

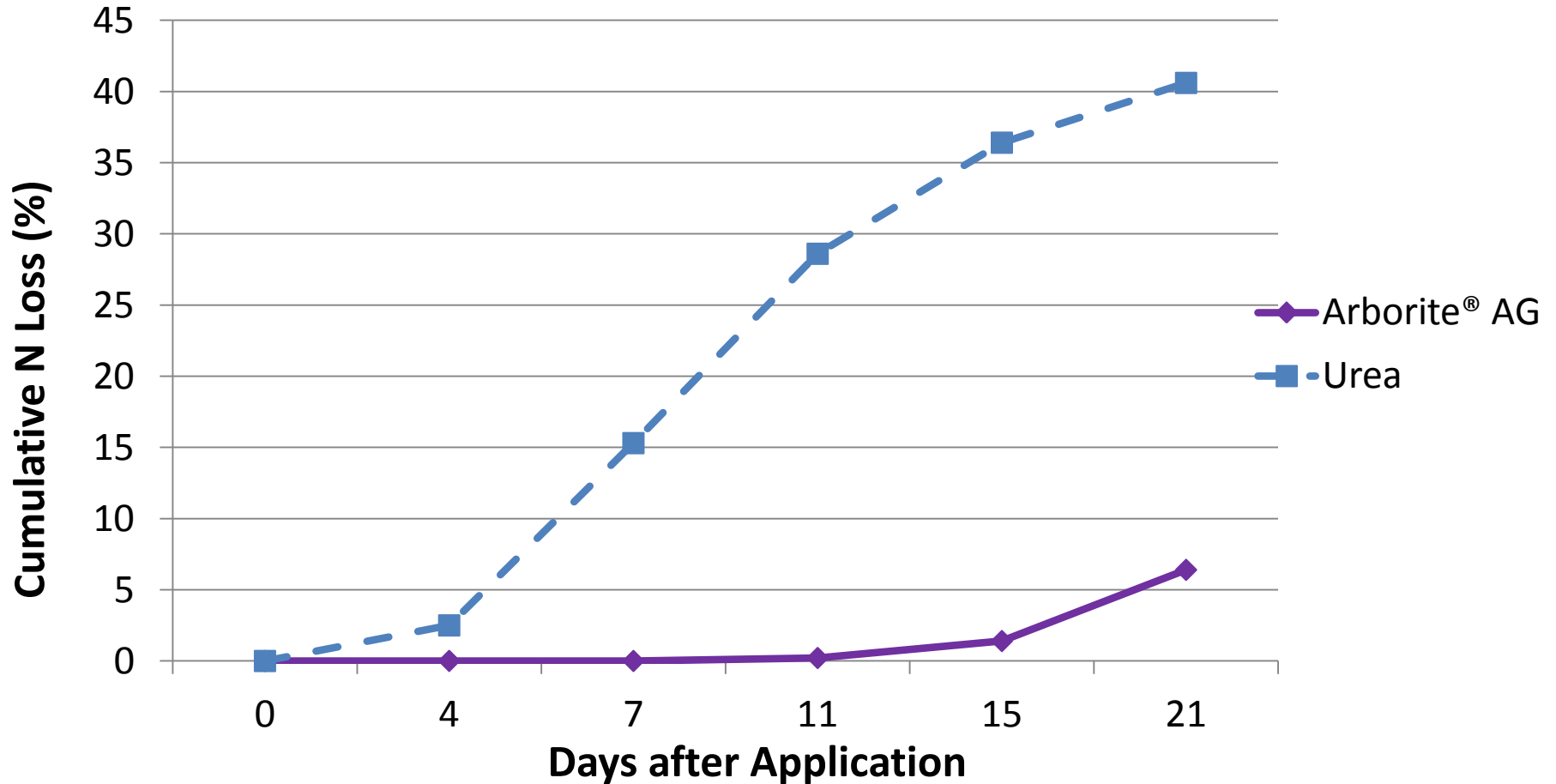
University of Arkansas Division of Agriculture

