



# BIG GALLETA

## *Pleuraphis rigida* Thurber

Plant Symbol = PLRI3

Common Names: Big galleta

Former Scientific Name: *Hilaria rigida* (Thurb.) Benth. ex Scribn.

### Description

**General:** Big galleta is a native, warm season, long-lived perennial bunchgrass. Plants are shrub-like, woody and rhizomatous at the base. Big galleta grows from 20 to 40 inches tall, with a habit that may be upright or spreading. The numerous culms are solid and felty. Leaf blades are narrow, 1-2 inches long, may be felty or smooth, and are usually wooly at the top of the sheath. Flowering period is from February to September, depending on location. The inflorescence is a dense, narrow terminal spike. Seed drops at maturity leaving a zigzag seed stalk. The root system is shallow and spreading. (Kearney and Peebles, 1964; Hitchcock, 1971; Columbus, 2017; USU Extension, 2017). Big galleta hybridizes naturally with galleta grass, *Pleuraphis jamesii*, creating intermediates that can backcross to both parents (Reeder, 1977).



*Big galleta* (Photo by Mary Wolf, USDA-NRCS Tucson Plant Materials Center)

**Distribution:** Big galleta is found in the Mojave and Sonoran desert regions of southern California, Nevada, southern Utah, Arizona, New Mexico, and the Mexican states of Sonora and Baja California.

For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

**Habitat:** Big galleta is common within its range on sand dunes, washes, dry flats, bajadas, and rocky slopes. It occurs on all soil textures. It is typically found at elevations up to 4000 feet above sea level.

### Adaptation

Big galleta is adapted to low rainfall and high temperature environments. As a C4 grass, it maintains a high photosynthetic rate at high temperatures, with relatively low transpiration (Robberecht, 1988). Its root system is effective at extracting available water at low soil water potentials (Nobel, 1981). Big galleta is able to regrow rapidly after periods of drought and after fire (Van Devender and Dimmitt, 2000). Big galleta typically reproduces by rhizomes, which may be an adaptation to hot, dry environmental conditions unfavorable to seedling survival (Robberecht, 1988).

Big galleta is a dominant grass in some desertscrub lowlands of the Sonoran and Mojave deserts. It is a nurse plant to seedlings of cholla cacti (*Opuntia* spp.), California barrel cactus (*Ferocactus cylindraceus*), and desert agave (*Agave deserti*) (Franco and Nobel, 1988, Franco and Nobel, 1989). Other associated plants include yellow paloverde (*Parkinsonia microphylla*), creosote bush (*Larrea tridentata*), ocotillo (*Fouquieria splendens*), white bursage (*Ambrosia dumosa*), blackbrush (*Coleogyne ramosissima*), Joshua tree (*Yucca brevifolia*), ephedra (*Ephedra* spp.), winterfat (*Krascheninnikovia lanata*), desert globemallow (*Sphaeralcea ambigua*), brittlebush (*Encelia farinosa*) and grama grass (*Bouteloua* spp.)

### Uses

Big galleta is an important forage grass for livestock in the Sonoran and Mojave deserts. It provides a food and habitat source for wildlife, including bighorn sheep, small mammals, and birds (Kearney and Peebles, 1964; Robberecht, 1988). Its spreading root system, rhizomatous character, and hardiness make it a good candidate for revegetation and erosion control.

### Ethnobotany

Various species of *Pleuraphis* were used by Native American people. The ethnographic record for “galleta” does not distinguish between *P. rigida* and *P. jamesii*, which is not surprising given that the two species are similar and able to hybridize. The Hopi used galleta fiber as the fill material of their coiled basketry (Whiting, 1939). They used the grass’s stiff

culms to make brooms and hair brushes (Colton, 1974). The Navajo valued galleta as a forage that was able to withstand trampling and close grazing by their horses and sheep. They also gave a cold infusion of the grass to babies to make them 'want to eat a lot' (Vestal, 1952).

### **Status**

*Threatened or Endangered:* No.

*Wetland Indicator:* Big galleta is an upland (UPL) species.

*Weedy or Invasive:* Big galleta is not known to be an invasive species. Please consult with your local NRCS Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use.

