

A photograph of a sunflower field. The sunflowers are in various stages of bloom, with bright yellow petals and dark brown centers. The leaves are large and green. The sky is a clear, light blue. The text is overlaid on the top half of the image.

Fertility Management of Irrigated Sunflowers

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Fertility Management???

- **Majority of work on rainfed sunflowers**
 - Limited yield potential as compared to irrigated
 - Potential for more residual Nitrogen
- **How does water management impact N use**
 - Limited water
 - encourage root growth
 - Limit deep percolation of N

Future Prices of Fertilizer?????



Fertility Management

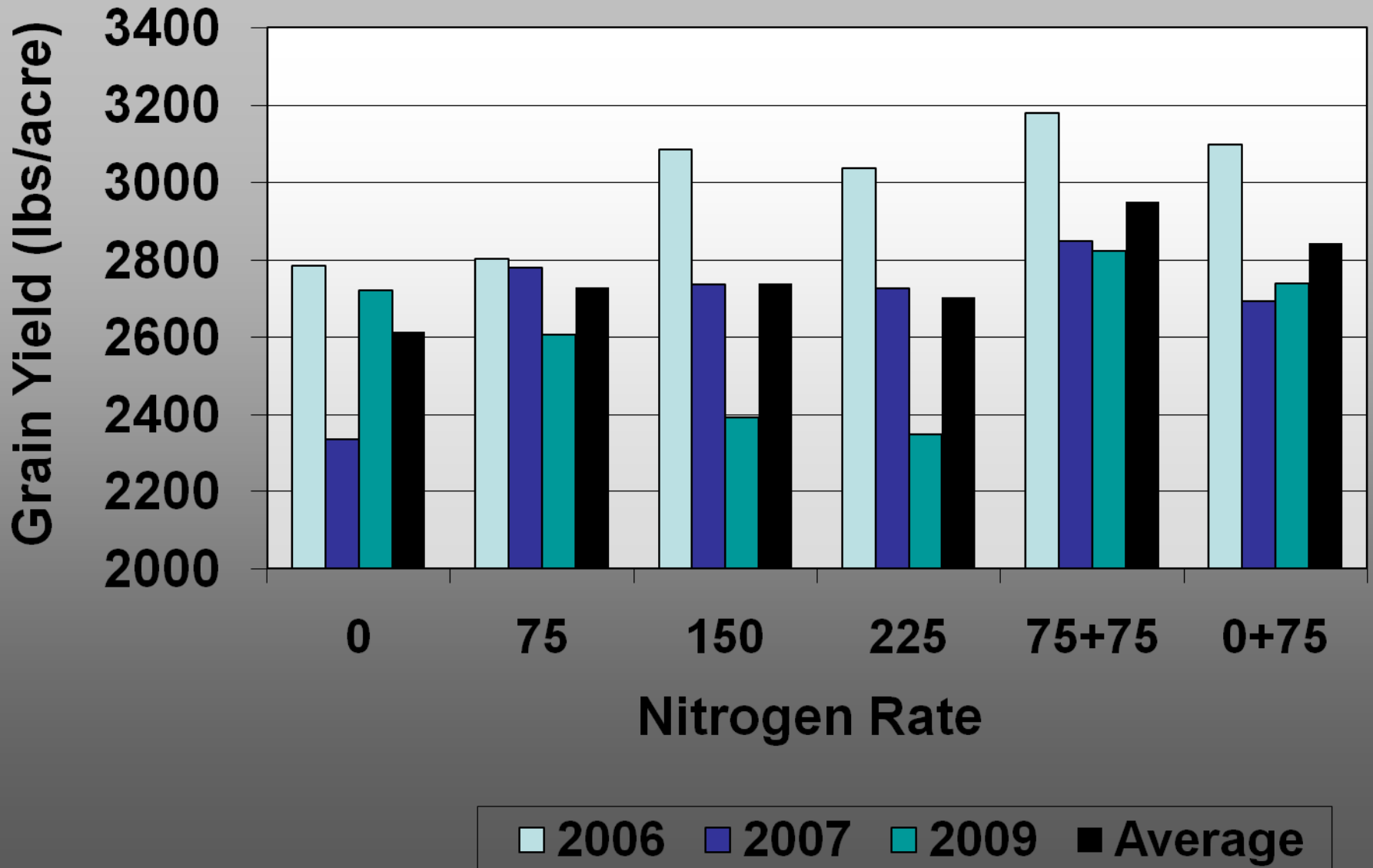
- **Project initiated at Burlington, CO and continued at Akron**
 - Part of large scale demonstration for water conservation
- **Irrigation management**
 - Full irrigation – as needed
 - Allocation – 5 inches maximum
- **Fertilizer Management**
 - Pre-plant
 - Combination of pre-plant and fertigation

