

International Conference on Enhanced-Efficiency Fertilizers

An IFA-New Ag International Event

23-24 March 2010

Hotel Hyatt Regency, Miami, FL, USA

ENHANCED TURF NUTRITION WITH ENHANCED-
EFFICIENCY FERTILIZERS

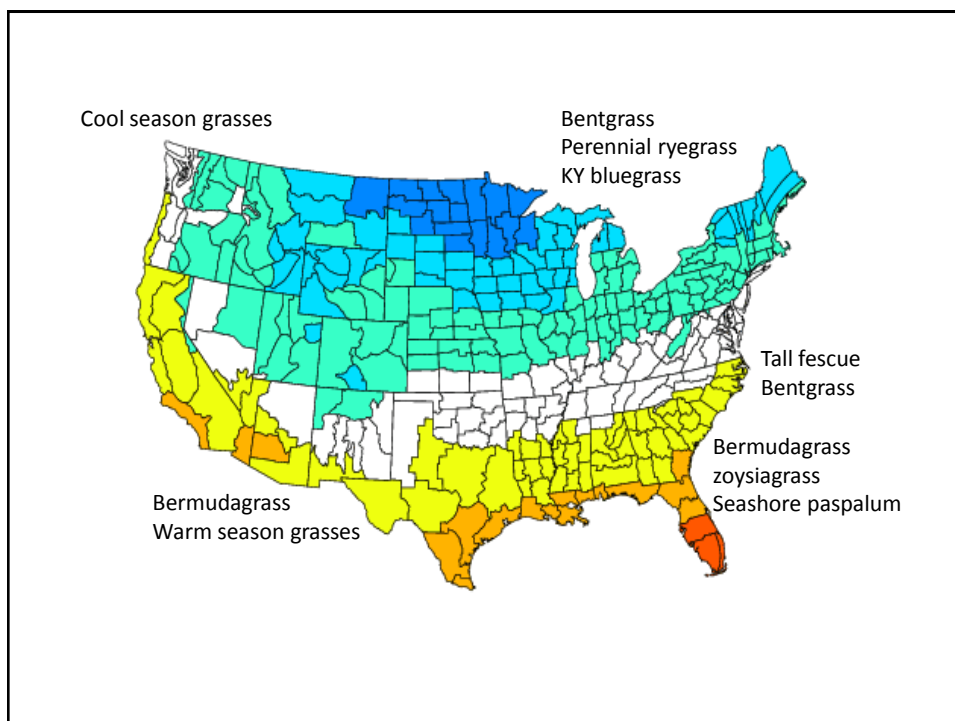
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Enhanced Turf Nutrition with Enhanced-Efficiency Fertilizers

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Nitrogen Fertilization in Turfgrass Management

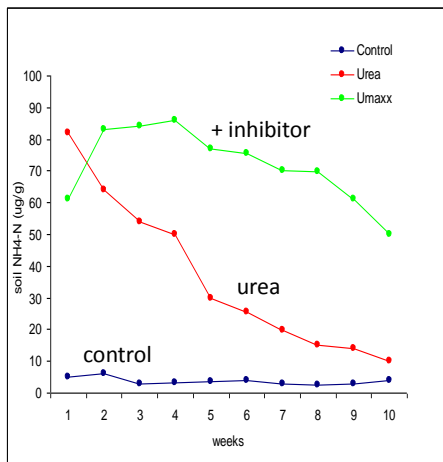
Grass	N Rate (total in a growing season)	
	lbs 1,000 ft ⁻² season ⁻¹	g m ⁻² season ⁻¹
Kentucky bluegrass	2-3	9.8 – 14.7
Tall fescue	2-3	9.8 – 14.7
Hybrid bermudagrass	2-6	9.8 – 29.3
Bermudagrass putting green	6-10	29.3 – 48.8
Bentgrass putting green	3-7	14.7 – 34.2

N rate rule of thumb: 1 lb N 1,000 ft⁻² growing month⁻¹ (4.9 g m⁻²)

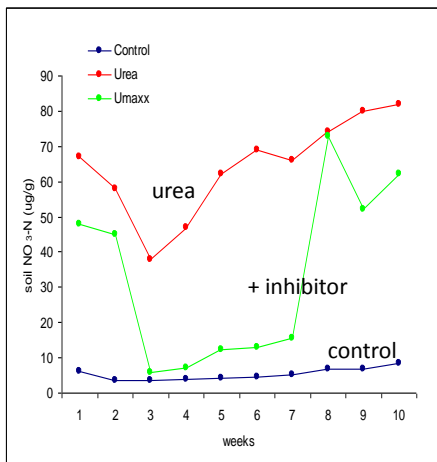
Enhanced Efficiency Fertilizers

- Urea with dicyandiamide (nitrification inhibitor) and N-(n-butyl) thiophosphoric triamide (urease inhibitor).
- Urea with Maleic-Itaconic copolymer.
- Slow-release n sources in turf: methylene ureas and polymer-coated technologies.

