

# Special Research Report #447: Postproduction

## Best Practices for Retail Display of Fresh Cut Roses and Lilies

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### BACKGROUND

Many floral retailers, supermarkets, and mass outlet stores display cut flowers at room temperatures which shorten the vase life intended for the consumer. The use of floral display coolers that allow consumers to view and purchase product under temperature controlled conditions during retail sales has been increasing in popularity.

This study evaluated a range of temperatures and display times using retail floral coolers on the postharvest performance of cut Roses and Asiatic hybrid lilies.

### MATERIALS AND METHODS

Cut 'Charlotte' Roses and 'Dazzle' Lilies were grown in Colombia and commercially transported via Miami, FL. They arrived at the University

of Florida postharvest laboratory within 4-7 days.

Upon arrival, stems were cut and placed into a commercial hydration solution.

Subsequently, they were held in closed, glass-door florist display coolers (model no. FS52SDF, MEI, LaGrange Park, IL, USA) at 35, 42.5, or 50 °F, 65-70% relative humidity and 24 hrs/day lighting to simulate retail display conditions (Photo 1).

Photo 1. Example of display cooler used for studies.



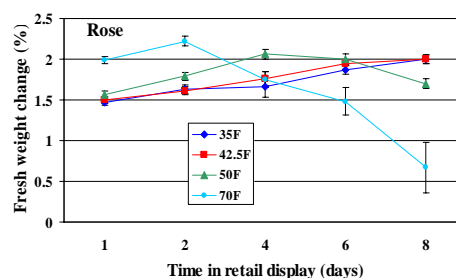
Flowers were kept in the display coolers for 2, 4, 6, or 8 days. Control flowers were displayed outside the coolers at room temperature (70 °F, 70 ftc (12 hrs/day) and 50% relative humidity). Flower stems and solutions were weighed initially and over time in the coolers to determine solution uptake and weight changes of the flower stems.

After the display period, stems were recut, placed into a commercial flower food and maintained in simulated consumer conditions of 70 °F and 70 ftc (12 hrs/day) and evaluated for vase life, plant quality, and weight changes.

### RESULTS

Rose fresh weights increased in the display coolers, but flowers held at 50 °F began to lose weight after day 4 (Fig. 1). After an initial increase in fresh weight, a decline occurred after 2 days in the 70 °F control flowers, which then lost over half of the weight gained by day 8.

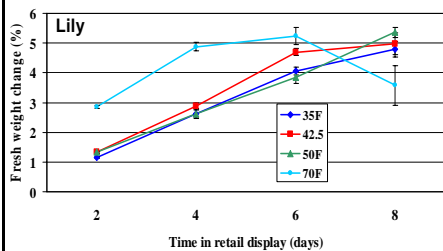
Fig. 1. Changes in Rose fresh weight (per stem) from initial weight at various display temperatures.



Lily fresh weights increased throughout display conditions at all temperatures except for flowers displayed at 70°F. They declined 31.8 percent after 6 days (Fig. 2).

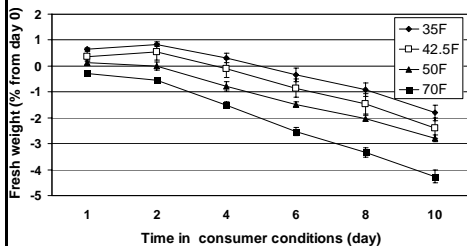
The longer Roses and Lilies were in display conditions, the faster the flowers lost

Fig. 2. Changes in Lily fresh weight (per stem) from initial weight at various display temperatures.



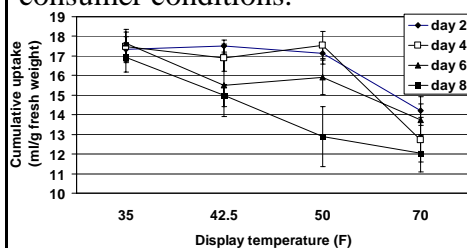
weight in simulated consumer conditions (Fig. 3). Flowers displayed for 4 days at 50 and 70 °F began to lose weight within the first day in consumer conditions while it took 4 days for losses to occur at 35 and 42.5 °F.

Fig. 3. Display temperatures affect Rose fresh weights when in consumer conditions.



As display temperature and time increased, flowers took up lesser amounts of solution under consumer conditions (Fig. 4). Roses displayed

Fig. 4. The effect of display conditions on solution uptake of Roses after eight days in consumer conditions.



at 35 °F for 6 days took up nearly 30% more solution than roses displayed at 70 °F in consumer conditions.

Displaying Roses at or below 42.5 °F maximized vase life while higher temperatures decreased vase life, especially as display time increased (Fig. 5). A similar trend was observed on Lilies, however, they tolerated 50 °F (Fig. 5).

Fig. 5. The effect of display conditions on vase life of cut Roses and Lilies.

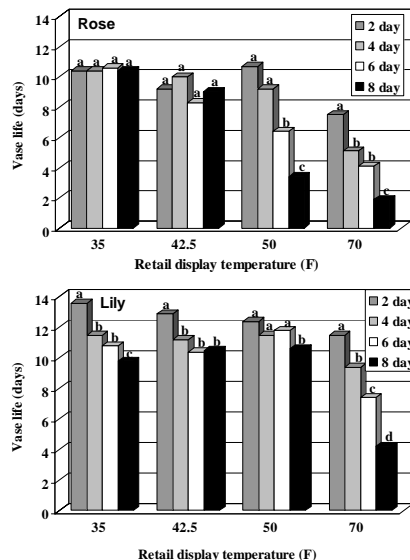
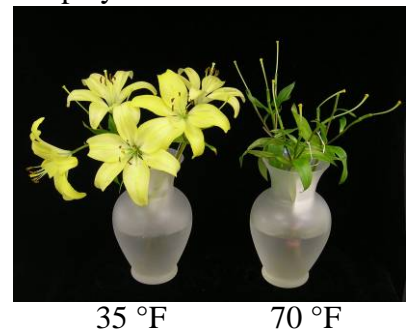


Photo 2. 'Charlotte' Roses 5 days after removal from 8 days in display conditions.



Photo 3. Lilies 8 days after removal from 4 days in display conditions.



## CONCLUSIONS

Flowers displayed at room temperatures had a rapid decline in fresh weight, took up less vase solution, and had a significant reduction in vase life during subsequent consumer conditions. Displaying flowers at the lower temperatures in florist coolers significantly increased vase life up to 8.5 days for roses and 9.4 days for lilies. A short display of 4 days or less at temperatures  $\leq 42$  °F will maximize vase life.

## IMPACT TO THE INDUSTRY

Using display coolers is an easy way to maintain flower quality during retail display. Flowers will last significantly longer for customers if retailers keep stems cold.

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