converted streak resistant or derived lines were test crossed to Population 49 (CIMMYT short Tuxpeno).

Seventy-three $S_1$ lines were selected based on their combining ability for grain yield, agronomic traits, lodging, and disease resistance, and on their line performance per se at six locations in Nigeria. The selected lines were subgrouped into six sets according to ecological adaptation, grain color, and maturity, and were advanced to $S_2$ generation. In 1982–1983 dry season, a total of 450 single-cross hybrids were formed for all sets and tested in the 1983 rainy season at three to seven different locations throughout Nigeria.

Initially, 24 single cross hybrids were selected for their high yield, good agronomic traits, and disease resistance. After retesting in 1984, only 10 hybrids were released for commercial production in Nigeria. The 16 inbred lines (presently at the $S_3$ stage of inbreeding) are the parents of those commercial single cross hybrids developed by IITA. Their main characters and parentage are presented in Table 1. The best selected hybrids involved crosses between the tropical and the converted temperate lines (1).

Breeder seeds of these Tzi (Tropical zea inbred) lines are maintained by the Maize Research Program, IITA, P.M.B. 5320, Ibadan, Nigeria, and can be supplied to interested national programs and other institutions. For each line, 30 to 50 kernels are provided depending on availability of seeds.

S. K. Kim, Y. Efron, F. Khadr, J. Fajemisin, and M. H. Lee (2)

References and Notes
2. Maize breeder (leader of IITA hybrid maize project); director, maize breeder; maize pathologist/breeder; and maize breeder, respectively. Maize Res. Program. IITA, P.M.B. 5320, Ibadan, Nigeria. Since 1982, IITA hybrid maize project has been partially financed by the Federal Government of Nigeria through the Ministry of Science and Technology. Another financial source is the Consultative Group on Int. Agric. Res. (CGIAR), Washington, DC. IITA Journal Series no. 326. Registration by the Crop Sci. Soc. of Am. Accepted 30 Jan. 1987.


REGISTRATION OF HA 850, HA 851, HA 852, AND HA 853 OILSEED SUNFLOWER PARENTAL LINES

HA 850 (Reg. no. PL-43), HA 851 (Reg. no. PL-44), HA 852 (Reg. no. PL-45), and HA 853 (Reg. no. PL-46) sunflower (Helianthus annuus L.) maintainer lines and their corresponding cytoplasmic male-sterile lines are advanced selections with improved combining ability, and high oil content. These four parental lines were developed by USDA-ARS and the North Dakota Agricultural Experiment Station and released in 1985. HA 850, HA 851, HA 852, and HA 853 possess normal cytoplasm. The male-sterile counterparts were converted to male sterility by backcrossing into lines with cytoplasm from Helianthus petiolaris Nutt. These lines flower from 1 to 5 days earlier, but reach physiological maturity 4 to 5 days later than HA 89. HA 850 and HA 853 are 18 to 20 cm taller than HA 89, while HA 851 is 40 cm taller. HA 852 is the same height (approximately 126 cm) as HA 89. Head diameter of all four lines is equal to HA 89 (approximately 23 cm). Oil content of the four lines is equal to HA 89, except for HA 851, which is about four percentage points higher. All four lines are moderately susceptible to the prevalent sunflower diseases in the North Central growing area.

The cytoplasmic male-sterile counterparts of HA 850, HA 851, HA 852, and HA 853 were tested in hybrid combinations with RHA 274 and RHA 801 during 1983 and 1984. These hybrids had about equal flower and physiological maturity dates as the check hybrids, Hybrid 894 and Hybrid cmsHA 821/RHA 274. Hybrid combinations of cmsHA 850, cmsHA 852, and cmsHA 853 crossed with RHA 274 and RHA 801 were about the same height as Hybrid 894 and Hybrid cmsHA 821/RHA 274, while the two hybrids with cmsHA 851 were 15 to 30 cm taller than the check hybrids. Yield of hybrid combinations of all four of these parental lines averaged 550 kg ha$^{-1}$ more than the two check hybrids. Oil content of the seed from these hybrids was 3 to 6 percentage points greater than Hybrid 894 or Hybrid cmsHA 821/RHA 801. All hybrid combinations exhibited good lodging resistance.

Limited quantities of seed of each of these parental lines is available from the Seedstocks Project, Agronomy Department, North Dakota State University, Fargo, ND 58105.

W. W. Roath and J. F. Miller (3)

References and Notes
1. HA 89 is a 1971 unregistered release by M.L. Kimman, USDA-ARS, Texas A&M Univ., College Station, TX 77840.
2. CM 303 was released by the Agric. Canada Res. Stn., Morden, Manitoba.

Published in Crop Sci. 27:825 (1987).

REGISTRATION OF SIX OILSEED SUNFLOWER PARENTAL LINES

OILSEED sunflower (Helianthus annuus L.) parental lines, RHA 854 through RHA 859, (Reg. no. PL-47 through PL-52) are advanced selections with homozygous dominant genes for fertility restoration of cytoplasmic male sterility derived from Helianthus petiolaris Nutt., and are homozygous for recessive branching. These lines, selected for production of hybrids with improved combining ability and high oil content, were developed by USDA-ARS and the North Dakota Agricultural Experiment Station, and released in 1985.

RHA 854 (PL-47) is an $S_1$ selection from RHA 273 (cmsPI 343765/HA 119//HA 62-4-5/2/T66006-2). RHA 273 was released by USDA-ARS in 1975 (1). RHA 855 (PL-48) is a $F_1$ selection from the cross cmsHA 89/RHA 273. CmsHA 89