



## STOCK PLANT GRADE, PLANTING DENSITY AND ROSE PRODUCTION

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This is a final report on a two-year study of rose stock grade and planting density originally started by Bary DePauw (CFGAs Bul. 301). To summarize, 1X, 2X, and 3X plants of 'Town Crier' and 'Forever Yours' were planted so that cost per unit bench area was the same for all stock grades. This resulted in densities of 2.0, 1.5, and 1.0 plants per sq.ft. for the 1X, 2X, and 3X grades respectively. Three plots of each stock grade, for each variety, were planted with each plot having 35 sq.ft. Planting was June, 1974, followed by a soft pinch in July. During the last two weeks of July, 1975, the bushes were cut back and soft pinched in early August. Production began again in late August. Records were terminated April 20, 1976.

### Results

Fig. 1 shows a weekly production of roses during the second year. A three week moving mean was used to smooth the curves. No flowers were cut between July 13 and August 9, 1975. Triple X 'Town Crier' consistently produced at least 40 fewer flowers per month than did 1X and 2X. During the second year, 1X plants produced a total of 800 more flowers than 3X. Data from the first year's production showed a slight reduction in stem length of flowers of 1X compared to 3X (Fig. 2), but this did not appear to hold true during the second year (Fig. 3). However, in addition to 800 more flowers produced by 1X, 766 more flowers had stems 21 inches or longer compared to 3X (Tables 1 and 2). Figures 2

and 3 provide a comparison between stock types as to average stem length during peak production periods. Triple X 'Town Crier' gave the longest mean stem length through the first three peaks of the first year. In the fourth and sixth peaks, the mean was highest for 2X plants. The fifth peak showed all three nearly equal. In the second year, the mean stem length for 1X stock was consistently one-half to one inch longer than 3X, with 2X between the other two.

Density had little effect on yield of 'Forever Yours'. The yearly yield from 2X and 3X was nearly identical, while 1X produced about 450 more roses (Table 1). There did appear to be a tendency for 2X to produce fewer flowers in the off-peaks. The effect of density and stock plant grade on 'Forever Yours' quality was about the same throughout the two years. There was little difference in yield between the two years. In the second year, 1X plants produced 450 more flowers, but most of this increased production was in shorter stemmed flowers (Tables 1 and 2). Triple X plants produced 1,215 flowers with stems measuring 18 inches or less, while 1,905 were cut for 1X.

These data were subjected to statistical analysis. Stock plants may be substituted, with equal investment, without sacrificing yield or quality. Increased difficulty of maintaining the plants and cutting flowers, sometimes associated with denser planting, was not observed. There are several questions that perhaps need to be answered: What are the maximum densities that can be achieved with various size stock plants without unduly sacrificing quality? How does optimum density vary with variety? It has been commonly

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observed that inside rows on 3- and 4-row plantings produce much less. Has the feasibility of 2-row plantings ever been considered? Are there other planting arrangements that could be considered?

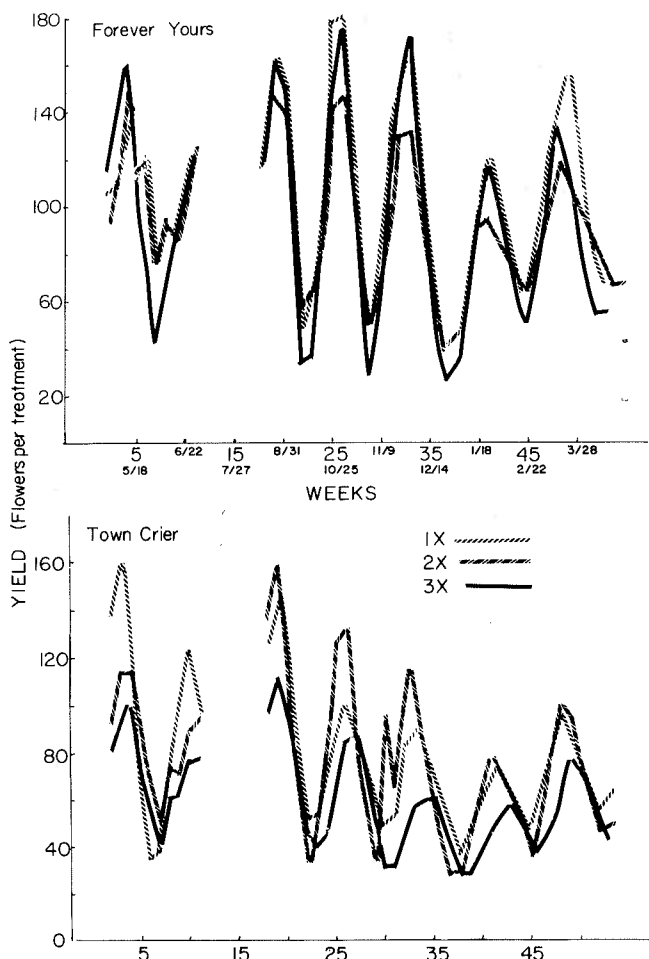


Fig. 1: Mean weekly yield of roses cut from May, 1975, through March, 1976. Total area in production per treatment was 105 sq.ft.

