The Effect of Potassium Fertilizer Rate and Application Timing on Potassium Uptake by Rice. (S04-pugh125332-Poster)

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Abstract:

Potassium deficiency is recognized as a relatively common problem for rice grown on silt and sandy loam soils in Arkansas. The published literature provides little information on the effects of K fertilization rate and time on K uptake and nutrition of rice. This information is needed to determine if K deficient rice responds to late season K applications. Our objectives were to evaluate the effect of K application time and rate on rice growth, yield, and K uptake efficiency. In 2001, a study was conducted on a Calloway silt loam with five rates of K fertilizer (0 to 112 kg K/ha) applied at five times (preemerge, PE; preflood, PF; panicle differentiation, PD, and booting, B). Whole plant samples were taken every 14 days after flooding through maturity to monitor plant growth, K uptake, and K fertilizer uptake efficiency. Treatments were arranged in a split plot design with K rate as the whole plot and K application time as the subplot. Grain yield was not affected by K application time or rate. Likewise, total dry matter was not affected during vegetative growth by K application time or rate. Whole plant tissue K concentration and content and K fertilizer uptake efficiency will be presented along with data being collected in a 2002 field study.

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