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# How to Conduct Fresh Cut Flower Vase Life Experiments

## Background

One of the most important factors for customer satisfaction of fresh cut flowers is vase life quality. Surveys have shown customers generally expect their flowers to last at least 7 days. All care and handling practices applied to fresh cut flowers along the chain from start to finish ultimately influence the final quality and freshness.

When your company makes a significant change to a different cut flower supplier or modifies any care and handling protocol (such as new varieties, new transport method, or new flower food) a simple vase life test is important to conduct to make sure your quality is maintained or even improved. A properly conducted vase life test will tell how many days a flower will last in a typical consumer environment.

It is recommended you get these critical tests done in a professional vase life testing facility to make sure the proper protocol is followed and someone is available to make the observations on a regular basis. Sometimes, however, there are situations where this is not possible and you need to instead conduct these tests in-house. If this is the case, it is extremely important to follow proper procedures to get accurate, reliable and repeatable results.

Here are several factors you should be aware of and pay careful attention.

**Objective:** The way you set up your experiment depends on your objective. For example, if you want to test out a new flower supplier you will need to test flowers from your current supplier as well as the new supplier. Use the same flower types and varieties, but keep all other parameters constant. If you wanted to test a new flower food, you would test it using all the same flowers variety against your current flower food and also plain water as your control.

**Replication:** One vase (replicate) is not enough to get reliable results to make any kind of determination. A minimum of 3 replicates (vases) per treatment are recommended. So a minimum test should be 9 vases in total.

**Testing Environment:** The testing environment should be uniform for all the vases in the experiment and representative of a typical consumer home environment (temperature, light and humidity).

## TEST PROCEDURE:

The situation is you want to test a new flower food on two varieties of roses. The following guidelines will help you conduct a vase life test to ensure reliable results.

### Treatments:

- 1) Control (tap water only)
- 2) Current flower food
- 3) Potential new flower food

**Crop:** Roses (2 varieties) e.g. 'Freedom' and 'Orlando'

**Replicates:** 3

**Flowers per vase:** 5 stems of each variety (10 total flowers per vase)

Replication	1	2	3
Control (tap water)	○	○	○
Current flower food	○	○	○
Potential new flower food	○	○	○

## Testing Tips

- 1) Keep the test simple (do not test too many factors at the same time).
- 2) Choose uniform fresh flowers for your test (do not use discarded or old flowers).
- 3) Thoroughly clean buckets, vases, tools etc used before the test begins.
- 4) Recut each flower with a clean, sharp knife or cutter before placing in vases (use nonmetallic containers).
- 5) Cut all the flower stems to a similar length.
- 6) Take all the leaves off that would be under the water level in the vase if not removed.
- 7) The vases should be placed near each other and should receive similar environmental effects (e.g. temperature and light). Do not place them near a draft or in direct sunlight.
- 8) The same person should take data for the entire experiment so the observations / decisions will be consistent.
- 9) Observe the flowers daily and record the vase life data. When a flower is dead (would be discarded by a consumer) it needs to be recorded on that day. You have to observe several characteristics such as petal wilting, petal discoloration, petal fall, bent neck, leaf yellowing / browning and make a determination if a flower should be terminated from the test.
- 10) Take photos to document results and label them accordingly.

## Calculations

Step #1: Calculate the average vase life for each individual vase (add vase life data for the 5 flowers in each vase and divide by 5. Calculate vase life for each different cultivar separately.

For example:  $6 + 6 + 7 + 5 + 7 = 30$ ;  $30/5 = 6.2$  days average vase life for one vase.

Step #2: Calculate the average vase life per treatment (water or flower food) by adding the average vase life for the 3 vases and then divide by 3 representing the number of replicates.

For example:  $6.2 + 7.4 + 6.6 = 20.2$ ;  $20.2 / 3 = 6.7$  days average vase life for all three vases.



**Control:** Water

Current Flower Food

New Flower Food

**Summary:** A controlled vase life test is essential to make a determination of how a change to your care and handling process, such as a new flower food, affects flower vase life and ultimate quality of your fresh cut flowers. A simple, carefully designed vase life test with proper test procedures will give you accurate, reliable and repeatable results to make well-informed decisions.