Sunrise Germplasm

Eastern gamagrass
Tripsacum dactyloides (L.) L.

Sunrise Germplasm is a selected class of eastern gamagrass \( \text{Tripsacum dactyloides (L.) L.} \). Sunrise Germplasm and was evaluated as NRCS accession number 9059266. Sunrise Germplasm is the first commercial source of eastern gamagrass for use as a forage adapted to southern Coastal Plain and Florida. The potential for immediate use of Sunrise Germplasm is high for conservation and restoration of native grassland sites and it also may prove useful for stockpiling of livestock forage.

**Description**
Sunrise Germplasm is a tetraploid Florida native eastern gamagrass. It has reached an average height of approx. 5.2 ft. when allowed to grow to full height at University of Florida, North Florida Research and Education Center (NFREC), Marianna, FL. Leaf width tends, on average, to be wider than ‘Iuka’, ‘Pete’, or ‘Highlander’, averaging 1.4 inches. Leaf length is estimated at 34 inches. Sunrise Germplasm begins flowering over a long period of time, from late spring through fall with peak production occurring in early August. The inflorescence of Sunrise Germplasm is generally terminal in occurrence, with typically 2 or 3 spicate branches with separate male flowers held above the female flowers. Like all eastern gamagrass, the seed grain or caryopsis is contained in a tough fruitcase. Sunrise Germplasm has averaged approximately 3500 seed units (grain with fruitcase) per pound. Since Sunrise Germplasm is a tetraploid, seeds are produced apomictically (asexual) and are genetically identical to the mother plant.

**Source**
Sunrise Germplasm was collected as vegetative material in 1990 in Polk County, FL. It was one of approximately 100 Florida accessions collected between 1988 – 1990 for the USDA, NRCS, Brooksville Plant Materials Center (FL PMC) program to develop a Florida forage-type eastern gamagrass. Results of the initial evaluation conducted with 77 of the Florida accessions and over 30 lines from TX, MS, and KS PMCs confirmed that many eastern gamagrass lines from further north and/or west in the U.S. did not perform well in Florida. Among Florida accessions, there were distinct differences in plant shape, leaf width and number, flower initiation, and winter dormancy. Nine lines rated as medium or high for forage production potential were put into advanced evaluation at the PMC looking at seed production. Sunrise Germplasm, which had the highest seed production of the lines tested, and the next highest three seed producers went on for further evaluation in a series of direct seeding establishment and survival trials conducted at sites in Collier, Hamilton, and Madison Counties in Florida, and forage production at the FL PMC between 2002-2003. Establishment and survival of Sunrise Germplasm was equal to or superior to the other FL accessions and the Pete control. Additionally, Sunrise Germplasm was also found to have the highest or second highest dry matter production averaging 75% higher than Pete for the two years.

**Conservation Uses**
Like other eastern gamagrass releases, Sunrise Germplasm will provide valuable food and cover for wildlife in habitat restoration plantings, and be useful for filter strips, field borders, contour buffer strips, and cross wind trap strips for erosion control. Additionally, Sunrise Germplasm, like other eastern gamagrass, may have use for grazing or hay but may be particularly useful, where adapted, as a stockpiled forage for winter feed.
Area of Adaptation and Use
Sunrise Germplasm is well adapted throughout peninsular Florida and the Florida Panhandle as far north as Marianna, FL, on suitable soil types. How much further north or west Sunrise Germplasm might be economically adapted is unknown at this time, but plantings have persisted as far north as Americus, GA, and as far west as Hurley, MS.

Establishment and Management for Conservation Plantings
Cold stratification is not necessary prior to planting Sunrise Germplasm seed. Seed should be planted at 13-27 lb/acre at the dates recommended by local NRCS Field Office or State Extension service for native warm season grass establishment for the field location. For native warm season grass mixes, adjust the rate according to the desired percentage Sunrise Germplasm in the mix. A clean, firm, and weed free seedbed, with adequate soil moisture, is essential to achieve a good stand. Although not evaluated as a forage, stands can be established using methods recommended for other eastern gamagrass material planted as forage. Plant seed 1 to 1.5 inches deep using conventional or no-till row planter at 2 ft row. Do not graze the first year; rotational grazing in subsequent years and maintain a stubble height of 10 – 12 inches. Fertilize with P and K according to soil test in the spring and 50 lb/acre N; additional 50 lb/acre N should be applied after each grazing period. In mixed stands, grazing should be based on the stubble height of the eastern gamagrass component. A minimum of a 90-day rest period for stockpiling is recommended and when being grazed, stockpiled materials should not be grazed below a stubble height of 8 to 10 inches. For other conservation uses, similar direct seeding methods or transplants can be used, but seeding rate and row spacing should be adjusted based on specifications of conservation practice. All plantings should be protected from uncontrolled grazing by livestock.

Ecological Considerations
USDA, NRCS Plant Materials Program Environmental Assessment has rated Sunrise Germplasm to have a low potential for invasiveness. It is expected that Sunrise Germplasm, regardless of the conservation use, will not persist if livestock are not controlled.

Seed and Plant Production
A density of 2,500 plants/acre at 6-ft row spacing is recommended for seed production fields. Narrower row spacings of 2 or 4 ft with a population of 7,200 and 3,600 plants/acre, respectively, can be used but seed yields will be about 25% lower. Regardless of planting density, seed fields should receive no more than 50 lb/acre N in the spring with other nutrients based on soil test recommendations. Harvest window is usually the first 2 weeks in August, but seed maturity should be monitored closely. Seed should be combined and air dried to prevent molding in storage. Minimally clean seed with an air-screen cleaner to improve germination; seed quality can be further increased by removing unfilled seed by using an air fractionating aspirator or gravity separator. Seed should be stored at 50°F with a relative humidity of 50% to maintain long-term viability.

Availability
For seed or plant increase: G0 seed of Sunrise Germplasm is maintained by the University of Florida Institute of Food and Agricultural Sciences. Requests for seed for commercial use or research should be directed to the FL PMC.

Citation

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>