Carbohydrate Deficiency Causes Azalea Tip Scorch

by

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Four 5-inch azalea plants var. Hexe were placed in each of three controlled chambers on August 2, 1960. These chambers are vinyl enclosed systems within a conventional greenhouse in which the temperatures are controlled by heating and refrigeration to 65°F days and 52°F at night. They have a constant airflow of approximately 4 ft/sec and humidity during the day in all chambers of around 40 per cent. Carbon dioxide, the only variable in the experiment, was maintained at levels of 200, 350, and 550 ppm during the daylight hours.

All plants remained deep green in color up to October 1, at which time small developing buds were visible. At the lower CO_2 level no new vegetative growths were visible around the flower buds, but in the two higher levels these growths were present. By mid November tip browning of the leaves was visible on plants in the 200 ppm level. The extent of this browning increased progressively until one-fourth to one-half of the leaves were brown by March 1. No scorching of the leaves was produced in atmospheres containing 350 and 550 ppm carbon dioxide.

Under the conditions of this experiment plants from the 550 ppm CO_2 level were in saleable condition about March 1. Plants grown in 350 ppm were ready about 10 days later, while those in 200 ppm level were retarded 20 days or more. The number of flowers was reduced materially in the low level.

Since increasing the carbon dioxide in the atmosphere increases carbohydrate assimilation by plants, the indication is strong that the tip scorch problem connected with early forcing of azaleas, especially Hexe, is due to a lack of carbohydrates in the plants. This lack of carbohydrates may be due to several environmental factors such as low light, high temperature, or, in this case, low carbon dioxide.

Azaleas grown in atmospheres of 200 and 350 ppm carbon dioxide.

Carnation Shipping Tests

Six trial shipments of cut flowers were made from San Diego County California, to Ithaca, New York, and the condition of the blooms evaluated upon arrival. Containers, methods of packing, preconditioning and stages of maturity were compared. All flowers in the tests arrived in good condition so it was assumed that flowers free from problems when shipped, would arrive in good condition regardless of shipping methods.

The various Sim varieties used in the tests kept about equally well, if the flowers were free of insect or disease damage. Flowers having thrips injury, or damage from Botrytis or chemicals arrived salable but somewhat inferior. Petals showing thrips injury on arrival soon showed premature browning and dehydration.

Cooling the carnations overnight at 38 to 42°F in water with a preservative prior to shipment added about one day to their life at Ithaca. Recutting flower stems upon arrival also added appreciably to their cut flower life.

The trial shipments indicated that the best quality and keeping life of carnations after shipment are obtained when they are precooled in water containing a preservative and shipped in uniced boxes. After arrival, the stems should be recut and the flowers placed in water with preservative. Following reconditioning, they should be held under refrigeration until sold. Tests were made by Seward T. Besemer, Farm Advisor, San Diego County, University of California Extension Service.
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Your editor,
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