

Economic of Potted Gerbera with Different Growth Media under Protected Cultivation in Pune

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Abstract

Among the ten treatment selected for study the highest benefit cost ratio (B:C ratio) (3.17 and 3.37 in two years) was obtained from treatment (T₈) with Cocopeat 40% +Red soil 30%+ F.Y.M. 20%+ Sand 10% combination while lower (1.80 and 1.94) in the treatment (T₂) with red soil 80%+ sand 20% combination. The treatment T₈ realized maximum net returns of Rs. 7,01, 236 and Rs. 7,11,124 in 560m² area for two years. Treatments T₉ T₁₀ and T₄ are at par with T₈.

Keywords: Economics, Gerbera, Pot Culture, Polyhouse.

INTRODUCTION

Gerbera is an important flower plant having single and double structure flowers. Due to colour variation, size of flowers, long lasting behaviour and wide adaptability for culture, made gerbera, a flower of choice for cultivation under protected condition in India. There is a great demand for gerbera particularly in European markets during winter months and almost throughout the year in India. Since India is situated comparatively closer to the major flower consuming countries than its Asian parts, it has very good scope and potential in the flower trade. Gerbera cultivation has emerged as a very important option to progressive farmers in a many parts of India, especially in Maharashtra, Karnataka, Uttar Pradesh and Uttaranchal (Singh, 2006).

In the recent years, floriculture is fast emerging as highly competitive, commercial and economic activity with potential for earning valuable foreign exchange aided by liberalization of economy and import policy. Thus, in these circumstances several adventures and enthusiastic entrepreneurs and nursery men are utilizing this opportunity and are introducing latest and improved gerbera cultivars from abroad for cultivation in state and elsewhere, locally several reputed companies have also started supplying improved plant materials multiplied through tissue culture techniques.

Performance of each gerbera cultivars varies with the region, season and other growing conditions (Horn *et al.*, 1974).

The specific objective of the study were - To estimate the production and marketing cost for farmers, and to study the returns in the marketing of Gerbera.

MATERIALS AND METHOD

The experiment was carried out in polyhouse of Hi-Tech Floriculture and Vegetable Project, College of Agriculture, Pune -411 005. The polyhouse erected at Hi-tech project was naturally ventilated (GH-1) type. Ultra Violet stabilized 200 µm thickness polythene film was used as cladding material for polyhouse. A pot culture experiment with different growing media was conducted with ten treatments and three replications in Completely Randomized Design (CRD). Media selected were on the basis of availability, cost, nutrient content and physical and chemical properties of the media. These different media were formed by mixing them with proportion as given in treatment by volume basis. At the bottom of the pots coco coir are placed in all the treatments. Neem cake of about 10 gm added per pot in all the treatment. Earthen pots of five liters capacity were used for the pot culture experiment which contains all mixed medias about 5 – 6 kg depend on treatments. The economics of gerbera cultivation in poly house (560m²) was worked out for two year using standard method suggested by NCPA (National Council for use of Plastic in Agriculture) (Anon.,1995).

Cost of different media was calculated separately with considering total material used. Potwise cost is take into consideration for calculation. Only cost of media is changing according to material used for the different treatments others costs are same.

RESULT AND DISCUSSION

1. Grading of gerbera

The perusal of results from Table 3 revealed that according to Polish (USA) gerbera classification, treatments produced I grade flowers in all respects that is flower diameter, flower stalk length and stalk diameter are , Cocopeat 40% +Red soil 30% + F.Y.M. 20% + Sand10% (T₈), Cocopeat 40% +Red soil 30%+ Vermicompost 20% + Sand 10% (T₉) and Cocopeat 40% + Red soil 30%+F.Y.M.10%+ Vermicompost 10%+ Sand 10% T₁₀. However, other remaining treatments were grouped under grade II in all the quality characters (Biradar, 1996). Price received matched with grading sequences. Throughout the experiment period, price received for grade I flowers RS. 4 and grade II flowers RS. 3.5.

2. Economics

The total cost, gross monetary return, net monetary return and benefit to cost ratio of different treatments grown under protected cultivation are presented in Table 70 and 71.