Nitrification – Conversion of ammonium into nitrate, done by nitrifying bacteria. Incubation study. Effect of addition of dicyandiamide.



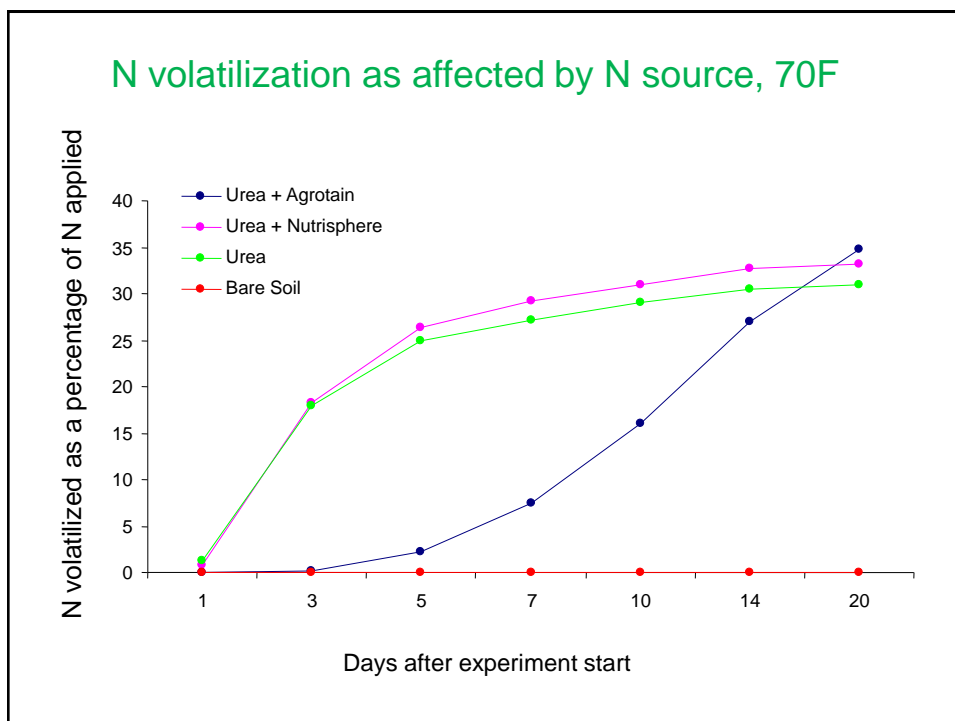
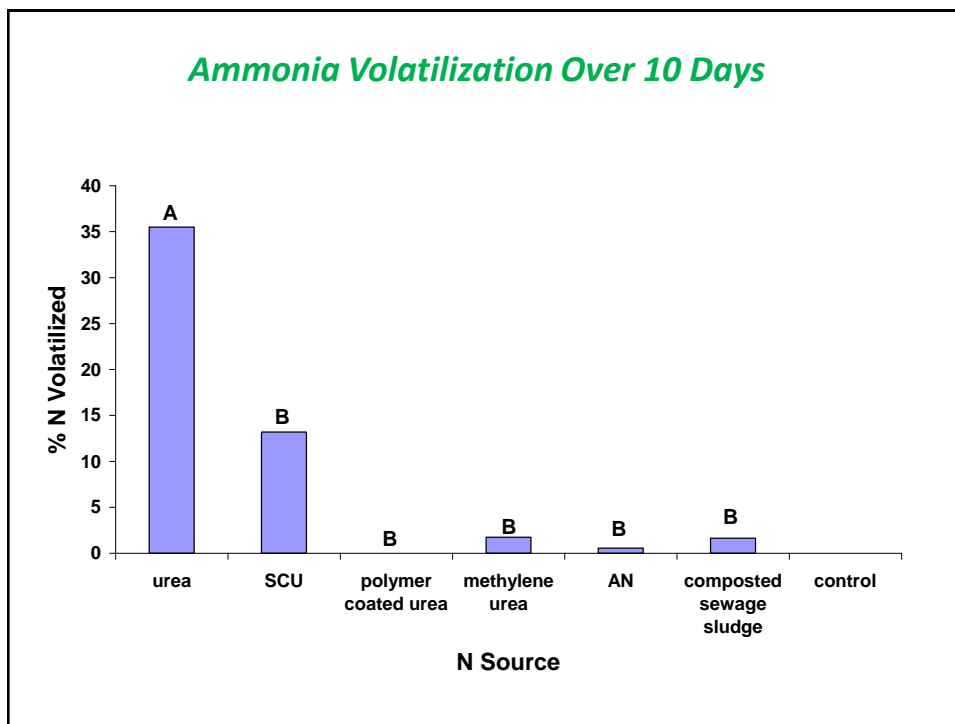
Extractable soil ammonium



