

Fertility Management of Irrigated Sunflowers

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Fertility Management

A photograph of a sunflower field under a clear blue sky. The sunflowers are in various stages of bloom, with bright yellow petals and dark brown centers. The leaves are large and green. The image is used as a background for the slide.

- **Site Location**
 - Prospect Valley, CO 2011
 - Akron, CO 2012, 2013
- **Soil Type**
 - Clay Loam
- **Irrigation management**
 - Prospect Valley -Full irrigation – as needed
 - Furrow Irrigation
 - Akron – Limited Irrigation
 - Sprinkler
- **Fertilizer Management**
 - Pre-plant
 - Combination of pre-plant and fertigation

Fertility Management

- **Measurements**

- Grain Yield

- Soil Nitrogen

- Chlorophyll Readings (SPAD)

- Hand measurement

- Relative greenness of crop

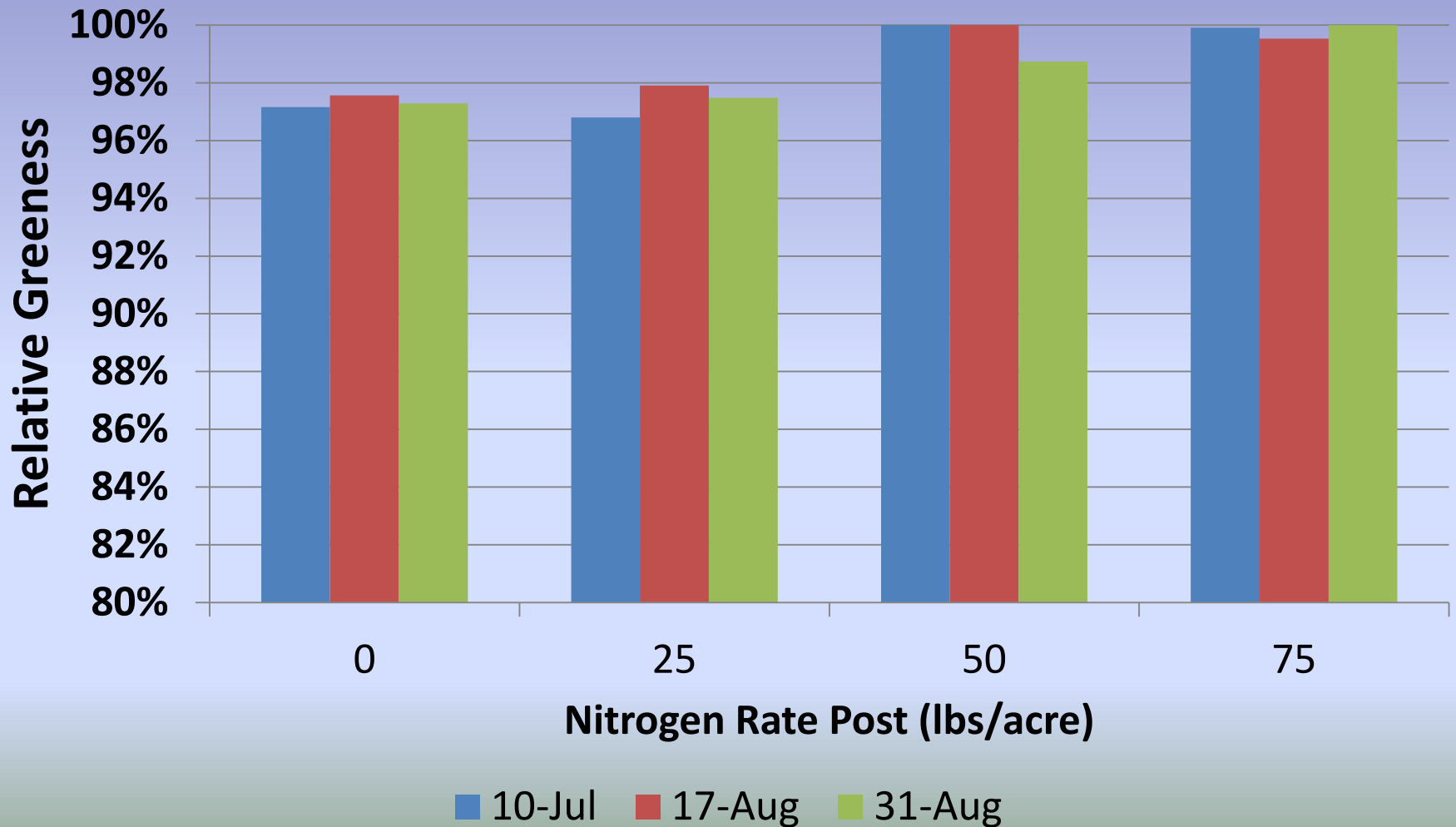
- Indication of nitrogen stress

