

## Registration of A3N242 and A3N243 Sudangrass Genetic Stocks

Two cytoplasmic male-sterile genetic stocks of sudangrass [*Sorghum bicolor* (L.) Moench], A3N242 (Reg. no. GS-1, PI 598139) and A3N243 (Reg. no. GS-2, PI 598140), were jointly developed by the USDA-ARS and the Agricultural Research Division, Institute of Agriculture and Natural Resources, University of Nebraska, and were released in May 1997.

A3N242 (A3Greenleaf) and A3N243 (A3Piper) have A<sub>3</sub> cytoplasm originating from IS1112C (SC193) obtained from A3Tx430 (Schertz et al., 1990). These genetic stocks were developed by crossing 'Greenleaf' (Karper, 1955) and 'Piper' (Smith et al., 1973) to the A<sub>3</sub> source, followed by a minimum of five backcrossing generations in the field or greenhouse during the years 1991 to 1995. These genetic stocks closely resemble the recurrent parent. A3N242 (A3Greenleaf) was completely male-sterile, as determined by covering test panicles with pollinating bags prior to anthesis during five backcross generations. A3N243 (A3Piper) exhibited average seed set of 1% on test panicles covered with pollinating bags prior to anthesis during the BC<sub>1</sub>, BC<sub>2</sub>, BC<sub>3</sub>, BC<sub>5</sub>, and BC<sub>6</sub> generations. Sterility reaction was tested in the field at Mead and Lincoln, NE, or in the greenhouse, as dictated by nursery location during the years in which these genetic stocks were developed. Sterility reaction in other environments has not been confirmed.

These genetic stocks are based on two widely utilized sudangrass cultivars and are the first sudangrasses released in A<sub>3</sub> cytoplasm. They have immediate application for research involving sudangrass with A<sub>3</sub> cytoplasm and as seed-parent lines for producing F<sub>1</sub> sudangrass hybrids. Because of the low incidence of lines that restore fertility to A<sub>3</sub> male-sterile plants, use of these lines in hybrid combination should produce male-sterile plants. In agricultural use, such plants may have superior forage quality. They

also have immediate application for use as testers of combine-height sorghum seed-parent lines for use in commercial production of sorghum-sudangrass hybrids.

Since selection may have occurred within Greenleaf and Piper during multiple generations of maintenance at Lincoln, seed of the recurrent parent used by this project will be distributed with the genetic stocks to maximize similarity of nuclear genes.

Seed of these genetic stocks will be maintained and distributed for at least five years by the USDA-ARS Wheat, Sorghum, and Forage Research Unit, Department of Agronomy, University of Nebraska, Lincoln, NE 68583-0937, and will be provided without cost to each applicant on written request. Seed has also been deposited in the National Plant Germplasm System, where it will be available for research purposes, including development and commercialization of new cultivars. It is requested that appropriate recognition be made if this germplasm contributes to the development of a new breeding line or cultivar.

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### References and Notes

1. Karper, R.E. 1955. Registration of sorghum varieties VIII. *Agron. J.* 47:540.
2. Schertz, K.F., L.E. Clark, and D.T. Rosenow. 1990. Registration of A3Tx430 and A3Tx7000 sorghum genetic stocks. *Crop Sci.* 30:1163.
3. Smith, D.C., H.L. Ahlgren, J.M. Sund, P.G. Hogg, and H.F. Goodloe. 1973. Registration of Piper sudangrass (Reg. no. 115) *Crop Sci.* 13:584.
4. J.F. Pedersen and J.J. Toy. USDA-ARS. Dep. Agronomy, Univ. of Nebraska-Lincoln, Lincoln, NE 68583-0937. Joint contribution of the USDA-ARS and the Dep. of Agronomy, Univ. of Nebraska-Lincoln, as Journal Series Paper no. 11897. Registration by CSSA. Accepted 31 Oct. 1997. \*Corresponding author (agro137@unlvm.unl.edu).