perennial solutions

Primula acaulis Harlequin Series

By Paul Pilon

Breeding efforts throughout the past few decades have helped produce primula varieties with improved attributes, such as those in the Harlequin series.

The true arrival of spring is frequently welcomed by the vivid colors of the English primrose. Primula are widely grown and marketed as bedding plants, potted house plants and perennials. Although they make excellent garden plantings, they are widely underutilized in North American landscapes. Historically, primula were difficult to commercially produce, were short lived in the landscape and had a limited range of garden colors available, but breeding programs throughout the last 20-30 years have greatly improved its attributes.

The Harlequin series, exclusively available from S&G Flowers, is the result of such breeding efforts. This series produces a stunning display of bicolor flower clusters held closely above compact rosette foliage. Five colors are currently being offered: Blue Bicolor (midblue margin with white center), Carmine Bicolor (dark carmine red/rose margin with white center), Red Bicolor (bright scarlet-red margin with yellow center), Rose Bicolor (rose margin with white center) and Bicolor Mix (a mixture of bicolors and solids). All varieties have the characteristic yellow eye. This is an early to mid-flowering series that is well suited for production in small containers or in combination with other plants in color bowls or patio planters.

Primrose are delicate, cool-season perennials that perform best in shady locations across much of USDA Hardiness Zones 4-7. Like many cool-season plants, primula do not tolerate the extreme summer heat of much of the United States or the severe northern winters. In these areas, primula are often treated as annuals. The Harlequin series can be grown successfully in warmer zones when adequate shade and moisture is provided.

Propagation

Harlequin seeds are commonly sown in open flats or plug trays filled with a fine-textured peat mix with a low nutrient charge (EC less than 0.75). The seeds require light for germination, and covering them with germination mix or vermiculite following sowing is generally not recommended. During germination, maintain moderate moisture levels, never allowing the seed to dry out or become saturated. If it is difficult to maintain moisture around the seed during germination, a very light covering of #2 course-grade vermiculite will help maintain sufficient moisture around seeds. When a light covering is applied, provide at least 50 foot-candles of supplemental light during the germination process.

It is best to keep temperatures cool (59-65° F) during germination to improve crop uniformity and prevent early elongation. Avoid germination temperatures greater than 68° F. Starting primula inside a germination chamber will help maintain cool temperatures, increase both the germination rate and percent germination, and decrease the time necessary for all the seeds to sprout. At these temperatures, seeds should be germinated in 7-10 days.

Once germinated, they can be grown with temperatures from 60 to 65° F. Following germination, reduce moisture levels somewhat, allowing the growing medium to dry out slightly before watering to help promote rooting. At these temperatures, the Harlequin series will finish the plug stage in approximately 8-10 weeks. Fertilizers are usually applied once the true leaves are present. Apply 75- to 100-ppm nitrogen every third irrigation or 50 ppm every irrigation using a balanced water-soluble source. Maintain a 5.5-6.2 pH. Primula are sensitive to high light levels. To prevent leaves from burning, provide 30- to 50-percent shade when natural light levels exceed 3,000 foot-candles

Production

The Harlequin series is most commonly produced in small containers, such as 4- to 5-inch pots, with a single plug planted in a pot's center. To prevent sunscald, primula should not be produced at light levels greater than 3,000 foot-candles. ➧

This series produces a stunning display of bicolor flower clusters held closely above compact rosette foliage. (Photos: S&G Flowers)

Primula perform best when grown in a moist, well-drained medium with a slightly acidic pH: 5.5-6.0. They are light feeders; providing moderate to high fertility levels (particularly from ammonium sources) causes them to appear lush and leafy. Avoid high salt levels (greater than 1.5 EC) and overly dry growing conditions. Growers commonly deliver nutrients using nitrate-nitrogen water-soluble fertilizer formulations containing calcium and potassium nitrates, feeding at rates of 100-ppm nitrates. Growers may also use controlled-release fertilizers incorporated at a rate equivalent to one-half to three-fourths lb. of nitrogen per yard of growing medium to deliver nutrients to primula crops.

