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Research Paper

Effect of organic and inorganic sources of nitrogen on growth and yield of cabbage (*Brassica oleracea* var. *capitata* L.)

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ABSTRACT

A field experiment was conducted during *Rabi*, 2008-2009 at Horticulture Nursery, College of Agriculture, Gwalior (M.P.). The result of the experiment revealed that application of organic manures either alone or in combination with urea enhanced the growth and yield attributes in cabbage over control. Highest growth attributes like plant height, plant spread, number of leaves per plant and leaf area were obtained under the treatment T_8 which received 50 per cent N as urea + 50 per cent N as vermicompost. The effect of vermicompost alone or in combination with chemical fertilizer N was at par with use of poultry manure .Application of nitrogen through various sources significantly influenced the weight and volume of head. The maximum weight and volume were recorded with the application of nitrogen 50% through urea + 50% through vermicompost which was statistically at par with application of nitrogen 50% through urea + 50% through poultry manure. These treatments have a significant difference over rest of the treatments including control. Application of nitrogen 50% through urea and 50% through vermicompost resulted in significantly highest diameter of head over rest of the treatments. Application of nitrogen 50% through urea + 50% through vermicompost produced the highest yield of cabbage (383.20 q/ha), which was statistically significant over rest of the treatments including control. The treatments next in order were the application of nitrogen 50% through urea and 50% through poultry manure and 50% nitrogen through urea + 25% through vermicompost + 25% through poultry manure.

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Cabbage (*Brassica oleracea* var. *capitata* L.) is one of the most important vegetable crop grown all around the world in more than ninety countries. It is cruciferous vegetable crop, which originated from western Europe and north shores of Mediterranean sea region. Being an important winter vegetable crop in India, it is grown in 0.25 m ha, with 6.1 tonnes production. While in M.P., it covers approximately 2820 hectare area with 56400 tonnes production and 20 t/ha productivity (Agricultural statistics, 2004). Nitrogen increases the growth and yield of most of the crops, particularly leafy vegetable including the cabbage. Application of nitrogen through inorganic fertilizers can enhance the growth and yield to considerable extent but the soil fertility and productivity cannot be retained for a longer period. Therefore, it is important to supplement the urea with inorganic sources of nitrogen. In country like Indian, it is more important owing to the availability of sufficient FYM, vermicompost and poultry manure in mixed farming system. Keeping all these points in mind, an investigation was conducted to evaluate the effect of organic and inorganic sources of nitrogen on growth and yield of cabbage (*Brassica oleracea* var. *capitata* L.)

MATERIALS AND METHODS

A field experiment was conducted during *Rabi*, 2008-2009 at Horticulture Nursery, College of Agriculture, Gwalior (M.P.). The experiment was laid out in Randomized Block Design having 17 treatments of integrated application of nitrogen including control with 3 replications. The treatments consisted of T_1(Control),T_2 (100% N through urea), T_3 (75% N through urea + 25% N through FYM), T_4 (50% N through urea + 50% N through FYM), T_5 (25% N through urea + 75% N through FYM), T_6 (100% N through FYM), T_7 (75% N through