

Effect of Plant Density and Fertilizer levels on Productivity and Economics of Popcorn (*Zea mays everta*) in *Kharif* Season

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ABSTRACT

A field experiment was conducted on medium black soils of Post Graduate Research Farm, College of Agriculture, Kolhapur, Maharashtra, during *kharif* 2012 on Popcorn. The treatment consisted of three fertilizer levels *viz.*, 75% RDF (90:45:30 Kg NPK ha⁻¹), 100% RDF (120:60:40 Kg NPK ha⁻¹) and 125% RDF (150:75:50 Kg NPK ha⁻¹) and four plant spacing levels *viz.*, 60 x 15 cm², 60 x 20 cm², 75 x 15 cm² and 75 x 20 cm². The experiment was laid out in randomized block design (Factorial) with twelve treatment combinations and the treatments were replicated thrice. The yield contributing characters *viz.*, number of cobs per plant, length and diameter of cob, number of grains cob⁻¹, grain yield per cob were significantly higher with 75 x 20 cm² plant spacing over 60 x 15 cm², except 60 x 20 and 75 x 15 cm². However, the number of cobs ha⁻¹ was significantly higher under 60 x 15 cm² over 75 x 20 cm². The grain and stover yields of popcorn were significantly higher under 75 x 20 cm² plant spacing (29.64 q ha⁻¹) over 60 x 15 and 75 x 15 cm², except 60 x 20 cm². The harvest index was significantly higher with 75 x 20 cm² over 60 x 15 cm². Application of 150:75:50 Kg NPK ha⁻¹ (125% RDF) and 120:60:40 Kg NPK ha⁻¹ (100% RDF) were at par and recorded significantly the higher yield contributing characters as compared to 90:45:30 kg NPK ha⁻¹ (75% RDF) resulting into significant increase in grain (30.72 and 28.59 q ha⁻¹) and stover yields (64.24 and 61.91 q ha⁻¹) under 100% and 125% RDF with no significant difference between them. Amongst, the plant spacings the 75 x 20 cm² recorded the maximum gross and net monetary returns (Rs. 83,267 and 52,234 ha⁻¹) and also benefit cost ratio (2.65). Application of 125% RDF recorded the maximum gross and net monetary returns (Rs. 86,158 and 53,139 ha⁻¹) followed by 100% and 75% RDF. The benefit cost ratio under 125% and 100% RDF was almost similar and the lower benefit cost ratio was recorded under 75% RDF.

Key words: Fertilizer levels, Plant densities, Popcorn.