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Crop Control on Carnations

by W. D. Holley

During the past ten years much has been published on the timing of carnations. Much of that published in Colorado Flower Growers Bulletins 30, 38, 40, 44 and Special Bulletin of June 1954 was in the nature of progress reports and considered timing before air cooling was a general practice in Colorado greenhouses. Additional progress reports appeared in Bulletins 77 and 94 which took into consideration the effects of summer cooling on carnation timing.

Since carnations are timed by planting date and system of pinching, the control of flowering time can never be exact. The amount of solar energy received by the plants is the one major factor that regulates their rate of growth. Incident solar energy varies widely with different parts of the country and with different years. However, a general pattern prevails in each location.

Minor effects on timing are caused by size of the cuttings planted, and whether the young plants are benched directly or grown in a nursery bed for their first 6 to 8 weeks.

Timing from single pinch

Single pinch culture of carnations has its place, but it can easily be overdone. When planted late in the summer and

brought into flower quickly, the flowers are often poor quality and low in dry matter content. Special planning and efforts are necessary on the part of a grower, if he wants to produce first quality flowers from single-pinched plants.

Timing to attain high production for two different periods is easily done from a single pinch. Table 1 summarizes timing research done at Colorado State University for the past eight years. Some minor interpolations have been made in order to complete this table. It should be understood that the times outlined cover the highest production periods, however the entire period is not outlined in every case. The second crops often extend for at least 10 to 12 weeks when light is limiting. In general, the higher the amount of solar energy at the time a crop is cut, the shorter the duration of that crop.

It is interesting to note that two complete crops of flowers can be cut from single-pinched plants in from 38 to 47 weeks following the planting of rooted cuttings. The May 15 planting produces two crops in the shortest possible time because solar energy and temperatures are optimum for a fast first crop and for producing maximum sized lateral breaks before the first crop is cut off. Late June and July plantings require the longest time to

finish two crops, primarily because the first crop matures with decreasing light. The lateral breaks, where present, are small at the time the first crop is cut and the second crop has to start under the poorest light conditions of the year.

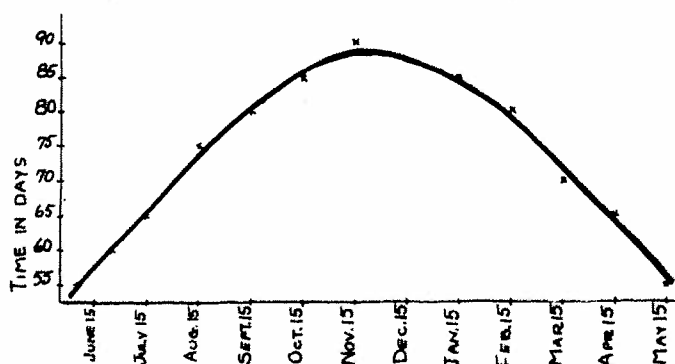
Timing from a pinch and a half

A pinch and a half is the term applied when approximately half the breaks resulting from the first pinch are pinched a second time. When done properly, a high production peak can be obtained by this method, followed by a long period of declining though relatively steady yield, which in turn is followed by another peak. Slightly more time is required for the first crop, but higher yields are obtained between crop peaks when compared to carnations grown from a single pinch.

The second pinch should not be hurried. The time between the first and second pinches varies with the amount of solar energy from around 35 days in mid-summer to 50 days in midwinter. The lateral breaks which are pinched should be those largest in diameter and those which grow the fastest. Two or three of these are pinched on each plant with a goal of three laterals desired below each pinch.

