Evaluation Of Chrysanthemum (Chrysanthemum Morifolium Ramat) Genotypes For Loose Flower, Cut Flower And Pot Mums

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Abstract: Chrysanthemum (Chrysanthemum morifolium Ramat) occupies one of the most important traditional flower and a place of pride, both as commercial flower crop and as a popular exhibition flower. Though it is a commercially cultivated crop in our country, the location specific cultivars are not available. This experiment was to evaluate the performance and adaptability of different chrysanthemum genotypes under Coimbatore condition and to identify the genotypes suitable for loose flower, cut flower and pot mums. For this purpose, a Randomized block experimental design with fifty eight treatments and three replications was established. Based on the per se performance, the genotype Indira was identified to be superior with respect to yield characters such as plant height (43.13 cm), Plant spread E-W & N-S (42.47& 44.37cm), Number of lateral branches/plant (44.30), Early bud appearance and minimum days to full bloom (56.00 days and 75.33days). Number of flower clusters/plant (97.00), Number of flowers/plant (224.0) and Flower yield/plant (11934.7 kg). Flower duration was maximum for the genotype Chandhini (72.67 days). Pusa Centenary and Ravikiran performs maximum for cut flower characters such as Flower diameter (11.2, 11.4 cm) and Individual flower weight (7.53, 5.95 gm). The maximum shelf life was also observed in Pusa Centenary.

Keywords: Chrysanthemum morifolium Ramat, Genotypes, Loose flower, Cut flower, Pot mums

I. INTRODUCTION

Floriculture is a fast emerging competitive industry in India owing to its varied agro climatic conditions. Globally, more than 140 countries are involved in the cultivation of floricultural crops. In India, the major cut flower and loose flower growing states are West Bengal, Karnataka, Maharashtra, Tamil Nadu and Andhra Pradesh and the major loose flowers cultivated are Jasmine, Rose, Chrysanthemum, Marigold and Tuberose. Chrysanthemum (*Chrysanthemum morifolium* Ramat) ranks 2^{nd} in national loose flower market. The genus comprises of huge biodiversity in their growth habitat, flowering behavior, flower and foliage colour, shape and size. Based on the flower head size, it is classified into three major groups *viz.*, large flowered (eight types), small flowered (ten types) and mini chrysanthemums. The dwarf and compact growing once on the other hand, were suitable for front row planting or as pot mums. Systematic work on

chrysanthemum breeding has been taken up at various research institutes and the objective of breeding is mostly on regional preferences. The present investigation was therefore initiated to select a stable genotype for yield under local conditions and to obtain clear picture on various characters which affect the yield.

II. MATERIALS AND METHODS

The present study was conducted at Department of Floriculture and Landscaping, Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore. Fifty eight genotypes of chrysanthemum collected from different sources viz., IARI, New Delhi, BCKV, Kalyani, Private nursery at Bangalore and germplasm collection of Department of Floriculture and Landscaping, TNAU, Coimbatore, were evaluated during 2013 and 2014. The experiment was laid out in Randomized Block Design with three replications. The rooted cuttings were planted in the plot size of 1.2 m \times 1.2 m at 30 \times 30 cm spacing. Uniform recommended package of practices were followed along with nutritional application and normal flood irrigation. The data on plant height (cm), plant spread (cm), number of lateral branches/plant, stem girth (cm), number of leaves, days to flower bud appearance (days), days to full bloom (days), duration of flowering (days), number of flower clusters/plant, longevity (days), flower diameter (cm), number of ray florets, number of flowers/plant, flower colour as per the RHS colour chart, individual flower weight (g), flower yield/plant (g) were recorded. The observations were statistically analysed.

III. RESULT AND DISCUSSION

The chrysanthemum genotypes exhibited significant variation for all the traits studied under Coimbatore condition. At 45th day after planting, Indira recorded the highest plant height (43.13 cm) but it was on par with Ravikiran (41.32 cm) and Centenary (41.17 cm), whereas Sadbhavana recorded the lowest plant height of 5.16 cm. Raghava et al., (1992) reported that better vegetative growth will significantly contribute towards the flower yield of chrysanthemum. Shankar and Tewari (1993) suggested plant height as an important criterion for screening chrysanthemum varieties. Increase in plant height was associated with rapid meristematic activity, probably due to rapid cell division and elongation during the tender growth period (Sharova et al., 1977). The data on mean maximum plant spread (E-W) of 42.47 cm was observed in Indira and mean minimum of 13.67 was observed in Arka Ravi. The mean maximum plant spread (N-S) of 44.37 cm was recorded in the Indira and mean minimum of 11.83 cm was observed in Arka Ravi. Increase in plant spread might be due to production of more number of branches and by the genetic nature of the plant. Variation in plant spread is due to additive gene effects (Vidalie et al., 1985). The mean number of lateral branches per plant was highest for Indira as 44.30 and lowest were recorded for Co.1 (3.77). The maximum number of leaves per plant was recorded for the Autumn Joy as 366.20, followed by Meera White (337.70) and the mean minimum was recorded

