

# Bioecological and aesthetics behaviour of some rose varieties from thea group at different cutting types

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**Abstract** Roses are incredibly diverse. It is not only about the number of cultivars (well above 25,000), but also about all possible features: colour, size, shape, growth rate, and leaf aspect. Due to these varied aspects, the system of rose classification is a very varied one: even so, some cultivars cannot be included in either category (Eckart Haenchen, M.A.S.T. 2005). As far as the flowers are concerned, some cultivars are characterised by a large number of petals, some others have fewer petals, and some have an unpleasant look because of their morphology. The most cultivated roses are scented ones and their production has turned into a real business (William Grant, 2006).

## Key words

rose, cultivar, cut, morphology, observations

It seems that the rose appeared over 35 million years ago. Indian scientist V. V. Pal discovered some petrified rose samples from a period when man did not even exist (*Stelian Popescu*). It also seems that the first forms had few petals and pink in colour (*Şt. Wagner*).

The first garden roses were grown in China, where the culture of flower arrangements dates from circa 2700 BC. It is most probable that the genetic centre of roses was in Asia Minor and Central Asia, from where they spread all over the world (*Ehart Haenchen*).

Literature shows that, besides endemic species such as *Rosa canina*, garden roses have reached Romania during the first wars with the Turks. At the beginning of the 19<sup>th</sup> century, Transylvania sees the first rose nurseries; at mid-19<sup>th</sup> century, rose nurseries spread in main cities such as Timișoara, Cluj, Arad, Oradea, and Satu Mare (*Şt. Wagner*).

The genus name of the rose, Latin *rosa*, roots in the Greek *rhodon* 'red'. Though the Greek name has survived in many modern European languages, it has disappeared from Modern Greek, where we can only find *triandaphilos* '100 sheets' (Maria Băla, 2007).

The flower has the widest range of colours – from white to purple, with numerous shades. The petals can be monocolour or bicolor (usually, the inner side of the petals has a different colour from the outer side), multicolour (colours are mixed and it is impossible to determine a dominant colour) or even bicolor (yellow bordered with pink, white spotted with pink, cream with red-orange, etc.). The last years, the interest in blue roses has increased constantly (*Şt. Wagner*, 2002).

Roses have multiple uses due to the more than 131 spontaneous cultivars and more than 25,000 cultivars. The main form is used to decorate green areas of different size and type due to the huge diversity of habitus, manners and times of blooming,

petal and leaf colours; they can also be used in the food industry, in the cosmetics industry and in the pharmaceutical industry as well as in improving the environment (*Şt. Wagner*).

## Material and Method

In order to carry out our research, we studied 10 rose cultivars of different colours: Barkarole, Ambassador, Golden Elegance, Acapella, Pascali, Mainzner Fastnacht, Madona, Doamna în mov, Imperatrice Farah, and Double Delight. We analysed the impact of cut type on morphological features. The study was carried out for a period of two years (2011 and 2012) in the open air in the climate conditions of the Municipality of Timișoara. We measured and analysed the height and diameter of the floral bud. Roses were planted 0.5 m one from another and at a row distance of 0.7 m. In spring, at the end of March – at the beginning of April, we cut the roses above 2 leaf buds, 5 leaf buds, and 7 leaf buds. During vegetation, we made current maintenance works: soil aerating, shoot cutting, treatment applying, watering, wilted flower removing, weed controlling, etc.

Observations were made in 15 plants of each rose cultivar and data were calculated and statistically interpreted through the variance method.

## Results and Discussions

Research concerning the impact of cut above 2 leaf buds on floral bud height show very significantly positive differences in the rose cultivars Barkarole, Pascali, Acapella, Mainzner Fastnacht and Double Delight compared to the control (the control represented the average of the trial). In the rose cultivars Ambassador, Doamna în mov and Imperatrice Farah, there were very significantly negative

differences compared to the control. In the rose cultivars Golden Delight and Madona, the differences

were distinctly significantly negative compared to the control.

