STORING CUT FLOWERS

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Reprinted from the Connecticut Greenhouse Newsletter - No. 175

Rapid removal of field heat and a cool storage temperature can extend the life of cut flowers. Careful handling, proper sanitation and the use of preservatives are also necessary.

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Respiration in a flower continues after it is cut. The rate of respiration corresponds to changes in metabolism that eventually lead to senescence. The rate of respiration is also related to storage temperature, the higher the temperature the more rapid the rate of respiration and the subsequent decline in flower quality. For most crops, a temperature of 40° to 60°F is desirable for short-term and 32° to 35°F for long-term storage.

A refrigerated storage or cold room should be sized to meet your needs. Reach-in cabinets work well for a small grower or roadside stand that retails cut flowers as part of a variety of products. For the larger retail grower and wholesaler, walk-in coolers can be purchased or fabricated on site. In determining size, consideration should be given to providing enough storage capacity for 24 to 48 hours for retail operations and for longer periods for wholesale operations.

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Construction

The construction of the storage is important with respect to its effectiveness and operating cost. To minimize heat penetration from the surroundings, the cold room floor, ceiling and walls must be adequately insulated. For average storage conditions, the total value of the insulation should be R-10 for the floor, R-20 for the walls and R-30 for the ceiling. Resistance to heat flow in insulation is measured by R-value. A closed cell, foam insulation is the best material to use. To prevent moisture from collecting within the insulated spaces in the walls and ceiling, a 6-mil polyethylene vapor barrier should be applied to the outside of the cold room (warm side of the wall).

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Interior surfaces can be covered with waterproof plywood, galvanized sheet metal or gypsum board. A coating of epoxy paint will make cleaning easy.

Refrigeration equipment should be carefully selected and sized. Unless this is a prefabricated cooler, this is best done by a competent refrigeration contractor who understands the critical postharvest moisture requirements. Particular attention should be paid to sizing for the removal of field heat. The table gives approximate refrigeration requirements for various sizes of storages.

Estimated Storage Capacity of Cold Rooms

Cold Room Dimensions Ft.	Estimated Usable Volume sq. ft.*	Storage Capacity tons**	Compressor Horsepower***
6 x 6 x 9	200	0.8 - 1.8	0.5
8 x 8 x 9	392	1.6 - 3.5	0.75
12 x 12 x 9	968	3.9 - 8.7	1.0
14 x 16 x 9	1,560	6.2 - 14.0	1.5
20 x 20 x 9	2,888	11.6 - 26.0	3.0
25 x 30 x 9	5,220	20.1 - 47.0	5.0

* Based on inside dimensions, less 6" side and 12" overhead space.

** Calculated using storage density values of 8 and 18 lb/cu. ft.

*** From prefabricated cooler manufacturers' data for R-30 insulated chamber, 90oF ambient and 32oF storage temperature.

From NRAES 51 Produce Handling for Direct Marketing.

Operation

The following guidelines will aid in extending the life of cut flowers:

* For maximum vase life after storage, most flowers should be cut at the stage that will allow subsequent full floral development.
* Discard damaged and diseased blooms.
* Flowers should be bunched and tied firmly.
* Placing the blooms in a preservative solution helps to maintain turgidity.
* The flowers should be placed in the cold room promptly after harvest to prevent moisture loss and to remove field heat.
* Relative humidity should be maintained at 90% to 95% to minimize moisture loss from the petals.
* Remove decaying plants, as they are a source of ethylene gas and decay-causing microorganism.
* Clean containers and wall surfaces with chlorine solution on a regular basis to reduce the potential for bacteria, fungi or yeasts.

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Two good reference sources are available from the Natural Resources Management and Engineering Department, University of Connecticut, Storrs, CT 06269-4087. Make check to UConn.

The Commercial Storage of Fruits, Vegetable and Florist and Nursery Stocks. USDA Agricultural Handbook Number 66. $9.00.

Refrigeration and Controlled Atmosphere Storage of Horticultural Crops. NRAES-22. $7.00.

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