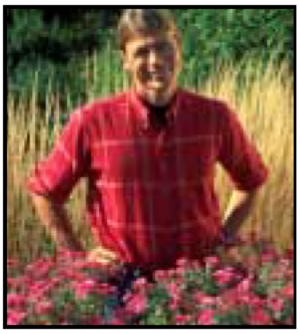
Special Research Report #508: Production Technology

Production Protocol for *Pennisetum setaceum* 'Rubrum'

Beth Fausey, Research Technician, and Arthur C. Cameron, Professor
Department of Horticulture, Michigan State University, East Lansing, MI 48842

BACKGROUND

Enjoyment of perennials should easily extend beyond the garden and into the home environment



A.C.Cameron
cameron@msu.edu
517-353-3766

Pennisetum setaceum 'Rubrum', (Purple Fountain Grass) is grown as a tender annual grass north of USDA zone 9. With deep burgundy foliage and soft beige plumes, it is a dramatic eye-catching ornamental grass that will sell itself in a retail setting. Production and marketing challenges lie in maintaining the burgundy foliage coloration and overall plant compactness during shipping and retailing. Although mature plants form compact clumps 2 to 3' tall by 2' to 3' wide, Purple Fountain Grass can be successfully grown and forced to flower in any size container.

***Pennisetum setaceum* 'Rubrum'**

MATERIALS & METHODS

Flowering Requirements

Pennisetum 'Rubrum' plants were evaluated for their response to photoperiod (10-, 12-, 13-, 14-, 16-, 24-hr, or a 4-h night interruption) and forcing temperatures of 57-79°F) to precisely determine flowering requirements.

Postharvest and Garden Performance

Plants were forced into flower on May 15 or allowed to flower naturally. Half of the forced plants were stored for two weeks in a postharvest evaluation chamber set at 22°F and 50-70% RH with ~15-20 $\mu mol \cdot m^{-2} \cdot s^{-1}$ from cool white fluorescent lights. Flower longevity, flower quality, bud abortion, leaf yellowing, and other quality changes were recorded.

Plants not stored in the chamber remained in the greenhouse until planted on May 31. Since it is an annual in Michigan, plants were installed in garden plots on May 31 each year for two years.

RESULTS

Staring Material

Purple Fountain Grass rarely produces viable seed. Therefore, it is vegetatively propagated by cuttings or divisions. Divisions with at least one healthy root and several tillers root easier than stem cuttings without roots. Divisions take approximately 3 weeks at 75 °F to root.

Cold Treatment

Purple Fountain Grass does not tolerate exposure to cool temperatures and must not be stored below 60ºF.

Photoperiod

Purple Fountain Grass is a facultative LD plant. It flowers under all photoperiods but earlier under long days (>14-h photoperiods). Electric lamps can be used to extend the photoperiod to 14 hours or longer when the day length is

naturally short. Night interruption lighting (NI) from 22:00 to 02:00 hours is also effective in providing long day lighting. Lights must provide a minimum light intensity of 10 foot candles.

Forcing Temperatures
Plants can be successfully forced at temperatures between 68 and 90ºF. Compact plants can be produced by growing plugs at 74°F for six weeks followed by forcing plants to flower at 68°F for an additional 8 to 9 weeks.

Supplemental Lighting
When light levels are naturally low, plant quality and foliage coloration can be improved during the winter months by using supplemental lighting. . High intensity discharge lights are suitable.

Growth Regulation
Since Purple Fountain Grass can reach 3 to 4 feet growth regulation may be required. Plant size is greatly restricted in smaller containers. Chemical growth regulators such as Bonzi, A-Rest, Cycocel, and Sumagic applied before stem elongation have been found to be effective.

Postharvest Quality
Overall, Purple Fountain Grass plants performed well in the postharvest environment. At 72°F and under light levels that would be encountered indoors, it grows quickly. Newly developed growth and flowers lacked pigmentation and were green in comparison to the purple growth that developed in the greenhouse. In some cases, flowers did not fully emerge from buds. Overall, however, they remained ornamentally attractive and did not detract from plant quality. Plants are fairly drought tolerant and overall appearance in postharvest conditions should be acceptable for at least two weeks.

Garden Performance
Plants that were cutback at planting took approximately six weeks to flower in the garden and many of the plants failed to flower by the end of the summer. Plants in the postharvest treatment also took several weeks to recover once planted outdoors. The foliage of all plants turned purple when planted in full sun.

Purple Fountain Grass is sensitive to temperatures below 50°F and is quickly killed by frost. Recovery of cold-damaged plants can take several weeks. In Michigan, we strongly advise that it be planted outdoors after June 1, the same time as tomatoes and other chilling-sensitive crops. When planted in June, Purple Fountain Grass planted in full flower performed very well in the garden and flowered throughout the summer until first frost. When planted in the garden without flowers, it can take several weeks to produce the first flowers.

Purple Fountain Grass flowers non-stop when planted in flower.

CONCLUSIONS

The keys to producing superior flowering *Pennisteum* 'Rubrum' plants are four-fold: (1) starting material, (2) container size, (3) proper photoperiod and (4) moderate to warm greenhouse temperatures. Forcing Purple Fountain Grass into flower for spring sales did not have deleterious effects on garden performance. It will flourish and flower in 4 inch to 5 gallon or larger containers.

IMPACT TO THE INDUSTRY

Detailed production information on plants such as *Pennisetum setaceum* 'Rubrum' permits growers and retailers to effectively provide consumers with flowering herbaceous perennials on any given date. These perennials are added value products that consumers can enjoy in their homes and gardens.