



**2000**  
*Evaluation of  
Postharvest Life  
of Selected  
Fresh-Cut  
Flowers and  
Greenery*

*Report of Progress 859*

*Kansas State University Agricultural Experiment Station and Cooperative Extension Service*

# 2000 Evaluation of Postharvest Life of Selected Fresh-Cut Flowers and Greenery

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Fresh-cut, hand-tied bouquets are popular items at farmers' markets and also at florist shops. Attractive bouquets include flowers that provide specific design elements. These include focal flowers that draw the eye, line flowers that help the eye move around the bouquet, and lastly filler flowers that fill the spaces attractively. Greenery also is used frequently as a filler. Identifying suitable plant material for this purpose was the object of this study. Suitability means it is available cheaply, is attractive, and has an acceptable vase life of at least 6 days.

Nine species were identified in the garden for evaluation:

Horehound, *Marrubium vulgare*

Peppermint, *Mentha piperita*

Ribbon Grass, *Phalaris arundinacea picta*

Japanese Kerria, *Kerria japonica*

Artemisia, *Artemisia absinthium*

Globe Thistle, *Echinops ritro*

Tansy, *Tanacetum vulgare*

Spearmint, *Mentha spicata*

Mexican Sage, *Salvia leucantha*

## Method

Thirty stems each of horehound, peppermint, ribbon grass, Japanese kerria, and artemisia were harvested on July 5, 2000. The stems were split into two treatments with three replications each containing five stems. The stems were placed in 0.9 liter glass jars with approximately 600 ml of water or floral preservative at the prescribed concentration. Globe thistle, tansy, spearmint, and Mexican sage harvested the same day were treated only with water, but they also were divided into three replications of five stems. Fresh weight was measured, and observations were made for 10 days to assess the vase life of the cut greenery for use in floral design.

## Results and Discussion

### *Artemisia*

Stems were considered past prime when they were wilting. Vase life with floral preservative was almost 3 days longer, 10.2 days compared to 7.5 days for water (Table 1). Increasing fresh weight is an indicator of prolonged vase life. Stems in floral preservative had their highest fresh weight at day 5.9, whereas stems in water had theirs at day 1.4. They gained eight times the amount of fresh weight compared to stems in water. Stems in floral preservative also had fewer days from highest fresh weight to the end than stems held in water, 3.2 days compared to 4.9 days. Stems held in water were more wilted and had spots. Most stems in floral preservative were still in acceptable condition when the study was terminated.

### *Globe Thistle*

Stems were harvested when 0-25% of the florets were open. Stems were considered unacceptable when the leaves had wilted. The mean vase life was 6 days (Table 2). The stems did not gain much fresh weight over the course of the experiment. The mean percent of florets open at the end of the experiment was 40%, but the mean percent change in openness was 519%. This large percent change was due to the fact that all of the florets on some stems were closed when the experiment started. This meant that if 1% of florets opened, the percent change in openness would be 100%. Therefore, 40% of florets opening on one head throughout the trial would cause a 4000% change in openness, skewing the data. Not many florets opened after harvest, but the blue color was retained.

### *Horehound*

Stems were considered unacceptable when over half of the leaf pairs were yellow, brown, or wilted. No difference in vase life or fresh weight gain occurred between treatments. Although horehound foliage has interesting texture and color, the stems lasted only 4 days (Table 1).

### *Japanese Kerria*

Stems were considered unacceptable when over half the leaves were wilted and/or brown. Stems held in water lasted on average 5.5 days longer (Table 1). Stems in floral preservative lasted 4.1 days, whereas stems held in water lasted 9.5 days. No difference occurred in the day to highest fresh weight. The leaves of the stems held in water tended to wilt, whereas the leaves of the stems held in floral preservative turned brown.

### *Mexican Sage*

Stems were considered unacceptable when the leaves were wilted and/or had brown spots. The stems had a vase life of 7 days (Table 2). They gained minimal fresh weight over the course of the experiment.

