



Asian Journal of Plant Sciences

ISSN 1682-3974

science
alert

ANSI*net*
an open access publisher
<http://ansinet.com>

Evaluation of Rose Cultivars as Cut Flower Production

Raheela Tabassum, Abdul Ghaffoor, Kashif Waseem and M. Amjad Nadeem
Department of Horticulture, Faculty of Agriculture, Gomal University,
Dera Ismail Khan, NWFP, Pakistan

Abstract: Maximum plant height (139.83 cm) and late sprouting was recorded in englique. Maximum number of flowers per plant (41.00) was observed in the rose variety, daydream. Alexendra and paradise had the maximum flower size (7.93 cm) maximum number of petals (59.20) in yankee doodle and longest life persistency (17.17 days) in golden times was recorded. The maximum vase life of 8.00 days was observed in variety freesia, whereas the maximum number of branches per plant (12.50) was noted in paradise. In conclusion, alexendra and paradise are recommended for out door beautification due to their large flower size and golden times is recommended for long flower persistency. For cut flower production freesia is recommended due to its vase life.

Key words: Rose, *Rosa indica*, varieties, vase life, persistency, flower

Introduction

Rose (*Rosa* spp.) is an ornamental plant of family Rosaceae and can be exploited for growing in beds, borders, growing up walls, growing over arches and screens. It may be used for planting in rockers, growing under glasses, planting as ground covers, growing in pots and for cut flower production. Roses are also grown for their multiple uses like production of petals, extraction of perfumes, extraction of Vitamin C from hips, for medicinal uses and for sale as cut flowers (Khan, 1978).

The cut flower is an important floricultural product and refers to a flowering stem ending in a single flower or bearing a number of small flowers radiating from the base. Among all other cut flowers, roses lead in popularity because of their beauty, variety, fragrance and long lasting blooming season. Gladiolus, roses, tuberose, carnation and chrysanthemum are the most important flowers on an international market as cut flowers (Lemper, 1976). Export of fresh flowers including rose flower is quite insignificant from Pakistan. In European countries during winter season snow and frost check the flower production and there is a dearth of fresh flowers in the market. Contrarily we are fortunate to have all types of climates in Pakistan and can produce the fresh flowers round the year and can export the commodity to the international market. There is a great potential for export of roses to Europe, United states, Middle East and other parts of the world. Pakistan has fetched \$ 0.72 millions from the export of rose flower during the year 1997-98 (Export Promotion Bureau Records).

Khattak *et al.* (1995) evaluated pink delight with the maximum flower vase life (8 days) and persistence with slight fragrance. While 91 petals per flower were counted in yankee doodle with slight fragrance. Mulla *et al.* (1995) recommended hokatu, and American heritage as cut flowers with maximum plant height. Number of flowers/plant was highest in cv. norita followed by devotion from the hybrid tea group. Kordes (1997) derived a rose cultivar kormiller which produces double flowers with a mean diameter of 88.5 mm. Flowering is remontant and petal color is light reddish-pink (RHS 35D on the inside and RHS 38C on the outside. Zarina *et al.* (2001) reported that love and double delight proved to be the best regarding early sprouting, early flowering, maximum number of branches/plant, maximum number of flowers/plant, maximum number of petals/plant, maximum flower size and late fading character. Raheela *et al.* (2001) also reported that alexendra and paradise are recommended for out door beautification due to their large flower size.

Therefore the present study was carried out to evaluate different rose cultivars for cut flower production under the agro-climatic conditions of D.I. Khan.

Materials and Methods

The research on the evaluation of rose cultivars as cut flower production was carried out at Rose Progeny Garden, Faculty of Agriculture, Gomal University, D.I. Khan, during the year 1999-

2000. The experiment was laid out in randomized complete block design (RCBD). The following varieties of rose were used during the study: alexendra, double delight, daydream, englique, freesia, golden times, paradise, regret berg, red sex and yankee doodle.

All the cultural practices such as fertilizers, irrigation weeding, hoeing etc were done uniformly for each treatment, farm yard manure was also used for the plant nutrition. The data on days taken to bud sprouting, days taken to flowering, number of branches per plant, number of flowers per plant, plant height (cm), flower size (cm), number of petals per flower, flower persistence and flower vase life of the different rose cultivars were recorded. The statistical analysis was performed by using ANOVA techniques (Steel and Torrie, 1984), while DMR test (Duncan, 1955) was adopted to detect the statistical different treatment means.

