

FORCING PERENNIALS

– Crop By Crop –

Species: *Lobelia xspeciosa* 'Compliment Scarlet'

Common name: Lobelia

Editor's note: Michigan State University and GREENHOUSE GROWER bring you our second series on forcing perennials. This group of articles will be bound into another GGPlus booklet: Firing Up Perennials II. Part three of this series features Lobelia xspeciosa 'Compliment Scarlet.'

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NAMED for the Flemish herbalist, Matthias de l'Obel, lobelias are sometimes placed in the Campanulaceae, or Bellflower family, and sometimes given their own family, the Lobeliaceae. The latter classification may seem more sensible to many, as their flowers are not at all bell-shaped.

These eye-catching perennials have long been popular in the garden for their color, (Figure 1) despite some cultural difficulties. They prefer a moist spot, but will not tolerate standing water. With adequate moisture and good drainage they enjoy full sun, but if planted in a drier spot, they need the protection of shade during the hottest part

Figure 1.



Figure 1. Perennial lobelia hybrid in the garden.

PRODUCTION
FORCING PERENNIALS

of the day. They are fully hardy, but short-lived, particularly in colder climates, where they must often be replaced after a few years.

Lobelia xspeciosa has an interesting origin. As the "x" indicates, it is actually a hybrid between two lobelias, both native to North America. *Lobelia cardinalis*, a red-flowered species, and *L. syphilitica*, a blue-flowered species, interbred to produce a variety of intermediate colored flowers in offspring.

The cultivar 'Compliment Scarlet' most resembles *L. cardinalis*, having particularly striking bright red flowers, produced on tall spikes (Figure 2). Other hybrid cultivars of these parents include: 'Dark Crusader,' 'Cherry Ripe,' 'Queen Victoria,' and 'Illumination.'

Our research has been conducted on *Lobelia xspeciosa* 'Compliment Scarlet' and information provided here is only for this cultivar. While we expect other cultivars to respond similarly, we have found that cultivars often vary.

'Compliment Scarlet' requires long days to flower without cold, and benefits from long days after cold. While a cold treatment is not required if long photoperiods are given, a short cold treatment will improve vigor and uniformity.

**Formula For Success:
'Compliment Scarlet'**

1. Provide at least 3 weeks of cooling at 35°-45°F (2°-7°C) for improved vigor and uniformity.
2. Grow under photoperiods of at least 14 hours, or night interruption.
3. Provide 400-500 footcandles supplemental lighting during low light periods.
4. Apply growth regulators as necessary to control height.

Figure 2.



Figure 2. The rare color possessed by 'Compliment Scarlet' is guaranteed to stand out in the garden as well as at retail.

1. Propagation

'Compliment Scarlet' is a seed-propagated cultivar that typically has 75%-80% germination. Because seed is very small, it is generally multi-sown, and left uncovered. Warm conditions 70°-75°F (21°-24°C) are best during the 10-14 days seedlings take to emerge. An additional 10 weeks are required to produce a 128-cell plug.

2. Plant Size

Plants with as few as 6-7 leaves, in 128-cell plugs responded to floral inductive treatments. Plants may be potted up in the fall to develop a larger plant before going into the cooler, if desired.

3. Cold Treatment

'Compliment Scarlet' flowered without a cold treatment when given long photoperiods. While cold did not af-

Figure 3a.

