



AN EVALUATION OF FLUID AND GRANULAR SOURCES FOR BERMUDAGRASS SOD PRODUCTION.

AUBURN UNIVERSITY



E.A. Guertal, Professor, Soil Fertility
Auburn University, Alabama USA



PROJECT OBJECTIVE

Examine N fertilizer programs (source and rate) to determine the best management for timely establishment of hybrid bermudagrass (*C. dactylon* L. x *C. transvaalensis* [Pers.])

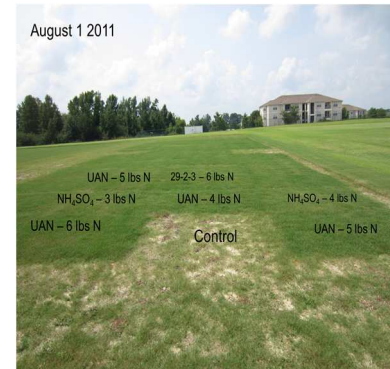
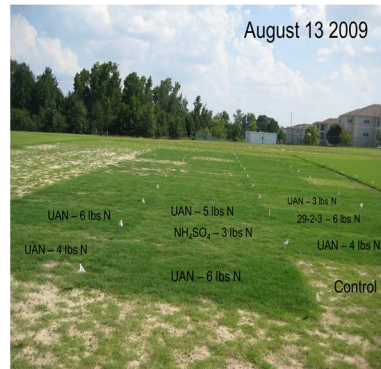
METHODS

- 2009 and 2010 studies, TGRU, Auburn, AL.
- 'Tifway' hybrid bermudagrass.
- Sod harvested in spring of each year, area tilled.
- Three N Sources: 1) UAN (32-0-0), 2) AS (21-0-0), 3) 29-2-3 (20.88% urea-triazzone and 8.12% urea).
- Three total N rates: 3, 4, 6 or 6 lb N/1,000 ft² growing season⁻¹
- N applied as 4 split applications of 0.75, 1.0, 1.25 or 1.5 lb N 1,000 ft⁻² month⁻¹.
- 2009 - applied in June, July, August, Sept.
- 2010 - applied in April, May, June and July.
- 2011 - applied in May, June, July, Aug.
- AS - granular
- UAN and 29-2-3 - applied as liquids in total carrier volume of 4 gal 1,000 ft⁻²
- 4 replications, RCB, 6 x 8 foot plot size
- Collected data:
 - Percent establishment collected via line transect and digital photography
 - Shoot density (Spring of the following year)
 - Sod strength

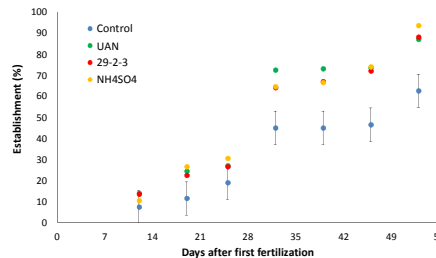
CONVERSIONS

Turf (total)	Field (total)	Metric (total)
lbs 1,000 ft ⁻²	lbs A ⁻¹	kg ha ⁻¹
0.75 (3)	33 (130)	37 (150)
1.0 (4)	44 (175)	49 (195)
1.25 (5)	55 (220)	61 (240)
1.5 (6)	65 (260)	73 (290)
gallons 1,000 ft ⁻²	gallons A ⁻²	liters ha ⁻²
4	174	1,630

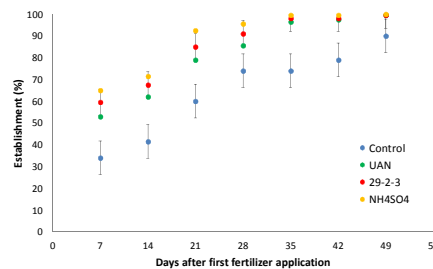
Thanks to the Fluid Fertilizer Foundation for the generous support of this research.



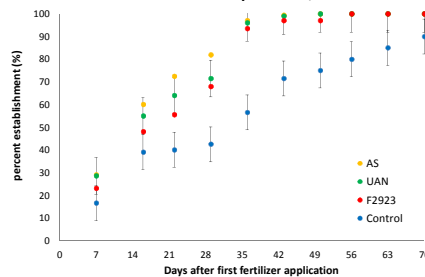
Percent establishment of Tifway hybrid bermudagrass as affected by N source, 2009



Percent establishment of Tifway hybrid bermudagrass as affected by N source, 2010.



Percent establishment of Tifway hybrid bermudagrass as affected by N source, 2011.



Sod strength as affected by N source and sampling year, Auburn, AL. Within each sampling date means followed by the same letter are not significantly different from each other at an alpha of 0.05.

N Source	Oct 19 2009	19 April 2010
	foot lbs at which sod tore	
Control	25.3 b	41.9 c
UAN	49.6 a	73.0 b
29-2-3	65.4 a	87.5 a
NH ₄ SO ₄	47.1 a	74.4 b

N Source	14 July 2010	17 Aug 2010	18 Nov 2010
	foot lbs at which sod tore		
Control	0 b	17.6 b	29.6 b
UAN	21.7 a	37.5 a	49.5 a
29-2-3	22.9 a	37.8 a	51.9 a
NH ₄ SO ₄	23.2 a	36.6 a	51.7 a

N Source	15 Aug 2011	6 Oct 2011
	foot lbs at which sod tore	
Control	18 b	33 b
UAN	40 a	55 a
29-2-3	43 a	55 a
NH ₄ SO ₄	39 a	53 a

RESULTS

- For most variables there were few significant N rate x N source interactions.
- Shoot density (2009 and 2010 data) was unaffected by N source or N rate. Density was always better than in the control plots.
- **N Source** - Sod strength or establishment largely unaffected by N source.
- Application of UAN never caused phytotoxicity issues to sod.
- **N Rate** - Establishment was maximized at 5 to 6 lbs of N/1,000 ft⁻²/year.
- Earlier N application (April) improved establishment and resulted in stronger sod earlier.
- Use of a liquid N source such as UAN did not negatively affect sod establishment or strength.



Mechanism used to determine sod strength - a measurement of the force required to tear a piece of sod.