Quantity-Intensity Relationship for P on Precision-Leveled Alluvial Soils. (S04-walker222908-Poster)

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Abstract:

Rice (Oryza sativa L.) production on precision-leveled soils in Mississippi continues to increase. Yields within the cut areas are often lower when compared to the fill areas. Phosphorus is sometimes limiting in the cut areas after leveling occurs. Because solution-P is greatly affected by P-sorption, a preliminary study was conducted to determine the P quantity-intensity (Q/I) relationships in both cut and fill areas for a newly-leveled Sharkey clay soil (very-fine, smectitic, thermic Chromic Eqiaquerts). Four locations within both cut and fill areas were soil sampled at a depth of 0 to 15-cm prior to planting rice in the Spring of 2001. A P-adsorption isotherm was conducted for each sampling location. The Freundlich equation was used to calculate a distribution coefficient (Kd) for the adsorption data. Averaged across sampling locations, the Kd was greater in the cut area (261) when compared to the fill area (213) ($a = 0.05$). This paper will discuss the relationships between P-sorption and other soil chemical properites, including soil test P. It is our goal to use this information to better understand the P-supplying capacity of two major soil types used in Mississippi rice production.

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Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 9:00-11:00 am
Poster Board Number: 1530

Keywords:
Precision-leveling, rice (Oryza sativa L.), Quantity-Intensity Relationships