

Best Management Practices for Pink Rot

Trent Taysom



Pythium Leak vs. Pink Rot



Pythium Leak



Pink Rot

Pythium Leak vs. Pink Rot

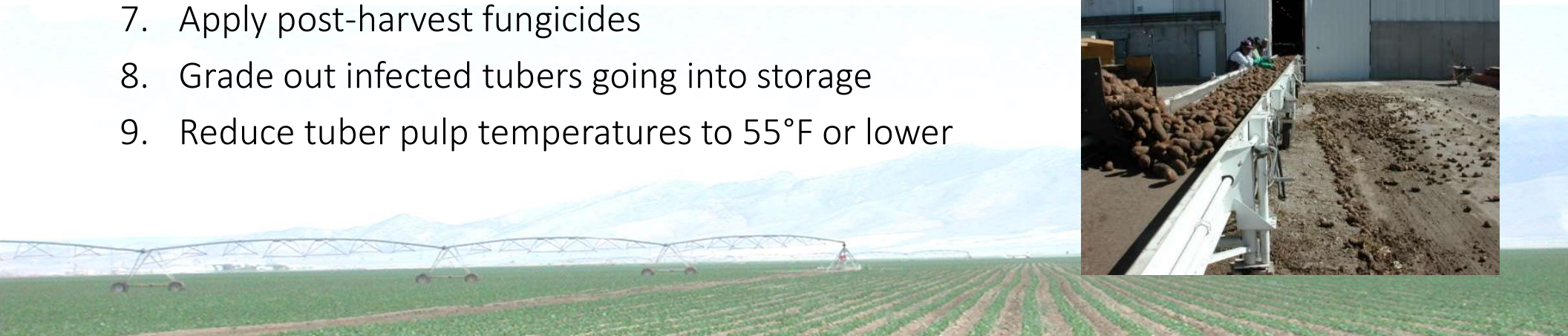
Pythium Leak



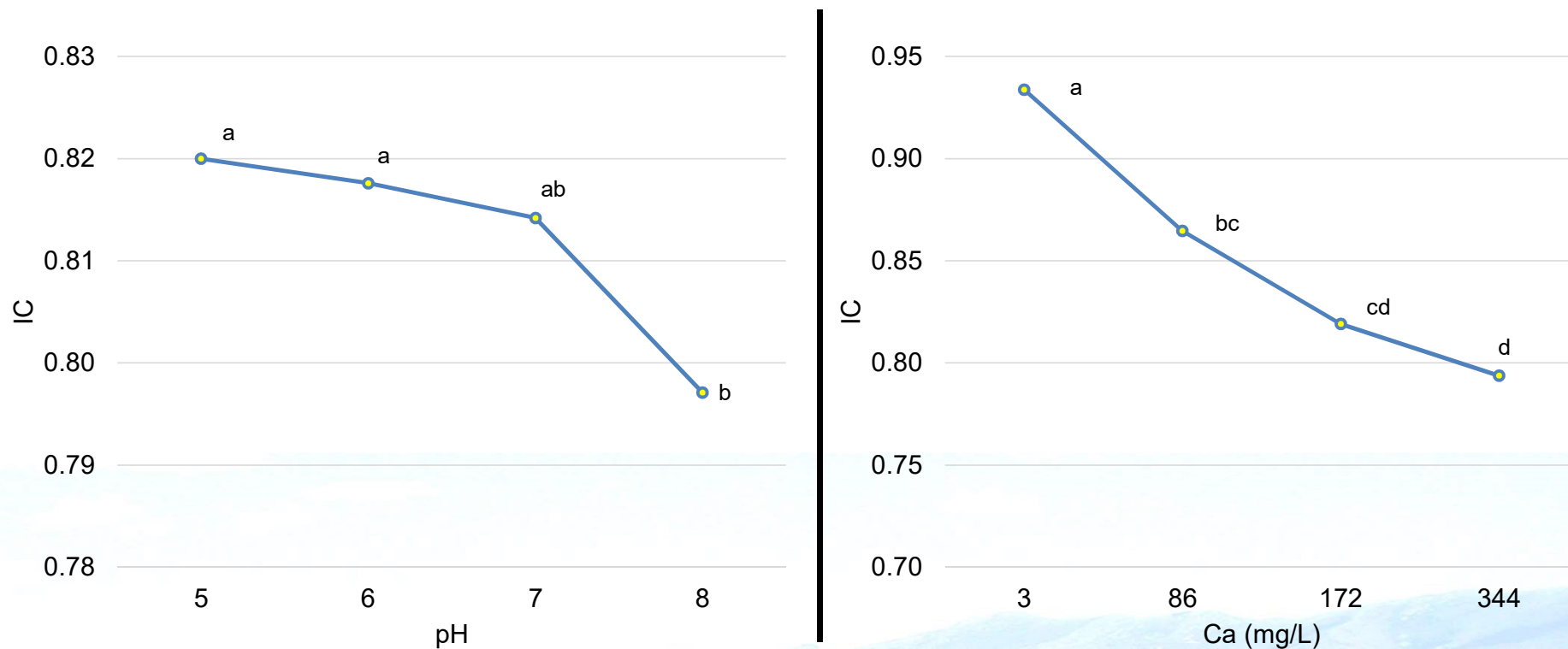
Pink Rot

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

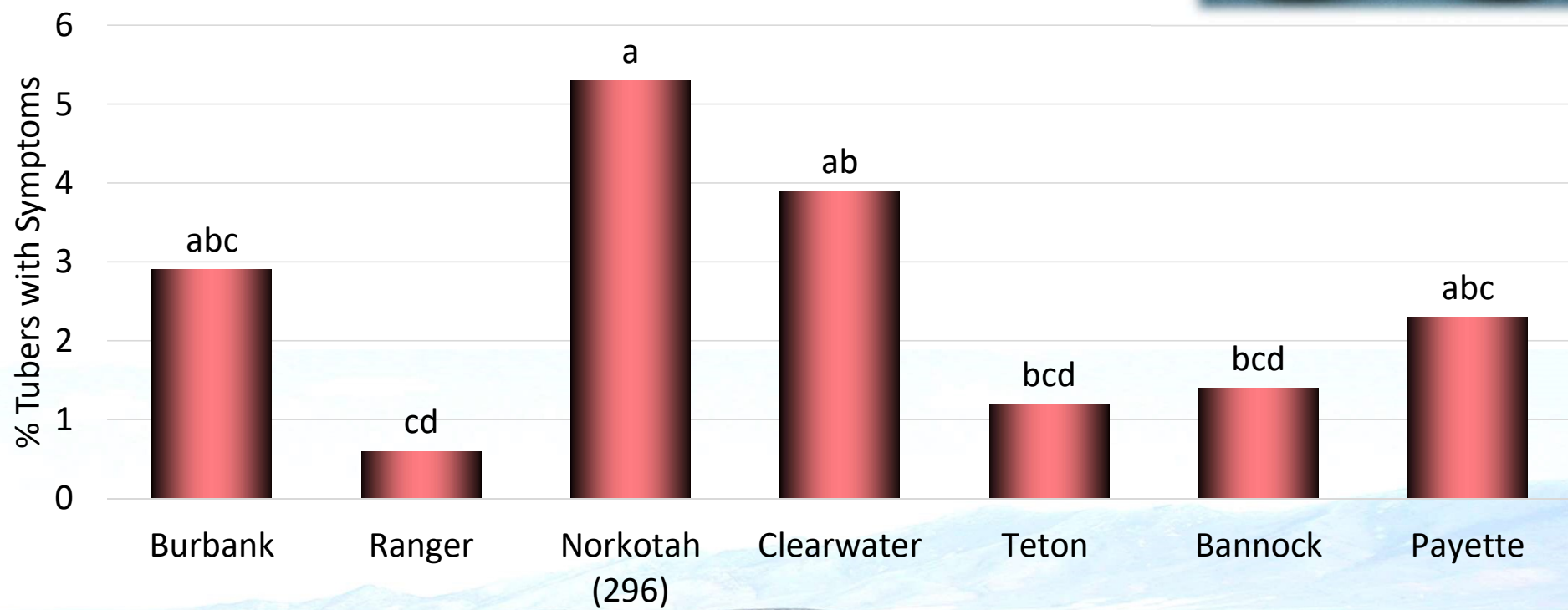


Effect of pH and Ca on Pink Rot

