



Integrated nutrient managements in *Rabi* sweet corn

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ABSTRACT

A field experiment was conducted during three consecutive years from 2006-07 to 2008-09 at Model farm, Vadodara on loamy sand soil to study the effect of integrated nutrient managements in *Rabi* sweet corn. Five levels of organic manures (control, castor cake (CC) @ 2 t ha⁻¹, vermi compost (VC) @ 4 t ha⁻¹ + CC @ 1 t ha⁻¹, VC @ 6 t ha⁻¹ + CC @ 0.5 t ha⁻¹ and VC @ 8 t ha⁻¹) and four levels of chemical fertilizers [0, 50, 75 and 100 per cent RDF (120: 40: 00 NPK kg ha⁻¹)] were tested in FRBD with four replications. Among different organic manures, castor cake @ 2.0 t/ha recorded significantly higher growth parameters, yield attributes, green cob and dry fodder yield as well as net return and BCR. Among the fertilizer levels, application of 100 per cent RDF showed significantly the highest plant height, number of cobs/plant, green cob weight, cob length, green cob yield, dry fodder yield, net return and benefit cost ratio. Interaction between organics and fertilizer was not found significant in this respect.

KEY WORDS : Integrated nutrient management, Sweet corn organic manure treatments, Chemical fertilizers

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INTRODUCTION

Indiscriminate use of chemical fertilizer creates a problem of soil health and sustainable crop production. It is well known that addition of organic manure in to soil not only increases the crop yield considerably but also significantly improve the physical, chemical and biological properties of soil. However, use of organic alone can not feed the hungry mouth of billions unless they form a part of integrated nutrient managements. But their use is not significant to meet the requirements of nutrients of the crops. Therefore, use of both organic manures and chemical fertilizer in appropriate proportion assume special significance as complementary to each other in crop production.

Sweet corn (*Zea mays* Saccharut Sturt) is very popular for the use of its green cobs all around the world because, it is a good source of the antioxidant and vitamin C. It is also fits well in semi urban agriculture and it needs to be consumed in a short time after harvest, contributes to diet diversification and improved nutrition. Hence, it

can be grown in areas surrounding large cities and towns, thus, sweet corn provides very good opportunities for higher returns per unit area and time. The nutrient requirements of sweet corn are very high. Therefore, present experiment was planned to evaluate the integrated nutrient managements in *Rabi* sweet corn.

MATERIALS AND METHODS

A field study was carried out during *Rabi* season of 2006-07 to 2008-09 at Pulse Research Station of Anand Agricultural University, Vadodara. The soil of experimental field was loamy sand in texture locally known as "Goradu" and having good drainage capacity. It was low in organic carbon and available nitrogen and high in available phosphorus and potash. Twenty treatments comprising of five levels of organic manures (M₀: no organic manure, M₁:Castor cake (CC) @ 2 t ha⁻¹, M₂:CC @ 1 t ha⁻¹ + Vermi compost (VC) @ 4 t ha⁻¹, M₃:CC @ 0.5 t ha⁻¹ + VC @ 6 t ha⁻¹ and M₄:VC @ 8 t ha⁻¹) and four levels of chemical fertilizers [F₀: 0% recommended dose of fertilizers (RDF), F₁: 50% RDF, F₂: 75% RDF and F₃: 100% RDF (120: 40: 00 NPK kg ha⁻¹)] were tested under Factorial Randomized Block Design with three replications.

Madhuri variety was selected for sowing a distance of 60 x 20 cm during 1st week of November. Except the nutrient management practices, whole recommendation package of practices was followed to raise the sweet corn

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