a ,	DI		DI (NT	1	NT		<u>a</u> .
(0.5 cm). Ta	ble 1									
Little Pink a	as 2.3 c	cm ar	nd mi	nim	um w	vere re	ecord	ed fo	or L	ilyput
for Baggi (20.32)	. The	high	lest	stem	girth	was	rec	orde	ed for

Genotypes	Plant	Plant spread		Number	Numb	Stem
	height	(cm)		of lateral	er of	girth
	(cm)	E-W	N-S	branches	leaves	(cm)
Meera White	15.27	39.31	31.23	9.43	337.7	1.3
Arka Pavi	36.57	21.//	21./1	7.21	57.83	1.4
Indira	43.13	42.47	44 37	44 30	48.40 98.73	1.2
Shanthi	23.47	18.27	16.37	6.03	36.53	1.4
Co.2	25.22	24.73	21.83	9.22	71.73	1.6
Basanthi	19.43	18.83	17.82	14.00	46.07	1.2
Co.1	22.12	33.63	31.43	3.77	66.42	1.5
Shymal	22.53	23.17	33.33	6.92	67.41	1.5
Sel.4	20.92	25.23	19.27	6.87	50.24	1.3
Sel.5	19.41	30.67	23.00	9.97	80.33	2.0
Ravikiran	41.17	33.93	38.07	25.41	228.2	1.3
Rani	25.85	24.72	18.32	7 22	28.00	1.5
Sel 6	23.27	23.31	24.03	5.53	20.32	1.3
Chandhini	25.07	32.27	32.83	17.13	172.6	1.5
Acc116	12.83	29.32	22.23	11.91	64.97	1.4
Pusa						
Centenary	41.32	41.17	41.13	19.42	137.1	1.5
Pusa Anmol	16.37	15.67	15.17	24.12	46.73	1.2
Neon	9.83	18.97	17.77	12.13	24.67	1.1
Cindrella	16.67	15.92	14.53	6.12	56.62	1.1
Rennila	13.87	18.00	16.33	5.33	149.5	1.2
Vasantnika Col Dink	8.22	17.87	10.13	10.31	44.75	1.1
Calimero red	14.23	23.60	24.43	19.42	25.97	1.0
Calimero	14.23	23.00	24.43	17.45	20.45	1.2
Sunny	20.31	14.57	15.07	20.31	24.97	1.2
Calimero						
pink	14.63	18.52	21.23	12.92	24.23	1.2
Terror	13.77	15.93	16.13	6.57	35.17	1.2
Bodego Red	10.67	17.13	21.83	13.71	28.33	1.4
Tornata	10.27	18.03	21.23	9.62	25.82	1.3
Tequila	11.63	17.63	22.42	13.13	22.37	1.0
Saradmala	30.21	25.03	22.87	20.02	33.83	1.2
SwethaSinga	50.21	25.05	22.07	29.92	55.65	1.4
r	25.03	31.91	27.43	12.00	26.82	1.5
Sadbhavana	5.16	20.07	23.22	12.21	80.83	1.3
Pinkstar	12.57	17.97	21.27	12.12	70.37	1.5
Punjab						
Anuradha	35.73	22.73	17.33	22.93	93.03	1.5
Dundi	26.37	21.07	23.83	10.72	38.13	1.3
WinterQueen	37 17	36.63	15 33	10.00	80.57	12
Megami	13.22	30.63	24.94	8.03	77.93	2.0
Garden	13.22	50.05	21.91	0.05	11.55	2.0
Beauty	35.33	19.97	22.82	12.00	66.83	1.2
Statesman	24.72	22.23	21.81	7.82	55.97	1.3
Autumn Joy	39.37	22.67	20.13	15.21	366.20	1.6
Redstone	12.93	18.03	21.30	13.42	77.73	1.3
Aparajitha	26.97	24.43	42.73	10.71	158.40	1.6
Jublee	18.63	37.37	22.00	10.12	45.62	1.2
Flift	26.43	20.17	31.33	15.82	66.43 170.20	1.2
I alpark	22 47	20.55	24 97	20.03	172.30	1.2
Dolly	22 . 4/	50.72	∠ 1 .71	20.44	172.40	1.2
Orange	20.43	34.21	24.23	11.33	162.80	1.5
Little Pink	23.62	27.83	31.92	38.22	189.20	2.3
Lalith	37.33	36.87	26.31	17.73	191.30	1.7
Yellow						
charm	35.92	41.22	38.42	24.94	35.92	1.2
Mother						
Teresa	13.87	21.71	28.23	24.23	81.53	0.8
Jaya	23.43	38.97	14.17	12.34	178.20	1.4

