



# Skin Set Management in Red Potatoes through Fertility and Vine Kill Practices

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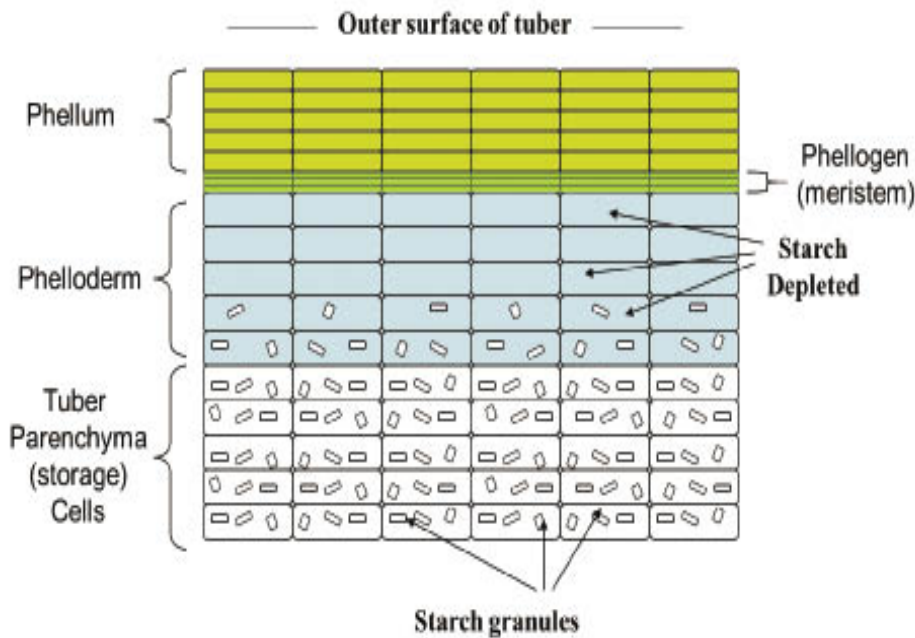
# Skin set in potatoes

- Protects potatoes from pathogens (physical barrier)
- Encourages good suberization (reduced physical shrink and reduced pressure bruise)
- Appearance (especially in table stock)

# Periderm (“Skin”) Maturation

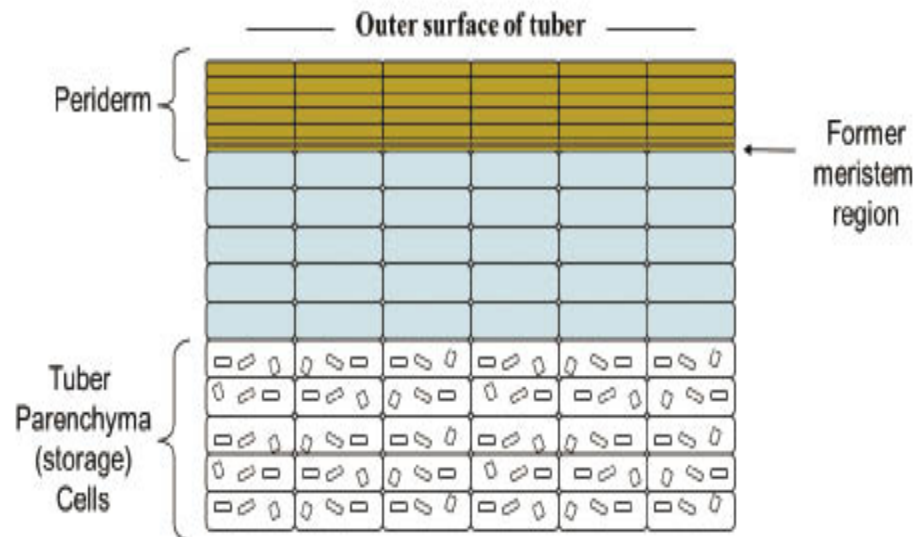


Figure 1. Periderm Formation



Phellogen layer produces the cells of the phellum layer. Starch depleted in the phelloderm area. Phellogen cell walls soft and easily damaged.

Figure 2. Mature Periderm



Periderm and former meristem regions now heavily suberized, dried down and tightly bound to the underlying cell layers.

