

# Alstroemeria

## It's Not Just A Cut Flower Anymore

This specialty crop can be propagated early and stored under cold conditions without negatively affecting final potted plant performance, allowing you control of greenhouse scheduling.

By Mark Bridgen and Eduardo Olate

Alstroemeria, also known as the Lily-of-the-Incas or Inca Lily, has been grown in the United States since the 1970s, mainly as a cut flower crop. Among cut flower producers, alstroemeria is a favorite because of its long vase life, long flowering period, preference for cool temperatures and high flower yield. Alstroemeria are herbaceous plants that produce floral or vegetative shoots from an underground rhizome, which means flowers may be harvested anytime during the flowering season because flowering stems will continue to develop from the rhizomes. In addition, the plants produce beautiful, large inflorescences of many different colors including purple, lavender,

red, pink, yellow, orange, white and bicolors.

Initiating alstroemeria plants for spring flowering requires a primary cold temperature and a secondary long photoperiod requirement, meaning the cool temperature requirement must be fulfilled prior to the long photoperiod. Each cultivar has a unique requirement for cool temperatures and the length of time exposed to that temperature. Once flowering begins, plants will continue to produce flowering shoots indefinitely until the soil temperature rises above 65-70° F for extended periods. Vegetative shoots will be produced after the plants receive the warm temperatures.

### IS IT A BUTTERFLY OR AN ORCHID?

Alstroemeria cultivars are often divided into two main classifications that generalize their flowering habits: the butterfly-type and the orchid-type. The butterfly-type is a group that is more suited as potted plants. They will flower for 9-12 months each year, depending on the cultivar and environmental conditions. Butterfly types have shorter growth habits and larger, more open flowers than the orchid-type.

The orchid-type of alstroemeria is a group that is mostly used for cut flowers. They have 3-5 months of major flower production in the spring, with little or no flowering during the remainder of the year. These cultivars have tall growth habits, remain vegetative until spring and produce a large number of flowers in a short period.

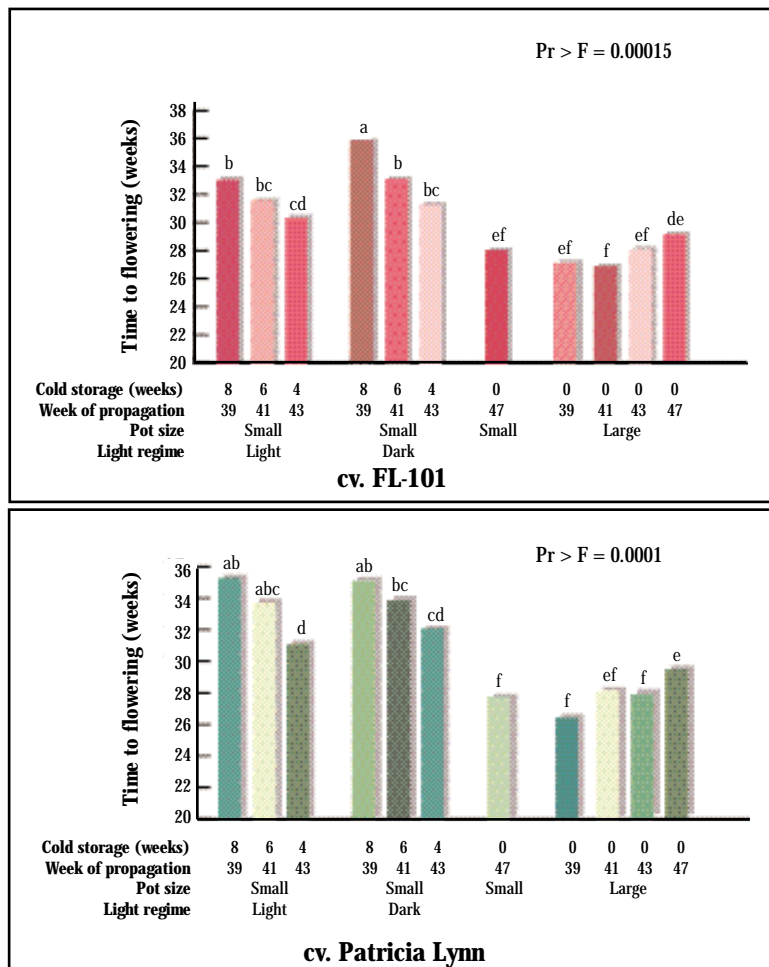
### GROWING INTERNATIONAL INTEREST

In recent years, there has been increasing interest in the United States, Europe and Japan for growing alstroemeria as a flower-



Photos courtesy of Mark Bridgen.

Fig. 1. Time to flowering of Alstroemeria cultivars 'FL-101' and 'Patricia Lynn' under different propagation strategies.



All plants were cut back on week 3 of 1998 to follow commonly-used grower techniques. A detailed description of the treatments is shown in Table 1.

Plants were evaluated at the time of anthesis (determined when two florets were open) for time to flowering, visual evaluation, fresh aerial weight, number and length of flowering stem, and number of florets per flowering stem.