Fertility Management

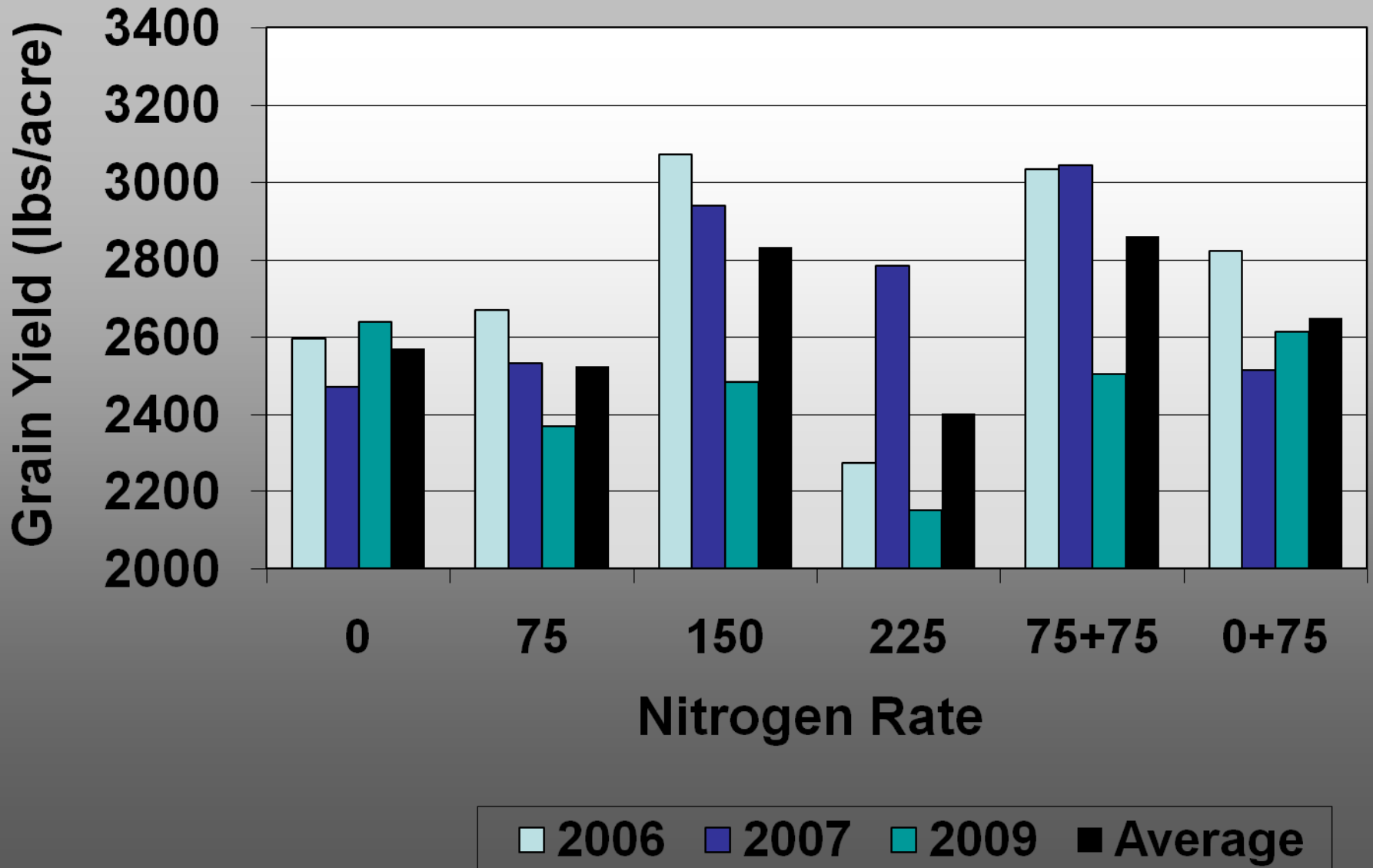
A photograph of a sunflower field under a clear blue sky. The sunflowers are in various stages of bloom, with some showing bright yellow petals and dark brown centers. The leaves are large and green. The image is used as a background for the slide.

- **Measurements**
 - **Grain Yield**
 - **Soil Nitrogen**
 - **Chlorophyll Readings (SPAD)**
 - Hand measurement
 - Relative greenness of crop
 - Indication of nitrogen stress
 - Used in corn production

