‘Raider Amethyst’ Prairie Verbena [*Glandularia bipinnatifida* (Nutt.) Nutt.]

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Additional index words. Verbenaceae, drought tolerance, native plant, wildflower, Dakota vervain

Prairie verbena [*Glandularia bipinnatifida* (Nutt.) Nutt.] is a common wildflower native from the Mississippi River west to Arizona and from southern Mexico north to South Dakota (Umber, 1979). Correll and Johnston (1970) reported *Verbena bipinnatifida* Nutt., the previous scientific classification for prairie verbena, often covers large acreages in dry plains, prairies, pastures, and disturbed roadsides. These large populations are associated frequently with gypsum, limestone, or calcareous soils (Umber, 1979).

Prairie verbena has a variable growth habit. Plants of a similar age from the same population may be either prostrate or erect (Umber, 1979). Habit variability may also be related to growing conditions and season. In early spring during short days, the internodes are reduced and the plants are more prostrate. As day length increases, internode length increases and the plants attain a more upright habit. Prairie verbena has densely branched stems covered with stiff white hairs (Correll and Johnston, 1970), leaves that are deeply incised, and several growth forms or ecotypes resulting in some attaining specific or varietal status.

Prairie verbena blooms primarily from March through June and less freely through October. In moist situations in the South, flowering continues unabated throughout the growing season, enhancing the use of this native for edge work in the garden (Irwin and Wills, 1961). The colors can range from pink to lavender or a rosy purple within *G. bipinnatifida*. Diggs et al. (1999) described the arrangement of these flowers as a simple dichasium of spikes that increases in complexity with an increase in individual plant size. The term *Glandularia* was derived from the glandular appearance of the stigmatic area of the flowers. The specific epithet *bipinnatifida* was a result of the leaf appearing bipinnately compound.

Prairie verbena exhibits multiple types of seed dormancy; thus, the seed requires a

minimum of 26 weeks of cool, dry storage for the initiation of germination (Vyas and Agarwal, 1970). Germination may be enhanced with supplemental light treatments used after imbibition (Vyas and Garg, 1973).

Origin

Seed from four accessions exhibiting a uniformly dense, compact, and mounding growth habit and dark floral color was preferentially collected during the spring of 1996 from the Cross Timbers and Prairies, Edwards Plateau, High Plains, and Rolling High Plains vegetational areas of Texas (Correll and Johnston, 1970). Seed was cleaned and stored in a cool, dry environment before sowing in Metro-mix 200 (Sun Gro Horticulture Canada, LTD, Bellevue, Wash.) peat-lite media in disposable 10 × 15-cm aluminum pans. Seeds were germinated under standard greenhouse conditions ranging in temperature from 21 to 26 °C during the spring of 1997. Seedlings were transplanted to plug trays. After 3 weeks of acclimatizing the plants in a shady location outdoors, the plugs were transplanted into field plots at the Texas Tech University experimental farm in Lubbock, Texas, in an Amarillo fine sandy loam soil (fine-loamy, mixed, superactive, thermic Aridic Paleustalfs) that provided excellent drainage. Plant height and width, number of flowers per plant, number of lobes per leaf, and diameter of inflorescence measures were taken monthly, as well as an overall visual rating. During July, when the crops were in peak bloom, the accessions were screened using these measures to determine the accession with the most compact growth, uniform flowering, and highest overall rating for appearance. Seed of the two most floriferous and compact accessions were advanced to the

1998 trial, where they were compared with an additional commercial accession secured from Plants of the Southwest (*V. bipinnatifida*, #P3300, Santa Fe, N.M.). Based on these trials, the ‘Raider Amethyst’ accession was found to be superior in all characteristics.