## POSITIVE RESULTS

Refrigerated storage treatments delayed the time of flowering in Patricia Lynn and FL-101 when compared to plants that were grown with no refrigeration (Figure 1). This effect is due to the greater time under cold storage.

Table 1. Environmental treatments for the propagation of *Alstroemeria*.

Week of propagation (Week #)	Pot size <sup>1</sup>	Weeks in warm greenhouse (68° F nights)	Cold storage (39° F)	
			Period (Weeks in cold)	Light/Darkness
39	Large	4	0	NA <sup>2</sup>
39	Small	4	8	Light
39	Small	4	8	Darkness
41	Large	4	6	NA
41	Small	4	6	Light
41	Small	4	6	Darkness
43	Large	4	0	NA
43	Small	4	4	Light
43	Small	4	4	Darkness
47	Large	4	0	NA
47	Small	4	0	NA

<sup>1</sup> Large pots = 1-gallon; small pots = 2-inch liners

<sup>2</sup> NA = not applicable

about two inches shorter than Patricia Lynn plants. Aerial fresh weight values followed a similar tendency as stem length; if a plant received cold storage, it had a fresh weight greater than or equal to those control plants that were not stored.

The number of flowering stems that were produced from plants that were refrigerated was either greater than or the same as plants that were not refrigerated (Figure 2). Greater differences between large- and small-pot plants were observed with Patricia Lynn plants: a greater number of flowering stems was observed in treatments with cold storage.

Overall, the presence or absence of light during refrigeration had no effect on subsequent plant growth and development. When a visual evaluation was given for all plants at the time of flowering, there were no significant differences observed between treatments, and the number of florets produced per inflorescence was equal. It is important to mention that a low percentage of plants under cold storage of the earliest dates of propagation (weeks 39 and 41) showed *Botrytis* attack with medium to severe damage. This is something that the grower should be watchful for during refrigerated storage.

## SUMMARY

This research demonstrates that *alstroemeria* plants can be propagated early and stored under cold conditions without these procedures negatively affecting final plant performance. However, the process will affect the scheduling of the crop. An additional 4-7 weeks of production time may be required if the plants are stored cold.

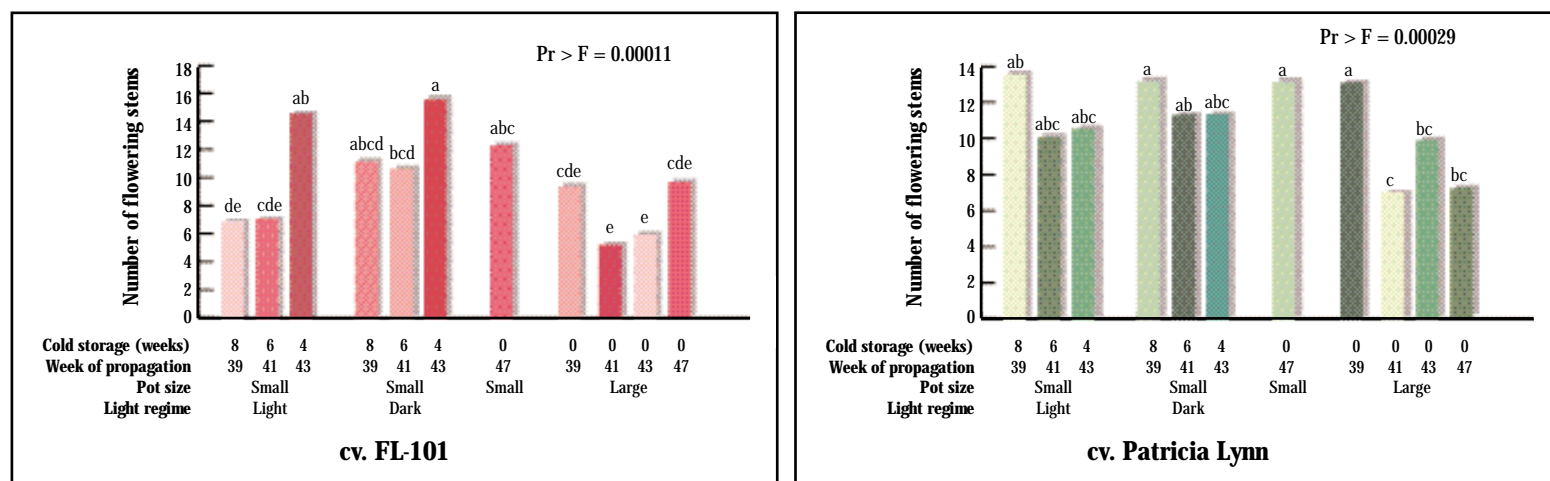


Fig. 2. Number of floral stems per plant at the time of first flower opening of *Alstroemeria* cultivars 'FL-101' and 'Patricia Lynn' under different propagation strategies.

The longer the time in cold storage, the more time it will take for the finished plants to flower. In addition, differences between cultivars are to be expected, and there is no advantage to lighting *alstroemeria* that are stored cold.

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