LSU Agricultural Center
Rice Research Station

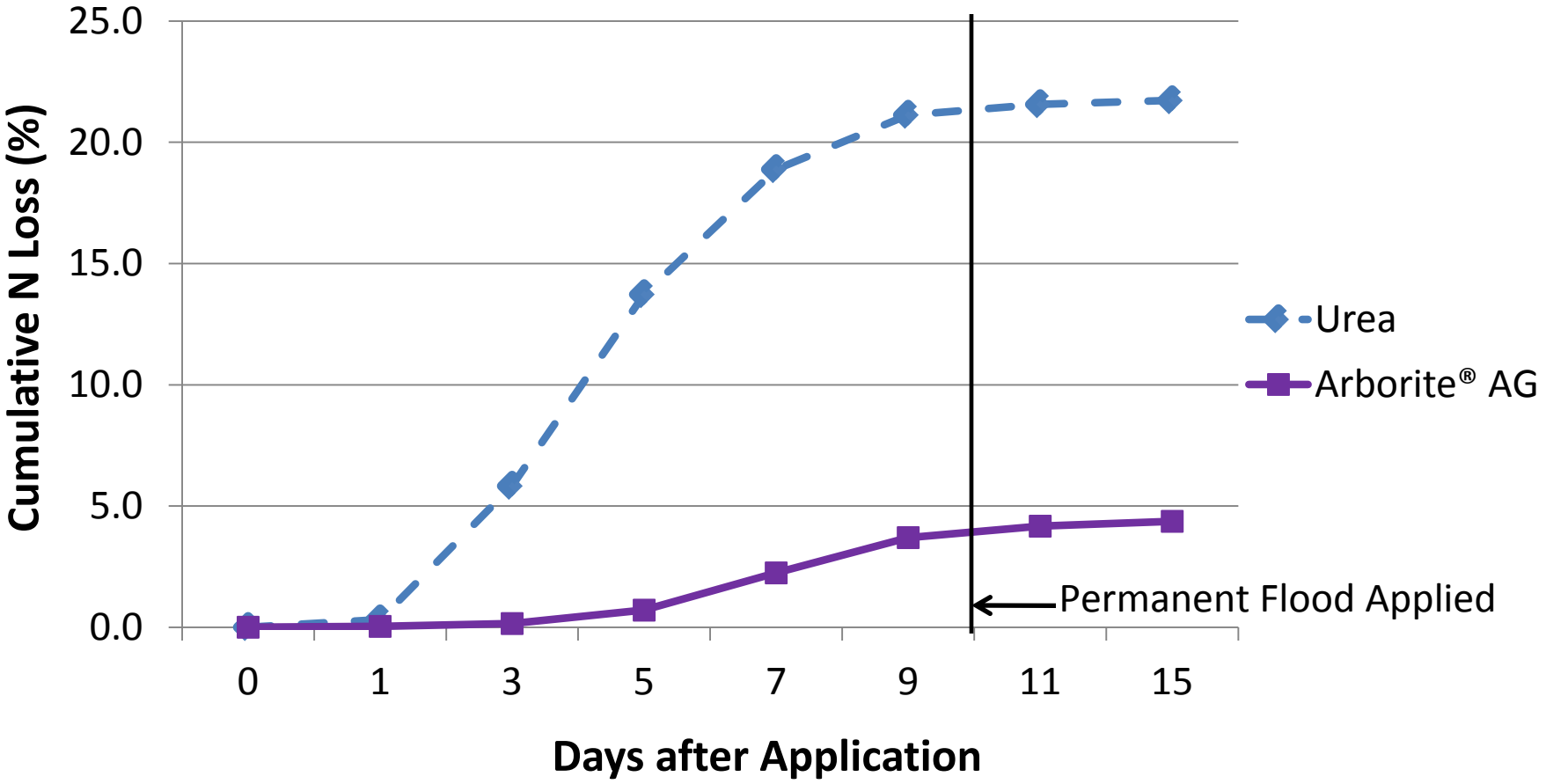
2011 Field Research Findings

Overview

- Measurements Taken– Nitrogen Volatilization Loss, Yield, and Nitrogen Use Efficiency (NUE)
- 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
- Notes – A significant rain event (3.35 inches) occurred on day 7 or 3 dbf.

