

# Rose Variability

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Carnation growers have known for years the necessity to continuously reselect clones for maximum yield and quality. Several years ago, Holley selected the Colorado No. 6 rose, but work was never continued. Two years ago, Gianotti (CFGA Bul. 312) showed the striking variability that exists in supposedly genetically uniform carnations. Our results, on a limited trial at CSU, showed that programs to select roses for yield and quality might be worthwhile if technical difficulties peculiar to such a program could be overcome.

## Methods

One plot each of 'Forever Yours' and 'Town Crier' were selected in House 2 at CSU. The plots contained 33, 3X plants, budded on *R. manetti*, planted at one per sq. ft. There were three rows down the bench, which was planted 3 years ago. Individual plants were numbered and records of production and quality kept for each individual through two flowering cycles, or about 100 days (Jan. 24, 1977, to May 9, 1977).

Data included yield, stem length and malformations. The 21, 24 and 27-inch stem lengths were classed as long-stemmed roses, the 12, 15 and 18-inch roses as short-stemmed. Anything less than 12 inches or malformed were designated as non-saleable.

## Results

The average production per individual plant (total plants 33) is shown in Table 1. Previous work by DePauw and Bird (CFGA Bulletins 301, 317) showed that 'Town Crier' produced fewer flowers than 'Forever Yours', and that 'Town Crier' could be planted more densely without markedly reducing quality. It will be noted that a large part of the higher production for 'Forever Yours' were short-stemmed roses.

Interestingly, there were no differences between rows for 'Town Crier'. 'Forever Yours', however, had significant differences between rows (Table 2). As would be expected in

Table 1: Average production per individual plant, 'Forever Yours' and 'Town Crier', Jan. 24, 1977 to May 9, 1977.

	Roses per plant (average)	
	'Forever Yours'	'Town Crier'
Total flowers cut	10.4	4.5
Total flowers saleable	7.5	3.5
Long-stemmed flowers <sup>a</sup>	2.9	2.4
Short-stemmed flowers <sup>b</sup>	4.6	1.1
Nine-inch or malformed	2.9	1.0

<sup>a</sup> Stems 21, 24 and 27 inches or longer.

<sup>b</sup> Stems 12, 15 and 18 inches long.

an east-west bench, the south row produced the most, followed by the north row and then the middle row. The growth habit of 'Town Crier' compared to 'Forever Yours' suggested that the denser growth of 'Forever Yours' plays a highly significant role at one plant per sq. ft. density.

Both varieties showed high variability between individual plants (Figures 1 and 2). The results are compared to the average yield for all plants. As an example, Plant No. 1, 'Forever Yours' (Fig. 2) yielded nearly 13 flowers *more* than the average (total of 24 flowers), but most of these were short-stemmed or nine-inch as the increase in long-stemmed roses was not commensurate with the higher yield (Fig. 2-lower). On the other hand, Plant No. 8 produced 8.0 flowers *less* than the mean (total of 3 flowers) with relatively low quality. Variations for 'Town Crier' (Fig. 1) were not as

Table 2: Effect of row position on average flower production per plant for 'Forever Yours', Jan. 24, 1977 to May 9, 1977.

	Total cut	Long-stemmed <sup>a</sup>	Short-stemmed <sup>b</sup>	Nine-inch or malformed
North row	10.6	2.7	4.6	3.6
Middle row	6.9	1.7	3.2	2.0
South row	13.8	4.4	5.8	3.2

<sup>a</sup> Stems 21, 24 and 27 inches or longer.

<sup>b</sup> Stems 12, 15 and 18 inches long.

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remarkable, but Plant No. 17 produced 5.5 flowers *more* than the mean (total of 10 Flowers), whereas Plant No. 29 yielded 3.5 *fewer* flowers, or only one flower in the 100 day interval over which records were taken. Out of the 33 plants examined, at least one plant could be chosen as better than the average for both varieties (No. 7, 'Forever Yours' and No. 17, 'Town Crier'). There did not appear to be any effect

of position of plant, other than that noted in Table 2 for 'Forever Yours'. The high producers and low producers seemed to be randomly distributed in the plots.

This limited study suggested that roses can be nearly as variable as carnations. Granted the difficulty involved with a grafted plant produced outdoors, it would appear that the opportunities for significant yield increase, by making use of this variability to select outstanding clones, could offer a significant contribution to the rose industry.