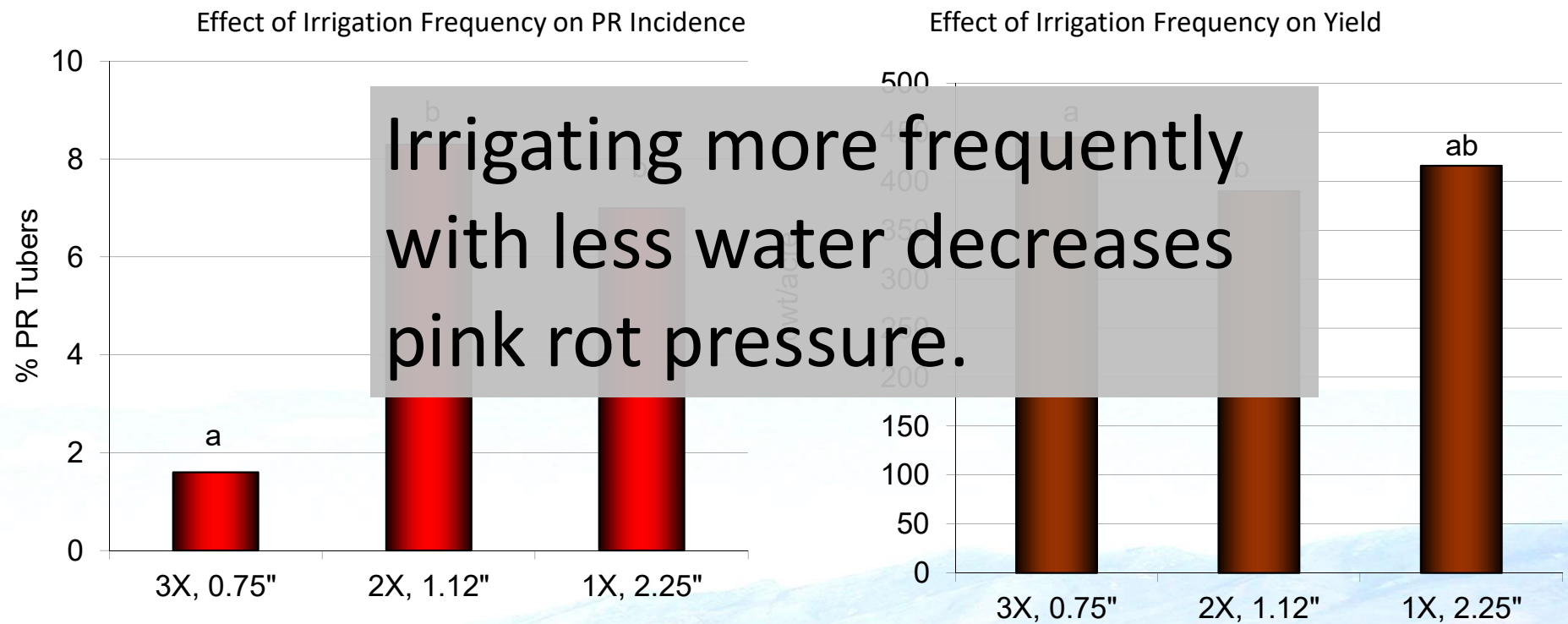


From Benson et al., 2009, Am. J. Potato Res. 86:472-475
and Benson et al., 2009, Am. J. Potato Res. 86:466-471

Cultivar Susceptibility



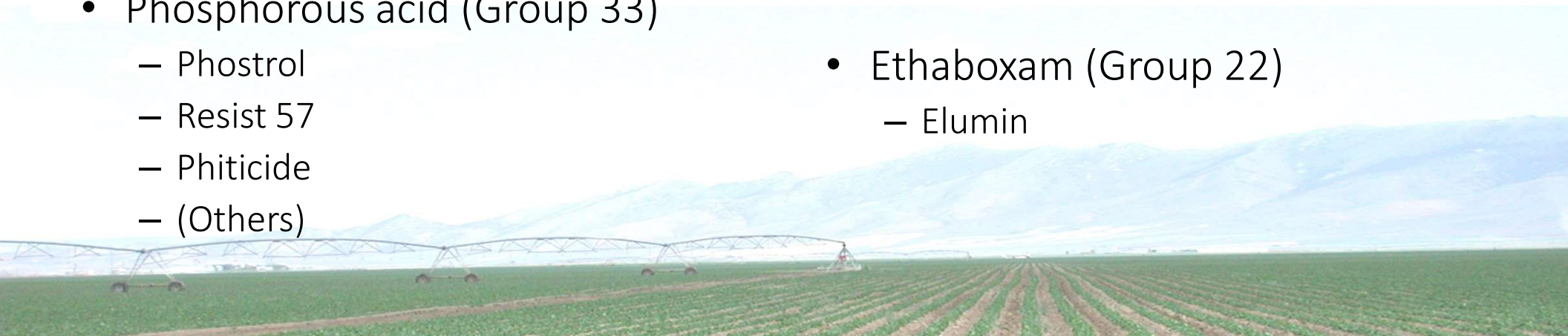
Effect of Irrigation Management



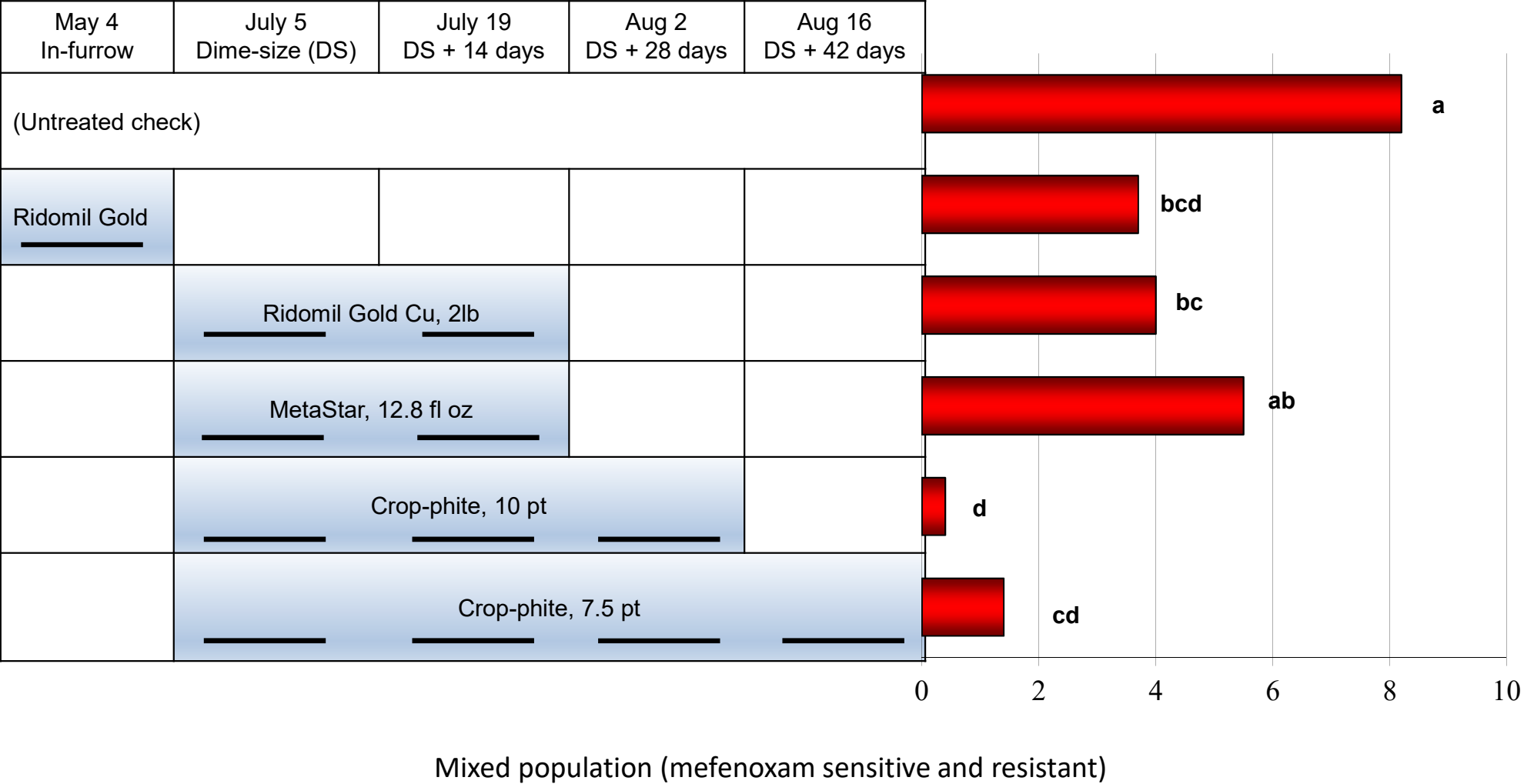
Test conducted 2010 in Minidoka, ID with natural infection.