2010 Field Research Results

Overview

- Measurements Taken– Nitrogen Volatilization Loss, Yield, and Nitrogen Uptake at Heading
- Complete Randomized Block Design with 4 reps of each treatment
 - Two Nitrogen Rates (60lbs N and 120lbsN)
 - Three Application Timings(10 days before flood(dbf), 5 dbf and 1 dbf)
 - N sources were Urea and Arborite® AG treated urea at 3 qts/ton equivalent

Ammonia Volatilization Loss of Surface Applied Urea and Arborite® AG Treated Urea Laboratory Incubation Method

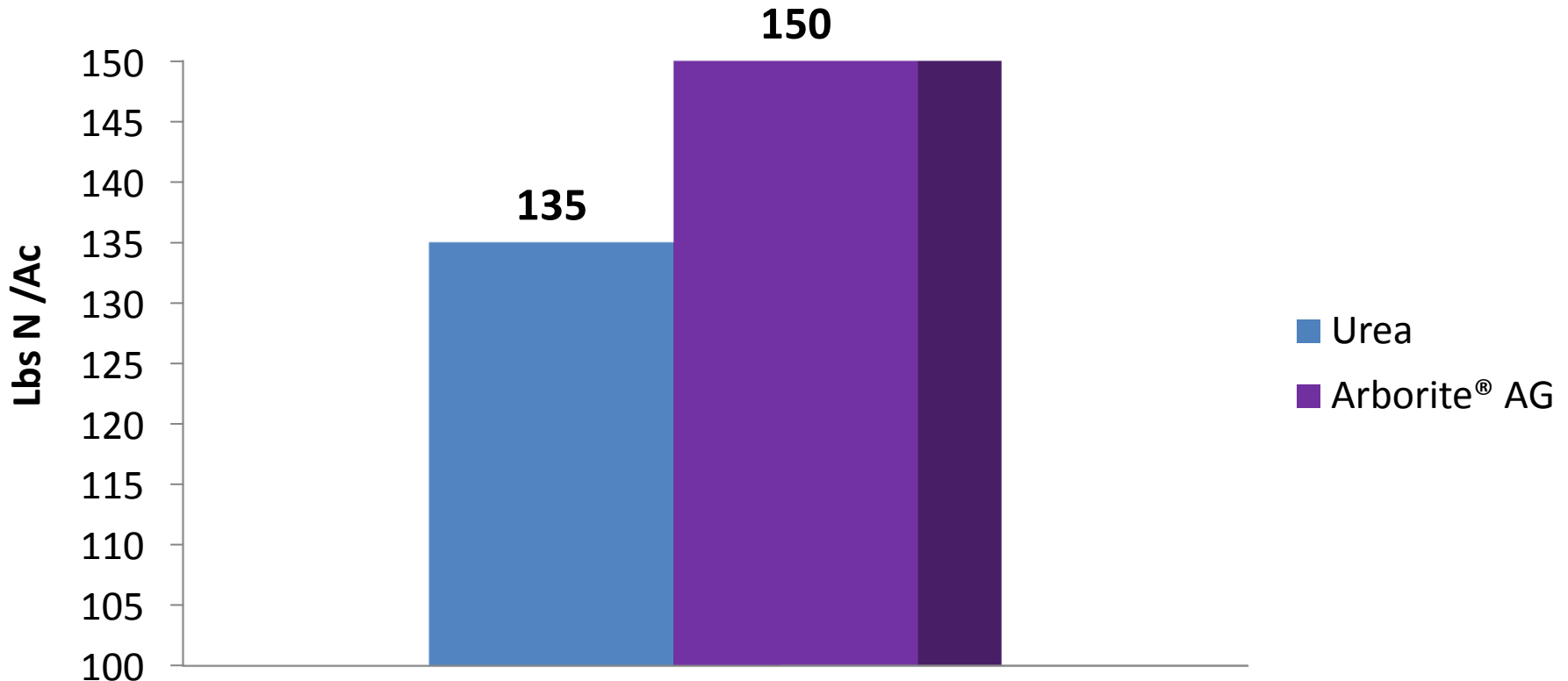


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DeWitt Silt Loam

Nitrogen Uptake Comparison Using Urea and Arborite® AG Treated Urea as Nitrogen Sources

