

# Turfgrass Response to Iron Fertilization

Travis Shaddox, Ph.D.

<http://wfrec.ifas.ufl.edu/turfgrass/wp-content/uploads/sites/2/2014/10/FTGA-Iron.pdf>

# Background

- Most turf managers use an Fe component in granular fertilizer
- Soil test may or may not recommend applications of Fe in Florida soils
- No consideration is given to the form of Fe

Iron is an economic concern,  
not environmental.





# Iron is an economic concern, not environmental.



# Objective

- To determine the influence of various Fe sources on turf response

# Materials and Methods

## ■ Treatments

- Untreated
- Iron Sulfate
- Iron Sucrate
- Iron Humate
- Iron Chelate (5% EDTA)
- Iron Oxide
- Iron Sulfate - Foliar

## ■ Rates

- 10 lb Fe / A
- 20 lb Fe / A

## ■ Locations

- Citra - Princess
- Jay – Tifgrand

## ■ 6 weeks

# Site Information

## Citra

- Princess Bermuda
- Trts applied May 7
- No prior fertilization
- Soil pH 7.2
- Turf was not acceptable at initiation

## Jay

- Tifgrand Bermuda
- Trts applied July 7
- Fertilized 4 weeks prior
- Soil pH 7.3
- Turf was acceptable at initiation



# Rates

## 10# Fe / A

- Fert w/ 3% Fe applied at ~300# / A

- Most applicators use 200-300# / A with 1-3% Fe which supplies 2-6# Fe / A

## 20# Fe / A

- Fert w/ 6% Fe applied at ~300# / A

- 20# is generally the highest recommended

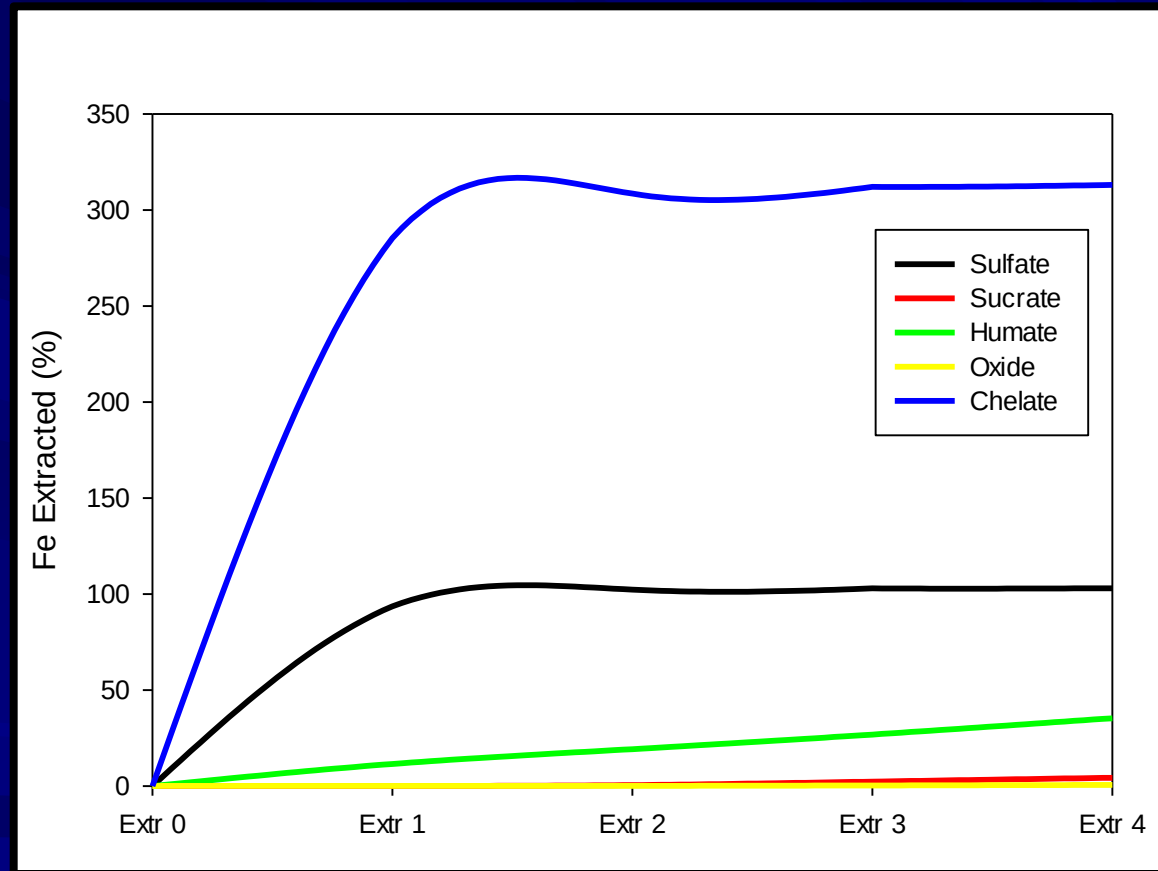
# Variables Analyzed

- Rapid Laboratory Extraction
- Turf Quality
  - 1 to 9
- Yield
  - grams
- NDVI
  - Normalized difference vegetation index
  - Measures natural green color

