

## Effect of plant growth retardants and pinching on growth, flowering and yield of gaillardia (*Gaillardia pulchella* Foug.) cv. LORENZIANA

M.Y. SAIYAD, R.G. JADAV, A.B. PARMAR AND K.M. CHAUHAN

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See end of the article for authors' affiliations

Correspondence to :

**M.Y. SAIYAD**

Department of Horticulture,  
B.A. College of Agriculture,  
Anand Agricultural  
University, ANAND  
(GUJARAT) INDIA

### ABSTRACT

An experiment was carried out to study the effect of plant growth retardants and pinching on growth, flowering and yield of gaillardia (*Gaillardia pulchella* Foug.) cv. LORENZIANA at college nursery, Department of Horticulture, A.A.U., Anand during the month of November, 2007 to April, 2008. The treatments comprised of two different concentrations of CCC (500 and 1000 ppm), MH (50 and 100 ppm), PP333 (25 and 50 ppm) sprayed at 30 days and 60 days after transplanting, pinching and control (water spray). The results revealed that CCC 1000 ppm was found most effective for obtaining maximum plant spread (50.92 cm<sup>2</sup>), more number of branches (53.84), higher yield (7.42 t/ha) and shelf life (37.82 hrs) of gaillardia. MH 100ppm was found for retarding plant height (58.50 cm).

**Key words :** Growth retardant, Pinching, Gaillardia, Yield

**G**aillardia belongs to Asterace family; native of South-Western United States and Mexico. It is popularly known as blanket flower due to its colour and spreading habit. It resembles as blanket. It is one of the most popular flowers in India because of its easy cultivation, wide adaptability to varying soils and climatic conditions with long duration of flowering habit and attractive flower colour. Recently scientists have given more attention towards the regulation of plant growth, increasing yield and quality of flowers by using some plant growth retardants and pinching. Keeping the above facts in a view, the present investigation was carried out to know the effect of different growth retardants and pinching on growth, flowering and yield of gaillardia (*Gaillardia pulchella* Foug.) cv. LORENZIANA

### MATERIALS AND METHODS

An experiment was conducted to study the effect of plant growth retardants and pinching on growth, flowering and yield of gaillardia (*Gaillardia pulchella* Foug.) cv. LORENZIANA was conducted at the college nursery, Department of Horticulture, B.A. College of Agriculture, Anand Agricultural University, Anand, during November, 2007 to April, 2008. The treatments comprised of two different concentrations of CCC (500 and 1000 ppm), MH (50 and 100 ppm) and PP333 (25 and 50 ppm) sprayed at 30 days and 60 days after transplanting, pinching and control (water spray). A control was maintained by spraying distilled water. The experiment was laid out in a Randomized Block Design with 14 treatments, replicated thrice. In pinching treatment the

plants were pinched after 30 DAT. The spray of plant growth retardants was done twice at 30 (S<sub>1</sub>) and 60 (S<sub>2</sub>) days after transplanting. The plants were transplanted on November 22, 2007 at a spacing of 45 cm x 30 cm. The observations on plant growth, yield and quality parameters were recorded and subjected to statistical analysis.

### RESULTS AND DISCUSSION

The data presented in Table 1 exhibited significant differences among the different treatments in respect of growth, flowering and yield parameters. The plant height was significantly retarded by MH 100 ppm (58.50 cm) followed by MH 50 ppm (59.46 cm). That may be due to the antiauxin effect on MH with stimulation of dwarfing properties and nullification of apical dominance (Crafts *et al.*, 1950). These results are in close conformity with finding of Khimani *et al.* (1994) and Patel (1997) in gaillardia. The data presented in Table 1 showed that the maximum number of branches were under the treatment CCC 1000 ppm (53.84) followed by CCC 500 ppm (50.66). Similar results have been reported by Makwana (1999) in gaillardia. There was no significant effect of various plant growth retardants and pinching on plant spread but maximum plant spread was recorded with CCC 1000 ppm (50.92 cm<sup>2</sup>) followed by CCC 500 ppm (50.63cm<sup>2</sup>) at 120 DAT. early flowering (66.67 DAT) and 50 per cent flowering (83.25 DAT) were recorded by treatment MH 50 ppm. These results are in agreement with result obtained by Makwana (1999). However, CCC 500 ppm and CCC 1000 ppm was most effective

**Table 1 : Effect of plant growth retardants and pinching on growth, yield and quality of gaillardia**

Sr. No.	Treatments (ppm)	Plant height (cm)	Plant spread (cm <sup>2</sup> )	Number of branches	Days required to first flower opening after transplanting	Days required to 50% flowering after transplanting	(Flower yield) per hectare (t)	Shelf life (hrs)
1.	S <sub>1</sub> T <sub>1</sub> CCC 500	62.12	50.63	50.66	73.23	86.52	7.25	35.85
2.	S <sub>1</sub> T <sub>2</sub> CCC 1000	61.81	50.92	53.84	74.03	87.48	7.42	37.82
3.	S <sub>1</sub> T <sub>3</sub> MH 50	59.46	49.42	50.45	66.67	83.25	6.11	37.52
4.	S <sub>1</sub> T <sub>4</sub> MH 100	58.50	49.47	48.63	71.50	84.77	6.00	36.55
5.	S <sub>1</sub> T <sub>5</sub> PP333 25	65.94	48.23	46.55	76.00	88.23	5.83	35.55
6.	S <sub>1</sub> T <sub>6</sub> PP333 50	65.49	49.59	42.89	75.52	88.22	5.68	33.55
7.	S <sub>2</sub> T <sub>1</sub> CCC 500	68.34	48.86	44.32	76.08	86.98	6.63	35.25
8.	S <sub>2</sub> T <sub>2</sub> CCC 1000	66.09	47.33	45.11	75.25	88.42	6.87	36.50
9.	S <sub>2</sub> T <sub>3</sub> MH 50	65.16	47.36	42.16	74.03	86.37	5.80	36.40
10.	S <sub>2</sub> T <sub>4</sub> MH 100	65.62	47.47	42.87	74.08	86.78	5.75	35.55
11.	S <sub>2</sub> T <sub>5</sub> PP333 25	67.20	47.25	41.24	78.05	86.10	5.53	34.50
12.	S <sub>2</sub> T <sub>6</sub> PP333 50	69.33	47.34	41.38	79.23	86.90	5.66	33.45
13.	Pinching	69.46	46.24	40.76	79.58	99.08	5.57	31.15
14.	Control (Water spray)	69.73	45.29	37.09	81.20	99.50	5.00	29.20
	S.E. ±	2.21	1.50	1.47	2.29	2.90	0.20	1.07
	C.D. (P=0.05)	6.43	NS	4.28	6.65	8.42	0.59	3.10
	C.V. %	13.73	13.66	12.69	3.26	14.67	5.51	12.28

Where, S<sub>1</sub> = First spray at 30 DAT  
NS-Non significant

S<sub>2</sub> = Second spray at 60 days of DAT

DAT = Days after transplanting

concentration for increasing growth, flowering and yield of gaillardia.

Authors' affiliations:

**R.G. JADAV, A.B. PARMAR AND K.M. CHAUHAN**, Department of Horticulture, B.A. College of Agriculture, Anand Agricultural University, ANAND (GUJARAT) INDIA

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