Applied at Different Rates and Application Times

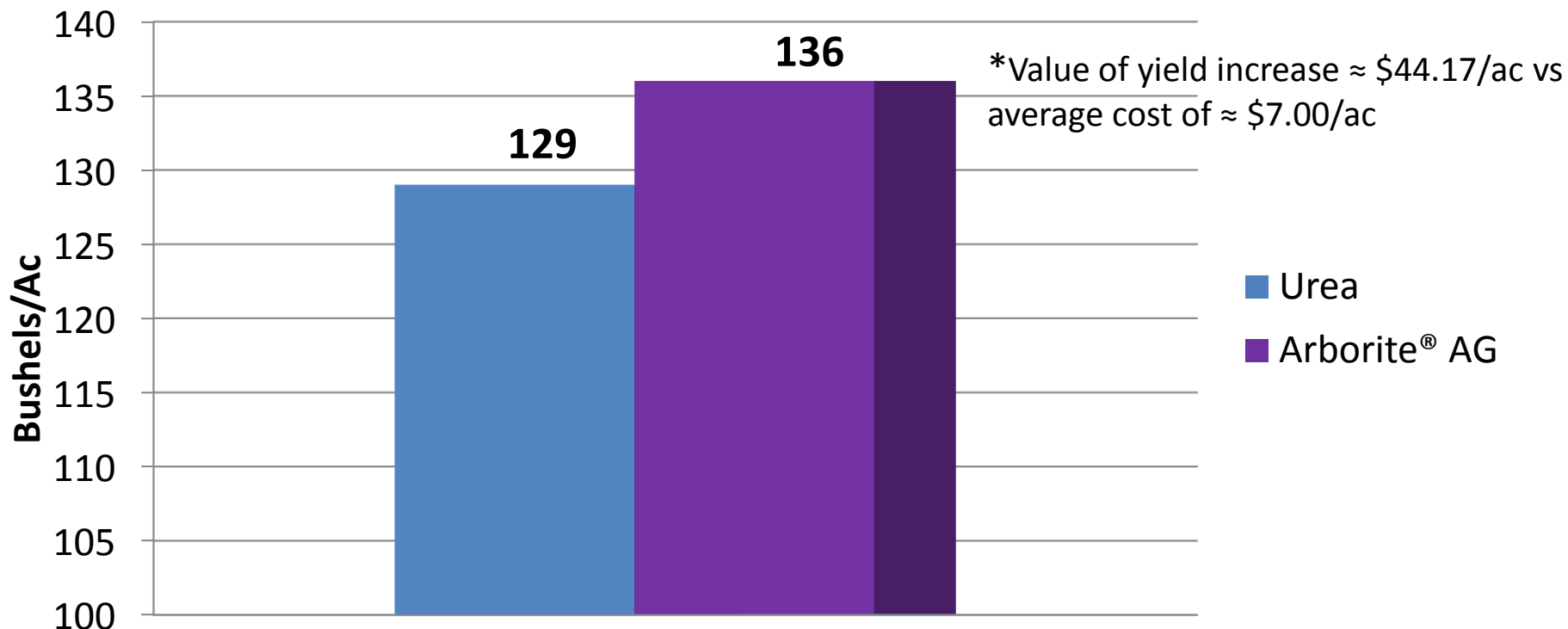
Arborite® AG N uptake increase significant at the .05 Level



Rice Yield Comparison Using Urea and Arborite® AG Treated Urea as Nitrogen Sources

