

Effect of nitrogen and potassium levels on yield and nutrient uptake in paprika (*Capsicum annuum L.*) under irrigated conditions of Northern Telangana Zone of Andhra Pradesh

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Accepted : February, 2007

ABSTRACT

A field experiment was conducted during 2002-03 and 2003-04 in Kharif season at J.V.R. Horticultural Research Station, Malyal under Acharya N.G. Ranga Agricultural University, Andhra Pradesh. This experiment was conducted with 16 treatment combinations consisting of 4 levels of Nitrogen (0,50,100 and 150 kg ha⁻¹) and 4 levels of potassium (0,30,60 and 90 kg ha⁻¹). A uniform dose of 25 t ha⁻¹ of Farm Yard Manure and 60 kg ha⁻¹ of Phosphorus (SSP) was applied as basal in randomized block design with three replications and this was carried out to find out the effect on yield and nutrient uptake by plant of paprika in CV. Warangal Local. The treatment N₁₅₀ K₉₀ recorded the highest dry pod yield (22.14 q/ha) than the other treatments. Nitrogen at N₁₅₀ and Potassium at K₉₀ recorded maximum N uptake in both the plants (109.82 kg ha⁻¹) and fruits (92.94 kg ha⁻¹). The P uptake was highest in N₁₀₀ in both the plant (33.13 kg ha⁻¹) and dry fruit (31.25 kg ha⁻¹). Maximum P uptake in plants (39.40 kg ha⁻¹) in N₁₅₀ K₆₀ combination treatment. But in fruits maximum with N₁₀₀ K₉₀ (38.09 kg ha⁻¹). The highest up take of K has been recorded with the highest level of N and K. The combination treatment of N and K one found to be significant and N₁₀₀ K₉₀ registered greater values in respect of K uptake in plant and dry fruit in paprika.

Key words: *Capsicum annuum L.*, Yield, Nitrogenous fertilizers, Nutrient uptake, Paprika.

Paprika (*Capsicum annuum L.*) is an important spice-cum-vegetable crop of the world. The chemical fertilizers like N,P and K have played significant role in increasing the yield and quality in chilli in early seventies (Irutharayaraj and Kulandaivelu, 1973). But in the recent years the farmers are using the chemical fertilizers indiscriminately in an unbalanced manner, which resulted in several problems which ultimately resulted in reduced crop productivity and quality. Hence no systematic investigation have not been carried out to work out the optimum dosage of nutrients needed on the yield and nutrient uptake by paprika.

MATERIALS AND METHODS

A field experiment was conducted during two kharif seasons of 2002-03 and 2003-04 at J.V.R. Horticultural Research Station, Malyal, Warangal District of Acharya N.G. Ranga Agricultural University, Andhra Pradesh. The experimental field was red sandy loam in texture with PH of 8.0 and E.C. of 0.345 d sm⁻¹. The organic carbon, available nitrogen, phosphorus and potash content were 0.79%, 157.5 kg/ha, 94.7 kg/ha and 300 kg/ha

respectively. The experiment was laid out in Factorial Randomised Block Design with three replications. The net plot size was 3.6 x 3.6 cm and gross plot size was 4.8 x 4.8 m. There were 16 treatment combinations consisting of 4 levels of Nitrogen (0,50,100 and 150 kg ha⁻¹) and 4 levels of potassium (0,30,60 and 90 kg ha⁻¹). A uniform dose of 25 t/ha of Farm Yard Manure and 60 kg/ha of Phosphorus (SSP) was applied in last ploughing. Nitrogen (urea) was applied in equal 4 split doses at 30,60,90 and 120 days after planting (DAP). Half of the Potassium (MOP) was applied in equal 3 split doses at 30,60 and 90 DAP. The paprika genotype CV. Warangal Local was selected for the study and seed was raised in the nursery and aged 45 days were transplanted in the main field with the spacing of 60 x 60 cm between rows and plants respectively and recommended cultivation practices were followed. Ten plants in each replication and treatment were selected randomly, leaving two border plants on either side for the study among the yield attributes and nutrient uptake. The paprika pods and stalks were onformity analysed for N, P and K contents. Yields of both dry pods and stalks were recorded. N was estimated by Kjeldahl digestion and distillation methods, P by Vanado molybdate method, K by Flame photometer, the analysis of varience was worked out as per the procedure given