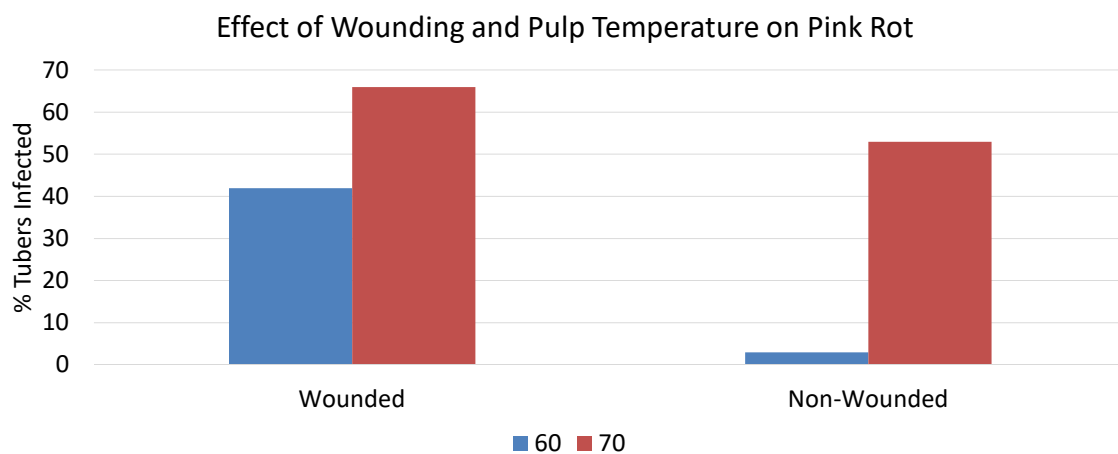


## Other Considerations

- Environment can effect phosphite uptake
  - Higher concentration observed in greenhouse vs. outdoors
  - (*P. cinnamomi*, Shearer et al., 2012)
- Phytotoxicity
  - MSO made phyto worse (greenhouse, NDSU)
  - Higher humidity = higher chance of phyto?



## 6. Avoid Disease Favorable Conditions at Harvest



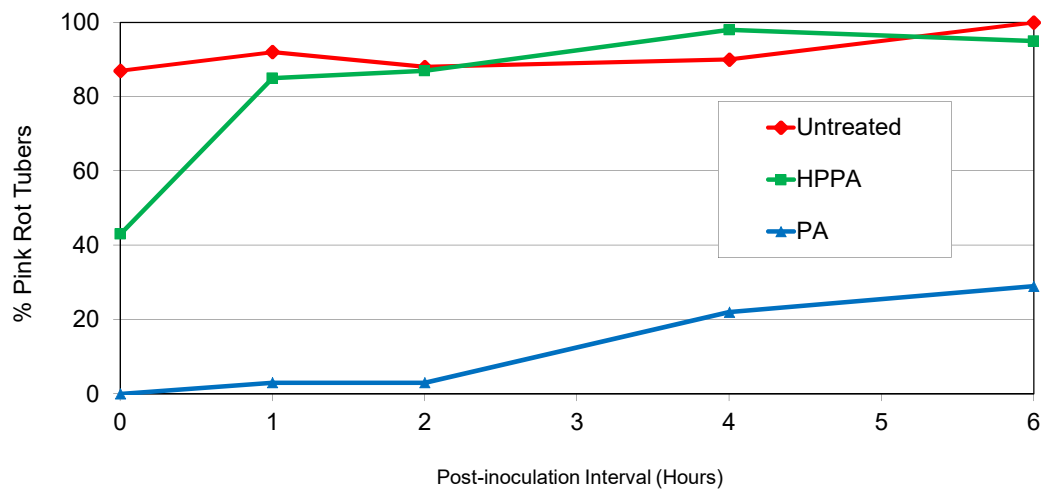


## 7. Apply Post-Harvest Fungicides

- Phosphorous acid:
  - 12.8 fl oz/ton tubers
  - Apply in 0.5 gal water/ton tubers



Time Between Inoculation and Treatment



26



## 8. Grade Out Infected Tubers Prior to Storage



Questions?

