



By Paul Pilon

# Lupine Camelot Series

THESE FIRST-YEAR  
FLOWERING DWARF  
PERENNIALS COMMAND  
A PREMIUM APPEARANCE.



'Camelot Red'

Lupines are one of the showiest, most impressive perennials in production today. Their stately pillars of blooms contain dozens of vibrantly colored individual flowers. The Camelot series of hybrids is a dwarf form of this popular perennial. This series consists of five individual flower colorations (Blue, Rose, White, Yellow and Red) and is also available as a mixture of flower colorations. The Camelot series is first-year flowering perennial, allowing growers to supplement their annual-bedding plant programs with a perennial that commands a premium appearance.

Lupine performs well throughout USDA Hardiness Zones 4 to 8 and AHS Heat Zones 8 to 1, in locations with rich soils and good drainage. The Camelot cultivars grow 18 to 20 inches tall in the landscape, which is at least a foot shorter than many of the more traditional cultivars grown in the past. Several spires of flower stems emerge from the crown and display their intricate beauty in the late spring through early summer. With its compact growing habit and showy blooms, the Camelot series can be used as a specimen plant or in mass plantings. Additionally, lupines make excellent cut flowers and attract butterflies and hummingbirds in the garden.

## Propagation

Lupinus Camelot series is propagated from seed. It is best to sow lupines in plug trays with large cell sizes filled with a porous growing

medium. Avoid mixes with small particle sizes and high moisture-holding ability. Sow one to two SafeCoat treated seeds per cell. SafeCoat seed treatment contains a fungicide for controlling seed-borne diseases (namely Colletotrichum), which have been shown to reduce the germination and survival of lupine seedlings.

After sowing, cover the seeds with a heavy layer of germination mix or medium-grade vermiculite to help keep the seed moist during germination. The seed flats should be moistened and moved to a warm, environment, where the temperature can be maintained at 65 to 72° F for germination. During germination, keep the growing mix at constant moisture (80+ percent relative humidity), but not wet until the seeds are germinated.

Seedlings typically emerge within three to five days of sowing. The moisture levels can be reduced after germination, allowing the growing medium to dry out slightly before watering. To prevent foliar disease development (discussed below), it is best to water early in the day when the conditions are conducive to rapid drying of the foliage. The growing temperatures can also be reduced to 60 to 65° F following germination.

Fertilizers are usually applied once the true leaves are present, applying 100-ppm nitrogen once a week. During the plug stages, maintain the EC levels between 0.75 and 1.0 and the media pH between 5.6 and 6.0. It takes approximately six to seven weeks for plugs grown in



50-cell trays to reach a transplantable size when they are grown at 65° F.

**Production**

The Camelot series is suitable for production in large container sizes; 1-gallon or larger-sized pots work well. Lupine performs best when it is grown in a well-drained growing mix; bark-based growing mixes are preferred over traditional greenhouse mixes consisting primarily of peat moss. After potting, the original soil line of the plug should be even with the surface of the growing medium of the new container.

Maintain the media throughout the production cycle with a pH between 5.8 and 6.2. They are moderate feeders and grow well under constant liquid fertilizer programs with rates of 75-ppm nitrogen with each watering or 150 to 200 ppm at every other watering. Growers using controlled-release fertilizers get the best results by incorporating at a rate equivalent to 1.0 to 1.25 pounds of nitrogen per yard of growing medium.

Lupines require average to slightly below average amounts of irrigation, with a preference towards being on the slightly dry side. When irrigation is necessary, water them thoroughly, allowing the soil to dry between waterings. See additional irrigation comments in the Insect and Disease section below.

Even though the growing habit is more compact than other cultivars in production, many growers still find it necessary to control plant height during production. If height control is necessary before flowering, the first spray application should occur just as the leaves reach the edge of the container and before the canopy from adjacent pots closes in. To reduce the height of the flower, apply plant growth regulators just as the flower stem is beginning to elongate above the foliage. Multiple spray applications of 2,500-ppm daminozide (B-Nine or Dazide), 20-ppm paclobutrazol (Bonzi, Paczol or Piccolo), or 2,000-ppm

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daminozide + 3-ppm uniconazole (Concise or Sumagic) at seven-day intervals are effective at controlling plant height of lupine.

### Insects and Diseases

Aphids, thrips and whiteflies may appear occasionally and usually do not cause significant injury to the crop. Of these insects, thrips are the most problematic. Preventative control measures are not needed; the presence of thrips can be detected through routine scouting and if necessary, control measures can be implemented.

Lupines are susceptible to several pathogens including Ascochyta, Colletotrichum, downy mildew, powdery mildew and rust that cause foliar diseases on lupines. Crown and root rots caused by the pathogens Fusarium, Phytophthora, Pythium and Rhizoctonia, may also become problematic.

Unlike insects, diseases are more commonly observed during production. Of the pathogens listed above, Colletotrichum (Anthracnose) occurs the most frequently and is most commonly the cause of crop damage and losses. Symptoms first appear as half-circular brown spots on leaf edges. Leaf blights and stem cankers usually develop as the disease progresses.

Although, anthracnose has been found on the seed, it also can occur on seemingly disease free crops in production. Using disease-free SafeCoat-treated seed is the first step in preventing Colletotrichum; however, it is still necessary to manage this disease with cultural and preventative management strategies.

