Iron in the Fire: How Does Bermudagrass Respond?

Travis Shaddox, Ph.D.

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

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.

Materials and Methods
- Treatments
  - Untreated
  - Iron Sulfate
  - Iron Sucrate
  - Iron Humate
  - Iron Chelate (5% EDTA)
  - Iron Oxide
  - Iron Sulfate - Foliar
- Rate
  - 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
Variables Analyzed

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

Cumulative Fe Extracted (%)

Rapid Extraction Setup

Aerial Photo – Citra week 3

Rapid Lab Extraction

Turf Quality - Jay
WHY IS TURFGRASS RESPONDING TO FOLIAR IRON?

 Soil Incubation

Objective

To determine the solubility of Fe applied as sulfate or glucoheptonate in 2 Florida Soils
Soil Incubation

Methodology
- 2 soils
  - Citra
  - Jay
- 2 Iron Products
  - Sulfate
  - Glucoheptonate
- Extractions
  - 1h, 4h, 1d, 1wk, 2wk, 3wk

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

Soluble Fe – Citra Soil

Importance
- Granular Fe increases the cost of granular fertilizer and does not increase turfgrass quality
  - We have observed a response to granular Fe (EDTA & Humate) in 1 of 9 studies!
- Foliar applications should be considered
  - 6 studies on 3 different turfgrasses in 2 locations and 2 years - we have observed a response to foliar Fe in every study

Soluble Fe – Jay Soil

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