Plant trials were continued the following year at the Texas A&M Research and Extension Center in Dallas, where the soil is a Austin silty clay (fine-silty, carbonatic, thermic Udorthentic Haplustolls) that provided much less drainage than the previous trials. About 200 plants of ‘Raider Amethyst’ were seeded in the greenhouse and were transplanted in the field under open pollination for the 1999 growing season, where less than 1% of the plants were rouged for lack of a deep floral color, compact growth, or high density branching. Recurrent phenotypic selection was used to screen this material again in 2000 (cycle 2), 2001 (cycle 3), and 2002 (cycle 4). Intercrossed seed from ≈800 plants grown in 2002 from the cycle 4 material were bulked and are now being released as *G. bipinnatifida* ‘Raider Amethyst’, the second addition to the Raider Wildflower Collection. The first release was *Melampodium leucanthum* ‘Raider White’, commonly known as blackfoot daisy.

Description

‘Raider Amethyst’ prairie verbena exhibits a mature plant height of 25 to 29 cm with a spread of 95 to 125 cm. This mat-forming perennial composes a dense crown covered with dark purple florets (purple-violet group 82A) with a light-yellow eye (yellow group 8D) (Royal Horticulture Society, 2001). The spike inflorescence is composed of 20 to 30 florets. ‘Raider Amethyst’ blooms from late spring to frost and attains 50% bloom 95 to 130 d after emergence. When the plant is out of bloom, the attractive foliage continues to provide interest. ‘Raider Amethyst’ leaves are finely dissected, dark green (yellow-green group 146A) (Royal Horticulture Society, 2001), and have a 3- to 5-cm width and a 4- to 5-cm length. The seed is dark brown (brown group 200A) (Royal Horticulture Society, 2001) with an average 1000 seed weight of 2.23 mg.

Performance

During the 2003 and 2004 growing seasons in Dallas, Texas, plants randomly selected from cycle 3 and cycle 4 populations

Table 1. Comparison of a commercially available common *G. bipinnatifida* and *G. bipinnatifida* ‘Raider Amethyst’ in field trials, Dallas, Texas.

Germplasm source	2003		2004	
	Inflo. width (cm)	Leaf width (cm)	Inflo. width (cm)	Leaf width (cm)
Common	3.07 (0.253) ^z	3.21 (0.307)	3.24 (0.287)	3.87 (0.821)
Raider Amethyst	3.62 (0.246)	3.60 (0.517)	3.52 (0.291)	4.61 (5.541)
Significance	***	***	*	**

^zMeans represent separate measurements of 15 plants of each germplasm source. Numbers within the parentheses are the SE of the mean.

*****Significant at $P \leq 0.05$, ≤ 0.01 , and ≤ 0.001 , respectively (t test).

Inflo., inflorescence.

Received for publication 1 Aug. 2006. Accepted for publication 24 Oct. 2006.

Texas Tech University manuscript no. T-4-574.

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Fig. 1. Example of a field-grown TTU-PV1 ('Raider Amethyst') prairie verbena plant.

were compared with a commercially available common seed source of prairie verbena using a randomized complete block design. Each of the four blocks contained five plants transplanted into unamended soil and given supplemental irrigation as necessary. An

analysis of variance was run using SPSS 13.0 (SPSS, Chicago), and it was determined that 'Raider Amethyst' developed significantly larger flowers and foliage than the commercial variety (Table 1). This increase in flower and foliage size created a more dense appearance (Fig. 1) than in the commercial variety.

'Raider Amethyst' is recommended for use in water-conserving landscapes and low-maintenance plantings. Plants may be propagated by tip cutting or via seed. Seed propagates easily, but should be held in cool, dry storage for more than 26 weeks to enhance germination (Vyas and Agarwal, 1970).

Surface and internal soil drainage to prevent overwatering is critical for this plant, especially during the winter months. In areas with heavy soils, raised beds are recommended. Deep, infrequent watering is the most efficient way to maintain 'Raider Amethyst' after it is established in the landscape. 'Raider Amethyst' blooms throughout much of the growing season with minimal care. Shearing to remove spent flower spikes will increase flowering and provide a more compact habit.

Availability

For availability of both experimental and commercial seed, contact the corresponding author.

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