Fungicides for Pink Rot Control

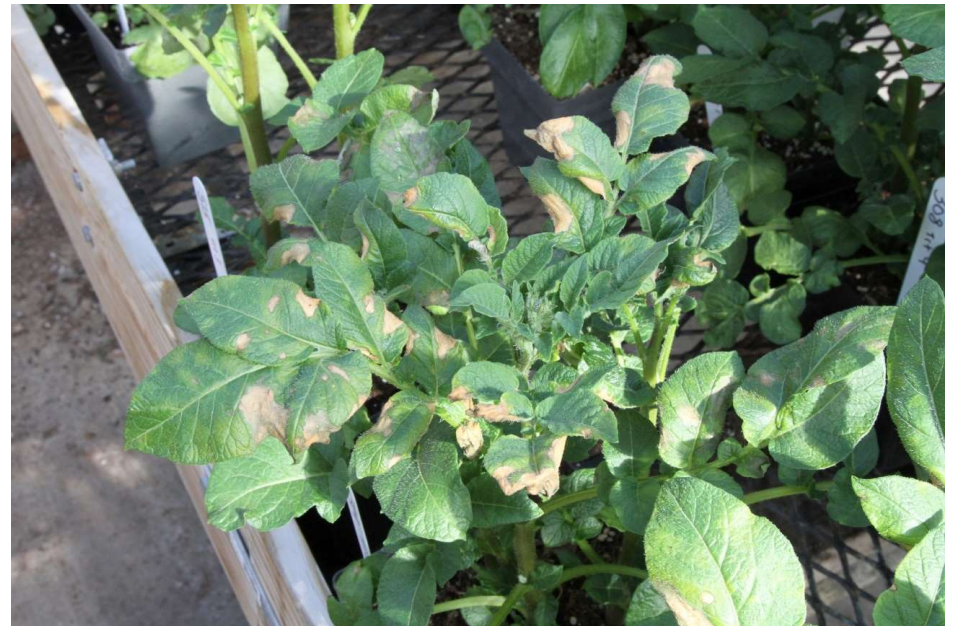
- Mefenoxam/metalaxyl (Group 4)
 - Ridomil Gold products
 - Ultra Flourish
 - MetaStar
 - Xyler FC
- Oxathiapiprolin + Mefenoxam (in-furrow only; Group 49 + 4)
 - Orondis Gold
- Cyazofamid (Group 21)
 - Ranman
- Ethaboxam (Group 22)
 - Elumin
- Phosphorous acid (Group 33)
 - Phostrol
 - Resist 57
 - Phiticide
 - (Others)



Effect of Fungicide Programs on Pink Rot



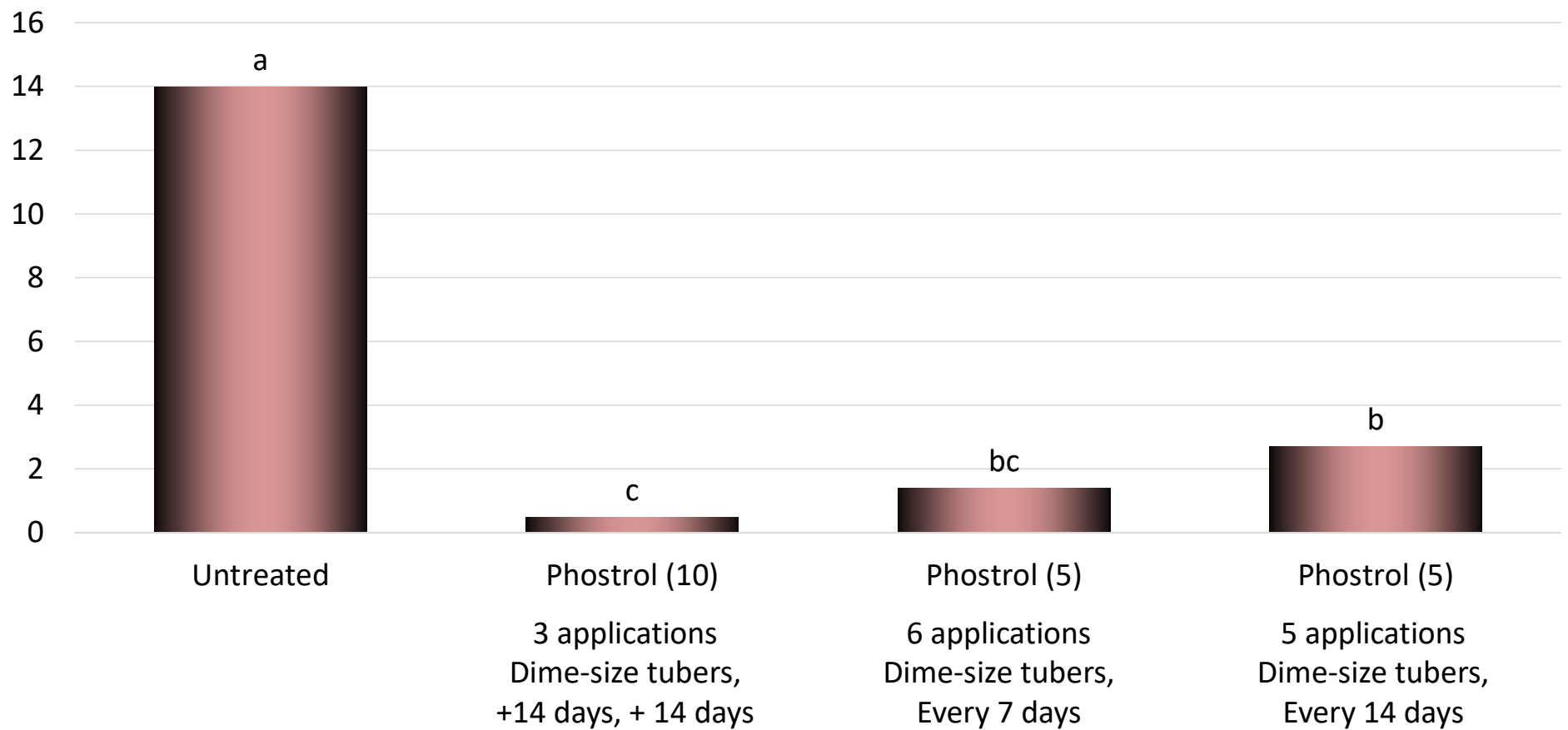
Foliar phosphorous acid can cause phytotoxicity