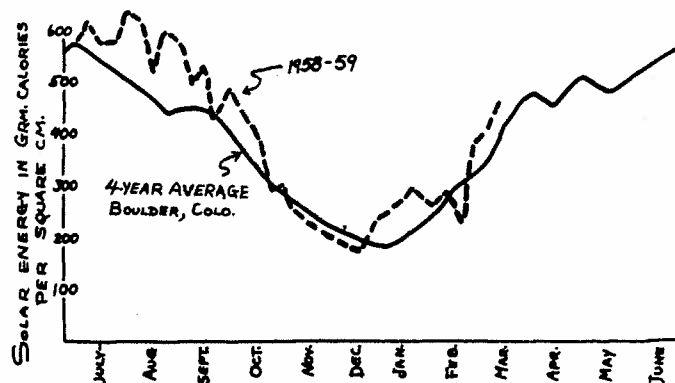
An interesting relationship between the time required from planting rooted cuttings to the second pinch is illustrated in Figure 1. This curve follows closely the normal solar energy curve for Colorado. Rooted cuttings which are planted in May and June develop sufficiently for a second pinch in about 55 days while those planted from October to January require 85 to 90 days.

Figure 1. Number of days from planting to second pinch for six carnations planted at different dates.



Light from July to March

The accompanying graph gives a comparison of average light received in previous years with that measured at Fort Collins this year. The previous average is a much smoother curve than any one individual year could be, since it was prepared as an average of yearly moving averages. Light was above normal to October 20 and less than normal through the critical period from then until late December. Our crops would have been much better off if the reverse had happened.



Multiple Flowered Carnations

The idea of growing multiple flowered carnation stems has often been presented as a means of giving variety to the carnation crop. Some retail growers have on occasion produced several flowers per stem to help satisfy the Mother's Day demand for corsage carnations. These multiple flowered stems also add interest to flowers in an arrangement. Professor J. E. Smith of the University of Missouri has tested quite a few varieties for their adaptability to this method of growing and feels that varieties should be developed for this special use.

During April of 1956 two different groups of Red Gayety flower stems were disbudded to develop multiple flowers in order to get some idea of the time required for development. At the usual stage for disbudding the terminal flower bud and all but three or four of the most uniform lateral buds were removed.

Table 1. Year around timing for Sim carnation varieties grown from a single pinch

Planting date	Pinching date	First crop flowers	Second crop flowers	Approximate weeks for 2 crops
January 15	February 25	July	Sept-Oct	42
February 15	March 20	July-Aug	Oct-Nov	42
March 15	April 15	August	Nov-Dec	41
April 15	May 10	Aug-Sept	Dec-Jan	40
May 15	June 5	September	Dec-Jan	38
May 25	June 15	Sept-Oct	Jan-Feb	40
June 5	June 25	Oct-Nov	Feb-Mar	43
June 15	July 5	Nov-Dec	March-April	45
June 25	July 15	Nov-Dec	March-April	46
July 5	July 30	Dec-Jan	April-May	47
July 15	August 10	Dec-Jan	April-May	46
August 15	September 15	Jan-Feb	May-June	45
September 15	October 15	March-April	July	45
October 15	November 20	April-May	July-August	45
November 15	December 25	May-June	Aug-Sept	44
December 15	January 25	June	Aug-Sept	43

For timing of return from second crop, see CFGA Bulletin 108.

Table 2. Year around timing of Sim carnation varieties from a pinch and a half

To start flowering	Bench rooted cuttings or start in nursery bed	First pinch above 5 or 6 pairs of leaves	Second pinch 2 or 3 of the original breaks
July	January 15	February 25	April 10
August	February 15	March 20	May 15
September	March 15	April 15	May 25
October	April 15	May 10	June 20
November	May 15	June 5	July 10
December	June 5	June 25	August 1
January	June 25	July 15	August 25
February	July 15	August 10	September 20
March	August 15	September 15	November 1
April	September 15	October 15	December 5
May	October 15	November 20	January 10
June	November 15	December 25	February 15



Thirty-one stems disbudded April 13 were cut off from May 21 to 29, requiring an average of 41 days to develop. 32 stems disbudded April 25 were cut from May 24 to June 7, requiring an average of 36 days to develop.

The stems carried from 3 to 4 flowers which could be charged for at cutting time. These flowers are in slightly different stages of opening, hence are extremely interesting in corsages and arrangements.

your editor,

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