The treatment Cocopeat 40% +Red soil 30% + F.Y.M. 20% + Sand10% (T₈) produced maximum gross monetary returns (RS. 9,22,357 per 560 m² per year) and

net monetary returns (Rs. 7,01,236 and 7,11,124 per 560m² per year) followed by treatment Cocopeat 40% +Red soil 30%+ Vermicompost 20% + Sand 10% (T₉) with gross monetary returns (Rs. 9,08,139 per 560 m² per year) and net monetary returns (Rs. 6,8,6842 and 6,96,748 per 560m² per year) and Cocopeat 40% + Red soil 30%+F.Y.M.10%+ Vermicompost 10%+ Sand 10% T₁₀ with gross monetary returns (Rs. 8,86,673 per 560 m² per year) and net monetary returns (Rs. 6,65,464 and 6,75,361 per 560m² per year). The benefit to cost (B:C) ratio was the highest (3.17 and 3.37) in treatment Cocopeat 40% +Red soil 30% + F.Y.M. 20% + Sand 10% (T₈) which was significantly superior than rest of the treatments and treatment Cocopeat 40% +Red soil 30%+ Vermicompost 20% + Sand10% (T₉) (3.10 and 3.30) and Cocopeat 40% + Red soil 30%+F.Y.M.10%+ Vermicompost 10%+ Sand 10% T₁₀ (3.01 and 3.20) in two years. showed that it was at par with Cocopeat 40% +Red soil 30% + F.Y.M. 20% + Sand10% (T₈) and superior over rest of the treatments. The minimum gross monetary returns (Rs. 6,20,329/560m²/year) and net monetary returns (Rs. 3,99,120 and 4,09,017 /560m² for two year) was obtained in treatment T₂ and treatment Red soil 80% + Sand 20% (T₂) had minimum benefit cost (B:C) ratio 1.80 and 1.94 in two years . Panj *et al.*, (2012) studied economics of different treatments revealed that the maximum benefit cost ratio (1.22:1) was observed in T₅ [Coco peat : Rice husk : FYM (1:2:1) v/v] followed by T₁₀ [Rice husk : Vermi compost (1:1) v/v]. It can be recommended that to produce high quality of gerbera plants a mixture of different organic media with cocopeat was recommended. Study resulted treatment T₅ Coco peat : Rice husk : FYM (1:2:1) v/v is most economical.

Table 1. Experimental details

Sr.No.	Details of experiment	Particulars
1	Crop	Gerbera
2	Variety	Pink Elegance
3	Dates of planting	16 March 2012, 16 March 2013
4	Type of experiment	Pot culture (15 h x Φ30 cm)
5	No. of replications	Three (3)
6	No. of treatments	Ten (10)
7	Number of plots	30
8	Number of plants / plot	6
9	Number of plants	180
10	Pot capacity	Five liters
11	Design	Completely Randomized Design (CRD)

Table 2. Treatment details.

Treatments	Proportion(%)	Media used
T ₁	100	Cocopeat
T ₂	80:20	Red soil + sand
T ₃	40:40:20	Cocopeat +red soil+ sand
T ₄	80:10:10	Cocopeat +F.Y.M. + sand
T ₅	80:10:10	Red soil +F.Y.M. + sand
T ₆	80:10:10	Cocopeat +vermicompost+ sand
T ₇	80:10:10	Red soil + vermicompost + sand
T ₈	40:30:20:10	Cocopeat+ red soil+ F.Y.M+ sand
T ₉	40:30:20:10	Cocopeat +red soil + Vermicompost + sand
T ₁₀	40:30:10:10:10	Cocopeat + red soil +F.Y.M.+ vermicompost + sand

Table 3. Grading of different treatments grown under naturally ventilated polyhouse.

Treatments	Based on flower diameter	Based on stalk length	Based on stalk Diameter	Price according to grades
T ₁	Grade II	Grade II	Grade II	3.5
T ₂	Grade I	Grade II	Grade II	3.5
T ₃	Grade I	Grade II	Grade II	3.5
T ₄	Grade I	Grade I	Grade I	4
T ₅	Grade I	Grade II	Grade II	3.5
T ₆	Grade I	Grade I	Grade II	3.5
T ₇	Grade I	Grade II	Grade II	3.5
T ₈	Grade I	Grade I	Grade I	4
T ₉	Grade I	Grade I	Grade I	4
T ₁₀	Grade I	Grade I	Grade I	4

Flower diameter:	>10.0 cm (Grade I)
	<10.0 cm (Grade II)
Stalk length :	>50.00 cm (Grade I)
	<50.00 cm (Grade II)
Stalk diameter:	>0.80 cm (Grade I)
	<0.80 cm (Grade II)

(Source : Biradar, 1996).

