THE UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
Washington, D.C.
And
THE NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION
NORTH DAKOTA STATE UNIVERSITY
Fargo, North Dakota

NOTICE OF RELEASE OF THREE MAINTAINER (HA 456, HA 457, AND HA 412 HO) HIGH-OLEIC OILSEED SUNFLOWER GERMPLASMS

The United States Department of Agriculture, Agricultural Research Service, and the North Dakota Agricultural Experiment Station, Fargo, ND announce the release of three maintainer (HA 456, HA 457, and HA 412 HO) high oleic sunflower germplasms. These germplasms are available for use by industry and public researchers to create hybrids, parental lines, or germplasms with a mid-oleic (NuSun™) (>550 and <700 g kg-1 oleic acid) or high-oleic fatty acid concentration in the oil.

HA 456 is an F_6-derived F_7 maintainer line advanced by pedigree selection from the cross HA 434/S-16 YU. Ha 434 (PI 633744) is a high-oleic maintainer germplasm line released by USDA and the North Dakota Agricultural Experiment Station in 2001. The S-16 YU breeding line was obtained through a germplasm exchange with Dr. Dragan Skoric, Institute of Field and Vegetable Crops, Novi Sad, Serbia in 1992 and was tested for Sclerotinia head and stalk rot resistance in 1993 to 1995 under natural infestation in selected fields in North Dakota and Minnesota. HA 457 is an F_6-derived F_7 maintainer line advanced by pedigree selection from the cross HA 434//HA821/Dussol. HA 821 (PI 599984) is a maintainer germplasm line released by the USDA and the North Dakota Agricultural Experiment Station in 1983. Dussol (Ames 22499) is a short-statured maintainer line released by INRA, Clermont-Ferrand, France, in 1995.

HA 412 HO is a BC_4F_3 germplasm line derived from the pedigree HA412*5/HA 434. The objective of this backcross was to convert the HA 412 traditional oil line (high linoleic acid) to a high oleic acid line to be used to produce (NuSun™) or high oleic hybrids with Sclerotinia head and stalk rot tolerance. HA 412 (PI 603993) is a Sclerotinia head and stalk rot line released by USDA and the North Dakota Agricultural Experiment Station in 1995. HA 434 (PI633744) is a high-oleic maintainer germplasm line released by USDA and the North Dakota Agricultural Experiment Station in 2001.

Height of HA 456, HA 457, and HA412 HO averaged 103, 78, and 122 cm, respectively, compared with 118 cm for HA 434 and 122 cm for HA 412 in the 2003 and 2004 breeding nurseries, Fargo, ND. Days to flower for HA 456, HA 857, and HA 412 HO averaged 67, 64, and 63 d, respectively, compared with 65 d for HA 434 and 63 d for HA 412. Plants of HA 456, HA 457, and HA 412 HO grown in the 2004 breeding nursery at Fargo, ND, averaged 838, 835, and 834 g kg^{-1} oleic acid, respectively, compared with 847 g kg^{-1} for HA 434. HA 456, HA 457, and HA 412 HO are single-headed.

Hybrids with the cytoplasmic male-sterile equivalents of the two maintainer lines, HA 456 and HA 457, were produced by crossing with RHA 373 and RHA 377. These hybrids were compared with the commercial hybrids Pioneer 63M80, Interstate Hysun 525, and Mycogen 8377 in 2003 and 2004 trials planted at Casselton, ND for agronomic evaluation. Yield of hybrids with HA 456 and HA 457 was 2338 and 2425 kg ha^{-1}, respectively, compared with a 2409 kg ha^{-1} average of the three check hybrids. Oil content of hybrids with HA 456 and HA 457 was 433 and 438 g kg^{-1}, respectively, compared with a 448 g kg^{-1} of the three check hybrids. Height of hybrids with HA 456 and HA 457 was 149 and 151 cm, respectively, compared with a 166 cm average of the three check hybrids. Days to flower of hybrids with HA 456 and HA 457 was 76 and

75 d, respectively, compared with a 74 d average of the three check hybrids.

Limited quantities of seed of each germplasm are available from the Seedstocks Project, Dept. of Plant Sciences, Loftsgard Hall, North Dakota State University, Fargo, ND 58105. Seed of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including development and commercialization of new cultivars. U.S. Plant Variety Protection will not be requested for HA 456, HA 457, HA 412 HO.

It is requested that appropriate recognition be made if these germplasms contribute to the development of a new breeding line or cultivar.