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Effect of spacing and clove size on growth and yield of garlic under Akola conditions

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ABSTRACT

The field experiment was conducted during *rabi* season of 2006 at Main Garden, University Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola to assess the effect of spacing and clove size on yield and quality of garlic. The result indicates that, the closer spacing (10 x 10 cm) recorded the highest yield. However, the quality bulb was produced under wider spacing (15 x 15 cm). Regarding clove size, moderate size clove (12 g / 10 cloves^{-1}) gave highest yield whereas, quality bulbs were produced from large size clove (16 g / 10 cloves^{-1}).

Key words : Garlic, Spacing, Clovesize

INTRODUCTION

Garlic *(Alium sativum* L) is an important condiment crop grown in winter season, under irrigated condition in Vidarbha region. It is well known that, among the various inputs used for the production of garlic, optimum mother clove size and plant spacing have a great influence on the yield and quality of garlic. Owing to the absence of relevant information on different aspects of agronomy, particularly in this part of the region, the growers are reluctant to take the production of this crop on commercial scale. In view of above points, the field experiment was conducted to study the effect of spacing and clove size on yield and quality of garlic.

MATERIALS AND METHODS

The present investigation was conducted at Main Garden, University Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. The experiment was laid out in Factorial Randomized Block Design (FRBD). In the investigation, three levels of spacing (10x10, 15x10 and 15x15 cm) and four levels of clove size (4, 8,12 and 16 g 10"^{1} clove) with twelve treatment combinations were tested. The planting were carried out on 18th October, 2006.

Fertilizers were applied @ 100:50:50 kg NPK per hectare in the form of urea, single super phosphate and muriate of potash. The full dose of phosphorus and potash and half dose of nitrogen were applied at the time of planting and rest of the fertilizers after one month of the first split.

RESULTS AND DISCUSSION

The data presented in Table 1 indicates that, the various spacing and clove size had significant effect on the growth, yield and quality parameters.

Growth:

Perusal of data presented in Table 1 exhibited significant influence on height of plant, leaves per plant and neck thickness. Medium spacing (15 x 10 cm) and moderate cloves weight (12 g 10^{-1} clove) resulted into maximum plant height (79.50 cm and 79.69 cm, respectively), leaves per plant (11.47 and 11.88, respectively) and neck thickness of plant (0.982 and 0.986 cm, respectively). However, these were recorded minimum (74.54 and 74.63 cm, 10.93 and 10.89 and 0.869 and 0.881, respectively) in closer spacing S_1 (10 x 10 cm) and small size cloves W_1 (4 g 10"^{1} clove).

The maximum growth of the garlic plant was obtained with medium spacing and moderate clove size might be due to the fact that, the greater spacing of plant seems to have helped the individual plant to utilize more soil water, nutrition, air and light to help it to put up better growth . Similarly, initial storage of enough food material might be helpful in vigorous growth of plant. The results of the present investigation are in agreement with Purewal and Dragan (1961), Lawande *et al.* (1993), Kotgirwar *et al.* (1997) and Thakur (1997) in garlic.

Yield:

The data in respect of bulb yield (Table 1) of garlic revealed that, the closer spacing (10 x 10 cm) and moderate clove size (12 g 10^{-1} clove) recorded the maximum (85.44 and 78.61 q ha^{-1}, respectively) bulb yield. However, it was minimum in 15 x 15 cm spacing (58.57 q ha^{-1}) and in 4 g 10^{-1} clove size (65.16 q ha^{-1}).

The higher bulb yield under maximum plant density was attributed due to significantly more number of plants

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