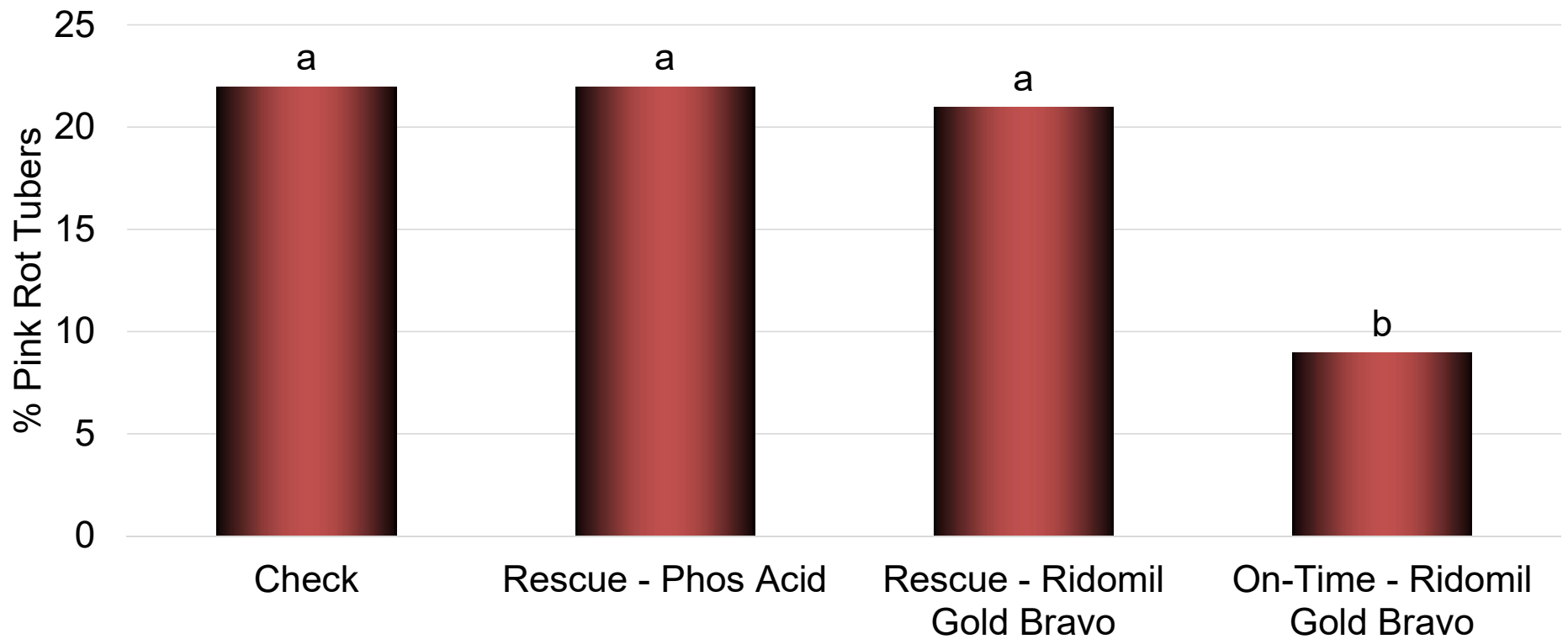
Photos courtesy of Dr. Andy Robinson

Effect of Phosphite Rate and Timing on Pink Rot

Russet Norkotah, natural infection, Minidoka, ID, 2008



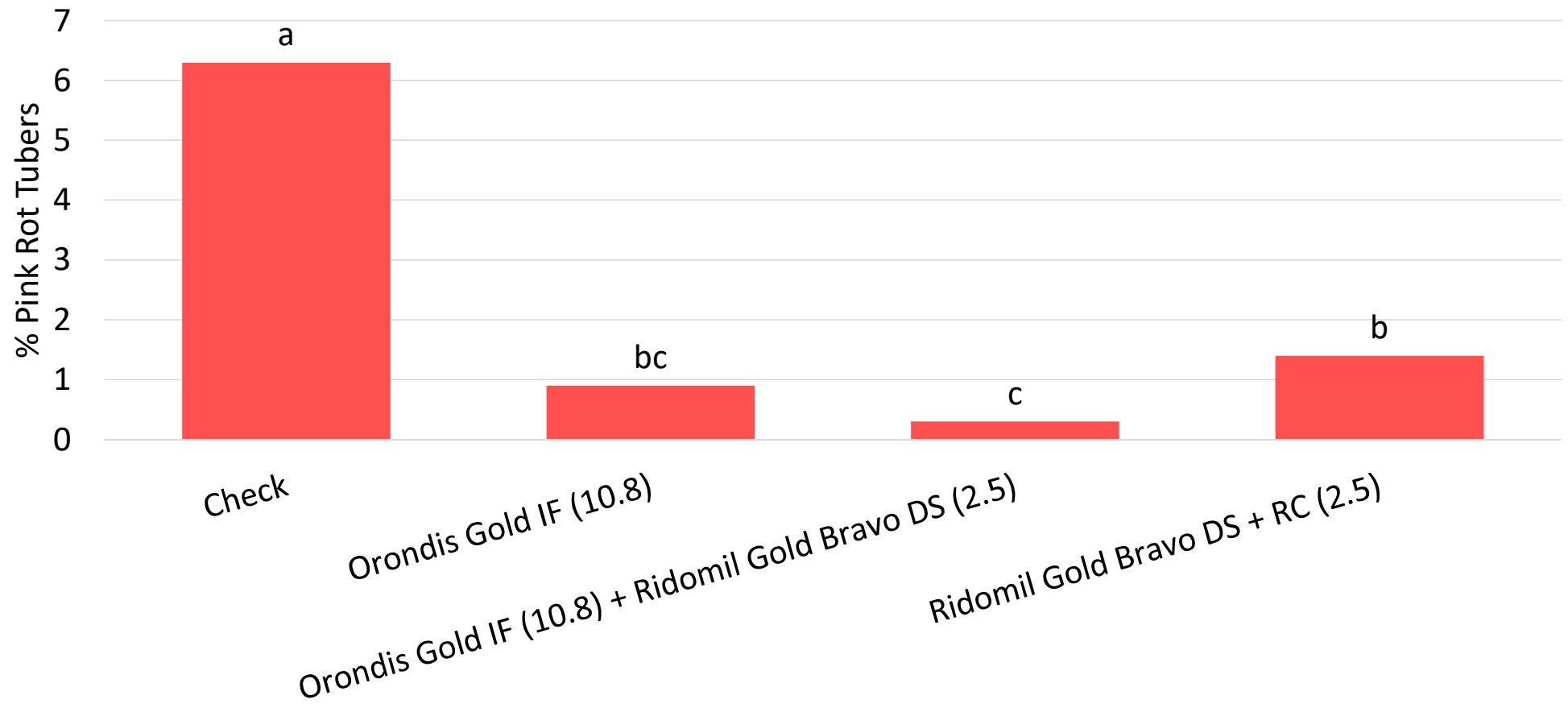
Effect of Fungicide Timing on Pink Rot



On time = June 21, July 3

Rescue = July 30, August 6, August 13

Effect of Orondis Gold on Pink Rot - 2018



Phosphites not working as well as expected?

- Is resistance developing to the phosphites?
- Is irrigation interfering with product uptake?
- Is the timing of application optimal?



Phosphites not working as well as expected?

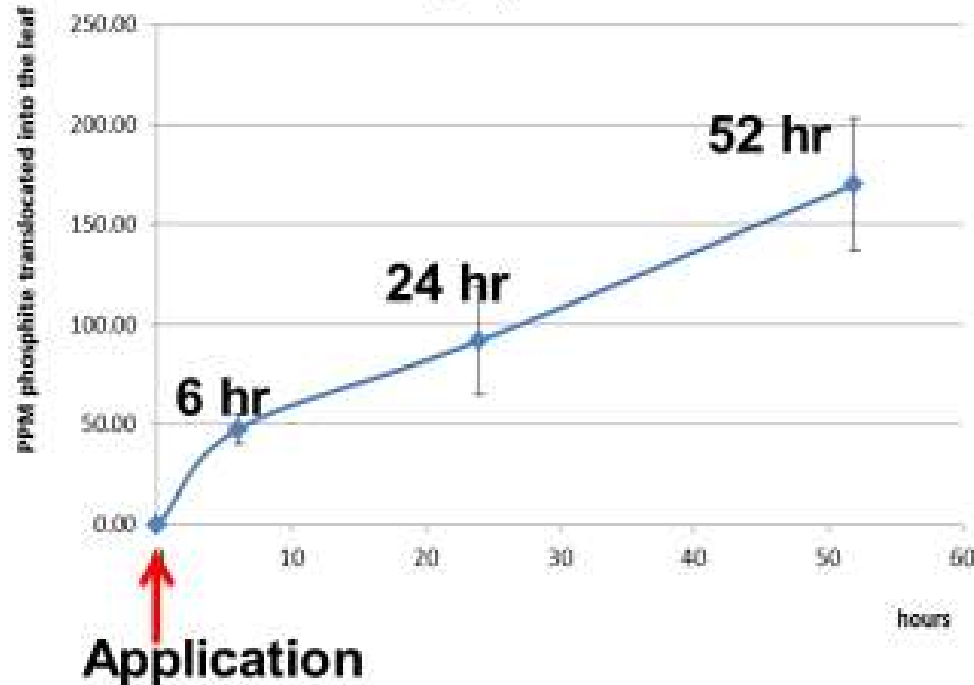
- Is resistance developing to the phosphites? No
- Is irrigation interfering with product uptake?
- Is the timing of application optimal?