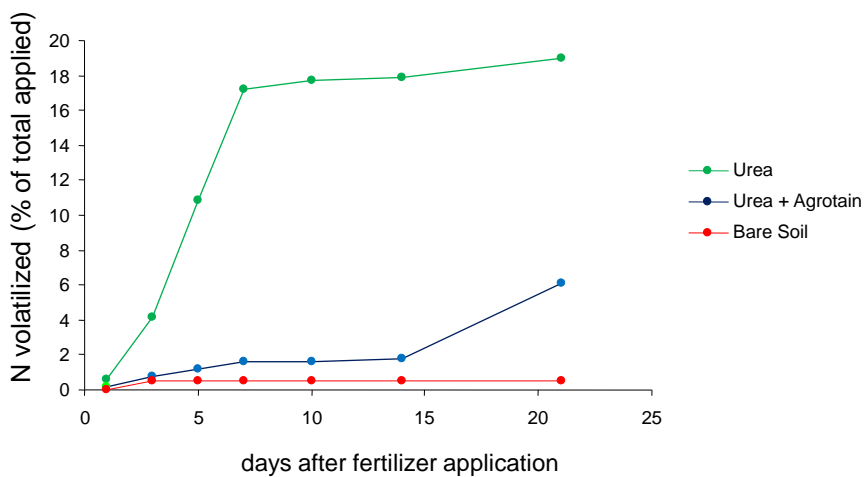
Extractable soil nitrate

Volatilization – Lab Method



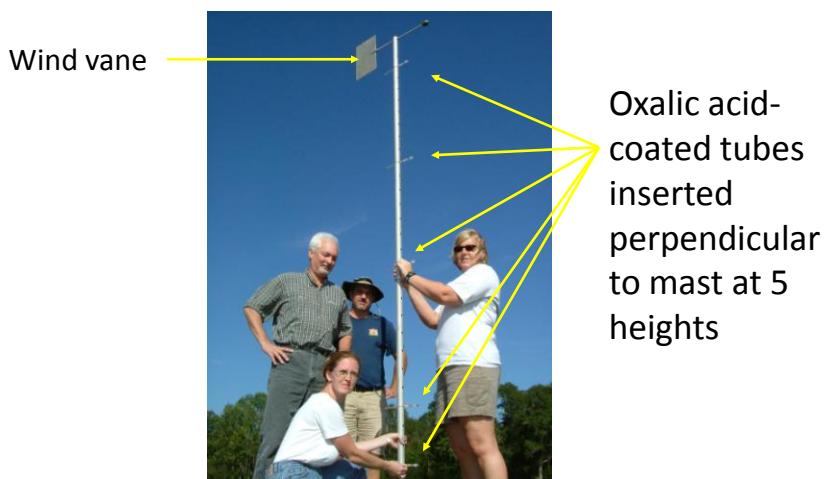