# How do we achieve good skin set?

- Variety selection
- Sufficient vine kill period
- Vine senescence
- Good periderm maturation conditions

# 2013 Trials

- Goal: To determine if fertility changes and modified vine kill changes can improve skin set.
- Varieties:
  - Red Norland
  - Red La Soda
  - ND8555-8R

# 2013 Trials

- Trials:

- Fertility Trial (Nitrogen)

- Hoverson Farms: Larimore, ND

- Irrigated (Planted 06/15/13 Harvest: 10/02/13)

- 60 “green days”

- Red La Soda and ND8555-8R

- Vine Kill Trial

- NPPGA Research Farm: Grand Forks, ND

- Non-irrigated (Planted 06/17/13 Harvest: 10/18/13)

- 70 “green days”

- Red Norland and ND8555-8R

# Vine Kill Trial Specifics

| Treatment   | PTH = Prior to Harvest |           |
|-------------|------------------------|-----------|
| Description | 4 wks PTH              | 3 wks PTH |
| 0%/100%     | X                      | 4pts/a    |
| 100%/0%     | 4pts/a                 | X         |
| 50%/50%     | 2pts/a                 | 2pts/a    |
| 25%/75%     | 1 pt/a                 | 3pts/a    |

## Data collected:

% Skinning damage

Periderm shearing

Yield (gross and size class)



