Colorado Flower Growers Association

IN COOPERATION WITH COLORADO STATE UNIVERSITY
Dorothy Conroy, Executive Secretary
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June Pinching to Reduce July-August Yield of Carnations

by W. D. Holley and Ronald G. Eyster

The major problem in continuous culture of carnations is that crop control is more difficult after the first year. Older plants normally produce heavily in summer and less in winter. This normal yield pattern can, and has on occasion, oversupplied July and August markets. The low returns on summer flowers and shorter supplies of fall and winter flowers make this a problem for all carnation producers.

There are several methods of approaching the solution to this summer yield problem. July and August flowering on older plants comes from 1) blind cuts made at the normal cutting level from September to January, 2) 2-inch breaks on the plants from November to February, and 3) 6-inch breaks February to April. Summer (late June to late August) yield can be reduced by:

1. Cutting deep in the plant from October to January unless you can cut to a break.
2. Pinching shoots up to 6 inches long from February to April.
3. Cutting below breaks but in good wood during March and April.

All of these methods require fall to spring action and must be done four months, or more, before flower production is actually reduced. The cutting and pinching of selected shoots in June is another means of reducing summer yield and this can be done as late as 2 weeks before the plants are taken out of crop.

Methods

On June 15, 1964, two benches of one-year-old carnations were divided in 12 plots. Four of these plots at random were allowed to continue growing with no pinching done. Four plots were pinched or cut to what was considered a high level, and four were cut or pinched approximately 6 inches (one wire support) lower. The high pinching level was established by the position of lateral breaks on current flowering stems. All stems sufficiently advanced were disbudded. Stems too young to disbud and all shoots that had started to elongate were cut or pinched to this level. The more mature stems were cut above good laterals. Smaller breaks that had not started elongating were not pinched as these flower in September and later.

Pinching or cutting to the lower level removed most of the laterals from mature stems and more of each shoot pinched but did not affect smaller breaks that had not elongated at the time.

Results

The figure shows distribution of yield from the control and the two treatments through March, 1965. Production for the graph is calculated in

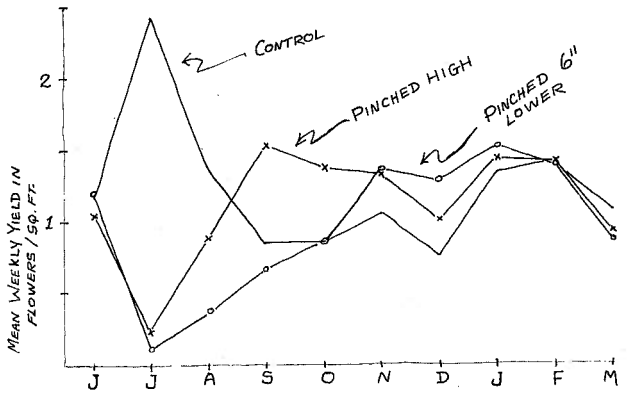

Fig. 1. Normal distribution of carnation yield on older plants compared with two pinch-cut treatments made June 15.

average yield per week per square foot of bench area. The unpinched group flowered very heavily (almost 10 per ft^2) in July, dropped to about half that rate in August. From September to December it produced slightly under one/ft^2/week.

The plants that were pinched high were almost out of production from July 1 to August 15. Yield on this treatment was 1-1/2 flowers/ft^2/wk from August 15 to October 15, decreasing gradually to one/ft^2 per week in December. Yield was slower to return following the lower pinch-cut. It equalled that from the high pinch in November and exceeded it in December by about 3/10 flower/sq. ft. per week.

Yield of flowers from June 14 to April 10 per square foot was 51.2 for the control, 47.7 for the high pinch and 40.8 for the lower pinch. Yield in dollars would have been quite different. Almost 10 of the flowers from the control were cut in July.

Timing of Pinches and Cuts

Thirty or more of each type of pinch or cut were tagged on June 15. The period when greater than 50 per cent of these flowered appears in the following table. In each case the time of flowering was recorded when the top break from the pinch or cut produced a flower.

Table 1. Periods when over half the flowers were cut that returned from cuts or pinches made June 15.

A. Cut above laterals--returned flowers September 13-October 3.
B. Pinched same height as A--no laterals present --September 20-October 17.
C. Cut 6 inches lower than A--returned November 15-December 12.
D. Pinched 6 inches lower than B--returned November 8-December 5.