Applied at Different Rates and Application Times

Arborite® AG yield increase significant at the .05 Level



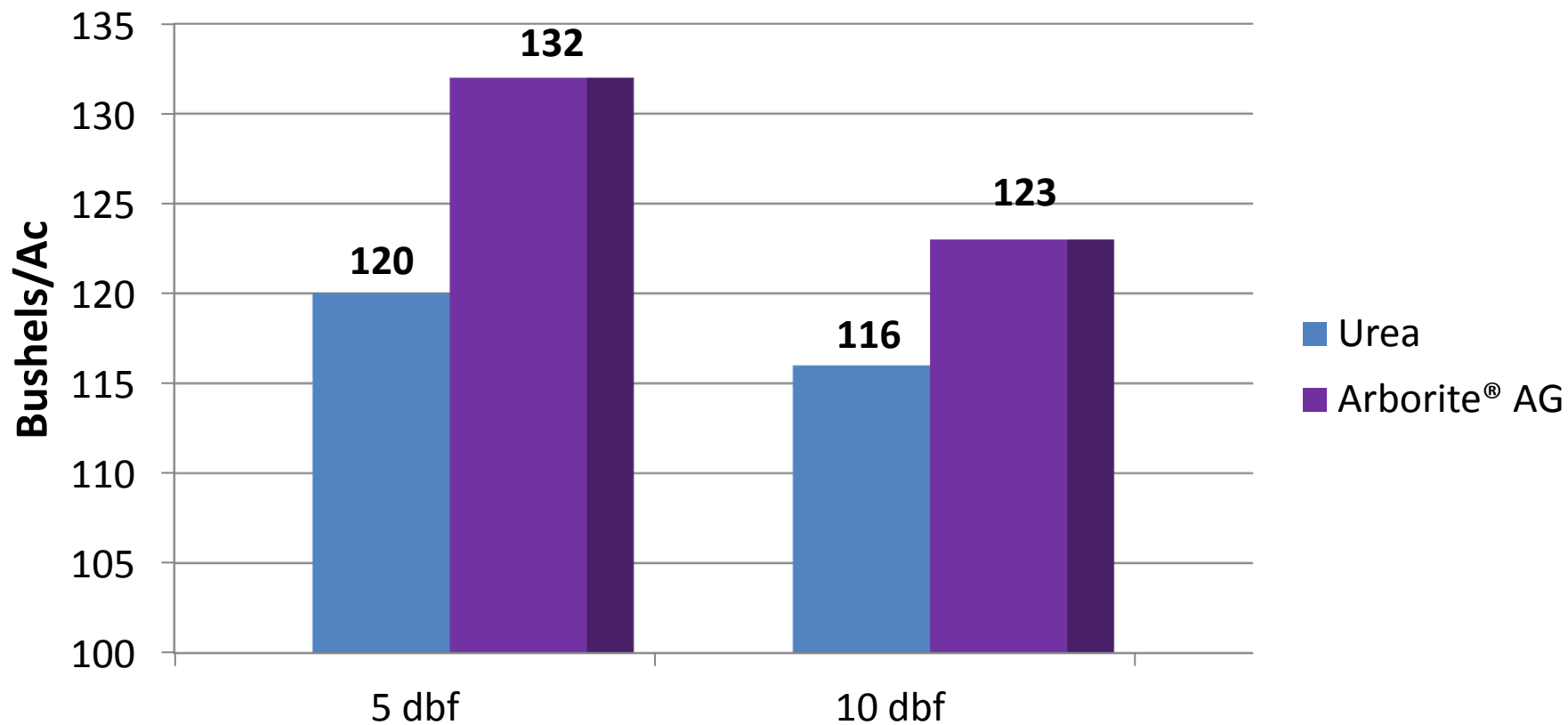
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Rice Cultivar - Wells
DeWitt Silt Loam pH 6.2

* Assumes \$70/gal for Arborite AG and \$14.00/cwt for rough rice

Rice Yield Comparison Using Urea and Arborite® AG Treated Urea as Nitrogen Sources

