One Year's Rose Production in Soil and in Inert Media

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Three rose varieties were planted on February 2, 1970, in alternating benches of soil and gravel, for a total of 6 benches, 18 plots. The soil was one in which we have had good success. All benches were watered by a gates peripheral system, the soil irrigated on demand, the gravel irrigated from one to five times daily, depending upon the time of year. Fertilizer solution, automatically injected, was the same for both root media. Production began the last week of April 1970, and records were terminated on June 13, 1971.

A summary of the results is given in Table I. The soil out-produced gravel by about 5%. However, a breakdown of the automatic irrigation system just prior to the first crop in April severely stressed roses in gravel, with visible damage. Further problems with the fertilizer injection system between November 1970 and January 1971 resulted in the plots receiving little or no fertilization during a three-month period. The effect is apparent in Figure 1, which shows the weekly production for the entire year, with the roses in gravel producing fewer flowers in the peaks from November on.

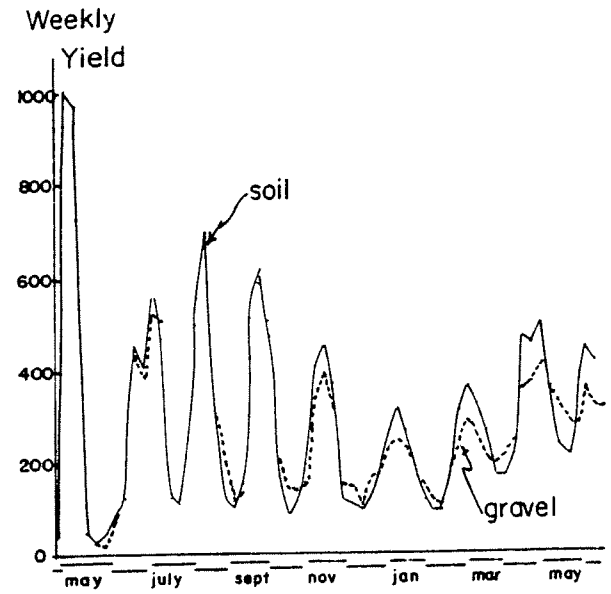
There was very little difference in grade (Figure 2), the distribution of stem lengths being nearly identical. There was a far greater difference due to bench location than to treatment. Figure 3 shows the total yield per bench, with the south and north benches producing the greatest number of flowers. The difference in yield between benches C and F exceeded 30%. This effect of location was noted several years ago by Holley and Farmer in CFGA Bulletin 10.

Given the use of mist, we would not expect as high a yield difference between gravel and soil for roses as found by Holley and Novoveski (see this bulletin) for carnations. Mist would tend to reduce water requirements, hence stress. Holley and Novovesky found that differences between carnations in gravel and soil were reduced during the winter months when water requirements were lower. We do find it surprising that the roses in gravel did as well, given the severe stressing and low nutrition to which they were subjected. The buffering and storage capacity of the soil was a distinct advantage.

Table I. Yield of 3 rose varieties in soil and inert media for a 13½-month period.

Variety	Soil		Gravel		Total
	Total	Per ft.^{2}	Total	Per ft.^{2}	
Forever Yours	5,311	46.0	5,157	44.6	10,468
Towncrier	4,472	38.7	4,506	39.0	8,978
Bridal Pink	7,366	63.8	6,676	57.8	14,042
TOTAL	17,149	49.5	16,339	47.1	33,488

Figure 1. Weekly production of three rose varieties in gravel and in soil.



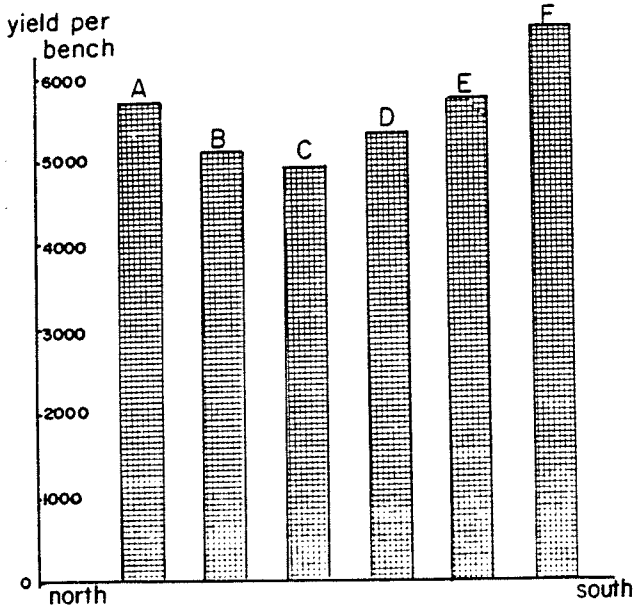


Figure 2. Percent stem length distribution of three rose varieties grown in soil and in gravel.

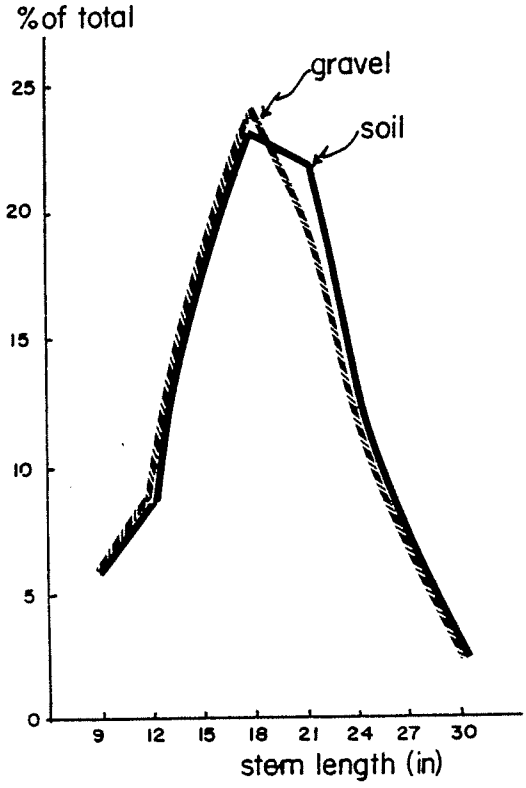


Figure 3. Total cut flower yield per bench. Benches A, C, and E were gravel; B, D, and F were soil. The relatively high production of F, combined with low production of C, would be more than enough to account for the 5% difference in yield between soil and gravel.

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