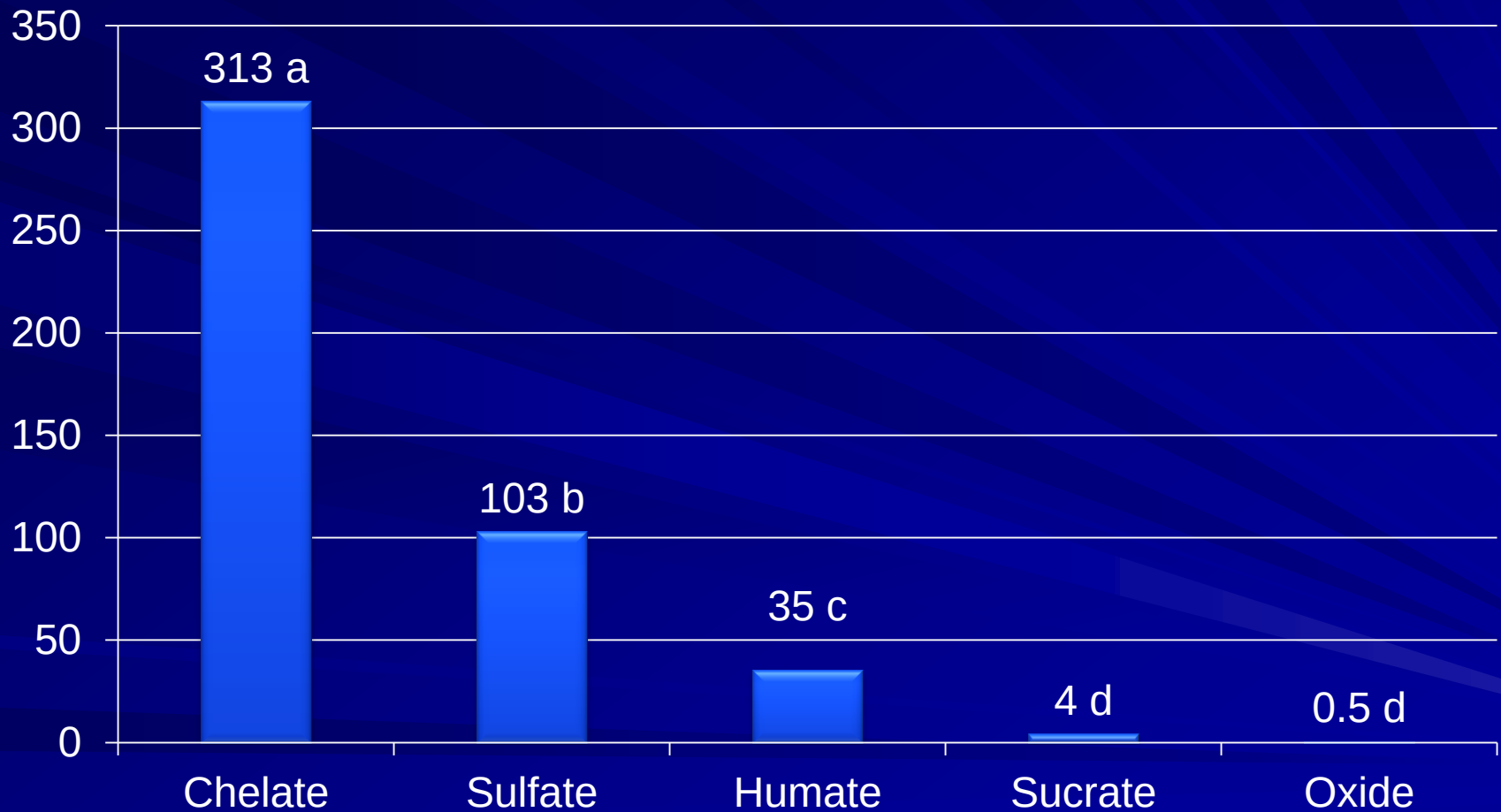
# Rapid Extraction Setup



# Rapid Lab Extraction

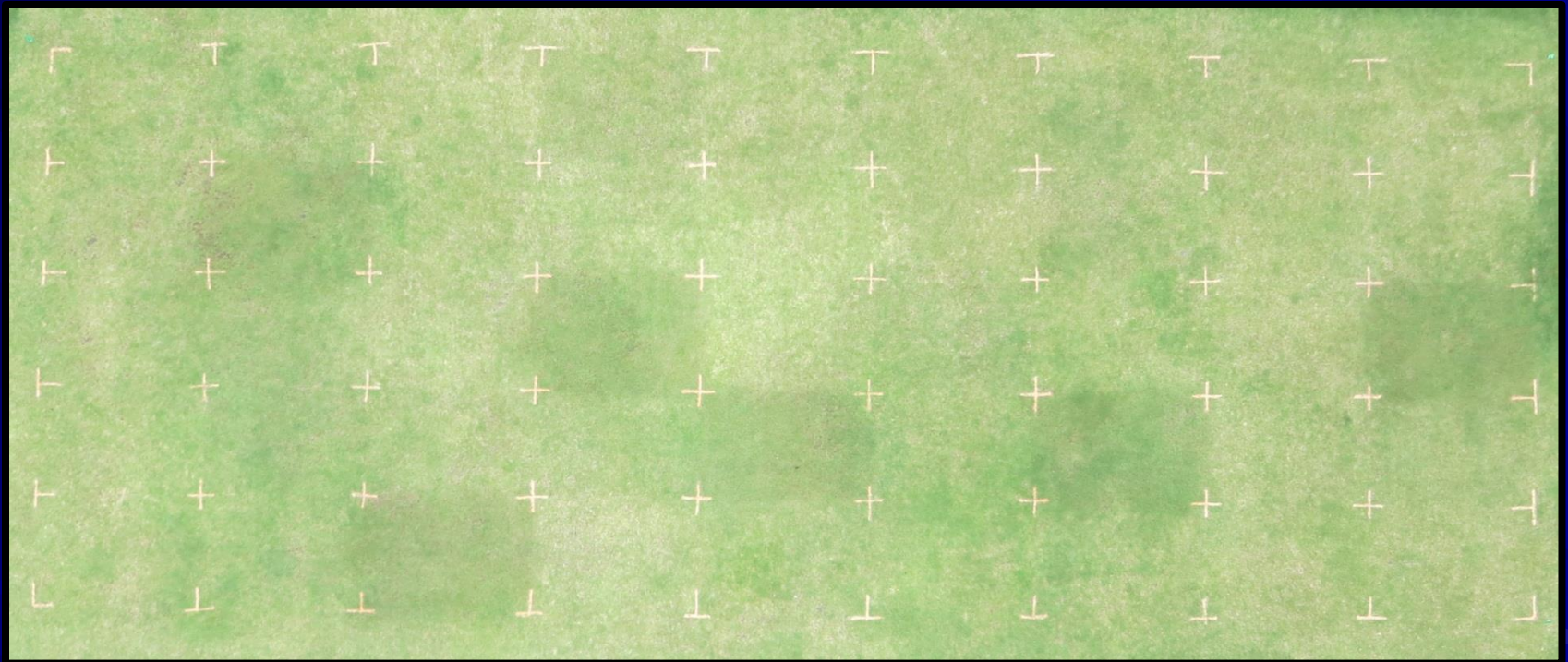


