Research Paper

THE ASIAN JOURNAL OF HORTICULTURE
Vol. **6** | Issue 2 | December, 2011 | 352-354

Article history:
Received : 02.07.2011
Revised : 05.08.2011
Accepted : 28.09.2011

Response of organic, inorganic and bio-fertilizers on growth and yield of Byadagi Chilli

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Abstract : A field experiment was carried out on block soil at Regional Agricultural Research Station, Raichur during *Rabi* 2003, to study the performance of chilli (cv. BYADAGI KADDI) to combined application of organic, inorganic and biofertilizers. Significant differences were observed among the treatments, in plant height(96.56 cm), number of branches(20.16), number of leaves(286.56), leaf area index(2.89), dry matter accumulation (118.50 g/plant) and stem girth(2.34 cm) when chilli supplemented with FYM @ 25 t/ha+ 100 per cent RDF, followed by chilli which was nourished with FYM @ 75 t/ha+ *Azospirillum*+ phosphate solubilizing bacteria(PSB)+ 25 per cent RDF (91.76cm, 18.21, 281.28, 2.61, 113.65 g/plant and 2.02cm, respectively of plant height, number of branches, number of leaves, leaf area index, dry matter accumulation and stem girth). Similarly, the yield was found highest (7.42 q/ha.) when chilli was applied with FYM(25 t/ha)+ RDF(100%). On the contrary the lowest yield(2.61 q/ha.) wad observed in chilli when it was nourished with FYM @ 25 t/ha+ *Azospirillum*+ PSB.

Key words : Chilli, Organic, Inorganic, Bio-fertilizers, Growth, Yield

How to cite this article : Hiraguli, P.S. and Allolli, T.B. (2011). Response of organic, inorganic and bio-fertilizers on growth and yield of Byadagi Chilli, *Asian J. Hort.*, **6** (2) : 352-354.

During the mid sixties in India, the use of chemical fertilizers and pesticides has been on rising scale. The detrimental effects of indiscriminate use of these chemicals have been in recent past. The lands which have been applied with application of abundant quantity of chemical fertilizers alone have turned out to be less productive. Elimination of chemical fertilizers from the conventional farming system may cause a significant reduction in crop yield and result in loss of net profit or income of the farm. In order to avoid such problems, it is necessary to begin with adopting integrated soil building practices to improve and stabilize soil fertility and productivity. Use of organic and bio-fertilizers with little amount of inorganic fertilizers were found to be most effective to enhance yield and maintaining soil health.

Hence, an experiment was conducted to combine organic, inorganic and bio-fertilizer as nutrient supplement, so as to phase out use of inorganic fertilizers.

RESEARCH METHODS

The field experiment was laid out in Randomized Block Design at Regional Agricultural Research Station, Raichur during *Rabi* 2003. *Rabi* chilli was grown with different combination of organic, inorganic and bio-fertilizers consisting of 10 treatments. The soil was clay-loam in texture with pH of 7.93. The gross and net plot sizes were 4.8mx4.5m and 3.6mx3.0m, respectively. Five week old chilli(cv.Byadagi kaddi) seedlings were transplanted on October, 2003 at a spacing of 75x60cm. Well decomposed FYM was incorporated according to treatment combinations. *Azospirillum* and PSB were used as source of bio-fertilizers for both seed treatment and seedling treatment.

The picking of red chilli fruits was started from 60 days after planting and were dried on the floor. The treatment wise total production obtained from all pickings was expressed on hectare basis.

RESEARCH FINDINGS AND DISCUSSION

The data on growth parameters recorded in chilli are presented in Table 1. There was significant difference among the treatments when chilli supplemented with FYM