Post Harvest Chilling and Vase Life of Herbaceous Peonies

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Abstract

Two pea cultivars, 'Sarah Bernhardt' and 'Duchess of Nemours', were treat-
ed to a series of cold treatments (0 - 16C in 2013 and 0 - 33C in 2014; 24 and
8h intervals, respectively) at 1.5 x 2°C to establish the minimum time necessary
for chilling prior to shipping for maximum consumer vase life. Preliminary
research found that chilling for 1 week, doubled the vase life, and data from 2013 season
confirmed those findings. However, vase life for cut flowers in 2014 decreased
significantly and did not improve with chilling. Vase life for 'Sarah Bernhardt' and
'Duchess of Nemours' peonies averaged 8.1d and 9.5d, respectively for the entire
treatment period and did not differ from the un-chilled control. This research did not clearly
identify minimum chilling requirements for Alaska peo-
nies. In contrast, cut stems in 2013 showed a linear increase in vase life with chilling
(8.2 - 14.2d for 'Sarah Bernhardt' and 6.9d -13d for 'Duchess of Nemours').

Vase life and bud diameter did not differ among early- mid- and late-season cut-
ing dates for both cultivars. Cut stems from two commercial farms showed the
same short vase life, and there was no statistical difference in vase life among
farms. Environmental factors during spring growth or post harvest handling differ-
ces play a more significant role in defining vase life than simply hours of chilling.

Vase life for 68 cultivars (7 days, 1.5 x 2°C) in 2014 ranged from 4d to 9d
(mean 0.48.96.144.192.240 and 336 hours of chilling)

Introduction

World cut flower sales are a highly competitive, volatile and multi-billion
dollar industry. Sales are subject to fashion whims of consumers as well as
industry demands for quality blooms that meet bud size standards and ship
well; a product that has the requisite stem length/thickness, and one with a
long vase life. Since the product is a living stem, the industry has the
dauring task of delivering a product whose consumer life is as long and
colourful as possible. The reported consumer life for peonies is 7 days.

Results: Vase Life and Harvest Date

- No difference among early- mid- and late-season harvests within each
cultivar (Table 3).
- Significant differences between cultivars in total vase life (P < .05) and
bud diameter (P < .001).
- Consistent bud diameter through season for 'Sarah Bernhardt'. Highly
variable seasonal bud diameter for 'Duchess of Nemours'

What we Learned:

During the past 10 years, vase life for Alaska peonies always ex-
ceded the minimum 7 days. For many cultivars, the vase life was
doubled the published average except for intersectional cultivars.
These cultivars rarely exceeded 5 days vase life.

In 2014, flowers from nearly all cultivars did not respond to chilling,
and vase life rarely exceeded 5 days. Environmental factors ei-
ther outdoors or in the cold storage facility obviously make a huge
difference in consumer vase life.

This project did not clearly identify an optimum cold storage treat-
ment for maximum vase life. Nor did it support the statement that
Alaska peonies have double the national standard.

The recommendation to harvest at a particular time of day was not
supported.

With the exception of intersectional hybrids, the often-repeated
statement that full double peonies have a longer vase life than other
classes such as Japanese, is not correct. Selections for long vase life
should be made by cultivar, not flower class.