# Cumulative Fe Extracted (%)

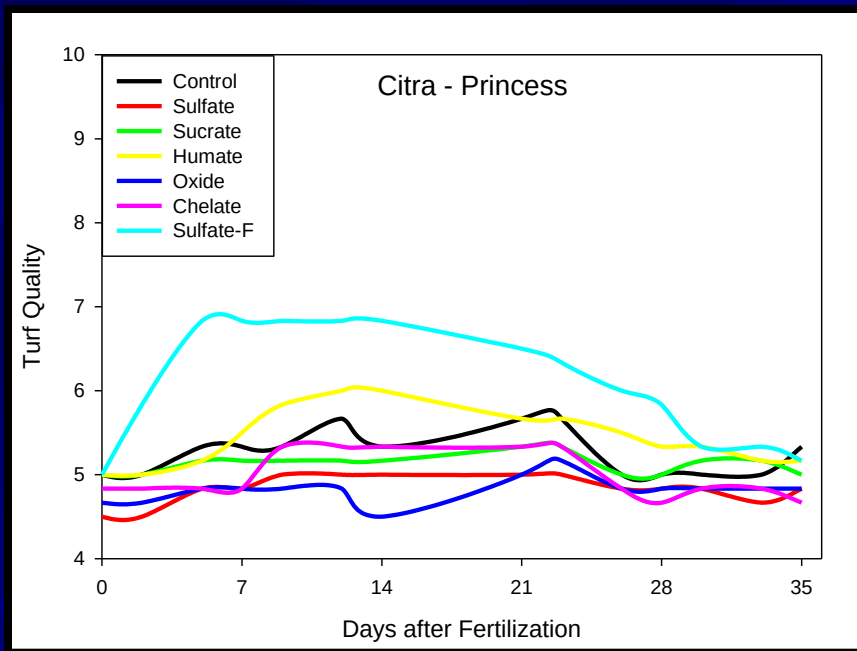




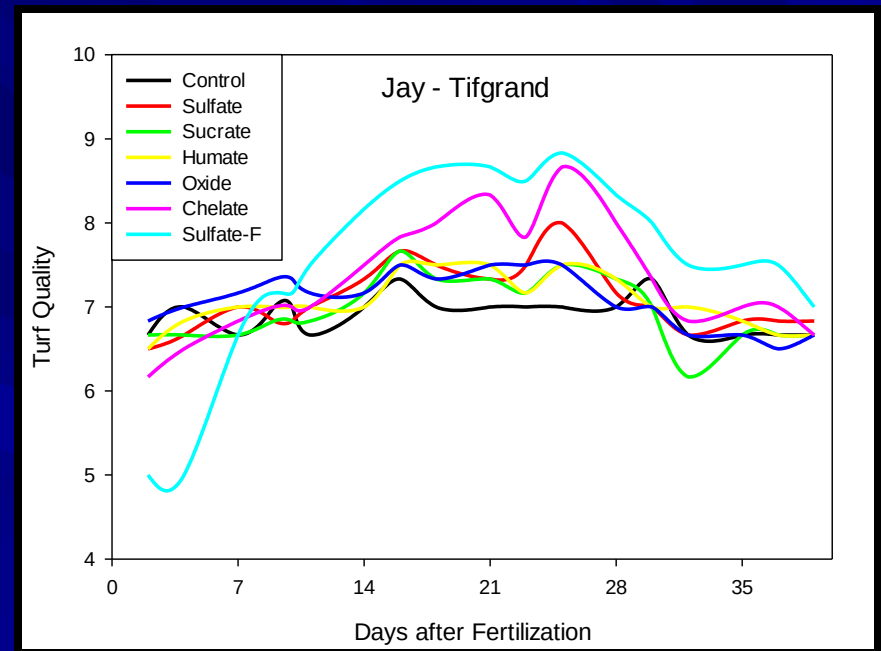
# Aerial Photo – Citra