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Morphological evaluation of spray-type genotypes of chrysanthemum (*Dendranthema* x *grandiflora* Tzvelev) and their value-addition for profit maximization

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Abstract

Chrysanthemum (*Dendranthema x grandiflora* Tzvelev) is a popular ornamental flower cherished worldwide and widely used as loose flowers in India. However, the perishability and inconsistency in the quality of chrysanthemum flowers pose marketing challenges, rendering losses to the farmers. The production of value-added products like garlands and venis can reduce postharvest losses, increase profits, and create new employment opportunities. The present study was conducted at the Department of Floriculture and Landscape Architecture, Dr. YSPUHF, Nauni, Solan to morphologically characterize eight genotypes of chrysanthemum to assess their suitability for loose flower production and then prepare value-added products from the flowers of selected genotypes for carrying out the cost analysis. The loose flowers and the value-added products were assessed for their marketability and profitability, among the genotypes evaluated for loose flower production, cv. 'Solan Shringar' outshined the other genotypes in terms of largest flowers, highest flower number per plant and postharvest shelf-life. For the value-added products derived from loose flowers, the highest returns on investment was observed for special garlands, followed by B:C ratio of ordinary garlands made from the cv. 'Solan Shringar'. In comparison, the B:C ratio after selling loose flowers of the same cultivar was low. Based on these findings, it was concluded that, for maximizing profits under North-Indian conditions, cv. 'Solan Shringar' is recommended for loose flower production.

Key words: Chrysanthemum (*Dendranthema grandiflora* Tzvelev), loose-flowers, value-added products, garlands, market returns

Introduction

Chrysanthemum (*Dendranthema* x *grandiflora* Tzvelev) is a plant of the daisy family producing brightly coloured ornamental flowers which have a long history in the culture and literature of the world. Native to the northern hemisphere, particularly Europe and Asia, its name comes from the Greek words '*chrysos*' (golden) and '*anthos*' (flower) (Gortzing and Gillow, 1964). In India, it's popularly known as Guldaudi and is cultivated for cut flowers, loose flowers, pot plants, and as a bedding plant. The cut blooms are sold or made into value-added products, such as, alluring floral arrangements or bouquets, while the loose flowers, which hold significant cultural value in India, are used for garlands, gajra, hair decoration of women folks, religious offerings, rangoli, and floral decorations and other value-added products. For potted plant production, smaller, compact varieties, commonly referred to as pot mums, are selected (Kumar *et al.*, 2021).

Indian floriculture maintains a traditional approach distinct from global practices, particularly in the use of flowers. While modern floriculture is widely adopted internationally, India's domestic market demonstrates a higher demand and value for loose flowers over cut flowers. The flower crop is highly favoured by the farmers of India and it accounts for a large portion of the area and production under floriculture crops in the country. The Indian chrysanthemum cultivation spans approximately 33.13 thousand hectares, yielding around 463.73 thousand metric tonnes of loose flowers (Anonymous, 2024). Chrysanthemum growers in India market their produce as cut flowers, loose flowers, and potted plants using recommended cultivars. However, the perishability of these flowers poses significant marketing challenges. Inconsistencies in shape, size, and color of the flowers further reduce their market value, leading to financial losses. Loose flowers are highly valued in India, particularly for adornments such as venis and garlands. Unlike other cut flowers, these flowers are highly perishable and often lack sufficient market infrastructure. Additionally, research and development efforts, whether in the public or private sector, to improve varieties or enhance postharvest technologies for extending shelf life and quality are limited. In Himachal Pradesh, value-added products from loose flowers, are largely handled by florists, who dominate the market and reap the highest profits, often resulting in farmers losing out on potential profits. For event decorations, garlands and strings are often sourced from florist markets in Delhi or Chandigarh, even if the flowers are locally grown. If farmers were to prepare and sell these value-added products, such as garlands and strings themselves, it could substantially increase their profits and overall returns compared to just selling loose flowers (Chaudhary, 2020). This strategy is expected to increase growers' net returns compared to selling loose flowers without value-addition. In addition to reducing postharvest losses, commanding higher prices, creating new market opportunities, and generating farm employment (Kumar *et al.*, 2021). Keeping this in view, the present study was planned with the objective to explore and identify spray-type genotype(s) of chrysanthemum suitable for loose flower production to prepare value-added products to maximize profit among growers in Himachal Pradesh.