Lilyput	8.43	18.61	31.33	7.23	64.77	0.5
Swapna	26.93	15.00	19.92	8.37	25.67	1.3
Bc- 47-101	24.83	35.77	36.33	14.00	28.03	1.3
CD (P=0.05)	4.75	2.01	1.63	0.42	10.95	0.19

 Table 1: Vegetative parameters of chrysanthemum genotypes

Significant variation among the genotypes was observed in days taken for flower bud appearance. The early flower bud appearance of 56.00 days was registered in Indira followed by Saradmala (58.33 days). Whereas, the late flower bud appearance was recorded in Statesman (124.67 days) and Ravikiran (123.33 days) respectively. The variation for early or late bloom seems to be the varietal character (Kanamadi and Patil, 1993; Behera et al., 2002 in chrysanthemum. Similar findings were reported by Bhattacharjee (1981) in gerbera. The data on this attribute revealed that the number of days taken to full bloom varied significantly among the genotypes tested. The Indira took minimum number of days for full bloom (75.33 days) followed by Calimero sunny and Calimero Pink (76.66) but both are on par. Whereas, Statesman took more number of days to full bloom (146.67) which is on par with Ravikiran (145.33). The other varieties recorded the intermediate values. There were a significant differences observed in duration of flowering among the varieties evaluated. However, the duration of flowering was minimum for Swapna (26.33) and maximum for Chandhini (72.67 days) and Rani (79.21 days).

The highest flower diameter (11.4 cm) was recorded in Ravikiran which was on par with the genotype Pusa Centenary (11.2 cm). The lowest flower diameter was registered in genotype Calimero red (1.7 cm) which was on par with genotypes Bodego Red (1.7 cm) and Calimero pink (1.8 cm). The flower diameter is directly correlated with weight of individual flower and flower yield per plot. The variation in flower size in these genotypes may be attributed to the inherent genetic characters of the individual cultivars and environmental factors Biradur and Khan (1996): Singh and Ramachandran (2002). The genotype, Indira significantly registered the maximum number of ray florets (242.60) followed by Pusa Centenary (242.30), whereas the minimum was recorded in Rennila (17.99). The maximum number of flower clusters per plant was recorded in Indira (97.00), followed by Aparajitha (89.33) and Little Pink (88.70) and the lowest was recorded in Lilyput (6.32). The number of flower clusters per plant and number of flowers produced per plant ultimately determine the vigour of the genotype for the flower production (Anonymous, 1991). The maximum shelf life was observed for Pusa Centenary (18.21) which is on par with Lalith (18.00). The least shelf life was registered in Neon (8.31), Lilyput (8.33), Cindrella (8.33) and Sadbhavana (8.33) Table 2. The longest shelf life was mainly due to reduced rate of evaporation and transpiration, prevailing low temperature and low wind velocity.

Genotype s	Days to flower bud appear ance	Days to full bloom	Durati on of flower ing (days)	Flow er dia mete r (cm)	Numb er of ray florets	Numb er of flower cluster s per plant	Flower colour (RHS colour chart)	Shelf life (days)
Meera							155 D	
White	79.00	116.00	55.33	3.8	56.66	71.33		9.00
Red Gold	73.66	95.66	43.33	4.9	23.96	15.33	46 A	12.33
Arka Ravi							NN	
	84.33	97.33	51.42	5.6	28.68	34.33	155	12.67
Indira	56.00	75.33	42.67	6.1	242.6	97.00	22 A	12.67
Shanthi	76.33	93.33	36.23	5.8	44.51	37.67	155 D	8.667
White Red Gold Arka Ravi Indira Shanthi	79.00 73.66 84.33 56.00 76.33	116.00 95.66 97.33 75.33 93.33	55.33 43.33 51.42 42.67 36.23	3.8 4.9 5.6 6.1 5.8	56.66 23.96 28.68 242.6 44.51	71.33 15.33 34.33 97.00 37.67	46 A NN 155 22 A 155 D	9.00 12.33 12.67 12.67 8.667