Maximum translocation to inside of leaves requires up to 2 days

Gefu Wang-Pruski, Dalhousie, NS

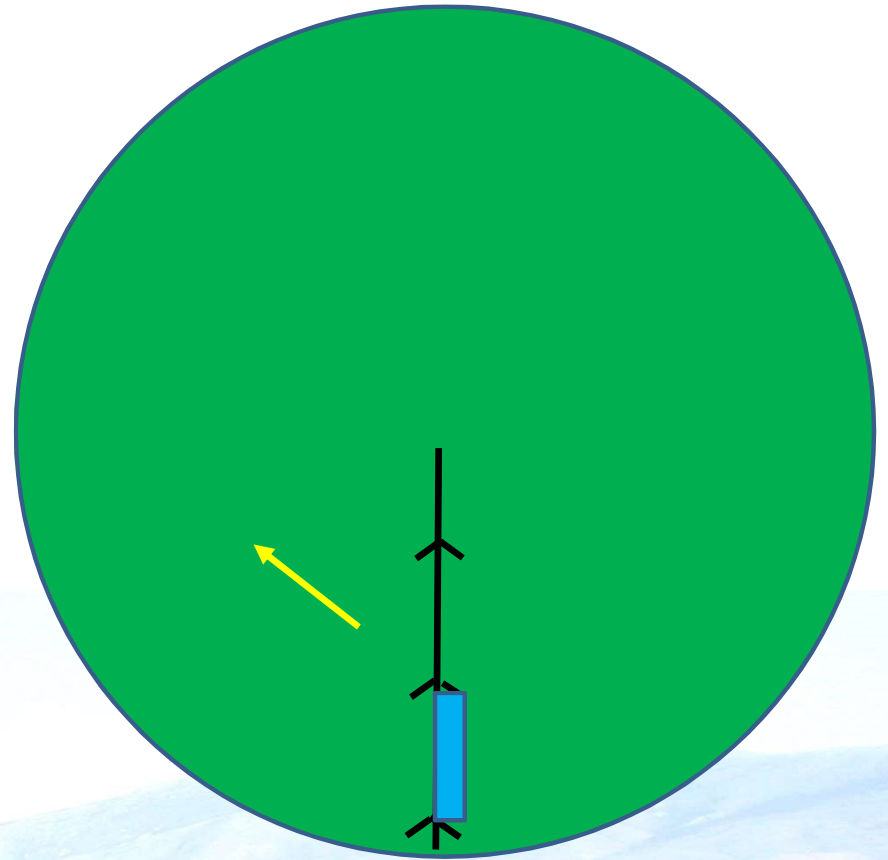
Kinetics of phosphite translocation



How important
is the time
between
application and
irrigation?

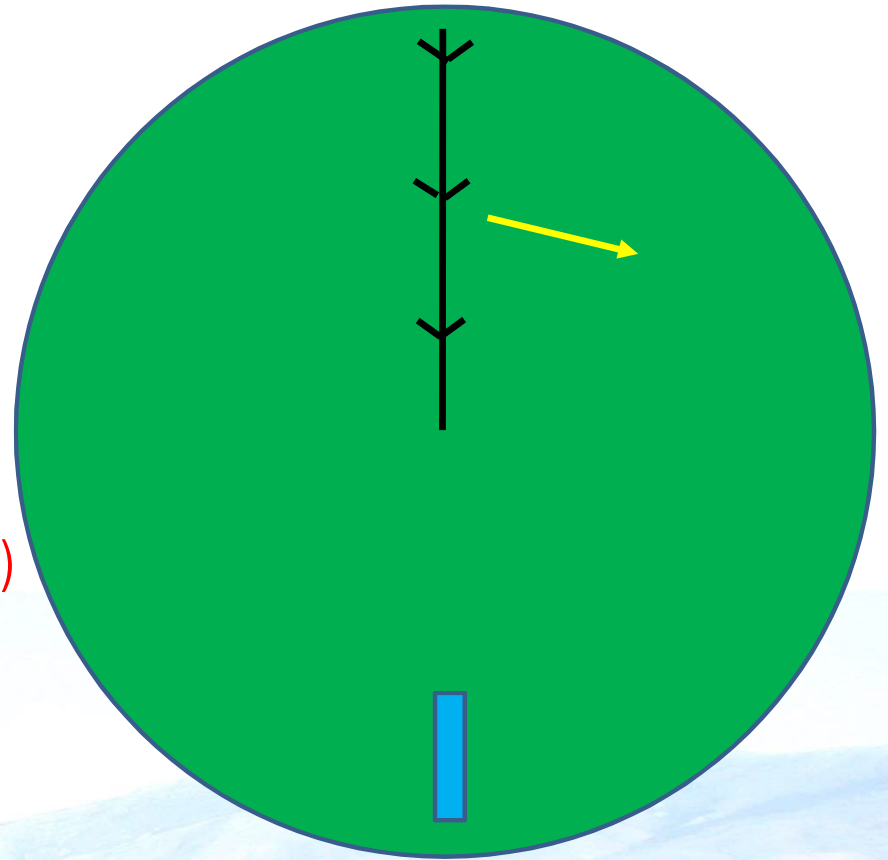
Treatments

1. Non-treated check
2. 48 hours pre-irrigation (PI)
3. 24 hours PI
4. 12 hours PI
5. 6 hours PI



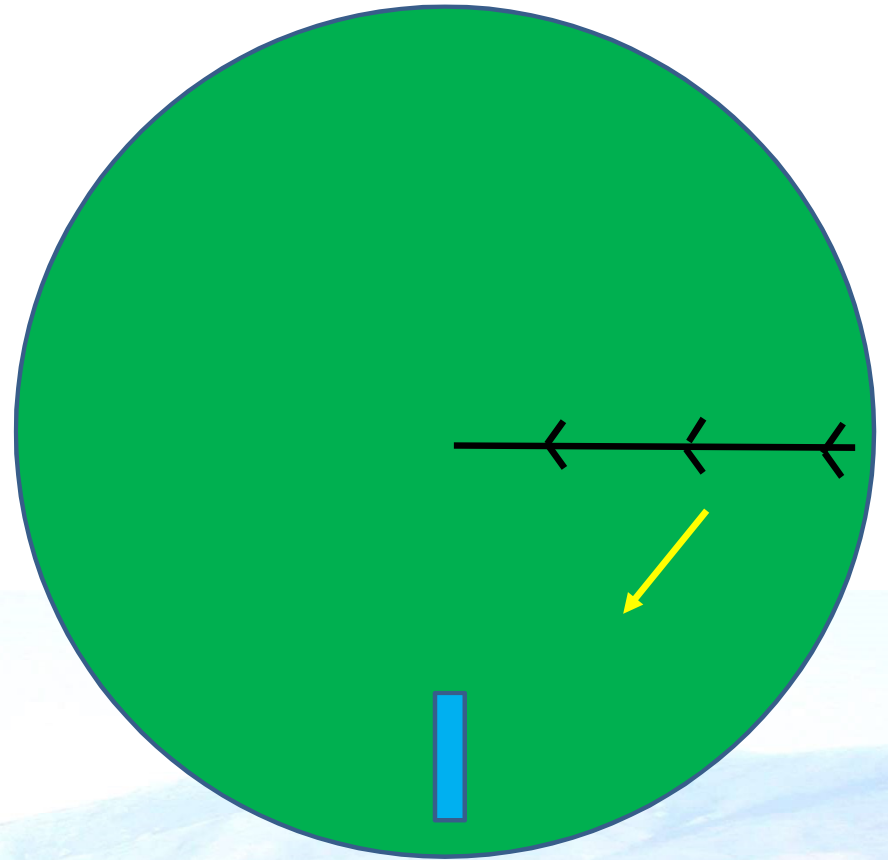
Treatments

1. Non-treated check
2. 48 hours pre-irrigation (PI)
3. 24 hours PI
 - Starting at full emergence
 - Starting at dime-size tubers (0.5")
 - Starting at row closure
4. 12 hours PI
5. 6 hours PI