week 3



# Turf Quality



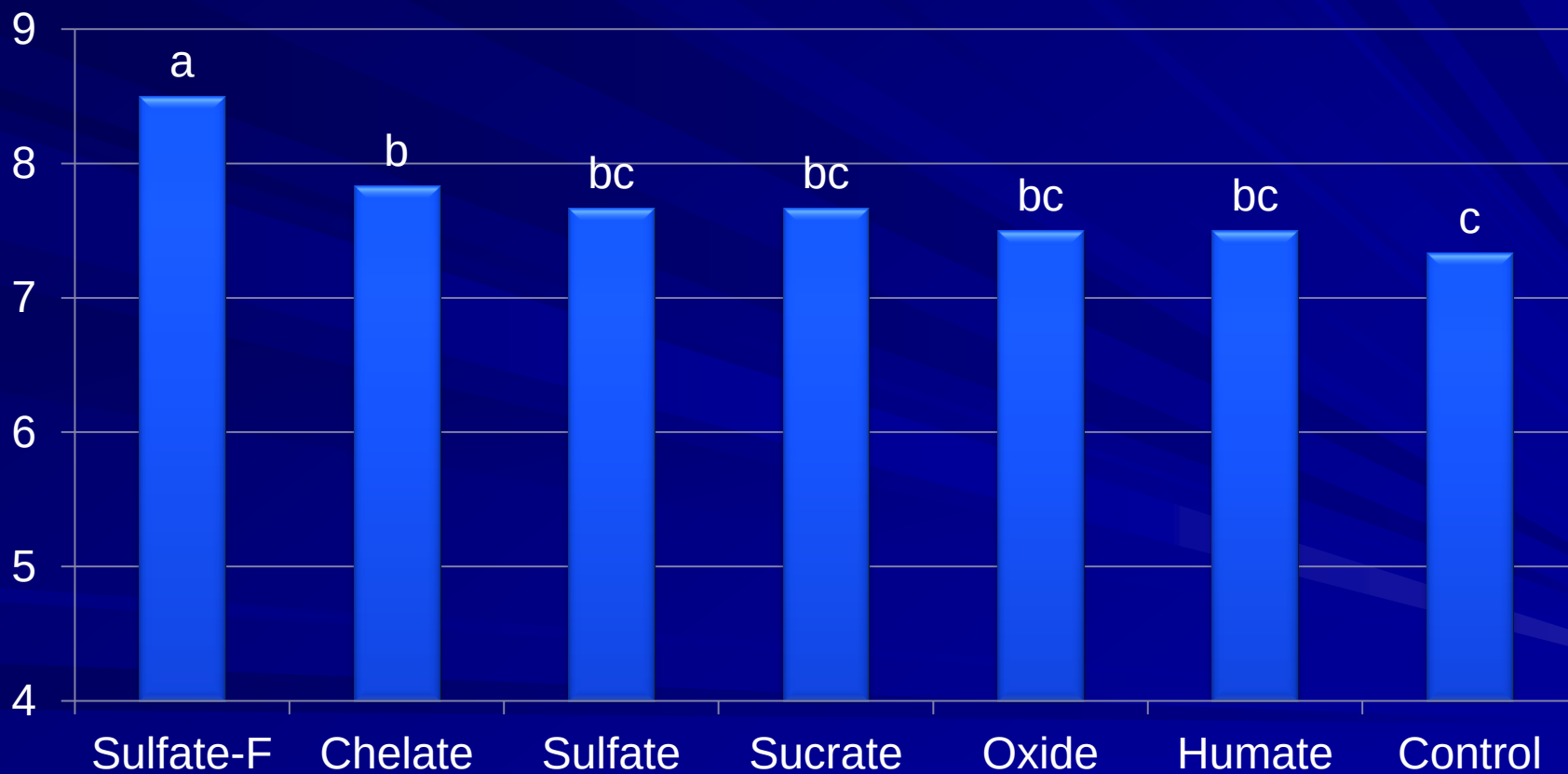
Initiated May 7, 2014



Initiated July 7, 2014

