

Effect on combined application of organic manures with inorganic fertilizers on growth and yield of okra cv. PARBHANI KRANTI

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ABSTRACT

The combined applications of inorganic and organic sources as well as micronutrients were found effective in overall growth, yield and quality of okra as that of inorganic fertilizers. The perusal of result revealed that earlier fifty per cent flowering and the maximum plant height were noted under the treatment of 100 % RDF + FeSO₄ @ 50 kg/ha. However, okra plant nourished with the 75% RDF + BC @ 10 t/ha (T₉) has resulted in the higher number of branches, fresh weight, dry weight of pod and dry weight of plant and produced highest pod yield with superior character pods. Moreover, lower crude fibre and higher crude protein are the desirable character for quality of okra pod were obtained under the treatment T₉ (75% RDF + BC @ 10 t/ha). The quality of the okra pod was improved remarkably viz., total soluble solids as well as ascorbic acid (Vitamin C) contents were observed under okra crop fertilized with 100% RDF + ZnSO₄ @ 25 kg/ha.

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Okra (*Abelmoschus esculentus* (L.) Moench) commonly known as lady's finger or bhindi, belongs to the family Malvaceae. It is widely adopted vegetable in Indian kitchens and can be grown round the year. Besides the utility of its tender green fingers as a vegetable, it is used in soups and curries. In Gujarat, it is grown either as inter- or sole crop. It occupies about 35,190 ha with total production of 0.27 MT with an average productivity of 8 to 10 t/ha (Singh and Kalloo, 2000 and Anon., 2005). It is well known that organic manures, inorganic fertilizers and micronutrients are essential to increase the yield of the vegetable crops. Day by day the cost of fertilizers has gone up and ultimately farmers receive only a marginal profit. Therefore, it is imperative that chemical fertilizers, organic manures as well as micronutrients are utilized properly and effectively not only as source of the nutrients but also for increasing nutrients use efficiency without adversely disturbing the soil health.

MATERIALS AND METHODS

An experiment was conducted on okra cv. PARBHANI KRANTI at the Regional Horticultural Research Station (RHRS) of the Navsari Agricultural University (erstwhile GAU), Navsari, Gujarat in the year 2005. The experiment was laid out in randomized block design (RBD) with three replications and twelve treatments viz., Recommended fertilizer dose (T₁), FYM @ 20 t/ha (T₂), Pressmud (PM) @ 10 t/ha (T₃), Biocompost (BC) @ 10 t/ha (T₄), 75 % RDF + FYM @ 20 t/ha (T₅), 50 % RDF + FYM @ 20 t/ha (T₆), 75 % RDF + PM @ 10 t/ha (T₇), 50 % RDF +

PM @ 10 t/ha (T₈), 75 % RDF + BC @ 10 t/ha (T₉), 50 % RDF + BC @ 10 t/ha (T₁₀), 100% RDF + ZnSO₄ @ 25 kg/ha as soil application (T₁₁), 100% RDF + FeSO₄ @ 50 kg/ha as soil application (T₁₂). Entire quantity of organic manures viz. FYM, pressmud and biocompost were thoroughly mixed in the respective experimental plots before a month of sowing and followed by irrigation. Full dose of P₂O₅, K₂O, ZnSO₄ and FeSO₄ as well as half quantity of the nitrogen were also given as basal and the remaining half quantity of nitrogen was applied at 30 days after sowing. Nitrogen was applied in the form of urea; whereas, phosphate and potash were applied in the form of single super phosphate (SSP) and muriate of potash (MOP), respectively. Zn and Fe were applied in the form of zinc sulphate and ferrous sulphate. The recommended dose of fertilizers was applied @ 100: 50: 50 kg NPK/ha during experiment. The soil of the experimental field was clay in texture, low in available N, medium in available P₂O₅, high in available K₂O and was deficit in zinc having moderately alkaline reaction (pH 7.9). Five plants of okra from each net plot area were selected randomly in the beginning and tagged with labels for recording different observations. The conjunctive use of chemical fertilizer along with organic manures and micronutrients to obtain higher yield and quality, nutrient content and uptake mostly in cereals and such information on vegetable crops is scanty.

RESULTS AND DISCUSSION

The results obtained from the present investigation are presented below.