NOTICE OF RELEASE OF 15 INTERSPECIFIC BULK SUNFLOWER POPULATIONS DERIVED FROM PERENNIAL SUNFLOWER

Wild Helianthus species have played an important role in establishing sunflower as a valuable oilseed crop of the world. However, the present sunflower germplasm is still represented by a relatively narrow genetic base, which greatly limits its future success as a competitive major global oilseed crop. Of the 53 sunflower species, 13 of the 14 annuals can be crossed with cultivated sunflower and used for sunflower breeding. The remaining 39 wild Helianthus species, however, are perennial, including diploids, tetraploids, and hexaploids, and are much more difficult to hybridize with cultivated sunflower. Thus, they are rarely utilized for sunflower improvement representing unexploited sources of genetic variation for sunflower improvement. The new bulk releases based on the perennial crop wild relatives offers the opportunity to utilize previously unavailable genetic resources. A significant number of the wild perennial Helianthus species have been identified as highly resistant to diseases and parasites of global concern including broomrape, a parasitic weed, Sclerotinia white mold, Phomopsis stem canker, downy mildew, lead rust, Verticillium wilt, and Rhizopus head rot. Progeny populations of the perennial species crossed and backcrossed with cultivated sunflower provide unique genetic materials allowing breeders to incorporate previously unavailable genetic diversity into their programs.

Fifteen diverse interspecific sunflower backcross bulk populations, SFB-CAL, SFB-DIV, SFB-DIV/GRO, SFB-GIG, SFB-GRO1, SFB-GRO2, SFB-HIR, SFB-MAX1, SFB-MAX2, SFB-MAX3, SFB-NUT1, SFB-NUT2, SFB-OCC, SFB-SAL and SFB-STR originated from 11 wild perennial Helianthus species, including five interspecific amphiploids, with each bulk composed of 30 random backcross families. The pedigrees and data are as follows:

1. SFB-CAL (H. californicus PI 649941/5*HA 410, BC4F4,5); [SFB-CAL is 86 percent single headed (SH), plant height (PH) 97±14.5 cm, days to flower (DF) 77±1.9 days, days to maturity (DM) 115±3.4 days, head diameter (HD) 14±2.1 cm, 1000-seed weight (SW) 60±11.7 grams, and seed black with gray stripes (BGS)]
2.  SFB-DIV (NMS HA 89/H. divaricatus PI 503209, 503216, 503218 //HA 410, BC2F4, BC3F3); [SFB-DIV is 74 percent SH, PH 116±22.2 cm, DF 76±4.6 days, DM 110±3.4 days, HD 19±6.0 cm, SW 56±15.5 grams, and seed BGS]

3.  SFB-DIV/GRO (H. divaricatus PI 435675/P21//H. grosseserratus/P21, amphiploid//HA 410, BC3F4,5); [SFB-DIV/GRO is 82 percent SH, PH 90±32.2 cm, DF 77±3.8 days, DM 113±2.9 days, HD 14±7.3 cm, SW 58±24.8 grams, and seed BGS]

4.  SFB-GIG (NMS HA 89/H. giganteus PI 547182//BC1F5, BC2F3,4,5); [SFB-GIG is 82 percent SH, PH 114±15.6 cm, DF 77±3.2 days, DM 112±4.2 days, HD 19±5.1 cm, SW 62±15.1 grams, and seed BGS]

5.  SFB-GRO1 (NMS HA 89/H. grosseserratus PI 613793//HA 410, BC2F5,6, BC3F2,3,4,5); [SFB-GRO1 is 70 percent SH, PH 107±17.8 cm, DF 77±3.3 days, DM 111±4.4 days, HD 16±4.2 cm, SW 50±16.8 grams, and seed BGS]

