

# The Influence of N and P on Maize Yield and Yield Components in Maize/Rice Mixture in the Northern Savanna Zone of Nigeria

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## Abstract

Most recommended fertilizer rates available for crops in the northern savanna zone of Nigeria are for crops in monoculture. In order to be able to recommend to farmers the rates of nitrogen (N) and phosphorus (P) to be applied to maize and rice in an intercropping system to increase crop yields, a field experiment was conducted at the Samaru farm of the Institute for Agricultural Research (IAR), Nigeria (Lat. 11° 11' N and Long. 07° 38' E) at 680 m above sea level on a sandy loam soil in 1990 and 1992. Factorial combination of four levels of N (0, 60, 120 and 180 kg ha<sup>-1</sup>) and three levels of P (0, 13.2 and 26.4 kg ha<sup>-1</sup>) were laid out in a randomized complete block design (RCBD) with four replications. Yield components of maize such as ears/m<sup>2</sup> increased significantly ( $P < 0.05$ ) with increasing levels of N and P but no significant changes were observed in shelling percentage and 100 seed weight of maize. The number of panicles/m<sup>2</sup> and number of tillers/plant were the yield components of rice that responded significantly ( $P < 0.05$ ) with increasing levels of N and P. Threshing percent and 1000 seed weight of rice were not significantly affected by increasing levels of N and P. Grain yields of maize and rice increased significantly ( $P < 0.05$ ) by raising the levels of N and P. The application of 13.2 kg P ha<sup>-1</sup> at each level of N significantly ( $P < 0.05$ ) increased maize and rice yields. However, the highest grain yields of both crops were obtained when 120 kg N ha<sup>-1</sup> and 13.2 kg P ha<sup>-1</sup> were applied.