



Yield and quality of maize (*Zea mays* L.) as influenced by different levels of nitrogen, phosphorus and zinc

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Abstract : A field investigation was conducted during the *Rabi* season of 2009-10 to study yield and quality of maize as influenced by different levels of nitrogen, phosphorus and zinc. The results indicated that application of 120 and 160 kg N ha⁻¹ were at par and produced significantly higher grain and stover yield as compared to 80 kg N ha⁻¹. The mean grain yield recorded under the application of 120 and 160 N ha⁻¹ was 5209 and 5550 kg ha⁻¹ which accounted for 11.35 and 18.64 per cent increases over 80 kg N ha⁻¹. Nitrogen levels had significant influence on the protein content in grain. Protein content increased under the levels of 120 and 160 kg N ha⁻¹ was to tune of 4.93 and 7.68 per cent, respectively over application of 80 kg N ha⁻¹. Application of 60 and 80 kg P₂O₅ ha⁻¹ were at par and produced significantly higher grain yield than that of 40 kg P₂O₅ ha⁻¹. The grain yield showed increase under the levels of 60 and 80 kg P₂O₅ ha⁻¹ were 8.97 and 10.13 per cent increase over 40 kg P₂O₅ ha⁻¹. Protein content was not influenced significantly due to phosphorus application. Grain yield, stover yield and protein content were significantly influenced due to different levels of zinc. The per cent increase was to the tune of 10.21 in case of grain yield, 7.76 in case of stover yield and 4.15 in case of protein content.

Key Words : Nitrogen, Phosphorus, Zinc, Maize, Yield, Quality

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INTRODUCTION

Maize (*Zea mays* L.) the “queen of cereals”, popularly known as corn, is one of the most important cereals of the world, ranking third among the food crop, next to rice and wheat, both in respect of area and production. Maize crop is utilized in many ways, like other grain crops. Green cobs are roasted and eaten by people with great interest. Several food dishes including chapattis are prepared out of maize flours and grains. It is also a good feed for poultry, piggery and other animals. It supplies raw materials for various industries manufacturing starch, alcohol, acetic acid, glucose, synthetic rubber, dyes, resin, etc. Maize is also important not only because of its great adaptability to widely divergent conditions but also because of its high responsiveness to better management practices particularly irrigation and fertilizers. Its

sweet flavour and crisp nature contribute to its popularity making as an indispensable ingredient in many fancy dishes of today. It contains 8.20 g carbohydrates, 10.04 g protein, 0.20 g fat, 86 mg phosphorus, 28 mg calcium and 0.10 mg iron per 100 g of edible portion (Thakur, 2000). Its byproducts, such as tassel, young husk silk and green stalk provide good cattle feed which contained crude protein 10.6 per cent, acid detergent lignin 2 per cent, neutral detergent fibre 55.1 per cent, acid detergent fibre 26.8 per cent and moisture 86.4 per cent (Cheva and Paripattan, 1988). It is an attractive low calorie vegetable and it has high fibre content without cholesterol.

Nitrogen is the key element in crop growth and is the most limiting nutrient in Indian soil. The paramount importance of nitrogen for increasing the yield has been widely accepted. Nitrogen influences the quality of product by improving the

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