



United States Department of Agriculture  
Research, Education, and Economics  
Agricultural Research Service

UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Service  
Washington, D.C.

and

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION  
North Dakota State University  
Fargo, ND

### **NOTICE OF RELEASE OF SIX INTERSPECIFIC SUNFLOWER AMPHIPOIDS**

Interspecific amphiploids derived from crop wild relatives of sunflower help mine potential genes from a very large gene pool of 53 different species, especially the hard-to-cross perennial species. The value of these genetic stocks is that they can act as a bridge in interspecific gene transfer, allowing for easier backcrossing with the cultivated lines to further broaden the genetic diversity of the sunflower crop, as well as the transfer of specific target genes. The genetic stocks will also allow for the development of chromosome addition lines, with individual wild species chromosomes added to the background of cultivated sunflower line, for genetic studies of specific chromosomes.

Six diverse interspecific amphiploid genetic stocks, AMP GRO, AMP HIR-1126, AMP DIV/GRO, AMP STR, AMP MAX, and AMP NUT originated from crosses of six wild perennial *Helianthus* species with cultivated line P21, followed by chromosome doubling using colchicine. The pedigrees were: AMP GRO (*H. grosseserratus*/P21); AMP HIR-1126 (*H. hirsutus*/P21); AMP DIV/GRO (*H. divaricatus*/P21//*H. grosseserratus*/P21); AMP STR (*H. strumosus*/P21); AMP MAX (*H. maximiliani*/P21); and AMP NUT (*H. nuttallii*/P21). These amphiploids contain full genetic diversity from the contributing wild perennial species, and have restored fertility to sib-pollinate for line maintenance and further backcrossing to cultivated lines for interspecific gene transfer. Otherwise, wild perennial *Helianthus* are extremely difficult to cross with the cultivated lines and the F<sub>1</sub> progeny are usually highly sterile making further backcrosses difficult or impossible. These genetic stocks provide the badly needed genetic diversity from perennial *Helianthus* species, including resistance to new races of rust, broomrape, and Sclerotinia, and will greatly help conventional breeders to identify and transfer genes from the perennial *Helianthus* species with greater ease.

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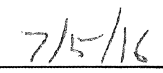
AMP GRO segregates for branching, with a plant height (PH) of 202 cm, flowers (DF) in 107 days after planting, head diameter (HD) 12.3 cm, 1000-seed weight (SW) 16.5 grams, sib-pollinated seed set (SIB) 16.5%, and seed black with gray stripes; AMP HIR-1126 segregates for branching, PH 142 cm, DF 95 days, HD 7.2 cm, SW 27.4 grams, SIB 25.3%, and seed brown; AMP DIV/GRO is branched, PH 148 cm, DF 103 days, HD 10.0 cm, SW 25.4 grams, SIB 31.1%, and seed black; AMP STR is branched, PH 139 cm, DF 109 days, HD 5.9 cm, SW 25.8 grams, SIB 51.8%, and seed black; AMP MAX segregates for branching, PH 189 cm, DF 94 days, HD 12 cm, SW 18.1 grams, SIB 24.5%, and seed black; and AMP NUT is branched, PH 201 cm, DF 75 days, HD 10 cm, SW 27.8 grams, SIB 26.4%, and seed brown. In comparison, check HA 89 was SH, PH 120 cm, DF 74 days, HD 17.6 cm, SW 80 grams, SIB 80.8%, and black seed with white stripes.

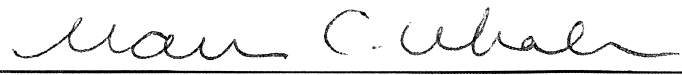
Amphiploid genetic stocks AMP GRO, AMP HIR-1126, AMP DIV/GRO, AMP STR, AMP MAX, and AMP NUT will be maintained by the USDA-ARS, Fargo, North Dakota with small quantities of seed of each genetic stock available from the North Dakota Foundation Seed Stocks Project, NDSU Dept. 7670, P.O. 6050, Fargo, ND 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 AMP GRO, AMP HIR-1126, AMP DIV/GRO, AMP STR, AMP MAX, and AMP NUT.

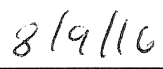
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**Signatures:**

  
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Vice President for Agricultural Affairs  
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Date

  
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Acting Deputy Administrator, Crop Production and Protection  
Agricultural Research Service, U.S. Department of Agriculture

  
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Date