Results and Discussion

Days to sprouting: The data pertaining to the number of days to bud sprouting showed significant variations in different varieties of rose (Table 1). Maximum number of days to bud sprouting (46.17) was taken by englique, which was closely followed by daydream which took (45.67) days to sprout the buds. The minimum duration to bud sprouting (32.83 days) was taken by double delight. Paradise, alexendra and regret berg were at par by taking 37.33, 36.83 and 36.33 days to sprout their buds, respectively. The variation in days of sprouting can be attributed to varietal characteristics. This is in contrary with the results of Khattak (1991), might be due to the age of the plant and temperature.

Days to flowering: All the cultivars produced flowers within the range of 41.83 to 54.67 days (Table 1). The most flowers producing varieties were daydream and englique, both took 54.67 days to flowering, followed by yankee doodle taking 53.17 days. Statistically, all these three cultivars were at par to each other. The shortest time (41.83 days) to flowering was taken by red sex. Almost similar results have been reported by Khattak *et al.* (1995). They might have responded differently to various environmental conditions and age of the tree.

Number of branches per plant: Paradise possessed the maximum number of branches/plant (12.50), followed by englique and red sex with 10.67 and 9.17 number of branches (Table 1). Golden times, alexendra, yankee doodle and daydream were statistically at par with 7.73, 7.50, 7.17 and 7.00 number of branches per plant. Freesia produced the minimum number of branches/plant (4.17). Zarina *et al.* (2001) also reported that Paradise is one of the maximum branches producing variety of rose. Khattak (1991) reported that different rose cultivars produced 3.33 to 7.33 branches per plant, which is contrary to the present findings. This might be due to the age of the plants and the prevailing temperature.

Tabassum *et al.*: Rose as cut flower

Table 1: Data regarding growth parameters of different rose cultivars for cut flower production

Cultivars	Days to sprouting	Days to flowering	Branch/plant	Flower/plant	Plant height (cm)	Flower size (cm)	Petals/flower	Flower persistence	Flower vase life
Alexendra	36.83de	47.83b	7.50d	10.83e	107.67d	7.93a	33.80b	10.58e	7.00ab
Double-delight	32.83g	44.33d	5.17f	5.33f	87.17f	7.90a	24.57fg	12.17d	6.00bcd
Day-dream	45.67a	54.67a	7.00e	41.00a	95.50e	5.47b	33.47b	14.83b	6.33bc
Englique	46.17a	54.67a	10.67b	18.17bc	139.83a	6.60c	30.63c	10.67e	6.83ab
Freesia	39.67c	45.33cd	4.17f	11.33de	91.83ef	7.30b	24.07g	13.75c	8.00a
Golden times	34.67f	44.67d	7.73de	20.67b	119.00c	7.37b	29.23cd	17.17a	7.16ab
Paradise	37.33d	47.67b	12.50a	16.83c	112.17cd	7.93a	26.83ef	11.38d	5.50cd
Regret berg	36.33de	46.67bc	6.50e	19.50b	127.17b	5.17e	18.97h	5.67g	5.00d
Red sex	35.33ef	41.83e	9.17c	13.83d	132.67ab	7.20b	27.20de	8.08f	7.00ab
Yankee-doodle	43.83b	53.17a	7.17de	18.67bc	106.33d	6.83c	59.20a	15.25b	7.16ab
LSD (0.01) value	1.61	1.43	1.26	2.57	7.32	0.25	2.64	0.63	1.20

Means with different letters differ significantly at $P < 0.01$

Number of flowers per plant: Highly significant difference regarding the number of flowers per plant (Table 1) revealed that daydream produced maximum number (41.00) of flower per plant, followed by golden times and regret berg with 20.67 and 19.50 flowers per plant. Double delight yielded the minimum number of flower (5.33) per plant. Khattak (1991) also reported that the highest number of flowers per plant in the rose variety daydream. Theoretically, taller plants should have more number of flowers by the virtue of more nodes. However, plant height is not only the factor that influences the number of flowers. Number of flowers in roses could be combined the effect of plant height and climatic conditions of the area.

