



IN COOPERATION WITH COLORADO A & M COLLEGE

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## Growing Carnations More Than One Year

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Two- and three-year culture of carnations has lost favor in Colorado and other sections of America in recent years. During World War II, this permanent culture was practiced as a matter of necessity in many carnation ranges, often to a high degree of success. With the return of a quality conscious market, the number of plants being carried over has decreased each year. There has also been less information on accurate timing of production on older plants.

In England and northern Europe, where summer temperatures are much cooler than those in American producing centers, carnation plants are kept in production for several years. The demand for carnations during the summer months is probably greater in Europe than in this country. In many sections, their best quality is produced during the summer.

As we face a continuous squeeze between costs of growing and prices for our products, we are forced to examine all possible ways of reducing these costs. Let us look at estimated costs for replanting carnations. These costs (per square foot of bench area) are rough, but they should open the eyes of any carnation grower.

	Cuttings benched direct	Nursery bed grown transplants
Labor of pulling plants, raising wires, till- ing, steaming, etc.	20¢	20¢
Plants		
3 rooted cuttings at 7¢	21¢	
3 transplants at at 11¢		33¢
Labor of planting	1¢	3¢
Total	42 cents	56 cents

This represents approximately one-fourth of the yearly cost of production in most carnation ranges.

Now let us examine the limitations which have been associated with two-year carnations. It is generally accepted that quality decreases with the usual increase in production during the second and third years of growth. Fig. 1 shows the percentage of fancy blooms from comparable one- and two-year benches of White Sim grown at Colorado A & M during 1953-54. The percentage of fancy flowers on two-year plants was very low during late fall and winter.

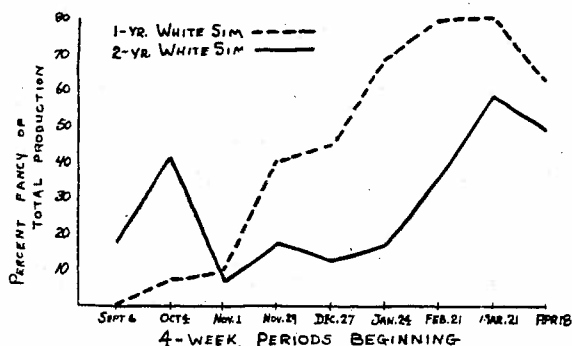


FIG. 1 - THE PERCENTAGE OF FANCY GRADE CARNATIONS FROM ONE- AND TWO-YEAR WHITE SIM PLANTS.

Other limitations are the lack of timing information for two-year carnations, and a lack of knowledge as to best procedures for controlling production and quality. Table 1 is reprinted from CFGA Bul. 48 to show the distribution of production when plants are treated in different ways following the first year's growth. In this study 1) plants were thinned by pulling out 3/7 of these originally planted, 2) original breaks were removed near the trunk of each plant leaving only the three strongest, 3) flowers were cut continuously, 4) soft growths were pinched in June and July, and 5) plants were cut back to a height of 7 inches on June 10.

Table 1. Effect of 5 methods of handling on 2nd year production and quality of Sim Carnations

	Production		Per ft. <sup>2</sup>	Per- cent fancy
	Total	After Dec.1		
Thin plants	1099	517	31.4	45.2
Thin breaks	1211	600	34.5	42.4
Cont. cutting	1358	576	38.5	30.1
Pinch June-July	1330	745	38.0	24.2
Cut back June 10	1169	914	33.4	30.0

One half or more of the production re-

#### Height of Pruning

White Sim plants were pruned to 7 inches and 14 inches from the soil level in May of 1953. A third group was pruned to a graduated height from five inches on the outside plants to 14 inches on middle plants. This pruning level followed well above dead foliage. These pruning treatments were replicated three times along a 35-foot bench. The results in Table 2 show no significant differences in production or quality, but the trend in both favored the

high (14-inch) and tapered heights of pruning.

Table 2. The effects of height of pruning on 2nd-year production and quality of White Sim carnations.

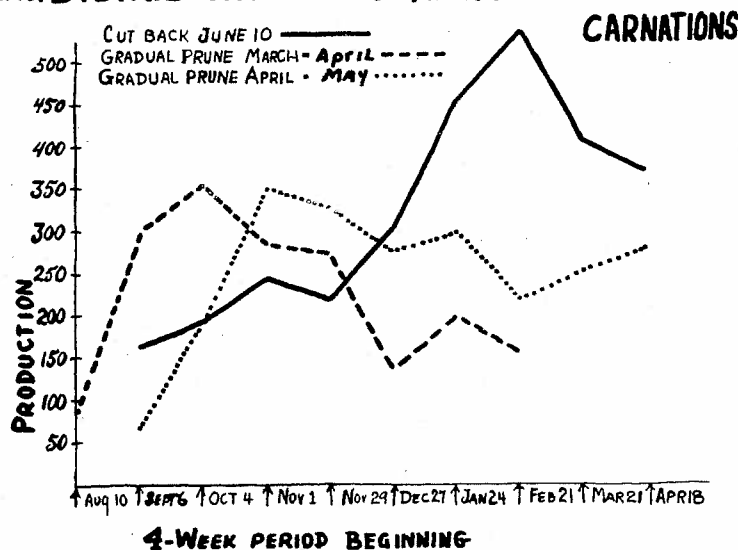
	Production		% Fancy
	Total	Per Ft. <sup>2</sup>	
Low	698	34.9	24.6
High	761	38.0	27.2
Tapered	753	37.6	27.4

#### Timing of Pruning Operation

A comparison of gradual pruning started in late March and in late April versus the June 10 cut-back is shown in Fig. 2. Gradual pruning required about two months and resulted in breaks of different ages on each plant. Peak production from the March-April pruning came in early October, March-April pruning came in early October,

from the April-May pruning in early November, and from the June 10 cut-back around mid-February. Note also the extremely high production in midwinter from the latter method which caused poor quality. Gradual pruning in May and June should distribute steady production from late November to May or later.

FIG. 2. DISTRIBUTION OF 2ND-YEAR PRODUCTION—



#### Does Thinning Following Pruning Pay

One-year-old Pink Sim plants were pruned gradually from March to May of 1954. The resulting breaks were thinned on August 1, to 37 and 48 per row across a 42-inch bench. One set of plots was not thinned and carried an average of 60 breaks per row. These treatments were replicated three times along a 35-foot bench. The distribution of production

from this bench appears in Fig. 2. The effects of this thinning on production and quality is shown in Table 3. Thinning decreased production and increased average quality. However, more fancy blooms were cut from unthinned plants than from those thinned at the rate of 37 breaks per row. Moderate thinning to 48 breaks per row materially reduced the standard grade

flowers without reducing those in the fancy grade. Unless there is more of a premium on fancy blooms than at present, it is highly doubtful that thinning will pay.

The differences in production between treatments are highly significant. The differences within grades, while showing trends, are not great enough to be statistically significant.

Table 3. The effects of thinning on production and quality of flowers from two-year Pink Sim.

Thinning Aug. 1	Production to Feb. 13			
	Utility	Stand.	Fancy	Total
None	58	226	302	586
48 per row	47	158	306	511
37 per row	29	159	251	439