

## BUFFALOGRASS

### *Bouteloua dactyloides* (Nutt.) J.T.Columbus Plant Symbol = BODA2

Contributed by: USDA NRCS East Texas Plant Materials Center



Robin R. Buckallew @ USDA-NRCS PLANTS Database

#### Alternate Names

Scientific Alternate Names: *Buchloe dactyloides* (Nutt.) Engelm.

#### Uses

**Livestock:** Buffalograss is primarily used for range grazing and is important component of the shortgrass and mixed grass prairies. (Leithead et al. 1971 and Howard, 1995). Buffalograss is utilized by all classes of livestock. It is considered good quality forage, and nutritional qualities do not decline significantly during curing (Hitchcock, 1951).

**Wildlife:** Buffalograss is consumed by several species of prairie animals including the white tailed deer, bison, and prairie dogs (Chamrad and Box, 1968; Clippinger, 1989; Duble, 2012). This plant is a larval host for the Green Skipper (Ladybird Johnson Wildflower Center, 2013). Grasshoppers including the White whiskered grasshopper, Red winged grasshopper, Carolina grasshopper, Slantfaced Pasture grasshopper, Large headed grasshopper, and Mottled Sand grasshopper feed on buffalograss foliage (Illinois Wildflowers, 2012).

**Landscaping:** Buffalograss is growing in popularity for use in low traffic areas and a possible substitute for nonnative warm season grasses such as bermudagrass (*Cynodon dactylon*), St. Augustine (*Stenotaphrum secundatum*), and zoysia (*Zoysia japonica*) (Huang, 1999

and Mintenko et al., 2002). Johnson et al. (2000) noted that buffalograss has a slower growth rate than other commercially available non-native turfgrasses. Biran et al. (1981) observed that sparse, tall growing, warm season grasses tend to have high evapotranspiration (ET) rates while shorter, denser grasses had low ET rates. Beard and Kim (1989) and Kim (1983) noted lower ET and slower growth rates of buffalograss compared to common bermudagrass (*C. dactylon*) under uniform and optimum growing conditions. In another study by Kim and Beard (1988), of eleven warm season and cool season turfgrasses, buffalograss showed the lowest average ET rate of 4.8 mm<sup>d</sup><sup>-1</sup>. A study in Texas of native and non-native grasses, buffalograss (*B. dactyloides*) demonstrated higher survivability (85-98%) than bermudagrass (*C. dactylon*) (5-35%) after 3 years (McAfee and Leps, 2001).

**Erosion Control:** Buffalograss forms a dense sod that impedes soil erosion. The plants develop numerous fine roots that are tough and wiry; penetrating into the soil 4 to 6 feet. In a study conducted on Holdrege silt loam and Chernozem Wabash silt loam, approximately 70% (by weight) of the roots of buffalograss plants were in the first 6 inches of the soil profile (Weaver, 1958).

#### Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

#### Description

**General:** Buffalograss is a native, warm season, stoloniferous perennial that grows 4 to 6 inches in height. The leaf blade is 1/8 inch wide and 3 to 6 inches long. The ligule is a row of short hair. The plant is dioecious. Both sexes have a spike for the seed head. The female flowers are burs partially hidden among the leaves and the male flowers have 2 or 3 short spikes on slender, erect stems (Leithead et al., 1971).

**Distribution:** It is found from western Minnesota to Montana and then South to Arizona and eastward to Louisiana (Hitchcock, 1951). For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

**Habitat:** Buffalograss is found on clay soils in moderate to low rainfall areas (15 to 30 inches annually) (Duble, 2012) and tolerates alkaline soils (University of Wyoming, 2013).

### **Adaptation**

Buffalograss is found on dry prairies on medium to fine textured soils (Hatch, 1995). It is prevalent in the short grass prairie region of the Great Plains uplands (Hitchcock, 1951).

### **Establishment**

Buffalograss can be established by direct seeding or via vegetative plugs and sod. Soil analysis should be performed prior to planting to determine the necessary levels of nitrogen, phosphorus, and potassium. When planting seed, nitrogen should not be applied until the stand is established.

Seedbed preparation should begin well in advance of planting in the spring. Establish a clean, weed free seedbed by either tillage or herbicides. Prior to planting, the soil should be firm and have accumulated adequate soil moisture.

### **Seed**

Seed should be planted with a grain drill equipped with a native seed box and planted to a depth of ½ inch. If broadcast planting, the seeding rate should be increased, and some form of drag should be used after broadcasting to cover the seed, provide good seed-to-soil contact, and conserve soil moisture.

For pasture, rangeland and wildlife plantings, seeding rates for a monoculture stand range from 8 to 26 pounds per live seed per acre (USDA / Texas Natural Resources Conservation Service, 2001; Boltz, 2012) depending upon the intended use of the planting. Buffalograss contains approximately 50,000 seed per pound. When planting mixtures, the seeding rate may be proportionately adjusted based on the desired amount of buffalograss in the planting. Please consult your local Natural Resources Conservation Service Field Office before beginning preparation and planting.

