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Impact of Pinching Time on Cost Benefit Ratio in Annual Chrysanthemum

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Abstract: Floriculture is one of the most important branches of horticulture right from aesthetic to commercial sense. In recent decades there has been increasing in demand of floriculture products with increasing income. Annual chrysanthemum is generally tall growing, with a view to get a dwarf bushy plant and for getting continuous and maximum numbers of flower in annual chrysanthemum, present investigation entitled "Impact of pinching time on cost benefit ratio in annual chrysanthemum'' was undertaken with the object to workout cost benefit ratio of the pinching with different planting time. An experiment entitled 'Impact of Pinching Time on Cost Benefit Ratio in Annual Chrysanthemum' was carried out at the field of Horticulture section, Rural Institute, Pipri-Wardha, (Maharashtra) during the years 2010-11& 2011-12.

The data on growth, flowering, flower yield and flower quality parameters was recorded during the course of investigation and statistically analyzed by Factorial Randomised Block Design (FRBD),

The data presented that, during both the years of investigation, highest gross monetary returns (Rs. 173446 and Rs. 166334), net monetary returns (Rs. 104906 and Rs. 89037) and benefit cost ratio (2.53 and 2.34) was found in single pinching at 30 days after transplanting. Single pinching at 45 days after transplanting was next in order to 30 DAT regarding the gross monetary returns (Rs. 155091 and Rs. 149596), net monetary returns (Rs. 86551 and Rs.72889) and benefit cost ratio (2.26 and 2.10). Whereas, minimum gross monetary returns (Rs. 124847 and Rs.123291), net monetary returns (Rs. 57267 and Rs. 48543) and benefit cost ratio (1.85 and 1.76) was noticed in control treatment i.e. no pinching, during the year 2010-11 and 2011-12 respectively.

It is concluded that, the contribution of better returns whether gross or net monetary resulted into the computation of higher B:C ratio from the flowers of 15th October planting. Same trend was also seen in single pinching at 30 DAT. It is pertinent to observe next in order to secure higher returns from the crop planted on 1st November in spite of lower flower yield than the 1st October planting because of higher market price of flowers.

1. INTRODUCTION

Floriculture is one of the most important branches of horticulture right from aesthetic to commercial sense. In recent decades there has been increasing in demand of floriculture products with increasing income. Floriculture is an emerging area with great potential both in the domestic as well as export market. In India, commercial floriculture is ongoing development but have a long tradition of various types of flowers. Flowers have been representing in ancient painting, mural and coins. However, the social and economic aspect of flower growing recognized later. It is only in last two three decades.

From 2001, there has been tremendous growth in floriculture production In terms of area, production and export. All states in India have a

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tradition of growing flowers, commercial growing of flowers presently confined to Karnataka, Tamilnadu, Andhra Pradesh, West Bengal, Maharashtra, Rajasthan, Delhi and Haryana (Kadam, 2012).

In abroad, flowers are multimillion dollar trade. Flowers have an increasing demand in local as well as international markets. Now a day's flower growing is an important export oriented business fetching very high returns and also earning a lot of foreign exchange. More than 2/3 area of floriculture is devoted to production of marigold, chrysanthemum, jasmine, tuberose etc. and rest under the contemporary flowers such as rose, gladiolus, gerbera, carnation etc. Among the loose flowers group annual chrysanthemum has its own importance. It has usually grown in beds for garden decoration and for pot plants. The annual chrysanthemum has gained popularity amongst flower growers because of its easy cultivation and wide adaptability. This crop produces flowers for a long period.

During the year 2009-10, in India, an area under the commercial floriculture was about 1.83 lakh hectares with production of 10.21 lakh metric tonnes loose flowers and 666710 lakh cut flowers. Likewise in Maharashtra the area under floriculture is 0.17 lakh hectares with production of 0.91 lakh metric tonnes and cut flowers 7914 lakh in number (Anon[a], 2011)

In Wardha district, total area under floriculture is 83 hectares with production of 292 tonnes of flowers, and annual chrysanthemum is cultivated in 10 hectares with the production of 60 tonnes (Anon[b], 2011).