- Used in corn production

- **Economics**

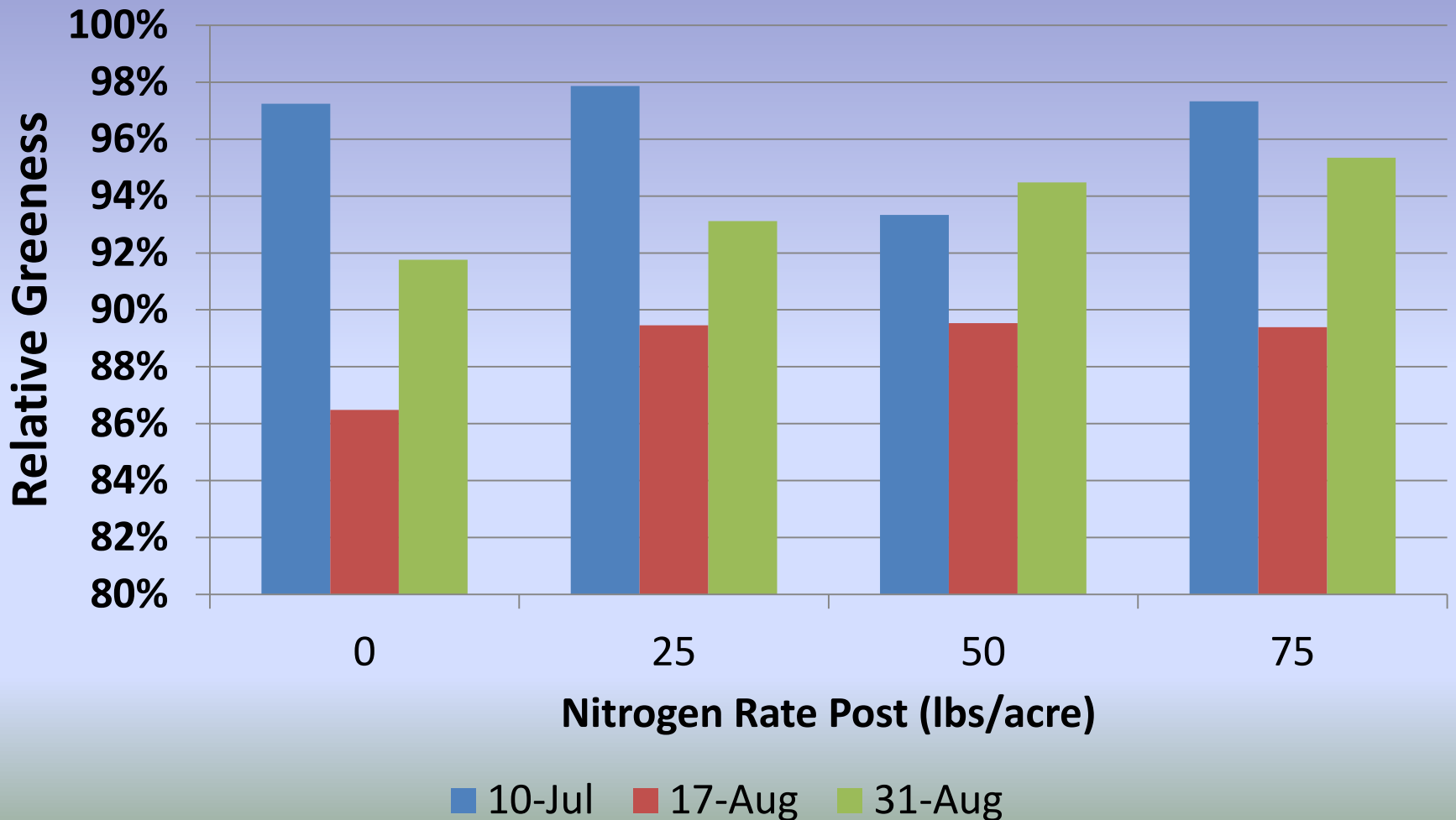
Chlorophyll Response to N

75 lbs N Pre-plant



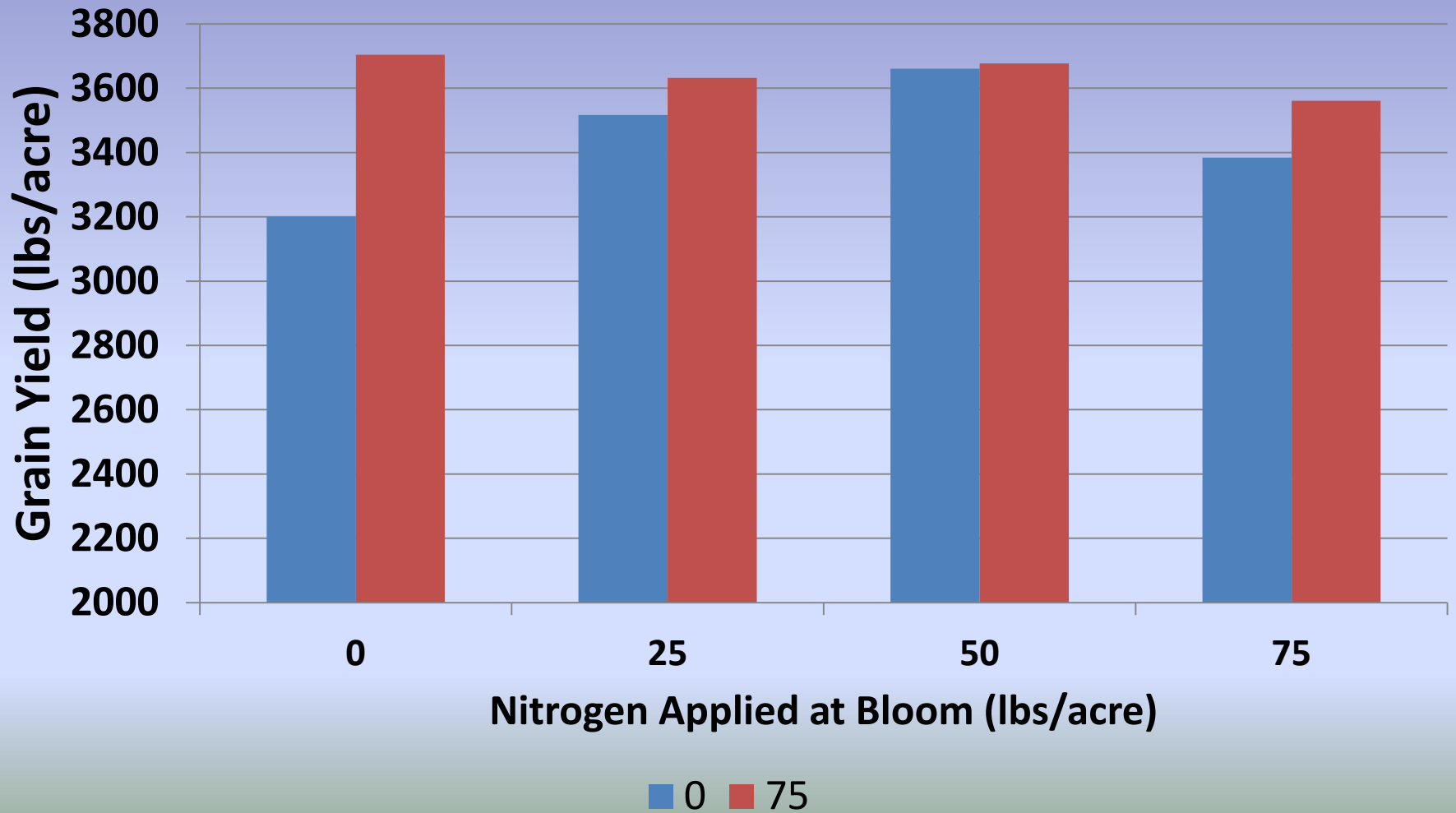
Chlorophyll Response to N

0 lbs N Pre-plant

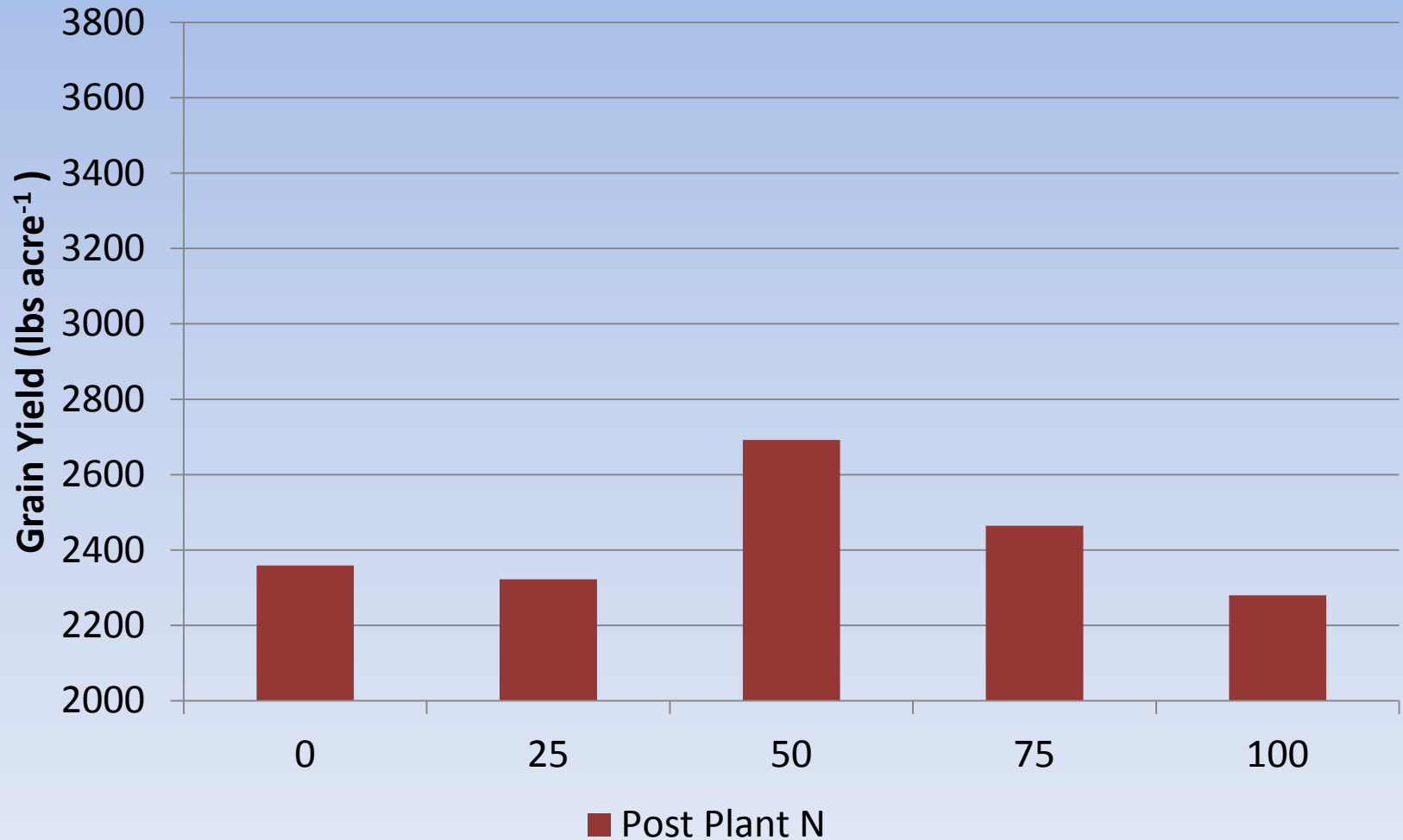


Confection Sunflower Yields

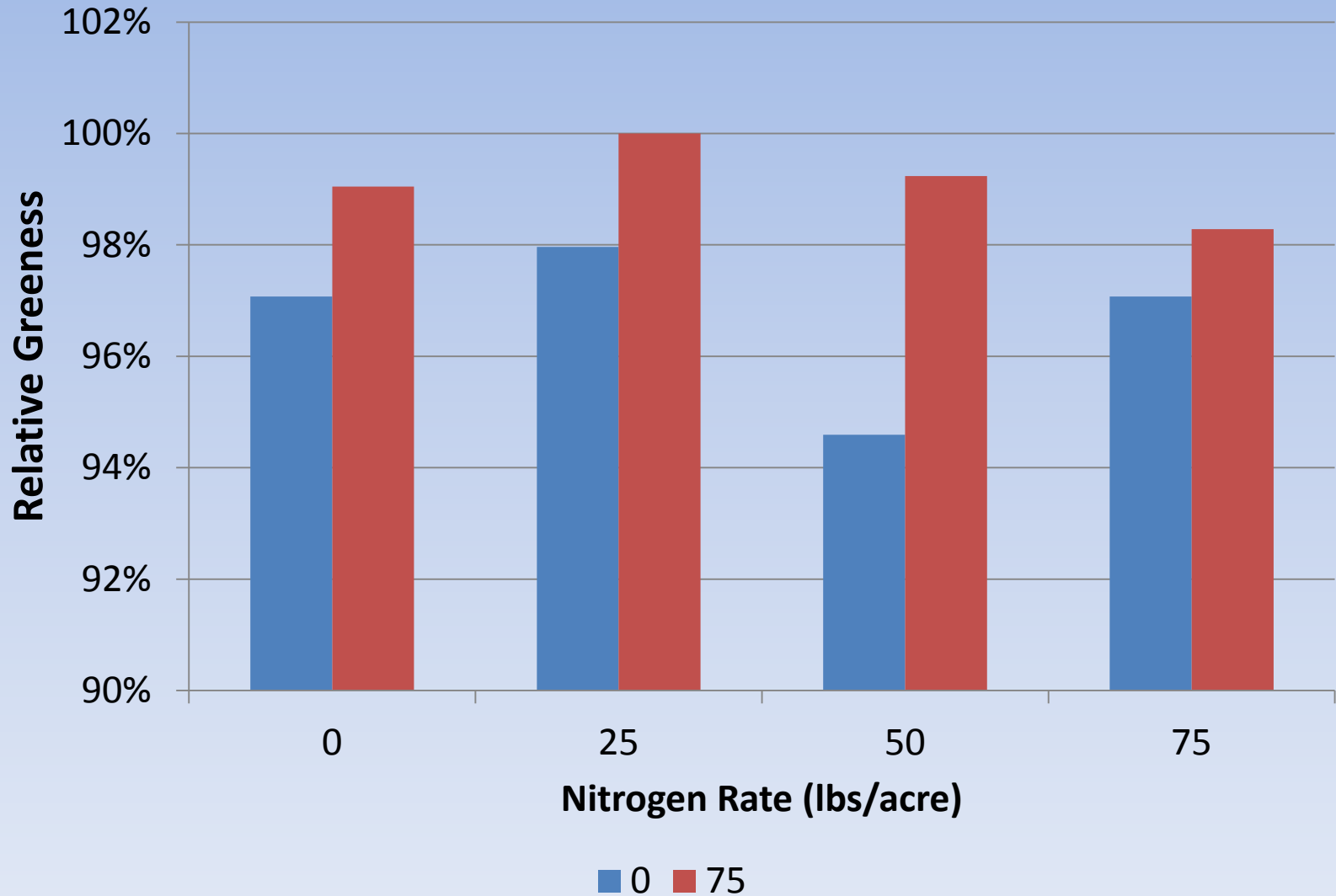