Foliage yellowing may occur during production; this yellowing is an indication of either low overall nutrient levels or high pH (iron deficiency). Conduct periodic soil tests to monitor and help maintain adequate pH and soluble salt levels. When irrigation is necessary, water thoroughly then allow the soil to dry slightly between waterings.

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The Harlequin series has a naturally compact growth habit and will usually not require plant growth regulators (PGRs) to control plant height. Under certain growing conditions or under high plant densities, it may be necessary, although not common, to use chemical PGRs. I have used Concise or Sumagic (uniconazole) at low rates (2-3 ppm) to darken primula foliage prior to shipping rather than to reduce plant height.

Insects And Diseases

English primroses can generally be grown insect and plant-pathogen free. Occasionally, aphids, leafhoppers, slugs, spider mites, thrips and whiteflies may appear and cause only a minimal amount of crop injury. The primary diseases growers should watch for are Botrytis, powdery mildew and Ramularia leaf spot (yellow spots on leaves that turn brown).

Reducing the presence of free-standing water on leaves, lowering the relative humidity levels and providing adequate air circulation can decrease the occurrence of Ramularia. Several fungicides are labeled and effective at controlling this disease, including Daconil (chlorothalonil), Milstop (potassium bicarbonate) and 3336 (thiophanate methyl). Growers should have routine scouting programs in place to detect the presence of insects and diseases early and determine if and when control strategies are necessary.

Forcing

Varieties in the primula Harlequin series are easy to force into bloom and are most commonly produced for early spring sales. Primula can be forced into bloom using the traditional method, which entails sowing seeds in early summer, providing a cold period during winter months and forcing them into bloom in the early spring or using methods to achieve first-year flowering. With either method, the plugs are physiologically mature enough to initiate flower buds when they are at the 6-10 leaf stage (approximately 12-16 weeks after sowing). Generally, flower buds can be observed deep in the crown of the plant when the leaves reach the edge of a 4-inch container.

To produce flowering English primroses using traditional methods, growers practice the following guidelines. The seeds are typically sown in the late spring to early summer. The plugs are transplanted into the final containers during the late summer to early fall (8-10 weeks after sowing). The plants are exposed to at least six weeks of temperatures below 45° F during the winter months. After flower buds are visible in the late winter, they can be grown at 50-60° F for 3-5 weeks to produce flowering plants.

As mentioned above, young primula plants with 6-10 leaves are mature enough to initiate flower buds. They are classified as facultative long day and irradiant plants. Under long-day conditions (day lengths more than 14 hours) and when grown under amble light levels (1,500-1,700 foot-candles), primula will initiate flowers faster than when produced under lesser conditions.

Once the plants are well established (3-6 weeks after potting), they can be grown at 55° F and long days with ample light intensity to promote rapid flower induction and uniform flowering. Most growers provide at least six weeks of vernalization at 45° F in lieu of the long-day treatment. After the flower buds have been initiated (visible bud), they can be produced at 50-60° F at natural photoperiods for an additional 3-5 weeks until they flower. With this method, it takes 11-13 weeks to reach flowering from the time plugs are transplanted.

Availability

Primula Harlequin series seed is exclusively available to growers through S&G Flowers (www.sg-flowers-us.com). Plugs can be acquired from many reputable perennial plug producers or plant brokers. GPN

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Paul Pilon is president of Perennial Solutions Consulting, Jenison, Mich., and author of *Perennial Solutions: A Grower's Guide To Perennial Production*. The book is a guide to propagation and growing containerized perennials with chapters on media, fertilization, insect and disease management, weed control, propagation, forcing, plant growth regulators, overwintering, and individual cultural programs and schedules for many of today's most popular perennial species. Pilon can be reached at (616) 366-8588 or paul@perennial-solutions.com. Get a copy of his book at www.perennial-solutions.com.