Table 4: Economics of gerbera cultivation under naturally ventilated polyhouse (560m²) for two years.

	Particular	Total cost(Rs)	Depreciation cost 1 st year	Depreciation cost 2 nd year
I	Non recurring contingency (NRC) (For a life span of 25 years)			
1.	Construction of polyhouse@ Rs-935/m ² Top: UV stabilized plastic sheets 50% Agro shade net	5,23,600.00	52,360.00	47124
2.	Micro Irrigation system (Drip) 125Rs. /m ²	70000.00	7000.00	6300
3.	Cost of pots (25 Rs. /pot) (3520pots/polyhouse)	88,000.00	8800	7920
4.	Cost of stands (160 No. of stands /polyhouse) (1 stand =25kg) (35Rs. /kg cost of iron+ 10% Welding charges+10% labour charges)	1,68,000.00	16800	15120
	Total of NRC	8,49,600.00	84,960.00	76,464.00
II	Recurring contingency (ORC) (For a life span of three years)			
1.	Planting materials (3520 Pl/polyhosue)@ Rs. 32/plant	1,12,640.00	11264	10137.6
2.	Cost Media (cocopeat+neemcake+cococoir) T ₁	22,120.00	2212	1990.8
3.	Management cost			
a.	Supervision, maintenance and harvesting (01 labour per unit for 350 days) year @ Rs. 225/day)	78,750.00	*	*
b.	Fertilizer and plant protection	16995.00	*	*
c.	Irrigation charges including electricity charge	4,000.00	*	*
d.	Transportation cost	12500.00	*	*
e.	Packaging cost	10000.00	*	*
	Total of ORC	2,57,005.00	1,35,721.00	1,34,373.40
	Grand total (NRC + ORC)	11,06,605.00	2,20,681.00	2,10,837.00

* = same as in first column

Table: 5. Economics of gerbera cultivation under different growth media for an area of 560m².

Treatments	Total cost (Rs.)		Number of flowers pplant-1		Flower yield/560m ²		1% loss		Price flower-1		Gross monetary returns(Rs.)		Net monetary returns(Rs.)		B : C ratio	
	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year
T ₁	220681	210837	54.13	54.13	190538	190538	188632	188632	3.5	3.5	660213	660213	439532	449376	1.99	2.13
T ₂	221209	211312	50.86	50.86	179027	179027	177237	177237	3.5	3.5	620329	620329	399120	409017	1.80	1.94
T ₃	221209	211312	52.43	52.43	184554	184554	182708	182708	3.5	3.5	639478	639478	418269	428166	1.89	2.03
T ₄	221033	211154	63.36	63.36	223027	223027	220797	220797	4	4	883188	883188	662155	672034	3.00	3.18
T ₅	221033	211154	57.09	57.09	200957	200957	198947	198947	3.5	3.5	696315	696315	475282	485161	2.15	2.30
T ₆	221121	211233	57.76	57.76	203315	203315	201282	201282	3.5	3.5	704487	704487	483366	493254	2.19	2.34
T ₇	221121	211233	54.46	54.46	191699	191699	189782	189782	3.5	3.5	664238	664238	443117	453005	2.00	2.14
T ₈	221121	211233	66.17	66.17	232918	232918	230589	230589	4	4	922357	922357	701236	711124	3.17	3.37
T ₉	221297	211391	65.15	65.15	229328	229328	227035	227035	4	4	908139	908139	686842	696748	3.10	3.30
T ₁₀	221209	211312	63.61	63.61	223907	223907	221668	221668	4	4	886673	886673	665464	675361	3.01	3.20

CONCLUSIONS

From the evolved data it is concluded that, using different growing medias insist of single media in gerbera plantation is very useful for more profit. As T₈, T₉ and T₁₀ shows best yield characters and minimum cost of cultivation these treatments were more beneficial and having more B:C ratio.

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