6.  SFB-GRO2 (H. grosseserratus/P21, amphiploid//HA 410, BC4F2,3, BC5F2); [SFB-GRO2 is 86 percent SH, PH 122±13.8 cm, DF 75±2.0 days, DM 110±5.2 days, HD 17±5.1 cm, SW 53±16.7 grams, and seed BGS]

7.  SFB-HIR (NMS HA 89//H. hirsutus PI 547174//HA 410, BC1F3); [SFB-HIR is 96 percent SH, PH of 138±63.9 cm, DF 74±1.2 days, DM 108±1.1 days, HD 17±1.7 cm, SW 68±9.5 grams, and seed BGS]

8.  SFB-MAX1 (NMS HA 89/H. maximiliani 1018,1314,1323//HA 441, BC1F4,5,6, BC2F5); [SFB-MAX1 is 87 percent SH, PH 124±17 cm, DF 78±3.0 days, DM 121±4.1 days, HD 16±2.0 cm, SW 39±14.9 grams, and seed BGS]

9.  SFB-MAX2 (NMS HA 89/H. maximiliani PI 586892//HA 410, BC1F4,5, BC2F3,4,5); [SFB-MAX2 is 76 percent SH, PH 109±14.8 cm, DF 77±3.5 days, DM 110±5.1 days, HD 17±13.1 cm, SW 47±18.4 grams, and seed BGS]

10.  SFB-MAX3 (H. maximiliani/P21, amphiploid//HA 410, BC2F4,5, BC3F2,3, BC4F2); [SFB-MAX3 is 89 percent SH, PH 102±10.8 cm, DF 75±1.2 days, DM 116±3.2 days, HD 17±3.5 cm, SW 47±14.1 grams, and seed BGS]

11.  SFB-NUT1 (NMS HA 89/H. nuttallii PI 4008,1324//HA 441, BC1F4,5,6, BC2F5); [SFB-NUT1 is 87 percent SH, PH 135±19.5 cm, DF 79±2.2 days, DM 118±3.8 days, HD 18±4.0 cm, SW 42±12.4 grams, and seed BGS]

12.  SFB-NUT2 (H. nuttallii PI 435779/P21, amphiploid//HA 410, BC3F4,5,6); [SFB-NUT2 is 78 percent SH, PH 86±24.5 cm, DF 73±2.5 days, DM 113±3.9 days, HD 15±5.8 cm, SW 68±22.8 grams, and seed BGS]

13.  SFB-OCC (NMS HA 89//H. occidentalis PI 494594//HA 410, BC1F3); [SFB-OCC is 93 percent SH, PH 136±8.7 cm, DF 75±1.6 days, DM 110±3.4 days, HD 17±2.0 cm, SW 69±7.3 grams, and seed BGS]

14.  SFB-SAL (NMS HA 89//H. salicifolius Ames 30348//HA 410, BC1F3); [SFB-SAL is 96 percent SH, PH 147±10.8 cm, DF 75±1.4 days, DM 112±4.0 days, HD 18±1.8 cm, SW 66±9.8 grams, and seed BGS]

15.  SFB-STR (H. strumosus 30-002-1/P21, amphiploid//HA 410, BC3F3,4,5); [SFB-STR is 90 percent SH, PH 84±17.4 cm, DF 77±2.5 days, DM 115±3.9 days, HD 12±5.8 cm, SW 58±18.8 grams, and seed BGS]

Check hybrid 894 is 100 percent SH, PH 131±7.7 cm, DF 71±1 days, DM 123±2 days, HD 24±1.7 cm, SW 75±3.2 grams, and seed BGS.
These 15 backcross bulk populations will be maintained by the USDA-ARS, Fargo, North Dakota with small quantities of seed of each germplasm available from the North Dakota Foundation Seed Stocks Project, NDSU Dept. 7670, P.O. 6050, Fargo, ND 58108-6050. Seed of these releases will be deposited in the National Plant Germplasm System, where it will be available for research purposes. U.S. Plant Variety Protection will not be requested for these populations.

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Signatures:

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