The most important aspect of managing anthracnose is to avoid extended periods when free water remains on plant surfaces. Reduce any water that rests on plant leaves such as dripping from roof condensation or dripping sprinklers. Avoid overhead irrigation during cloudy weather or late in the day where the leaves are likely to remain wet for long periods of time. Place the plants in locations with lots of air movement to promote rapid drying of the foliage. Even when these cultural methods are implemented, many growers have found it

beneficial to maintain biweekly preventative spray programs, rotating between fungicides effective at controlling Colletotrichum; chlorothalonil + thiofanate methyl, fluoxastrobin, kresoxim-methyl,

and pyraclostrobin + boscalid.

### Scheduling

The Camelot series can be forced into bloom for

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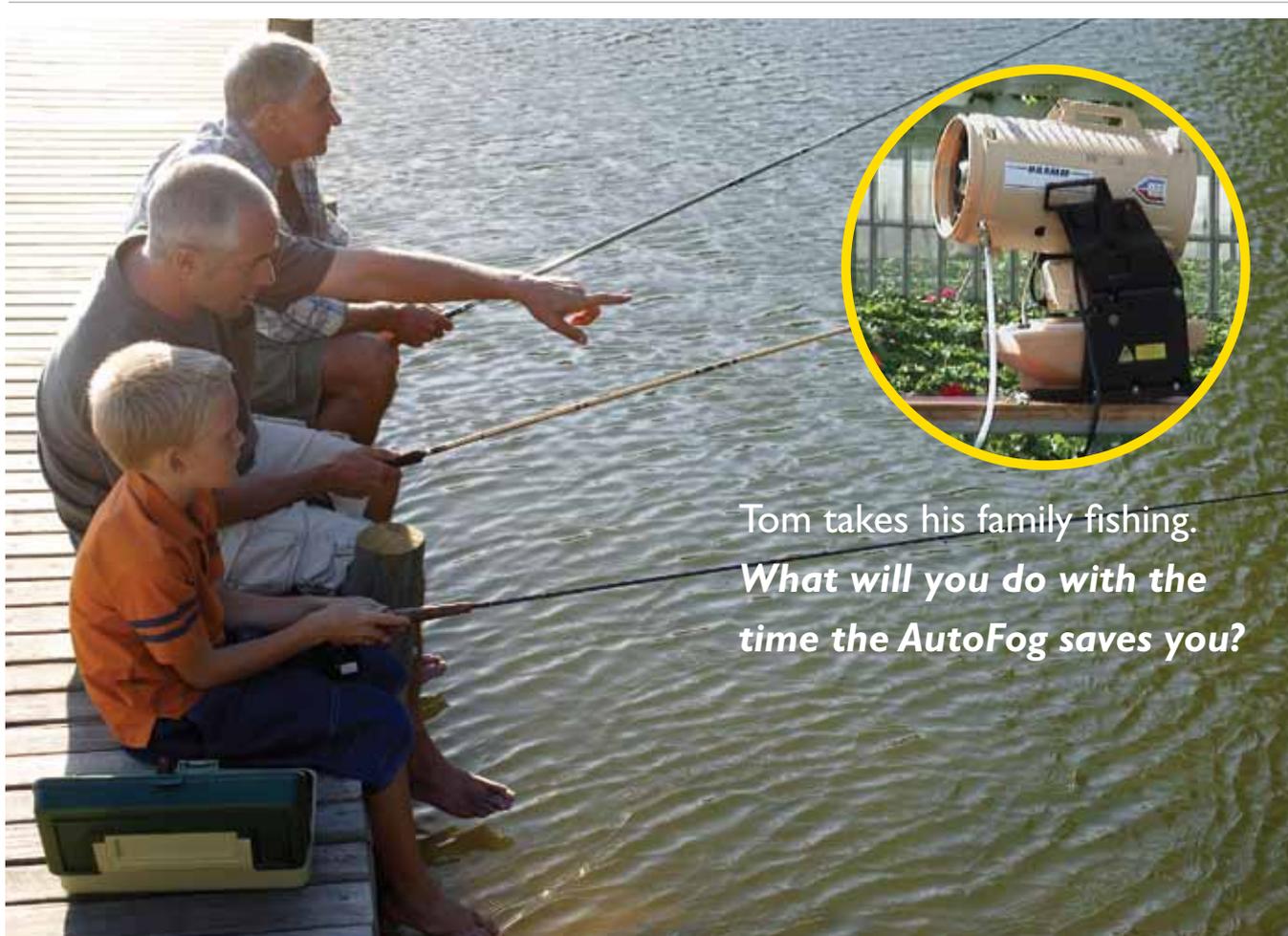
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mid- to late-spring sales. Lupines are cold beneficial plants; flowering is more uniform and occurs more rapidly and consistently following vernalization. Although cold is not an obligate

requirement, I recommend providing vernalization to improve the uniformity of flowering. The highest quality plants are produced when they are bulked up in the final container prior to receiving

the cold treatment. However, if no vernalization is provided, the Camelot series will still flower during the first growing season and make very marketable containers.



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With its compact growing habit and showy blooms, the Camelot series can be used as a specimen plant or in mass plantings.

Following vernalization, lupines require long days for flowering. When the day lengths are naturally short, long day conditions can be created by providing day extension or night interruption lighting. They are cool season plants and produce the best quality plants when they are grown with cool production temperatures (60 to 65° F). At these temperatures, it takes approximately 10 to 12 weeks to flower after the cold treatment. Growing them warmer is still acceptable and will decrease production time slightly.

**Availability**

The lupine Camelot series is brought to the market and available to growers through Syngenta Flowers ([www.syngentaflowersinc.com](http://www.syngentaflowersinc.com)). Seed and plugs can be acquired through numerous reputable brokers. ☒

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