

PROPER USE OF "FOAM" MATERIALS EXTENDS FLOWER LIFE*

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In an effort to learn more about the effect of certain commercial "foam" materials on the keeping qualities of roses and other flowers, a series of trials was conducted at Michigan State University. The foams were used with and without floral "preservatives" and comparisons were made between roses in foams and in water with preservatives added.

The results clearly indicated that roses in water to which a good preservative had been added used the greatest amount of water from the containers. They also gained more weight, maintained the best appearance and had the longest vase life.

There seems to be a definite direct correlation between gain or loss of weight of roses in the foam or preservative solution and vase life. The greater the increase in rose weight during the treatment, the better the vase-life.

** Data prepared by Niagara Chemical Co.

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There also seems to be a correlation between water used and vase-life. The more water used, the better the vase-life.

These three correlations lead to a postulation that the roses, when placed in sufficient water and good preservative solution, take up the water and preservative readily, assimilate the water or preservative, or both, into the tissue cells (thus, adding weight to the rose tissue) and live or even "grow" for a period of time, thus extending the vase-life and beauty of the rose. This trial indicates a gain of 17.76 percent in weight of the roses placed in water containing a preservative (as compared to a loss of 3.6 percent for those placed in water without a preservative). In some foams, losses in flower weight ran as high as 12 - 17 percent.

Of the roses in foams, only those in Hydrafoam showed a slight gain (00.55 percent). The difference between this gain and the losses encountered for Fill-Fast and Sno-Pak was not significant. The roses in each foam were inserted 2 inches into each block so that the cut ends of the stems were below the water level.

Procedure

The following report covers the study of water consumption of roses. For this study two separate testing environments were employed, each in three replications.

Eight types of foam were used as a base in which to insert the rose stems. Each medium was soaked and placed in 4,000 ml of distilled water. A preservative (Floralife) was used in water according to the manufacturer's recommendations - without a foam holder. One plain distilled water treatment was used as a control. Black polyethylene plastic was stretched over the top of each container to prevent surface evaporation. Ten Better Times roses were inserted 2 inches into each block. Tables A & B show: (A) the percentage of gain or loss of weight of roses for the five-day period, and (B) the average amount of water needed to replace that which was lost each day. There was a considerable difference in the amount of water used on each of the consecutive days. (C) Water loss was greatest on the second day.

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RESULTS

There is definite relationship between the moisture supply and length of vase-life. Also, there is a very significant correlation between length of vase-life and the use of a preservative.

TABLE A. Percentage of gain or loss of weight of roses for five-day period.

Media Names	Percent gain/loss of rose weight
Floralife and water	+ 17.76 gain
Hydrafoam	+ .55 gain
Fill-Fast	- .51 loss
Sno-Pak (compressed)	- 1.31 loss
Water (control)	- 3.60 loss
Sno-Pak (water injected)	- 7.39 loss
Oasis	- 12.55 loss
Jiffy	- 14.47 loss
Quicke	- 15.31 loss
Camelet	- 17.25 loss

TABLE B. Average amount of water lost.

Media Names	Average daily moisture loss in grams i.e., average amount of water needed to replace that which evaporated.
Quicke	51.8
Oasis	54.6
Camelet	55.8
Sno-Pak (compressed)	55.8
Jiffy	56.0
Fill-Fast	64.0
Sno-Pak (water injected)	64.0
Hydrafoam	64.6
Water (control)	66.0
Floralife and water	92.4

TABLE C. Moisture which is evapo-transpirated during approximately 24-hour periods. (Grams of water needed to replace that which was lost each day).

MEDIA	1st Day	2nd Day	3rd Day	4th Day	5th Day
Oasis	47.3	66.6	54.3	53.6	51.0
Jiffy	57.0	69.3	57.0	49.6	46.6
Quicke	47.0	64.0	54.0	45.7	48.7
Hydrafoam	64.0	69.0	67.0	60.3	62.6
Sno-Pak	56.6	79.3	68.0	58.7	61.3
Fill-Fast	54.3	77.3	68.6	64.6	64.0
Camelet	45.6	51.0	50.6	52.0	59.3
Sno-Pak (compressed)	47.3	70.6	63.6	57.3	57.0
Water (control)	48.0	70.0	67.6	60.0	63.6
Floralife in water	52.6	94.3	86.6	98.3	102.6

Environmental conditions were not identical because of the lack of control of humidity and temperature. There was a definite indication that temperature and/or humidity increase or decrease is a critical factor in preserving roses, even by the best available means.

During the first test the day temperatures ranged from 76° to 85°F. and humidity from 26 to 32 percent. During the second test the temperatures ranged from 70° to 80°F. and the humidity ranged from 35 to 50 percent. The first test (higher temperature---lower humidity) showed considerable bluing and leaf drying at the end of the fourth day; roses in most foams were of little value at that time. In the second test (lower temperature--higher humidity) roses in most foams were still of good color at the end of four days with one to two days vase-life remaining.

Temperature and humidity greatly affect the vase-life of roses by as much as one to three days.

Roses in water to which a preservative had been added were superior in color and lasting quality to those in foam that had been soaked only in water. (Note: -- In these trials, no preservative was used in the water used to saturate the foams.) Although some foams do transfer water up the foam block effectively, foams are most useful as flower holders when they are submerged in water or when there is a sufficient reservoir of water maintained to replace that which is lost - and when the cut ends of the stems are not too far above the water level. The safe distance varies with the kind of foam. The rose stems should be cut with a sharp knife on a slant and inserted deep into the foam, then placed in a location with low temperature and high humidity. Preservative showed a considerably greater increase in the weights of roses than the plain water; also, it resulted in greater increase in rose weight than any of the foams tested. In these trials Floralife was used as a standard since in previous trials it had given very satisfactory results. In the future, other preservatives will be tested--and tests will be run showing the results when the foams are saturated with a preservative and a preservative solution is used in the reservoir.

The study revealed that the lasting quality of roses varies with the foam material used. For best success with any of these materials, it is important that handling methods be modified to suit the particular foam in question.

Many things affect lasting quality when roses are placed in foams. Some factors that should be mentioned are:

1. The chemical composition of the foam.
2. The physical composition--which governs largely the movement of water in it.
3. The distance of the cut end of the stem from the water level.
4. The ability of the flower to utilize the water in the foam and rate of transpiration from the rose and evaporation from the medium.