

Research
Paper

Effect of integrated nutrient management on growth, yield and economics of Sweet corn (*Zea mays* L.)

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ABSTRACT

Field experiment was conducted at Agronomy farm B.A.College of Agriculture, Anand Campus, Anand during *Kharif* season of the year 2004-05. The main objective of the study was to find out the effect of organic and inorganic fertilizer on seed yield of sweet corn (*Zea mays* L.). The experiment was studied with split plot design having two levels of biofertilizer, FYM and phosphorus as main plot treatments along with five levels of nitrogen as sub plot treatments. Application of organic matter had significantly increased height and all crop growth parameters and 5.75% more grain yield with application of FYM@10 ha⁻¹. Seed inoculation with *Pseudomonas* gave significant increase in growth and yield parameters and grain yield increased to the tune of 8.24 per cent. Application of phosphorus significantly increased plant height at all crop growth stages and higher grain yield recorded by 6.74 per cent than control. Seed yield of sweet corn as well as growth and yield attributes were significantly increased due to varying levels of nitrogen. The higher grain yield (1633 kg ha⁻¹) and straw yield (5783 kg ha⁻¹) was recorded with 120 and 160 kg N ha⁻¹ respectively. The net realization of Rs. 30525 and 29255 ha⁻¹ was recorded with 10 t FYM ha⁻¹. Seed inoculation gave 31485 Rs. ha⁻¹ and application of P₂O₅ at 0 and 50 lg. P₂O₅ ha⁻¹ gave 6.70% and 4.43% higher grain and straw yield, respectively. The significant higher straw yield were recorded with varying levels of Nitrogen, but highest net return was obtained with 120kg nitrogen per hectare, The straw yield were increased significantly with increasing levels of nitrogen from 0 to 160 kg per hectare.

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Key words : Sweet corn, Integrated nutrient management, Biofertilizer, F.Y.M.

INTRODUCTION

Maize (*Zea mays* L.) popularity known as corn is one of the most important cereal of the world, ranking third amongst the food crops, next to rice and wheat both in respect of area and production. India occupied an area of 10.58 lakh hectares with the production of 14.32 lakh tones during the year 1993 correspondingly the Gujarat state had an area of 3.68 lakh ha with the production of 5.29 lakh tones. In Gujarat Maize is one of the important traditionally grown crop of tribal areas. Comprising the districts of Panchmahals, Sabarkantha, Banaskantha and Part of Baroda and Kheda districts, now recently this crop may be introduced in South Gujarat districts like Surat, Tapi. Among these districts Panchmahals is a leading district which accounts for area of 2.62 lakh hectares and production of 2.15 lakh tones.

Among various types of maize, sweet corn is very popular for the use of its green cobs in the United States of America. It differs from the field corn due to its higher sweetness, as it has high amount of sugar and alcoholic material. Besides, its consumption as vegetable purpose, it is also utilized for extracting sucrose as an industrial purpose. The role of O.M. for increasing crop production has been universally established, as it plays significant role in improving physical and chemical properties of the soil application of 12-15 tonner of FYM helps in increasing the yield of maize crop to the tune of 1.5 to 5.6 t / ha. Sweet corn is one of the heavy consumers of plant nutrients. It remains about 72 kg N₂, 25 kg P₂O₅ and 220 kg K₂O / ha. Nitrogen is the key element in crop growth and is the most limiting nutrient in Indian soils. The importance of nitrogen for increasing the yield has been