



## RESEARCH PAPER

# Economic returns, nutrients status and nitrogen uptake in maize (*Zea mays* L.) as influenced by planting methods and nitrogen levels

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**Abstract :** A field experiment was conducted during *Kharif* 2015 at Punjab Agricultural University, Ludhiana to study the effect of three planting methods (flat, ridge and bed) and five nitrogen levels (0, 90, 120, 150 and 180 kg ha<sup>-1</sup>) on economic returns, nutrients status and nitrogen uptake in *Kharif* maize. Among various planting methods, bed planting produced significantly higher gross returns, net returns and benefit cost ratio as compared to flat sowing method but it was statistically at par with ridge sowing method. The gross returns, net returns and benefit cost ratio were increased with increase in each level of nitrogen upto 180 kg N ha<sup>-1</sup>, however, the significant response was only observed upto 150 kg N ha<sup>-1</sup>. Maximum nitrogen uptake of 115.3 kg ha<sup>-1</sup> in grains and 40.4 kg ha<sup>-1</sup> in stover was observed under bed planting which was at par with ridge sowing method but significantly higher than flat sowing method. Application of 150 kg N ha<sup>-1</sup> recorded significantly higher nitrogen uptake in grains and stover over control, 90 kg N ha<sup>-1</sup> and 120 kg N ha<sup>-1</sup> but was at par with 180 kg N ha<sup>-1</sup>. Available nitrogen status in soil after harvesting of maize was not significantly affected by different planting methods. Maximum available nitrogen status in soil (146.8 kg ha<sup>-1</sup>) was recorded after the application of 180 kg N ha<sup>-1</sup> to maize which was significantly higher than control (105.7), 90 kg N ha<sup>-1</sup> (122.0 kg ha<sup>-1</sup>) and 120 kg N ha<sup>-1</sup> (135.3 kg ha<sup>-1</sup>) but was at par with 150 kg N ha<sup>-1</sup> (141.2 kg ha<sup>-1</sup>) at depth of 0-15 cm. Different planting methods and nitrogen levels did not significantly influence the plant stand and available phosphorus and potassium status in soil after harvesting of maize. So, it may be concluded that for getting higher gross returns, net returns and benefit cost ratio, maize may be grown on beds with application of 150 kg N ha<sup>-1</sup>.

**Key Words :** Maize, Planting methods, Nitrogen, Economic returns, Nitrogen uptake, Soil status

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