amined periodically throughout the growing season, and tags indicating date of flowering were attached to the 300 plants with the earliest silking dates. Ears of the 300 earliest-silking plants were harvested, dried at 35 °C to =140 g kg$^{-1}$ grain moisture, and shelled individually. Two samples of 100 seeds from each ear were bulked from the 300 individually shelled ears: one was put in cold storage as reserve, and the second used to plant the isolation field the following year. After six cycles of mass selection for earlier silking, the Antigua Composite was considered to have maturity appropriate for U.S. Corn Belt environments and was designated as BS27.

The original (C0) and mass selected cycles (C1 to C6) of Antigua Composite were evaluated in 10 environments in 1987 and 1988. Days from planting to flowering decreased 3.2 ± 0.2 d cycle$^{-1}$ of selection or 19.2 d from C0 (91 d) to C6 (74 d). Yield increased 0.79 ± 0.04 t ha$^{-1}$ cycle$^{-1}$ of selection from 0.70 t ha$^{-1}$ (C0) to 5.09 t ha$^{-1}$ (C6) with selection for earlier flowering. Yield of BS27 (Antigua Composite) was equal to BS16 (an adapted strain of ETO Composite), BS2 (50% ETO Composite germplasm), and BSTL (25% Tuxpeno germplasm) (2,3). Antigua collections had good combining ability with Tuxpeno Yellow Dent and U.S. Corn Belt dents (5). Crosses of Antigua collections with U.S. Corn Belt Dent were with single crosses having primarily Reid Yellow Dent germplasm.

BS27 has a vigorous plant type, intermediate height, and ears with flinty kernels that are light yellow to light orange. BS27 is of central U.S. Corn Belt maturity (AES800 maturity classification) and includes germplasm that exhibits good pest resistance in tropical areas and genetic variability different from that currently included in U.S. Corn Belt breeding programs.

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References and Notes

REGISTRATION OF A SUNFLOWER AMPHIPLOID GERMLASM LINE, ANN-BOL-AMP1

AN AMPHIPLOID SUNFLOWER (Helianthus spp.) germplasm line, ANN-BOL-AMP1 (Reg. no. GP-176, PI 559481), was developed cooperatively and released by the USDA-ARS and the North Dakota Agricultural Experiment Station, Fargo, ND, in January 1991. This is the first amphiploid of Helianthus annuus L. × H. bolanderi Gray reported.

ANN-BOL-AMP1 is the result of interspecific hybridization and chromosome doubling. Male-sterile plants of P-21 VR1 (H. annuus L.) were pollinated with pollen from H. bolanderi, accession 09b-009, collected in Sutter County, CA. P-21 VR1 is a self-compatible line segregating for nuclear male sterility that was developed by the USDA and the Texas Agricultural Experiment Station in 1970. Both parents had diploid chromosome numbers of 34 (2n = 2x = 34). Information concerning colchicine treatment of the P-21 VR1 × H. bolanderi F1 seeds, selection of chromosomally doubled heads, and characteristics of the amphiploids has been previously reported by Jan and Chandler (1). Chromosomally doubled F1 heads or sectors were sib-pollinated. The F2 amphiploid plants (2n = 68) were sib-pollinated to produce sufficient F3 seeds for this release.

ANN-BOL-AMP1 is morphologically intermediate to its parents. It possesses 50% cultivated H. annuus and H. bolanderi nuclear genes in P-21 VR1 (H. annuus) cytoplasm. ANN-BOL-AMP1 is annual, branched, fertile, and self-incompatible; it has a plant height of 2.0 m. Seeds are black with white stripes, and have a 1000-seed weight of 51 g. Crosses between ANN-BOL-AMP1 (Ax) and the inbred lines HA 89 and P-21 VR1 produced 13, 3, 46, and 39 seeds head$^{-1}$ for 4x × P-21 VR1, 4x × HA 89, P-21 VR1 × 4x, and HA 89 × 4x, respectively.

This germplasm provides the unexploited genetic variability of H. bolanderi in a form that is readily crossable with cultivated sunflower. It will also allow genetic breeders to study amphiploids as a bridge in interspecific crosses and the effectiveness of gene transfer via amphiploid production.

Limited quantities of seed of ANN-BOL-AMP1 are available from the Seedstocks Project, Dep. of Crop and Weed Sciences, North Dakota State University, Fargo, ND 58105.

References and Notes
2. USDA-ARS, Northern Crop Science Lab., Fargo, ND. For contribution of the USDA-ARS and North Dakota Agricultural Experiment Station.