Co 2	70.22	00.22	47.01	67	24.00	26.01	N80 D	0.667
C0.2	19.35	99.55	47.01	0.7	34.90	20.01	NOU D	9.007
Basanthi	72.66	100.67	41.67	3.8	25.63	32.32	5 A	13.33
Co.1	78.33	96.33	67.33	5.0	128.10	61.67	6	12.00
Shymal	101.60	115.67	58.67	4.7	26.01	36.33	179 A	15.00
Sel 4	75.66	96.66	34 67	6.5	152.00	25.22	155 A	14 21
Sel 5	92.66	102.67	61.42	7.5	10.66	21.22	155 D	12.67
Sel.5	85.00	105.67	01.42	1.5	19.00	51.52	133 B	12.07
Ravikiran	123.33	145.33	40.12	11.4	182.20	36.32	N 34	16.67
Rani	81.66	105.33	72.67	4.9	53.62	54.33	76 B	14.11
Baggi							NN	
5455	82.00	100.00	34.42	57	169 10	62.33	155 D	12.67
0.16	82.00	100.00	34.42	5.7	107.10	02.33	155 D	12.07
Sel.6	78.66	98.33	66.23	6.8	25.67	30.33	155 A	10.67
Chandhini	64.66	82.66	79.21	4.2	187.20	59.33	14 A	13.20
Acc116	73.00	86.00	43.43	2.9	74.75	8.00	12 A	12.33
Duco						0.00	5 P	
rusa	(9.77	106 67	54.11	11.0	242.20	29.21	5.6	10.01
Centenary	08.00	100.07	54.11	11.2	242.30	38.21		18.21
Pusa							A 6	
Anmol	84.33	107.33	31.67	4.7	223.50	33.32		11.33
Neon	70.00	85.00	54 22	54	32.95	32.67	Gr 64A	8 31
Cindralla	70.00	07.66	29.24	5.6	91.70	10.22	A 6	0.31
Cilidrena	70.00	97.00	38.24	5.0	81.70	19.55	AO	6.55
Rennila	71.00	94.00	45.67	3.7	17.99	25.33	71 A	9.02
Vasanthik							12 A	
9	108 33	125 33	57 33	29	82.97	11 33		13 11
Cal Diala	100.55	125.55	51.55	2.7	02.77	11.55	C . 197	15.11
Cai Pink	60.00	00.00	<i>c</i> + <i>c</i> =	0.5	195 50	22.22	Gr.186	11.00
L	69.00	80.00	64.67	2.5	175.50	32.33	С	11.00
Calimero							Gr. 31	
red	66.66	76.66	61.67	1.7	123.50	28.23	C	11.67
Colimona							Gr 4D	07
Canmero					18185		GI. 4D	
Sunny	66.66	76.66	64.33	2.6	174.70	34.33		12.33
Calimero							0.Pale	
pink	74 33	94 33	67 32	1.8	173 70	38.67	pink	12.11
Torror	78.00	07.22	54.22	5.6	27.08	45.67	52 A	15.22
Terror	78.00	97.55	34.25	5.0	27.98	43.07	35 A	15.52
Bodego							53 B	
Red	76.66	96.66	49.67	1.7	28.93	26.12		11.00
Tornata							Gr 34	
ronnau	68.00	107.22	55 67	2.9	24.25	12 22	C	10.01
	08.00	107.55	33.07	5.8	24.33	15.55		10.01
Tequila							NN	
	76.33	106.33	43.67	2.9	33.72	21.00	155	13.67
Punch	77.33	97.33	64.67	6.2	33.28	33.33	155 A	15.67