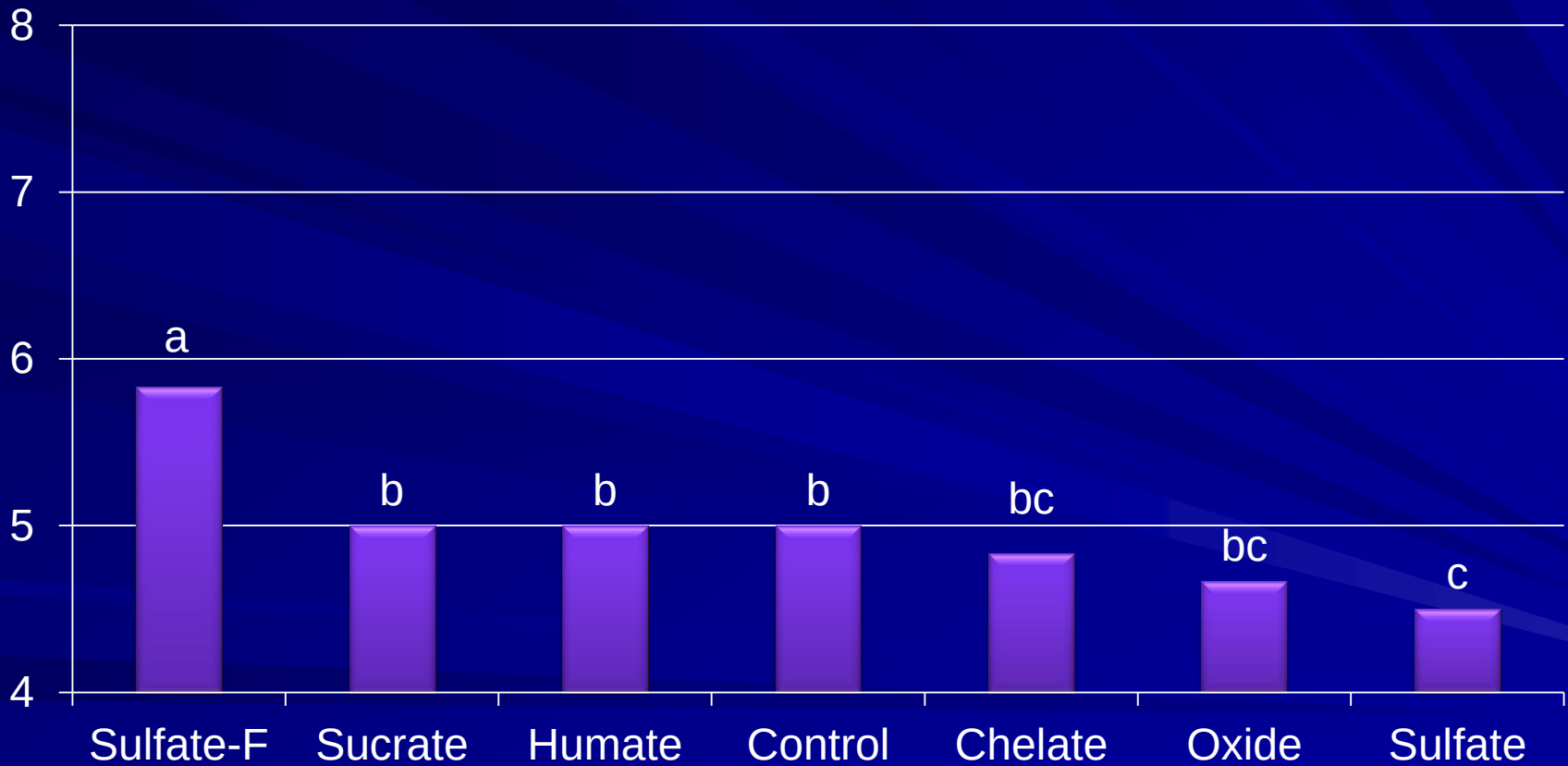
# Turf Quality

Jay - 16 DAA

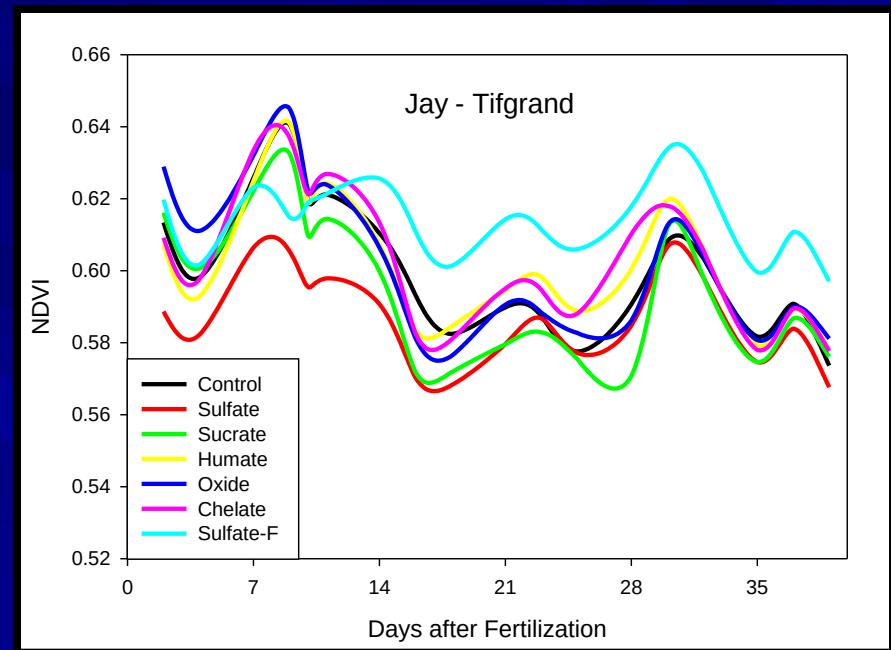
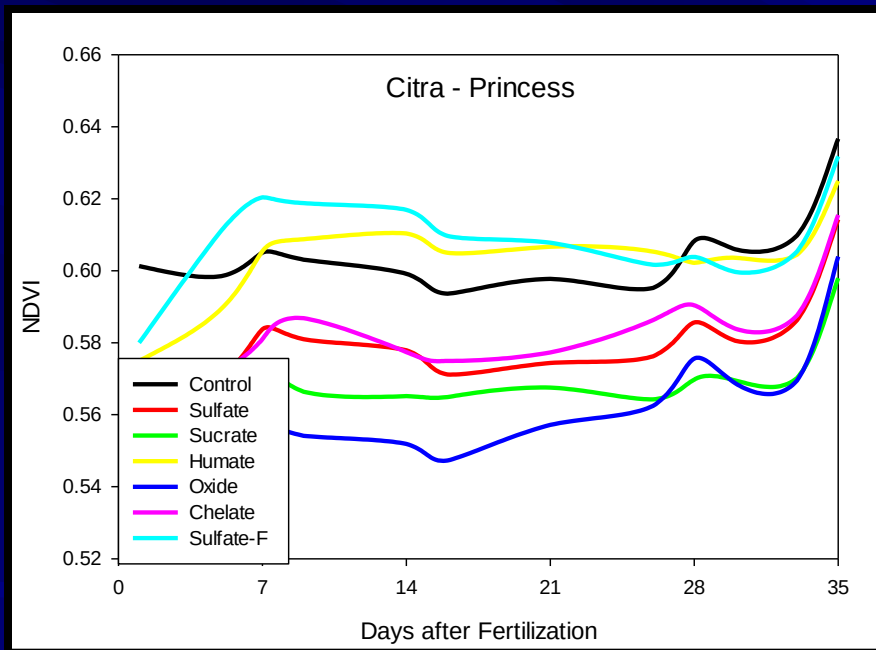


