Indian J. Hort. 69(1), March 2012: 98-100

Performance of gerbera varieties for flowering, yield and quality parameters under shade net

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ABSTRACT

The present investigation was carried out to assess the performance of some gerbera varieties for flowering, yield and quality attributes under shade net. The experiment was conducted at Satpuda Botanical Garden, College of Agriculture, Nagpur. The data revealed that amongst thirteen gerbera varieties under study, Charmander recorded significantly more life span of flowers on plant. Savannah had significantly more number of flowers per plant and required minimum days for development of flowers. Maximum flower diameter was recorded in variety Sangria. Vino had more vase-life of harvested flowers. Varieties Dalma and Goldflor required significantly less period for first flower bud initiation. Overall performance of Savannah, Sangria, Vino, Charmander, Dalma and Goldflor varieties was found promising.

Key words: Gerbera, performance quality, shade net, yield.

INTRODUCTION

Gerbera is an important commercial cut flower grown throughout the world in a wide range of climatic conditions. Gerbera stands sixth in the international market and second in the domestic market. *Gerbera jamesonii,* commonly known as Transvarsal daisy, African or Barbertan daisy. The genus *Gerbera* was named in honour of the German naturalist Traugott Gerber and the species *Jamesonii* is honour of captain Jameson (Das and Singh, 10).

Gerbera is grown in the open field as well as in the polyhouse though comparatively, hardy crop, giving high returns. At present the area in respect of gerbera under protected cultivation is around 80 ha. It is an ideal cut flower for beds, borders, pot and rock gardens. The flowers are of attractive colour and are used in floral arrangements. The quality of produce under open field condition particularly in high value crops like gerbera are not suitable for international as well as standard domestic markets. Sometimes there is no guarante of consistent production from open cultivation as the crop is exposed to number of natural environment factors, which change frequently. The need of the hour is to increase the productivity and quality of produce to meet the demand of quality conscious consumers. A breakthrough in production technology that integrates market driven quality parameters with the production system, besides ensuring a vertical growth in productivity is required.

The scientific information and location specific package of practices of improved production technology of various gerbera cultivars in Vidarbha region are meagre. Hence, the present investigation have been planned to assess the performance of gerbera varieties for flowering, yield and quality parameters under shade net in pot culture with a view to identify the suitable varieties for Nagpur region.

MATERIALS AND METHODS

The present experiment was carried out at Satpuda Botanical Garden, College of Agriculture, Nagpur for two years. In this experiment, 50 per cent shade net was used. The height of the shade net was minimum 3.5 to 4 m (11 to 13 feet) for proper air circulation. Sufficient ventilation was given on top sides. The ideal temperature for gerbera flower initiation under shade net was 23°C and for leaf unfolding is 25-27°C and the optimum humidity inside the shade house was 80.85 per cent.

Earthen pots of 30 cm height and 28.5 cm in diameter were used for planting gerbera plug plants. The pot mixture consisted of 2 part FYM + 1 part sand + 1 part soil. A well drained, porous, rich, light neutral or slightly acidic soil of 1 m depth were taken. The pH of soil mixture was 6.5. The experiment was laid out in completely randomised design with is treatments consisting of different varieties and three replications. Among treatments tissue culture plug plants of Charmander, Dalma, Diablo, Francella, Goldengate, Goldflor, Magnum, Ornella, Rosalin, Sangria, Savannah, Sunanda and Vino were potted on the 13th September each year. Before planting, the empty pots were dipped in carbendazim solution @ 2 g/lit of water. After planting, watering was done

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twice daily in the morning and evening @ 150 ml of water per plant.

The seedlings were purchased from M/s KF Bio Plants Pvt Ltd. Gentech, Pune. Each pot was single planted and each replication consisted of five plants. Immediately after planting all plants were light rrigated with overhead microsprinklers upto a week to enable uniform root development. Thereafter, gradually changed to drip irrigation in hot summer foggers were utilized to maintain the humidity level between 82-85%. After plantation N:P:K were applied through 20:20:20 complex fertilizer @ 1.5 g/l of water at two days interval for the first three months to enable faster and better foliage during vegetative phase. At the time of flowering commences N:P:K mixture containing 15:8:35 @ 1.5 g/l of promote plant growth and better flower yield. water were given to have better yield. In addition to fertilizers, micronutrients were given as and when the deficiency symptoms were observed. The observations on days required for initiation of first flower bud, days required for development of flower, shelf life of flowers on plant, diameter of flower (cm), stalk length (cm), stalk width (cm), number of flowers per plant and vase-life at room temperature were recorded.

RESULTS AND DISCUSSION

The data in respect of days required for first flower bud initiation, optimum time required for first flower bud initiation were recorded in varieties Dalma (41.60 days), Goldflor (41.73 days), Charmander (42.60 days), Glodengate (42.60 days), Vino (44.06 days), Savannah (44.70 days) and Diablo (44.80 days), Magnum (77.13 days), Rosalin (77.43 days) and Sagria (77.80 days). Whereas, varieties Sunanda (94.06 days) and Francella (94.60 days) required longer period for first flower bud initiation. Similar results were observed by Sane and Gawda (9).

It is revealed from the data regarding days to development of flower, variety Savannah (16.70 days), Diablo (16.83 days), Vino (16.86 days) and Magnum (16.96 days) required significantly short period for development of flower, whereas Goldengate (20.46 days), Ornella (21.70 days), Dalma (21.83 days) and Goldflor (22.16 days) required longer period for development of flower. Sunanda (17 days), Francella (17.06 days), Sangria (17.20 days), Rosalin (18.16 days) and Charmander (18.76 days) required optimum period for development of flower. This might be due to individual varietal characters. The results were supported by the findings of Deepak Kumar and Ramesh Kumar (2), Sane and Narayana Gowda (9) in gerbera varieties.