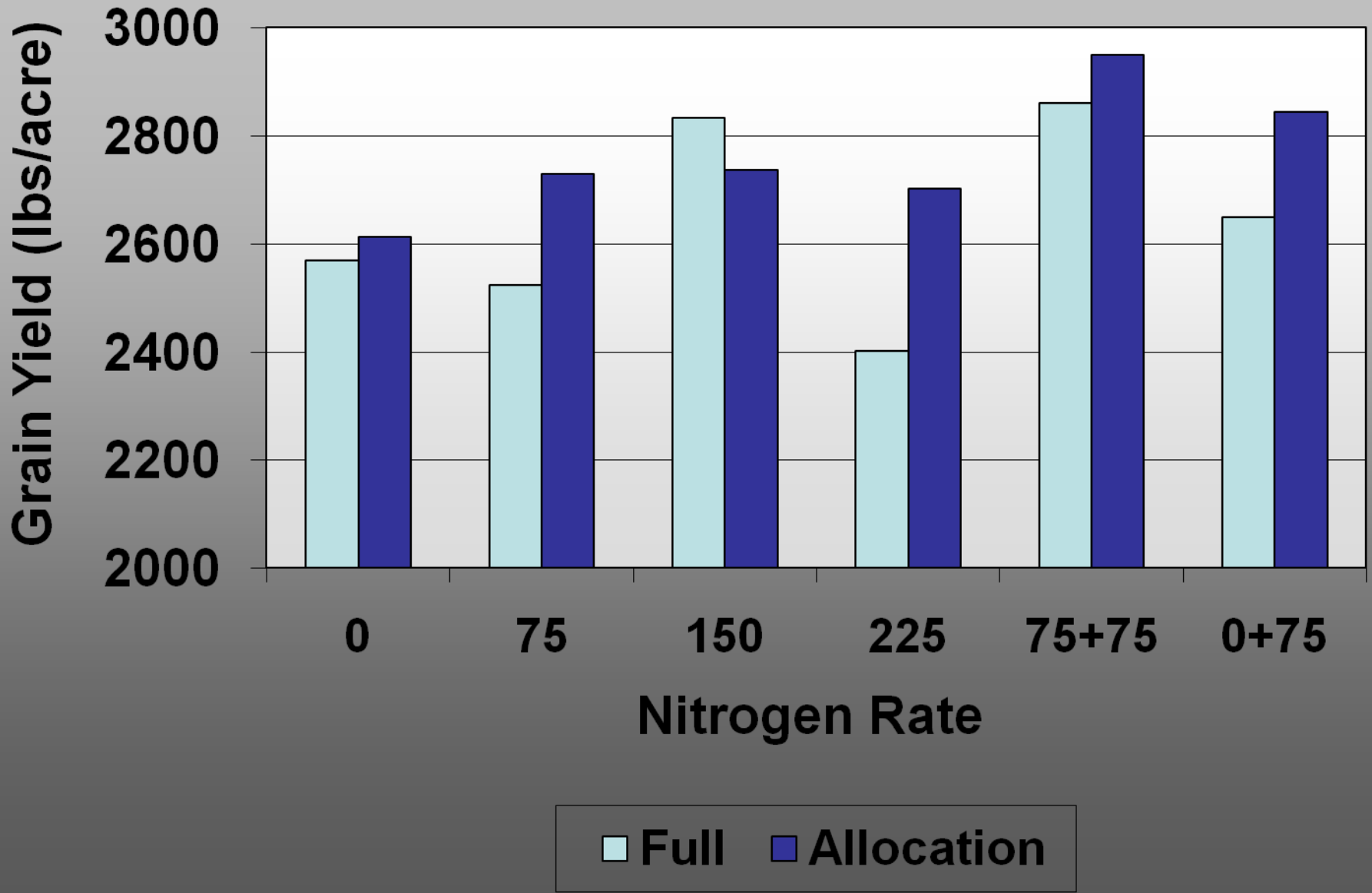
Grain Yields - Allocation



Grain Yields – Full Irrigation

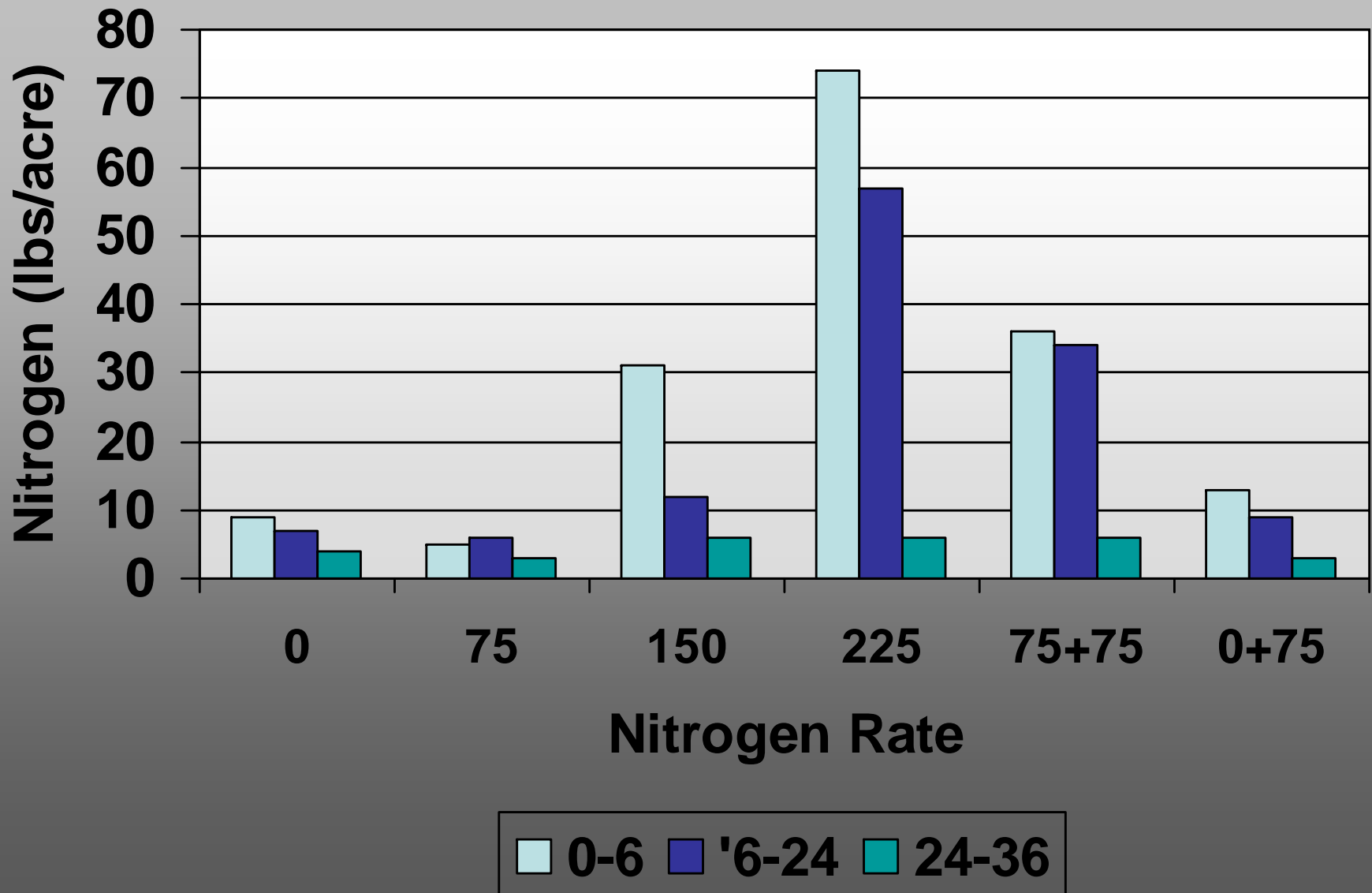


Average Grain Yields