Material and methods

Experiment I: Evaluation of loose flower genotypes of chrysanthemum for profit maximization by making different value-added products: The studies were conducted in 2020 at the Experimental Farm of the Department of Floriculture and Landscape Architecture, Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan, India. Eight genotypes *i.e.,* V_1: 'Ajay', V_2: 'Solan Shringar', V_3: 'Surf', V_4: 'UHFSChr117', V_5: 'UHFSChr122', V_6: 'UHFSChr126', V_7: 'UHFSChr134' and V_8: 'Chrysanthemum Collection-1' of chrysanthemum were selected for the study. The plants were raised from healthy, disease-free terminal shoot-tip cuttings and transplanted after 3 weeks. The cuttings were treated with a fungicidal solution (Mancozeb 0.2%, Carbendazim 0.1%), dipped in NAA (500 mgL^{-1}) rooting hormone, planted in protrays containing cocopeat and placed in mist chamber for rooting. After 3-4 weeks, rooted cuttings were transplanted to the main field. The cuttings were planted at a spacing of 30 x 30 cm accommodating 9 plants per bed (one meter square). Before transplanting, the soil was enriched with well-rotted FYM (5 kg m^{-2}) and a basal dose of N:P:K (30:30:30) with a full dose of P and K and half dose of N. The remaining half of the nitrogen dose was applied 45 days later. Plants received fortnightly fertigation with a water-soluble fertilizer with N:P:K (19:19:19) @ 2g L^{-1}. Data on growth and flowering parameters was recorded. Standard intercultural operations necessary for raising healthy flower crop were followed as per the package of practices. The experiment was laid out in Randomized Block Design (RBD) and replicated thrice.

Experiment II: Studies on profit-maximization through the preparation of value-added products from loose flowers: Value-added products were prepared from the flowers harvested from different genotypes which were subsequently studied for their acceptability and potential for profit maximization. In this experiment, two types of value-added products were prepared which were:

i) Ordinary garlands (prepared from flowers of a single genotype)

ii) Special garlands (prepared from flowers of two or more genotypes)

The storage life of these garlands was studied under ambient (18-25°C and 55-65% RH) and refrigerated (4±1°C and 65-70% RH) conditions. Further, the cost of production of chrysanthemum genotypes for loose flowers and value-added products (ordinary and special garlands) from 8 genotypes over an area of 800 m², was analyzed to determine the cost-benefit ratio. The local rates for materials, labor, and land were used, and average yield data for each genotype were considered to calculate profit and the cost-benefit ratio. The mean values of data for experiment II were subjected to analysis of variance by using a Completely Randomized Design (Factorial). Furthermore, the data was analyzed using SPSS software (Version 16.0; IBM Developer), and the treatment means were compared using Tukey's HSD test at a 5% level of significance.

Results and discussion

Experiment 1

Plant height (cm): The data presented in Table 1 reveals significant differences in plant height among chrysanthemum genotypes under open field conditions at the time of peak flowering. The maximum plant height was attained by 'UHFSChr126' (67.64 cm) followed by 'Solan Shringar' (63.98 cm) whereas, shortest plants were recorded in cv. 'Surf' (30.00 cm) followed by 'Chrysanthemum Collection-1' (40.70 cm). These variations in height are attributed to genetic differences in genotypes, affecting their suitability for use as cut flowers (taller varieties) or for bedding and pot plants (shorter varieties) (Thakur *et al.*, 2018). Similar findings for variation in plant height were reported by Punetha *et al.* (2011) and Ona *et al.* (2015) in chrysanthemum.

