

A Conservation Plant Released by the Natural Resources Conservation Service  
Manhattan Plant Materials Center, Manhattan, Kansas

# 'Verl'

## Eastern Gamagrass

*Tripsacum dactyloides* (L.) L.



**Figure 1. Inflorescence of eastern gamagrass flowering.**  
Photograph by M. van der Grinten, Big Flats Plant Materials Center.

'Verl' eastern gamagrass [*Tripsacum dactyloides* (L.)L.] is a cultivar released in 2005 by the U.S. Department of Agriculture (USDA) Agriculture Research Service (ARS) in cooperation with the Oklahoma Agricultural Experiment Station and the USDA Natural Resources Conservation Service's (NRCS) Plant Materials Program (PMP).

### Description

Verl is a long-lived, native, warm-season, bunch grass with robust growth and high forage production potential. This grass shares the same subtribe as corn (*Zea mays*). Leaf blades are flat, long (12 to 30 inches), and wide (0.4 to 1.2 inches), with a well-defined midrib. It reproduces vegetatively from thick, knotty, rhizome-like structures called proaxes. The inflorescence is a spike that is 6 to 10 inches long and made up of one to several spikes. Spikes are either terminal at the end of stems or lateral arising from leaf axils. Seed ripens from the top down and over a period of time so seed maturation is uneven and tends to shatter as it ripens. Seed of eastern gamagrass is known to be high in dormancy and low with respect to overall germination percentages. Thus, field establishment can be a challenge.

### Source

Verl is unique among available eastern gamagrass varieties in that it is a fertile triploid ( $2n = 3x = 54$ ) that reproduces predominantly via apomixis (the ability of a plant to produce seed without sexual fertilization). It was produced from a controlled pollination of a gynomonocious sex form (GSF) diploid ( $2n = 2x = 36$ ) with a monoecious tetraploid ( $2n = 4x = 72$ ).

### Conservation Uses

Verl is recommended for pasture or hay production in the eastern and southern United States. It was selected for its female fertility (seed set) and forage production attributes. Verl is a warm-season grass species that begins growth earlier in the spring than typical warm-season grass species and remains green and actively growing after seed production, as long as there is sufficient moisture available. It can also be effectively used on sites that are too wet for standard warm-season grass species.

### Area of Adaptation and Use

Verl was tested in small plot field evaluations from 2001 to 2003 in the eastern and southern United States. Evaluations were conducted at the following USDA-NRCS Plant Materials Centers located at Brooksville, Florida; Manhattan, Kansas; Coffeeville, Mississippi; Elsberry, Missouri; Corning, New York; Knox City, Texas; and the USDA-ARS Southern Plains Range Research Station at Woodward, Oklahoma. At these 7 locations, the average forage dry matter yield was 8,100 pounds per acre; an 11 percent increase over the yields reported for 'Pete' eastern gamagrass.

### Establishment and Management for Conservation Plantings

Eastern gamagrass establishment is hindered by seed dormancy, which is likely caused by several dormancy mechanisms. A cold, moist, stratification (35 to 40 degrees Fahrenheit [F] for 6 to 10 weeks) is the practical way to reduce the dormancy percentage in the seed units. It is recommended that the seed units be planted after the stratification period in the spring. A general recommendation for planting is at the same time one would plant corn when soil temperatures reach 60 degrees Fahrenheit (F) or higher. An alternative to spring planting is to plant in the fall in a dormant state and let nature conduct the stratification process. Dormant plantings have been less successful with some erratic establishment results. Seed units should be planted an inch deep in a weed-free, firm, well prepared seedbed. The minimum seeding rate should be 8 to 10 pounds of pure live seed per acre. Weed control can be accomplished the establishment year with mowing and broadleaf herbicide applications. Established fields can be burned in the spring when new growth is an inch or less on the plants. Eastern gamagrass is an efficient user of nutrients

and for forage production can be supplied with large amounts of nitrogen if moisture is adequate for continuous growth. Soil levels of phosphorus and potassium should be targeted at typical field soil test levels. Eastern gamagrass thrives under short duration, high intensity rotational grazing schemes with adequate rest periods. Depending on the length of growing seasons and the amount of moisture available, Verl can be harvested 2 to 4 times in a growing season. Managers can maximize forage production and stand longevity by not grazing or mowing eastern gamagrass shorter than 6 to 8 inches. Eastern gamagrass produces excellent quality forage at the boot stage of plant development. To maintain long-term vigor and stand life, stop harvesting at least 30 to 45 days before first frost in the fall.

### **Ecological Considerations**

Verl is susceptible to feeding damage from the maize billbug *Sphenophorus maidis* (Chittenden), and the southern cornstalk borer, *Diatraea crambidoides* (Grote). These insects reduce seed production of eastern gamagrass as their populations increase in the field. Verl is potentially susceptible to damage from the fungal species *Rhizoctonia*, *Pythium*, and *Bipolaris*. These species were recovered from dying plants in Coffeeville, Mississippi, but were not isolated, cultured and then re-inoculated into healthy plants to prove their pathogenicity. Two viruses, “maize dwarf mosaic” and “sugarcane mosaic virus strain maize dwarf mosaic virus B” can infect eastern gamagrass. Thus, eastern gamagrass can serve as a reservoir of viral infection for corn plants.

### **Seed and Plant Production**

Researchers have recommended planting eastern gamagrass in 30 to 48 inch rows for seed production. A reasonable expectation is that seed production would begin the second year after establishment. Cultivation, mowing, and broad leaf herbicides can be used to control weeds the year of establishment. Verl has good seed production attributes. In a replicated experiment at Woodward in 2001, it produced 183 pounds of seed per acre. In 2003, Verl produced a slightly smaller seed yield of 175 pounds of seed per acre.

### **Availability**

*For conservation use:* Verl is available in the commercial seed trade.

*For seed or plant increase:* Pedigreed seed of Verl will be limited to Breeder, Foundation, Registered, and Certified classes. One generation of seed increase will be allowed for each seed class. Breeder seed will be maintained by USDA-ARS. Foundation seed will be maintained under the direction of the Oklahoma Foundation Seed Stocks, Inc., Department of Plant and Soil Sciences, Oklahoma State University, Stillwater, Oklahoma 74078. U.S. Plant Variety Protection is not being sought for Verl.

*For more information, contact:*  
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Woodward, OK 73801  
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### **Citation**

Release Brochure for Verl eastern gamagrass (*Tripsacum dactyloides*). USDA-NRCS Plant Materials Centers located at Brooksville, Florida; Coffeeville, Mississippi; Manhattan Kansas; Corning, New York; Knox City, Texas; and Elsberry, Missouri.  
Published [July 2015]

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