



## Research Paper

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# Effect of integrated nutrient management on growth, yield and quality of garlic (*Allium sativum* L.) cv. GUJARAT GARLIC-3

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**Abstract :** The present investigation was conducted at the Horticultural Research Farm, Department of Horticulture, B. A. College of Agriculture, Anand Agricultural University, Anand, during the *Rabi* season 2009-2010. The experiment was laid out in a Randomized Block Design with twelve treatments and replicated three times. The result indicated that the maximum plant height (59.67 cm), number of leaves per plant (8.96 nos.) and diameter of stem (1.52 cm) was recorded with the application of 100-40-60 NPK kg/ha + 100 kg N/ha through C.C. + *Azotobacter* + PSB (T<sub>9</sub>). The maximum length of bulb (4.50 cm), diameter of bulb (5.34 cm), number of cloves per bulb (19.33), average weight of bulb (36.94 g), yield of bulb (124.56 q/ha), moisture content of bulb (61.77 %), Total soluble solids (45.05 °Brix) and sulphur content (0.94 %) was recorded with the treatment 100-40-60 NPK kg/ha + 100 kg N/ha through C.C. + *Azotobacter* + PSB (T<sub>9</sub>). In the grade wise weight, the grade A was found significantly higher in (T<sub>9</sub>) 100-40-60 NPK kg/ha + 100 kg N/ha through C.C. + *Azotobacter* + PSB, while in treatment 50-40-60 NPK kg/ha + 50 kg N/ha through C.C. + *Azotobacter*+PSB (T<sub>7</sub>), recorded significantly higher in grade B and grade C.

**Key words :** Castor cake, Biofertilizers, FYM, Growth, Yield, Quality, Garlic

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Garlic (*Allium sativum* L.) is the second most important bulb crop after onion belonging to family Alliaceae. In India, garlic growing area is 166.2 thousand hectare with a production of 831.10 thousand MT. In Gujarat, garlic is grown on 30.19 thousand hectare area with production of 149.50 thousand MT (Anonymous, 2009). It is used practically all over the world for flavouring and seasoning various vegetables and meat dishes. It is rich in proteins, minerals like phosphorus, calcium, magnesium and carbohydrates. It also contains fat, vitamin C and sulphur. It is already being used in several food preparations, notably in chutneys, pickles, curry powders, curried vegetables, meat preparations, tomato ketchup. The successful commercial cultivation of this crop is depend on many factors such as climate, soil fertility, irrigation, fertilizer, spacing and season of growing etc. Among the different management practices like nutrient management

plays an important role for good growth, yield and quality. Application of all needed nutrients through chemical fertilizers are known to have deleterious effect on soil fertility leading to unsustainable yields, while integration of chemical fertilizers with organic manures and biofertilizers are able to maintain the soil health, productivity and fertility (Jeyabal *et al.*, 2000). The role of farm yard manure in enhancing efficient use of chemical fertilizers is well documented. Organically grown food is expected to fetch higher price and this can offset any loss due to lower yields. To use of biofertilizers to increase agricultural productivity especially in vegetable crops. Different strain of *Azotobacter* responded differently to garlic growth and yield. The phosphate solubilizing bacteria (PSB) acts as increasing the plant growth. The PSB release more P from sparingly soluble phosphorus which effect on growth and yield of garlic. The FYM, nitrogen, phosphorus, potassium