

CARRYING OVER ROSE PLANTS

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Automatic watering presents several possible changes in methods of growing roses. Plants grown at a continuous high moisture level, as with the various methods of automatic watering, appear to remain in better condition than when allowed to dry between waterings. The wood keeps softer and breaks are more vigorous. Automatic watering does not appear to pack the soil as does surface watering and the soil remains loose for three or more years. These two facts may change the length of time the plants are kept in the same soil and the methods of drying off of the plants employed by some growers.

These experiments were conducted to determine (1) the effects of drying off and (2) the effects of refrigerating of old plants before replanting.

Budded plants of the variety Better Times had been growing in a composted silt loam soil from 1942-45. In the spring of 1945 the following treatments were started:

- A. Effects of drying and cutting back.
1. Plants maintained in continuous production, with gradual cutting back during May and June.
 2. Plants not dried off; cut back June 5.
 3. Plants dried off starting May 15; cut back June 5.
- B. Effects of refrigeration
1. Plants dried off starting May 1; cut back May 15, dug, refrigerated at 40°F. from May 15 to June 5; replanted in new composted soil on June 5.
 2. Plants dried off starting May 15; cut back June 5, dug and replanted immediately in new composted soil on June 5.

All of the treatments were replicated five times with nine 3-year old plants in each plot. The plants were spaced 12 by 12 inches in plots that were three feet square.

Treatments were organized on the basis of plot production in the previous three years. Each treatment was given to plants showing like production over the previous three years to prevent the possibility of better plants being used in some treatments than in others.

The soils were tested twice a month. After extraction with the Spurway acetic acid extracting solution, nitrates were determined by the phenoldisulfonic acid method, phosphorus by the molybdate-tin method, and potassium by the sodium cobaltinitrite method. Fertilizers were applied to maintain the nitrate level between 25-100 ppm. in the soil extract, phosphorus between 3 and 8 ppm. and potassium between 15 and 40 ppm. The pH of the soil was between 5.8 and 6.5

Drying Off

The average flower production and stem length are presented in Table 1.

A comparison of the first three treatments show that plants in continuous production gave 10.5 flowers more than the next best treatment during the period July to April. During the period September to April the difference was 2.1 flowers in favor of continuous production. Both differences are statistically significant. The plants that were not dried off before cutting back gave slightly greater production than those which were dried off, but the difference is not statistically significant.

To determine in which months the extra flowers were produced by the plants in continuous production, the data are presented graphically in Figure I. It may be seen that nearly every month the plants in continuous production gave more flowers than those which were cut back. The greatest extra production from plants in continuous production occurred in July and August.

The stem length in all treatments averaged about 20 inches with no significant difference between treatments.

On the basis of these results it appears that the best method of carrying rose plants over from one year to the next would be by keeping them in continuous production and gradually cutting back during the summer months. The next best method would be to cut the plants back in late spring without a previous drying off. The capillary tension would be maintained at a low point (1 to 3 inches), at all times. In constant water level beds the water table would remain at the same point as during the year. Eliminating the drying off process would also be advantageous because the plants would continue to produce until cut back in late spring, thus giving an extra two or more weeks of production.

Refrigeration

In comparing plants dried off, cut back, refrigerated and replanted in new soil with plants dried off, cut back and replanted in new soil, no significant difference in production or stem length is evident. The refrigeration treatment had no beneficial effects. More than one month of production was lost during the drying and refrigerating process. It is a way of holding old plants until benches can be made ready for them. The production by months is presented graphically in Figure 2 and there is little difference between the two treatments. Plants cut back gradually and allowed to grow in

the same soil a fourth year gave significantly higher production than plants which were replanted in new soil whether these plants were replanted immediately or stored at 40 degrees three weeks.

Summary

1. Plants in continuous production gave significantly higher production throughout the year than plants which were cut back whether the latter were allowed to remain in the same soil or replanted in new soil.

2. Drying off plants before cutting back, and cutting back with no previous drying gave no significant difference in production the following year with a tendency in favor of plants not dried off.

3. Three weeks refrigeration at 40°F. before replanting was of no advantage.

4. Since extra production can be obtained previous to cutting back if not dried off, it appears best not to dry the plants before cutting back. Plants to be cut back in automatic watering should be continued with the watering treatment the same as in normal production.

5. There was no significant difference in stem length of all the various treatments.

*NOTE - This project was started by J. E. Howland and completed by John G. Seeley. Fred F. Horton was the grower and Iva E. Piper the soil technician. The work was under the direction of Kenneth Post.

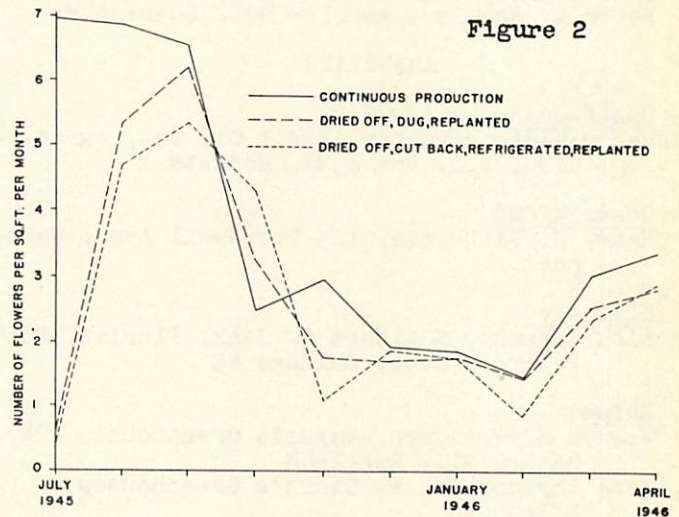
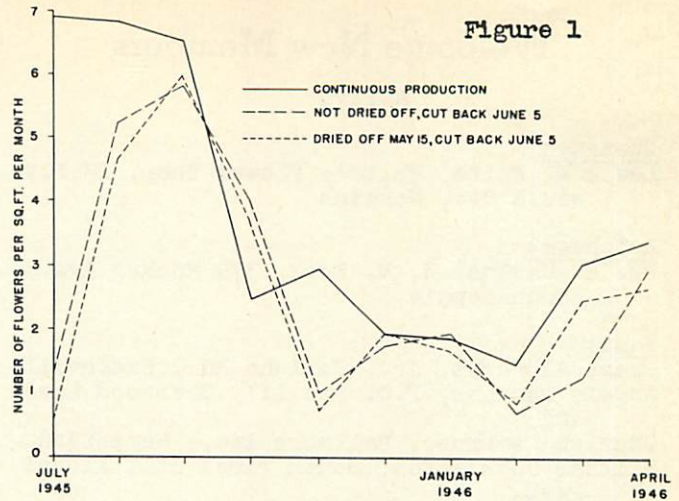


TABLE I. ROSE PRODUCTION

Treatment	July 1, 1945 - April 30, 1946		September 1, 1945 - April 30, 1946	
	Av. No. of fls. per sq. ft.	Av. stem length inches	Av. No. of fls. per sq. ft.	Av. stem length inches
1. Continuous production	37.9	18.4	23.7	20.0
2. Not dried off, cut back	27.4	20.6	21.6	20.8
3. Dried off, cut back	26.9	19.8	20.3	20.2
4. Dried off, cut back, refrigerated, replanted	25.5	20.6	20.5	21.0
5. Dried off, cut back, dug and replanted	25.1	20.2	19.8	20.2