It is interesting to note that the return from cutting above small laterals required about the same time as that from pinching initiated shoots (A and B). Records were kept on only the first flower produced from a cut or pinch. Possibly cuts made above laterals resulted in more flowers and some delay in flowering. The lower cuts (C) were made mostly below laterals. These required one week longer to return flowers than pinches of initiated shoots at the same level (D).

Height of the plants is one of the limitations on how many years carnations can be grown. June pinching at a high level increases height of the plants possibly more than normal summer cutting. June pinching should be combined with low cutting at other seasons to keep plants within a desired height as long as possible.

Type of Cutting Affects Initial Growth of Carnations

by R. A. Altstadt and W. D. Holley

Preceding bulletins (176, 177, and 178) have given results of exhaustive experiments to determine the effects of preharvest environmental factors on size and quality of cuttings and on their ultimate performance. Cuttings in most of these experiments were graded for uniformity, and all were top cuttings taken from stock plants. A final experiment is reported here in which growth comparisons were made between top and basal (heel) cuttings, and between top cuttings removed above different numbers of leaf pairs.

All cuttings under comparison were removed from stock plants, rooted and planted in replicated rows in a greenhouse bench during the summer growing period. These were grown until the most advanced were near flowering. The plants were pulled, their roots removed and photographs made of a typical plant from each group.

In all the accompanying figures height of the plant in inches appears on the right. Under each plant in figure 1, a double number indicates the type of cutting removed from the stock plant. The first of the two numbers is the number of expanded leaf pairs on the cutting; the second number, the leaf pairs left on the stock plant shoot.

The first set of photos show that typical growth is slowest from basal or heel cuttings and from cuttings taken at any position that have only 3 expanded leaf pairs. Best growth was from cut-

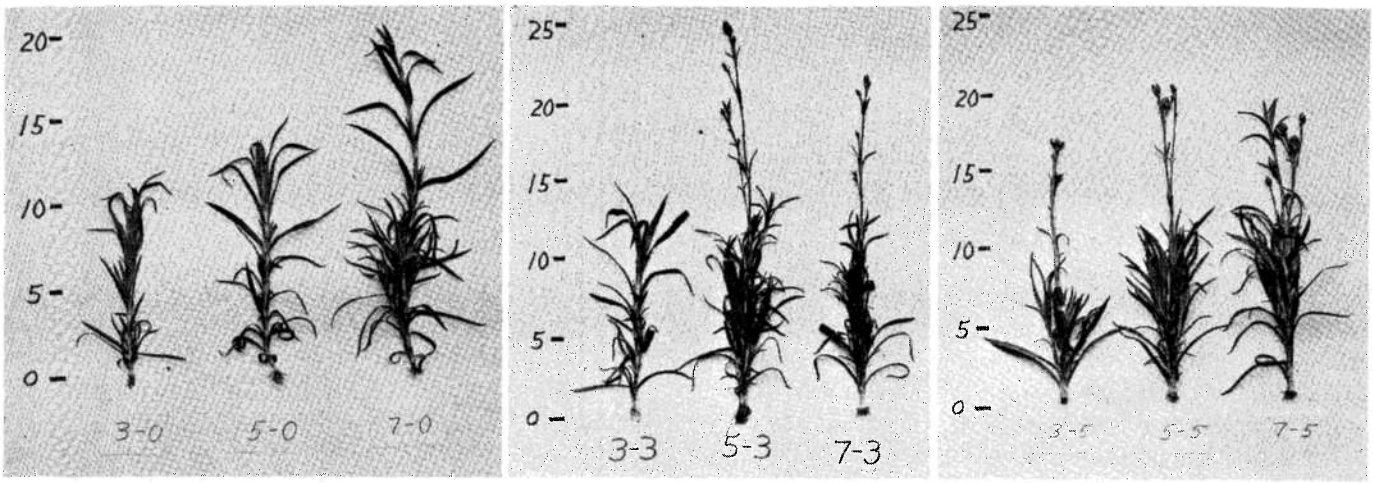

Fig. 1. Typical growth of 3, 5, and 7 leaf-pair cuttings removed from stock plants at the origin (left), and above 3 (center) and 5 pairs of leaves.

tings with 5 expanded leaf pairs taken above either 3 or 5 leaf pairs. Often as many as 3 or 4 of the lower nodes on basal cuttings do not produce laterals.