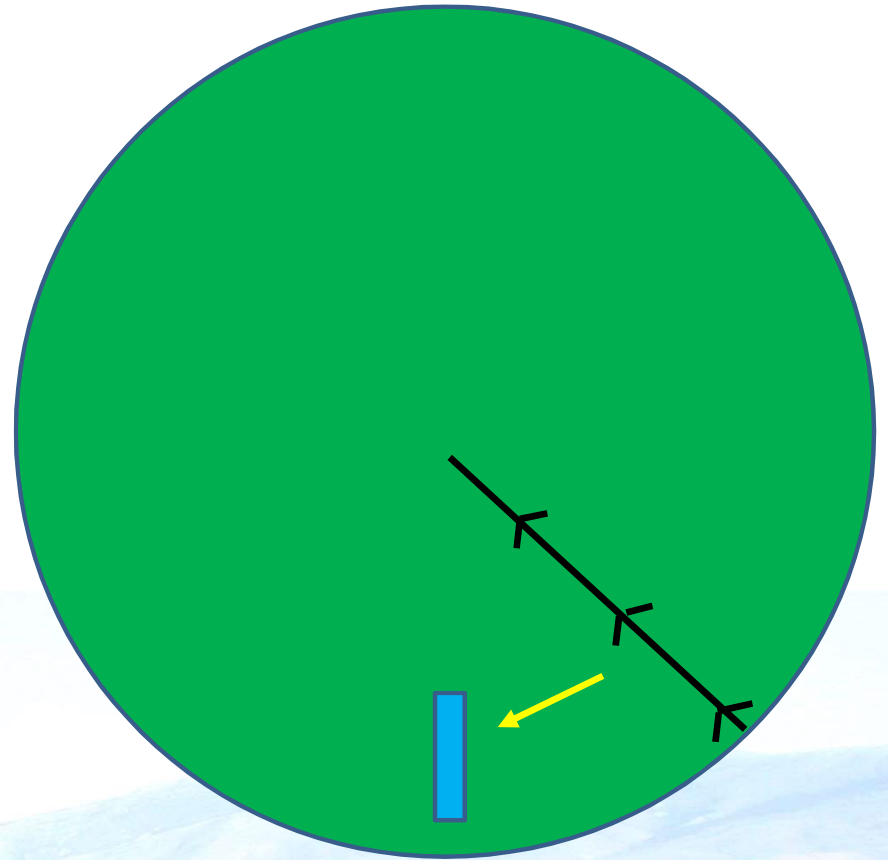
Treatments

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Treatments

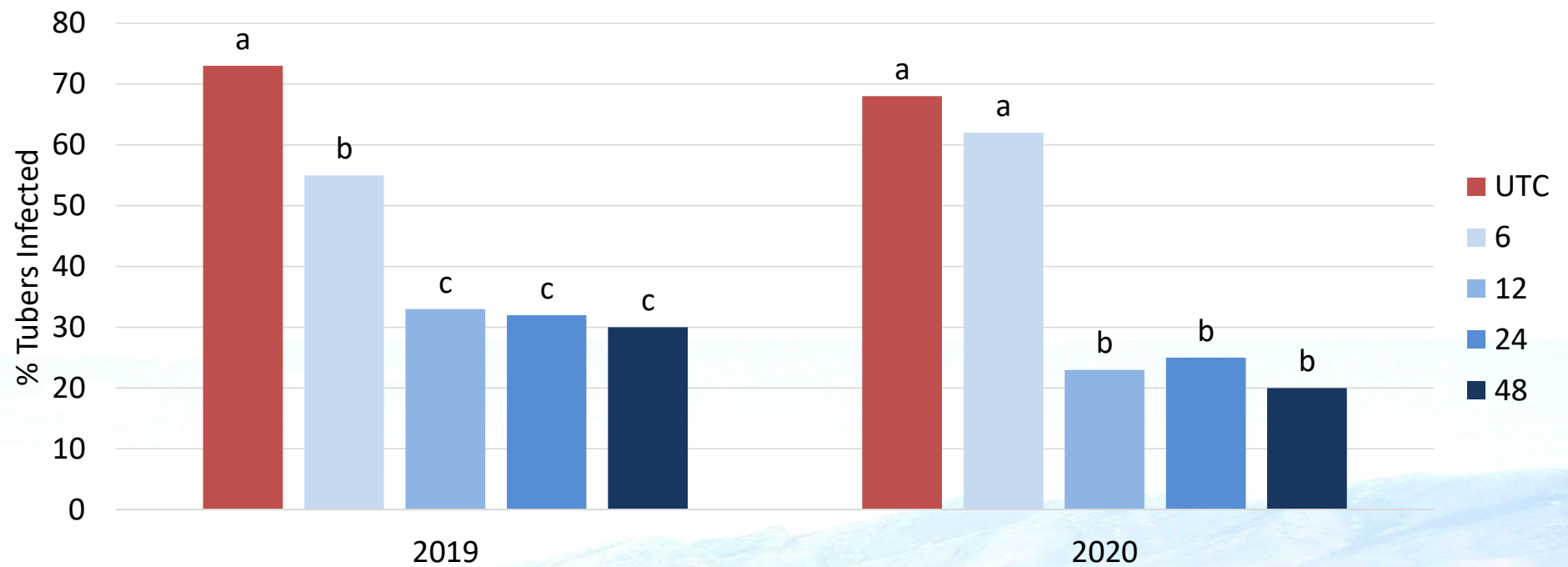
1. Non-treated check
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4. 12 hours PI
5. 6 hours PI



How important is the time between application and irrigation?