# Turf Quality

Citra - 4 DAA



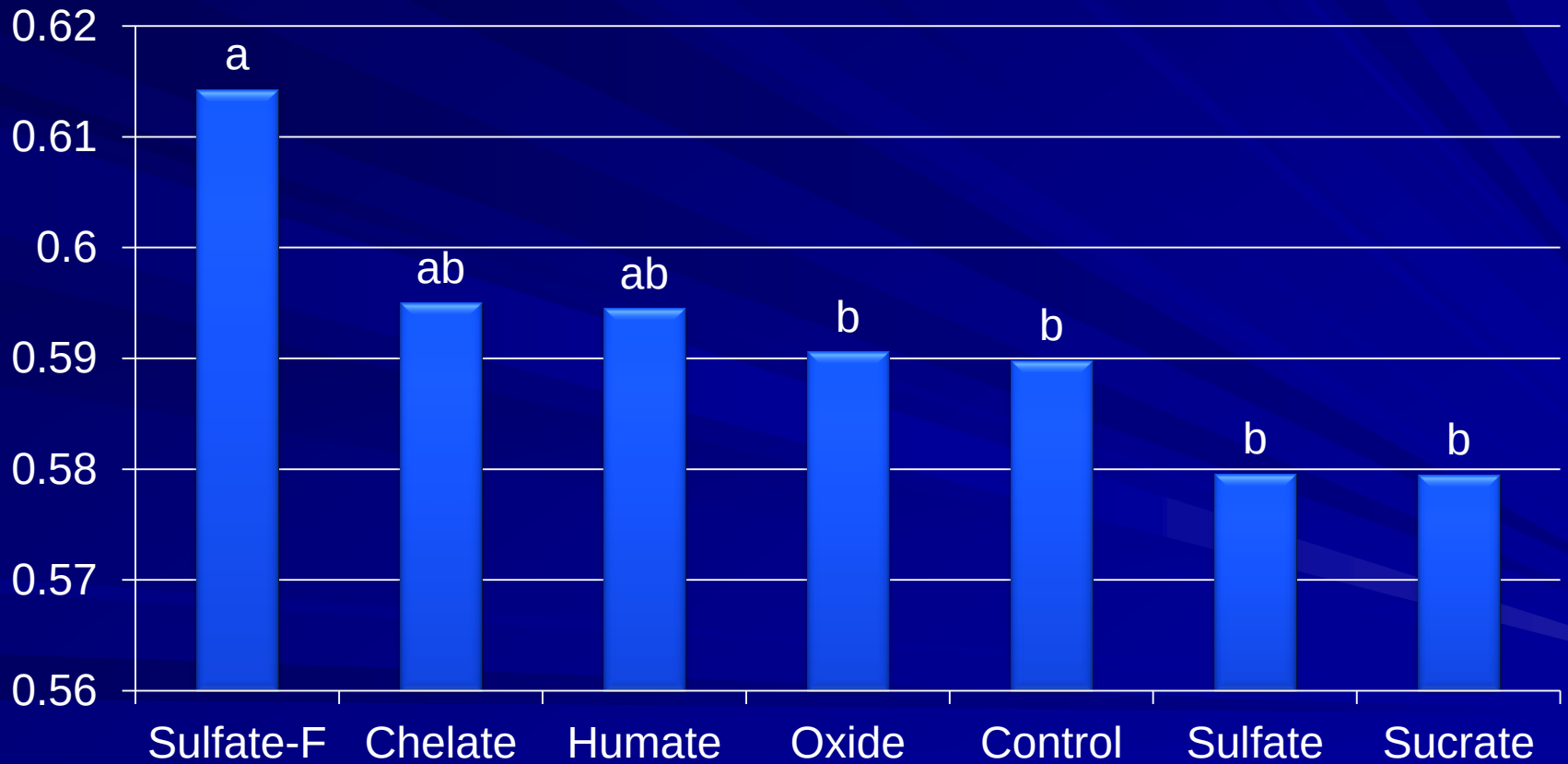
# NDVI





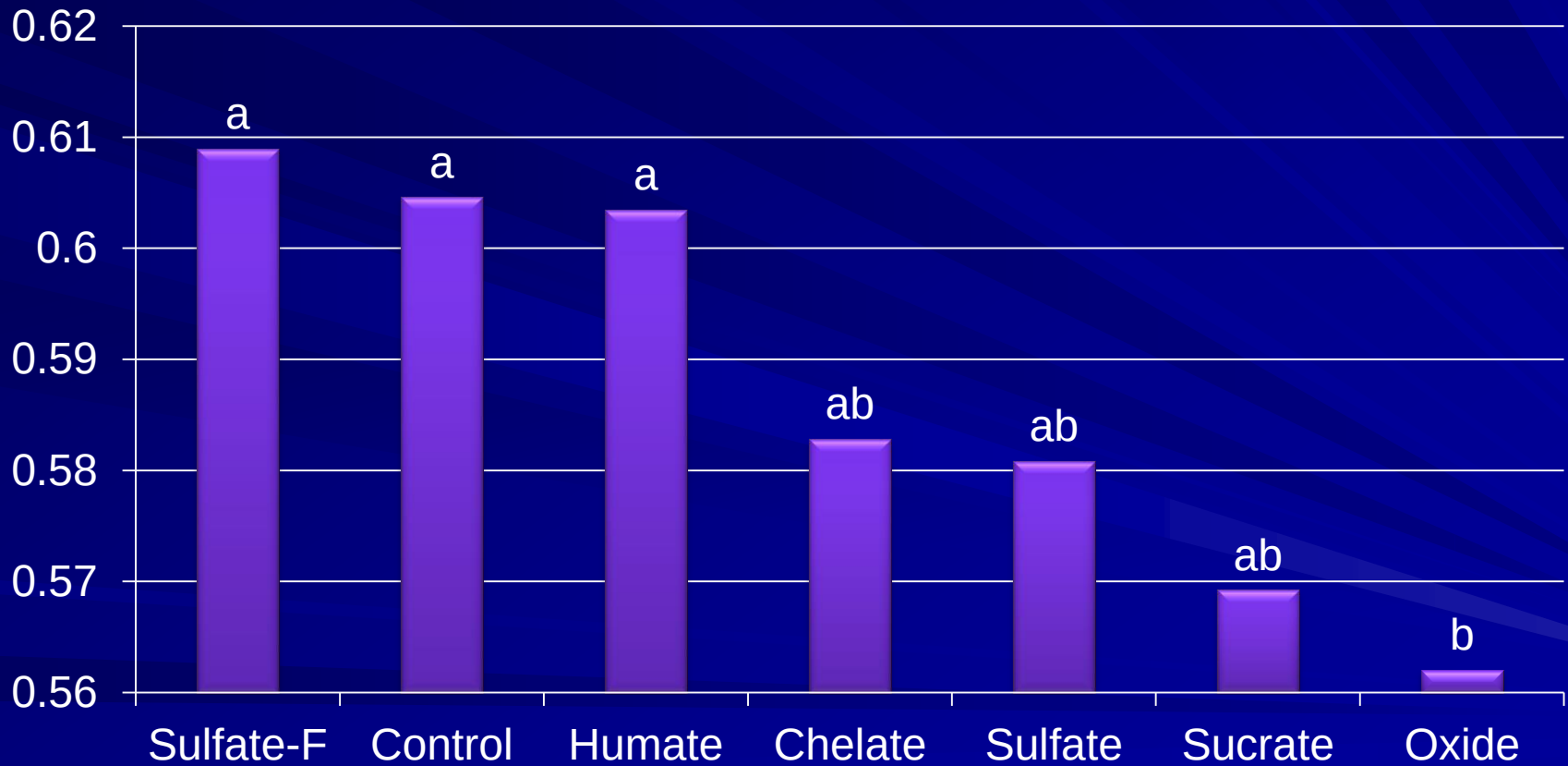
