THE UNITED STATES DEPARTMENT OF AGRICULTURE, AGRICULTURAL RESEARCH SERVICE
Washington, D.C.
and
THE KANSAS AGRICULTURAL EXPERIMENT STATION, KANSAS STATE UNIVERSITY
Manhattan, Kansas
and
THE ND AGRICULTURAL EXPERIMENT STATION, NORTH DAKOTA STATE UNIVERSITY
Fargo, North Dakota

NOTICE OF RELEASE OF TWO SULFONYLUREA HERBICIDE RESISTANT SUNFLOWER GENETIC STOCKS

The United States Department of Agriculture, Agricultural Research Service, the Kansas Agricultural Experiment Station, and the North Dakota Agricultural Experiment Station, North Dakota State University, announce the release of two sunflower genetic stocks resistant to the sulfonylurea herbicide, tribenuron (Express). SURES-1 is an oilseed maintainer genetic stock, and SURES-2 is an oilseed restorer genetic stock. The genetic stocks are available for use by sunflower industry and public researchers to create hybrids, parental lines, or germplasm lines with herbicide resistance.

SURES-1 is an F_3-derived F_4 oilseed maintainer genetic stock obtained from the cross HA 424/3/ HA 406//HA 89/SU Res. wild *H. annuus*. Plants of a wild *Helianthus annuus* population collected in Kansas were screened for resistance to the sulfonylurea herbicide, chlorsulfuron (Glean). Resistant plants were grown in the greenhouse of Dr. Kassim Al-Khatib at Kansas State University in the fall season, 1998, and pollen was collected. The pollen was transferred to the USDA-ARS Sunflower Genetics Project, Fargo, ND, in the spring of 1999, and was used to pollinate the line, HA 89. Approximately 12 days after the cross was made, embryos were collected and embryo cultured to obtain small plants. When the F_1 plants reached the V6 stage they were treated with tribenuron (Express) at the 2 X (0.24 g L^{-1}) labeled rate for soybean [*Glycine max* (L.) Merr.]. At flowering, the F_1 plants were sib-mated to produce F_2 seed. The F_2 seed was planted as populations in the field nursery, Fargo, ND, in the summer of 1999 and at the V6 stage they were treated with tribenuron at the 2 X labeled rate. At flowering, pollen was collected from plants which did not have the dominant branching characteristic and lacked anthocyanin pigmentation. The pollen was used to cross to HA 406. The F_1 plants were grown in the fall greenhouse, 1999, and treated with tribenuron at the 1 X labeled rate at the V6 stage. Pollen was collected from resistant plants and crossed with HA 424 high oleic fatty acid selection. The F_1 plants were grown in the spring greenhouse, 2000, and treated with tribenuron at the 1 X labeled rate at the V6 stage. Resistant plants were self-pollinated to produce F_2 seed. The F_2 seed was grown as populations in the field nursery, Fargo, ND, during the summer of 2000 and treated with tribenuron at the 2 X labeled rate at the V6 stage. Resistant plants were identified and self-pollinated. Five F_3 plants derived from each F_2 self-pollinated plant were grown in the spring greenhouse, 2001, and treated with tribenuron at the 1 X labeled rate at the V6 stage. Only F_3 plants homozygous for resistance to tribenuron were selected and self-pollinated. Seed was composited from the F_4 plants to form the genetic stock SURES-1.

SURES-2 is an F_3-derived F_4 oilseed restorer genetic stock obtained from the cross RHA377/3/RHA 392//RHA 376/SU Res. wild *H. annuus*. Pollen collected from chlorsulfuron resistant wild *Helianthus annuus* plants at Kansas State University was used to pollinate the line, RHA 376. Approximately 12 days after the cross was made, embryos were collected and embryo cultured to obtain small plants. When the F_1 plants reached the V6 stage they were treated with tribenuron (Express) at the 2 X (0.24 g L^{-1}) labeled rate for soybean. At flowering, the F_1 plants were sib-mated to produce F_2 seed. The F_2 seed was planted as populations in the field nursery, Fargo, ND, in the summer of 1999 and at the V6 stage they were treated with tribenuron at the 2 X labeled rate. At flowering, pollen was collected from plants which did not have the dominant branching characteristic and lacked anthocyanin pigmentation. The pollen was used to cross to RHA 392. The F_1 plants were grown in the fall greenhouse, 1999, and treated with tribenuron at the 1 X labeled rate at the V6 stage. Pollen was collected from resistant plants and crossed with the branched restorer line RHA 377. The F_1 plants were grown in the spring greenhouse, 2000, and treated with tribenuron at the 1 X labeled rate at the V6 stage. Resistant plants were self-pollinated to produce F_2 seed. The F_2 seed was grown as populations in the field nursery, Fargo, ND, during the summer of 2000 and treated with tribenuron at the 2 X labeled rate at the V6 stage. Resistant plants were identified and self-pollinated. Five F_3 plants derived from each F_2 self-pollinated plant were

grown in the spring greenhouse, 2001, and treated with tribenuron at the 1 X labeled rate at the V6 stage. Only F_3 plants homozygous for resistance to tribenuron were selected and self-pollinated. Seed was composited from the F_4 plants to form the genetic stock SURES-2.

Limited quantities of seed of each genetic stock are available by contacting J. F. Miller, USDA-ARS, Northern Crop Science Laboratory, P.O. Box 5677, Fargo, ND 58105.

The release date for these genetic stocks will be on the date of final signature. It is requested that appropriate recognition be made if these genetic stocks contribute to the development of a new breeding line, germplasm, or cultivar.

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Director, Kansas Agricultural Experiment Station — Date
Manhattan, Kansas

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Director, ND Agricultural Experiment Station — Date
Fargo, North Dakota

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Administrator, Agricultural Research Service — Date
United States Department of Agriculture