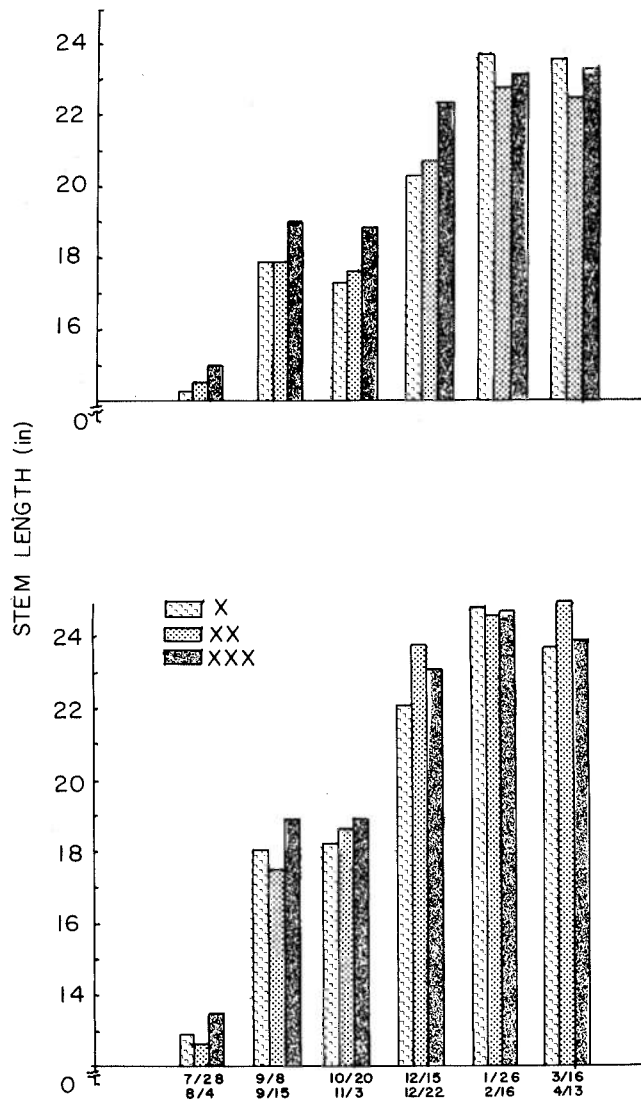


Fig. 2: Effect of planting density and stock plant grade on stem length of 'Forever Yours' (upper) and 'Town Crier' (lower) during periods of peak production, July, 1974, through April, 1975. (DePauw, CFGA Bul. 301).

Table 1: Total yield by stem length for each stock plant grade, May, 1975 to April, 1976.

	Stem Length							Total Yield	Total/ Ft <sup>2</sup> *
	9"	12"	15"	18"	21"	24"	27"		
<b>Town Crier</b>									
1X	47	134	278	445	590	688	1508	3,691	35.1
2X	51	167	274	444	666	716	1324	3,642	34.7
3X	45	160	264	410	491	524	1005	2,899	27.6
Total								10,232	32.5
<b>Forever Yours</b>									
1X	162	315	526	902	976	756	1251	4,888	46.5
2X	110	236	458	795	877	720	1219	4,415	42.0
3X	87	194	328	606	943	798	1474	4,430	42.2
Total								13,733	43.6

\*Figures represent the total yield/ft<sup>2</sup> bench area for the year.

Table 2: Yield, by stem length, as a percentage of total flowers cut for each grade, May, 1975 to April, 1976.

	Stem Length						
	9"	12"	15"	18"	21"	24"	27"
<b>Town Crier</b>							
1X	1	4	8	12	16	19	41
2X	1	5	8	12	18	20	36
3X	2	6	9	14	17	18	36
<b>Forever Yours</b>							
1X	3	6	11	19	20	16	26
2X	3	5	10	18	20	16	28
3X	2	4	7	14	21	18	33

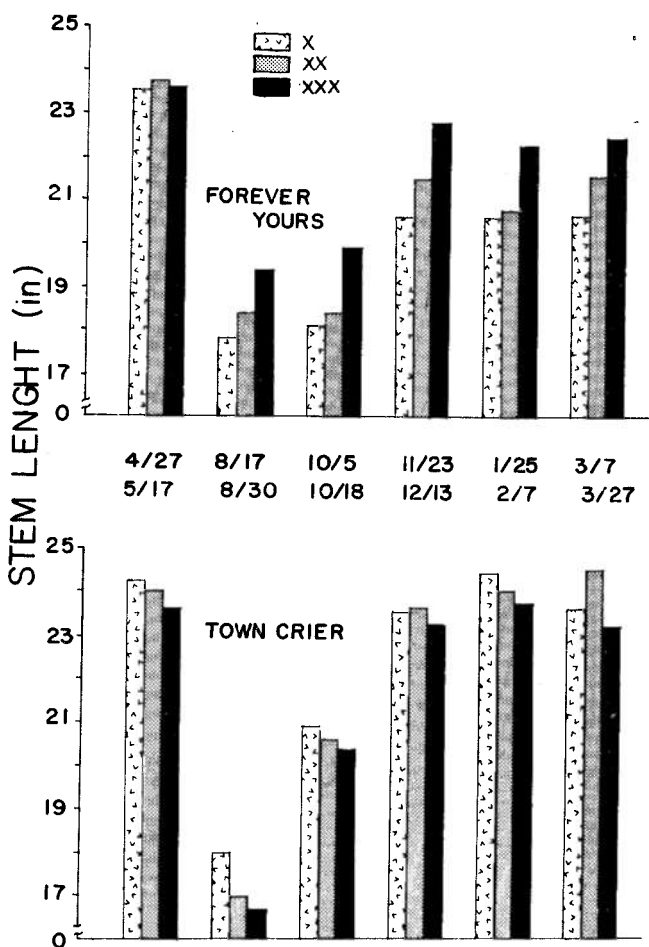


Fig. 3: Effect of planting density and stock plant grade on stem length of 'Forever Yours' and 'Town Crier' roses during periods of peak production, April, 1975, through March, 1976.