# NDVI

Jay - 21 DAA

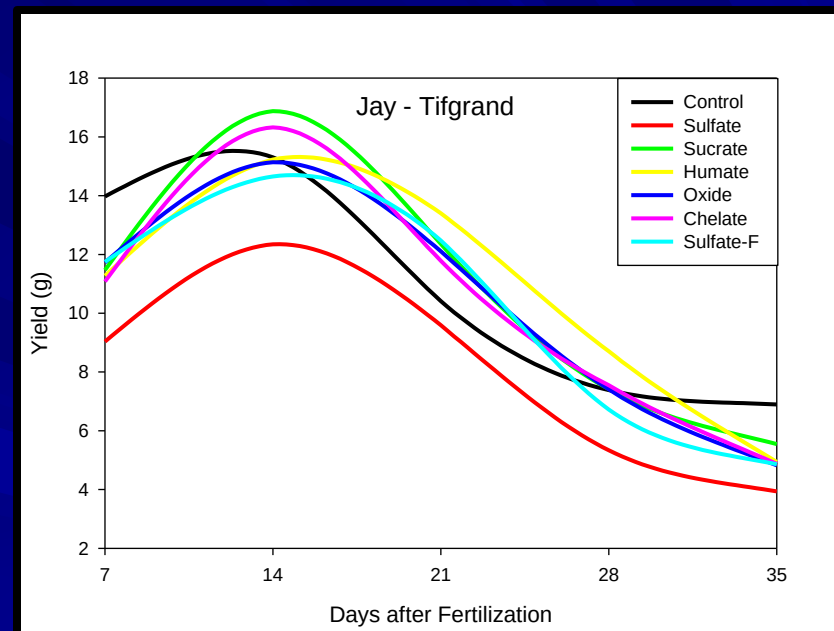
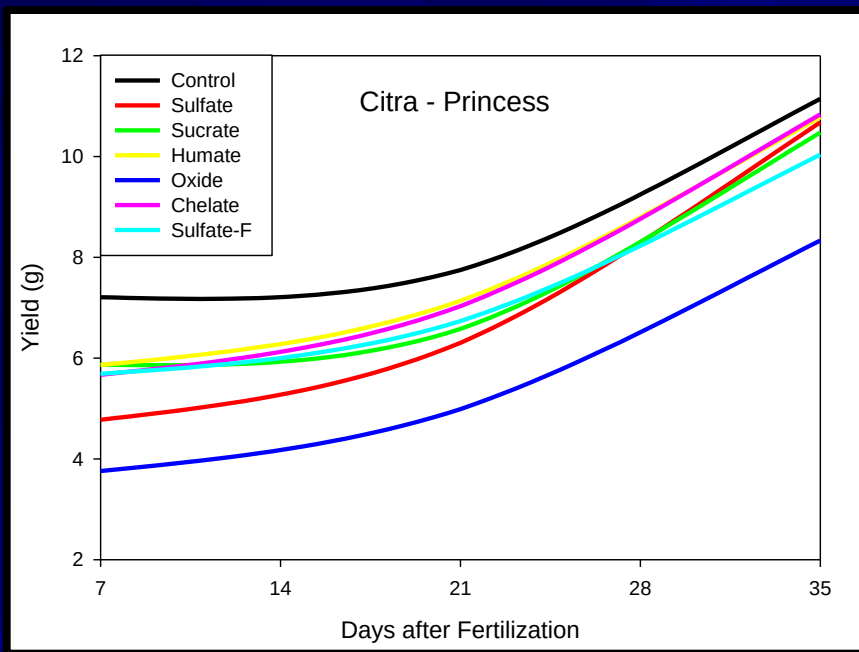


