

INVESTIGATION OF TWO GREENHOUSE ROSE PRUNING PRACTICES

Jack L. Bivins and Raymond F. Hasek*

Two rose pruning practices recently investigated can be used to increase cane renewal.

Height of cutback, before and after letting flowers fully bloom out, was compared with the normal practice of knife pruning below a "knuckle"¹ used in most rose ranges. The trial was conducted at the San Lorenzo Nursery Company,² a commercial flower grower in Santa Barbara County.

The purpose of the experiment was to compare:

- Cutback heights above bud-graft union after flowers were fully bloomed out;
- Height of cutback above bud-graft union following the normal practice in which the cut was made at the first five-leaflet leaf above the break or knuckle; and
- Normal knife pruning, cutting below the knuckle each time a flower is cut.

METHOD

The test started May 19, 1970, on replicated plots of Baccara roses. The trial plants were grown as part of a commercial planting using currently accepted insect and disease control practices and plant spacing. Each treatment consisted of 445 plants and was replicated three times.

Flowers from plants in treatment 1 were harvested by normal knife pruning—cutting below the knuckle. Flowers in treatment 2 were harvested by cutting to the first five-leaflet leaf above the knuckle until the canes were cut back to 18 inches above the bud-graft union on June 25. All flowers on the plants in treatments 3 and

4 were allowed to fully bloom out starting May 19, 1970, after which the plants were cut back to a uniform height as follows: treatment 3, cut back to 6 inches above bud-graft union June 24, 1970; and 4, to 18 inches on June 23, 1970.

Monthly cane renewal counts were made from July 1970 through May 1971. The plants used in treatments 2, 3, and 4 were pinched July 29, August 14, and 18. Yields were taken daily by the regular harvest crew from May 19, 1970, through December of the following year when the experiment ended.

RESULTS

Allowing the plants to fully bloom out and pruning to a uniform height of 18 inches above graft-bud union (treatment 4) increased the renewal shoots 34 percent over gradual knuckle pruning as the crop is harvested (treatment 1). Cane renewal in treatment 4 was 10 and 8 percent greater than that found in treatments 2 and 3, respectively. (See table 1.)

There were 5,308 more blooms cut from plants in treatment 1 than in treatment 2 (table 2). In addition, there were 8,136 and 7,017 fewer flowers harvested from plants in treatments 3 and 4, respectively, when compared to treatment 1. The increased yields were harvested at a time when treatments 2, 3, and 4 were out of production. Yields taken daily show that, when all plants were in production, there was no real difference between the normal grower practice and treatment 4 (table 2) during the period of September 3, 1970 to December 31, 1971.

DISCUSSION

There are many cultural factors other than cutting and pruning practices that must be considered and integrated for a successful rose production program. All variables should be considered in relation to each other, maximizing the potential they represent in terms of income. This study

¹ During the winter, cuts are made to the first five-leaflet leaves from the break forming a "knuckle." Starting in the spring, with more favorable growing weather, flowers are cut below this break.

² Robert Marcom, grower.

TABLE 1. Renewal Cane Count Made at Monthly Intervals, July 28 to May 29.

Treatment	Month (1970)						Month (1971)					Total
	7	8	9	10	11	12	1	2	3	4	5	
1	67	77	73	23	34	52	86	108	169	146	98	933
2	40	120	244	53	81	70	124	107	174	167	98	1,278
3	41	174	283	60	91	66	96	83	139	163	111	1,307
4	41	120	301	74	89	73	151	121	187	156	107	1,420

TABLE 2. Flower Yields - 1970-1971.

Treatment	5/19 - 6/25	6/26 - 9/2	9/3 - 12/31	5/19 - 12/31
1	2,772	4,900	25,056	32,728
2	3,053	-	24,367	27,420
3	-	-	24,592	24,592
4	-	-	25,711	25,711

reports the results of varying two different pruning methods while other cultural methods remained the same.

The greatest number of new canes were produced on plants that were allowed to fully bloom out and then were cut back all at once at 18 inches. The greatest surge of bottom breaks appeared during the third month after cutback. Three months after cutback, one-third of the plants in the best treatment (treatment 4) had strong bottom breaks compared to only one-sixth of the plants under the grower's normal knuckle pruning. During the first year, the best treatment averaged more than one bottom break per plant compared to breaking that occurred on only 65 percent of plants under the grower's normal knuckle pruning. If we assume that a given cane of *Baccara* has a maximum useful life of 4 years and that at least two canes per plant are necessary for economical production, the procedures outlined in treatment 4 should be carried out once every 2 years to retain the planting indefinitely.

The income realized depends primarily on the number and quality of flowers produced and the time of year they are cut. There was no real yield difference between treatments 1 and 4 during September 1970 through December 1971. This would encompass the seasons and holidays when price and demand are at a peak. Therefore,

there is no apparent yield advantage due to different conditioning and pruning methods during the peak price and demand period.

No measurements were made to determine quality differences. However, because of the greater number of strong bottom breaks, we feel that plants in treatment 4 were conditioned to produce a higher percentage of top quality blooms. Treatment 1 produced 20 percent more flowers than treatment 4. All of the increase occurred during June, July, and August when treatment 4 was out of production and during the time when demand and price are notoriously low.

From the evidence developed in this trial, which parallels earlier investigations by Harry C. Kohl and D. Edward Smith reported in *Roses Incorporated Bulletin*, March 1970, growers may find it worthwhile to adopt the practice of letting plants bloom out for 4 weeks following the Mother's Day crop and then pruning back all at once to 18 inches above the bud-graft union. Each variety could be scheduled so that one-half of the planting is cut back each year. This schedule should ensure adequate blooms to satisfy demand during the slow demand period.

*Respectively, Farm Advisor, Santa Barbara County, and Extension Environmental Horticulturist, Davis.