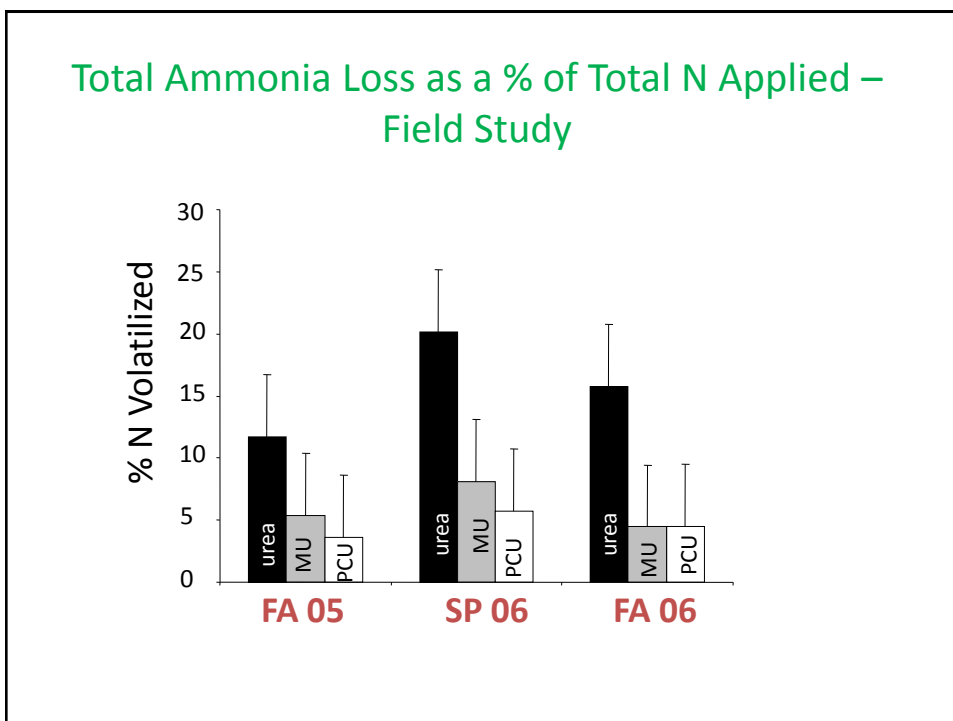
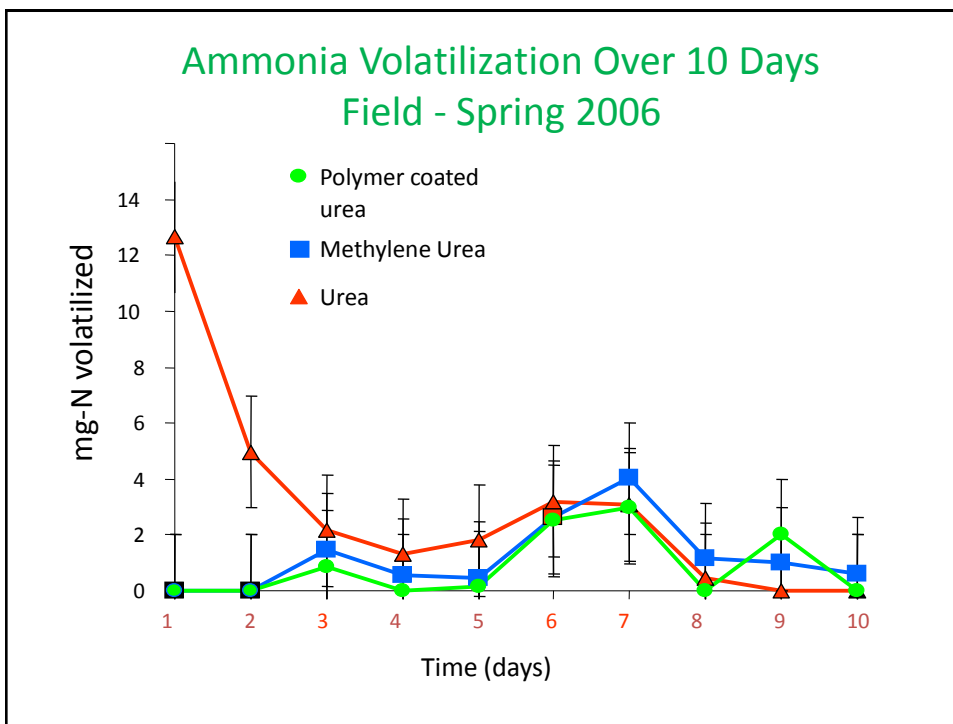
Ammonia volatilization as affected by N source, 50F

