

# Special Research Report #424: Postproduction

## Optimizing Postharvest Life of Cut Lupine 'Sunrise'

F.L. Fanelli, J.M. Dole, W.C. Fonteno, B.T. Harden and S.M. Blankenship, Department of Horticultural Science, North Carolina State University, Raleigh, NC 27695-7609



Phone: 618/692-0045  
Fax: 618/692-4045  
E-mail: afe@endowment.org  
Website: www.endowment.org

### BACKGROUND

Each year a large number of new cultivars and species are made available from plant breeders, propagators, and suppliers. Specific postharvest information must be obtained for these new species as they are made available to the market. One new cut flower, *Lupinus hartwegii* ssp. *cruikshankii* 'Sunrise' (Photo 1), produces tall, mildly fragrant spikes with pea shaped florets that are blue with a touch of white and yellow. The deep green foliage and the long, strong stems adds to this cut flower. The optimum growing temperature for this cool season plant is 59°F. This study determined the optimum handling procedures to extend the postharvest life of cut lupines.

### MATERIALS AND METHODS

Trials were conducted in 2004. Greenhouse-grown lupine 'Sunrise' stems were harvested when 1-4 florets were fully opened. Stems were subjected to a range of tests to determine ethylene sensitivity, optimum cold storage duration, and the effects of pretreatments and pulses, vase solutions and substrates, and commercial preservatives. After treatment, stems were placed at 68±4°F under approximately 200 ftc light for 12 hrs/day.

Flowers were monitored daily to determine the end of the consumer vase life. This occurred when either the stem collapsed or more than 50% of florets were discolored, shriveled, or dropped.

### RESULTS

#### Pretreatments

The vase life of control flowers averaged 9 days. Commercial pretreatments and 24 hr 10 or 20% sucrose pulse were not effective in extending vase life.

#### Cold Storage/Ethylene

Cold storage at 34°F for up to

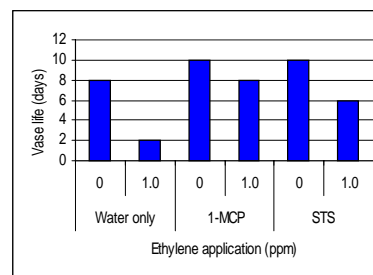
two weeks in high quality water resulted in a 9 day vase life. As with many flowers, the stems curved after being removed from storage (Photo 2).

Photo 2. Lupine 'Sunrise' after being removed from one week of 34°F storage.



Lupine stems were ethylene sensitive. The florets and buds abscised or buds failed to open when exposed to either 0.1 or 1.0 ppm ethylene. Stems pretreated with STS had a vase life of 10 days at the 0.1 ethylene concentration and a 6.3 day vase life at the 1.0 concentration (Fig. 1).

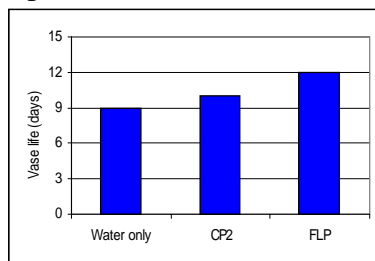
Fig. 1. Effect of exogenous ethylene (0 or 1.0 ppm) and anti-ethylene agents on lupine 'Sunrise'.



## ***Holding Solutions***

The use of commercial holding solutions (Chrysal Professional 2 Processing Solution or Floralife Professional) either increased vase life an average of 2 days or did not have an effect (Fig. 2). The use of floral foam had no effect on vase life.

Fig. 2. Effect of Chrysal Professional 2 Processing Solution (CP2), Floralife Professional (FLP), or water on lupine 'Sunrise'.



## **CONCLUSIONS**

Lupine 'Sunrise' is a good cut flower with a consumer vase life of 9-11 days. 'Sunrise' has a high degree of commercial potential due to its spike inflorescence, long strong stem, and unusual foliage (Photo 1). The mild, pleasant fragrance along with the unique tri-color florets makes this cut flower highly useful for bouquets or single species bunches. The stems also add dimension to arrangements with no detrimental effects when used with floral foam. This lupine is suitable for local and wholesale marketing.

The optimum handling procedures for cut lupine 'Sunrise' are to:

1. pretreat with STS or 1-MCP,
2. place in commercial holding solutions,
3. cold store at 34 °F for two weeks or less.

## **IMPACT TO THE INDUSTRY**

Lupine 'Sunrise' can be a valuable addition to the specialty cut flower market. It is critical to the industry to maintain a constant supply of new, successful cut flowers with proper postharvest handling information.

For Additional Information Contact:  
[john\\_dole@ncsu.edu](mailto:john_dole@ncsu.edu)

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