Table 1

Impact of cut type on floral bud height (above 2 leaf buds) (mm)

Nr.crt.	Cultivar	Cutting types at 2 buds						
		R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	average	%	difference	significance
1	Barkarole	48	48	47	47.66	128.65	10.61	***
2	Pascali	42	41,5	42	41.83	112.91	4.78	***
3	Acapella	45	47	48	46.66	125.95	9.61	***
4	Golden elegance	31	34	33	32.66	88.16	-4.38	00
5	Ambasador	31	30	29	30	80.97	-7.05	000
6	Maizner Fastnacht	47	49	46	47.33	127.75	10.28	***
7	Madona	32	35	34	33.66	90.86	-3.38	00
8	Doamna in mov	24	23	24	23.66	63.87	-13.38	000
9	Imperatrice Farah	22	24	25	23.66	63.87	-13.38	000
10	Double Delight	46	43	41	43.33	116.95	6.28	***
11	The control	36.8	37.45	36.9	37.05	mt	mt	
DL5% 2.45		DL1% 3.36		DL0.1% 4.57				

Table 2

Impact of cut type on floral bud height (above 5 leaf buds) (mm)

Nr.crt.	cultivar	Cutting types at 5 buds						
		R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	average	%	difference	significance
1	Barkarole	45	46	46	45.66	135.50	11.96	***
2	Pascali	38	36	37	37	109.79	3.3	*
3	Acapella	44	39	41	41.33	122.65	7.63	***
4	Golden elegance	28	30	32	30	89.02	-3.7	00
5	Ambasador	29	28	26	27.66	82.09	-6.03	000
6	Maizner Fastnacht	45	47	44	45.33	134.52	11.63	***
7	Madona	31	30	32	31	91.98	-2.7	0
8	Doamna in mov	22	23	21	22	65.28	-11.7	000
9	Imperatrice Farah	23	21	21	21.66	64.29	-12.03	000
10	Double delight	37	35	34	35.33	104.84	1.63	-
11	The control	34.2	33.5	33.4	33.7	mt	mt	
DL5% 2.54		DL1% 3.49		DL0.1% 4.75				

As for the impact of cut above 5 leaf buds on the 10 rose cultivars, there were the following significant differences compared to the cultivar average: in the rose cultivars Barkarole, Acapella and Mainzner Fastnacht, the differences were very significantly positive; in the rose cultivar Pascali, the differences were significantly positive; the rose cultivars Ambasador, Doamna în mov and Imperatrice Farah had very significantly negative differences; the rose cultivar Golden Elegance had significantly distinct negative differences, and the rose cultivar Madona had significantly negative differences. Only the rose cultivar Double Delight had no significant differences.

According to data concerning the impact of cut type above 7 leaf buds on floral bud height, we could see the following: in the rose cultivars Barkarole, Acapella and Mainzner Fastnacht, the differences were very significantly positive, and in the rose cultivar Pascali the difference was distinctly significantly positive. The rose cultivars Ambasador, Imperatrice Farah and Doamna în mov recorded very significantly negative differences, and in the rose cultivars Golden Elegance, Madona and Double Delight there was no significant difference.

Table 3

Impact of cut type on floral bud height (above 7 leaf buds) (mm)											
Nr.crt.	Cultivar	Cutting types at 7 buds									
		R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	average	%	difference	significance			
1	Barkarole	38	39	39	38.66	126.22	8.03	***			
2	Pascali	34	36	32	34	110.99	3.36	**			
3	Acapella	39	37	36	37.33	121.87	6.7	***			
4	Golden elegance	30	28	29	29	94.66	-1.63	-			
5	Ambasador	26	26	27	26.33	85.96	-4.3	000			
6	Maizner Fastnacht	39	36	38	37.66	122.95	7.03	***			
7	Madona	28	29	29	28.66	93.57	-1.96	-			
8	Doamna in mov	20	22	21	21	68.55	-9.63	000			
9	Imperatrice Farah	23	20	20	21	68.55	-9.63	000			
10	Double delight	33	33	32	32.66	106.63	2.03	-			
11	The control	31	30.6	30.3	30.63	mt	mt				
DL5%		2.11		DL1%		2.89		DL0.1%		3.93	

Table 4

Impact of cut type on floral bud diameter (above 2 leaf buds) (mm)											
Nr.crt.	Cultivar	Cutting types at 2 buds									
		R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	average	%	difference	significance			
1	Barkarole	34	35	32	33.66	128.38	7.44	***			
2	Pascali	27	28	26	27	102.96	0.77	-			
3	Acapela	29	28	28	28.33	108.04	2.11	**			
4	Golden elegance	33	32	34	33	125.84	6.77	***			
5	Ambasador	21	20	21	20.66	78.81	-5.55	000			
6	Maizner Fastnacht	32	33	32	32.33	123.29	6.11	***			
7	Madona	20,5	21	21,2	20.9	79.70	-5.32	000			
8	Doamna in mov	18	18,5	17,5	18	68.64	-8.22	000			
9	Imperatrice Farah	23	22	21,5	22.16	84.53	-4.05	000			
10	Double delight	26	27	25,5	26.16	99.78	-0.05	-			
11	The control	26.35	26.45	25.87	26.22	mt	mt				
DL5%		1.37		DL1%		1.88		DL0.1%		2.57	

Analysing data concerning the impact of cut type above 2 leaf buds on floral bud diameter show the following differences to the control: very significantly positive differences in the rose cultivars Barkarole, Golden elegance and Mainzner Fastnacht, and distinctly significantly positive differences in the rose cultivar Acapella. In the rose cultivars Ambasador, Madona, Doamna în mov and Imperatrice Farah, the differences were very significantly negative. In the rose cultivars Pascali and Double Delight there was no significant difference.