2011



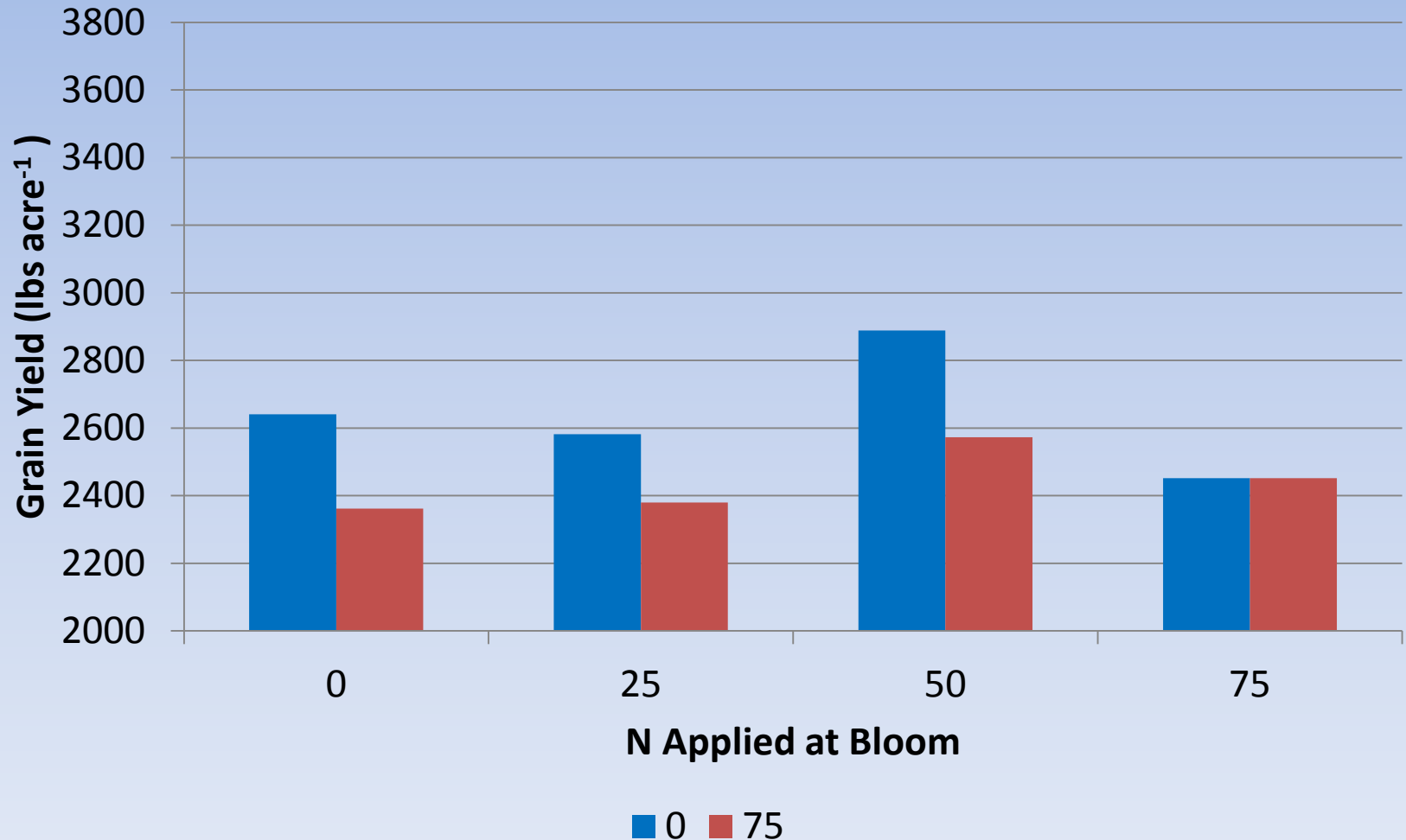
Confection Sunflower Yield 2012



Chlorophyll Response to N Beginning Bloom 2013

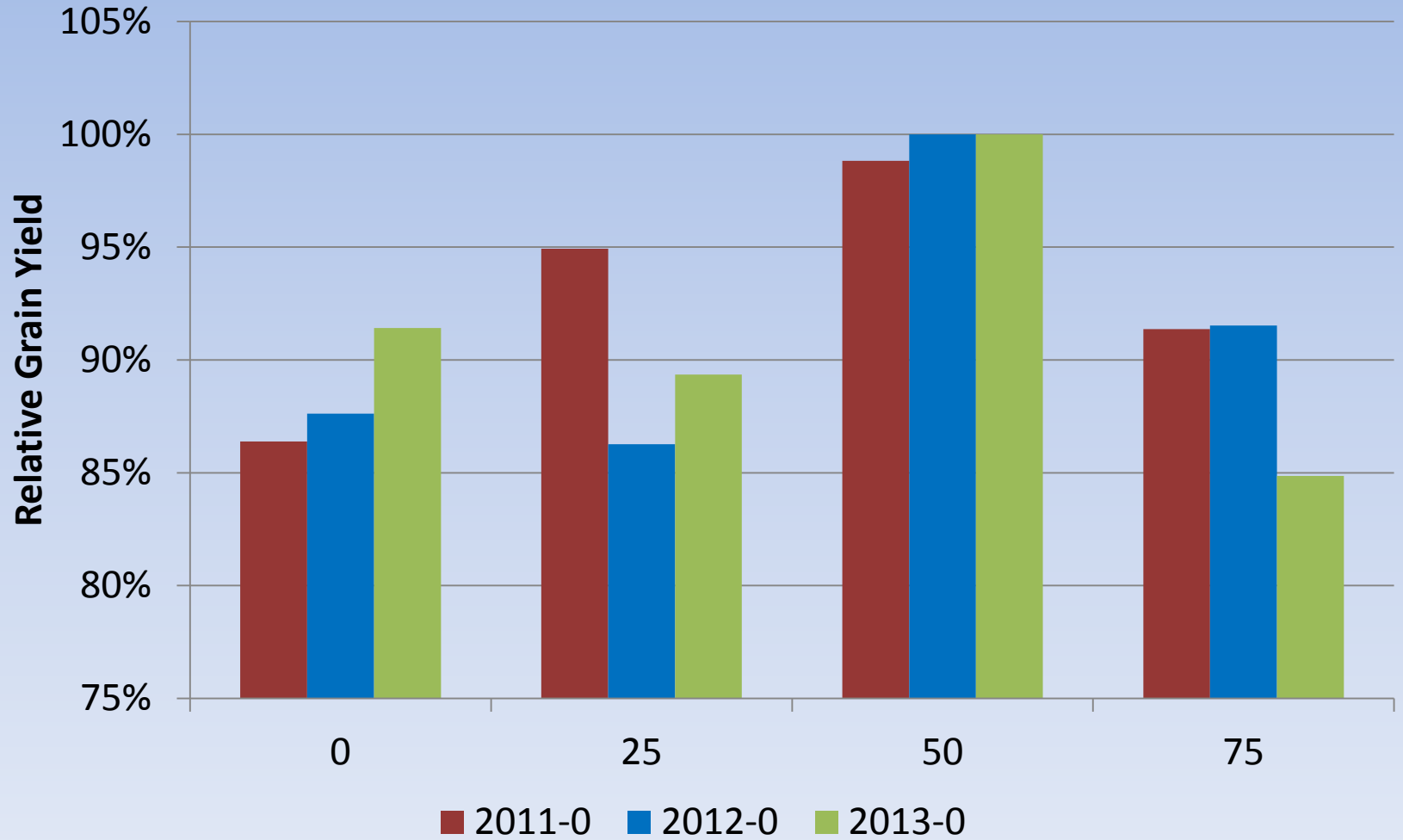


Confection Sunflower Yield 2013



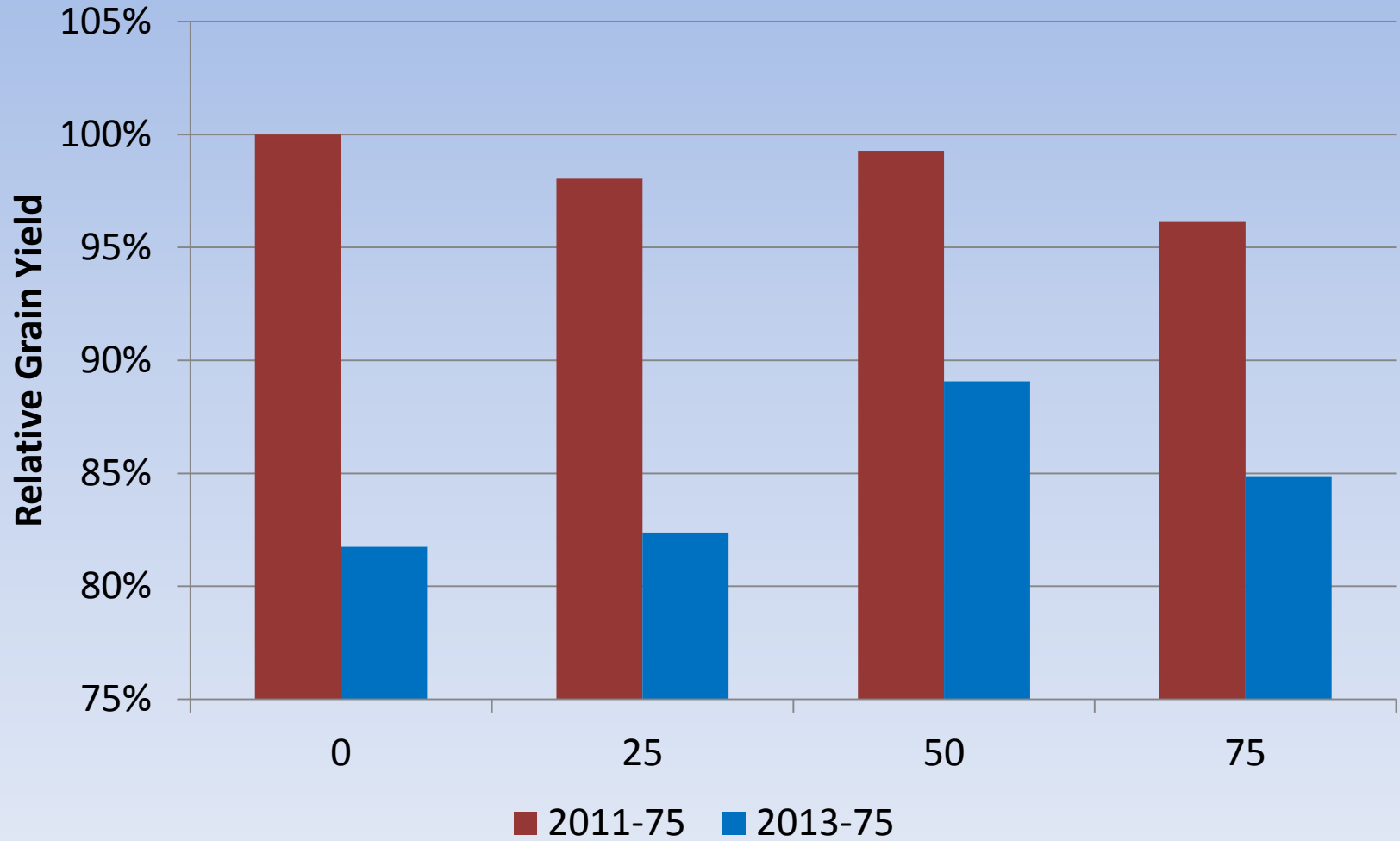
Relative Yield

0 lbs Pre-Plant N



