Evaluation of Gerbera Varieties for Growth and Flowering under Shadenet

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Abstract

The present investigation was carried out to evaluate different varieties of gerbera for growth and flowering under shade net at Satpuda Botanical Garden, College of Agriculture, Nagpur during September 2001 to March 2002. The data revealed that amongst all 13 varieties under study, Charmander had significantly more plant height and life span of flowers. Savannah had significantly more number of leaves per plant, leaf area, stalk length and width, number of flowers per plant and required minimum days for development of flowers. Maximum diameter of flower recorded in variety Sangria. Vino had more vase life of flowers. Dalma and Goldflor required significantly less period for first flower bud initiation. Overall performance of Savanna, Sangria, Vino, Charmander, Dalma and Goldflor varieties was found better.

Keywords

Gerbera; Varieties; Growth; Flowering; Shadenet

Background

Gerbera (Gerbera jamesonii) is an important commercial cut flower crop grown throughout the world in a wide range of climatic conditions. It is ideal for beds, borders, pots, and rock gardens. The flower come in a wide range of colours and lend themselves beautifully to different floral arrangements. The double cultivars sometimes have bi-colour flowers, which are very attractive. The flower stalk are long, thin and leafless. This flower commonly known as Transvarsal African or Barbertan Daisy. Gerbera stands sixth in the international market. Gerbera is grown in the open field as well as in the polyhouse though comparatively, hardy crop, giving high returns.

The genus Gerbera was named in honour of German naturalist Traugott Gerber and the species Jamesonii in honour of Captain Jameson (Das and Singh, 1989). Gerbera is propagated sexually by seeds and asexually by division of clumps and through cuttings.

The scientific information and location specific package of practices and improved production technology of various gerbera varieties in Vidarbha region are meager. Hence, the present investigation have been planned with the objective to evaluate the performance of gerbera varieties under shade net in respect of growth and flowering in pot culture to explore the possibilities of identifying suitable varieties for Vidarbha region of Maharashtra.

Results and Discussion

Maximum plant height was recorded in Charmander (45 cm) and Savannah (44.23 cm). Both were significantly superior over remaining varieties and at par with each other. Whereas, less plant height was recorded in Vino (33.23 cm), Magnum (32.50 cm) and Sunanda (30.76 cm). Intermediate plant height was recorded in Rosalin (43.26 cm), Dalma (42.36 cm), Goldengate (41.50 cm), Francella (40.35 cm), Sangria (40.23 cm), Diablo (38 cm), Goldflor (36.30 cm) and Ornella (35.43 cm). These results were conformity of the findings of Muthumanickam et al (1999) in gerbera varieties.

Maximum number of leaves was recorded in Savannah (31.20) and Charmander (30.20) which were significantly superior over remaining varieties and at par with each other. Less number of leaves was observed in Sunanda (24.30), Ornella (23.50), Magnum (22.26). Optimum number of leaves was recorded in Rosalin (29.56), Dalma (29.33), Sangria (28.63), Goldflor (28.46), Vino (27.60), Diablo (27.50), Goldengate (26.70). This might be due to varietal characters. Similar results were obtained by Sane and Gowada (2001) in gerbera varieties.

As per data recorded it is found that maximum leaf area was recorded in savannah (264.43 cm²) which
was significantly superior over other varieties Diablo (233.23 cm²), Goldflor (232.30 cm²), Rosalin (228.43 cm²), Charmander (217.43 cm²) and Sangria (215.46 cm²). Next in order were Magnum (201.50 cm²), Francella (182.53 cm²), Dalma (180.76 cm²), Sunanda (150.36 cm²), Goldengate (145.00 cm²) and Ornella (111.53 cm²). This might be due to better management of crop Maria Shaila Barreto (2000), recorded similar observations in leaf area of gerbera. It is revealed from the data that variety Dalma (41.60 days), Goldflor (41.73 days), Charmander (42.60 days), Goldengate (42.60 days), Vino (44.06 days), Savannah (44.70 days) and Diablo (44.80 days) required optimum period for first flower bud initiation. Sunanda (94.06 days) and Francella (94.60 days), required long period for first flower bud initiation. This might be due to the genetic make up of the varieties and environmental effects. Sane and Gowada (2001) also recorded similar findings in gerbera varieties.

Different varieties of gerbera exhibited significant influence on days required for development of flower. It is evident from the Table 1, that all the varieties exhibited variation in days required for development of flower. Savannah recorded (16.70 days) minimum number of days for development of flower followed by Diablo (16.83 days), Vino (16.80 days) and Magnum (16.96 days) which were 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 long period for development of flower, Sunanda (17 days), Francella (17.06 days), Sangria (18.76 days), required optimum period for development of flower.

It is clear from the data that variation in period required for development flower has greatly influenced by different varieties of Gerbera. These results might be due to individual varietal characters. Similar observations were recorded by Deepak Kumar and Ramesh Kumar (2000).

