‘Prairie Chief’ Big Bluestem

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While the use of prairie plants in midwestern landscapes is currently going through a resurgence (Smith and Smith, 1980; Wasowski, 2002), the concept is firmly rooted in the past. Wilhelm Miller (1915) wrote, “Every Illinois city should have in at least one park a ‘prairie border’—with the grasses, composites, and other flowers labeled.” Astute designers realized that native prairie species are often adapted to Midwestern soils, climate, and pests, which can reduce maintenance practices such as supplemental irrigation, fertilization, and pesticide use. The reduction in materials and labor resulting from landscaping with native plants over a 10-year period may be one-fifth the cost of conventional landscape plantings (Mariner et al., 1997).

Horticultural selections of prairie forbs (e.g., *Aster novae-angliae*, *Echinacea purpurea*, *Liatris spicata*, and *Rudbeckia hirta*) are common. Conversely, other than switch grass (*Panicum virgatum*) and little bluestem (*Schizachyrium scoparium*), horticultural selections of native ornamental grasses are relatively uncommon; presently, most ornamental grasses planted in the Midwest are exotics, often from the genera *Calamagrostis*, *Miscanthus*, and *Pennisetum*.

Native grasses in the genus *Andropogon* (the bluestems), particularly *A. gerardii*, deserve more landscape attention. Greenlee (1992) noted that named cultivars of *Andropogon* would soon be introduced into the U.S. landscape trade due to their heights and foliage colors. *Andropogon gerardii* Vitman, big bluestem or turkey-foot, has been shown to be particularly diverse morphologically, ecologically, cytologically, and genetically (Barnes 1985, 1986; Gustafson et al., 1999; Keeler and Davis, 1999; Keeler et al., 2002; Wipff, 1996), all indicative of high potential for horticultural selection.

Andropogon is a large genus of ≈100 species, comprised of perennial grasses found in temperate and tropical climates (Mabberley, 1997; Watson and Dallwitz, 1994). Members of the genus are commonly referred to as bluestems or beardgrasses; the name bluestem

describes the bluish bloom on stems of some species within the genus (Mosher, 1918). The term beardgrass is a literal interpretation of the genus name *Andropogon*, which was derived from the Greek *andro* (man) and *pogon* (beard). This name is in reference to the hairy rachis and pedicels of sterile spikelets (Fernald, 1950). The specific epithet, *gerardii*, honors the French botanist, Louis Gérard, who informally described the species from plants cultivated in Provence (Fernald, 1950).

Members of the genus *Andropogon* are quite common in much of the U.S.; there are 15 species in the continental U.S. (Kartesz and Meacham, 1999). Big bluestem (*Andropogon gerardii*), a primary component of the tallgrass prairie, is typically found in mesic areas, but can also occur in xeric or wet prairies (Ladd, 1995; Stubbendieck et al., 1997). Big bluestem is found from Quebec and Maine to Saskatchewan and Montana, south to Florida, Wyoming, Utah, and Arizona and also in Mexico and Honduras (Fernald, 1950; Hitchcock 1950; Kartesz and Meacham, 1999).

Big bluestem is highly regarded as a livestock forage crop (Stubbendieck, 1997). Selections have been made for forage production as well as range and pasture plantings. For example, *A. gerardii* ‘Niagara’ is used for warm season forage production, re-vegetating

droughty sites, and wildlife habitat improvement (Alderson and Sharp, 1995). Unique characteristics of ‘Niagara’ include a wide flag leaf, rapid regrowth in late summer and early fall, and some resistance to leaf spot (Alderson and Sharp, 1995). Other varieties such as ‘Kaw’ and ‘Pawnee’ (Reg. No. 1) are also used for range and pasture plantings. ‘Kaw’ displays uniform distribution of leaves, some resistance to rust, relatively high seed yields. ‘Pawnee’ produces good forage yields in Nebraska; seed quality and seed yields in cultivated rows and under irrigation are superior to common strains (Alderson and Sharp, 1995).