Saradmala	58.33	100.33	31.33	4.5	34.68	10.33	155 C	8 667
G d G	50.55	100.55	51.55	4.5	54.00	17.55	155 C	0.007
SwethaSin							8 A	
gar	122.00	139.00	45.33	3.9	36.65	87.33		14.67
Sadbhava							187 C	
na	117.00	135.00	33 33	2.5	34 44	34 67		8 3 3 3
Dialsotoa	71.00	96.00	25.22	2.5	46.26	40.22	62	10.22
Pliikstai	/1.00	80.00	55.55	3.2	40.50	40.25	02	10.52
Punjab							12 A	
Anuradha	71.00	88.00	42.34	4.7	128.90	45.67		16.33
Dundi	72 33	93 33	54 33	4.0	95.86	38.67	6A	14.12
Winter	72.00	70.00	01100		75.00	50.07	155 D	12
winter		105.00					155 B	
Queen	88.00	107.00	34.33	4.3	33.34	29.33		16.33
Megami	87.33	141.33	43.67	4.5	130.60	28.23	76 B	15.67
Garden							76 C	
Boouty	106.22	117.00	35.24	6.1	120.10	22 22		16.67
Deauty	100.55	117.00	33.34	0.1	129.10	22.33	10.5	10.07
Statesman	124.67	146.67	27.01	8.8	46.09	30.33	12 B	11.67
Autumn		1	1		1		NN 55	
Jov	97.00	114.00	39.33	3.7	76.56	82.23	А	15.31
Redetono	76.00	96.00	10.33	37	63.57	37 33	187 B	17.33
Austone	70.00	90.00	47.33	3.7	05.57	37.33	10/ D	12.00
Aparajitha	65.66	81.66	41.00	5.8	88.36	89.33	5 A	13.00
Jublee	73.00	99.00	35.67	6.8	136.90	16.33	9 A	12.67
Flirt	72.00	118.00	30.67	3.4	108.80	37.33	59 A	13.12
Tori	80.22	100.22	20.22	27	26.10	75 47	7	9 6 6 7
ren	00.33	100.33	50.55	3./	50.18	/3.0/	/	0.007
Lalpark	75.66	95.66	53.67	4.1	63.70	82.30	186	16.43
Dolly							167	
Orange	81.00	101.00	50.00	4 5	124 10	66 33		17 11
Little Dial-	76.00	102.00	42.00	1.5	117 10	99 70	7.	17.22
LILLE PIIK	70.00	103.00	42.00	4.3	117.10	00.70	/A	17.33
Lalith	1	1	1		1		NN	
	73.33	96.33	36.33	2.3	126.30	62.67	155 C	18.00
Yellow							14 B	
charm	68 66	88 66	27 33	9.8	54 75	55 / 3		13.67
Mail	00.00	00.00	41.33	7.0	54.13	55.45	155 D	15.07
Mother				_			155 B	
Teresa	73.33	93.33	30.67	3.7	36.57	28.03		12.00
Java	72.00	102.00	34.67	3.6	183.80	68.33	185 A	16.67
Lilvout	76.66	116.67	27.21	41	33.62	632	14 B	8 3 3 3
- Lityput	70.00	110.07	21.21	4.1	55.02	0.52	14 D	0.000
Swapna		1	1		1		NN	
	83.33	94.33	26.33	3.5	133.10	13.33	155 A	9.667
Bc- 47-							N 78	
101	91.00	105.00	30.00	41	82 54	68.02		0 333
(D)	21.00	105.00	50.00	7.1	02.34	00.02		2.222
1 1 1 1	1	1	1				-	
(D) (D)		F A A	A · ·	0		10 20		A