Days taken for flowering and duration of flowering (days): The data embodied in Table 1 reveals that among the genotypes evaluated for loose flower production, the earliest flowering was recorded in cv. 'Surf' (107.52 days) followed by 'UHFSChr117' (126.60 days) and 'UHFSChr122' (127.33 days), respectively. However, delayed flowering was recorded in cv. 'Solan Shringar' (135.33 days) which was statistically at par with 'UHFSChr126' (133.46 days), 'Ajay' (132.33 days), and 'Chrysanthemum Collection-1' (130.25 days), respectively. Further, the longest flowering duration was exhibited by the genotype 'UHFSChr126' (36.42 days) which was statistically at par with cv. 'Solan Shringar' (36.27 days) whereas the shortest duration was recorded in genotype 'UHFSChr122' (26.27 days) which was statistically at par with the genotype 'UHFSChr117' (26.60 days). The number of days taken for first flowering, indicating earliness or lateness, affects flower availability and varies due to genetic and environmental factors (Roopa *et al.*, 2018; Muhammad Munir, 2023). Flowering duration, crucial for market availability, varies due to genotype, environmental factors, and management practices. Similar trend was also observed by Prabhu *et al.* (2018) in chrysanthemum.

Table 1. Variation among different genotypes of chrysanthemum suitable for loose flower production for vegetative parameters

Genotypes	Plant height (cm)	Days taken for flowering (days)	Duration of flowering (days)
V_1: Ajay	58.58^{d}	132.33^{abc}	34.19^{b}
V_2: Solan Shringar	63.98^{b}	135.33^{a}	36.27^{a}
V_3: Surf	30.00^{g}	107.52^{d}	33.54^{b}
V_4: UHFSChr117	60.20^{c}	126.60^{c}	26.60^{de}
V_5: UHFSChr122	51.12^{e}	127.33^{c}	26.27^{e}
V_6: UHFSChr126	67.64^{a}	133.46^{ab}	36.42^{a}
V_7: UHFSChr134	44.49^{e}	128.33^{bc}	28.06^{cd}
V_8: Chrysanthemum Collection-1	40.70^{f}	130.25^{abc}	28.46^{c}
C.D. $_{0.05}$	2.21	6.08	1.51
S.E. (d)	1.03	2.84	0.70

Mean values in each column with the same letters are not significantly different according to Tukey's HSD test at $P < 0.05$

Flower size (cm): Significant differences in flower size were observed among chrysanthemum genotypes (Table 2). The largest flowers were registered in cv. 'Solan Shringar' (7.54 cm) followed by 'UHFSChr 126' (6.63 cm) whereas, smallest flowers were recorded in cv. 'UHFSChr117' (3.48 cm) followed by cv. 'Chrysanthemum Collection-1' (4.06 cm) and 'UHFSChr134' (4.24 cm). These variations in flower size can be attributed to the genetic and phenotypic differences among cultivars (Prabhu *et al.*, 2018). Disbudding may also enhance flower size (Kumar *et al.* 2014). Although largely a varietal trait, flower size is also influenced by the number of flowers per plant, soil moisture, and source-sink relationships, as noted by Singh *et al.* (2017) in chrysanthemum. The maximum flower size in cv 'Solan Shringar' as compared to other genotypes was also recorded by Brar and Bala (2021).

Number of flowers and weight of flowers (g) per plant: Perusal of data presented in Table 2 clearly revealed that among the genotypes evaluated for loose flower production, cv. 'Solan Shringar' produced the most flowers per plant (180.08), with the highest flower weight per plant (835.28 g). Conversely, cv. 'Chrysanthemum Collection-1' produced lowest flower yield per plant in terms of number of flowers (44.92) and flower weight per plant (126.95 g). Flower yield per plant is a key indicator for plant characterization. Higher yields may result from increased plant height, spread, and branching, leading to more photosynthates and thus more flowers (Singh *et al.*, 2019). Similar variations in flower numbers were reported by Reddy *et al.* (2016) in chrysanthemum. Further, the variations in flower weight are primarily due to larger flower size characterized by prominent central disc florets and more developed ray florets (Kireeti *et al.,* 2017). Similar results for high flower number and weight per plant in cv. 'Solan Shringar' were also recorded by Dewan *et al.* (2016) and Kharayat (2015).

Shelf life (days): Significant differences for postharvest shelf life of loose flowers among different genotypes of chrysanthemum is embodied in Table 2. The results revealed that the longest shelf life after harvest was observed in cv. 'Solan Shringar' (7.5 days) followed by 'UHFSChr117' (5.75 days). In contrast, minimum shelf life was recorded in genotype 'UHFSChr126' (1.50 days) followed by genotype 'UHFSChr122' (2.25 days). The variations in shelf life are due to the ability of genotypes to store photosynthates which is influenced by the number of leaves during growth (Dewan *et al.*, 2016), and factors like reduced evaporation, transpiration, and lower temperatures. Variations in shelf life are due to the genotype's ability to store photosynthates, influenced by the number of leaves during growth, and factors like reduced evaporation, transpiration, and lower temperatures (Suvija *et al.,* 2016). Extended shelf life of cv. 'Solan Shringar' has also been reported in earlier studies by Kharayat (2015) and Jagdale *et al.* (2019).