Please consult the PLANTS Web site (<http://plants.usda.gov/>) and your state's Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

### **Planting Guidelines**

The recommended seeding rate for big galleta is 4.5 pure live seed (PLS) pounds per acre if planted with a drill and approximately 9 PLS pounds per acre if seed is broadcast. There are approximately 240,000 seeds of big galleta in a pound (counts performed at the Tucson Plant Materials Center). For containerized production, big galleta seeds can be soaked in water to remove any inhibitors and allow seeds to imbibe before sowing (Graham, 2003).

### **Pests and Potential Problems**

Containerized seedlings are susceptible to aphids (Graham, 2003).

### **Environmental Concerns**

None known.

### **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. Trade names and control measures appear in this document only to provide specific information. USDA NRCS does not guarantee or warranty the products and control methods named, and other products may be equally effective.

### **Seed and Plant Production**

Big galleta should be planted in the early spring into a firm, weed free seedbed at a depth of 1 to 2 inches, with 36-40 inches within-row spacing. Row spacing can vary from 40-48 inches. The planting should be irrigated to maintain a moist soil surface and to avoid soil crusting. Appropriate herbicide may be used to control weeds after the plants have developed at least 3-5 leaves. Established fields should be irrigated approximately every four weeks during the growing season. Apply nutrients according to soil test results. Irrigated fields produce seed late spring through summer. Mechanical seed harvest with a seed stripper or combine. Clean harvested seed by processing with a brush machine and air screening or with air seed shucking equipment.

### **Cultivars, Improved, and Selected Materials**

Limited amounts of this species are available on the commercial market. Currently, none are listed as cultivars, improved or selected materials.

### **Literature Cited**

- Colton, H.S., 1974, Hopi History and Ethnobotany, In D. A. Horr (ed.) Hopi Indians. Garland: New York.
- Columbus, J.T. 2017. *Hilaria rigida*, in Jepson Flora Project (eds.) Jepson eFlora, [Online]. [http://ucjeps.berkeley.edu/cgi-bin/get\\_IJM.pl?tid=28274](http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=28274) (accessed on September 13, 2017).
- Franco, A.C. and P.S. Nobel. 1988. Interactions between seedlings of *Agave deserti* and the nurse plant *Hilaria rigida*. *Ecology*. 69(6): 1731-1740.
- Franco, A.C. and P.S. Nobel. 1989. Effect of nurse plants on the microhabitat and growth of cacti. *Journal of Ecology*. 77:870-886.
- Graham, J. 2003. Propagation protocol for production of container (plug) *Pleuraphis rigida* Thurb. plants 2 gallon PVC pipe containers. USDI-NPS Joshua Tree National Park Native Plant Nursery. Twentynine Palms, CA. Native Plant Network [Online]. Available at: <http://NativePlantNetwork.org> (accessed on January 17, 2018). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources,
- Hitchcock, A.S. 1971. Manual of the grasses of the United States (Second Edition, Rev. by Agnes Chase). Dover Publications, Inc., New York, NY.

Kearney, T.H. and R.H. Peebles. 1964. Arizona Flora with Supplement. University of California Press, Berkeley and Los Angeles, CA.

Nobel, P.S. 1981. Spacing and transpiration of various sized clumps of a desert grass, *Hilaria rigida*. Journal of Ecology. 69: 735-742.

Reeder, J.R. 1977. Chromosome numbers in western grasses. American Journal of Botany. 64(1): 102-110.

Robberecht, R. 1988. Big galleta grass--a warm-season bunchgrass in the Sonoran and Mojave Deserts. Rangelands 10(2):58-60.

Utah State University Extension. 2017. Big galleta. Range Plants of Utah [Online]. Available at: <https://extension.usu.edu/rangeplants/grasses-and-grasslikes/big-galleta> (accessed on July 12, 2018).

Van Devender, T.R. and M.A. Dimmitt. 2000. Desert Grasses. In A Natural History of the Sonoran Desert, 1<sup>st</sup> ed. (eds.) S.J Phillips and P.W. Comus. Arizona-Sonora Desert Museum, Tucson, AZ.

Vestal, P.A., 1952, The Ethnobotany of the Ramah Navaho, Papers of the Peabody Museum of American Archaeology and Ethnology 40(4):1-94.

Whiting, A.F., 1939, Ethnobotany of the Hopi, Museum of Northern Arizona Bulletin #15.

### **Citation**

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