

Effect of pinching on carnation cv. YELLOW SOLAR under polyhouse condition

S.R. Dalal*, D.R. Nandre, S.G. Bharad, Swarupa Utgikar and R.D. Shinde

University Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, AKOLA (M.S.) INDIA

ABSTRACT

An experiment was conducted to study the effect of pinching methods on carnation under polyhouse cv. Yellow solar on growth, flowering, flower yield, quality and vase life in Complete Randomized Design. The results revealed that, maximum plant height, nodes per flower stalk, flower bud appearance, diameter of flower, cumulative uptake of water and vase life were observed in no-pinching, while, shoots per plant, flower yield per plant and per sq.m were observed in double-pinching.

Keywords : Pinching, Carnation, Polyhouse.

INTRODUCTION

Floriculture is profession having higher potential to return money from unit area in protected cultivation. Carnation (*Dianthus caryophyllus* L.) belongs to family *Caryophyllaceae* is one of the most important cut flower and ranks third in world global market in area and production. Application of various special horticultural practices after standardization can be helpful to achieve the target of top quality cut flower production. Similarly, pinching is one of the most important cultural practice for successful cultivation of carnation under polyhouse conditions. Pinching has direct relationship with production of flower and regulation of flowering for successful marketing.

MATERIALS AND METHODS

The present investigation was carried out on cv. Yellow solar to find out the effect of pinching on carnation under polyhouse conditions during January to August, 2003, at Floriculture Unit, University Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. The experiment was laid out in Complete Randomized Design with 10 replications. In the present investigation, three levels of pinching were tried (no pinching, single pinching, double pinching) to study the effect of pinching on growth, flowering, flower yield, flower quality and vase life. Single pinching were done at 20 days after planting and double pinching were at 50 days after planting.

Bed of 40 cm height and 1 m width having 10 m length were prepared. The media was prepared by mixing 60% red soil, 30% FYM and 10% sand. Beds were sterilized by using 0.2% formaldehyde. Rooted stem cutting of carnation cultivar yellow solar was planted at 15 x 15 cm. Water soluble fertilizers were applied at the rate of 40 g N, 10 g P₂O₅, 10 g K₂O/m², at 3 days interval. All other cultural practices were applied as and when required. The observations on growth, flowering, flower yield, flower quality and vase life in different pinching methods were recorded and presented in Table 1.

RESULTS AND DISCUSSION

1) Growth and flowering

The data presented in Table 1 showed that, significantly the maximum plant height (81.11 cm), nodes per flower stalk (15.30), early flower bud appearance (49.17 days) and less number of shoots per plant (4.50) were observed under the control treatment (No pinched). However, maximum number of shots (9.00), minimum plant height (65.66 cm), nodes per flower stalk (14.23) and late flowering (169.01 days) were recorded under double pinched treatment. The lowest plant height in pinched plant in the present investigation was due to removal of apical portion, which neutralize the effect of apical dominance and increased number of branches, number of nodes and stem length has direct relationship. More the stalk length, more the number of nodes. Pinching treatment delayed the flowering and delay was aggravated with increase in severity of pinching. This delay might be due to repetitive removal of apical portion, due to which phenomenon of "Apical dominance" get broken in pinch shoots and thus took longer time to become physiological mature for flowering. The above findings thus agreed with results obtained by Patel and Arora (1983), Chavan (2003) and Shahakar (2003).

2) Flower yield :

The data revealed that, plant pinched twice recorded significantly superior number of flowers per plant (7.88) and per sq.m (283.68). However, significantly inferior number of flowers per plant (3.21) and per sq.m (115.56) were recorded in without pinched plants. As the severity of pinching increased, number of shoots were also increased and hence, resulted into increase in number of flowers. These results are in congruent with the results of Bhautkar (1994) in carnation and Bholane (1998) in chrysanthemum.

3) Flower quality

Significantly highest flower stalk length (75.82 cm) was recorded in no-pinched treatment. However, significantly lowest length of flower stalk (62.90 cm) was recorded in double-pinched

Table 1: Effect of pinching on carnation under polyhouse conditions

Treatments	Height of plant (cm)	Shoots/ plant	Nodes / flower stalk	Appearance of first bud (days)	Flowers/ plant	Flowers/ sq.m	Diameter of flower (cm)	Length of flower stalk (cm)	Cumulative water uptake (g/flower)	Vase life (days)
No-pinching	81.11	4.50	15.30	49.17	3.21	115.56	5.14	75.82	16.24	7.93
Single-pinching	74.94	5.20	14.76	125.34	6.57	236.52	5.12	72.27	15.70	7.56
Double-pinching	65.66	9.00	14.23	169.01	7.88	283.68	5.11	62.90	15.20	7.12
'F' test	SIG.	SIG.	SIG.	SIG.	SIG.	SIG.	SIG.	SIG.	SIG.	SIG.
SE (m) ±	7.40	0.43	0.04	0.31	0.05	2.04	0.05	7.90	0.06	0.04
C.D. at 5%	22.20	1.27	0.12	0.94	0.16	6.08	--	23.48	0.18	0.14

*Author for correspondence

plants. Effect of pinching methods on diameter of flower were found to be non-significant. In the plants, where pinching was not done recorded maximum length of flower stalk because of non breakage of apical dominance on diameter of flower were found non-significant. These results are supported by the findings of Bhautkar (1994) and Shahakar (2003).

4) Vase life

Significantly superior results in respect of cumulative water uptake (16.24 g/flower) and vase life (7.93 days) were recorded in the flowers obtained from without pinched plants, whereas, significantly less cumulative water uptake (15.20 g/flower) and shorter vase life (7.12 days) were recorded in the flowers obtained from the double pinched plants. More cumulative water uptake and longer vase life might be due to the fact that, flowers obtained from the without pinched plants have longer stalk length which forced to absorb more water from the vase.

REFERENCES

Bhautkar, M.Y. (2000). Carnation cultivation in house under Mahableshwar conditions. *J. Maha. Agril. Univ.* : 293.

Bholane, Y.R. (1998). Effect of spacing and pinching on growth, flowering and yield of Chrysanthemum. *M.Sc. Thesis (Unpub.)*, Dr. PDKV, Akola M.S.: 1-70

Chavan, S.K. (2003). Assessment of pinching methods for cultivation of Carnation under polyhouse conditions. *M.Sc. Thesis (Unpub.)*, MPKV, Rahuri : 1-60.

Patel, K.S. and Arora, J.S. (1983). Effect of pinching sources and dose of non growth and flower production of carnation var. Margurite white. *J. Hort.* **40(1&2)**: 92-97.

Shahakar Archana B. (2003). Collection maintenance and evaluation of different varieties of carnation. *M.Sc. Thesis (Unpub.)*, Dr. PDKV, Akola (M.S.) : 1-65.

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