NOTICE OF RELEASE OF AN OILSEED SUNFLOWER MAINTAINER GERMPLASM LINE, SDB4, AND ITS MALE STERILE COUNTERPART, CMS SDB4

The South Dakota Agricultural Experiment Station announces the release of SDB4, an oilseed sunflower (Helianthus annuus L.) maintainer germplasm, and its male sterile counterpart, cms SDB4. This germplasm has been selected for high oil yield in hybrid combination and good agronomic characteristics. It is available for use by industry and public researchers to create sunflower hybrids, parental lines, or germplasms.

SDB4 is an S3-derived maintainer line advanced by pedigree selection from the cross Peredovik/HA 291. Peredovik is a sunflower cultivar originating from the former Soviet Union. HA 291 was released by the USDA and North Dakota Agricultural Experiment Station in 1976. SDB4 was converted to cytoplasmic male sterility (PET1 cytoplasm) by backcrossing.

Plants of SDB4 were grown in the breeding nursery at Brookings, SD from 2000 to 2006. Height of SDB4 averaged 78 cm over six years, compared to 113, 126, and 121 cm for HA 404, HA 406, and HA 412, respectively. Averaged over 4 years, SDB4 flowered 65 d after planting, compared to 68 d for HA 404 and HA 412 and 74 d for HA 406. SDB4 averaged 367 g kg\(^{-1}\) oil over six years, compared to 402, 428, and 415 g kg\(^{-1}\) for HA 404, HA 406, and HA 412, respectively. SDB4 has traditional linoleic oil composition.

Hybrids with the cytoplasmic male sterile line of SDB4 (cms SDB4) were produced by crossing with three restorer lines, RHA 373, RHA 377, and RHA 409. These hybrids were compared to hybrid checks produced by crossing cms HA406, cms HA404, and cms HA412 with the same three restorer lines. The hybrids were evaluated at several environments from 2002 through 2006 (hybrids with RHA 409 were tested in 2002 only). A summary of the performance of the hybrids is presented in Table 1.

Averaged over the three restorer lines at a total of 18 environments, hybrids with cms SDB4 yielded 1713 lbs/A, compared to 1577 lbs/A for the average of the three check hybrids. Oil content of hybrids with cms SDB4 averaged 427 g kg\(^{-1}\), compared to a 433 g kg\(^{-1}\) average of the three checks. Plant height and days to flower of cms SDB4 hybrids were similar to the corresponding hybrids with cms HA404, averaging 143 cm and 69 d across testers, compared to 142 cm and 69 d for cms HA404 hybrids and 148 cm and 72 d for cms HA406 hybrids.

Limited quantities of seed of SDB4 and cms SDB4 are available from the South Dakota Agricultural Experiment Station, Foundation Seed Stock Division, Box 2207A, South Dakota State University, Brookings, SD 57007, USA. There will be a charge for each seed lot to cover costs of seed production and distribution.

It is requested that appropriate recognition be given if this germplasm contributes to the development of a new breeding line or cultivar.

___________________________________

Dr. John D. Kirby, Director
South Dakota Agricultural Experiment Station