

# CARNATION STORAGE TEMPERATURES ARE CRITICAL

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Trials were conducted at the University of California, Davis, this past summer to determine how carnation flower quality and vase life following storage are affected by the refrigeration temperatures used. Two storage temperatures were chosen: 32° F. (0° C.), which has proven optimum for many commodities, and 41° F. (5° C.) which is used by some growers, wholesalers, and retailers for routine handling of carnations. Retailers often hold carnations at 41° F. since other flowers are sensitive to the lower temperature (32° F.) and there is danger of "freezing" the blooms if the refrigeration and thermostat are not in top condition.

'Scania' carnations for this trial were harvested at Watsonville and transported to Davis by car. Triplicate samples of 24 blooms were stored for 0, 7, 14, 21, and 28 days. Seventy-two flowers were stored dry, in tap water, or in distilled water for each storage period. Flower stems of the three storage groups were placed in clean Mason jars containing deionized water, and vase life was determined at room temperature. The process was repeated each week until all storage groups were evaluated.

Figure 1 shows the effects of 14 days storage at 32° F. and 41° F. on the subsequent vase life of the 'Scania' carnation flowers. We chose the 14-day group to be representative of the results obtained with the storage groups studied. Carnations cooled thoroughly at 32° F. immediately after harvest can be stored for 2 to 3 weeks, with little loss in quality, if they are free of storage decay fungi like *Botrytis* or *Alternaria*. However, if a temperature of 41° F. is used, the vase life of the flowers is unacceptably reduced. Storing stems in water offered no clear advantage over dry storage. Vase life of flowers held at 41° F. began to decrease after 3 days of storage.

What is the significance of these data for growers and wholesalers? Storing carnation flowers for holiday markets may greatly reduce quality if the refrigeration is insufficient or the thermostat is set too high. Flower temperatures of carnations stored dry in boxes have been observed to be 10° F. greater than the thermostat

temperature of the surrounding air. The current grower practice of storing stacks of polyethylene-lined shipping boxes containing dry carnations for holidays does not allow the cold air to reach the flowers. In other words, if flowers are stacked tightly in a storage box or on a truck making a delivery, flower temperatures may approach 41° F. or higher, although the thermostat is set at 32° F.

Retailers must also give attention to temperature management of carnations. Flower vase life can be reduced to unacceptable levels in a matter of days if the retail florist uses refrigeration temperatures close to 41° F. Coordinated temperature management by the grower, wholesaler, and retailer could improve the customer's confidence in carnations.

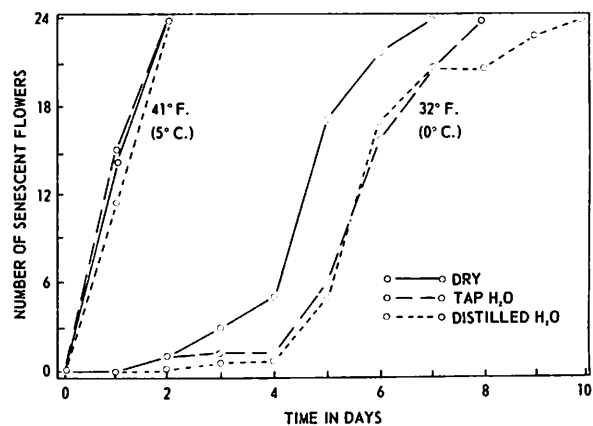


Figure 1. Effect of 14 days storage at 0° and 5° C. on vase life of flowers of 'Scania' carnations. Data are averages for three lots of 24 blooms per treatment.

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