Table 2. Variation among different genotypes of chrysanthemum suitable for loose flower production for floral parameters

Genotypes	Flower size (cm)	Number of flowers per plant	Flower weight per plant (g)	Shelf life (days)
V_1	4.27^e	148.85^b	378.13^d	4.75^e
V_2	7.54^a	180.08^a	835.28^a	7.50^a
V_3	6.19^c	74.35^e	477.02^c	5.25^d
V_4	3.48^f	151.42^b	262.43^e	5.75^b
V_5	4.67^d	178.06^a	464.63^c	2.25^g
V_6	6.63^b	122.77^c	571.48^b	1.50^h
V_7	4.24^e	99.85^d	263.96^e	2.75^f
V_8	4.06^e	44.92^f	126.95^f	5.50^c
C.D. $_{0.05}$	0.24	6.5	14.57	0.24
S.E. (d)	0.11	3.03	6.79	0.11
S.E. (m)	0.08	2.14	4.80	0.08

For genotype details, see Table 1 Mean values in each column with the same letters are not significantly different according to Tukey's HSD test at $P < 0.05$

Experiment II

Storage life of ordinary garlands: The garlands prepared from flowers of single genotype of chrysanthemum exhibited significant differences for storage life under ambient and refrigerated storage conditions (Table 3). Between the two storage conditions, maximum storage life (6.17 days) was recorded under refrigerated storage conditions, while, ambient storage conditions showed minimum shelf life (4.13 days).

Among different genotypes, ordinary garlands of cv. 'Solan Shringar' showed the longest storage life (7.67 days) followed by the storage life of 'UHFSChr117' (7.00 days). In contrast, minimum storage life was observed in the garland of genotype 'UHFSChr126' (1.50 days).

The interaction between genotypes and storage conditions revealed highest storage life (8.67 days) of garlands of 'Solan Shringar' and 'UHFSChr117' under refrigerated storage conditions. In contrast, minimum storage life recorded under ambient storage conditions was registered in genotype 'UHFSChr126' (1.00 days).

Table 3. Variation among different genotypes of chrysanthemum for storage life of ordinary garlands under ambient and refrigerated conditions (days)

Genotypes (V)	Storage life (Ambient Conditions)	Storage life (Refrigerated Conditions)	Mean
V_1	4.33^g	7.00^c	5.67^D
V_2	6.67^d	8.67^a	7.67^A
V_3	4.33^g	6.00^e	5.17^E
V_4	5.33^f	8.67^a	7.00^B
V_5	2.67^i	4.33^g	3.50^G
V_6	1.00^k	2.00^j	1.50^H
V_7	3.33^h	5.33^f	4.33^F
V_8	5.33^f	7.33^b	6.33^C
Mean	4.13^B	6.17^A	

For genotype details, see Table 1. Mean values in each column with the same letters are not significantly different according to Tukey's HSD test at $P < 0.05$

Storage life of special garlands: The garlands prepared from mixture of flowers from two or more genotypes (special garlands), stored under two different storage conditions exhibited significant differences for storage life (Table 4). Among 7 different types of special garlands, high storage life (3.43 days) was recorded under refrigerated storage conditions. In contrast, the garlands stored under ambient storage conditions showed least storage life (2.05 days).

Among different genotypes, maximum storage life recorded in special garland of V_1+V_7+V_8 (4.67 days). In contrast, minimum storage life recorded in special garland of V_8+V_1+V_6 (1.67 days).

The interaction between genotypes and storage conditions revealed that maximum storage life recorded in special garland of genotypes V_1+V_7+V_8 (5.67 days) under refrigerated storage conditions. In contrast, minimum storage life recorded under ambient storage conditions was registered in special garland consisting of V_8 +V_1 + V_6 (1.00 days).