In landscapes, *Andropogon gerardii* has traditionally been relegated to naturalized plantings such as prairie restoration, but can also be used as a background plant or screen (Greenlee, 1992). Its height (typically 1.5 to 2.4 m), upright growth habit, and orange to copper-red fall color identify it as a potential landscape plant (Darke, 1999).

Cultivars of big bluestem have rarely been selected for ornamental planting. Exceptions are ‘Sentinel’ and ‘Champ’. ‘Sentinel’ (Limerock Ornamental Grasses, Inc., Port Matilda, Pa.) is similar in height, floral morphology, and cultural and propagation requirements to the species. Its narrow, columnar growth habit and burgundy tinted with yellow and orange suffused with blue fall color distinguish it from other big bluestems (Norm Hooven, Limerock Ornamental Grasses, Inc., personal communication). ‘Champ’ was originally selected as a forage type (Alderson, and Sharp, 1995; Newell, 1968), but Greenlee (1992) includes it with ornamental grasses due to its fall color and tolerance to sandy growing sites.

Herein, another *A. gerardii* cultivar, ‘Prairie Chief’, is being introduced for landscape planting. It displays an upright habit that is slightly more open than ‘Sentinel’, and red, purple, and orange fall color. Furthermore, based on its habit and height, ‘Prairie Chief’ provides a native replacement for several exotic grasses

Fig. 1. ‘Prairie Chief’ Big Bluestem.

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CULTIVAR AND GERMPLASM RELEASES

Table 1. Morphological features of *Andropogon gerardii* ‘Prairie Chief’ in 2001 and 2002 (cm).

Feature	2001				2002			
	Max	Min	Mean	SD	Max	Min	Mean	SD
Height ^z	208.2	193.0	198.6	6.33	205.0	181.0	192.8	10.73
Clump circumference ^y	137.1	121.9	128.5	7.10	140.0	115.0	129.2	11.03
Leaf length ^x	69.9	53.9	62.0	7.08	53.0	28.8	41.0	5.85
Leaf width ^w	1.0	0.8	0.88	0.12	1.2	0.8	1.0	0.13

^zPlant height was measured (20 Sept. 2001 and 13 Sept. 2002) from the soil surface to the tip of the plant’s uppermost inflorescence and is a mean of five plants.

^yClump circumference was measured (20 Sept. 2001 and 13 Sept. 2002) at the base of the plant immediately above the surface and is a mean of five plants.

^xLeaf length was measured (16 June 2001 and 26 July 2002) from the leaf collar to the apex. Leaf measurements were made using the fourth oldest leaf on five culms from each plant to ensure measurements were taken from mature leaves.

^wLeaf width was measured (16 June 2001 and 26 July 2002) at the widest point of the leaf.

Table 2. Summer and fall foliage colors based on the Munsell Color Charts for Plant Tissues and R.H.S. Colour Chart.

Foliage	Munsell Color Charts for Plant Tissues	R.H.S. Colour Chart
Summer ^z	2.5 GY 5/4 (adaxial)	Green Group 137B (adaxial)
	2.5 G 7/2 (abaxial)	Blue-green Group 122 B/C (abaxial)
Fall ^y	2.5 R 4/4 to 4/6 and 5 R 3/2 to 3/4 (adaxial)	Red-Purple Group 59 A and 60 B (adaxial)

^zSummer foliage measurements were composites of representative leaves from three plants.

^yAutumn foliage measurements were composites of representative leaves from three plants.

(e.g., *Miscanthus sinensis* cultivars or *Calamagrostis xacutifolia* ‘Karl Foerester’) that are commonly used in ornamental plantings.

Origin

In May 1988, plugs purchased from The Natural Garden (St. Charles, Ill.) were planted at the University of Illinois Landscape Horticulture Research Center. Following several years of growth, one of these plants exhibited ornamental characteristics (leaf color and growth habit) superior to most other bluestem plants. The selected plant was divided and transplanted to begin a stock of source plants for ‘Prairie Chief’ big bluestem.

