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Mix Flower Food Solutions Properly for Maximum Vase Life

What does a flower need to open?

The life and quality of flowers depend on available water and sugar. Before harvest, the flowering plant manufactures sugar through photosynthesis and water is absorbed through the roots. Then the flowering plant translocates both up the stem to the leaves and flowers. Flower opening results from the expansion of cells, a process that requires both water and energy. At harvest, all flower cells are present. After harvest, failure to supply sugars once the plant-produced sugars are exhausted, or allowing flowers to become dehydrated, shortens the life of flowers and prevents the flowers from opening completely.

What does a flower food do?

After harvest, cells in the cut flower's leaves, stems and petals get their hydration from water and energy from sugars in vase solutions. The cut flower is able to move water up its stems, and to convert stored sugars and starch to usable energy. Sugar helps flower life by maintaining cellular function. Flower stems absorb the most water in the first 72 hours after being placed into a floral hydration solution or flower food. Dirty containers and re-used solutions may contain microbes that clog the stem and obstruct water uptake. Fresh, clean water and sanitized containers promote flower life by reducing stem blockage.

Flower foods accelerate water uptake and provide sugars to supplement stored sugars in the leaves and flowers. They are also designed to reduce the cloudiness of the vase water and to lower the solution pH, both of which will help water to be absorbed by cut flowers. The formulations are designed to provide the correct balance of components when mixed properly.

What happens if the flower food is improperly mixed?

Often, florists ask whether it is really important to mix the solution as recommended. Imprecise measuring or a desire to stretch supplies as a cost-cutting measure can result in undesirable outcomes. These products achieve optimal results only when used as recommended.

Floralife conducted a study to observe the effects of improperly mixed flower food, whether too weak or too strong. Floralife Crystal Clear® was mixed at 0, 25%, 50%, 100% (as directed on the label), 200% and 400% of recommended levels. The flower stems were cut and placed into these solutions. The flowers used consisted of 'Freedom' and 'Circus' roses, pink snapdragon and delphinium. The vase life of each flower and cloudiness of the vase solution were recorded.

In the study, all of the vases containing flower food extended flower life when compared to untreated water (Table 1). The vase life was increased slightly with each increase in flower food

Concentration Floralife Crystal Clear® (% of recommended rate)	Vase Life (days)				Vase Clarity
	'Freedom' Rose	'Circus' Rose	Pink Snapdragon	Delphinium	
0	5.3	6.0	5.6	5.9	5.0
25	5.7	6.3	7.0	7.6	5.7
50	8.2	8.9	7.7	10.0	6.0
100	13.8	12.8	15.1	14.2	12.7
200	11.9	12.3	14.8	13.3	14.0
400	11.2	11.5	14.3	13.1	15.3

Table 1. Vase Life and Solution Clarity of Flowers at Different Concentrations of Floralife Crystal Clear®.

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concentration up to the recommended level. The vase life of the 'Freedom' rose was extended 8 days and the 'Circus' rose was extended 6 days with the recommended concentration of flower food compared to water. The snapdragon and delphinium's vase life was extended 9 and 8 days, respectively, compared to water. Best results, in terms of both flower life and quality, were achieved when using the recommended concentration of Floralife Crystal Clear® (Figure 1). At the higher concentrations (200% and 400%), the flowers displayed stem burn and vase life was reduced. These effects were more pronounced at the highest concentration.



Figure 1. From left to right. Water, then Floralife Crystal Clear® Solutions 25%, 50%, 100%, 200% and 400%

Clarity of the vase solution increased with the concentration of Floralife Crystal Clear®, an indication of lower microbial levels in the water (Figure 2).

Key points to remember:

- Flower foods work best when used as directed.
- Attention to accurate measuring of water and flower food is essential.
- In properly mixed solutions, flower life and bud opening is enhanced.
- Customers will notice the difference!



Figure 2. From Day 14 of a vase life test with a mixed bouquet of flowers. Water only on the left and Floralife Crystal Clear® solution on the right.