



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 NONDORMANT SUNFLOWER LINE NDG1

Seed dormancy is a physiological strategy evolved by plants to ensure survival of a species by not germinating under unfavorable conditions that may lead to death. Sunflower generally undergoes a non-deep physiological dormancy period mediated by abscisic acid, which can be overcome by the use of gibberellic acid or ethylene. Fresh seeds of the sunflower mutant NDG1 will germinate on heads 45 days after pollination, and seeds harvest 28 days after pollination and artificially dried for four days will germinate within two days in Petri dishes on wet germination paper. Introduction of the nondormant trait into a breeding program could be a useful tool for quickly advancing generations by circumventing dormancy and planting the seed immediately after drying. This would eliminate the currently used time-consuming and costly embryo rescue technique.

The NDG1 source was first observed on a single plant among progeny with the pedigree of *Helianthus divaricatus* 830/P21//P21/2/HA 89, F₂ in 1999. The plant was identified as having germinated seed on the head 40 days after pollination. A study of the inheritance of the nondormant NDG1 trait suggested that it is controlled by a single dominant gene, and the genotype of the maternal parent is critical for its expression.


NDG1 is an F₁₄ bulk homozygous for the nondormancy gene with the pedigree *H. divaricatus* 830/P21//P21/2/HA 89, F₁₄. NDG1 is single headed (SH), plant height (PH) 94 cm, flowers (DF) 84 days after planting, head diameter (HD) 11.3 cm, 1000-seed weight (SW) 19 grams, open-pollinated seed set (OP) 32%, and seed black with brown stripes. In comparison, cultivated line P21 is SH, PH 133 cm, DF 74 days, HD 20.9 cm, SW 87 grams, OP 32%, and black seed with brown stripes, and HA 89 is SH, PH 113 cm, DF 74 days, HD 21.2 cm, SW 77 grams, OP 34%, and seed black with gray stripes.

Office of National Programs
Crop Production and Protection
5601 Sunnyside Avenue • George Washington Carver Center
Room 4-2200 • Mail Stop 5139
Beltsville, Maryland 20705-5139
An Equal Opportunity Employer


Genetic stock NDG1 will be maintained by the USDA-ARS, Fargo, North Dakota with small quantities of seed of the genetic stock available from the North Dakota Foundation Seed Stocks Project, NDSU Dept. 7670, P.O. 6050, Fargo, ND 58108-6050. Seed of this release 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 NDG1.

ARS GIVES NO WARRANTIES OR GUARANTEES, EXPRESSED OR IMPLIED, FOR THE MATERIAL, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.


Signatures:



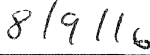
Vice President for Agricultural Affairs
North Dakota State University



Date



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



Date