Cost-Benefit analysis: Cost-Benefit analysis of different chrysanthemum genotypes for loose flower production and different value-added products was used to study the cost of production and the returns from the sale of the produce. It was calculated that for loose flower production, the highest cost-benefit ratio was in 'Solan Shringar' (3.32) (Fig.1). However,

Table 4. Variation among different genotypes of chrysanthemum for storage life of special garlands under ambient and refrigerated conditions (days)

Sr. No.	Genotypes used (V)	Storage life (Ambient Conditions)	Storage life (Refrigerated Conditions)	Mean
1	$V_1 + V_7 + V_8$	3.67^c	5.67^a	4.67^A
2	$V_2 + V_6$	1.67^h	2.67^e	2.17^D
3	$V_4 + V_6 + V_7$	2.00^g	2.67^e	2.33^C
4	$V_5 + V_2$	2.67^e	5.00^b	3.83^B
5	$V_6 + V_3 + V_8$	2.00^g	2.67^e	2.33^C
6	$V_7 + V_6 + V_4$	1.33^i	3.00^d	2.17^D
7	$V_8 + V_1 + V_6$	1.00^j	2.33^f	1.67^E
	Mean	2.05^B	3.43^A	

For genotype details, see Table 1. Mean values in each column with the same letters are not significantly different according to Tukey's HSD test at $P < 0.05$

the preparation of value-added products (ordinary and special garlands) increased the cost-benefit ratio. After the garlands were prepared from the same genotypes, highest return-on-investment in terms of B:C ratio was recorded in special garlands of cv. 'Solan Shringar' (10.37) followed by the B:C ratio of ordinary garlands of the same (7.75), indicating that value-added products significantly boost seller profits compared to selling loose flowers. From these calculations, it can be deduced that preparation of value-added products like garlands from loose flowers can help in boosting returns to the farmers and maximize their profit.

The results on the profitability of value-added products, suggest that chrysanthemum growers could apply similar strategies by diversifying into products like ordinary and special garlands. This approach could enhance growers' income by tapping into niche markets. Further, by combining loose flower production with value-added products, chrysanthemum growers can diversify their market offerings, minimizing the risks of price volatility and extending product shelf-life. This is especially valuable during off-season periods when fresh cut flowers may be less in demand. These can be extended to chrysanthemum cultivation in other North Indian regions of similar climatic conditions. The benefits of growing adaptable cultivars, combined with strategies for value addition, align well with current practices aimed at optimizing yield and profitability in these regions.

From this study, it can be concluded that value addition significantly enhances market returns. Preparation of value-added products like garlands offers strong market potential and profitability at the farmer-level itself. Consequently, under North Indian conditions, cultivar 'Solan Shringar' stands out for its high

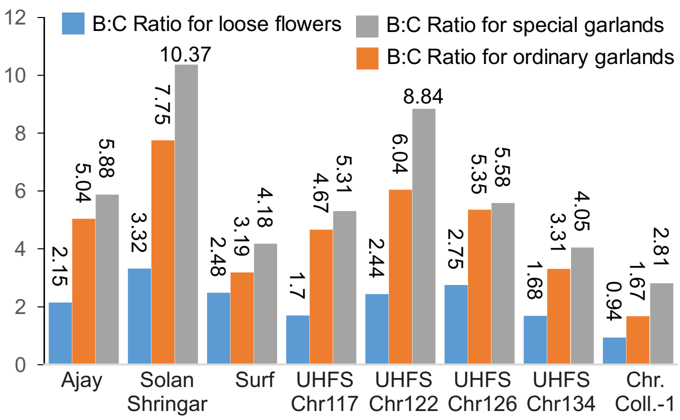

Fig. 1. Cost-Benefit Ratio (Gross Returns ÷ Total Expenditure) after selling loose flowers, ordinary garlands and special garlands