Annual chrysanthemum is generally tall growing, with a view to get a dwarf bushy plant and for getting continuous and maximum numbers of flower in annual chrysanthemum, present investigation entitled "Impact of pinching time on cost benefit ratio in annual chrysanthemum'' was undertaken with the object to workout cost benefit ratio of the pinching with different planting time.

2. REVIEW OF LITERATURE

Deotale*et al.* (1994) experimented on the field production of chrysanthemum flowers at Nagpur. Four planting dates (15 May, 4 & 24 June and 14 July) were used and observed that, planting on 24 June gave the greatest flower yield of 474.0 g/plant.

Mishra (1997) reported that, planting in September or October gave higher flower yield than other planting dates in French marigold.

Ambad and Kadam (1998) conducted an experiment at Mahabaleshwar and reported that, chrysanthemum was potted out on 5 or 20 September or 5 or 20 October. Dry flower yield were highest (9.13 q/ha) with the planting on 5 September and declined as planting was delayed.

Meher*et al.* (1999) in a field experiment on chrysanthemum planted in the first week of May, June or July, it was observed that, May plantings had the highest yield of cut flowers under Pune (M.S.) conditions.

Samantray*et al.* (1999) reported that, optimum planting date was 1st September, which was closely followed by June planting. The highest yield of flowers per plant was obtained with September planting in African marigold.

Guruprasad and Reddy (2001) noticed that, the plants of October and November planting produced maximum flower yield in China aster under Bangalore conditions.

Sharma *et al.* (2003) inferred that, planting time significantly affected the flower yield of marigold. The highest flower yield was recorded in August, followed by September and the minimum in January planted crop.

Rao and Moon (2005) conducted an experiment under Arunachal Pradesh conditions

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and reported that, April, May and June sowing resulted in the highest flower and seed yield of African marigold. The highest flower production was recorded during September and October.

Sreekanth*et al*. (2006) conducted the field experiment on African marigold, at Herbal garden, ANGRAU, Hyderabad and reported that, planting in the month of October recorded maximum flower yield per plant and per hectare.

Ghosh and Pal (2008) an experiment was conducted to explore the performance of different planting time on growth and flower production of African marigold, cv. 'Siracole' and concluded that, among the various interactions, crop planted on 12th October gave the maximum yield of flowers per plot in comparison with all other treatments.

Ganjali*et al*. (2010) reported that, 1st April sowing found most effective in increasing the traits. The result of the study revealed that, suitable sowing date increases yield, yield components and essence of calendula.

Pakhale (2012) noticed that, among the different planting dates of African marigold, number of flowers / plant, flower yield per plant, per plot and flower yield per hectare was recorded maximum when transplanting was done in first week of October under Nagpur conditions.

3. MATERIAL AND METHODS

An experiment entitled 'Impact of Pinching Time on Cost Benefit Ratio in Annual Chrysanthemum' was carried out at the field of Horticulture section, Rural Institute, Pipri-Wardha, (Maharashtra) during the years 2010-11&2011-12.

Experimental details:

The experiment was laid out in Factorial Randomized Block Design (FRBD) with 20 treatment combinations and three replications. The layout plan is given and experimental details are given below.

1) Name of crop : Annual chrysanthemum
2) Botanical name : Chrysanthemumcoronarium
3) Variety : Local
4) Experimental Design : Factorial Randomized Block Design
5) Layout : Flat Bed
6) Number of treatment combinations : 20
7) Number of replications : 3
8) Total number of plots : 60
9) Spacing - Row to Row : 45 cm
Plant to Plant : 30 cm
10) Plot size - a) Gross : 3.60 x 2.40 m = 8.64 m2
b) Net : 2.70 x 1.80 m = 4.86m2
11) Plant population per plot
a) Gross : 64 plants
b) Net : 36 plants
12) Year of experiment : 2012-13 and 2013-14
13) Transplanting times : As per treatment

Pinching:

Regarding the pinching treatment, the single pinching was done at 30th day and 45th day and double pinching was done at 30th day and was repeated at 45th day after transplanting. Pinching was done by removing approximately half inch of terminal growing shoots.