The letters B and T (Fig. 2) represent basal and top cuttings. The number following the letter indicates the expanded leaf pairs on the cutting at time of removal from the stock plant. Basal cuttings were removed in entirety; top cuttings were removed above 3 leaf pairs. Differences in growth from smaller cuttings are quite obvious. While height is about the same, lateral growth is much faster and better placed on the top cuttings.

The larger basal cuttings in figure 2 illustrate the common variations often seen in commercial lots of cuttings. Both basal cuttings have lower portions without laterals. B-9 has at least 4 blind nodes. While T-9 contained a flower bud when removed from the stock plant, it has branched low and lateral growth is well advanced.

Heel cuttings are less desirable and the cause of much variation in early growth. Their performance is much less predictable. Size of cutting and stage of initiation in larger cuttings are also important sources of growth variability.

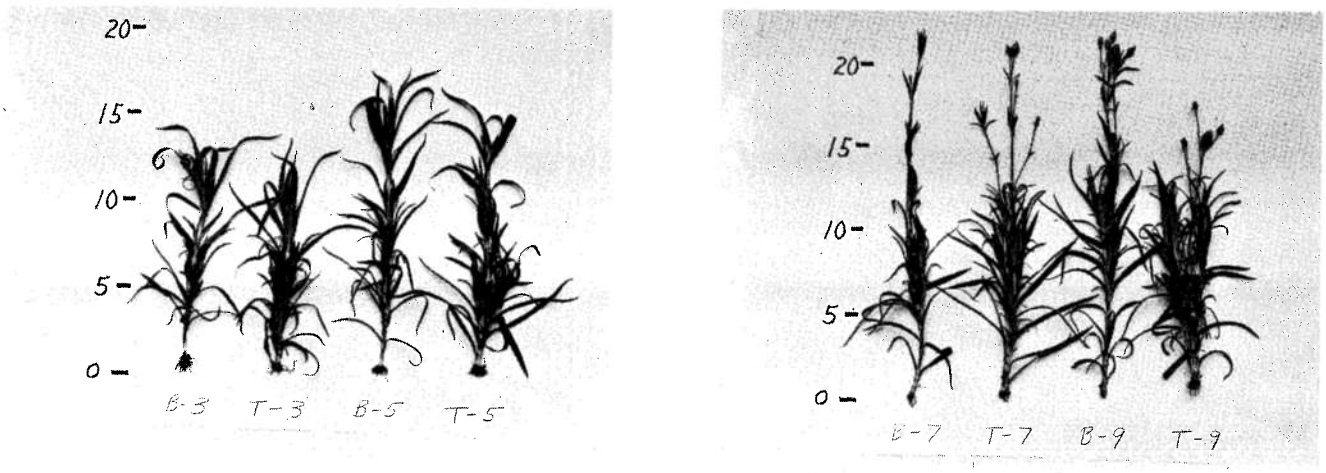

Fig. 2. Typical growth of basal (B) and top (T) cuttings containing from 3 to 9 pairs of expanded leaves when removed from stock plants. Top cuttings removed above 3 pairs of leaves.

Thoughts and Facts

Summer Cooling Fans

Now is the time to check every airconditioning fan to see that all belts are good, motors are oiled and pulleys are tight. You can save money if each fan is accomplishing its maximum work load. To achieve maximum efficiency from fans make sure pulleys are adjusted (adjustable pulleys are recommended on all fan motors) so that the motors use the exact amperage specified. Motors operated at lower amperages do not work to capacity and yield inefficient cooling, while those adjusted too high may heat up and cause damage.

Cooling Pads

Most of the growers in Colorado have needed pads during the several weeks. We are in the season when pads are needed one day and not the next. In most cases it may be desirous to leave in last year's pads until mid-June after the "cotton", seeds, etc., have quit flying. Colo. Flower Growers Bulletin 126 (September 1960) showed how much more efficient new pads were than one-year-old pads. If your present pads will last through mid-June, new pads can really help during the hottest part of the summer.

Reports in the works that will appear in this bulletin in the coming months:

How shoot-tip culture is controlling Fusarium roseum.

More on control of petunia crown rot.

Natural gas as a source of CO_2.

A summary of several years' work on fan ventilation.

A summary of 7 years' environmental work on roses.

An assessment of plastic greenhouse coverings.

Your editor,

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