

GREENHOUSE ROSE WINTER PRODUCTION INCREASED BY OUTDOOR ROTATION

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SUMMARY

Greenhouse roses in California are usually planted in ground beds, but they also produce exceptionally well in 5-gallon containers. (See table 1.) Container culture appears to offer advantages that may prove commercially useful, including good production on poor growing sites, centralized soil preparation and planting operations, seasonal variations in spacing and/or cultivars, and the containment and possible recycling of runoff water. The use of individual plant containers also permits part of the crop to be rotated between high-cost greenhouse production areas and low-maintenance, outdoor, "plant renewal" sites. Production from "renewed" plants is greater than that from continuously cropped plants.

The use of individual plant containers rotated between the greenhouse and outdoors resulted in greater winter bloom production in an experiment at San Jose. Two groups of roses that had been growing in cans in the greenhouse for 3 years were pruned to 30 inches on August 14, 1972, after being allowed to bloom out for 3 weeks. One group was taken outdoors after pruning. It was fertilized and given minimal maintenance but left unharvested until brought into the greenhouse again in early January 1973. This was the "rotated" group. The other group was grown in the greenhouse; a crop was harvested in September and a pinch made for Christmas in late October. This was the "continuous" group. Flower production from these two groups of plants was recorded from January 28 through April 29—a period of two complete crop cycles.

A comparison of the continuous group with the rotated group (table 2) indicates that pro-

duction per square foot of greenhouse would have been increased if the continuously cropped plants had been replaced by the outdoor, uncropped plants immediately after the Christmas harvest. In fact, the rotated group of 'Forever Yours' plants produced 30 percent more flowers than the continuous group. A similar increase was noted for 'Golden Wave' (data not presented here).

A direct conversion of the number of flowers to the amount of money received for them is not possible because of different prices for different grades. The flowers from these plots, however, were graded when harvested. This made it possible to convert production to money, using prices of the San Francisco wholesale market as reported by the Federal-State Market News Service.

On this basis, the return for the first post-Christmas crop was \$1.62 per square foot for the rotated group, and \$1.16 for the continuous group. The return on the second crop was \$1.19 for the rotated group and \$1.10 for the continuous group. The rotated plants, then, returned 55 cents (24 percent) more per square foot during the two-crop period.

Table 1. Number of Blooms¹ for Each of Seven Crops of First-Year 'Town Crier' Roses Harvested From July Through June 1971-72, San Jose.

Harvest Period	Bed	Can ²
July-August	4.86	5.81
September	4.67	6.00
October-November	5.33	5.57 ns
December-January	2.91	3.39
February-March	3.48	3.95
April	3.67	4.33
May-June	5.06	5.52

¹Average per square foot of three replications of eight plants each.

²Container-grown production significantly greater for all crops except October-November (least significant difference is 0.34 bloom at $p = .05$).