The original plugs were purchased as *A. hallii*, sand bluestem. There is considerable controversy about the relationships within the *A. gerardii*–*A. hallii* taxonomic complex (Barnes, 1985, 1986), and *A. hallii* is sometimes included as a variety within *A. gerardii* (Wipff, 1996). A detailed morphological analysis of the plants selected as ‘Prairie Chief’ indicated that they have long, twisted, and bent awns on the upper lemmas and rhizomes which are either absent or very short, both characteristics of *A. gerardii*.

Description

‘Prairie Chief’ is a C₄ perennial grass with an upright-arching habit (Fig. 1). It has a confined growth habit and is not a rampant spreader. Leaf and plant size combine to give ‘Prairie Chief’ an overall medium-coarse texture.

Morphological data were collected during the 2001 and 2002 growing seasons from five ‘Prairie Chief’ big bluestems growing at the University of Illinois Landscape Horticulture Research Center in Urbana. (Table 1). These plants were originally planted in July 1998, from divisions made of the original plant in the October 1997. These morphological data compare favorably to exotic ornamental grasses more commonly planted in landscapes.

Summer and fall leaf colors (Fig. 2) were identified (Munsell Color, 1977; Royal Horti-

cultural Society, 1966) on 21 Aug. and 1 Nov. 2002, respectively (Table 2). Summer foliage is consistently pale green-blue, but in fall various combinations of red, purple, and orange can occur. Fall colors typically remain effective for three weeks or longer.

The purplish flowers are generally unassuming. When viewed closely, however, the bright yellow anthers are somewhat showy. In 2001, flowering began the third week of July and was completed by mid-August.

Adaptation

‘Prairie Chief’ is well adapted to USDA hardiness Zone 5. It has performed well in the hot, humid summers as well as cold winters of central Illinois. Since establishment in May of 1988 ‘Prairie Chief’ has withstood temperatures ranging from –31.7 °C (1994 and 1998) up to 39.4 °C (1988). Yearly precipitation totals ranged from 88.5 cm (1989) to 149.4 cm (1993), while the annual average for Urbana is 100.8 cm. Following establishment, ‘Prairie Chief’ has not required supplemental irrigation. The deep root system characteristic of the species probably contributes to its ability to withstand heat and drought. Studies have shown that roots of big bluestem may reach depths of 2.1 m (Weaver, 1968). ‘Prairie Chief’ is also tolerant of excess moisture, although it may lodge when water is too plentiful. Plantings of ‘Prairie Chief’ have also been established at several sites in northern Illinois and have also performed similarly in those locations.

Propagation

Andropogon gerardii ‘Prairie Chief’ has been successfully propagated by divisions taken in both autumn and mid-to-late spring using 10 to 15 cm rhizomes. Fall (25 to 31 Oct. 1997) rhizome divisions taken following the onset of winter dormancy were planted into nursery containers (≈3.8 L) using a sterile 1 soil : 1 peat : 1 perlite (by volume) medium and overwintered in an unheated greenhouse.

These divisions broke dormancy normally the following spring and were successfully transplanted into ground beds later that same growing season.

Mid-to-late spring (25 May to 5 June) rhizome divisions were transplanted into nursery containers (≈3.8 L) using a sterile 1 soil : 1 peat : 1 perlite (by volume) medium. Following planting, above ground portions of the divisions were cut to ≈2.5 cm and grown in a greenhouse for ≈5 to 6 weeks. As with fall divisions, the mid-to-late spring divisions were successfully transplanted later that summer into 3.78-L nursery containers. These plants attained salable size by the following growing season. Rhizomes are produced in sufficient numbers for general propagation.

In May 2003, a dormant ‘Prairie Chief’ big bluestem originally planted in July 1998 was divided. The rhizome mass had a diameter of 33 cm and was 24 cm deep. From this mass, using rhizome divisions, 64 plants were successfully propagated.

Availability

Limited numbers of plants are available by making a request for potted plants to the corresponding author.

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