

Effect of organic manures with graded levels of nitrogen on growth and yield of cabbage (*Brassica oleracea* var. *capitata* L.)

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ABSTRACT

The investigations with the intention to study the effect of organic manures with graded levels of nitrogen on growth and yield of cabbage was undertaken at Department of Horticulture, Mahatma Phule Krishi Vidyapeeth, Rahuri during 2001. The various quantitative and qualitative characters were studied. Average weight of head, average weight of leaves, number of leaves per plant, girth of head, days required for harvesting were found significantly superior in treatment where 50% N was applied through organic sources over inorganic source @ 100:50:50 NPK kg/ha. However, treatment of 50% nitrogen was found *at par* with the treatment where increased dose of NPK (125 : 62.5 : 62.5 kg/ha) was applied. As regards the compactness of head, the treatment 50% N through neem cake + 50% N through inorganic source @ 100:50:50 kg/ha.

Key words : Cabbage, Nitrogen, Organic manures, F.Y.M., N.P.K., Yield, Quality.

Cabbage (*Brassica oleracea* var. *capitata* L.) belonging to the family cruciferae is mostly grown in the plains of India over an area of 2.19 lakh ha. It is heavy feeder and about 50 per cent of applied inorganic fertilizers are utilized by the plant and the rest is being lost either through denitrification or leaching. Hence, attention needs to be given towards the use of organic manures to improve the soil fertility, to get the desired level of quality crop production. Organic fertilizers positively affected food quality and also improved storage performance of vegetables (Vogtmann *et al.*, 1993). The use of organic fertilizers along with chemical fertilizers needs to be encouraged to ensure the supply of good quality food in adequate quantity to human beings. However, limited information is available on the effect of each manure alone or in conjunction with inorganic fertilizers on the growth, yield and quality of cabbage. In view of the above, the studies were undertaken to study the effect of inorganic fertilizer in conjunction with organic manure on the growth, yield and quality of cabbage.

MATERIALS AND METHODS

The experiment was conducted at the Department of Horticulture, Mahatma Phule Krishi Vidyapeeth, Rahuri. during the *rabi* season of 2001 using Randomized Block Design with three replications and in all ten treatment combinations. The experimental site comes under rain shadow area. The soils are medium black rich in organic matter and well drained. The fertility status

are medium in nitrogen, low in phosphorus and high in potassium. Seeds treated with *Azospirillum* were sown in rows 5 cm apart on 2-10-2001 in the nursery. All other cultural operations like weeding, watering and crop protection were carried out as per the requirement. The flat beds of 2.70 x 2.10 m were prepared, well rotten FYM and other organic fertilizers like neem cake and vermicompost were applied treatment wise and mixed well in the soil before transplanting. The seedlings were transplanted after 38 days in the main field at a spacing of 45 x 30 cm. Harvesting of heads were carried out at full maturity.

RESULTS AND DISCUSSION

Pre-harvest characters :

The growth as assessed by number of leaves was significantly influenced by differential nutrient treatments. The treatment T₅ recorded significantly highest number of leaves (19.6) *at par* with treatment T₃ over rest of the treatments (Table 1). The treatments comprising of organic manure and inorganic fertilizers in combination had given significantly better growth. Hence, it could be revealed that the application of inorganic fertilizers along with organic manures were found to be effective in increasing number of leaves which ultimately helped in increasing the total yield. The moreover same trend was observed for the earliness for harvesting of cabbage head. The increase in number of leaves in cabbage and earliness for harvesting of cabbage head. The increase in number of leaves in cabbage and earliness for harvesting by the application of inorganic fertilizer with organic manures have been reported by Mangal *et*