The observations recorded on average life span of flower on plant depicted that all the varieties exhibited variation in life span of flowers on plant. Maximum life span of flower on plant was recorded in Charbander (16.60 days) followed by Savannah (16.09 days) which was significantly superior over other varieties and at par amongst them. Variety Ornellas (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), Goldflor (13.07 days), Goldengate (12.43 days), Magnum (12.19 days) and Sunanda (12 days) Maria Shaila Barreto (2000) recorded similar observations in gerbera varieties.

**Summary**

As per the results obtained it was observed that the the growth parameters with respect to plant height, maximum plant height recorded by variety Charmander (45 cm) and Savannah (44.23 cm) were considered as the superior varieties. In respect of number of leaves, Savannah (31.2 leaves), Chamander (30.1 leaves) were considered better varieties. Savannah was considered superior variety as far as leaf area (264.43 cm²) is concerned. In respect of days required for first bud initiation, Dalma (41.6 days), Goldflor (41.73 days), Charmander (42.4 days), Goldengate (42.6 days), Vino (44.6 days), Savannah (44.7 days), Diablo (44.8 days) were considered as the early varieties. Savannah (16.7 days), Diablo (16.83 days), Vino (16.86 days), Magnum (16.96 days) were considered as superior varieties in respect of days required for the development of flower. Charmander (16.6 days), Savannah (16.09 days) were considered as the superior than other varieties in respect of life span of flowers on plant.

**Materials and Methods**

The present investigation was carried out under the shade net of Satpuda Botanical Garden, College of Agriculture, Nagpur during September 2001 to March 2002. 50 per cent shade net was used, Earthen pots of 30 cm height and 28.5 cm in diameter were used for planting gerbera seedlings. The pot mixture consisted of 2 part FTM + 1 part sand + 1 part soil. A well drained, porous, rich, light neutral or slightly acidic soil of 1 m depth was taken. The pH of soil mixture was 7.1. The experiment was laid out in a completely randomised design with 13 treatments consisting of different varieties and 3
replications. Tissue culture seedlings of Charmander, Dalma, Diablo, Francella, Goldengate, Goldflor, Magnum, Ornella, Rosalin, Sangria, Savannah, Sunanda and Vino were potted on the 13 Sept. 2001. Each pot contained only one plant. The seedlings were purchased from M/s Kumar Gentech, Pune. Each treatment in each replication consisted of 5 plants. After plantation N:P:K were applied through 20:20:20 complex fertilizer @ 1.5 g per lit of water at 2 days interval for the first three months during the vegetative phase to have better foliage. Once flowering commenced N:P:K 15:8:35 @ 1.5 g per lit. Of water were given to get better yield. The observations on plant height (cm), number of leaves, leaf area (cm$^2$), days required for initiation of first flower bud, days required for development of flower, life span of flower on plant, diameter of flower (cm), stalk length (cm), stalk width (cm), total number of flowers per plant and vase life in days were recorded.

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|                     | Plant height (cm) | Number of leaves per plant | Leaf area (cm²) | Days required for initiation of first flower bud | Days required for development of flower | Life span of flower on plant (days) |
|---------------------|-------------------|----------------------------|-----------------|-----------------------------------------------|----------------------------------------|-------------------------------------|
| Charmandor          | 45.00             | 30.20                      | 217.43          | 42.60                                         | 19.76                                  | 16.60                               |
| Dalma               | 42.36             | 29.33                      | 180.76          | 41.60                                         | 21.83                                  | 14.40                               |
| Diablo              | 38.00             | 27.50                      | 233.23          | 44.80                                         | 16.83                                  | 13.31                               |
| Francella           | 40.35             | 25.70                      | 182.53          | 94.60                                         | 17.06                                  | 14.02                               |
| Goldengate          | 41.50             | 26.36                      | 145.00          | 42.60                                         | 20.46                                  | 12.43                               |
| Goldflor            | 36.30             | 28.46                      | 232.30          | 41.73                                         | 22.16                                  | 13.07                               |
| Magnum              | 32.50             | 22.26                      | 201.50          | 77.13                                         | 16.96                                  | 12.19                               |
| Ornella             | 35.43             | 23.50                      | 111.53          | 62.73                                         | 21.70                                  | 15.23                               |
| Rosalin             | 43.26             | 29.56                      | 228.43          | 77.43                                         | 18.16                                  | 15.06                               |
| Sangria             | 40.23             | 28.63                      | 215.46          | 77.80                                         | 17.20                                  | 14.43                               |
| Savannah            | 44.23             | 31.20                      | 264.43          | 44.70                                         | 16.70                                  | 16.09                               |
| Sunanda             | 30.76             | 24.30                      | 150.36          | 94.06                                         | 17.00                                  | 12.00                               |
| Vino                | 33.23             | 27.60                      | 230.60          | 44.06                                         | 16.86                                  | 13.17                               |
| SE(m)±              | 0.15              | 0.14                       | 0.17            | 0.29                                          | 0.23                                   | 0.09                                |
| CD at 5%            | 0.44              | 0.42                       | 0.52            | 0.85                                          | 0.68                                   | 0.27                                |