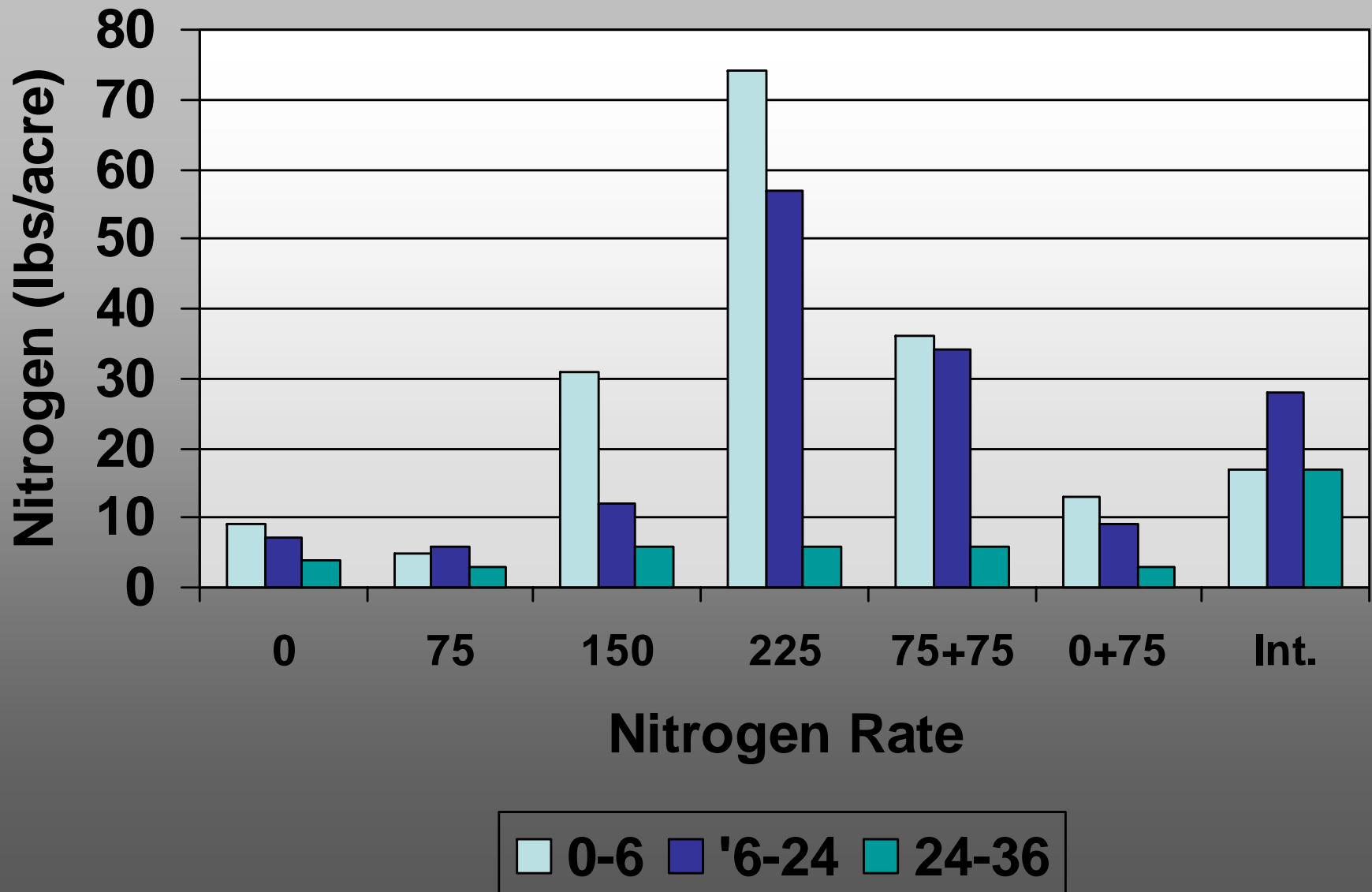
Nitrogen Residual

Allocation 2006

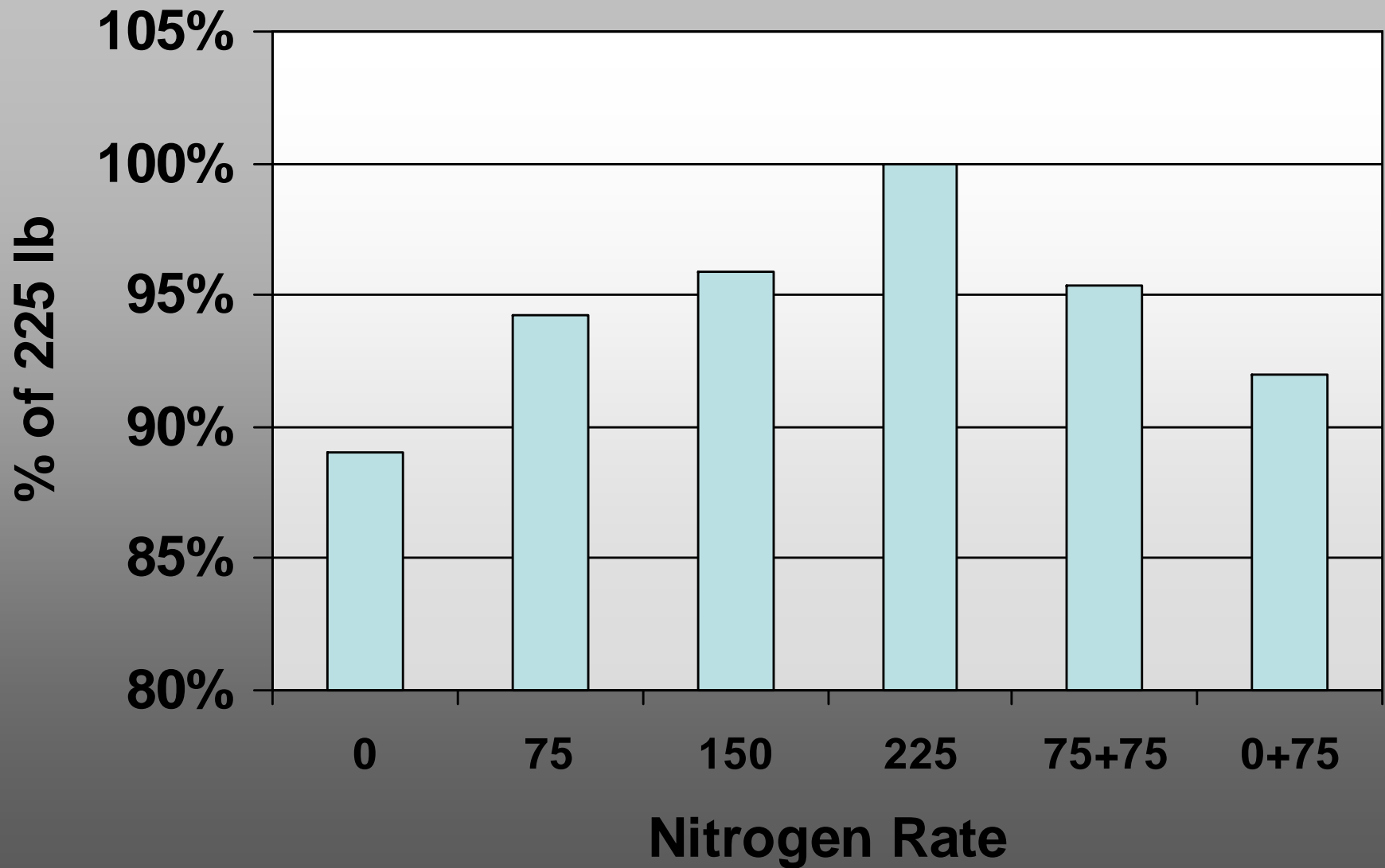


Nitrogen Residual

Allocation 2006

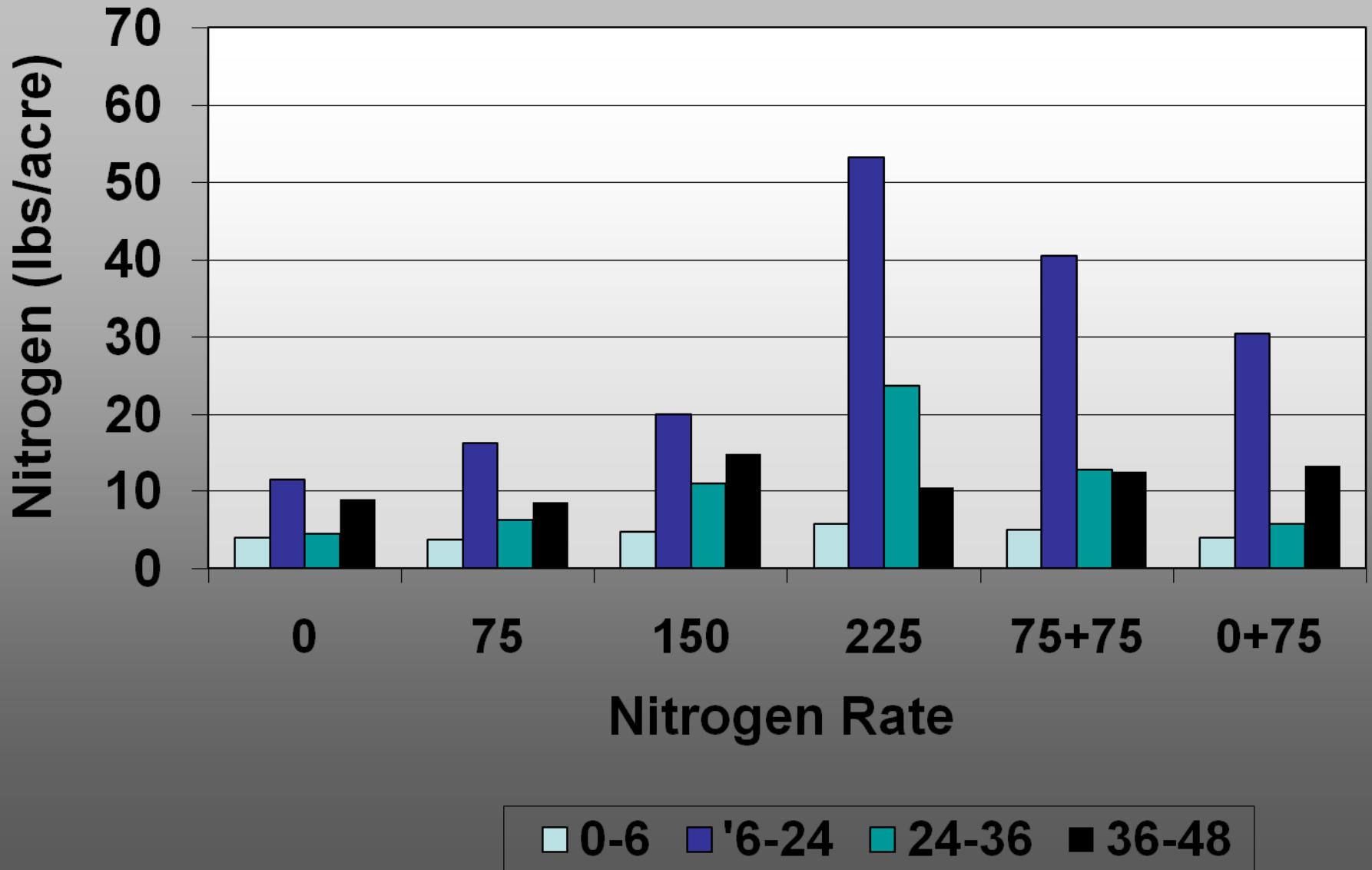


