A series of field-scale strip trials were conducted in the summer of 2011 to validate the N-ST*R calibration and soil sampling protocol and educate producers, consultants and county agents on the new technology. Prior to planting, 10 soil samples were taken to a depth of 45 cm from each field and analyzed by N-ST*R to determine the N rate and degree of variability in soil N availability. All of the sites sampled and included in the study resulted in N rate recommendations that were significantly lower than the producer's practice and the standard recommendation of 165 kg N ha-1 for rice produced on silt loam soils. Nitrogen rates in the strip trials for the N-ST*R treatments ranged from 40-151 kg N ha-1 and at all sites the N-ST*R predicted N rate was less than both the producer practice as well as the standard recommendation. Results obtained from these trials indicate that N rates can be significantly reduced with little to no impact on rice yields. Incorporation of this research will not only increase producer profitability while maintaining current production levels, but decrease potential for environmental impacts due to over fertilization.

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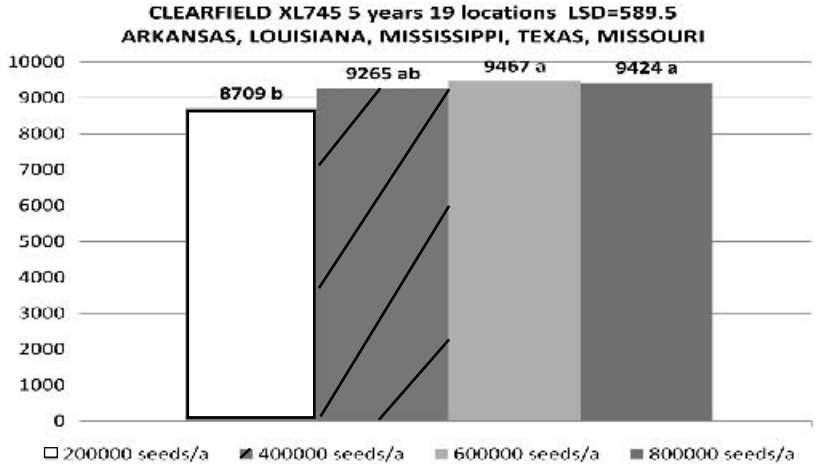
Program 13R-2

"Effect Of Seeding Rate On RiceTec Hybrid Rice Yield And Milling Quality"

Presented by Greg Simpson
Development Representative, RiceTec, Inc.

Field studies have been conducted from 2004 to 2011 in Arkansas, Louisiana, Mississippi, Texas, and Missouri in multiple locations using RiceTec commercial rice hybrid seed. The purpose of these tests has been to observe the effect of seeding rate on emergence and resulting plant populations on yield and milling yield of RiceTec hybrid rice in an on farm setting. In every test RiceTec hybrid rice seed was compared side by side with locally recommended varieties. Seeding rate treatments of 200,000, 400,000, 600,000, and 800,000 seeds per acre were directly compared using a randomized strip plot design or randomized complete block design depending on the local field conditions. RiceTec hybrid genotypes included in the tests were XL723, CLEARFIELD XL729, and CLEARFIELD XL745. Variety checks were CL161, CL151, WELLS, and CHENIERE depending on the location and year. In each location tests were harvested using a 'Wintersteiger Delta plot combine' with 'Harvest Master' digital plot weigh system. Grain samples were collected at harvest and milled immediately after air drying. In individual location tests and in combined analysis over locations and years grain yield and milling yields from seeding rates from 400,000 seeds per acre to 600,000 seeds per acre were not significantly different . To achieve an acceptable rice plant stand the theme should be good seed to soil contact of the correct seeding rate. The top risk factors are: Improper Planting Date, Poor Seedbed Preparation, Poor Planter Adjustment / Maintenance, and Poor Surface drainage. If these risks are avoided the probability of acceptable stand establishment will be greatly increased.

Independent of seeding rate USDA standard grain quality grades are routinely achieved commercially using RiceTec hybrid rice seed if the common risk factors that reduce rice milling yield are avoided. The most common issue with rice grade and milling scores are:



'fissuring', 'rewetting' or 'checking'. 'Rice fissuring' has been documented through the years as rice that has dried below a certain moisture level in the field then rewetted by rainfall dew or humidity forming micro-fissures within the kernel which reduce the kernel strength leading to breakage when the rice grain is milled using commercial friction methods. Questions have been raised for years around what affect if any the large amount of tillers hybrids produce has on milling. Results from side by side field tests indictate that the reduced seeding rates and corresponding increased tillering of RiceTec hybrids does not affect milling yields. Actions that minimize risk of rice checking are timely harvest, proper combine adjustment, well managed storage and drying after harvest. In conclusion individual location tests and in combined analysis grain yield and milling yields from seeding rates from 400,000 seeds per acre to 600,000 seeds per acre were not significantly different. Even at plant populations below 3 plants per square foot RiceTec hybrid rice seed offers significant economic advantage over commercial varieties.

Program 6R-2

Nitrogen Management In Rice: Rates, Timings, Sources

Presented by Dr. Timothy W. Walker
Associate Agronomist, Mississippi State University

Introduction

Nitrogen (N) fertilization accounts for a large percentage of inputs for rice production. The potential for an economic return on the N investment is also large. Nitrogen is dynamic in nature, and thus it must be managed appropriately to provide the greatest economic return. The knowledge base of N interactions with the soil and plant system continues to increase,