Post-Harvest Challenge Test

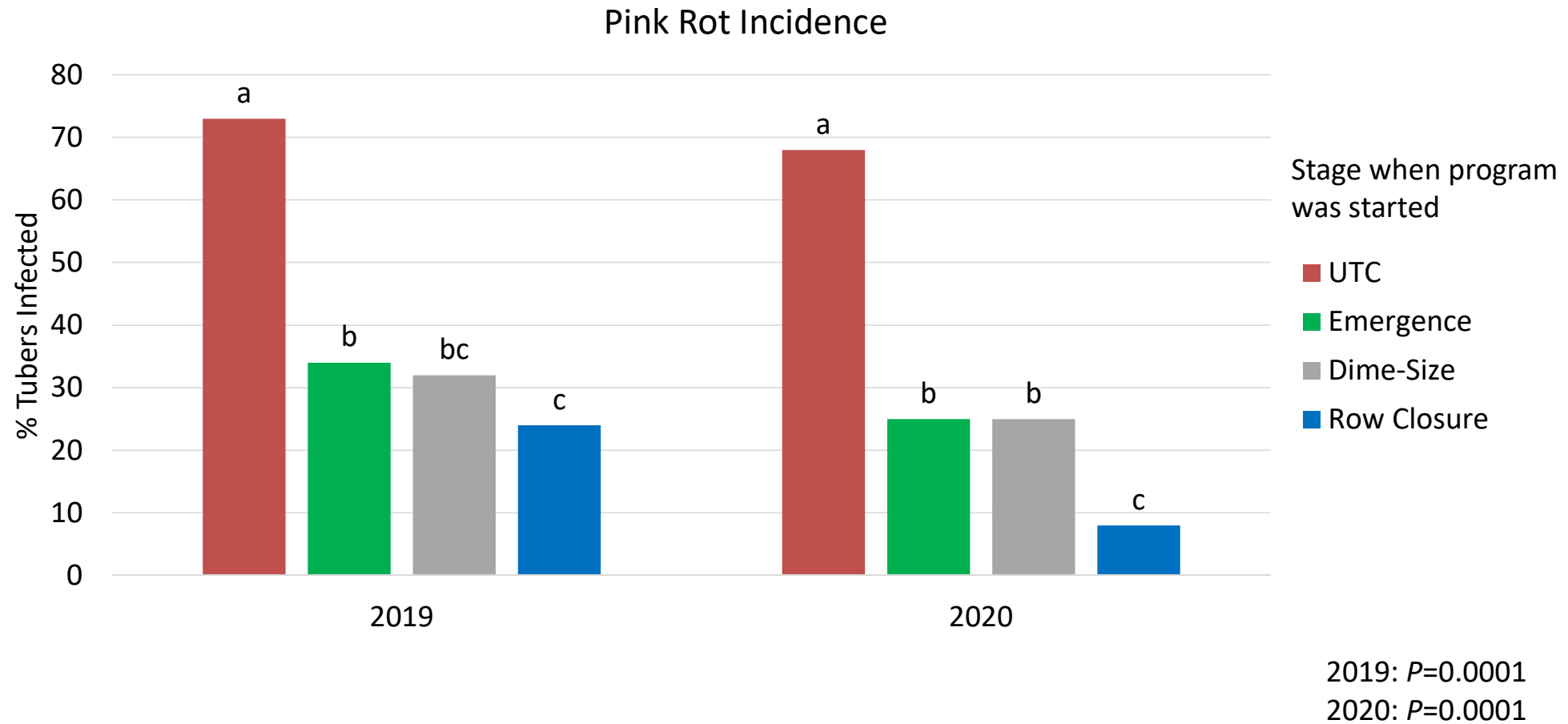
% Pink Rot 2019 and 2020



2019: $P=0.0001$
2020: $P=0.0001$

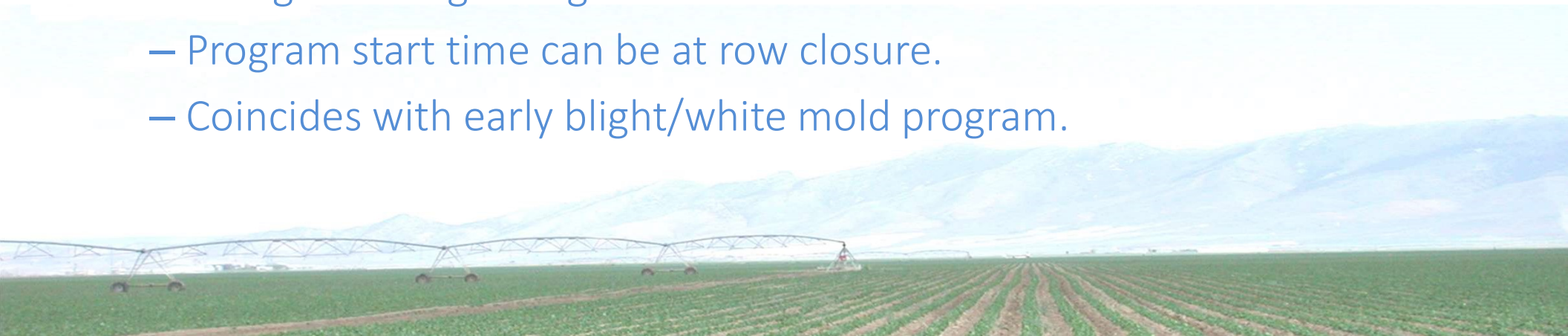
How important is it when the program starts?

Post-Harvest Challenge Test



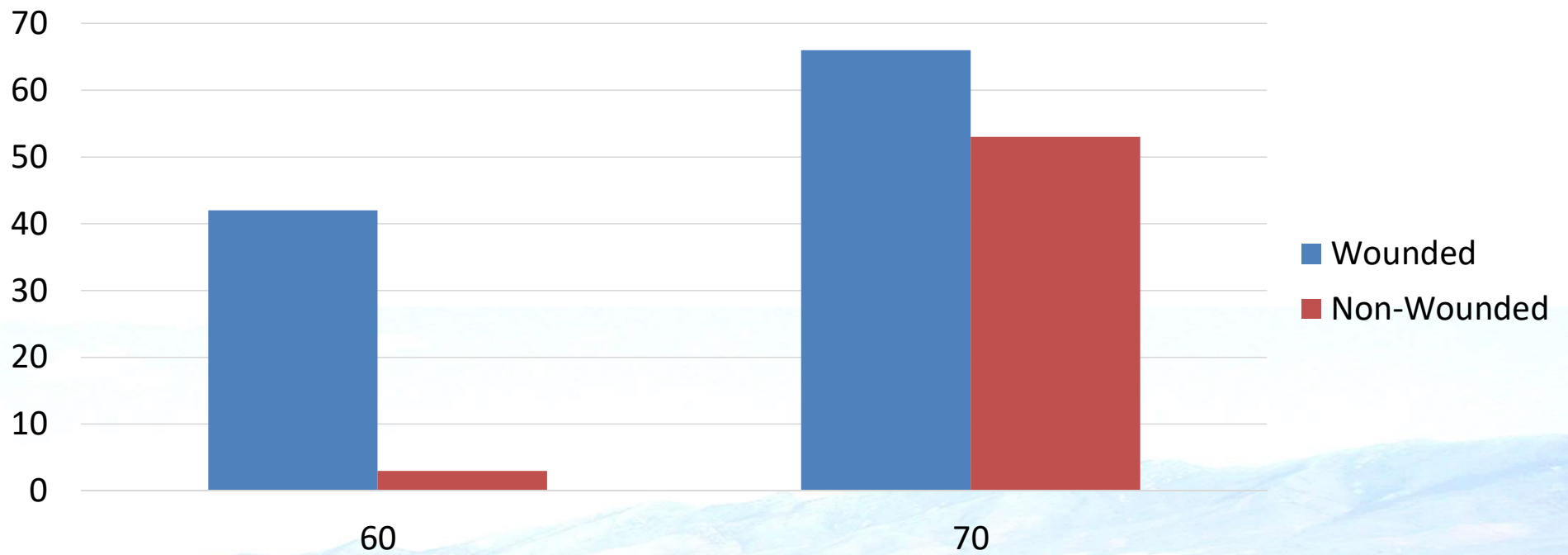
Phosphites not working as well as expected?

- Is resistance developing to the phosphites? **No**
- Is irrigation interfering with product uptake?
 - Wait at least 12 hours between application and irrigation, if possible.
- Is the timing of application optimal?
 - Going at emergence gave no benefit
 - Program start time can be at row closure.
 - Coincides with early blight/white mold program.



Avoid Disease Favorable Conditions at Harvest

Effect of Wounding and Pulp Temperature on Pink Rot

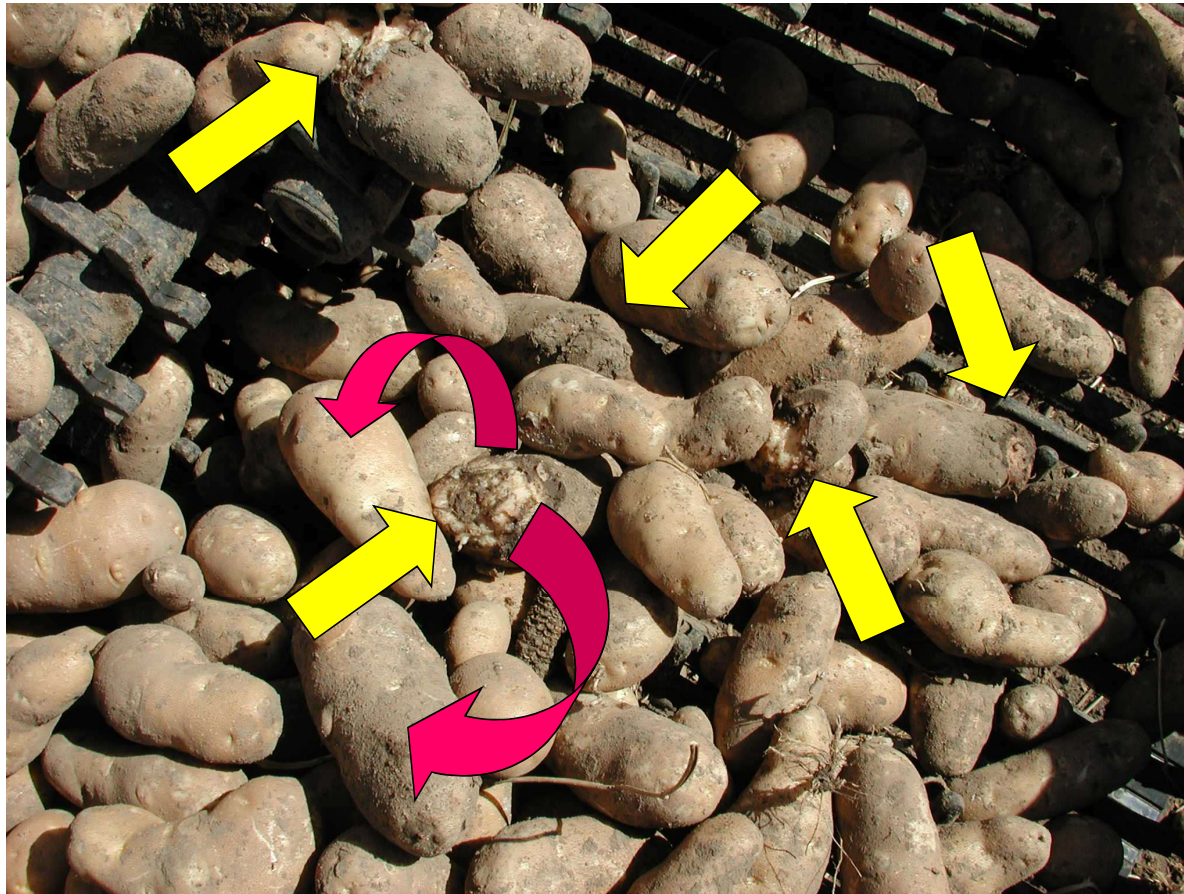


If I have a good foliar fungicide program, do I need to worry about a post-harvest application?