Benefit cost ratio:

It is the ratio of gross returns to the cost of cultivation. This can also be expressed as returns per rupee invested.

In order to assess the effects of each treatment, the cost of cultivation was worked out. This include the cost of fertilizer (urea, SSP, and MOP), the cost of FYM, taken at the current existing rates. The labour cost, including seed bed preparation, fertilizer application, irrigation, weeding and plant protection etc. during the cropping period were worked out.

The yields obtained under individual treatment during the crops were taken in to consideration for working out the economics.

The net returns and cost : benefit ratio were worked out and was computed per hectare based on the total cost of cultivation and gross returns obtained. The details of cost of inputs are given.

3.1 Cost benefit ratio (Economic evaluation):

For economic evaluation, gross monetary returns, net monetary returns, cost of cultivation and benefit cost ratio were computed treatment wise.

3.2 Gross monetary returns:

The total monetary value of the flowers was calculated based on the current local market prices.

3.3 Net monetary returns:

Net monetary returns of each treatment were obtained by subtracting cost of cultivation of each treatment from respective gross returns.

3.4 Statistical analysis:

The data on growth, flowering, flower yield and flower quality parameters was recorded during the course of investigation and statistically analyzed by Factorial Randomised Block Design (FRBD), suggested by Gomez and Gomez (1984). The analysis was carried out at department of Economics and statistics, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola (M.S.). The appropriate standard error of mean S.E. (m) and the critical difference (C.D.) were calculated at 5% level of probability. The data have been depicted by suitable graphs and figures at appropriate tables.

4. RESULTS

The present investigation entitled ‘Impact of Pinching Time on Cost Benefit Ratio in Annual Chrysanthemum ’ was carried out in *rabi* season during the year 2010-11 and 2011-12at the field of Horticulture Section, Rural Institute, Pipri-Wardha (M.S.). The observations were recorded on various parameters governing growth, flowering, yield and quality of annual chrysanthemum influenced by different planting time and pinching treatments. After analyzing the data statistically the results of the experiment are presented below

Benefit: cost ratio

4.1 Effect of planting time and pinching on benefit cost ratio

The economics of cost of cultivation was calculated by obtaining the current market rate of inputs and selling rate of produce. The data in respect of benefit cost ratio as influenced by planting time and pinching are presented in Table 1 .

4.2 Effect of planting time

It could be seen from the data presented in Table 1 that, during both the years of investigation highest gross monetary returns (Rs.162235 and Rs.152094), net monetary returns (Rs. 93695 and Rs. 80914) and benefit cost ratio (2.37 and 2.14) was found in 15th October planting. 1st November planting was next in order to 15th October planting regarding the gross monetary returns (Rs. 154979 and Rs. 150283), net monetary returns (Rs. 86439 and Rs.72272) and benefit cost ratio (2.26 and 2.11). Whereas, minimum gross monetary returns (Rs. 141101 and Rs.138590), net monetary returns (Rs. 72561 and Rs. 60810) and benefit cost ratio (2.06 and 1.95) was noticed in 15th September planting during the year 2012-13 and 2013-14 respectively.

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Table 1: Cost benefit ratio as influenced by planting time and pinching