Dustin Harrell, Ph.D. 2013 Field Study LSU Agricultural Center Rice Research Station Crowley Silt Loam pH 7.26

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



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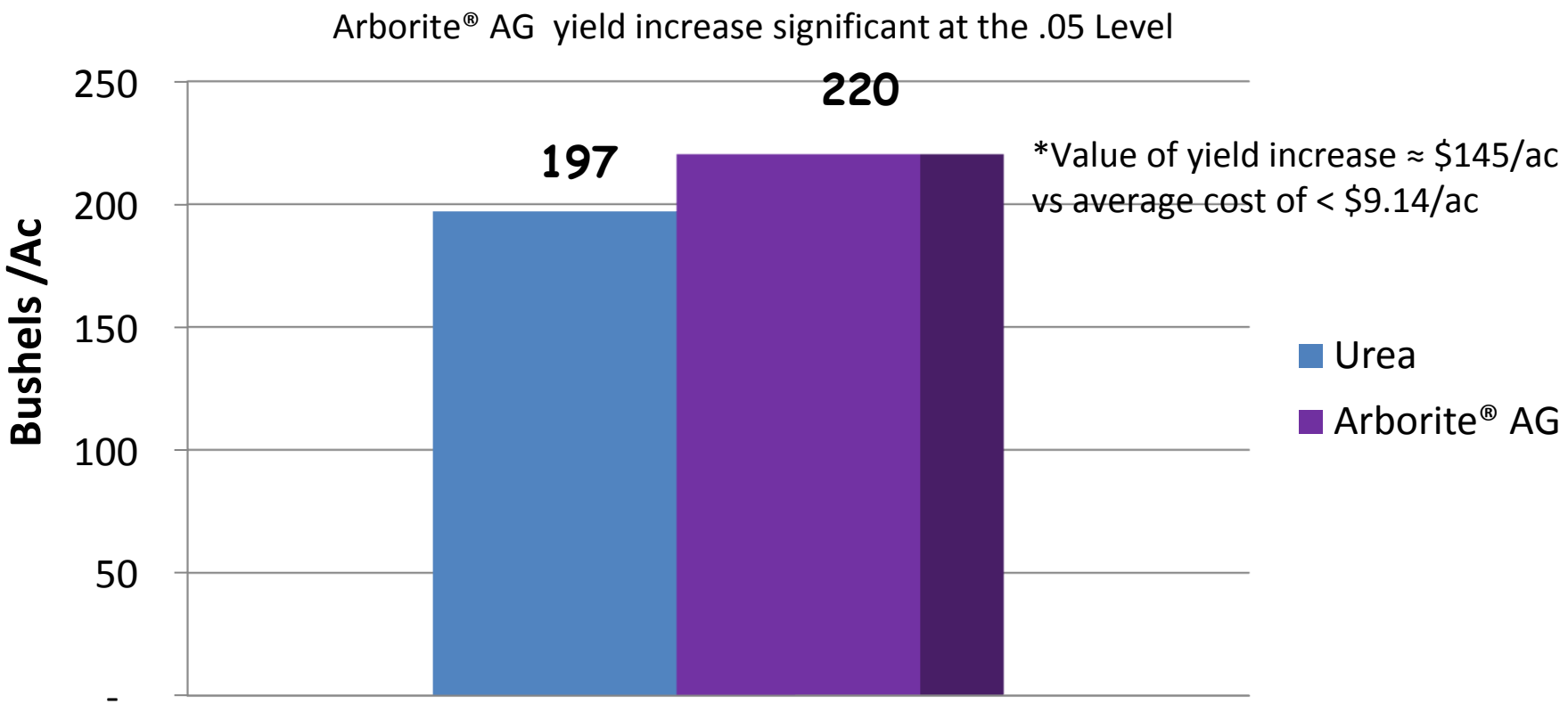
LSU Agricultural Center, Rice Research Station
2011 Field Study Crowley, LA