Maximum life span of flowers on plant was recorded in Charmander (16.60 days) followed by flower in Savannah which were at par with each other and significantly superior over other varieties, *viz.*, Ornella (15.23 days), Rosalin (15.06 days), Sangria (14.43 days), Dalma (14.14 days), Francella (14.02 days), Next in order were Diablo (13.31 days), Vino (13.17 days) and Goldflor (13.07 days), Goldengate (12.43 days), Magnum (12.19 days) and Sunanda (12 days). The increase in life span of flowers on plant might be due to individual genetic make up of the plant and favourable condition. The similar results were obtained by Barreto (1) in gerbera varieties.

Table 1. Performance of gerbera varieties for flowering, yield and quality parameters under shade net.

Variety	Days to initiation of first flower bud	Days to development of flower	Life span of flower on plant (days)	Diameter of flowers (cm)	Stalk length (cm)	Stalk width (cm)	No. of flowers per plant	Vase-life (days)
Charmandor	42.60	19.76	16.60	11.50	59.20	0.68	12.04	13.46
Dalma	41.60	21.83	14.14	12.00	57.30	0.67	11.70	11.40
Diablo	44.80	16.83	13.31	9.20	49.80	0.63	10.77	10.86
Francella	94.60	17.06	14.02	10.80	58.50	0.62	7.22	13.86
Goldengate	42.60	20.46	12.43	9.50	57.00	0.61	9.99	10.33
Goldflor	41.73	22.16	13.07	10.00	56.40	0.65	11.22	10.90
Magnum	77.13	16.96	12.19	10.20	55.00	0.59	7.02	12.16
Ornella	62.73	21.70	15.23	10.50	53.30	0.63	9.10	11.30
Rosalin	77.43	18.16	15.06	11.80	60.00	0.64	9.88	12.23
Sangria	77.80	17.20	14.43	12.50	62.70	0.63	9.00	10.26
Savannah	44.70	16.70	16.69	12.20	63.20	0.69	12.11	13.23
Sunanda	94.06	17.00	12.00	9.50	52.50	0.66	7.18	9.96
Vino	44.06	16.86	13.17	9.00	57.40	0.87	11.14	15.16
CD at 5%	0.85	0.68	0.27	0.40	0.49	14.00	0.46	0.56

It is evident from the data that maximum diameter of flower was recorded in variety Sangria (12.50 cm) and Savannah (12.20 cm) and both were significantly superior over the rest and but at par with each other. Whereas, narrower diameter of flowers was recorded in Goldengate (9.50 cm), Sunanda (9.50 cm), Diablo (9.20 cm) and Vino (9 cm). Highest diameter of flower was recorded in Dalma (12.0 cm), Rosalin (11.80 cm), Charmander (11.50 cm), Francella (10.80 cm), Ornella (10.50 cm), Magnum (10.20 cm) and Goldflor (10 cm). This might be due to proper development of foliage and healthy management of crop under shade net. The results were supported by the findings of Jawaharlal *et al.* (4) studied in gerbera varieties.

Savannah (63.20 cm) and Sangria (62.70 cm) recorded more stalk length. Both were significantly superior over other varieties and at par with each other. Stalk length was recorded in Ornella (53.30 cm), Sunanda (52.50 cm) and Diablo (49.80 cm). Medium stalk length was recorded in Rosalin (60.0 cm), Charmander (59.20 cm), Francella (58.60 cm), Dalma (57.50 cm), Vino (57.40 cm), Goldengate (57 cm), Goldflor (56.40 cm) and Magnum (55.0 cm). This might be due to proper vegetative development and healthy root development under favourable conditions. Earlier, Miske (7) obtained similar results in gerbera.

Significantly maximum stalk width was recorded in Savannah (0.69 cm) followed by Charmander (0.68 cm), Dalma (0.67 cm), Vino (0.67 cm), Sunanda (0.66 cm), Goldflor (0.65 cm) and Rosalin (0.64 cm). Next in order were Diablo (0.63 cm), Sangria (0.63 cm), Francella (0.62 cm), Goldengate (0.61 cm) and Magnum (0.59 cm). These results were supported by the findings of Jawaharlal *et al.* (4) in gerbera.

Significantly more number of flowers per plant recorded in Savannah (12.11 flowers) which was at par with Charmander (12.04 flowers) and Dalma (11.70 flowers). Less number of flowers per plant were recorded in Francella (7.22 flowers), Sunanda (7.18 flowers) and Magnum (7.02 flowers). Optimum number of flowers per plant were recorded in Goldflor (11.22 flowers), Vino (11.14 flowers), Diablo (10.77 flowers), Goldengate (9.99 flowers), Rosalin (9.88 flowers), Ornella (9.10 flowers) and Sangria (9 flowers). Sane and Gowda (9) recorded similar results in gerbera.Significantly maximum vase-life was recorded in Vino (15.16 days) followed by Francella (13.86 days), Charmander (13.46 days), Savannah (13.23 days), Rosalin (12.23 days) and Magnum (12.16 days). Next in order were Dalma (11.40 days), Ornella (11.30 days), Gold flor (10.90 days), Diablo (10.86 days), Goldengate (10.33 days), Sangria (10.26 day) and Sunanda (9.96 days). Different Gerbera varieties influenced vase-life of cut flowers. Similar results were supported by the Loesser (5) in gerbera. Performance of Charmander, Dalma, Francella, Goldflor, Rosalin, Sangria, Savannah and Vino varieties were found better in respect of flowering attributes, flower quality, flower yield and vase life compared to other varieties under shade net conditions.

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Received: February, 2010; Revised: November, 2011; Accepted : December, 2011