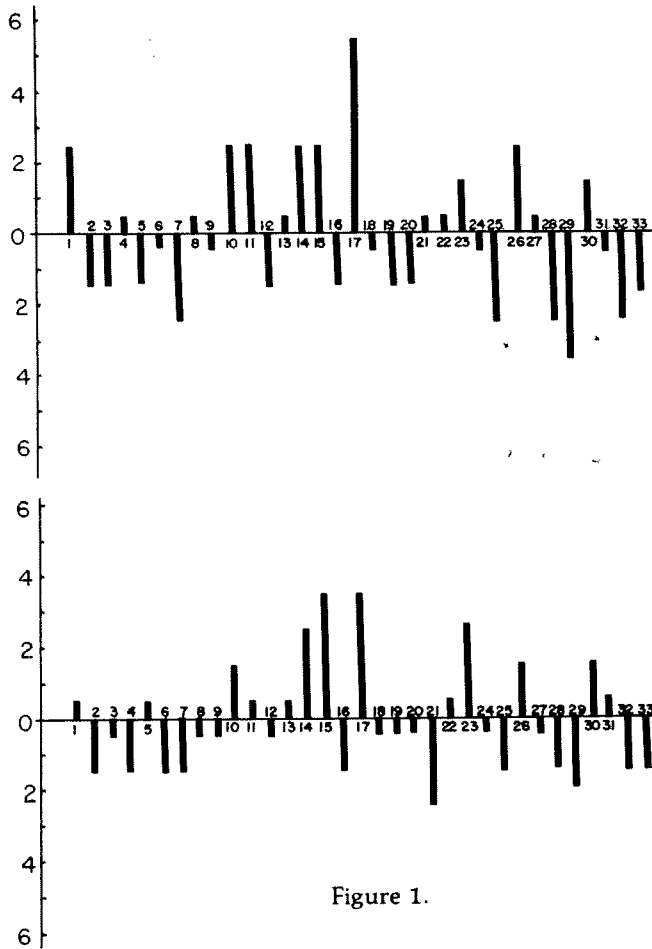


Figure 1.

Fig. 1: Deviation of individual plant production of 'Town Crier' from the average production of 33 plants.  
**Upper:** Total flowers per plant, average 4.5  
**Lower:** Production of 21, 24 and 27 inch stems or longer, average 2.4

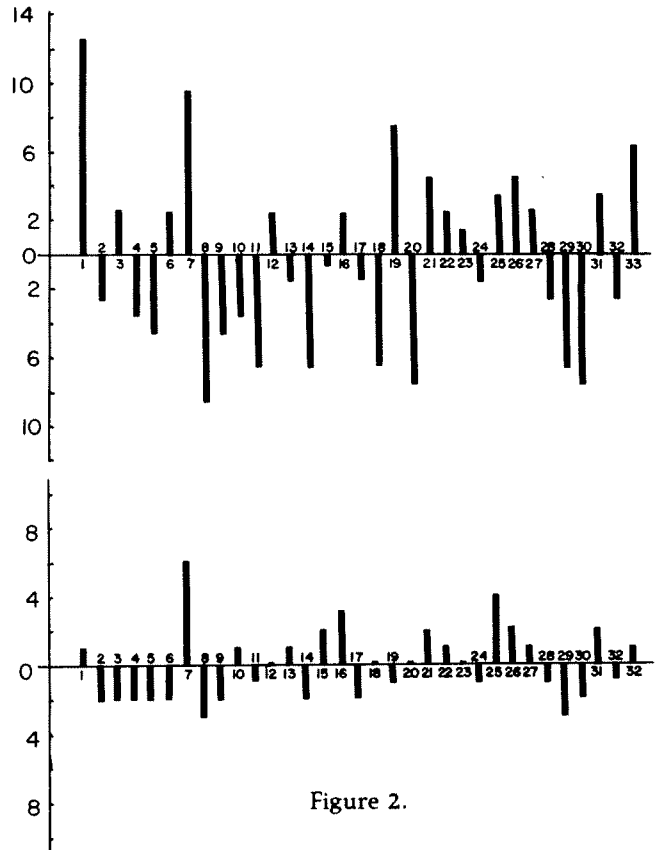


Figure 2.

Fig. 2: Deviation of individual plant production of 'Forever Yours' from the average production of 33 plants.  
**Upper:** Total flowers per plant, average 10.4  
**Lower:** Long-stemmed flowers per plant, average 2.9

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