

RICE PRODUCTION IN NORTHEAST MISSOURI

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A collaborative study was initiated in the spring, 2005 between Ventria BioScience, Premium Ag. Products, and the Greenley Research Center to evaluate the growth, development, and yield potential of different rice varieties in Northeast Missouri as a possible pharmaceutical crop. Rice has limited allergenic properties and is self-pollinating. Rice was produced in Northeast Missouri in Marion and St. Charles counties until the mid-1970's (Beck, 2004). Northeast Missouri is isolated from commodity rice production and no red rice has been documented in this region. The objectives of this research were to determine the yield potential of short and long grain varieties, and evaluate maturity differences among varieties.

Research was conducted at Novelty and Bethel in 2005, and was repeated at Bethel in 2006 and 2007. Research was conducted at the University of Missouri Greenley Research Center at Novelty in Knox County in 2005 and the Ross Jones Farm near Bethel in Shelby County in 2005, 2006, and 2007 on a Putnam silt loam (claypan soil with an impermeable clay layer at the 20 inch depth which may be utilized to maintain the water-table for rice). This soil was selected due to the slowly permeable subsoil and the upland nature of the soil type which would limit movement of seed due to floods.

The fields were disk-harrowed, cultivated, and mulched in 2005 and 2006, and roto-tilled in 2007. Rice was drill-seeded at 80 lbs/acre in 10 in. rows with a two-row hand planter on 6 May 2005, 12 May 2006, and 25 May 2007. Plots were maintained weed-free by chemical weed management and hand weeding as needed. Rice varieties included TP309, M202, Cocodrie, M103 Ilpumbyeo, Wells, XP723, CLXL8, and Trenase. An additional non-treated Cocodrie plot was included to monitor weeds, insects, and the incidence of disease. Command plus Facet was applied preemergence followed by Prowl plus Stam early postemergence and Basagran at a late postemergence timing. Nitrogen was applied preplant or preflood followed by one or two broadcast, sidedress applications of urea at 50 to 100 lbs N/a. Growth rates, disease susceptibility, days to 50 and 100% heading, days to maturity, plant height, lodging, and grain yield were determined.

Rice cultivars attained 100% flowering from July 25 to September 16, and full maturity was reached by October 1 to October 5. Seven varieties matured before a killing frost in 2005 (Figure 1) and 2007 (Figure 2) while four varieties matured before a killing frost in 2006. Grain yield of Cocodrie, M202, M103, Wells, XP723, and Trenase was greater than 200 bu/acre at Novelty and Bethel in 2005 while XP723 and Trenase had grain yields in excess of 200 bu/acre in 2006. TP309, XP723, and Trenase grain yields were greater than 150 bu/acre in 2007. Some varieties lodged including M103, Trenase, and M202 at Bethel in 2005; TP309, M103, M202, and XP723 at Novelty in 2005; and M103 in 2007. Weed species present in upstate Missouri flooded rice in 2005, 2006, and 2007 included common cocklebur, fall panicum, barnyardgrass,

giant foxtail, and common waterhemp. Weed interference reduced rice grain yield 100 and 50 bu/acre at Novelty in 2005 and Bethel in 2007, respectively, while grain yield at Bethel in 2005 or 2006 was not affected by weed interference since weed population density was low at this location.

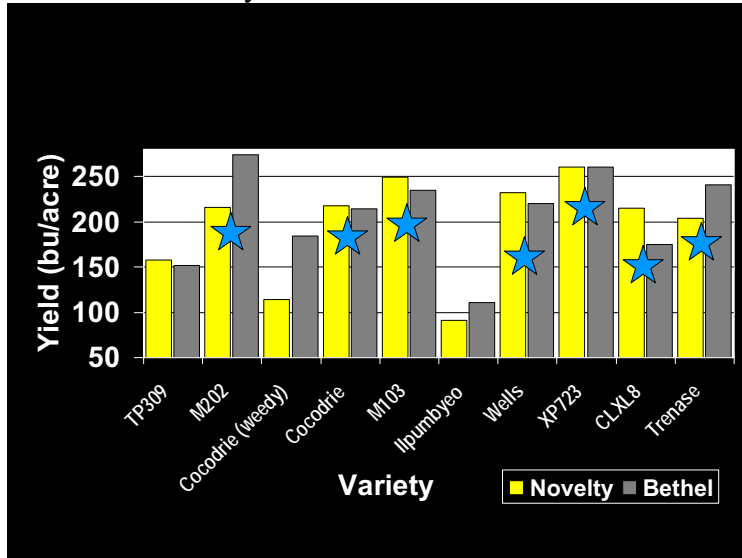
A special thanks is extended to Greg Hessong, Frank Veeman, Matt Jones, and Randall Smoot for their technical assistance with the project. A special thanks is also extended to Dr. Gene Stevens and Dr. Brian Ottis for their production suggestions, recommendations, and supplying additional seed for the trial.

References:

Beck, B.E. 2004. Rice Production in Missouri: A Brief History and Outlook. [online]. Poplar Bluff, University Outreach and Extension. Available from:
<http://agebb.missouri.edu/rice/ricehist.htm>. Accessed 12 July 2005.

Figure 1. Rice grain yields at Novelty and Bethel in 2005 (A) and at Bethel in 2006 and 2007 (B). Stars indicate cultivars that matured prior to a killing frost. The LSD (P=0.05) at Novelty and Bethel in 2005 was 75 and 40 lbs/acre, respectively. The LSD at Bethel was 50 bu/a in 2006.

A. 2005 at Novelty and Bethel



B. 2006 and 2007 at Bethel