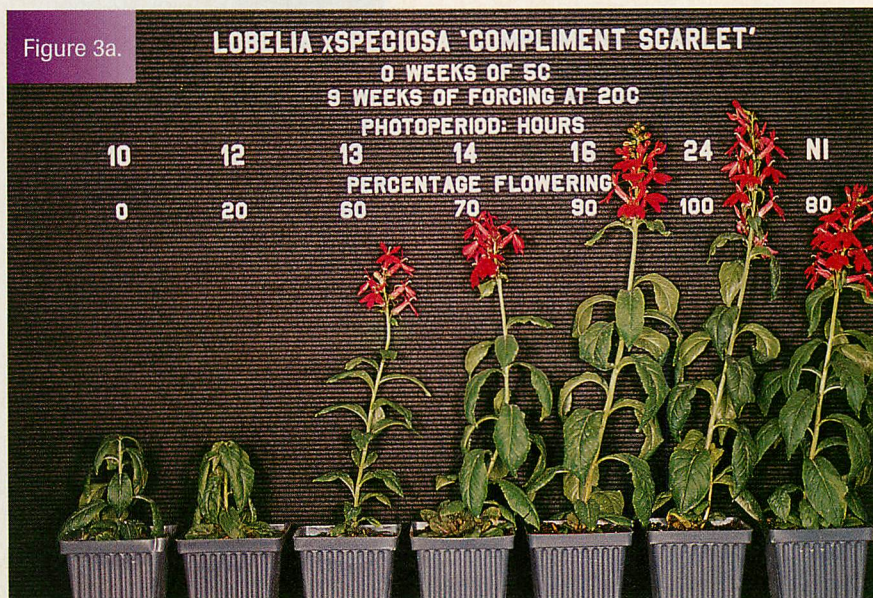


Figure 3a. Without a cold treatment, plants flowered poorly or not at all under photoperiods less than 14 hours.

fect flowering percentage or time-to-flower, 6 weeks at 41°F (5°C) improved vigor and uniformity in flowering time. More than 6 weeks of cooling provided no further increases in uniformity. When plants were forced under short days (photoperiods less than 14 hours) a cold treatment of at least 12 weeks was required to achieve flowering.

4. Photoperiod

Without cold, plants require at least 14-hour photoperiods for a significant percentage of plants to flower. Following cold, most plants will flower under any photoperiod, but flowering is delayed 10 to 14 days when daylength is less than 14-hours compared to longer days (Figures 3a, 3b). As with many perennials, a 4-hour night interruption from 10:00 to 2:00 will provide long days. Day extension or night interruption treatments should provide a minimum of 10 footcandles at plant level.

5. Media, Fertilization, And Irrigation

We have had good results in our experiments using a high-porosity media with moderate nutrition. We use a fertilizer solution containing 100-150 ppm N, 10-20 ppm P, and 100-150 ppm K at every irrigation and keep the pH between 5.8-6.4.

6. Lighting And Spacing

Plants are more sturdy and attractive when grown under high-light conditions. Supplemental lighting from high-pressure sodium lamps at 400-500 footcandles may be beneficial when forcing under dark or cloudy conditions, which may occur during the winter. 'Compliment Scarlet' has a vertical growth habit, and may therefore, be spaced fairly closely (Figure 4).

7. Plant Height Control

'Compliment Scarlet' like many perennial lobelias, is a naturally tall plant. In the greenhouse, plants may reach



Figure 4. Lobelia 'Compliment Scarlet' has a narrow, upright habit, and can be spaced fairly closely. The bench-run plants shown here are in separate pots.

more than 24 inches (60 centimeters), which is likely to be too tall for production in 5-inch pots. With this in mind, we screened growth regulators for effectiveness on this cultivar.

All growth retardants were effective in controlling stem elongation. At the rates used, Bonzi and Cycocel were moderately effective, A-Rest and B-9 were very effective, and Sumagic was the most effective growth retardant on this species. None of the growth regulator treatments caused a significant delay in flowering. The dosages and application frequencies used in our screen were rather high, and are not meant to be taken as recommendations, but rather as indicators of a growth retardant's effectiveness on this plant (Figure 5).



Figure 3b. Even after 15 weeks of cold treatment at 35°-45°F (2°-7°C), flowering is more uniform and vigorous under photoperiods greater than 14 hours.

8. Temperatures And Crop Scheduling

Flower number was somewhat reduced as temperatures increased, although there were otherwise very few quality differences between treatments. Flower length and plant height varied little with temperature, from 59°F (15°C) to 80°F (27°C).

The number of days to flower, on the other hand, was strongly influenced by temperature. Plants

Table 1.

