Phosphorus Fertilization and Previous Crop Effects on Nutrient Uptake and Grain Yield of Wheat. (S04-delong153306-Poster)

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Abstract:

In Arkansas, the crop grown before soft red winter wheat is perceived to affect wheat growth, nutrition, and grain yield. Field observations suggest that the previous crop should be considered in P fertilizer recommendations for wheat. The objectives of this study were to evaluate the effects of P fertilizer rate on wheat growth and P nutrition when wheat followed rice, sorghum, and soybean on two silt loam soils in Arkansas. Five P fertilizer rates (0, 11, 22, 33, and 44 kg P/A) were applied to two wheat cultivars (NK9663 and P26R24) at Marianna, AR following sorghum and soybean and at Stuttgart, AR following rice and soybean. Whole plant samples were taken at Feekes stages 6 and 10.1 and grain yield was determined at maturity. At each location, wheat grain yields were higher following soybean compared to rice and sorghum. Phosphorus uptake and grain yield tended to be higher for P26R24 than NK9663 and increased as P fertilizer rate increased. The greatest yield response to P fertilization occurred when wheat followed rice. Data suggests that P fertilizer recommendations should be calibrated for soil test P, the previous crop, and possibly cultivar to assist farmers in efficient fertilization of wheat grown in various cropping systems to maximize grain quality and yield.

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