Rice Variety CL151
Crowley Silt Loam pH 7.1

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

Surface Broadcast 120 lb N/Ac at all Timings



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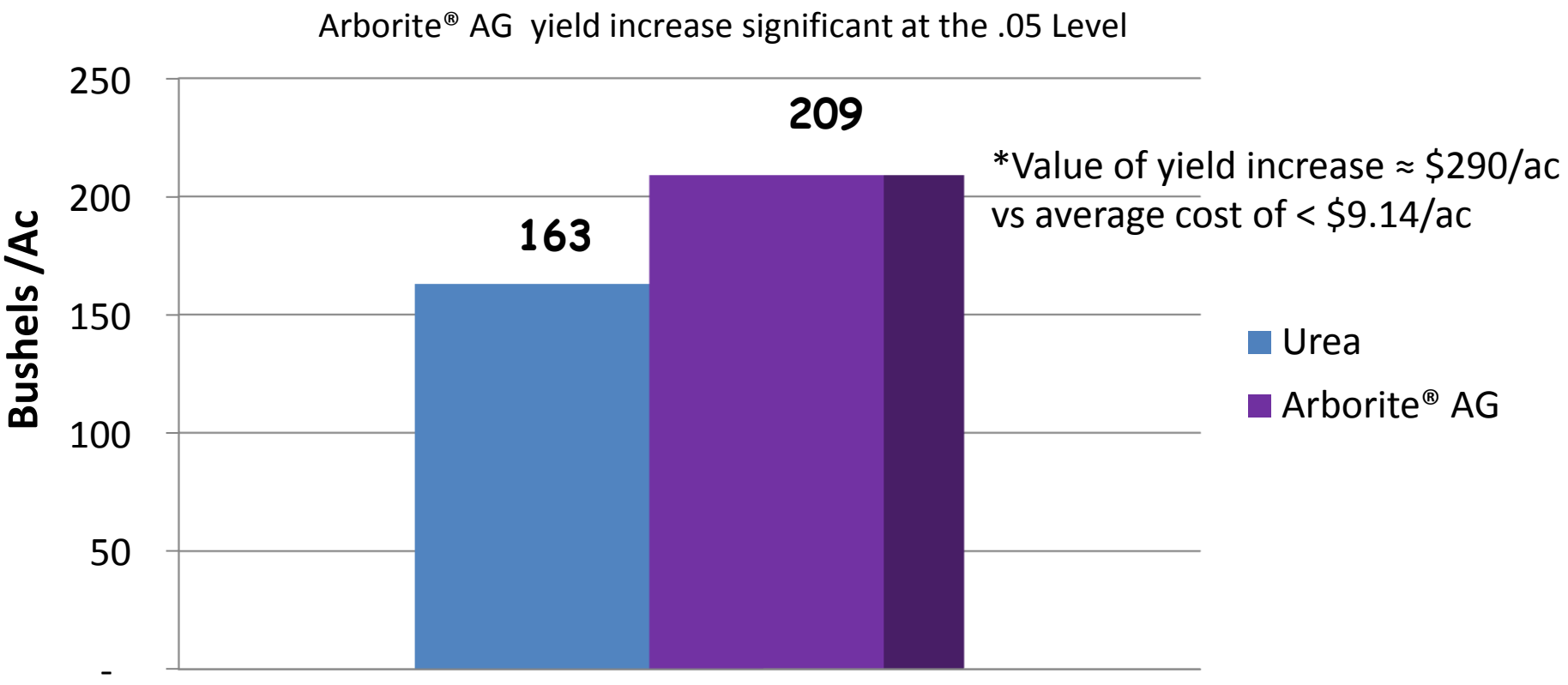
* Assumes $70/gal for Arborite AG and $14.00/cwt for rough rice