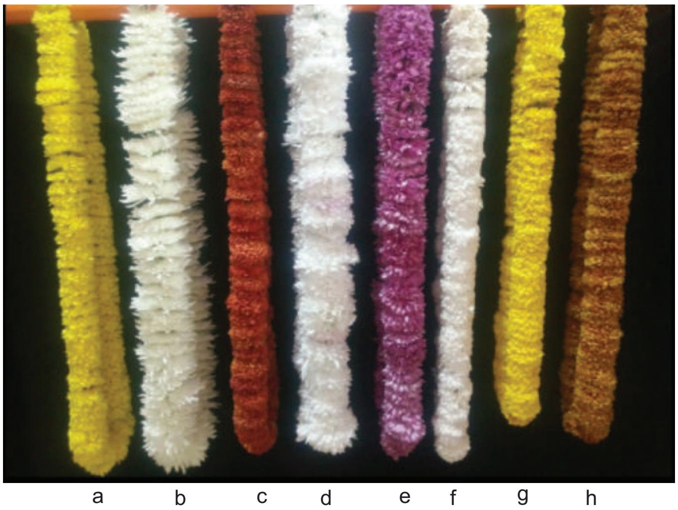

Plate 1a. Ordinary garlands prepared from different genotype(s) evaluated for loose flower production. a) Ajay, b) Solan Shringar, c) Chrysanthemum Collection-1, d) Surf, e) UHFSChr126, f) UHFSChrl34, g) UHFSChrll7, h) UHFSChrl22

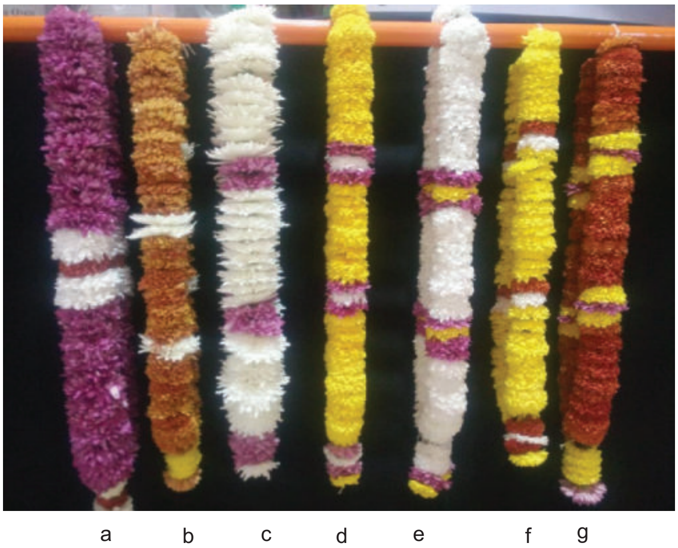

Plate 1b. Special garlands prepared from different genotype(s) evaluated for loose flower production. a) UHFSChrl26 + Surf + Chrysanthemum Collection-1, b) UHFSChrl22+Solan Shringar, c) Solan Shringar+UHFSChr 126, d) UHFSChrl 17+UHFSChrl 26+UHFSChrl 34, e) UHFSChrl 34+UHFSChrl 26+UHFSChrl 17, f) Ajay+UHFSChr 134+ Chrysanthemum Collection-1, g) Chrysanthemum Collection-1 + Ajay + UHFSChrl26

benefit/cost ratio, making it ideal for commercial cultivation in and similar climates, both for loose flower production and value-addition. Further research should explore other genotypes for value addition potential assessing the long-term cost-effectiveness and market stability of value-added products.

Authors' contribution: Conceptualization of research (BK, SRD); Designing of the experiments (DC, BK, SRD); Contribution of experimental materials (BK, SRD); Execution of field/lab experiments and data collection (DC); Analysis of data and interpretation (DC, BK, SRD); Preparation of the manuscript (DC, BK).

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Table 5. Cost Benefit analysis of different chrysanthemum genotypes grown for loose flowers and making their value-added products Calculated for an area of 800m^2

	Particulars	Quantity Required	Price/unit (Rs.)	Total Price (Rs.)
A1.	Fixed Cost (Rs.)			
1.	Rental value of land	800 m^2 for 250 days	5000/bigha	5000
2.	Rooted cuttings	5400	4.00	21600
B1.	Variable Cost (Rs.)			
1.	Labour for raising of crop from land preparation to harvesting and packaging	85 man days	300	25500
2.	FYM	3000 kg	185/100 kg	5550
3.	NPK (Urea, SSP, MOP)	Urea: 39,132 g SSP: 1,12,500 g MOP: 30,000 g	Urea: Rs 276/50 kg SSP: Rs 495/50 kg MOP: Rs 840/50 kg	215.226 11,13.75 504
4.	NPK (19:19:19)		160/kg	180
5.	Mancozeb	500 g	180/500 gm	180
6.	Carbendazim	420 g	650/kg	273
7.	Imidacloprid	120 ml	1500/l	180
	Total (A1+B1)			61292