Treatment	2012-13			2013-14		
	GMR (Rs.)	NMR (Rs.)	B:C ratio	GMR (Rs.)	NMR (Rs.)	B:C ratio
Planting time (T)						
T_0 – 15th September	141101	72561	2.06	138590	60810	1.95
T_1 – 1st October	151612	83072	2.21	148528	70275	2.09
T_2 – 15th October	162235	93695	2.37	152094	80914	2.14
T_3 – 1st November	154979	86439	2.26	150283	72272	2.11
T_4 – 15th November	145833	77293	2.13	142249	64603	2.00
F test	Sig.	Sig.	--	Sig.	Sig.	--
SE (m) ±	2273	2273	--	3184	3050	--
C.D. at 5 %	6507	6507	--	9117	8732	--
Pinching (P)						
P_0 – No pinching	124847	57267	1.85	123291	48543	1.76
P_1 – 30 DAT	173446	104906	2.53	166334	89037	2.34
P_2 – 45 DAT	155091	86551	2.26	149596	72889	2.10
P_3 – 30 & 45 DAT	151223	81723	2.18	146173	68630	2.03
F test	Sig.	Sig.	--	Sig.	Sig.	--
SE (m) ±	2033	2033	--	2848	2728	--
C.D. at 5 %	5820	5820	--	8155	7810	--
Interaction (TxP)						
F test	NS	NS	--	NS	NS	--
SE (m) ±	4545	4545	--	6368	6099	--
C.D. at 5 %	--	--	--	--	--	--

4.3 Effect of pinching

The data presented in the Table 1 indicated that, during both the years of investigation, highest gross monetary returns (Rs. 173446 and Rs.166334), net monetary returns (Rs. 104906 and Rs. 89037) and benefit cost ratio (2.53 and 2.34) was found in single pinching at 30 days after transplanting. Single pinching at 45 days after transplanting was next in order to 30 DAT regarding the gross monetary returns (Rs. 155091 and Rs.149596), net monetary returns (Rs. 86551 and Rs.72889) and benefit cost ratio (2.26 and 2.10). Whereas, minimum gross monetary returns (Rs. 124847 and Rs.123291), net monetary returns (Rs. 57267 and Rs. 48543) and benefit cost ratio (1.85 and 1.76) was noticed in control treatment i.e. no pinching, during the year 2010-11 and 2011-12 respectively.

5. DISCUSSION

Benefit: cost ratio

5.1 Effect of planting time and pinching on benefit cost ratio

The gross monetary return and net monetary return (Table 1) per hectare computed and analyzed, revealed significant impact in respect of planting time and pinching.

5.2 Effect of planting time

During both the years of investigation highest gross monetary returns (Rs. 162235 and Rs.152094), net monetary returns (Rs. 93695 and

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Rs. 80914) and benefit cost ratio (2.37 and 2.14) was found in 15th October planting. Whereas, minimum gross monetary returns (Rs. 141101 and Rs.138590), net monetary returns (Rs. 72561 and Rs. 60810) and benefit cost ratio (2.06 and 1.95) was found in 15th September planting, during the year 2010-11 and 2011-12 respectively.

The important focus of any floriculturist growing annual chrysanthemum should have a commercial outlook. An individual interested in commercial production of this crop ought to avail profit. Obviously, therefore, the grower should be benefitted in this profession. The gross monetary return (Rs. 162235) in 15th October planting was found to be highest so as the B: C ratio (2.06). Hence the proposal to compute for the B: C ratio is obligatory in this experiment.

These results are in close agreement with the findings of Pakhale (2011) in African marigold.

5.3 Effect of pinching

During both the years of investigation, highest gross monetary returns (Rs. 173446 and Rs. 166334), net monetary returns (Rs. 104906 and Rs. 89037) and benefit cost ratio (2.53 and 2.34) was found in single pinching at 30 days after transplanting. Whereas, minimum gross monetary returns (Rs.124847 and Rs.123291), net monetary returns (Rs. 57267 and Rs. 48543) and benefit cost ratio (1.85 and 1.76) was found in control i.e. no pinching, during the year 2010-11and 2011-12 respectively.

From the above results it is clearly indicated that, highest gross monetary return (Rs.173446), net monetary return (Rs. 104906) and benefit cost ratio (2.53) was noticed in single pinching at 30 days after transplanting. Pinching increased the yield of flowers per hectare. Early pinching produced more number of branches per plant, more number of flowers per plant, more flower yield per plot and per hectare which might be the reason for maximum GMR, NMR and B: C Ratio.

These results are in line with the findings of Maharnor (2011) in African marigold.

