THE INFLUENCE OF THE HARVESTING TIME ON THE SHELF LIFE OF ROSE FLOWERS

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Abstract
In addition to the characteristic features of the species and variety that give the flowers a certain shelf life, the quality of rose flowers and their shelf life are influenced by a series of factors, such as the growing medium and the conditions they have in the ornamental process in the buyers' apartments (Vlad I.,2011).
Taking into account all the factors, Halley (2015) shows that more than half of the rose's vase life is influenced by growing conditions, while the rest depends on the post-harvest conditions.
Thus, the pedological factors act simultaneously with the climatic ones, and together with the technology used on the plants and on vase life it creates possibilities for directing their action (Khash Khui,2016).

Key Words: rose flowers, pedological factors, climatic factors, rose cultivation technology.

INTRODUCTION

During their entire life duration on the mother plant, rose flowers are affected by numerous exterior influences that result in a certain physiological state at harvesting time (Selaru, 1988).

The main pedological factors that influence the quality and shelf life of rose flowers are the physical and chemical properties of the soil (Zaharia, 2005).

Thus, a good, well-ventilated soil, well supplied with water and nutrients, ensures optimal conditions for obtaining the best quality flowers.

Among mineral elements, nitrogen has a particular role in vegetative growth and chlorophyll content. Excess nitrogen has a negative influence on the quality and shelf life of the flowers (Nicholas, 2011).

MATERIAL AND METHOD

The experiments were carried out in 2016-2017 in Sîntandrei, Bihor County, using red roses of the Baccara variety, with a pleasant fragrance. The floral stem is straight, rigid, without many thorns and a length of 60-100 cm. The bud is elongated and contains 45-50 petals.

The experiments had the following variants:

V1 – flowers cut in the morning

V2 – flowers cut at noon

V2 – flowers cut in the afternoon

After cutting, the flowers were put in vases in rooms with a temperature of 18-28^{0}C.

RESULTS

The data in Table 1 shows that the vase life duration of rose flowers cut the same day, but at different times, was 8 days in variant 3, in which the flowers were cut in the afternoon (between 17 and 18), of 6 days in variant 2, in which the flowers were cut at noon (between 12 and 13) and of 5 days in variant 1, in which the flowers were cut in the morning (between 7 and 8).

Table 1

Vase life duration of rose flowers at room temperature
according to the time of the day they were cut

Variants	Vase life duration		±D	Difference significance
	Absolute (days)	Relative (%)		
V1 – flowers cut in the morning (7-8)	5	-	-	-
V2 – flowers cut at noon (12-13)	6	120	1	*
V3 – flowers cut in the afternoon (17-18)	8	160	3	***

DL 5% - 0.99   DL 1% - 1.68 DL 0.1% - 2.86

Relatively speaking, the rose flowers cut in the afternoon have a 60% higher shelf life, and those cut at noon 40% higher than those cut in the morning, as is currently the case in practice.

The analysis of the variant shows a very significant difference between variant 3, rose flowers cut in the afternoon, and variant 1, rose flowers cut in the morning, and a significant difference between variant 2, flowers cut at noon, and variant 1, control sample.

The explanation for the difference between the three variants is that in the afternoon the flowers contain a higher percentage of carbohydrates, accumulated during the day's photosynthesis process. In the morning, the percentage of carbohydrates in the flowers is lower, because some of the

carbohydrates accumulated during the previous day are consumed during the night through breathing.

The flowers are cut using very sharp scissors. The flowers should be cut with the length of the stem as long as possible, leaving an appropriate number of leaves on the plant, i.e. 2-3 pairs of leaves with normally developed leaflets, ensuring the growth of new floral stems.

CONCLUSIONS

1. Obtaining good quality rose flowers with the longest shelf life starts from seedling preparation, the growth substrate, and the manner in which environmental factors and growth technology are used.
2. Done at the optimal time and in good conditions, the work done on the plant (cuts, phytosanitary treatments, aerating the soil, irrigation and fertilisation) contributes to obtaining good quality flowers with long vase life for the buyers.
3. Only well developed, healthy plants that were well cared for, watered and fertilised properly according to the requirements in different growth and development stages, can yield good quality flowers with resistant tissues necessary to keep them in vertical position during vase life.
4. Roses that have thin stems with poorly developed support tissues are a sign of inferior quality flowers due to inadequate management of vegetation factors and growth technology and will not keep during vase life.
5. In roses, the bent peduncle phenomenon is often encountered after cutting due to its low lignin content. It is possible to improve the lignin content of the peduncle and thus its resistance to bending by spraying the plants weekly with a solution of 1% naphthoquinone.
6. Closely related to light, temperature is a determining factor in the quality of rose flowers and their shelf life.
7. Large temperature variations between day and night lead to flower deformation.
8. Rose flowers obtained during long daylight periods are of better quality than those obtained during short daylight periods.
9. The vigour of the floral stem is influenced by the nutrition regime, along with temperature and light. Thus, high nitrogen doses (over 200 kg of active substance per hectare without potassium) or high doses of potassium (over 150 kg of active substance per hectare) reduce the vigour of the stem. By using moderate potassium doses, associated with low but frequent doses of nitrogen, we can ensure a vigorous stem and a bigger flower.

10. In order to improve the quality of the flowers, it is necessary to optimise fertiliser doses by using the fertilizer irrigation system on a large scale, which allows rigorous control of the level of chemical elements in the soil and the balance between them.

11. The water in the soil is particularly important throughout the flower growth process. The way the flowers are supplied with water at the time of cutting affects their properties and vase life.

12. Rose flowers cut in the afternoon have a longer vase life because they contain a higher percentage of carbohydrates, accumulated during the photosynthesis process that takes place during the day.

13. In the morning, the percentage of carbohydrates in the flowers is lower because some of the carbohydrates accumulated during the previous day are consumed during the night through breathing.

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