***Lobelia xspeciosa* 'Compliment Scarlet' Production Schedule**

Growing time	Cultural practice	Temperature	Photoperiod
14 days	Sow seeds	70°-75°F (21°-24°C)	Natural daylength or darkness
10 weeks	Grow on in plugs	~68°F (20°C)	Natural daylength
-OR- Purchase plugs			
3 weeks	Cold treatment	35°-45°F (2°-7°C)	Natural daylength or 9 hours of light in the cooler
Begin forcing			
↓ ↓ ↓ ↓ ↓ ↓	↓ ↓ 70°F (21°C) Flower in 54 days (8 weeks)	↓ 75°F (24°C) Flower in 51 days (7 weeks)	Number of days from visible bud to flower 64°F (18°C) - 52 days 70°F (21°C) - 32 days 75°F (24°C) - 21 days
64°F (18°C) Flower in 77 days (11 weeks)			

bloomed in 39 days at 80°F (27°C), as compared to 85 days at 59°F (15°C).

9. Disease And Insect Pests

Pythium has been a problem, particularly when plants were in rosettes (for example, under short days or early in produc-

tion). Water sparingly during the first few weeks of forcing until plants have become well-established in the pot. Regular application of fungicidal drenches will also help to control Pythium. Although we have had no significant problems with insect pests in our experiments, scouting and other preventative maintenance practices should always be followed.

10. Postharvest Concerns

'Compliment Scarlet' should be sold at first flower, as spent blooms remain on the plant and are unsightly. Staking may be necessary to stabilize these tall plants during shipping if plants are grown under low-light conditions or growth regulators are not used. While they cannot be expected to "fill out" a pot because of their upright habit, if sold in flower their bright red blooms are guaranteed to attract attention. **GG**

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Figure 5.

Growth Regulator Comparison On *Lobelia xspeciosa* 'Compliment Scarlet'

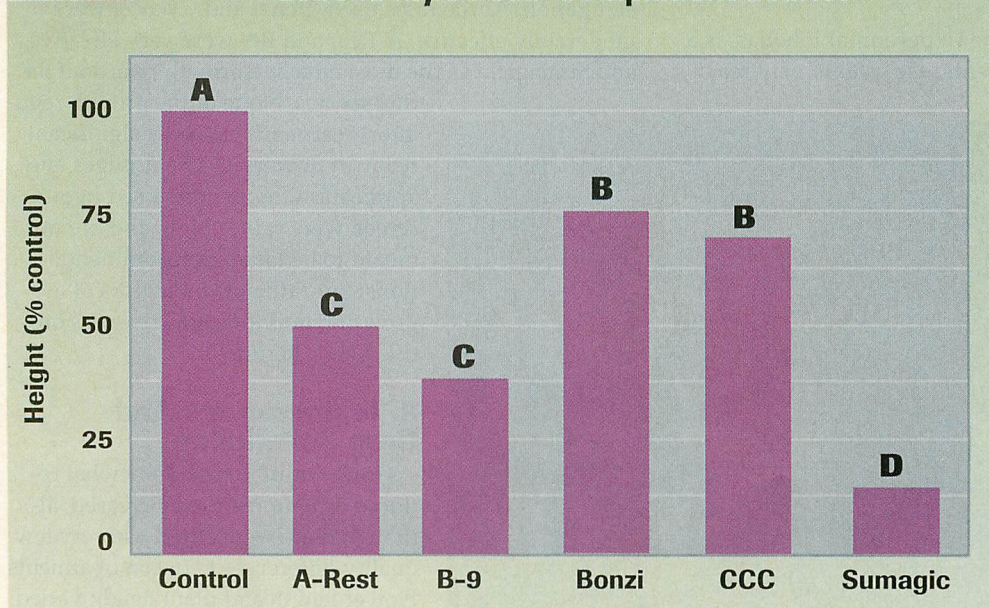


Figure 5. Final plant height relative to the control is shown. Bars with the same letter were not statistically different from each other. Growth regulators were applied three times, 10 days apart, at the following rates: 100 ppm A-Rest; 5000 ppm B-9; 30 ppm Bonzi; 1500 ppm CCC (Cycocel); 15 ppm Sumagic. The dosages and application frequencies used in our screens were rather high, and are not meant to be taken as recommendations, but rather as indicators of a growth retardant's effectiveness on this plant.