6. SUMMARY AND CONCLUSION

6.1 Yield characters:

Yield is a function of various fitness factors and the characters like number of flowers per plant, weight of flower contribute to the yield of flowers. From grower's point of view, the production and productivity of flowering is a matter of concern in a given set of agro climate. The productivity per unit area was better in 15th October followed by 1st October and 1st November planting. It is interesting to mention that pinching once at 30 DAT had produced the better yield of flower of annual chrysanthemum.

6.2 Quality Attributes;

The maximum size of pedicel was recorded in 15thOctober planting as well as no pinching (control). Whereas, vase life of flowers was found maximum in, 15th October planting and double pinching at 30 and 45 days after transplanting.

6.3 Economic parameters:

The higher yield of annual chrysanthemum raised the gross monetary return, that reflect to increase net monetary return and boost the benefit cost ratio in 15th October planting as well as under single pinching at 30 days after transplanting. Thus greater the net monetary return higher is the benefit cost ratio.

CONCLUSIONS

The production of flower is a part of commercial profession. The one who involves in this business must think to focus for profit. Hence, the contribution of better returns whether gross or net monetary resulted into the computation of higher

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B:C ratio from the flowers of 15th October planting. Same trend was also seen in single pinching at 30 DAT. It is pertinent to observe next in order to secure higher returns from the crop planted on 1st November in spite of lower flower yield than the 1st October planting because of higher market price of flowers.

BIBLIOGRAPHY

1. Ambad, S.N. and U.S. Kadam, 1998. Effects of different planting dates on the yield of pyrethrum flower. J. Maharashtra. Agri. Univ. 23(1): 66-67.
2. Deotale, A.B., P.V. Belorkar, S.R. Patil, V.N. Zode and M.B. Keche, 1994. Effect of date of planting and foliar spray of GA_3 on flowering and yield of chrysanthemum . J. Soils and crops. 4(2): 148-151
3. Ganjali, H.R., A. Ayench Band, H. Heidari Sharif Abad and M. MoussaviNik, 2010. Effect of sowing date, plant density and nitrogen fertilizer on yield, yield components and various traits of Calendula officinalis. American-Eurasian J. Agric. Environ. Sci. 9(2): 149-155.
4. Guruprasad, G. and B.S. Reddy, 2001. Influence of planting dates on the growth and flower. yield of china aster. Karnataka Agric. Sci. 14(3): 843-845.
5. Meher, S.P., D.J. Jiotode, A.B. Turkhede, S.O, Darange, P.U. Ghotal and C.S. Dhawad, 1999. Effect of planting time and growth regulator treatments on flowering and yield of chrysanthemum (Chrysanthemum morifolium Ramat). Crop- Research-Hisar. 18(3): 345-348.
6. Pakhale, Smita, V.J. Golliwar, D.M. Panchbhai, P. Jibhakate and sonali Deshmane, 2012.Response of African marigold varieties to different planting time on growth and yield under vidarbha conditions. J. soils and crops. 22(1): 183-187.
7. Sreekanth, P., M. Padma, R. Chandrashekhar and T.Y. Madhulety, 2006.Effect of planting time, spacing and nitrogen levels on yield and quality of African marigold (Tageteserecta Linn.). J. Orna. Hort. 9(2): 97-101.
8. Samantray, D., C.R. Mohanty and T.K. Behera, 1999.Effect of planting time and spacing on growth and flower yield of African marigold (Tageteserecta Linn.) cv. ‘African yellow’. J. Ind. Hort. 56(4): 382-385.
9. Sharma, A.K., Ravinder Sharma, Y.C. Gupta and G. Sud, 2003. Effect of planting time on growth and flower yield of marigold (Tageteserecta) under sub montane low hills of Himachal Pradesh. Ind J. Agri. Sci. 73(2): 94-96.
10. Sreekanth, P., M. Padma, R. Chandrashekhar and T.Y. Madhulety, 2006.Effect of planting time, spacing and nitrogen levels on yield and quality of African marigold (Tageteserecta Linn.). J. Orna. Hort. 9(2): 97-101.