For lawn/residential planting: When broadcasting seed, use a seeding rate of 3 to 5 pounds per 1,000 ft<sup>2</sup>. After planting, water to prevent drying of the soil surface. Emergence of grass seedlings should occur in 7 to 21 days after planting (Koski, 2012).

### **Vegetative**

Transplanted plugs can spread within 8 to 12 weeks after planting. Transplant the plugs on 12" x 18" centers after the last spring frost or 6 or more weeks before the first fall frost. At planting, apply one pound of nitrogen (starter type fertilizer) per 1,000 ft<sup>2</sup> and a second application 6 to 7 weeks afterward. Water the plugs to maintain a moist soil surface for 7 to 10 days to aid in establishment and subsequent growth. A preemergent herbicide can be applied before or just after planting to reduce weed competition. The plugs may turn brown and enter

dormancy after transplanting because of moist stress. Keep the plugs moistened until the roots become well established (Koski, 2012).

Sodding a lawn provides the most rapid cover. However, proper site preparation is important for a successful establishment. Use healthy, moist sod strips during installation. Afterwards, water the sod to maintain good soil moisture, but not saturated (Koski, 2012).

### **Management**

Newly planted buffalograss pasture should not be grazed the first season (Wenger, 1943). After the stand is established, rotational or conservative continuous grazing can be used. Buffalograss grows close to the ground so grazing animals normally harvest less than 50% of the current year's growth (Leithead et al., 1971). Rotational grazing allows the plants to recover well after grazing events and store up nutrients for the winter. Consult your local Natural Resources Conservation Service for assistance in developing and implementing a prescribed grazing plan.

Established lawns should be fertilized with 1 to 2 pounds of nitrogen per 1,000 ft<sup>2</sup> in late spring with a follow up application in July (Dunn and Ervin, 2001). Over fertilization (more than 2 pounds per 1,000 ft<sup>2</sup> per year) does not help the lawn and with excessive watering can increase weed competition. Buffalograss lawns need one to two inches of water every two to four weeks during the summer to maintain active growth (Koski, 2012). If the lawn is stressed by drought, it will become dormant and wait for favorable growing conditions (Dunn and Ervin, 2001).

### **Pests and Potential Problems**

In seed production, false smut may develop in late spring (Wenger, 1943). Mealybugs and chinch bug have been found in Nebraska buffalograss lawns (Koski, 2012).

### **Control**

Please contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method

### **Seeds and Plant Production**

Seed can be produced under irrigation or dryland conditions. Using irrigation is the most reliable method of producing seed. Dryland fields are generally the most productive from the second to the fifth year, after which the stand begins to decline in vigor and seed yield. Seed production fields planted on 30" centers will usually spread together during the first year and begin producing seed in the second season (Wenger, 1943).



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Seed is combine harvested with a modified reel head that uses flailing bats or brooms to push the harvested material into the combine. Slow (<5 mph) travel is recommended while harvesting. When harvesting material for both seed and forage, production fields may need to be harvested a second time to gather burs which were immature at the first harvest when the grass was green (40 to 50 percent moisture) (Wenger, 1943).

Cornelius (1950) reported an average seed yield of 216 lb/acre (60 lb /acre rate of nitrogen and dryland conditions) in eastern Kansas. Seed yields of irrigated stands averaged 300-1,000 lb /acre (Wenger, 1943; Atkins and Smith 1967). Atkins and Smith (1967) noted seed fill of 90% and average germination of 45%. In a study by Abeyo et al. (2006), nitrogen and phosphorus fertilizer applications increased seed yields of 'Bowie' buffalograss.

The caryopsis of buffalograss is enclosed in a rigid, tight cluster of spikelets and glumes known as a bur. The bur seems to impede caryopsis germination. Ahring and Todd (1977) found that prechilling seed at 5° to 10° C for 6 to 8 weeks or soaking seed burs in 5.25% sodium hypochlorite for 72 hours overcame the effect of the bur on seed dormancy.

#### **Cultivars, Improved, and Selected Materials (and area of origin)**

Some seed cultivars include Bison, Cody, Sharps Improved, Tatanka, Texoka, Topgun, and Plains (Dunn and Ervin, 2001). Some vegetative cultivars include Bonniebrae, Legacy, Midget, Mobuff, Stampede, '315', '378', and '609' (Dunn and Ervin, 2001)

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**Prepared By:** *Melinda Brakie*

### **Citation**

Brakie, M. R., 2013. Plant Guide for buffalograss [*Bouteloua dactyloides* (Nutt.) J.T. Columbus]. USDA-Natural Resources Conservation Service, East Texas Plant Materials Center. Nacogdoches, TX 75964.

Published *September, 2013*

Edited

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