- Was the field program sufficient?
 - Environment, application problems, short rotation, over-irrigation
- Is disease present in the field prior to harvest?
 - Some pink rot may develop even with a good program.



Apply Post-Harvest Fungicides



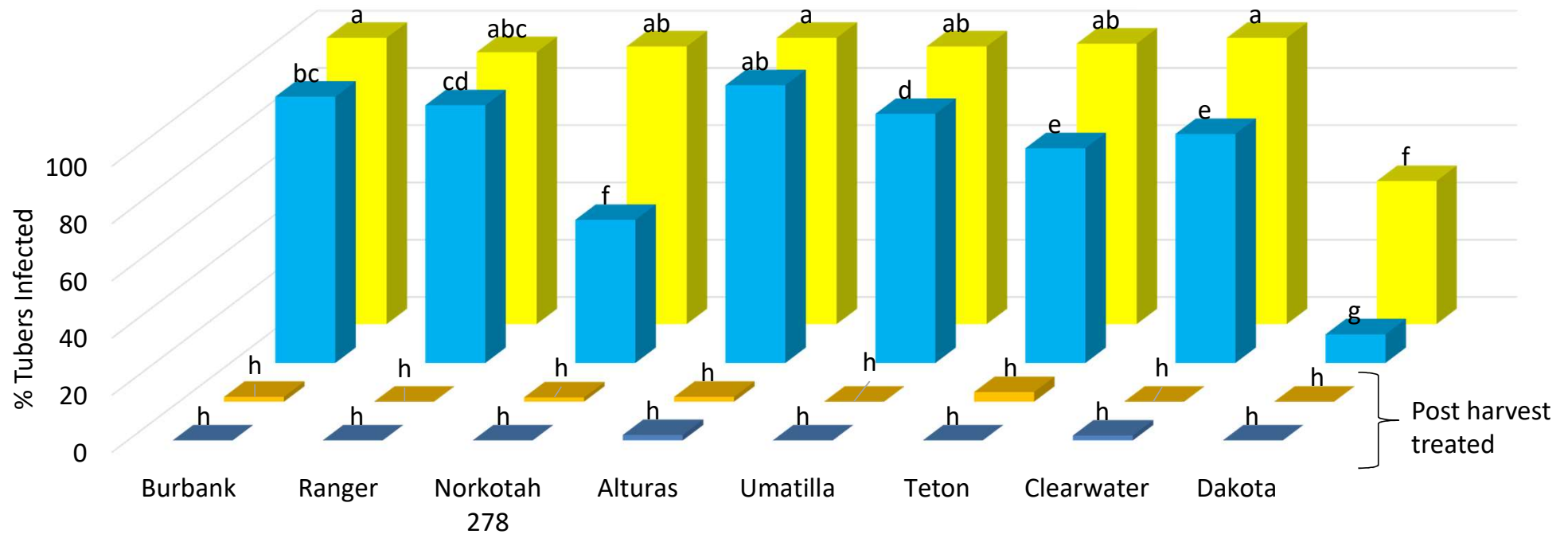
Apply Post-Harvest Fungicides

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



Post-Harvest Pink Rot

Challenge Inoculation



Field Treatment:

Resist 57 (10 pt/acre, 3X)

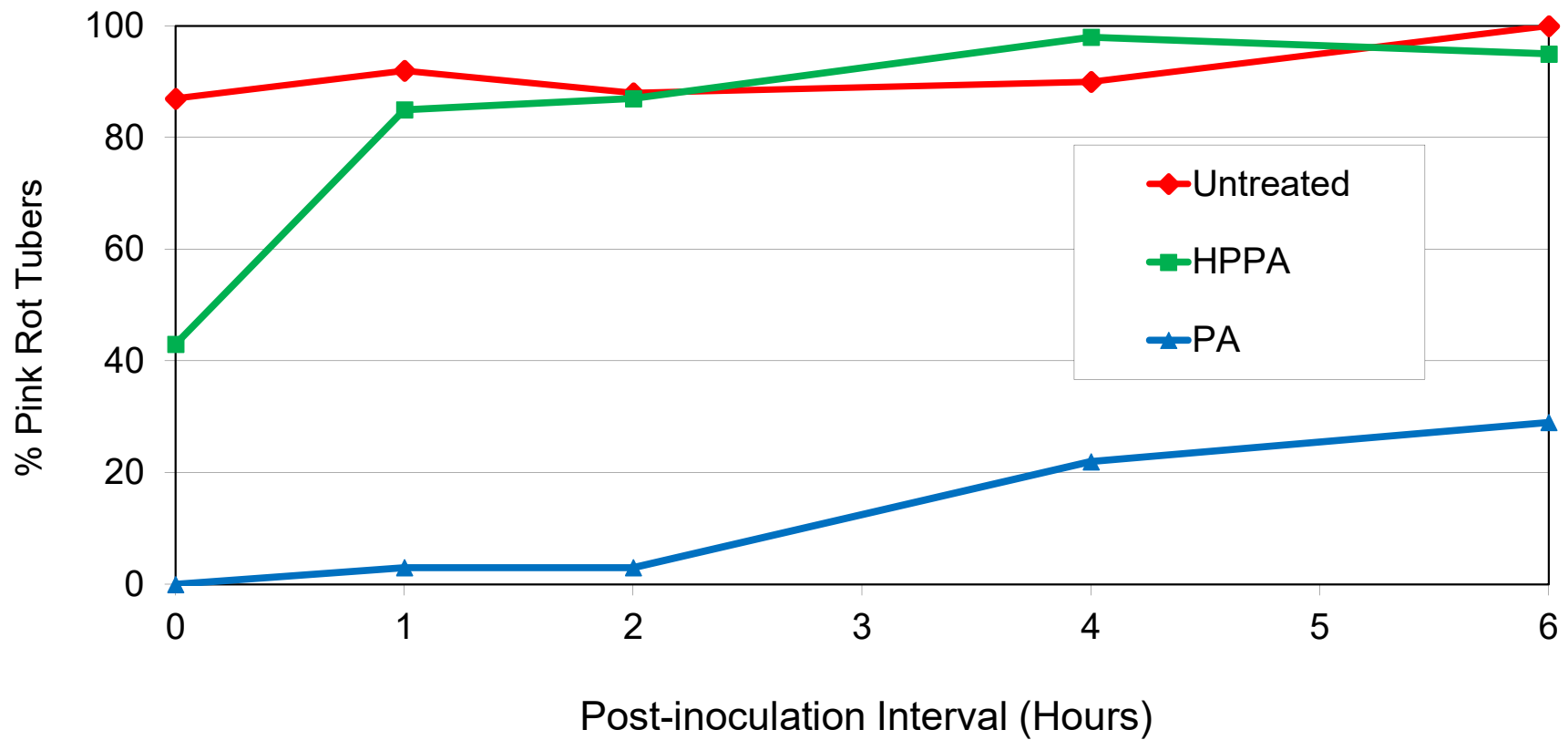
Post-Harvest Treatment:

Resist 57 (12.8 fl oz/ton)

■ Field TRT, PH TRT ■ Field UTC, PH TRT ■ Field TRT, PH UTC ■ Field UTC, PH UTC

This does not address pink rot that would develop in the field.

Time Between Inoculation and Treatment



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
 - Ensure 12 hours between phosphite application and irrigation
5. Use appropriate fungicides
 - Can start phosphite program at row closure
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



Thank You!