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

Surface Broadcast 120 lb N/Ac Applied 10 Days Prior to Flood



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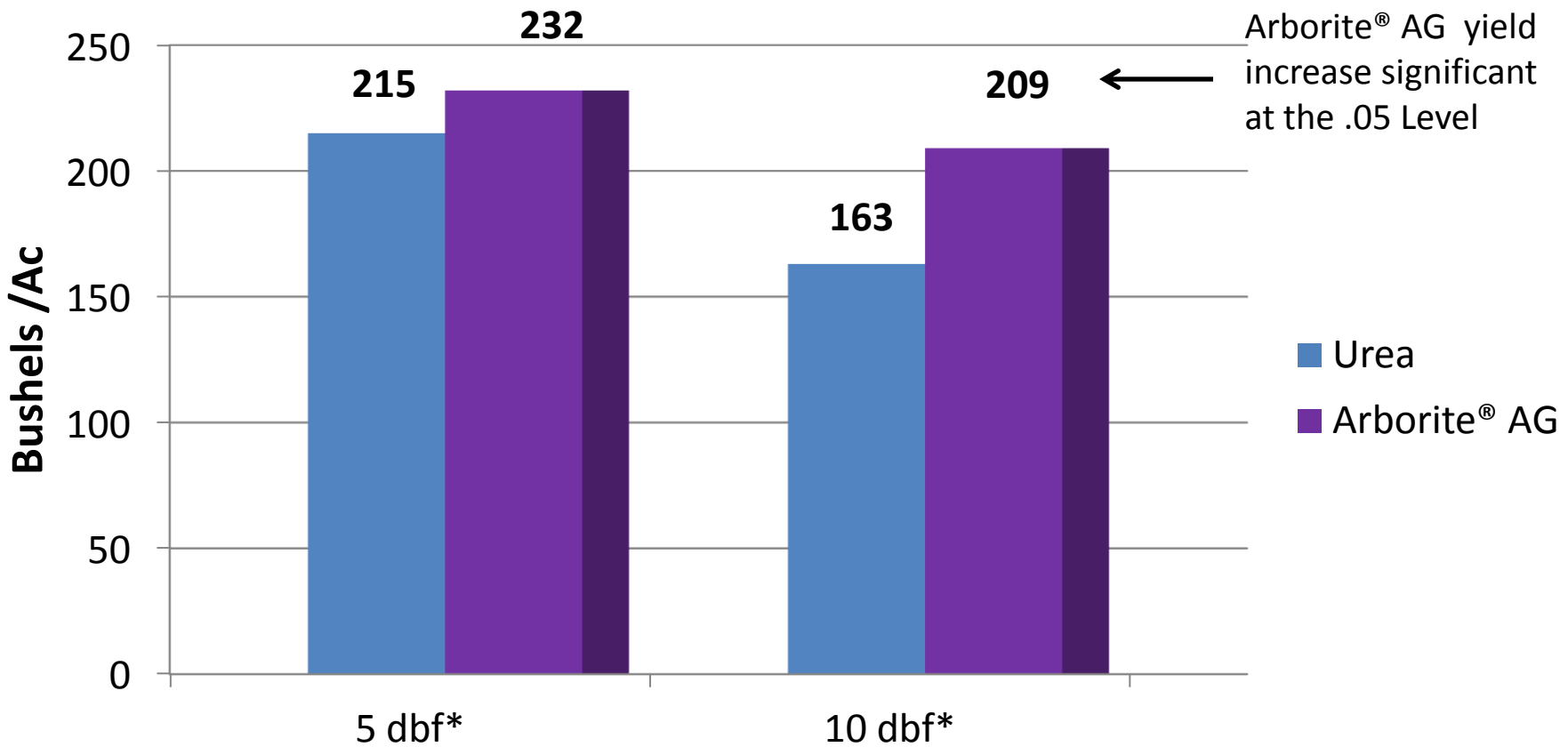
Rice Yield Comparison Using Urea and Arborite® AG Treated Urea as Nitrogen Sources

Surface Broadcast 120 lb N/Ac



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*dbf – **d**ays **b**efore **f**lood N was applied

Summary and Conclusions

- The volatility loss from Arborite® AG treated urea was significantly (LSD .05) reduced (>17%) over the untreated urea over 15 days.
- There was a significant (LSD .05) yield increase (46 bushels) with Arborite® AG treated urea verses untreated urea for the 10 dbf application at the 120 lb/ac nitrogen rate. The approximate cost of using Arborite® AG was $9.14/acre (i.e. $70/gal cost with average N rate 90 lbs/acre or 196 lbs/acre of urea) with an average return of $290/acre (i.e. $6.31/bushel @ 46 bushels/acre).
- The 10 dbf application was applied to dry soil and did not have a significant rain event (3.35 inches)until day 7 of the trial. There appeared to be significant volatility loss over this period of time.
- The 5 dbf application gave the overall best yield which was probably due to the 3.35 inches of rain that occurred 2 days following the application which fully incorporated the 5 dbf application into the soil profile. There were not significant yield differences between urea and Arborite AG treated urea from the 5 dbf application as a result of this.