Analysing the data presented in Table 5 concerning the impact of the cut above the 5 leaf bud on the floral bud diameter, we could see very significantly positive differences in the rose cultivars Barkarole, Golden Elegance and Mainzner Fastnacht compared to the control (the control represented the average of the trial). In the rose cultivars Ambasador, Madona, Doamna în mov and Imperatrice Farah, there were very significantly negative differences compared to the control. The rose cultivars Pascali, Acapella and Double Delight had no significant difference compared to the control.

Table 5

Nr.crt.	Cultivar	Cutting types at 5 buds						
		R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	average	%	difference	signifiante
1	Barkarole	29	28	29	28.66	122.55	5.27	***
2	Pascali	25	24	22	23.66	101.18	0.27	-
3	Acapella	24	23	23,7	23.56	100.75	0.17	-
4	Golden elegance	27	26	28	27	115.43	3.61	***
5	Ambasador	21	20	19	20	85.50	-3.39	000
6	Maizner Fastnacht	31	30	30,5	30.5	130.39	7.11	***
7	Madona	20	19,5	19,5	19.66	84.08	-3.72	000
8	Doamna in mov	18	17	16,5	17.16	73.39	-6.22	000
9	Imperatrice Farah	21	20	19	20	85.50	-3.39	000
10	Double delight	25	24	22	23.66	101.18	0.27	-
11	The control	24.1	23.15	22.92	23.39	mt	mt	
DL5% 1.25		DL1% 1.72		DL0.1% 2.34				

Table 6

Nr.crt.	Cultivar	Cutting types at 7 buds						
		R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	average	%	difference	signifiante
1	Barkarole	26	26.5	25	25.83	123.01	4.83	***
2	Pascali	21	23	22	22	104.76	1	-
3	Acapella	22	23	21.5	22.16	105.55	1.16	-
4	Golden elegance	21	20	22	21	100	0	-
5	Ambasador	18	19	18	18.33	87.30	-2.66	00
6	Maizner Fastnacht	25	28	27	26.66	126.98	5.66	***
7	Madona	18	19	18.6	18.53	88.25	-2.46	00
8	Doamna in mov	16.5	16	15.9	16.13	76.82	-4.86	000
9	Imperatrice Farah	17	18	17.5	17.5	83.33	-3.5	000
10	Double delight	23	21	21.5	21.83	103.96	0.83	-
11	The control	20.75	21.35	20.9	21	mt	mt	
DL5% 1.45		DL1% 1.98		DL0.1% 2.70				

As far as the impact of cut above the 7 leaf bud on the 10 rose cultivars, we could record the following significant differences compared to the average of the rose cultivars: in the rose cultivars Barkarole and Mainzner Fastnacht, the differences were very significantly positive; the rose cultivars Doamna în mov and Imperatrice Farah had very significantly negative differences; the rose cultivars Ambasador and Madona had distinctly significantly negative differences; the rose cultivars Pascali, Acapella, Golden Elegance and Double Delight had no significant difference at all.

## Conclusions

Analysing data recorded as a result of cuts in the 10 rose cultivars under study – above 2, 5, and 7 leaf buds, respectively – we can draw the conclusion that in the cut above 7 leaf buds there were the least very significantly negative differences as far as the floral bud height is concerned. Thus, we recommend

this cut type in the rose of the Thea group planted in the climate conditions of Timișoara, when we need to obtain as long as possible floral buds.

To get rose buds with larger diameter, we recommend the cut above 6-7 leaf buds, taking into account that in this cut type there were very significantly positive differences or no difference at all.

As for the height and diameter of the floral bud in the rose cultivars Barkarole and Mainzner Fastnacht, they react well to any of the three types of cut.

We recommend the cut type above 5 and 7 leaf buds if we want to get as large as possible flower buds in the roses we intend to plant in green areas. We recommend the same type of cut in the rose cultivars Pascali, Ambasador and Double Delight for roses to be sold as cut roses due to the length of the floral bud and to their scent.

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