# Vine condition at kill



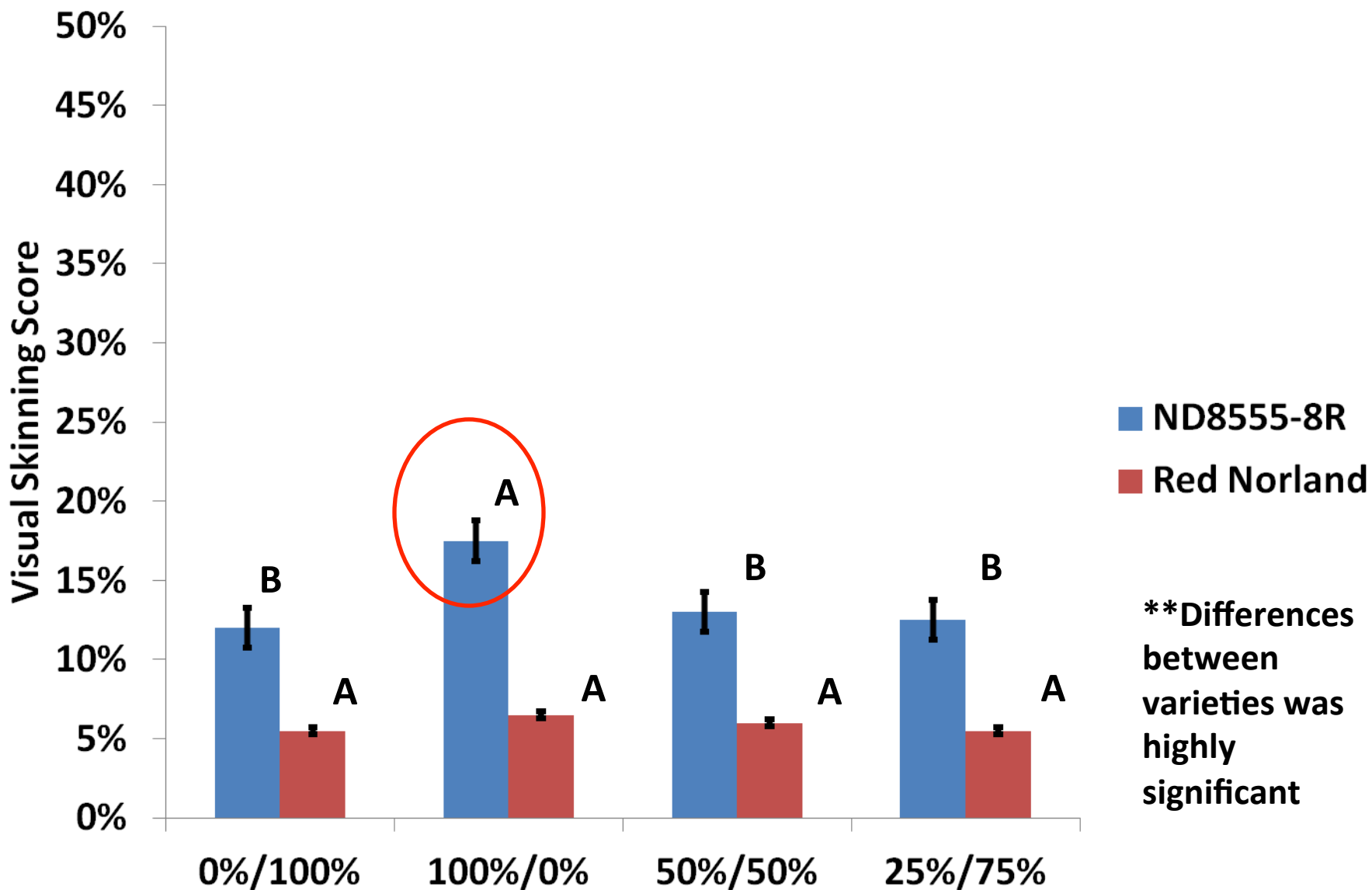
**ND8555-8R**



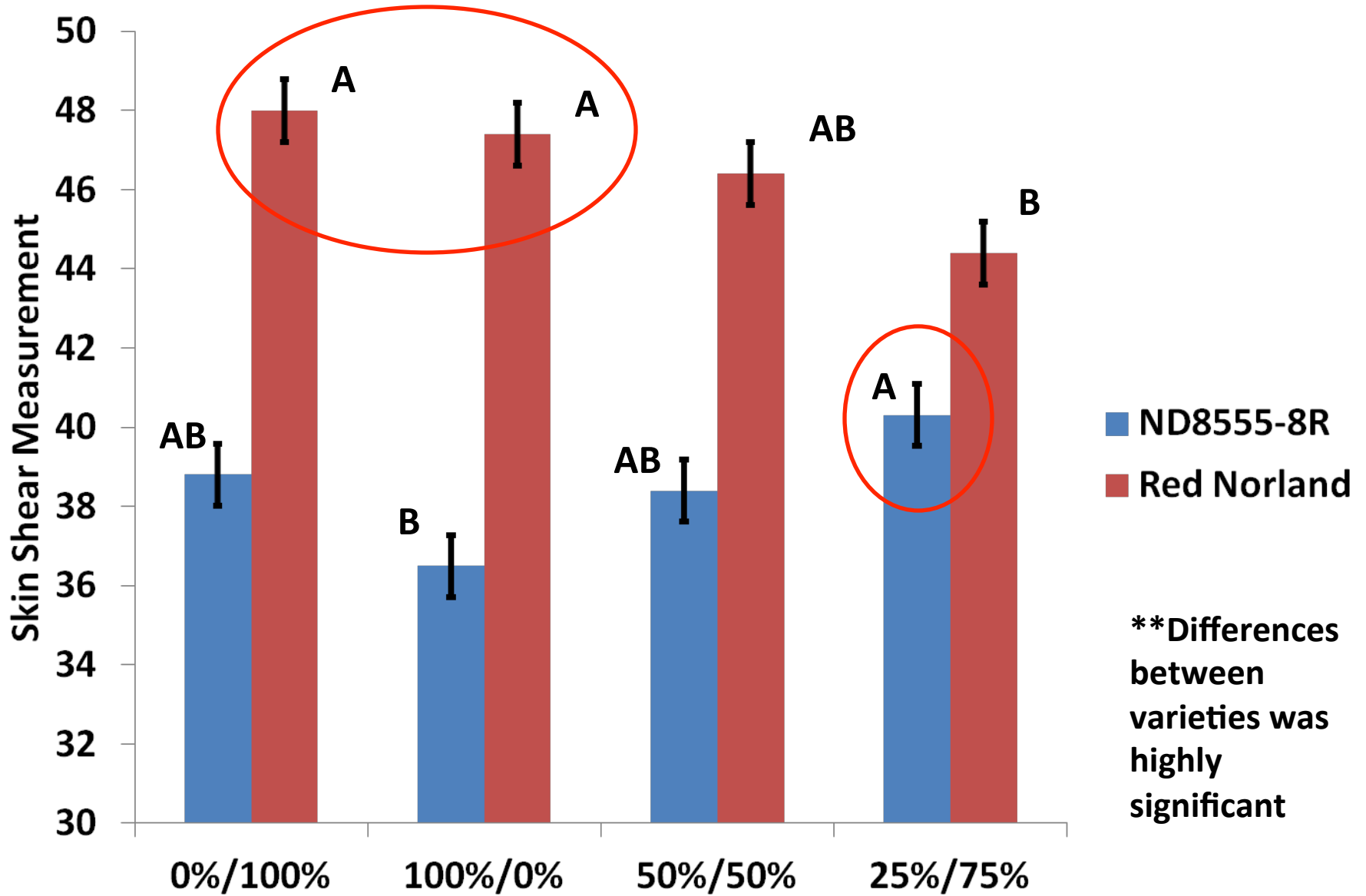
**Red Norland**



# Visual Skinning Score

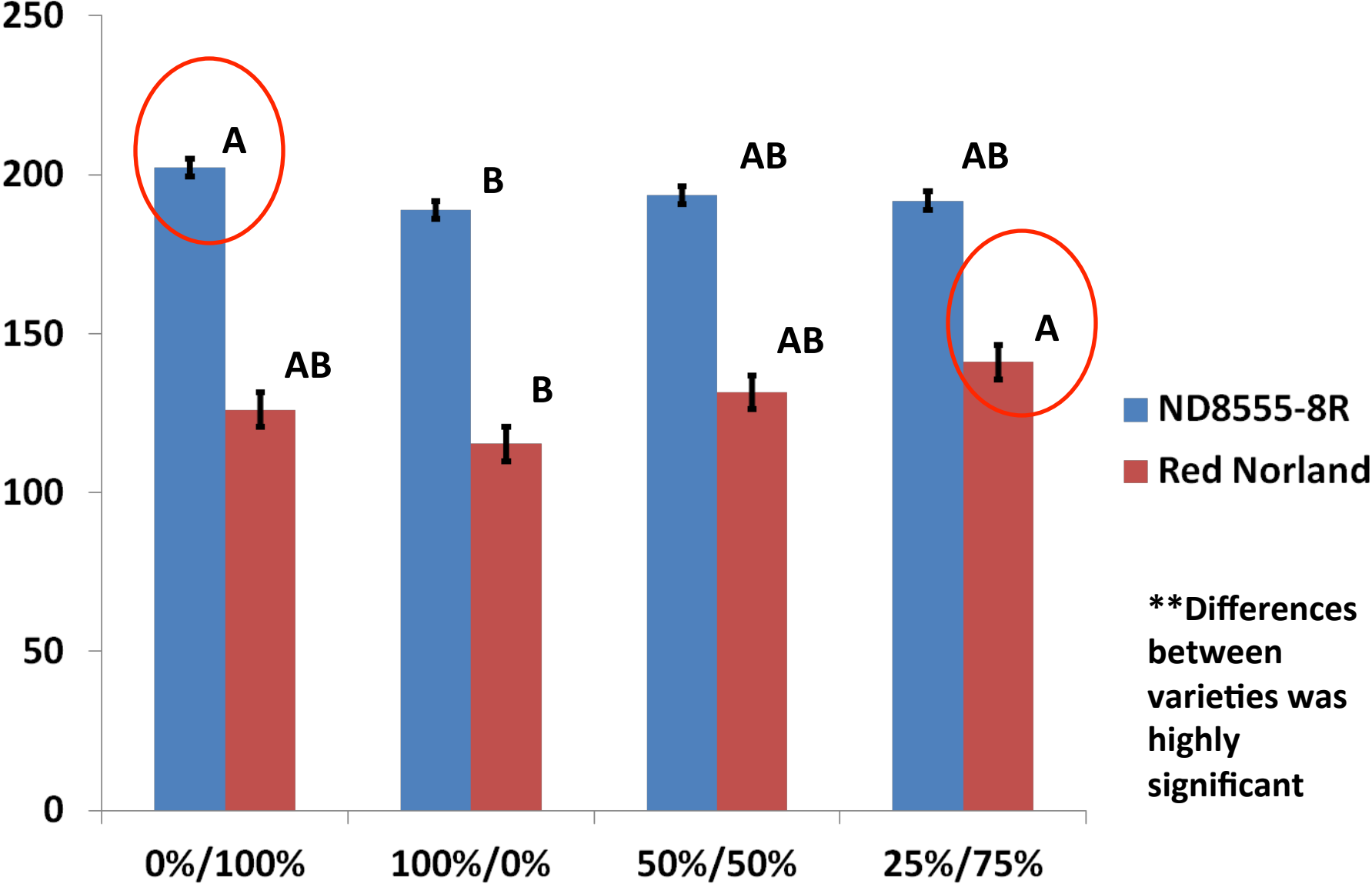


# Skin Shear Measurement



**\*\*Differences between varieties was highly significant**

# Estimated Total Yields, cwt/a



# Vine Kill Trial Grand Forks



# Fertility Trial Larimore



# Conclusions

- Red Norland and ND8555-8R have very different periderm maturation “skin set” rates
- Good skin set can be achieved in ND8555-8R with variety specific management
- Vine senescence is likely a **MUST** in order to achieve good skin set in ND8555-8R
- Reduced N fertility will encourage vine senescence, especially in short seasons
- Achieving good yield goals may be possible under lower N conditions in ND8555-8R

# Special Thanks

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- Black Gold Farms
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