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Lack of Water a Cause of Cattleya Leaf "Die-Back"

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Continuous high temperature and high light intensity during summer may cause a drying of leaves on Cattleya orchid plants. Leaf tip burn was observed on the current year's growth depending on the frequency of watering and fertilization.

Frequent watering favored growth and flowering of Cattleya plants as reported in New York State Flower Growers Bulletins #94 and #105. The same plan of experiment was used with Cattleya hybrid #412.

Eighteen plants were treated in each of the following ways:

Bottom of pot standing in water (3/4" deep), surface watered daily, and watered at three, five and ten-day intervals respectively.

Nine plants in each treatment were fertilized. Those surface watered daily 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 because it was believed that leaching of the fertilizer would be greater the more frequent the application of water.

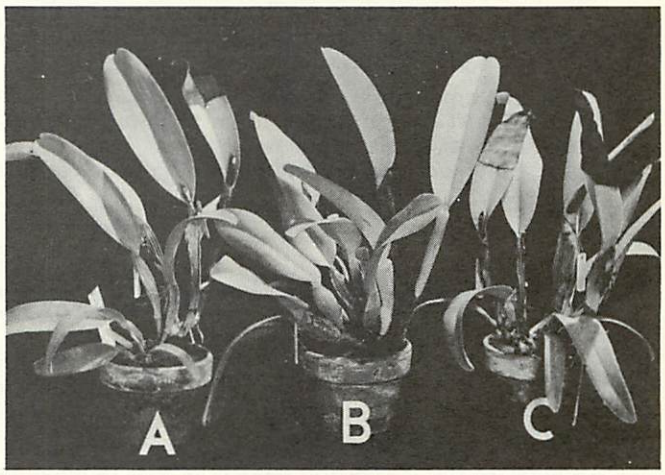
A water-soluble 20-20-20 fertilizer solution was dissolved in water at the rate of 1 oz. /2 gal. and used instead of water at the time of the application.

Leaf injury, as shown in the picture, was typical of injury to current year's growth of fertilized plants. Plants not fertilized did not show injury. Only 2 of 6 plants (3 died early in experiments) were injured by the fertilizer treatment of those watered every 10th day. All others were very much shriveled, but leaves did not burn. The shriveled condition apparently protected the leaves from burning. Six plants were injured when watered every fifth day and fertilized; shriveling was not as noticeable. Only one plant showed injury when watered every third day and fertilized. No plants were injured when surface watered each day and fertilized every seven days.

Plants constantly standing in water and fertilized developed a poor root system and 4 were injured. Apparently, they could not move water to the leaves sufficiently rapid during periods of drying.

Plants used in the present experiment have been under treatment for 2 years. They were 3 1/2 years old and had not flowered at the start of the experiment. The present condition of roots and extent of top growth is previously reported.

All plants are growing in osmunda fiber at 60°F minimum night temperature. Light shade paint was used to protect the plants from direct rays of the sun. All plants were supported on a gravel bench surface except those standing in water constantly.



Leaf Injury:
A. Bottom of plant standing in water.
B. Surface watered daily (no injury).
C. Watered at five-day intervals.

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