FORAGE MAIZE PRODUCTION IN MAIZE (*ZEA MAYS* L)/ CASTOR *(RICINUS COMMUNIS* L.*)* MIXTURE AS INFLUENCED BY ROW ARRANGEMENT, NITROGEN AND PHOSPHORUS LEVELS IN NORTHERN GUINEA SAVANNA

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ABSTRACT

Field experiment was conducted at the Institute for Agricultural Research farm Samaru, Zaria in Northern Guinea Savanna zone of Nigeria during 2007, 2008 and 2009 rainy seasons to evaluate the effect of three row arrangements (maize: castor in 1:1, 1:2 and 2:1), four levels of nitrogen (0, 40, 80 and 120 kg N ha^{-1}) and three phosphorus levels (13, 26 and 39 kg P ha^{-1}) on maize growth production. Treatments were combined and laid in a split plot arranged factorially design with three replications. Nitrogen and phosphorus fertilizer were assigned to the main plots while row arrangement was assigned to the sub-plots. Row arrangement of 2:1 recorded significantly taller plants, higher LAI, heavier total dry matter (TDM) and harvest index (HI) than the other arrangements. Application of nitrogen up to 120 kg N ha^{-1} resulted in significantly taller plants and higher LAI. TDM and HI increment was observed up to 80 kg N ha^{-1}. Application of phosphorus increased plant height, LAI and TDM up to applied 26 kg P ha^{-1}, while HI was not beyond applied 13 kg P ha^{-1}. Based on this study, forage maize production was highest when intercropped with castor on 2:1 row arrangement and received 80 kg N + 13 kg P ha^{-1}.

Keywords: Leaf area index, nitrogen, phosphorus and total dry matter
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