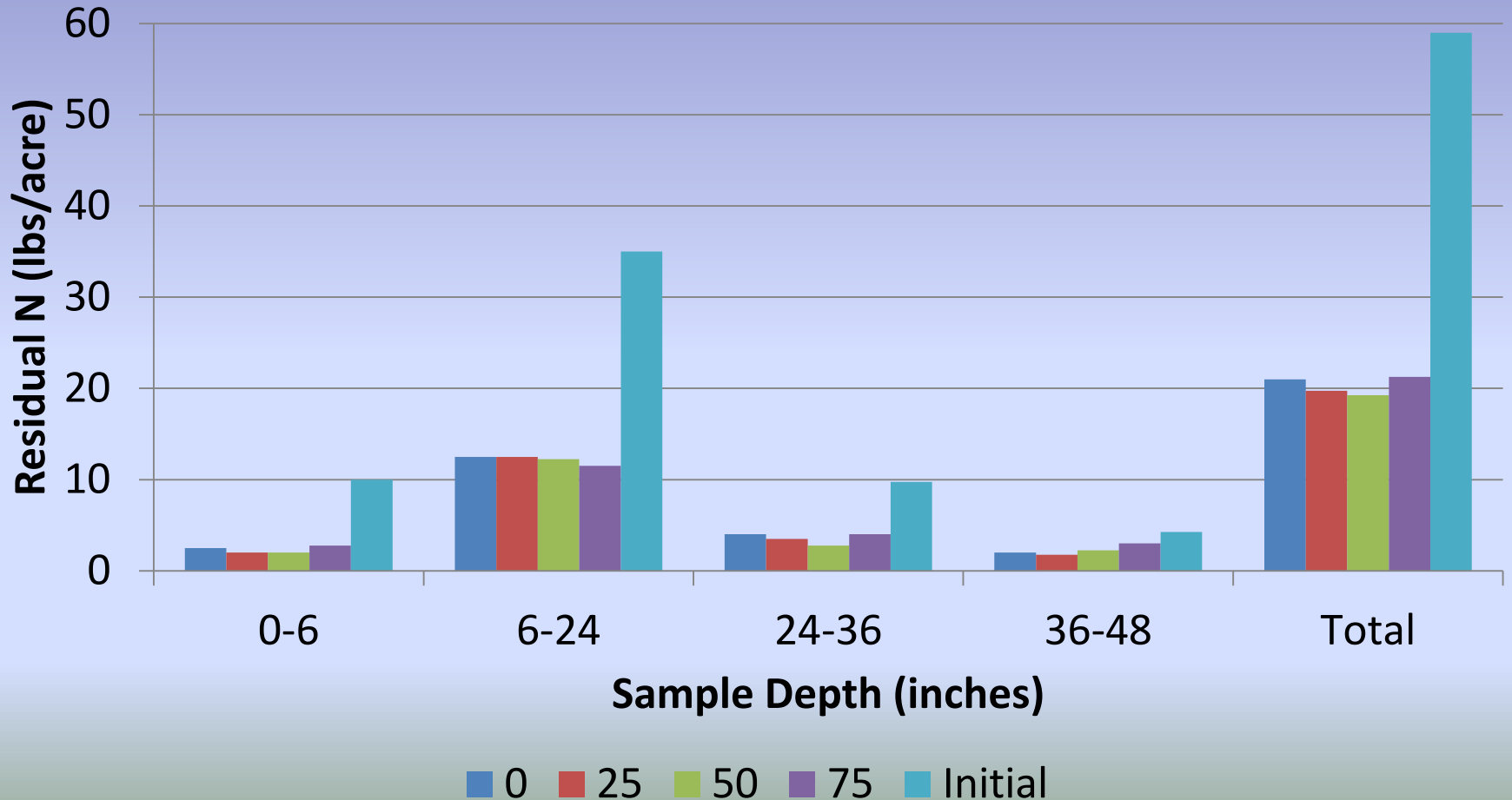
Relative Yield

75 lbs Pre-Plant N



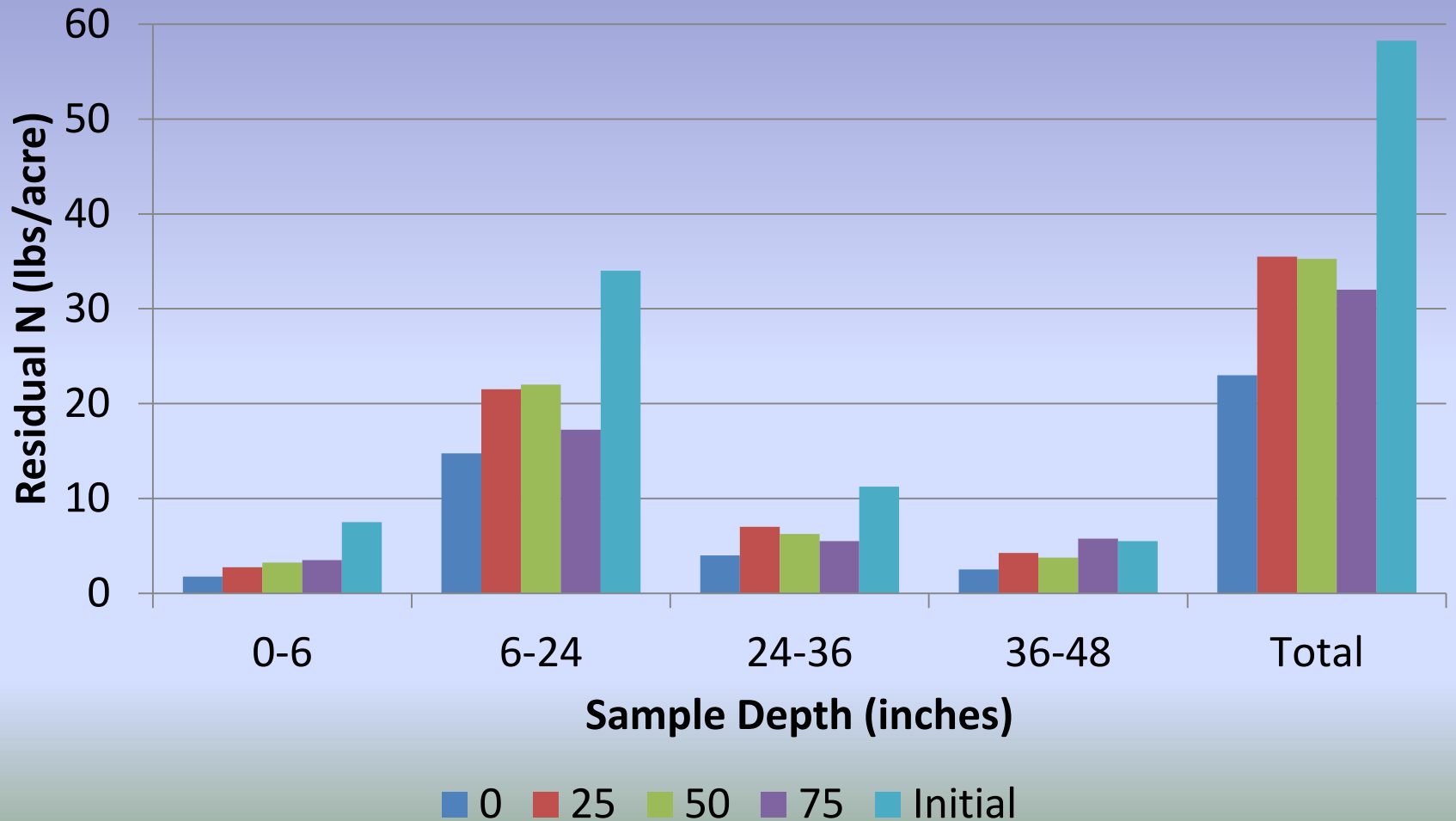
Residual Nitrogen

2011 - 0 lbs Pre-plant



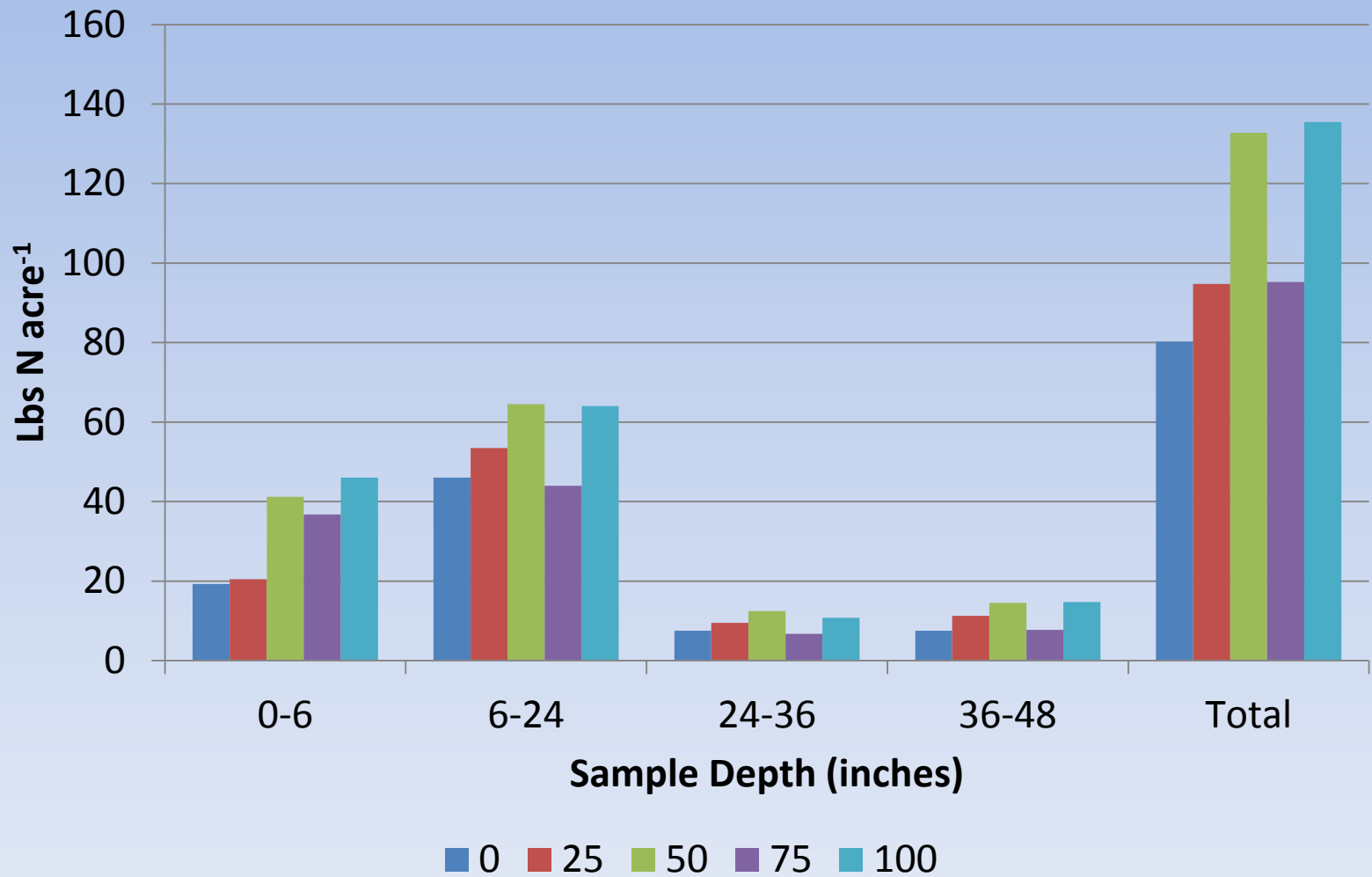
Residual Nitrogen

2011 - 75 lbs Pre-plant



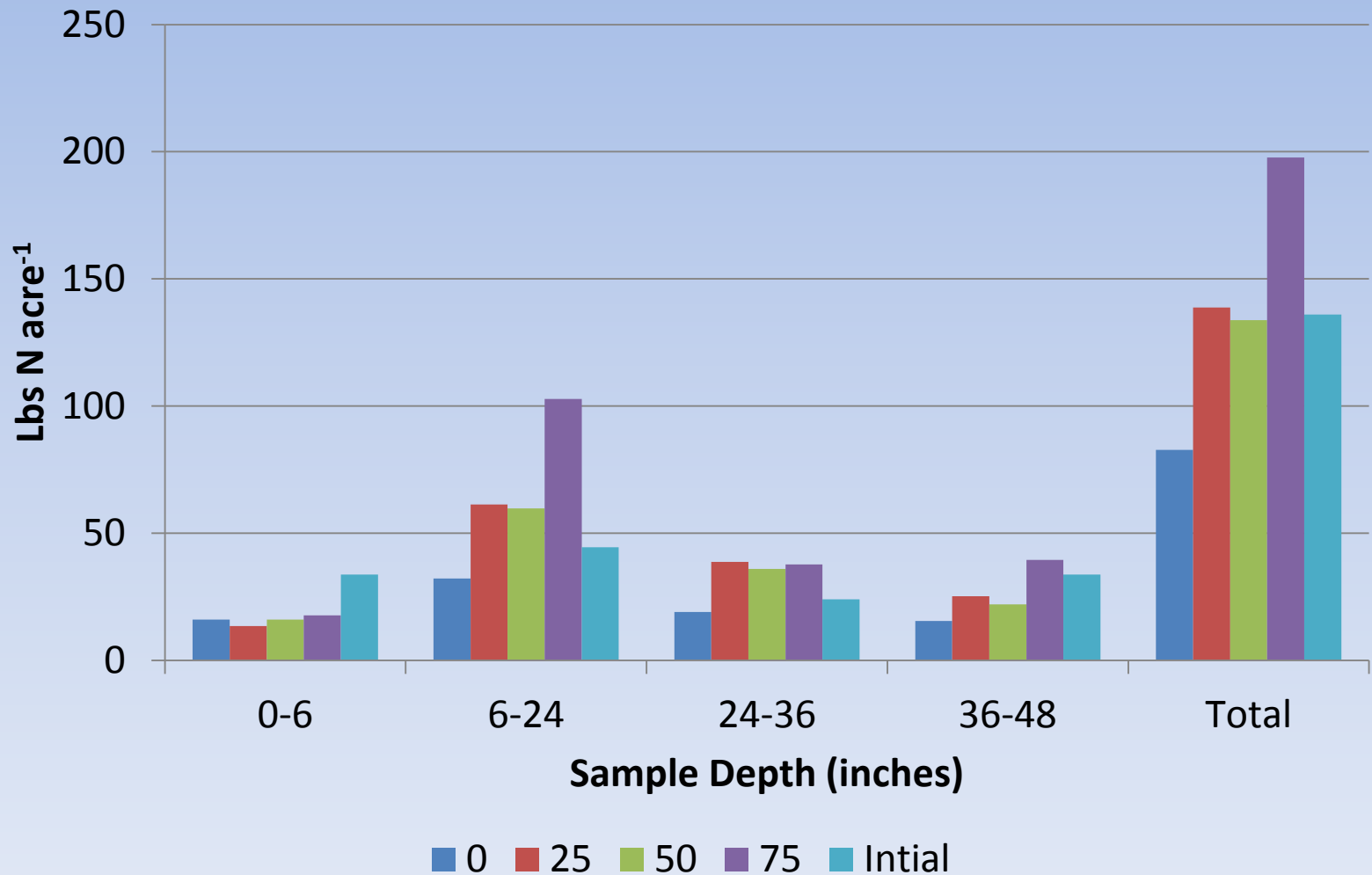
Residual Nitrogen