### *Peppermint*

Stems were considered unacceptable when they either wilted or had browning. The vase life of peppermint stems did not show a significant difference between the two treatments. Both lasted about 4 days (Table 1). The number of days from the highest fresh weight until the end was less for the floral preservative treatments, showing that the uptake of water in this treatment was better. However, stems held in floral preservative had brown spots.

### *Ribbon Grass*

Stems were considered unacceptable when they wilted. Stems held in water had a longer vase life than stems held in floral preservative (Table 1). Stems in floral preservative lasted 4.9 days, whereas stems in water lasted 7.2 days. The stems gained minimal fresh weight over the course of the experiment.

### *Spearmint*

Most stems were still acceptable when the experiment was terminated. The stems had a vase life of 10 days (Table 2). They gained minimal fresh weight over the course of the experiment but did develop roots.

### *Tansy*

Stems were considered unacceptable when the foliage wilted. The vase life was 6 days (Table 2). The stems gained minimal fresh weight over the course of the experiment.

## **Summary**

Results showed that artemisia had a very good vase life of 10 days when held in floral preservative. However, ribbon grass and Japanese kerria had significantly better vase lives with the water treatment, 7.2 days and 9.5 days, respectively. Spearmint had a very good vase life of 10 days when held in water. Mexican sage showed a good vase life of 7 days. Tansy had an acceptable vase life of 6 days. Globe thistle also had an acceptable vase life of 6 days, and the flowers retained a good color throughout the time period.

The Japanese kerria held in the floral preservative treatment had a shorter vase life of only 4 days, and the leaves turned brown, producing an undesirable floral product. Both peppermint and horehound showed no significant difference between water and floral preservative treatments and had short vase lives of 4 days. Globe thistle should have been harvested when more florets were open, because not many opened during the treatment period. Stems of most of the species were discarded because of wilting, but spearmint developed roots, meaning that its vase life could continue for a longer time.

**Table 1. Vase life, day of highest fresh weight, percent change in fresh weight, and number of days from highest fresh weight to end for various species held in water and floral preservative.**

<b>Species/ Treatment</b>	<b>Vase Life (Days)</b>	<b>Day of Highest Fresh Wt.</b>	<b>Percent Change in Fresh Wt.</b>	<b>No. Days from Highest Fresh Wt. to End</b>
<b>Artemisia</b>				
water	7.5	1.4	1.0	4.9
floral preservative	10.2	5.9	7.9	3.2
<b>Horehound</b>				
water	4	1.1	0.08	1.9
floral preservative	4	1.4	0.82	1.6
<b>Peppermint</b>				
water	4.3	1.1	0.3	2.3
floral preservative	4.0	1.5	1.0	1.5
<b>Ribbon Grass</b>				
water	7.2	1.0	0.0	5.2
floral preservative	4.9	1.1	0.5	2.7
<b>Japanese Kerria</b>				
water	9.5	1.6	0.8	6.9
floral preservative	4.1	1.7	1.6	1.7

**Table 2. Vase life, day of highest fresh weight, percent change in fresh weight, number of days from highest fresh weight to end, percent open at the end, and percent change in openness of various species held in water.**

<b>Species/ Treatment</b>	<b>Vase Life (Day)</b>	<b>Day of Highest Fresh Wt.</b>	<b>Percent Change in Fresh Wt.</b>	<b>No. Days from Highest Fresh Wt. to End</b>	<b>Percent Open Florets at the End</b>	<b>Percent Change in Floret Openness</b>
<b>Globe Thistle</b>	6.0	1.07	0.17	3.93	40.0	519.16
<b>Mexican Sage</b>	7.7	1.4	0.69	5.3		
<b>Spearmint</b>	10.7	2.07	1.45	7.6		
<b>Tansy</b>	6.14	1.07	0.17	4.07		

Contribution No. 01-156-5 from the Kansas Agricultural Experiment Station.

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