GEORGESON BOTANICAL GARDEN

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University of Alaska Fairbanks
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A Lesson in Cut Flower Care

by
Pat Holloway

One of the lessons learned by the new Zealand travelers was that most farms develop their own way of growing, cutting and handling peonies for sale. Part of this relates to the type of soils, slope, rainfall as well as the kind of machinery and storage facilties individuals have on their farms. Everyone seemed to be making do with converted hay rakes, renovated dairy barns, left over fruit crates, etc. for fashioning a peony cut flower business. One aspect unique to all growers was how they handled flowers after they were cut. Most homeowners are aware of the suggestions to keep flowers cool, cut the stem ends before putting them in water, add a floral preservative, etc. When it comes to cut flower production, those same decisions apply from the minute the flower is cut until it is shipped. And every grower from New Zealand to Canada seemed to have their own recommendations based on what worked well for them.

This past summer, we decided to list as many of the possible post harvest handling methods as possible and compare them to see if one truly is better than the rest. We harvested 354 peonies and subjected them to 20 different methods of handling (listed in sidebar). After completing the 20 different combinations of handling treatments, we put the flowers in a vase and counted how many days each flower lasted. We wanted to know which method would allow the flowers to last the longest. We predicted that the best treatment would be plunking them right in the vase, and allowing them to open naturally. The worst would be leaving them sitting outdoors in the field for 3 hours in the hot, hot, 90^{o}F sun, then storing them in a cooler, dry on the shelf for 1 week.

What We Learned:

Well surprise, surprise! Every single treatment except the control (put directly into the vase), was the same. The vase life of the flowers from the minute they were put into a vase to flower wilting was 12 to 14 days. That's not bad for a cut flower – up to two weeks vase life! Even the flowers that sat out in the hot, baking sun for up to three hours lasted the same number of days! The only treatment that differed was the control. These flowers lasted about 8 days which was 4 to 6 days less than all other treatments! The big difference? The control flowers never received any chilling! These flowers were put directly into a vase and set on a table. They bypassed the cooler completely.

My friends who specialize in flowers, researchers from Texas A&M, and U of Georgia told me the key is enzymes. Most gardeners know that in order to preserve the quality and nutrients in frozen vegetables, most of them need to be blanched in steam or boiling water for a few minutes before freezing to kill enzymes that degrade the tissues. A similar thing happens with flowers. Once they are cut, enzymes go to work degrading tissues and destroying the flower. Chilling slows that down. In our peony experiments, the chilling added 4-6 days to the vase life of the flower. We are still baffled why there was no difference between flowers put directly into water and those left out in the hot sun. Either it was a one-experiment fluke, or these peonies are truly an amazing flower! Some flower experts recommend placing stems in hot water, not cold, right out of the field. Ah, another experiment!

And for homeowners? If you want a long-lasting bouquet, harvest peonies in the soft bud stage (the top petals are just beginning to separate), and put them in the fridge 24 hrs before putting them on your table. The whole process of degradation is slowed, and they will last a few days longer than just plopping them in a vase!

Post harvest handling methods for peonies
Used somewhere in the world

In the field:

1. Cut right away and put in a vase of warm water, no other treatments. (This is what most gardeners do with flowers-- cut and plunk in water right away.)

2. Cut and put immediately in a bucket of ice cold water (34°F) right away in the field.

3. Cut and let sit in the hot sun out of water 1 hour, then move them into the cooler. (This happens when you are cutting lots of flowers and it takes a bit to get them into water)

4. Cut and let sit in the hot sun out of water for 3 hours, then move them into the cooler (Nobody would recommend this! They would die, right?)

In the cooler: (What a florist might do).

A. Store directly in cold water, never allow stems to dry out. Store 1 week at 34°F.

B. Store in cold water 1 hour, then remove and set on a shelf, dry, for 1 week

C. Store in cold water 1 hour, store dry for 1 week, then re-hydrate in cold water 1 hour before putting into a vase.

We completed all combinations of the above field and cooler treatments, i.e. 1+A, 1+B, 4+C, etc. Then we repeated all of the combinations above, but right before putting in the vase, we re-cut the stems. For instance, one treatment would be 1 + A + cut stems. Thus there were a total of 20 treatments.

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