Chlorophyll Reading 2006



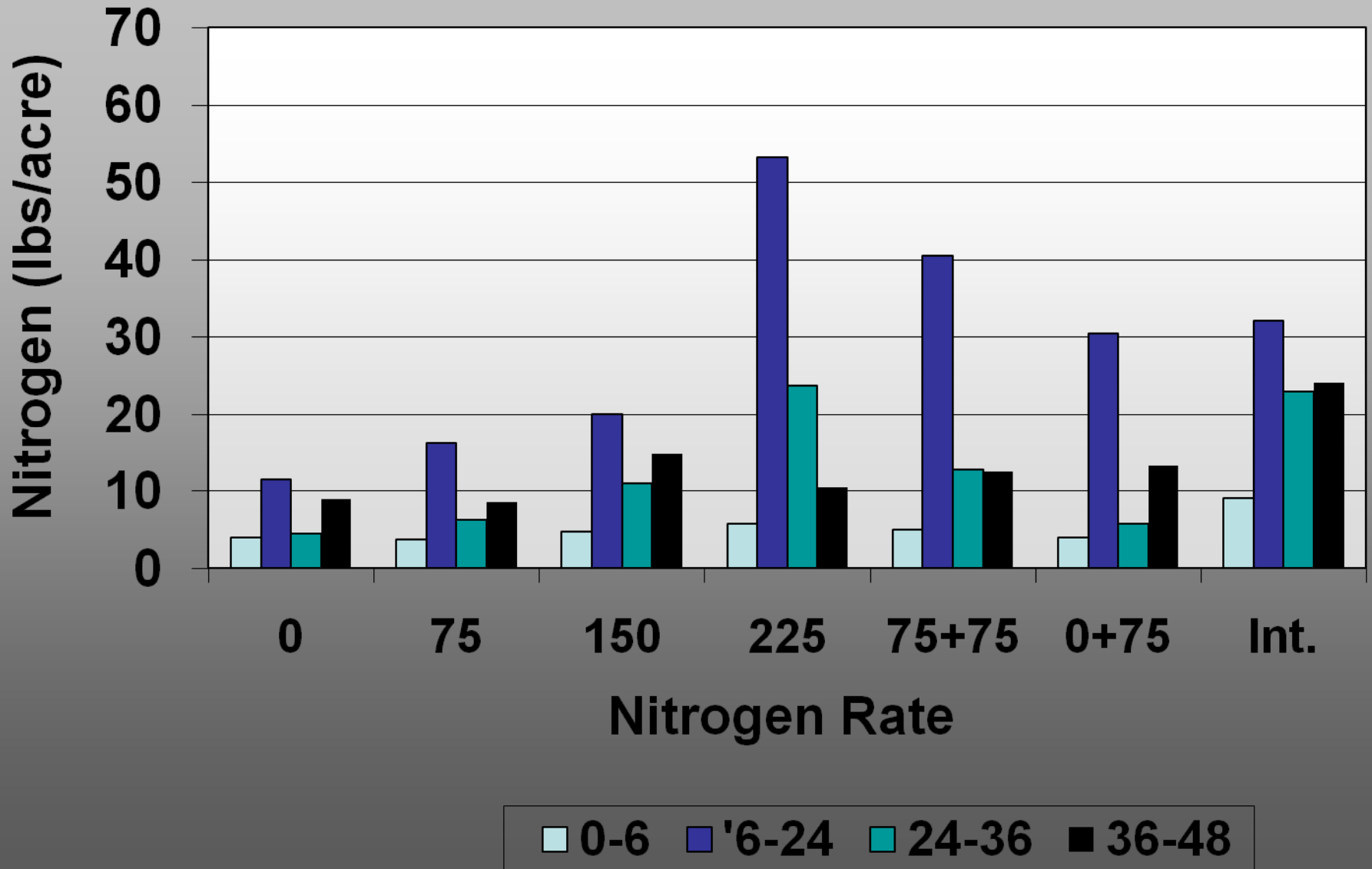
Nitrogen Residual

Allocation 2009



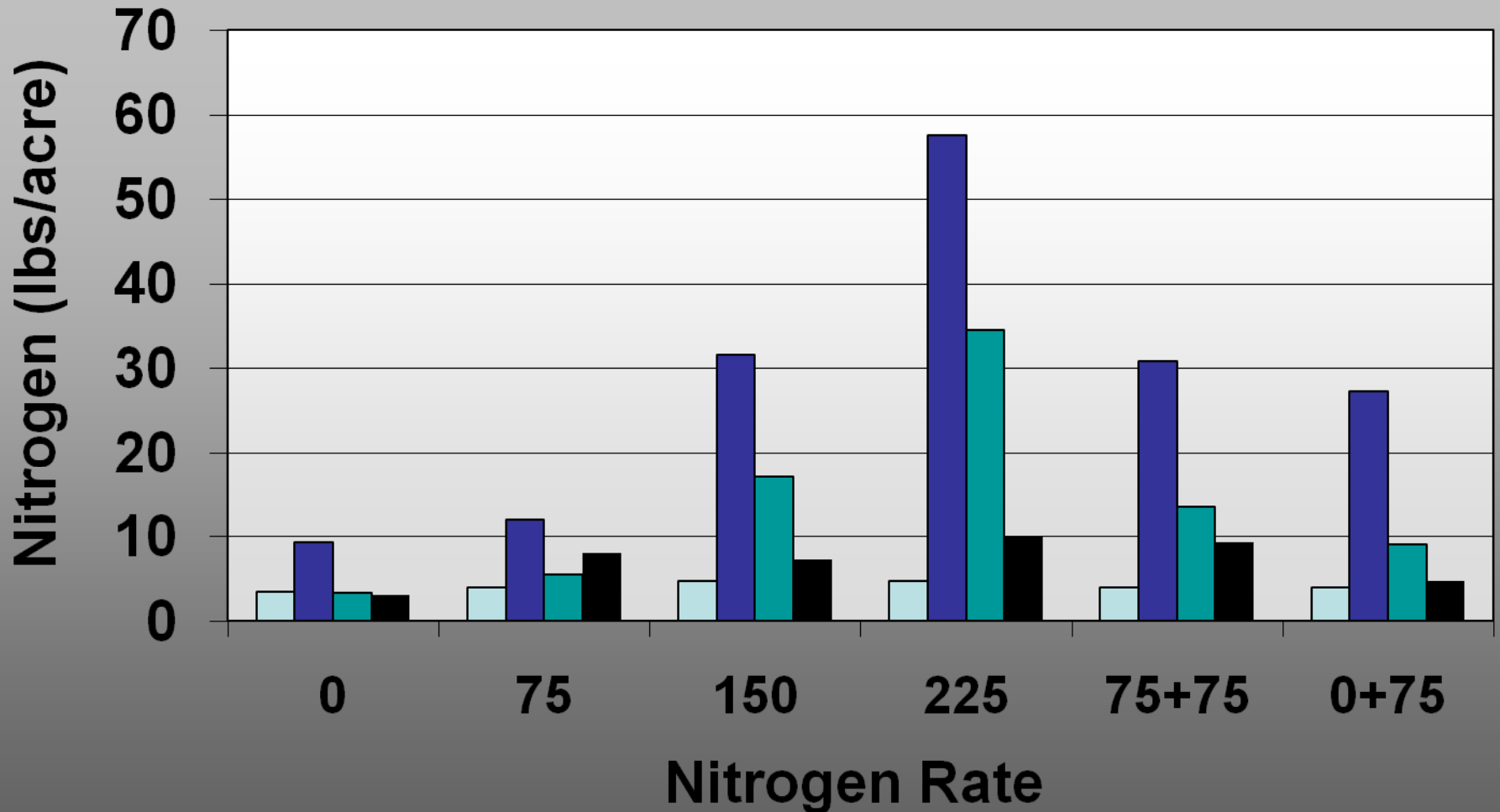
