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Effect of spacing and severity of pruning on yield of drumstick cv. PKM-1

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ABSTRACT

The experiment was conducted at horticulture research farm under middle Gujarat agro-climatic zone –III (AES-II) during the 2005, 2007 and 2008. The experiment was laid out in split plot with four replications. Treatment involved three levels of spacing *i.e.* S_1 = 2 x 2 m, S_2 = 2 x 3 m and S_3 = 3 x 3 m and two different levels of pruning *i.e.* P_1 = 90 cm from ground level and P_2 = 120 cm from ground level. The wider planting distance (3 x 3 m) with pruning at 90 cm from ground level gave significantly maximum plant height (cm), number of branches per plant, length of branches (m), diameter of branches (cm), average weight of pod (g), average length of pod (cm), diameter of pod (cm), number of pods per plant, yield of pods per plant (kg), yield of pod (t/ha) and total soluble solids (%).

Key words : Drumetick, Spacing, Pruning

INTRODUCTION

The vegetables are considered as 'protective supplementary food' as they contain large quantity of minerals, vitamins and essential amino acids, which are required for normal functioning of human metabolic processes. The important minerals, calcium, phosphorus and iron, which are generally lacking in cereals while, they are available in abundant quantities in vegetables (Shanmugavelu, 1989). It is small to medium sized tree. The flowers are white and appear in large panicles while the fruits are triangular. Some varieties found in south India grow pods longer than one meter. It is normally cut back one meter or less annually and allowed to regrow. It is a sun and heat loving plant. Its pods have long been popular as a traditional herbal treatment for diabetes in the middle east and also used as pain killer for joints in human beings.

Spacing plays an important role in maintaining adequate plant population. Establishment of appropriate row spacing for maintaining the optimum plant population per unit area is the most pre-requisite to obtain maximum yield for any field crops. Moreover, row spacing provides space for easy interculturing, weeding and application of fertilizers in the field. Appropriate row spacing also renders scope for a better growth and development of crops, which reflects in higher crop production. The optimum pruning provides better condition for light, nutrition and moisture for plant growth, which results in timely commencement of reproductive phase and thus, formation of more fruits.

MATERIALS AND METHODS

The experiment was conducted at horticulture research farm under middle Gujarat agro-climatic zone – III (AES-II) during year 2005, 2007 and 2008. The experiment was laid out in split plot with four replications. Treatment involved three levels of spacing *i.e.* S_1 = 2 x 2 m, S_2 = 2 x 3 m and S_3 = 3 x 3 m and two different levels of pruning *i.e.* P_1 = 90 cm from ground level and P_2 = 120 cm from ground level. FYM 10 tones per hectare while, 90 g nitrogen, 15 g phosphorus and 30 g potash per plant was applied every year. Nitrogen was given in two split-first after pruning and second in October month.

RESULTS AND DISCUSSION

The data presented in Table 1 indicated that wider planting distance (3 x 3 m) showed significantly higher plant height in the year 2005 (4.25 m) and in pooled (5.21 m), but it was non significant in the years 2007 and 2008. Pruning at 90 cm from ground level of drumstick significantly increased plant height in the year 2007 and 2008, while it was non significant in the year 2005 and in pooled data. Interaction effect between spacing and pruning was non significant.

Pruning at 90 cm from ground level of drumstick recorded significantly higher number of branches (8.88) in wider spacing (3 x 3 m) in pooled while, it was lower (6.21) in closer spacing. The middle distance (2 x 3 m) was statistically at par with wider spacing. When the plants were pruned at the height of 120 cm from ground level caused significantly higher number of branches in all the years and in pooled (8.21) as compared to 90 cm pruning height from ground level. All the interaction effects were found non significant.

The data presented in Table 2 revealed that there were no any significant effect of spacing in arising of length of branch, but only 2007 year found significant. When the plants pruned at 90 cm from ground level showed maximum length of branches in 2005 and 2007 year and in pooled (3.45, 5.10 and 4.72 m, respectively).

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