Harvesting Nature's Science



Huma Gro® X-TEND® Compared to Agrotain®
Rice Production in Southern Missouri

Research Conducted By Shoffner Farm Research North • Economic Analysis By Bio Huma Netics Inc.

Research Report

Abstract

The need for reliable independent verification of product performance under replicated field conditions is necessary to compare efficacy of competitive products. The following research report contains data and information submitted in by Shoffner Farm Research North (Shoffner) to Bio Huma Netics®, Inc. (BHN)

Yield Comparison of X-TEND® vs. Agrotain®

This report provides a summary of the research that was conducted by Shoffner on behalf of BHN comparing BHN's HUMA GRO® product X-TEND® to Agrotain® for rice production (using the CL 151 variety) in Southern Missouri in 2011.

The research conducted specifically compares X-TEND® and Agrotain® on how they prevent nitrogen loss through volitilization.

Introduction

Nitrogen loss through volatilization begins to occur immediately after application unless the urea is stabilized. Agrotain® has been the industry standard for urea stabilization. In 2011, at Shoffner, a trial was established to compare Agrotain® and HUMA GRO® product X-TEND®, to increase nitrogen use efficiency and rice yield.

Materials and Methods

The experimental design consisted of six treatments in a randomized complete block. Two urea rate/timing regimes and three treatment options were arranged in a full factorial with four replicates. Application timing for the urea was targeted for 7-10 days prior to flood and a split application at pre-flood and panicle initiation (PI).

Urea was treated with X-TEND® or Agrotain® in a small batch seed treater. The seed treater was cleaned between batches. BHN provided the product rate for X-TEND®, while the rate for Agrotain® was provided by the product label.

Urea needed for each plot was calculated, weighed, and spread uniformly using a Scott's Spin Spreader at each application timing. Pre-flood application was made on June 9, 2011. Flood was initiated 12 days later on June 21, 2011 and maintained until September 20, 2011. Rainfall recorded between pre-flood application and flooding was 1.86 inches.

Grain yield for each plot was measured by harvesting the center 5 feet of each plot with an Almaco SPC 20 plot combine on October 17, 2011. Grain harvested from each plot was weighed on a ADAM CPW plus-75 platform scale with 0.05 lb accuracy. Grain moisture was measured using a DICKEY-john mini-GAC plus moisture meter. Plot weight was adjusted to 12.5% moisture and converted to yield in bu/A. Yield data were subjected to analysis of variance at the 0.05 level of significance.

Results and Discussion

No statistical differences were observed between treatments. However X-TEND®, as measured by rice grains yield, performed as well as Agrotain® when urea was applied pre-flood at 250 lb/A or in a split application of 125 lb/A pre-flood followed by 125 lb/A at PI (Figure 1).

Missouri rice yields in 2011 were lower than in previous years. Average rice yield for this experiment was 106.5 bu/A. Planting was delayed approximately 1 month due to 17.87 inches of precipitation in April. Mid-May planted rice fields flowered during a period in late July and early August when daytime temperatures ranged from 93° to 106° F and nighttime temperatures ranged from 73° to 79° F. Recent discussion with local crop consultants indicated that yields were off 30 to 40 bu/A regardless of variety and that 100 to 110 bu/A was the average yield for CL 151 planted in mid-May in southeast Missouri.

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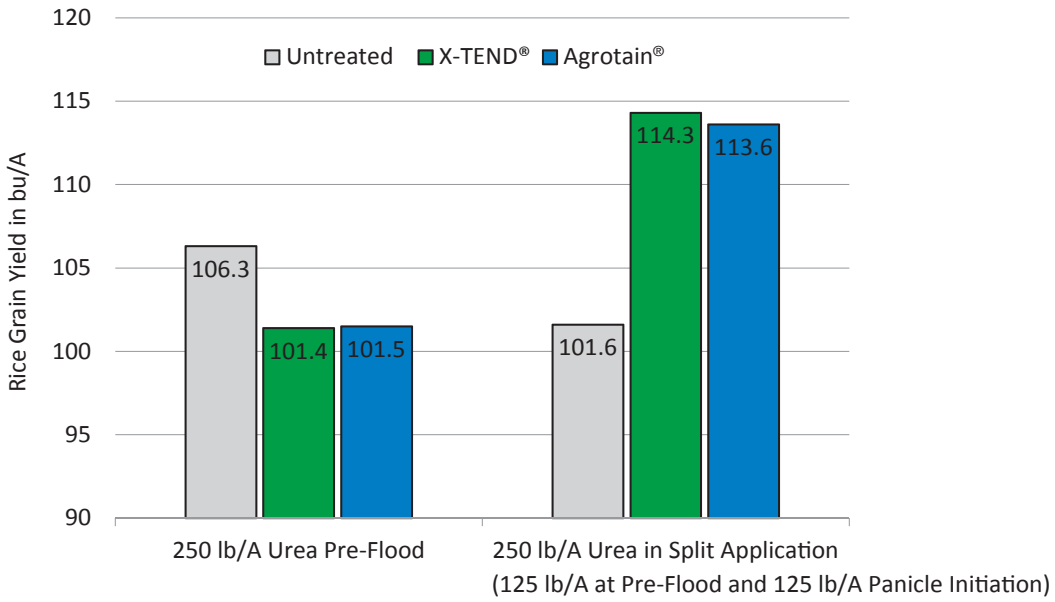
Figure 1. Rice grain yield in bu/A for each urea rate and timing.



Net Return Calculations		
	XTEND®	Agrotain®
Grower Cost per gallon (Yr. 2011)	$25.00	$48.00
Grower Cost per 250 lbs. Urea	$ 3.12/250 lbs. urea	$ 6.00/250 lbs. urea
Single application of 250 lbs. of urea advantage over untreated urea check. 2011 price of rice $ 6,75 per bushel	($ 33.08)	($ 32.40)
Split application of urea (125 lbs. each application) over untreated urea check. 2011 Price of rice $ 6.75 per bushel	$ 82.61 per acre net	$ 75.00 per acre net

Conclusions by Bio Huma Netics, Inc.

This research trial by Shoffner verifies what we have seen in grower use of X-TEND® when compared to Agrotain®. The information reported should note that there is not a statistical difference between X-TEND® and Agrotain® in this trial. However, the dollar return of treated urea over untreated urea in split applications of 125 lbs. of urea clearly reflects an economic benefit of the treatments with X-TEND®. Future independent research should confirm this positive economic advantage and yield of X-TEND® over Agrotain® to rice producers.

Economic Analysis by Bio Huma Netics, Inc.

The cost/benefit information is the most important part of this study. The use of a product such as X-TEND® to increase nitrogen use efficiency of urea must make economic sense to the grower. The following information is provided as a guide for each individual to determine the economic benefits and yield of using X-TEND®.

Yield and Financial Benefit

Increased yield of 14 bushels/A

A net return advantage of $7.61 per acre using X-TEND® vs. Agrotain®.

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