

## Effect of clove weight and plant growth regulators on growth and yield of garlic (*Allium sativum* Linn.) cv. G.G. 3

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### ABSTRACT

With an objective to get the information on effect of clove weight and plant growth regulators on garlic cv. 'G.G.3' with respect to growth, bulb development and yield an experiment was conducted. Except for neck thickness, all other characters under study were significantly affected by clove weight. Maximum plant height, number of leaves per plant, weight of biomass, average weight of bulb, average weight of clove, polar diameter of bulb, equatorial diameter of bulb, number of cloves per bulb and yield were recorded from the sowing of garlic with higher weighted cloves (> 1.5 g). Significantly highest total soluble solid content in bulbs was recorded at highest weight of cloves *i.e.* > 1.5 g. Plant height was depressed under the treatment of Cycocel 1000 ppm than control. Maximum plant height was recorded under the treatment 50 ppm NAA. While maximum number of leaves per plant, weight of biomass, average weight of bulbs, average weight of cloves, polar diameter of bulb, equatorial diameter of bulb, number of cloves per bulb, neck thickness were recorded in 1000 ppm Cycocel. The maximum yield and total soluble solid were observed in 1000 ppm Cycocel, which was significantly superior over control.

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Garlic with chromosome number  $2n = 2X = 16$  and belonging to the family amaryllidaceae, is the second most widely used, cultivated *Allium* after onion. It has long been recognized as a valuable condiment for food. This crop is grown throughout the plains of India and is consumed by most of the people. It is rich in proteins, minerals like phosphorus, calcium, magnesium and carbohydrates. It also contains fat, vitamin C and sulphur. According to the Unani and Ayurvedic systems as practiced in India, garlic has important medicinal values against digestive disorders, eye sore and earache.

In recent years, scientist have given due attention to the idea of improving the plant growth, yield and quality with the application of plant growth regulators. Plant growth regulators *i.e.* NAA and Cycocel modify plant characters like height, number and size of cloves and bulbs, sprouting, fresh and dry weight, growth, etc., by influencing the physiological process within the plant, which ultimately affects the yield and quality of garlic. Thus, a research work was undertaken to study effect of clove weight and plant growth regulators on growth and yield of garlic cv. G.G.3, released recently by Junagadh Agriculture University, Junagadh.

### MATERIALS AND METHODS

The present investigation on "Effect of clove weight

and plant growth regulators on growth and yield of garlic cv. G.G.3" was carried out during *rabi* season of the year 2006-2007 at the Instructional Farm, Department of Agronomy, Junagadh Agricultural University, Junagadh (21.50 N latitude and 70.5° E longitude). The object of the experiment was to get the specific information on effect of clove weight and plant growth regulators on garlic cv. 'G.G.3' with respect to growth, bulb development and yield. The experiment which was embedded in a Factorial Randomized Block Design with three replications, consisted of genetically pure seeds of garlic cv. 'G.G.3.' and twelve treatment combinations, comprising of four clove weight *viz.* >1.5 g ( $C_1$ ), 1.0 to 1.5g ( $C_2$ ), < 1.0 g ( $C_3$ ) and ungraded mixed lot ( $C_4$ ) and two plant growth regulators *viz.* 50 ppm NAA ( $G_1$ ) and 1000 ppm Cycocel ( $G_2$ ) with control ( $G_0$ ). Cycocel (1000 ppm) treatment was given by soaking seeds of garlic for 24 hours before planting, while NAA (50 ppm) was applied as a foliar spray at 60 and 90 days after planting during morning hours with the help of "Ganesh Sprayer" till the both sides of sides of leaves completely wet. All the recommended cultural practices were followed during experimentation. Observations were recorded on plant height, number of leaves per plant, weight of biomass, average weight of bulb, neck thickness, polar diameter of bulb, equatorial diameter of bulb, average weight of clove, number of cloves per bulb, yield per plot, yield per hectare and total soluble solids (TSS) were taken and