



United States Department of Agriculture

'Meadowcrest' Eastern Gamagrass *Tripsacum dactyloides* L.

A Conservation Plant Release by USDA NRCS Big Flats Plant Materials Center, Corning, New York



Eastern gamagrass in full bloom.

'Meadowcrest' eastern gamagrass was released in 2006, by the USDA Natural Resources Conservation Service, (NRCS) Big Flats Plant Materials Center and the USDA Agricultural Research Service for its dense vegetation, upright growth habit, and late flowering date.

Description

Meadowcrest eastern gamagrass is a native, warm season, perennial bunch grass. It can reach heights up to 5-6 feet. The grass grows in large clumps from 1-4 feet in diameter that spreads by thick, knotty rhizomes and by seed. The seedheads are 6 inches long, are made up of several spikes and have both male and female flowers. Male flowers are located on the top of the seed head and female flowers at the bottom. Seed is produced from July to September, which results from uneven maturation. The seeds mature on the seedhead from the top down and are susceptible to shattering

Meadowcrest has wide, coarse light green leaves with a very prominent midrib. It forms an extensive root system and is very long-lived. The capacity of eastern gamagrass to survive moisture stress may be attributed to its ability to develop deep penetrating roots. Also, air-filled spaces in the root cortex of gamagrass called aerenchyma, help maintain oxygen supply to roots in saturated soils and is

an additional characteristic that allows its roots to infiltrate deep into wet soils.

Meadowcrest is a tetraploid which reproduces through apomixes, a form of reproduction in which seeds are produced asexually and are genetically identical to the mother plant. Pollination is required for seed set and endosperm development.



Eastern gamagrass spike with male flowers on top.

Source

Meadowcrest (PI-591483) is a composite of 5 vegetative accessions from Prince Georges County Maryland, near Beltsville (9038565, 9038566, 9038567, 9038568, and 9038569). They were selected for their dense vegetative growth, upright growth habit, wide leaves, later flowering date, and resistance to foliar disease.

Uses

Meadowcrest is used for wildlife habitat, vegetative filter strips in conjunction with other plants and livestock forage. 'Meadowcrest' eastern gamagrass is also being studied as a biofeedstock for ethanol production.

Gamagrass can help improve soil quality. Studies conducted by Agricultural Research Service (ARS) indicated it can be used as a vegetative treatment for reclaiming soil with restrictive subsoil layer.

Area of Adaptation and Use

Meadowcrest is adapted to USDA plant hardiness zone 5b and higher. It does well in areas where annual precipitation exceeds 35 inches. It is adapted to soils with a pH range from 5.1-7.5 and is intolerant of highly saline soils. 'Meadowcrest' does best in well-drained to moderately wet soils. It is susceptible to frost heaving on

poorly drained soils in the Northeast. It requires full sun, and can withstand some flooding.

Establishment and Management for Conservation Plantings

Meadowcrest is best utilized in pure stands, but a mixture of warm season grasses may control more weeds effectively.

Spring planting: For conservation and agricultural practices as well as other plantings, spring planting for Meadowcrest is preferred. Establishing eastern gamagrass by seed is difficult due to its seed dormancy. A period of cold-moist stratification, at 40°F for 6-9 weeks, is recommended to decrease its dormancy. The soil must remain moist after planting for best seed germination.

Meadowcrest showed some signs of mortality during the establishment year in Big Flats, New York and points north. Therefore, it is recommended to seed in plant hardiness zone 5b or warmer.

Meadowcrest should be seeded at 15 lb/A PLS (5-6 seeds/ft), in rows spaced 30- 36 inches. Seeds should be planted with a corn planter at 1- 1.5 inches deep in medium texture soils or 2 inches in light texture soils. A well prepared, firm seedbed is recommended for planting.

Weed control prior to planting is very important. Since there is no residual grass herbicide currently labelled for eastern gamagrass, row plantings can be cultivated for annual grass weed control. Once eastern gamagrass is well-established, it will compete effectively with most weeds.

If the field of eastern gamagrass is likely to be hayed, consider planting in rows wide enough for tractor wheel spacing to minimize traffic over the plants.

Grazing Management: Eastern gamagrass can be used for hay, haylage, silage, and managed pastures. It is very palatable and digestible to livestock and is one of the first grasses that are grazed in a warm season pasture. When grazing, leave 6- 8 inches of stubble height and then rest the field for 36-45 days. Overgrazing will reduce plant vigor and stand reductions will occur. It is capable of producing annual yields of more than 4-6 tons/A under proper grazing regime.

Haying Management: When haying eastern gamagrass, the first cutting should be taken when the grass is in boot stage. At that time, the best combination of quality and yield is achieved. Harvesting frequency and rest intervals will depend on growing conditions during the season, but with good rainfall, as many as 3 forage cutting can be taken. A rest period of 40-45 days is recommended to

maintain stand vigor and productivity. Do not harvest lower than an 8-inch cutting height.

Fertilization: Fertilization for Meadowcrest eastern gamagrass is the same as recommendations for corn silage, especially lime, phosphorus, and potassium. It is best to delay nitrogen applications until the stand is established. For grazing and haying, apply between 100-150 lb N/A at spring green up. This will increase both yield and protein content. Meadowcrest has a greater response to nitrogen fertilizer than other gamagrass varieties.

Ecological Considerations

Meadowcrest has little potential to spread off of planted sites due to its low seed production per plant, high dormancy, its slow vegetative spread and low seedling vigor.

Seed and Plant Production

Meadowcrest produces low seed yields with low germination rates which is consistent with the species. Seed stratification is strongly recommended to overcome any seed dormancy.



For seed production, establish rows of 40- 48 inches wide, with 4-6 seeds/ft. The recommended time for harvesting seed is approximately 2 weeks after the first terminal seeds begin to shatter. Harvesting seed will require close attention since seed matures from the top to the bottom on the seedhead. Environmental influences will have an impact on seed yields and vary from year to year.

Availability

For conservation use: Meadowcrest is available in commercial nurseries.

For seed or plant increase: Breeder seed for Meadowcrest eastern gamagrass will be maintained at the USDA NRCS Big Flats Plant Materials Center, near Corning New York.

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For more information, contact:
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