180, and 191 cm, respectively, compared with 185 cm for the check hybrid cmsHA 292/RHA 310. Days from planting to flowering of hybrids with RHA 329 to RHA 334 were 70, 69, 67, 72, 71, and 72 days, respectively, compared with 71 days for the check hybrid cmsHA 292/RHA 310. Percentage of achenes passing over a 50/160 cm (20/64 in.) round hole screen for hybrids with RHA 329 to RHA 334 were 73, 46, 54, 73, 63, and 57%, respectively, compared with 76% for the check hybrid cmsHA 292/RHA 310. All hybrids had distinct black and white achene color and striping, and were equal to the check hybrids in percentage of kernel. These lines produced hybrids that were significantly more uniform in height and flowering, and had more upright head positions than the check hybrids.

Limited quantities of seed of each germplasm source are available from the Seedstocks Project, Agronomy Department, North Dakota State University, Fargo, ND 58105.

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References and Notes

REGISTRATION OF THREE NONOILSEED SUNFLOWER GERMPLASM POPULATIONS AND FIVE NONOILSEED SUNFLOWER GERMPLASM BULK POPULATIONS

**SUNFLOWER (Helianthus annuus L.)** germplasm populations, ND-NONOIL 1 (Reg. no. GP-51), ND-NONOIL 2 (Reg. no. GP-52), and ND-NONOIL 3 (Reg. no. GP-53), and five nonoilseed germplasm bulk populations, ND-NONOIL B1 (Reg. no. GP-54), ND-NONOIL B2 (Reg. no. GP-55), ND-NONOIL B3 (Reg. no. GP-56), ND-NONOIL B4 (Reg. no. GP-57), and ND-NONOIL B5 (Reg. no. GP-58), were developed cooperatively by the USDA-ARS and the North Dakota Agricultural Experiment Station, Fargo, ND, and released in 1985. The three populations and five bulk populations are available for use in sunflower breeding and development programs. These releases provide germplasm with improved yield and seed quality characteristics for development of superior nonoilseed hybrids.

ND-NONOIL 1 is a random-mated population of 29 lines derived from the open-pollinated cultivar 'Sundak' after three cycles of selection for yield and seed quality. Sundak was released jointly by the USDA and the North Dakota Agricultural Experiment Station in 1973. ND-NONOIL 2 is a random-mated population of 18 lines derived from the cross 'Jumbo Israel'/RHA 268 after three cycles of selection for yield and seed quality. Jumbo Israel is an open-pollinated cultivar from Israel and RHA 268, originally tested as T63044-1-1, was derived from the cross 'Boneta Giant Manchurian-1'/Mennonite RR. ND-NONOIL 3 is a random-mated population of 18 lines derived from a composite named Nonoil B-line Composite. This composite was initiated in 1979 by random mating several high-yielding nonoilseed inbred lines planted in the USDA breeding program at Fargo. Two cycles of testing were completed in this composite.

The procedure of selection and testing was the same for all three populations. The first step of the cycle was to select 100 to 150 plants within each random-mated population and cross to plants of RHA 309 and RHA 310, which had been male sterilized by treating with 50 mg L⁻¹ of gibberellic acid (GA₃). Each selected plant was self-pollinated. Hybrid seeds from the resulting crosses were planted the following year and plants were classified for yield, flowering date, height, and large achene size. Selected plants that performed best in hybrid crosses were then random mated, completing the cycle. Considerable variability exists in the populations for height, flowering date, and maturity date. Intense selection was made to improve achene size, achene color, and upright head inclination. ND-NONOIL 2 has some restoration genes present; however, all plants exhibit the single-headed characteristic.

ND-NONOIL B1, ND-NONOIL B2, ND-NONOIL B3, ND-NONOIL B4, and ND-NONOIL B5 are bulk populations of F₁ lines from five crosses. Plant selection within each cross was initiated in the F₂, utilizing the pedigree breeding method. Plant characteristics such as height, upright head inclination, achene size, achene color, and self-fertility were classified in the F₃ and F₄ generations. The F₃ and F₄ plants were selected for testing as male parents of hybrids, using RHA 310 as the female parent. RHA 310 plants were male sterilized by treatment with 50 mg L⁻¹ of GA₃. Hybrids were evaluated for yield, flowering date, height, and large achene size. The selected plants that performed best in hybrid crosses were bulked to form the released populations.

ND-NONOIL B1 was derived from lines selected from the cross Sundak Sel/Jumbo Israel/RHA 268 Sel. The two parents were selected from the highest yielding lines in ND-NONOIL 1 and ND-NONOIL 2. ND-NONOIL B2 was derived from lines selected from the cross CRR-01-1-2/HA 292. CRR-01-1-2 is a rust resistant selection from the open-pollinated cultivar 'Commander' that was used in a composite to produce the cultivar Sundak, and HA 292 is a nonoilseed line released by the USDA in 1979. ND-NONOIL B3 was derived from the cross Sundak Sel/HA 292. ND-NONOIL B4 was derived from the cross Sundak 25-6/Jumbo Israel/RHA 268. Sundak 25-6 is a sister selection of HA 308 released in 1981. ND-NONOIL B5 was derived from the cross HA 89/HA 304/HA 292. HA 89 is an oilseed inbred line released by the USDA in 1971 and HA 304 is a nonoilseed inbred line released by the USDA in 1979. These populations and population bulks represent germplasm improvements in yield, achene size, achene color, self-fertility, and head inclination.

Limited quantities of seed of each germplasm source are available from the Seedstocks Project, Agronomy Department, North Dakota State University, Fargo, ND 58105.

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References and Notes

REGISTRATION OF KS85WGRC01 HESSIAN FLY-RESISTANT HARD RED WINTER WHEAT GERMPLASM

KS85WGRCO1 (Reg. no. GP-278), PI499691, a Hessian fly-resistant, hard red winter wheat (Triticum aestivum L.) germplasm was developed cooperatively by the Kansas Agricultural Experiment Station, the USDA-ARS, and the Wheat