2012 – 0 lbs Pre-Plant



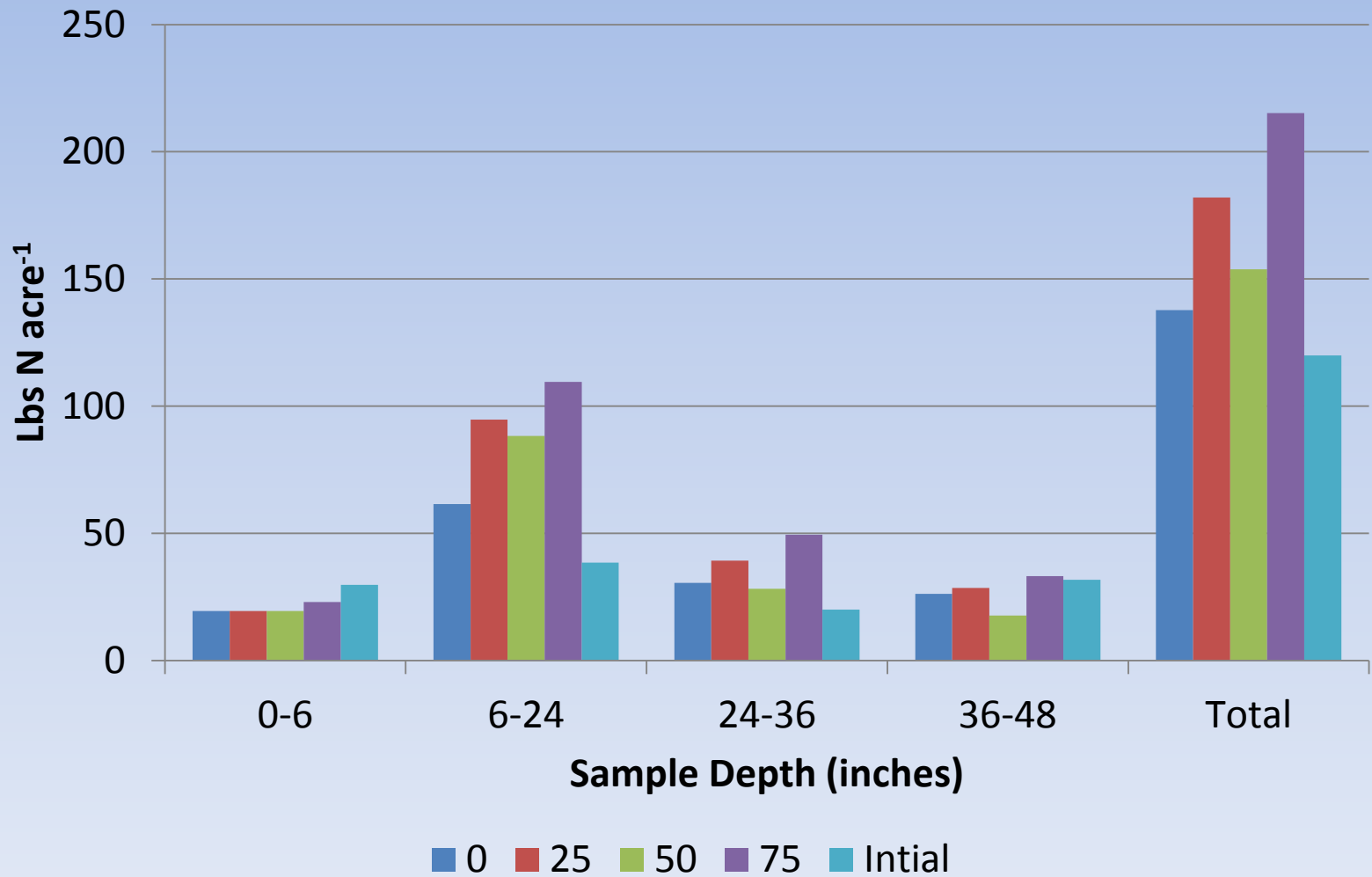
Residual Nitrogen

2013 – 0 lbs Pre-plant



Residual Nitrogen

2013 – 75 lbs Pre-plant



Conclusion

- Application of 75 lbs pre-plant N was better than no pre-plant N.
- An application of 50 lbs/acre N at bloom increased yields similar to that of 75 lbs N pre-plant.
- Is nitrogen management different with sprinkler irrigation compared to furrow irrigation?
- Are nitrogen recommendations high for irrigated sunflowers?
- Can Chlorophyll Ratings be utilized in fertility management?
- Is excessive nitrogen detrimental to confection sunflowers?