Surface Broadcast 60 lb N/Ac



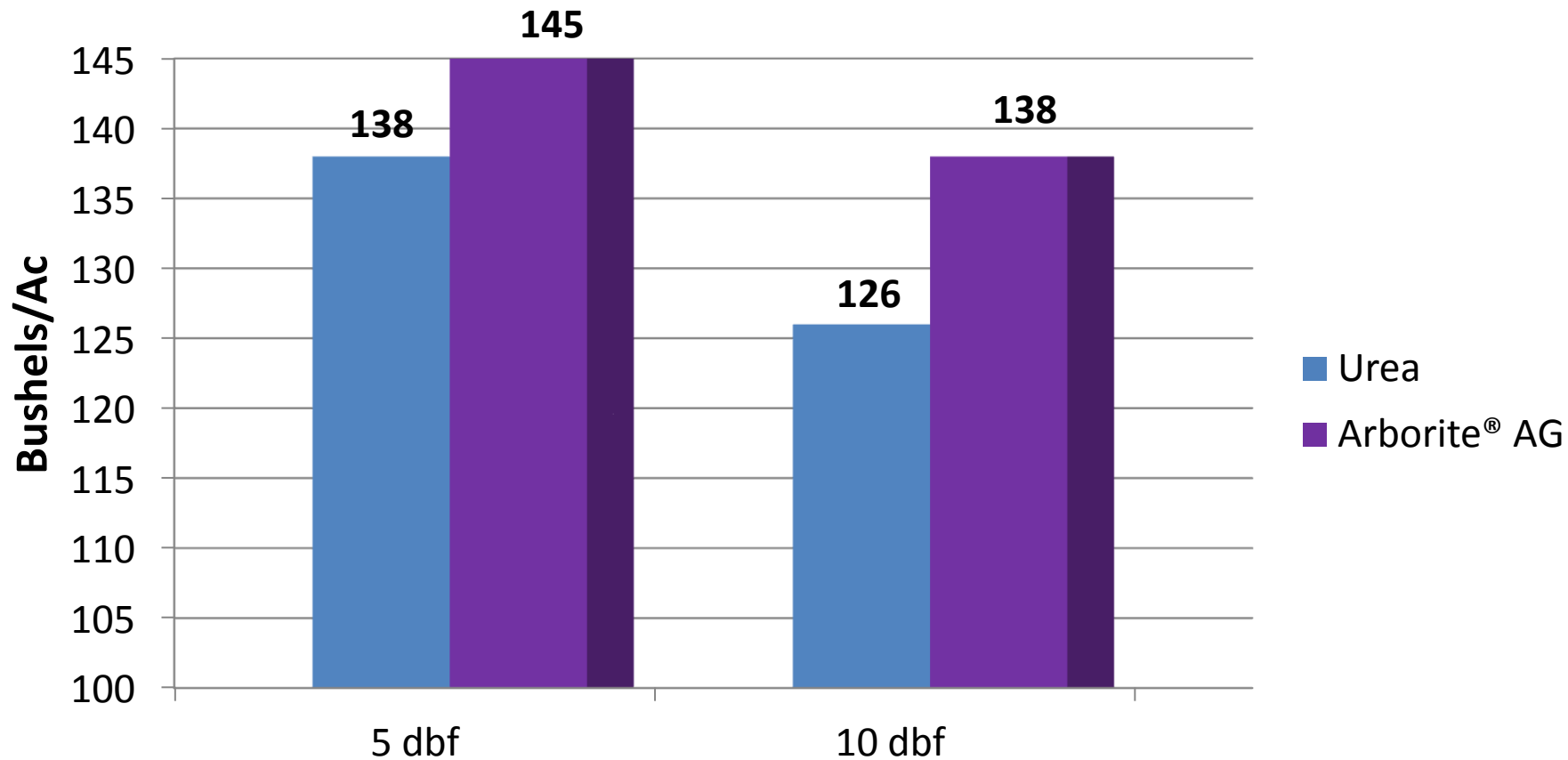
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Rice Cultivar - Wells
DeWitt Silt Loam

*dbf – days before flood N was applied

Rice Yield Comparison Using Urea and Arborite® AG Treated Urea as Nitrogen Sources

Surface Broadcast 120 lb N/Ac



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Rice Cultivar - Wells
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*dbf – days before flood N was applied

Summary and Conclusions

- The volatility loss from Arborite® AG treated urea was significantly (LSD .05) reduced (>34%) over the untreated urea over 21 days.
- Nitrogen uptake at heading was significantly (LSD .05) better with Arborite® AG treated urea (15 lbs/ac greater) than with untreated urea across all application rates and timings.
- There was a significant (LSD .05) yield increase (7 bushels) with Arborite® AG treated urea versus untreated urea over all rates and timings. The approximate cost of using Arborite® AG was \$6.85/acre (i.e. \$70/gal cost with average N rate 90 lbs/acre or 196 lbs/acre of urea) with an average return of \$44.17/acre (i.e. \$6.31/bushel @ 7 bushels/acre).
- There were yield increases when using Arborite® AG treated urea over untreated urea for both the 5 dbf and 10 dbf at both the 60 lbs/acre and 120 lbs/acre nitrogen rates.