

**UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
and
NEW YORK STATE COLLEGE OF
AGRICULTURE AND LIFE SCIENCES,
CORNELL UNIVERSITY**

Notice of Germplasm Release of 'SG4X-1' eastern gamagrass

The United States Department of Agriculture, Natural Resources Conservation Service and New York State College of Agriculture and Life Sciences, Cornell University announce the germplasm release of SG4X-1 (PI-591482) eastern gamagrass (*Tripsacum dactyloides* (L.) L. forma *prolificum*, Dayton et Dewald. SG4X-1 designation reflects the sexual gynomonoecious and tetraploid nature of this germplasm. It was developed cooperatively at The Big Flats Plant Materials Center and Cornell University.

SG4X-1 was developed by the chromosome doubling of a gynomonoecious diploid, GSF-I, PI-483447, ($2n=2x=36$), to the tetraploid level ($2n=4x=72$). Chromosome doubling was induced by the application of 20 micromolar solution of aminophosphomethyl using a tissue culture microtillering technique.

Present cultivars of eastern gamagrass are of a diploid nature. They have a monoecious inflorescence which limits their seed production potential. The high seed producing gynomonoecious inflorescence found in eastern gamagrass occurs naturally at the diploid level. Tetraploid germplasm of eastern gamagrass is more robust, with thicker stems, a later flowering date and an apomictic reproductive system. Tetraploids, due to their apomictic nature have limited potential to be improved by conventional breeding techniques. The production of a gynomonoecious sexual tetraploid would allow for breeding at the tetraploid level. This would enable the recombination of desirable characteristics of tetraploid genotypes, and to incorporate the gynomonoecious inflorescence onto new tetraploid lines. Superior genotypes will be able to be stabilized by using apomictic plants as pollen parents.

SG4X-1 is vegetatively similar to PI 483447. It is semi-prostrate in growth habit, with relatively narrow dark green leaves. The inflorescence exhibits the gynomonocious form with no modification to the inflorescence or seed, due to the increased ploidy level. It is fertile with a seed set of 43%. Crosses with known diploids and tetraploids have produced triploids and tetraploids respectively. It differs from other tetraploids by being able to reproduce sexually instead of apomictally and by having the gynomonocious inflorescence having 20 times more pistil bearing florets than the monoecious inflorescence.

The germplasm will be maintained vegetatively at the Big Flats Plant Materials center, USDA NRCS. Limited quantities of vegetative material will be provided to interested people upon receipt of a written request and agreement to make appropriate recognition of its source a matter of open record when the germplasm contributes to the development of a new cultivar or hybrid.

Approvals for Notice of Release of SG4X-1 eastern gamagrass

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