Pompon Growth After Pinching

Professor Kenneth Post
Department of Floriculture and Ornamental Horticulture
Cornell University, Ithaca, N. Y.

The length of stem which develops on chrysanthemum pompons is determined to some extent by the number of long days after the plant is pinched. It was thought that this relationship was direct, but some preliminary experiments indicated the relationship was not specific. A certain amount of growth is necessary before buds can initiate following a pinch, and the stems will develop to a certain length even though short days follow the pinch immediately.

These experiments were made to determine the effects of the length of vegetating period on growth and flowering of five pompon varieties.

The rooted cuttings were obtained through the courtesty of Yoder Brothers, Barberton, Ohio. They were planted in the flowering position in the greenhouse bench on December 4, 1947 and pinched to remove the tip on December 20. The plants were grown at high moisture content of the soil with a medium fertility level. The temperature was maintained at a minimum night temperature of 60°F. by automatic heat control.

The first group of plants were given short days immediately on planting the cuttings. They were pinched 15 days after planting (-15). The second group was pinched the same day short days were given (0) which was 15 long days after planting. The third, fourth, fifth and sixth groups were given short days 10, 20, 30 and 40 days after the pinch respectively.

The number of short days to bloom (Table 1) shows that bud formation did not occur or bud development was very slow when the plants were small. This indicates that starting short day treatment following a pinch probably does not immediately affect flowering. The growth following a pinch must be a few inches long before buds can form. Gold Coast and Arcadia apparently did not initiate flower buds until 6 to 10 days after the pinch was made and Vesper, Valencia and Sunnyside did not initiate flower buds until growth of 10, 15 and 20 days respectively was made.

This would account for the slow development of flowers on plants which were pinched shortly before the short day treatment was started. It is also entirely possible that crown bud formation (due to a few short days, see Bulletin 38) may affect flowering time similar to a pinch.

TABLE 1. Number of Short Days to Flower.

Variety	No. of Days from Pinch to Short Day Treatment. -15	0	10	20	30	40
Gold Coast	77	62	52	59	57	56
Vesper	81	86	84	75	75	65
Sunnyside	111	93	84	75	78	84
Valencia	102	89	75	67	66	65
Arcadia	76	63	63	59	56	56

Length of Growth from a Pinch

The length of stem resulting after a pinch shows that a certain amount of stem will develop even though plants are given short days before the pinch is made (Table 2). The amount of growth is also a good indication of the growth period necessary after the pinch.

TABLE 2. Inches of Growth from the Pinch.

Variety	Days from Pinch to Short Days -15	0	10	20	30	40
Gold Coast	9.3	10.0	12.5	16.0	18.7	26.2
Vesper	20.5	18.8	25.3	24.0	27.7	37.0
Sunnyside	19.7	22.4	23.6	26.2	29.5	38.5
Valencia	22.3	23.8	24.0	25.0	33.9	36.8
Arcadia	8.0	10.9	17.0	18.6	28.3	28.5

Number of Flowers Per Stem.

The number of flowers per stem increased with the length of the growing period (Table 3) on Gold Coast, Valencia and Arcadia, but the number of flowers on Vesper and Sunnyside was the same (within the experimental error) regardless of the growing period.

The table shows that all varieties made nearly as much growth when the short day treatment started the same day as the plants were pinched as if they were given ten days to grow before short days were started. Valencia and Sunnyside made nearly as much growth under short days as plants given 20 long days following the pinch.

It is obvious that the length of vegetative growth which will develop after short days are started varies with varieties, and some growth is necessary before the buds will initiate.

continued on Page 5

cont. from Pg. 3 - No. of Flowers Per Stem

TABLE 3. Number of Flowers Per Stem.

Variety	No. of Days from Pinch to Short Day Treatment. -15	0	10	20	30	40
Gold Coast	3.5	5.5	8.0	10.0	11.0	13.5
Vesper	13.4	9.1	12.1	9.0	7.8	12.4
Sunnyside	12.1	17.1	11.6	13.4	9.0	11.0
Valencia	4.8	4.5	4.8	4.1	5.4	6.3
Arcadia	----	4.4	8.8	10.0	14.2	13.4

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