Table 2: Flowering parameters of chrysanthemum genotypes

The mean maximum number of flowers per plant was registered in Indira (224.0) followed by Aparajitha (218.0) and Meera White (213.3) and the mean minimum was recorded in Arka Ravi (29.0). Pusa Centenary (7.53 g), followed by Ravikiran (5.95 g) recorded the highest value for individual flower weight whereas the lowest individual flower weight of 0.43 g was registered in Mother Teresa, which was on par with Meera White (0.47 g). Among the genotypes, highest flower yield of 745.9 g was recorded in Indira and was on par with genotype Aparajitha (712.8 g). While, the lowest flower yield per

plant (19.9 g) was registered in Mother Teresa. Table 3. The increased flower yield might be due to increased flower size, flower weight and number of branches per plant.

Genotypes	Number of flowers per plant	Number of flowers per plot	Individual flower weight (g)	Flower yield per plant (g)	Flower yield per plot (kg)
Meera White	213.3	3413.3	0.47	100.2	1604.2
Red Gold	54.6	874.6	0.83	45.3	725.9
Arka Ravi	29.0	464.0	2.43	70.4	1127.5
Indira	224.0	3584.0	3.33	745.9	11934.7
Shanthi	49.6	794.6	2.19	108.7	1740.3
Co.2	68.0	1088.0	0.78	53.0	848.6
Basanthi	62.0	992.0	1.82	112.8	1805.4
Co.1	68.0	1088.0	2.19	148.9	2382.7
Shymal	70.6	1130.6	2.84	200.6	3211.0
Sel.4	46.0	736.0	2.36	108.5	1736.9
Sel.5	43.6	698.6	2.89	126.1	2019.1
Ravikiran	30.6	490.6	5.95	182.4	2919.4
Rani	70.0	1120.0	1.98	138.6	2217.6
Baggi	80.6	1290.6	3.70	298.4	4775.4
Sel.6	39.3	629.3	2.90	114.0	1825.0
Chandhini	176.0	2816.0	1.00	176.0	2816.0
Acc116	78.3	1253.3	0.66	51.7	827.2
Pusa					
Centenary	57.6	922.6	7.53	434.2	6947.6
Pusa Anmol	36.3	581.3	1.28	46.5	744.1
Neon	75.0	1200.0	0.74	55.5	888.0
Cindrella	51.6	826.6	2.12	109.5	1752.5
Rennila	50.0	800.0	1.97	98.5	1576.0
Vasanthika	114.3	1829.3	0.84	96.0	1536.6
Cal Pink	65.0	1040.0	0.56	36.4	582.4
Calimero red	84.0	1344.0	0.67	56.2	900.4
Calimero		10150	0.64		
Sunny	82.3	1317.3	0.61	50.2	803.5
Calimero pink	81.6	1306.6	0.69	56.3	901.6
Dedage Red	39.0	034.0	1.48	58.7	939.3
Tormata	40.0 52.0	/30.0	1.32	09.9	1110.7
Tomata	61.2	081.2	1.74	90.4	1447.0
Bunch	47.0	752.0	1.82	68.6	1/80.0
Saradmala	47.0	640.0	1.40	180.8	2802.8
SwethaSingar	205.3	3285.3	2.13	130.8	6997.7
Sadbhayana	33.3	533.3	0.85	28.3	453.3
Pinkstar	56.0	896.0	0.82	45.9	734.7
Puniah	50.0	070.0	0.02	45.7	134.1
Anuradha	61.6	986.6	1.84	113.4	1815.4
Dundi	57.0	912.0	5.78	329.4	5271.3
Winter Oueen	43.3	692.8	0.93	40.2	644.3
Megami	32.0	512.0	4.50	144.0	2304.0
Garden					
Beauty	36.6	586.6	2.03	74.4	1190.9
Statesman	30.6	490.6	5.01	153.6	2458.2
Autumn Joy	138.3	2213.3	2.58	356.9	5710.4
Redstone	89.3	1429.3	2.74	244.7	3916.3
Aparajitha	218.0	3488.0	3.27	712.8	11405.7
Jublee	32.6	522.6	2.37	77.4	1238.7
Flirt	63.0	1008.0	2.28	143.6	2298.2
Teri	97.3	1557.3	2.87	279.3	4469.5
Lalpark	178.6	2858.6	0.57	101.8	1629.4
Dolly Orange	87.3	1397.3	1.17	102.1	1634.8
Little Pink	210.0	3360.0	3.21	674.1	10785.6
Lalit	95.6	1530.6	4.85	463.9	7423.7
Yellow charm	210.0	3360.0	0.92	193.4	3091.4
Mother Teresa	46.3	741.3	0.43	19.9	318.7
Jaya	128.0	2048.0	1.70	217.6	3481.6
Lilyput	33.6	538.6	0.83	27.9	447.0
Swapna	37.3	597.3	1.93	72.0	1152.8

Bc- 47-101	70.3	1125.3	2.01	141.3	2261.9	
CD (P=0.05)	8.24	131.96	0.33	45.94	734.81	

 Table 3: Yield parameters of chrysanthemum genotypes

Based on the *per se* performance, Indira and Chandhini were identified to be superior in respect of yield and duration, which are suitable for loose flower production. The promising genotypes suitable for cut flower production are Pusa Centenary, Ravikiran and Lalith. The genotypes which are suitable for garden display as pot mums are Meera White, Red Stone, Acc.116, Dolly Orange, Lalpark and Little Pink with respect to their plant height, flower size, flower colour and profuse flowering.

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