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Effect of plant population and fertility levels on yield attributes, yield and nutrient uptake of sweet corn (*Zea mays* L.) cultivars

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ABSTRACT : A field experiment was conducted during *Kharif* 2001 and 2002 to compare efficacy of three cultivars, three plant population and three fertility levels in sweet corn at the Instructional Farm (Agronomy), RCA, Udaipur (Rajasthan). The test cultivars did not differ significantly in respect of yield attributes, yield, N and P uptake. Population at 55 thousand plants/ha gave significantly higher fresh weight of cob per plant both with and without husk over population at 75 thousand plants/ha. While, varying plant population did not significantly influence the other yield attributes. Significantly higher green cob yield, green fodder yield, N and P uptake was recorded under population at 75 thousand plants/ha. Population at 75 thousand plants/ha gave higher green cob yield by 5.9 and 14.9 per cent over 65 thousand and 55 thousand plants/ha, respectively. Application of 90 kg N + 45 kg P₂O₅/ha level gave significantly higher yield attributes, yield and NP uptake over 60 kg N + 30 kg P₂O₅/ha. Application of 90 kg N + 45 kg P₂O₅/ha recorded green cob yield of 76.58 q/ha which was found significantly higher by 21.1 per cent over application of 60 kg N + 30 kg P₂O₅/ha. The maximum net returns and benefit-cost ratio were recorded with sweet corn cultivar Madhuri at 75 thousand plants/ha and application of 90 kg N + 45 kg P₂O₅/ha.

Key Words : Sweet corn, Plant population, Fertility levels, Cultivars, Yield attributes, Yield, Uptake

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Sweet corn is special type of corn used for table purpose. It is one of the most popular vegetables in USA, Europe and other advanced countries of the world. Approximately 40 per cent of such corn is frozen and the rest is canned while processing. Now-a-days sweet corn is becoming popular and is being cultivated in maize growing areas of India. Being a high value crop, there is growing demand for sweet corn in star hotels for soup making. In addition, the seed of this crop is used for canning purpose and for preparation of different sweet items. The farmers dwelling at the outskirts of the cities can take up this crop for better profits. Added advantage of sweet corn is that after the harvest of green ears, the crop remains at green stage and it is fit for feeding cattle as green fodder. Due to its short duration, it is finding place in different cropping systems. It has been tried in different low canopy crops like groundnut, greengram, blackgram and high canopy crops like redgram of varying durations as intercrop and found most suitable.

Since the production technology is not available for sweet corn in relation to suitable cultivars, optimum plant densities and nutrient management in the state of Rajasthan and in particular Udaipur region of agroclimatic zone IV a (Sub-Humid Southern Plain and Aravalli Hills), the trial was conducted.

RESEARCH PROCEDURE

The field experiment was conducted at the Instructional Farm (Agronomy), Rajasthan College of Agriculture, MPUAT, Udaipur (Rajasthan) during the *Kharif*, 2001 and 2002. The soil of experimental site was clay loam in texture and alkaline in reaction (pH 7.8). It was medium in available nitrogen (277.24 kg/ha) and available phosphorus (18.98 kg/ha) and high in available potassium (365.64 kg/ha). The experiment was laid out in Randomized Block Design with four replications. The treatments comprised of three cultivars (Mahi Kanchan, JKSCH-211 and Madhuri), three plant population (55, 65 and