Parsons, R. A. and M. P. Siri. 1974. Post harvest handling of cut carnations. Paper No. 74-1529. ASAE, Chicago. 6 pp.

General review of work on post harvest handling by California and USDA workers. A series of test shipments by Maxie from California to several destinations in the U.S. showed average initial temperatures of 53 to 65 degrees F, with the final temperature at the destination close to that of the outside air temperature — occasionally slightly above the outside and ranging from 75 to 95 degrees F. Temperatures in excess of 70 degrees F for 24 hours or more can significantly reduce display life of carnation cut-flowers.

Cooling rates of carnations were measured with the results shown in Table 1.

More rapid cooling can be achieved by removing the top of shipping containers, venting the bottom, and drawing cold air around the packed flowers and through the container. Five hundred standard carnation flowers were packed in a 21 x 48 x 12-inch high corrugated fiberboard container with 4 percent of the bottom area vented with 20 1x2-inch slots. Cold air was drawn through the container with the results shown in Table 2.

Forced air perpendicular to the flower stems was slow in cooling. In a test with cooling air parallel to stems, cooling was achieved in 8 to 12 minutes.

Table 1.

Cooling situation	7/8ths cooling time*
Carnations bunched in water pails	1/2 to 1 1/2 hours
Carnations in single open shipping container	4 1/2 hours
Carnations in a single lidded shipping container	5 to 6 hours
Roses in an open container on a shelf	6 1/2 hours
Roses in lidded container on a shelf	12 hours
Carnations in shipping containers stacked on pallets	2 1/2 to 3 days
Carnations wrapped in newspaper in palleted shipping containers	3 to 5 days

**Cooling from 75.2 degrees F to 37.4 degrees F in a 32 degrees F room.*

Table 2.

	Air flow (CFM)	Velocity (fpm)	Static pressure (in water)	7/8th cooling time (min)*
Forced air	370	58	0.8	4 to 5
	185	29	0.2	7 to 111
Fans	—	—	—	27 to 134

**Cooling from 80 degrees F to 37.5 in a 32 degrees F room.*

Direct inquiries to:
Office of the Editor
111 Shepardson Bldg.
Colorado State University
Fort Collins, Colo. 80523

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