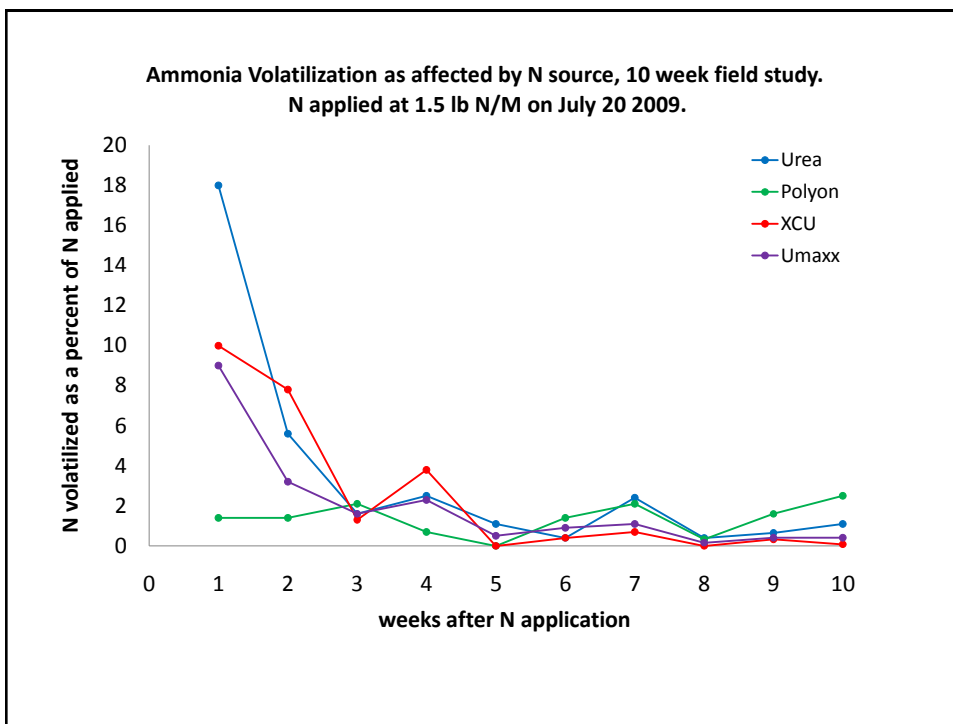


Passive Micrometeorological Technique – Field Study

10 foot (3 m) tall aluminum mast

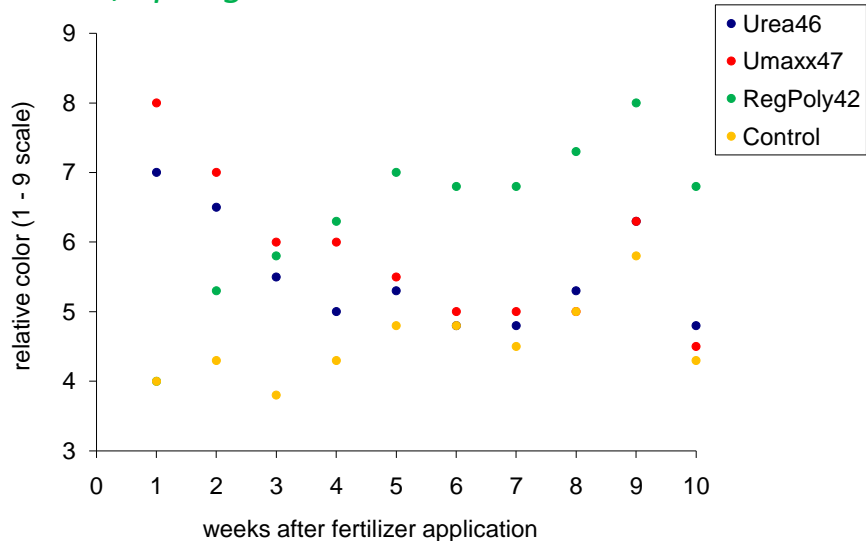






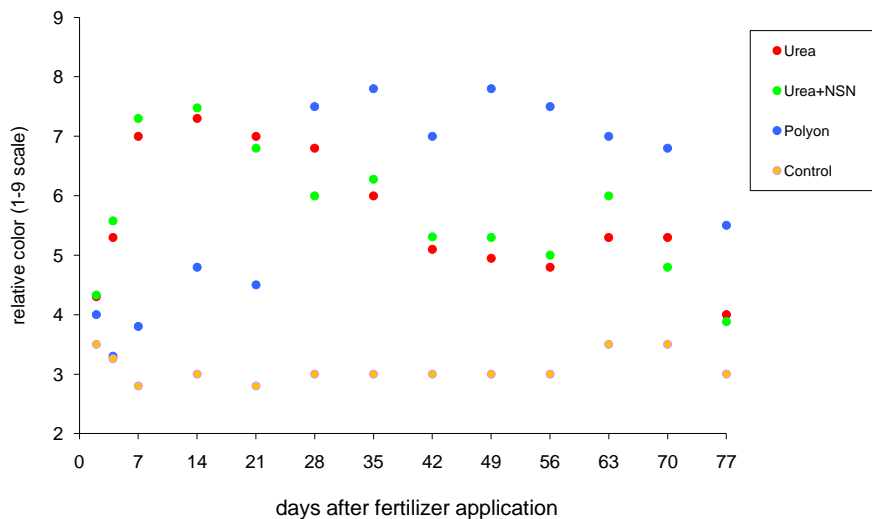
Other Environmental
Observations – color and
nitrate leaching as affected by
enhanced efficiency N
fertilizers.

Penn G-2 color as affected by slow-release N source, Spring-Summer 2007



Relative color of Tifway hybrid bermudagrass as affected by N source, Auburn, AL.

Fertilizers applied on May 19th 2008 at 1.5 lb N/M (7.3 g m⁻²).



Cumulative nitrate in leachate - sand