	Particulars	Ajay	Solan Shringar	Surf	UHFSChr 117	UHFSChr 122	UHFSChr 126	UHFSChr 134	Chry. Coll-1
C1	Cost For Loose Flowers (Rs.)								
	Number Of Boxes Required For Loose Flowers	102.095	225.5255	128.795	70.856	125.45	154.2995	71.269	34.2765
	Transport Of Flowers - @Rs. 300/20 Kg	30628.5	67657.7	38638.6	21256.8	37635	46289.9	21380.8	10283
	Cost Of Box @Rs 30/Box	3062.85	6765.77	3863.86	2125.68	3763.5	4628.99	2138.08	1028.3
	Total (Rs.) (A+B)	33691.35	74423.47	42502.46	23382.48	41398.5	50918.89	23518.88	11311.3
	Total Expenditure For Loose Flowers (A1+B1+C1) (Rs.)	94983.35	135715.47	103794.5	84674.48	102690.5	112210.89	84810.88	72603.3
D1	Cost Of Making Ordinary Garlands (Rs.)								
	Cost Of Thread And Needle For Making Ordinary Garlands	200	300	200	200	300	300	200	200
	Labour Cost For Making Garlands (Calculated on the basis of 500 ordinary garlands/man day)								
	Man Days (@ Rs. 300/Day)	16.74	27.012	10.29	15.43	20.458	17.91	10.692	5.27
	Labour Cost For Ordinary Garlands	5022	8103.6	3087	4629	6137.4	5373	3207.6	1581
D1	Total (A+B) (Rs.)	5222	8403.6	3287	4829	6437.4	5673	3407.6	1781
	Total Expenditure For Ordinary Garlands (A1+B1+D1) (Rs.)	66514	69695.6	64579	66121	67,729.40	66965	64699.6	63073
E1	Cost Of Making Special Garlands (Combinations As Mentioned In Materials And Methods)								
A.	Cost Of Thread And Needle For Making Ordinary Garlands	200	300	200	200	300	300	200	200
B.	Labour Cost For Making Garlands (Calculated On The Basis Of 500 Ordinary Garlands/Man Day)								
	Man Days (@ Rs. 300/Day)	15.56	29.17	10.81	13.94	24.37	14.72	10.46	7.14
	Labour Cost For Special Garlands	4668	8751	3243	4182	7311	4416	3138	2142
E1	Total (A+B) (Rs.)	4868	9051	3443	4382	7611	4716	3338	2342
	Total Expenditure For Making Special Garlands(A1+B1+E1)	66160	70343	64735	65674	68903	66008	64630	63634
Production and Sale									
1	Loose Flowers (Kg)	2041.9	4510.51	2575.9	1417.12	2509	3085.99	1425.38	685.53
	Gross Returns (Sale) (Rs.)	2,04,190	4,51,051	2,57,590	1,41,712	2,50,900	3,08,599	1,42,538	68,553
2	Ordinary Garlands (Numbers)	8372.81	13506	5147.31	7713.85	10229	8958.89	5346	2636.31
	Gross Returns (Sale) (Rs.)	334913	540240	2,05,892	3,08,554	4,09,159	3,58,356	2,13,840	1,05,464
3	Special Garlands (Numbers)	7784.89	14586.48	5407.16	6974.23	12185.48	7360.26	5233.3	3571.14
	Gross Returns (Sale) (Rs.)	3,89,200	7,29,323.5	270350	3,48,711.5	6,09,274	3,68,032.5	2,61,665	1,78,557
	Net Returns (Rs.)								
1	For Loose Flowers	1,09,207	3,15,336	1,53,796	57,038	1,48,209.5	1,96,388	57,727.12	-4,050.30
2	For Ordinary Garlands	2,68,399	4,70,544	1,41,313	2,42,433.0	3,41,429.6	2,91,391.0	1,49,140	42,391.00
3	For Special Garlands	3,23,040	6,58,981	2,05,615	2,83,037.5	5,40,371.0	3,02,024.5	1,97,035.	1,14,923

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