Nitrogen Residual

Allocation 2009



Nitrogen Residual

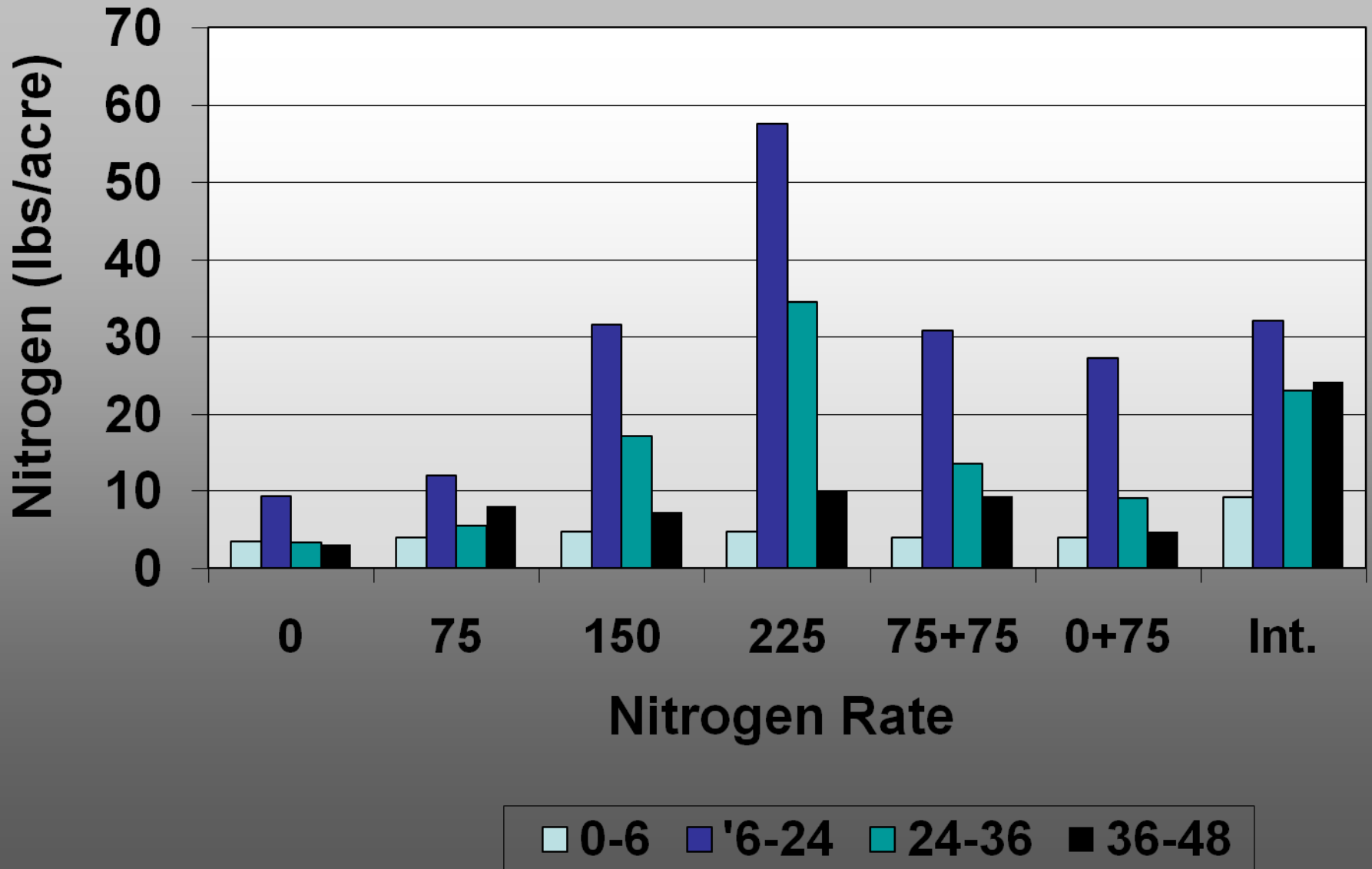
Full 2009



0-6 '6-24 24-36 36-48

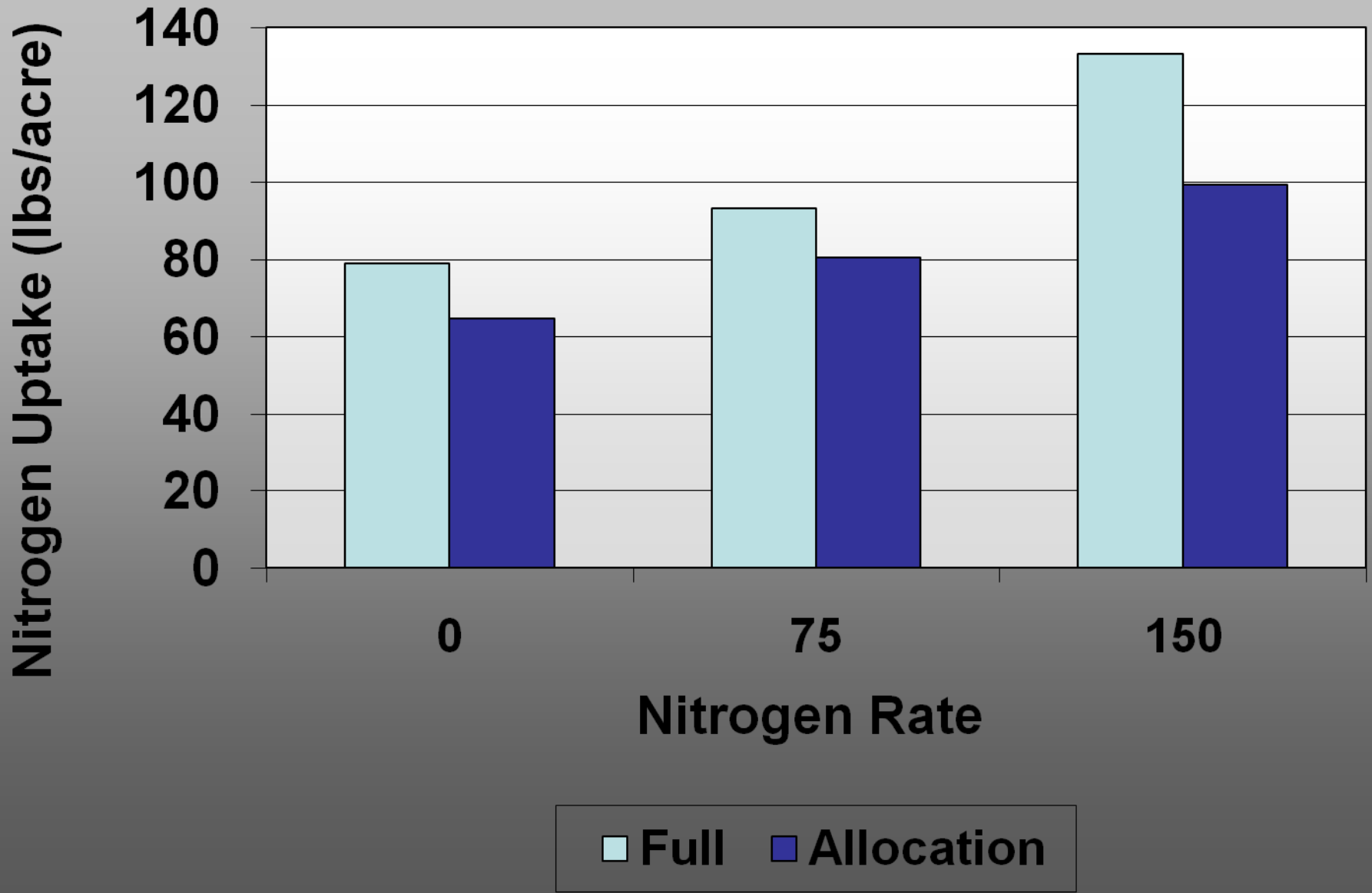
Nitrogen Residual

Full 2009



Nitrogen Uptake

R2 2009



Conclusions

- Irrigation management influences fertility needs
 - Greater yields with limited water and 0 nitrogen applied
 - Full irrigation – 210 lbs/acre available
 - Limited irrigation – 140 lbs/acre available
- Sunflowers with less than 150 lbs/acre N applied reduced soil N residual to 3 feet.