

Response of Maize to Different Levels of Nitrogen under Zero-till Conditions after Rice

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ABSTRACT

Field experiments were conducted at Agricultural College Farm, Bapatla, to study the response of maize to different N levels under zero-till conditions after rice during *rabi* seasons of 2008 and 2009. The experiment was conducted in split plot design with four replications. The treatments consisted of four nitrogen levels (No: No nitrogen, N1: 75 kg ha⁻¹, N2: 150 kg ha⁻¹ and N3: 225 kg ha⁻¹) as sub plots and the six nitrogen management practices (M₁: 120 kg N ha⁻¹, (M₂: 180 kg N ha⁻¹, M₃: 240 kg N ha⁻¹, M₄: 120 kg N ha⁻¹ + GLM @ 10 t ha⁻¹, M₅: 180 kg N ha⁻¹ + GLM @ 10 t ha⁻¹ and M₆: 240 kg N ha⁻¹ + GLM @ 10 t ha⁻¹) imposed in preceding rice crop as main plots. The soil was sandy clay loam in texture, slightly alkaline in reaction, low in organic carbon and available N and medium in available phosphorus and high in available potassium. The study of the investigation revealed that each unit increase in N level led to significant increase in growth characters and yield of maize. Popular maize hybrid pioneer 30 V 92 was used for the study. Data collected on growth characters viz., plant height, dry matter accumulation, number of days to 50% tasseling, number of days to 50% silking, kernel yield, stover yield, economic returns were significantly influenced by different N levels given to maize. Higher plant height (231.1 and 247.3 cm, respectively) and dry matter accumulation of maize at tasseling (4078 and 4950 kg ha⁻¹, respectively) and at maturity (13224 and 13429 kg ha⁻¹, respectively) was recorded with application of 225 kg N ha⁻¹ during both the years of study. The plot that received 240 kg N ha⁻¹ + GLM @ 10 t ha⁻¹ in *kharif* rice (M₆) as main plot and 225 kg N ha⁻¹ to maize (N₃) recorded higher net returns and B: C ratio during both the years of study.

Key words: *Glyricidia leaf manure, Maize, Nitrogen levels, Zero-till conditions.*