

Influence of integrated nutrient management on growth of coloured capsicum (*Capsicum annuum* L.) cv. OROBELLE under naturally ventilated greenhouse

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ABSTRACT

A study on influence of integrated nutrient management on the growth of coloured capsicum Cv. Orobelle under naturally ventilated greenhouse was conducted at Division of Horticulture, University of Agricultural Sciences, Bangalore during 2004-2005. The treatments comprised of three organic manures viz., Pongamia cake (220g/m², 440g/m² and 880g/ m²), vermicompost (375 g/ m², 750g/m²and 1500g/ m²) and FYM @ 25 t/ ha, recommended dose of fertilizer (RDF) @ 250: 250: 250 kg NPK/ ha (applied at three different levels 50%, 75% and 100%) and *Azotobacter* @ 5g/plant. The results of the experiment have revealed that application of 25 per cent of nitrogen through Pongamia cake + 75 per cent of recommended dose of fertilizer + FYM @ 25t/ha + *Azotobacter* @ 5g/plant has significantly increased the growth parameters like plant height (64.72, 127.34 and 225.93cm), number of branches per plant (12.47, 18.21 and 20.57) and plant spread (448.24, 981.31 and 1250.10 cm²) when observed on 60, 90 and 120 days after transplanting, respectively. The capsicum plants responded significantly to the integrated nutrient supply.

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Capsicum (*Capsicum annuum* L.) also called as bell pepper belonging to the family Solanaceae is one of the most popular and highly valued vegetable crops grown in tropical and sub-tropical parts of the world. It is believed to be the native of tropical South America (Shoemaker and Tesky, 1955). Growing of capsicum under green/polyhouses has been reported to give high productivity of good quality produce in developed countries. Hence, there is a need for evaluating the performance of capsicum under low cost greenhouse conditions for getting higher productivity of excellent quality under Indian conditions. Nutrition plays an important role in growth and development of any crop including capsicum. To overcome the problems of increased cost of cultivation and ecological imbalance due to continuous use of chemical fertilizers, the latest trend of growing crops mainly horticultural crops using organic manure is in vogue. Hence, use of organic manures and bio-fertilizers along with chemical fertilizers in an integrated manner on a long run helps in reducing the use of chemical fertilizers thereby improving the soil health.

Hence, the present study on Integrated Nutrient Management in cultivation of coloured capsicum cultivar Orobelle under naturally ventilated greenhouse was taken up.

MATERIALS AND METHODS

The study was carried out under naturally ventilated cost effective greenhouse at Precision Farming Development Center, Division of Horticulture, UAS, GKVK, Bangalore. Yellow coloured capsicum hybrid

Orobelle developed by Syngenta seed company was used for this study. The raised nursery beds of one meter width, three meter length and 0.4 meter height were prepared after mixing with the recommended dosage of farm yard manure (2 kg/sq.m). Seeds of hybrid capsicum (Orobelle) were sown one cm deep at a spacing of 10 cm x 5 cm. for raising the seedlings. One month old healthy and vigorous seedlings were planted at a spacing of 45 cm x 30 cm under naturally ventilated greenhouse. In each treatment 24 plants were planted. There were 12 treatments and three replications under each growing conditions.

Manures, fertilizers and bio-fertilizer application:

Farm yard manure, vermicompost and Pongamia cake were applied to soil media as per the treatments at 15 days prior to planting. The water soluble chemical fertilizers (obtained from Kemira OY International, Finland) were used for the study as per the treatments and applied to the soil in three split doses at monthly intervals over a period of three months starting from 15th day after transplanting. The biofertilizer (*Azotobacter* obtained from Department of Microbiology, GKVK, Bangalore) was applied as soil application at 25days after transplanting as per the treatment.

Details of nutrients:

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|--------------------|---|------------------|
| 1. Organic manures | : | a. Pongamia cake |
| | | b. Vermicompost |
| | | c. FYM |