Plant height (cm): The analysis of the data depicted that maximum plant height (139.83 cm) was observed in englique, closely followed by red sex with 132.67 cm plant height (Table 1). Statistically, both these cultivars were at par with each other. Minimum plant height was observed as 87.17 cm from double delight, followed by 91.83 cm plant height from freesia. Statistically, paradise, alexendra and yankee doodle were at par to each other with their plant heights as 112.17, 107.67 and 106.33 cm, respectively. Zarina *et al.* (2001) also observed that englique was the most tallest variety with a height of 139.4 cm.

Flower size (cm): Flower size is a very important factor determining the cut flower value of roses. Maximum flower size of 7.93 cm was recorded in cultivars Alexandra and paradise, closely followed by double delight with 7.90 cm (Table 1). All these cultivars were statistically at par with each other. Statistically no differences were observed in golden times, freesia and red sex obtaining the flower sizes of 7.37, 7.30 and 7.20 cm, respectively. Minimum flower size of 5.17 cm was observed in cultivar regret berg. Raheela *et al.* (2001) also reported that alexendra and paradise were the varieties with the largest flowers.

Number of petals per flower: The highly significant data related to the number of petals per flower showed that maximum of 59.20 petals were recorded in yankee doodle (Table 1). Alexendra and daydream produced 33.80 and 33.47 petals per flower and were statistically the same. The minimum of 18.97 petals was noted in regret berg, followed by freesia and double delight with 24.07 and 24.57 petals per flower. These results don't coincide with the findings of Zarina *et al.* (2001) in which they stated that double delight produced the maximum number of (36.29) petals per plant.

Days to flower persistence: The data pertaining days to flower persistence life revealed that golden times took maximum days to

senescence (17.17), followed by yankee doodle and daydream with 15.25 and 14.83 days, respectively and were at par with each other (Table 1). Freesia, double delight and paradise possessed the persistence life of 13.75, 12.17 and 11.83 days respectively. While regret berg was observed as the most senescent (5.33) cultivar, among the rest of the cultivars. The difference in persistence life may be due varietal characteristics.

Flower vase life: Maximum vase life of 8.00 days was noted in freesia (Table 1). Yankee doodle, golden times, red sex, alexendra and englique took 7.16, 7.16, 7.00, 7.00 and 6.83 days respectively and were statistically at par with each other. The minimum vase life of 5.00 days was recorded in regret berg. Zarina *et al.* (2001) also reported that freesia had the longest vase life as compared to the other rose varieties.

References

Duncan, D.B., 1955. Multiple Range and Multiple F-Test Biometrics. 11: 1-42.

Khan, M.A., 1978. Some problems in hybridization and propagation of cultivars of Rosa. Ph. D Disseratation. School of Plant Biology, Uni. Wales, U.K.

Khattak, A.M., M. Munir and J.U.D. Baloch, 1995. Environmental response of some exotic rose cultivars to D.I. Khan conditions. Pak. J. Bot., 27: 399-403.

Khattak, A.S., 1991. Varietal trail on different exotic rose cultivars under the agro-climatic conditions of Dera Ismail Khan. M.Sc Thesis. Deptt. Horticulture, Faculty of Agriculture, Gomal University, Dera Ismail Khan, NWFP, Pakistan.

Kordes, W., 1997. Variety 'Kormiller' syn Dream. Pl. Varieties J., 10: 38.

Lemper, J., 1976. Marketing of flowers. Devtscher Gartenbau, 63: 890-897.

Mulla, A. L., M.T. Patil and B.R. Singh, 1995. Growth and flowering performance of rose cultivars. J. Mashrashtra Agriculture University, 20: 227-229.

Raheela, T., A. Ghaffoor, K. Waseem and M.A. Nadeem, 2001. Evaluation of rose cultivars as cut flower production. M.Sc. (Hons) Thesis. Department of Horticulture, Faculty of Agriculture, Gomal University, Dera Ismail Khan, NWFP, Pakistan.

Steel, R.G.D. and J.H. Torrie, 1984. Principles and Procedure of Statistics. McGraw Hill Book Co. Inc. New York, pp: 232-249.

Zarina, G., A. Ghaffoor, K. Waseem and M.A. Nadeem, 2001. Evaluation of six exotic rose cultivars by three different pruning intensities. Sarhad J. Agric., 17: 91-96.