# NDVI

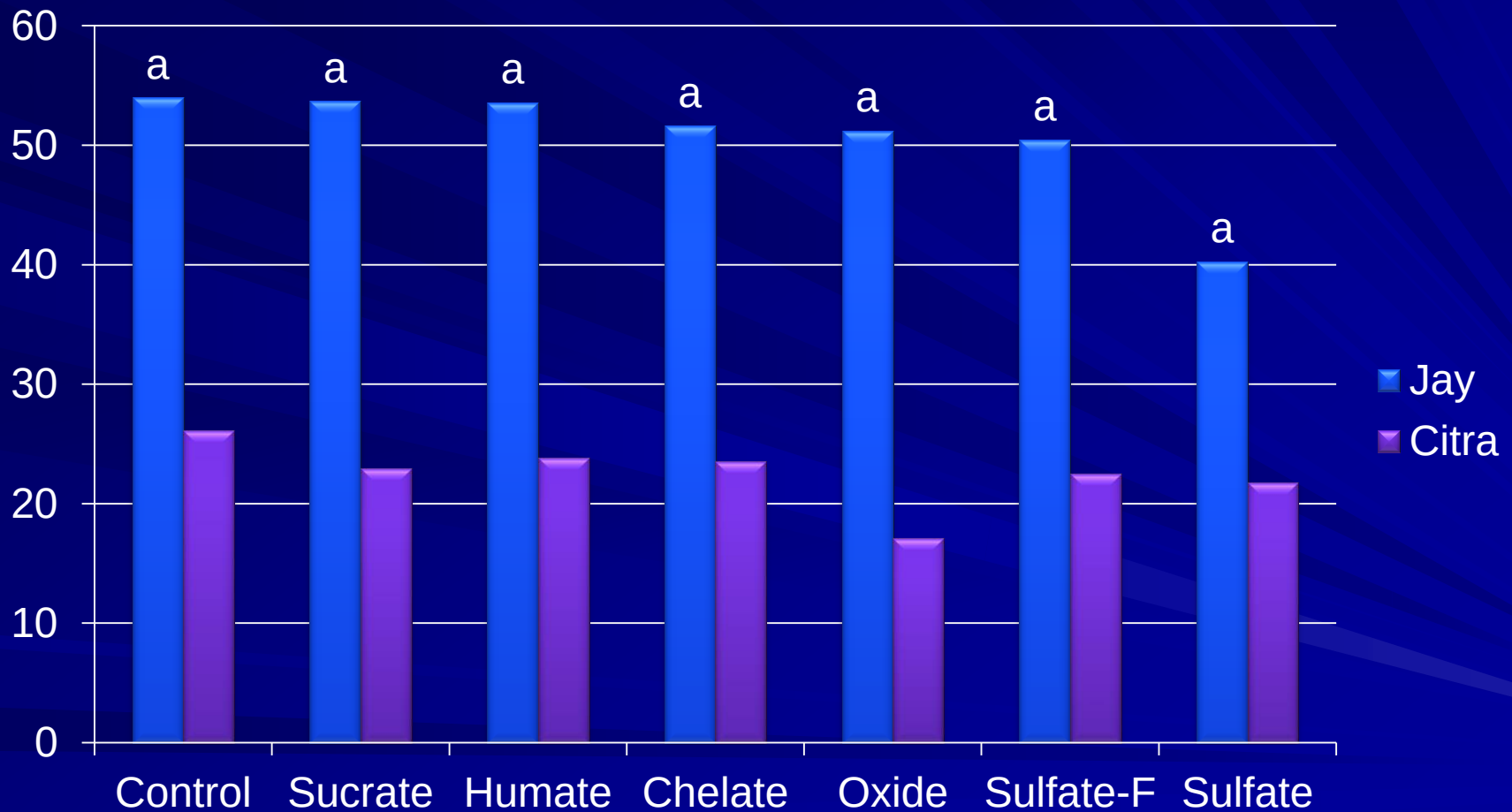
Citra - avg



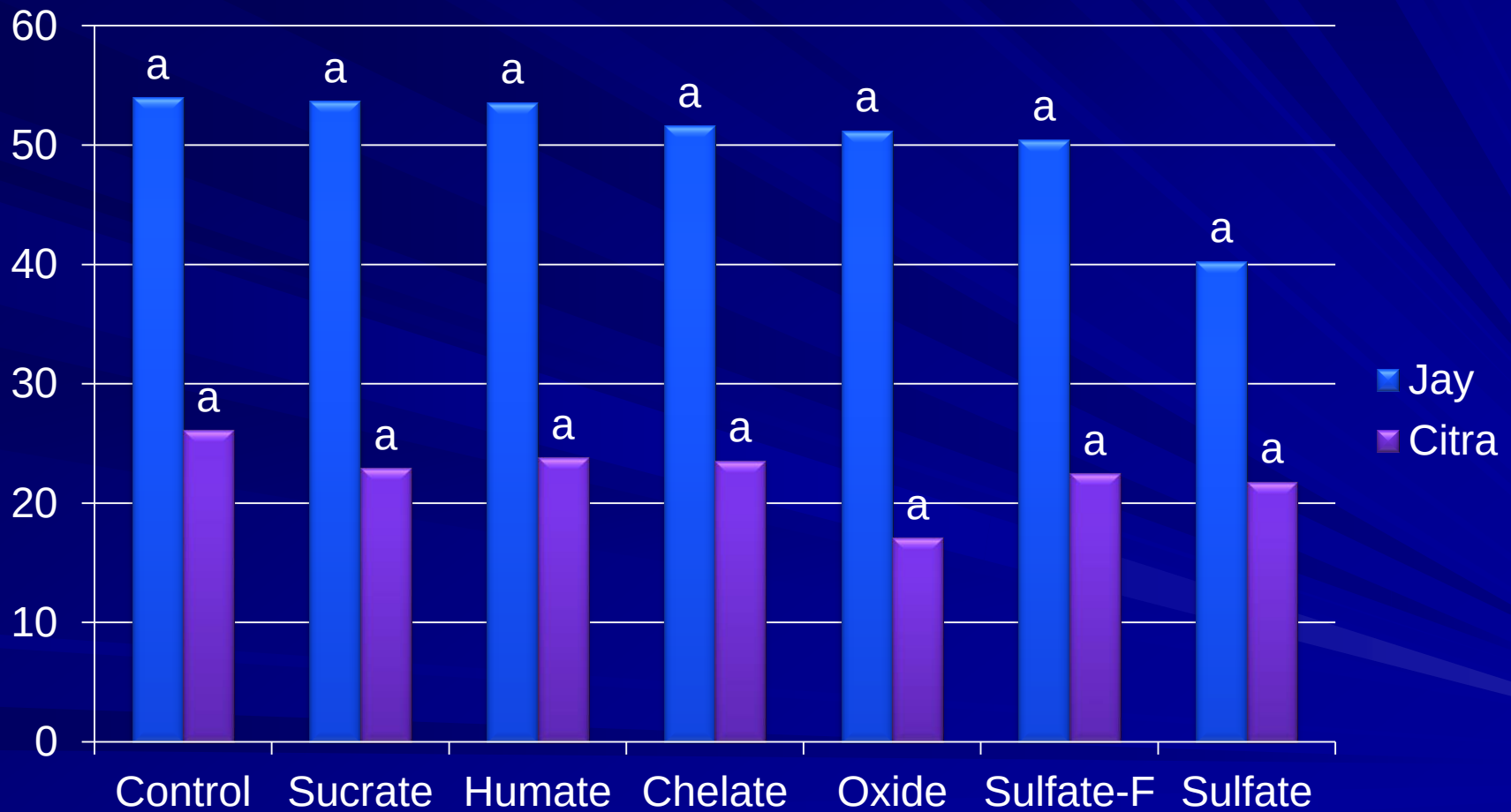
# Yield



# Average Yield (g)



# Average Yield (g)



# Discussion

- Why are granular Fe sources not influencing turf response?
  - Distribution Uniformity
  - Oxidation
- Oxidation presentation



# Summary

- Chelate and sulfate produced the highest amounts of extractable Fe
- Foliar sulfate increased turf quality on Princess and Tifgrand
- Tifgrand - foliar sulfate and chelate were the only source that increase turf color
- No source influenced yield

# Summary cont.

- Granular Fe sources may not provide a visual response in terms of quality or color at 10 or 20# Fe / A
- Foliar applications should be considered

# Contact Info

Travis Shaddox  
University of Florida  
Environmental Horticulture  
office 352-273-4591  
cell 352-262-3426  
Shaddox@ufl.edu

<http://wfrec.ifas.ufl.edu/turfgrass/wp-content/uploads/sites/2/2014/10/FTGA-Iron.pdf>