Effect of pinching on yield of African marigold (*Tagetes erecta* L.) cv. Pusa Narangi Gainda under Andaman conditions

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ABSTRACT

An experiment was carried out to study the effect of pinching on flower yield of African marigold cv. Pusa Narangi Gainda at ICAR-CIARI, Port Blair during 2012 and 2013. The experiment consisted of three treatments T1 (Control) – no pinching, T2- Single pinching 20 days after transplanting and T3- double pinching 15 days after single pinching. The results showed that maximum plant spread (47.2 cm), number of branches (13.7), duration of flowering (36.7 days), number of flowers per plant (56.6), size of flower (6.18 cm), weight of single flower (7.08g), flower yield per plant (347.8 g) and seed yield per plant (20.23g) were observed in the double pinching treatment. The flower yield was maximum in double pinching with three times more yield than the control.

Key words: Double pinching, Marigold, Pinching, Single pinching, Yield.

INTRODUCTION

Marigold is one of the most important commercial flower crops grown world over, accounting for more than half of the nations in loose flower production. It has gained popularity due to easy cultural practices, wide adaptability, profuse flowering, short juvenility, large blooming period, relatively problem free nature, attractive colors, shape, size and good keeping quality. The area under commercial cultivation of marigold in India is on the rise owing to its multipurpose use. Marigold flowers are widely used for making garlands, floral decoration, flower baskets, religious offerings, bedding and potting and also for making different products (Swaroop *et al.*, 2007). It also is used as a potential source for the production of natural products and pharmaceutical components. It is suitable for pigment extraction, meal production, natural colourant preparation, oil extraction etc., which can help the farmers for maximizing their farm income. Now-a-days many industries are interested in marigold cultivation owing to its potential in value addition.

Flower yield is mainly dependent on number of flower bearing branches which can be manipulated by arresting the vertical growth of plants and encouraging side shoots by means of apical bud pinching. Such side shoots would provide more scope to bear flowers and in turn contribute for higher flower yield (Sunitha *et al.*, 2007). The Andaman and Nicobar Islands offer good scope for cultivation of wide variety of flowers because of its diversities in topography, altitude and climatic conditions (Baskaran *et al.*, 2014). Congenial agro climatic conditions coupled with rich fertile soils, well distributed rainfall throughout the year ensure year round production of marigold. The demand for marigold exists in the Island throughout the year for various religious and social functions. For maximizing yield in limited cultivable area, the present investigation was carried out to standardize the pinching technique in African marigold cv. Pusa Narangi Gainda.

MATERIALS AND METHODS

The experiment was conducted for two consecutive seasons during December to April 2011-12 and 2012-13 in the Division of Horticulture and Forestry, CIARI, Port Blair, Andaman and Nicobar Islands. These islands have a typical maritime climate and are endowed with both south-west and north-east monsoons with an average annual rainfall of 3100 mm distributed over 8 months with a temperature range of 22°C to 32°C and relative humidity between 65% to 90%. The prevailing congenial climatic conditions of these islands are well suited for marigold cultivation round the year.

Flowering was done by transplanting the seedlings in well prepared and previously irrigated beds. The seedlings were transplanted at the spacing of 45 x 45 cm. The experiment was laid out in randomized block design with eight replications in each treatment. There were total of three treatments viz., T1 (control- non pinching), T2 (single pinching - 20 DAT) and T3 (Double pinching - 15 days after the single pinching). Pinching of terminal shoots was done with sharp secateurs. The observations were recorded on five randomly selected plants per treatments and replication after discarding the border plants at both ends for each treatment on eleven traits such as plant height (cm), plant...
spread (cm), number of branches per plant, days taken to first flower, flower size(cm), yield of flower (both number and weight per plant), seed yield per plant(g), number of seeds/ head and 1000 seed weight(g). Two years data were pooled together and statistically analyzed.

RESULTS AND DISCUSSION

The analysis of variance of pooled data showed highly significant difference among the treatments. The data presented in Table 1 revealed that maximum plant height was recorded in non-pinching treatment (75.49 cm) whereas minimum was recorded in double pinching treatment (50.03 cm). The maximum plant spread (47.19 cm), numbers of branches (13.71), duration of flowering(36.70 days), number of flowers per plant (56.63), size of flower (6.18 cm), weight of single flower (7.08 g), flower yield per plant (347.75 g) and seed yield per plant (20.23 g) were recorded in double pinching treatment followed by single pinching treatment (38.50 cm), (10.35), (29.13 days), (34.55), (5.40 cm), (6.13 g), (224.65 g) and (12.20 g) respectively. Similar results of effect of pinching on yield of seeds per flower and seed yield per hectare in the marigold variety Sirakole was reported by Mohanty et al. in 2015. The flower yield per plant was maximum in double pinching i.e., three times more yield than control (non-pinching). The present results are in conformity with the findings of Bhat and Shepherd (2007), Tomar et al., 2004, Arora and Khanna (1986) in marigold. Gowda and Jayanthi (1988) in chrysanthemum and Kumar and Singh (2003) in carnation. Early flowering was recorded in non pinching treatment (55.15 days) whereas late flowering was recorded in double pinching (67.65 days). The results are in contrary with the findings of Bhat and Shepherd (2007) in marigold. The 1000 seed weight was maximum in non-pinching (2.87 g) than the single and double pinching treatments (2.73 g and 2.53 g respectively). This might be due to the accumulation of more assimilates in non pinching treatment. These results are in similar with the findings of Bhat and Shepherd (2007) in marigold. The interaction effect of growth regulator with pinching had a positive influence on yield attributing characters in marigold (Badge et al., 2015). Thus, from the present experiment it is evident that double pinching gives quality bloom, long flowering duration, maximum seed yield per plant and three times more flower yield than the non-pinching treatment. Hence double pinching technology is recommended to the island farmers to get maximum profit.
REFERENCES


