

Frequency of Watering of Cattleya--1953

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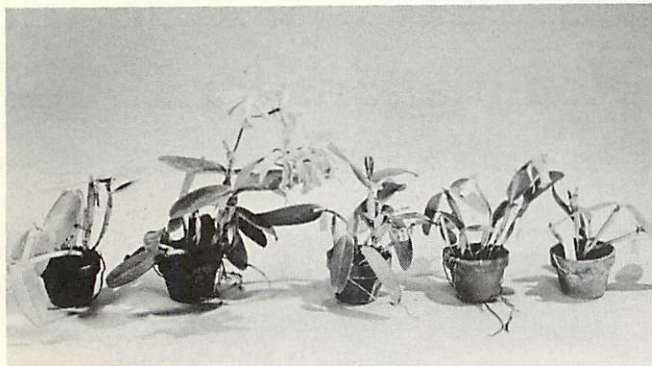


Figure I - Effect of frequency of water on flowering and vegetative growth of *C. brunoyensis*. Left to right: constant water level, watered every day, watered every third day, watered every fifth day, watered every tenth day.

This is the second report on the effects of the frequency of watering on the growth and flowering of *Cattleya* plants. The first report appeared in the New York State Flower Growers Bulletin #94 under the title, "Water Orchids Daily."

The plan of the experiment was reported previously. Groups of six plants were treated as follows: constant water supply, daily watering, watering at three, five and ten days respectively. The plants were repotted in October, 1951 using osmunda. During the first year the plants were not fertilized. During the second year the plants were fertilized with a 15-30-15 fertilizer at 1 oz. per 2 gal. of water.

It should be stated that the plants used have been identified as *Cattleya brunoyensis*. In the first report, it was incorrectly stated that *C. labiata* variety Amesiana was used. *C. brunoyensis* is a hybrid of *C. per-civaliana* and *C. intermedia*.

For the constant water level treatment the pots were placed in pans of water so that free water was always present in the lower one-third region of the pot. The other treatments involved a drenching of the osmunda at the intervals indicated.

On March 2, 1953 the plants were first fertilized. Plants with constant water level were fertilized every twenty-one days. Those daily watered were fertilized every seven days, while the plants watered at intervals of three, five and ten days received fertilizer applications at intervals of twenty-one days, thirty-five days and seventy days respectively. The frequency of application of fertilizer varied so widely because it was believed that leaching of the fertilizer would be greater

the more frequent the application of water. The fertilizer was dissolved in water and the fertilizer solution used instead of water at the time for application.

Those plants grown with a constant water level or watered at the ten day intervals were markedly inferior to the plants treated otherwise and did not respond to the application of fertilizer. The appearance of flowers was noted first on September 4, 1953. Plants watered daily flowered within a period of seven days while the plants watered at less frequent intervals produced flowers during a period of six weeks.

In addition to data on flower production, data on the number pseudo bulbs produced, the maximum diameter and the length of the pseudo bulbs is recorded in Table I. From the data in Table I it is evident that daily watering results in more vigorous plants and in a greater production of flowers.

In a continuing experiment of this kind it is not possible to obtain exact data on the extent of the root system. The plants were removed from the pots and photographs made of the root system. For consistency the same plants were selected as in 1952. The outstanding difference in the roots of the plants watered daily compared to other treatments was the great number of branched roots with enumerable active root tips. The roots of the daily watered plants were slender and more numerous than those watered every third and fifth day. Roots of the latter were larger, white in color and tended to adhere to the inner surface of the pot.

The osmunda fiber was in good physical condition after two years in all treatments with the exception of constant water level. Considerable rooting of the fiber occurred where the pots were standing in water.

Table II summarizes the results in respect to flower production.

The plants have been repotted in fresh osmunda fiber and the same procedures will be followed to study the effects of repotting.

TABLE II
EFFECT OF WATER FREQUENCY ON
TOTAL FLOWER PRODUCTION 1952-1953

Treatment	No. of flowers
Constant	26
Watered Daily	60
Watered 3rd Day	43
Watered 5th Day	26
Watered 10th Day	0

TABLE I
EFFECT OF FREQUENCY OF WATERING ON PSEUDO BULBS AND FLOWER PRODUCTION

Treatment	Diam. (inches) of pseudobulb aver. per 6 plants	Length (inches) of pseudobulb aver. per 6 plants	Total No. pseudobulbs per 6 plants	Total No. flowers per 6 plants	Aver. No. flowers per plant
Constant	.58	4.43	6	12	2
Watered Daily	.74	5.0	14	42	7
Watered 3rd Day	.69	4.9	11	31	5.2
Watered 5th Day	.61	4.6	10	18	3
Watered 10th Day	.20	1.5	4	0	0
