

# Gibberellins on Chrysanthemum

properly timed applications of potassium gibberellate sprays improved flower shape of two commercial varieties of pompon

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**Significantly longer** flower stalks, increased flower spray diameters, and the elimination of clustering of pompon chrysanthemum — varieties Shibuya White and Schneeberg's Yellow Daisy—were obtained in experiments with potassium gibberellate.

Desirable for commercial chrysanthemum production—because of their flowering characteristics, color, and shipping quality — pompon varieties Shibuya White and Schneeberg's Yellow Daisy also have the undesirable characteristic of tight clustering or clubbing of the spray due to short flower stalks. Therefore, those two varieties were selected for greenhouse tests made during the spring and summer of 1958 to evaluate the effects of potassium gibberellate as a means of lengthening flower stalks and improving the shape of the flower spray.

Varying concentrations of potassium gibberellate in a water spray were applied to the growing tips of the two test varieties. Concentrations ranged from 10 ppm—parts per million—to 500 ppm, applied between the 28th and the 56th day of the short-day treatment—when the greenhouses were darkened artificially in the afternoon to induce flowering under simulated autumn conditions.

Ten stems were sampled at random from each treatment. Measurements of the length of flower stalks and the diameter of flower sprays were averaged.

Treatments applied earlier than the 28th short day or in excess of the above concentrations resulted in extreme lengthening of the plant and undesirably weak stems.

Effect of Gibberellins on Spray Diameter and Flower Stalk Length of Chrysanthemums				
Gibberellin Treatment		Spray Diameter (mm)	Flower Stalk Length (mm)	% Increase Spray Diameter
Concentration	Application Time (short days)			
<b>TRIAL 1*</b>				
200 ppm	28, 30, 32	115	100	38.5
100 ppm	28, 30, 32	107	102	28.9
10 ppm	28, 35, 42, 49	107	77	28.9
Control		83	45	
<b>TRIAL 2**</b>				
200 ppm	28, 30, 32	150	140	30.4
100 ppm	28, 30, 32	130	110	13.0
10 ppm	28, 35, 42, 49	125	90	8.7
Control		115	60	
<b>TRIAL 3***</b>				
500 ppm	42	158	165	37.4
200 ppm	28, 30, 32	140	178	21.7
100 ppm	28, 30, 32	146	178	26.9
25 ppm	28, 35, 42, 49, 56	145	168	26.1
10 ppm	28, 35, 42, 49, 56	142	165	23.5
Control		115	86	

\* Shibuya White, April and May. \*\* Schneeberg's Yellow Daisy, April and May. \*\*\* Shibuya White, June and July.

The differences in commercial quality among the various gibberellin treatments were insignificant. Selection of timing and concentration used might depend largely on the most practical integration of the gibberellin treatment into existing management practices.

Compared with Trials No. 1 and No. 2, both started in April and carried on into May, response to gibberellin treatment was more noticeable in Trial No. 3, which was conducted during the warmer weather of June and July, indicating that response is limited when daytime temperatures are low.

Replication of treatments using aerosols instead of 10 ppm and 100 ppm water sprays showed no noticeable differences. In making water concentrations, the exact strength of the gibberellin solution can be controlled precisely. However, because the effectiveness varies

with the total amount of active material placed on the plant, a prolonged application of the 10 ppm aerosol affords results quite similar to the 100 ppm water spray and 10 ppm of water spray is equal to 10 ppm of aerosol. The same relationship holds true at 100 ppm.

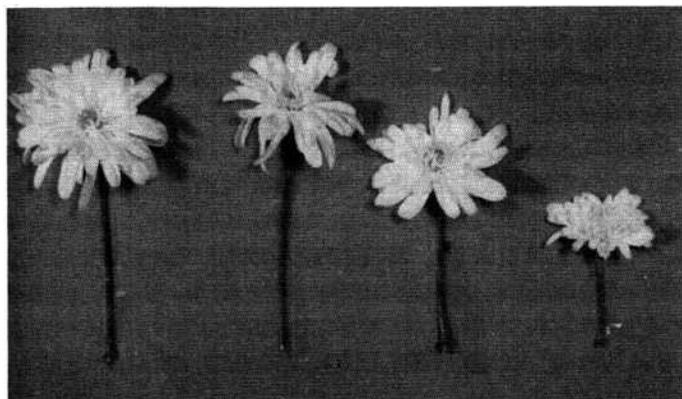
Keeping quality at room temperature was the same for treated and untreated flowers, and both came into bloom about a week before the scheduled flowering date. Flowering date was not advanced by any of the treatments.

The significant effect of the gibberellin treatments—in these experiments—was to improve the shape of the flower sprays of the varieties tested.

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Y. Nishimoto and S. E. Adachi, growers at Mountain View, cooperated in the trials reported in the above article.

Effect of gibberellin on flower stalk. Left to right: 200 ppm, 3 times; 100 ppm, 3 times; 10 ppm, 4 times; control. Variety: Shibuya White. Trial No. 1.



Effect of gibberellin spray on shape of flower. Left to right: Control; 10 ppm, 5 times; 100 ppm, 3 times. Variety: Shibuya White. Trial No. 3.

