



United States Department of Agriculture
Natural Resources Conservation Service
Plant Materials Program

'Pete'

Eastern Gamagrass

Tripsacum dactyloides (L.) L.

A Conservation Plant Release by USDA NRCS Manhattan Plant Materials Center, Manhattan, KS



Figure 1. Pete eastern gamagrass inflorescence in the field. Photograph by Alan Shadow, East Texas Plant Materials Center.

'Pete' eastern gamagrass (*Tripsacum dactyloides*) is a cultivar released in 1988 in cooperation with the Kansas and Oklahoma Agricultural Experiment Stations and the USDA Agriculture Research Service (ARS).

Description

Pete is a long lived, native perennial, warm-season, bunch grass with robust growth habit 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. Like corn, eastern gamagrass has separate male and female flowers, but they are located on the same spike. Male flowers occupy the upper $\frac{3}{4}$ of the spike and female flowers the lower $\frac{1}{4}$ of the spike. Spikes are either terminal at the end of the stem or lateral arising from leaf axils. Seed ripens from the top down and over a long period of time so seed maturation is uneven. Gamagrass seed yields are low and subject to shattering. Seed of

eastern gamagrass is also known to be high in dormancy and low with respect to germination percentages. Thus, field establishment can be a challenge.

Source

Pete was developed as a composite of 70 accessions originating from seed of native collections in Kansas and Oklahoma. The composite was advanced through three generations of combine harvesting and replanting of the open pollinated seed. Pete was tested and evaluated as PMK-24 and was released as germplasm under that designation in 1974.

Conservation Uses

Pete is suitable for hay, pasture, and prairie restoration on site that it would occur on naturally. Pete is a warm-season grass species, but begins growth earlier in the spring compared to other more typical warm-season species, and remains green and actively growing after seed production in the summer. It also retains forage value and quality characteristics later into the season than other native warm-season grasses. It can be utilized effectively in areas that are traditionally too wet to support other warm-season grass species.

Area of Adaptation and Use

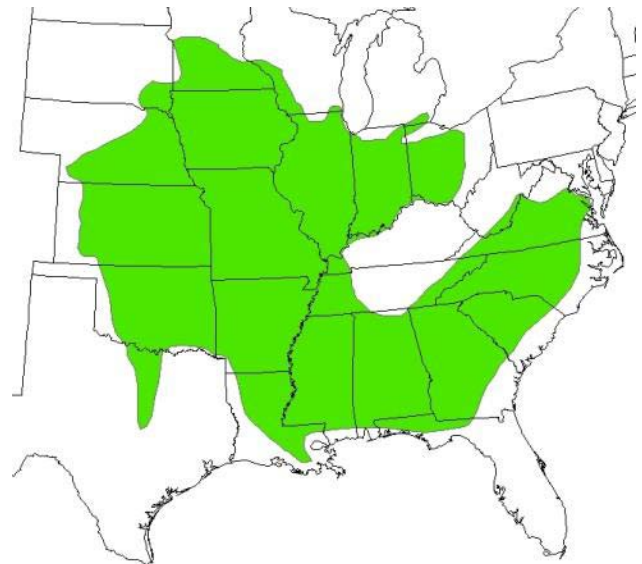


Figure 2. Area of adaptation and use of Pete eastern gamagrass.

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 (35-40° F for 6

to 10 weeks) is the most practical way to reduce the percentage of dormant seed units. It is most often recommended that seed units be planted after stratification periods in the spring of the planting season. A generally recommended date for planting is at the same time as corn would be planted in the spring with soil temperatures above 60° F. An alternative to spring planting is to plant the gamagrass seed in a dormant state in the fall or winter of the year. In Kansas the recommended time for planting is generally in February or March which allows for natural stratification to occur. Dormant plantings have been less successful, often with erratic results. Seed should be planted one inch deep in rows on a well prepared, weed free, firm, seedbed. Pete eastern gamagrass has approximately 7,500 seed units per pound of seed. The minimum seeding rate should be 8 to 10 pounds of Pure Live Seeds (PLS) per acre. Established fields may be burned in the spring when new growth is about an inch long. Gamagrass is an efficient user of nutrients, and for forage production can be supplied with high levels of nitrogen if adequate moisture is available. The fertility levels of phosphorus and potassium should be targeted at normal soil test levels for corn. Gamagrass thrives under short duration, high intensity rotational grazing programs with adequate rest periods. Managers can realize maximum forage production and stand longevity by not grazing or haying stands lower than 6 to 8 inches. Gamagrass produces excellent quality hay when harvested at the boot stage. Normal hay harvesting dates in Kansas are June 1, July 15, and September 1. To maintain long term vigor in gamagrass stands stop all usage 30 to 45 days before the average first frost date.

Ecological Considerations

Two viruses, “maize dwarf mosaic” and “sugarcane mosaic virus strain maize dwarf mosaic virus B” can infect eastern gamagrass. Both viruses are transmitted by aphids and can overwinter on eastern gamagrass plants. Larva of the southern corn stalk borer (*Diatraea crambidoides*) has been identified in the crown tissue of eastern gamagrass. Adult, larval, and pupal stages of the maize billbug (*Sphenophorus maidis*) have been isolated from eastern gamagrass plants. Damage inflicted during the life cycle of the maize billbug will have a negative impact on seed production due to the loss of reproductive tillers. A fungus that persists in soil and crop residue can cause disease of leaves and crown tissue of eastern gamagrass. The fungus (*Gaeumannomyces graminis*) or “take-all” was first diagnosed in Missouri. Ergot has been observed on the inflorescences of ‘Highlander’ eastern gamagrass in Mississippi.

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 utilized to control weeds the year of establishment. A 24 year average of seed yield for eastern gamagrass at Manhattan, KS was 165 bulk pounds per acre. Average seed test purity was 99.15 percent with an inert of 0.85 percent. Average seed germination percentage was 21, with a hard seed or dormant component of 29 percent.

Availability

For conservation use: Pete eastern gamagrass is commercially available from seed vendors.

For seed or plant increase: The Manhattan PMC maintains breeder and foundation seed. There is one generation of each registered and certified class seed for Pete eastern gamagrass.

For more information, contact:
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Citation

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For additional information about this and other plants, please contact your local USDA Service Center, NRCS field office, or Conservation District <<http://www.nrcs.usda.gov/>>, and visit the PLANTS Web site <<http://plants.usda.gov/>> or the Plant Materials Program Web site <<http://www.plant-materials.nrcs.usda.gov/>>

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