Registration of Germplasms

REGISTRATION OF INDIANA-1 CMS SUNFLOWER GERMPLASM
(Reg. No. GP 6)

Charles B. Heiser, Jr.

A single male sterile plant was found in a population of wild sunflower (Helianthus annuus subsp. lenticularis Ckll.) grown in the greenhouse from seed collected by Donald L. Burton (#581) in Emmons Co., North Dakota in 1972. This plant was pollinated with Helianthus annuus L. cv. ‘Commander’ and after three backcrosses using Commander as a pollen parent, lines were secured giving a majority of male sterile plants and a few showing only a limited production of pollen. Crosses of the male sterile plants to HA 89, known to be a maintainer of Leclercq’s3 cytoplasmic male sterile sunflower, restored pollen production. Crosses with RHA 265, known to be a restorer of Leclercq’s cms sunflower, gave 12 male sterile plants and one producing little pollen. Three generations of backcrosses of male sterile plants of the last cross with RHA 265 have been grown in the greenhouse at different times of the year as well as in the field. Of the 567 backcross plants scored, only one was observed to produce any pollen. In addition to RHA 265, RHA 266 also serves as a maintainer of the line, designated Indiana-1. Genes for pollen restoration are found in ‘Hopi’, ‘Outlook’, ‘Peredovik’, P. I. 176576, ‘Record’, and ‘Seneca’, as well as in HA 89 and the one from M. L. Kinman. The achenes are black or black and grey striped, and plant height is from 1.6 to 1.8 m. Whelan4 has suggested the use of cms, to designate Leclercq’s line and cms, and the lines developed by him; accordingly, Indiana-1 is tentatively designated cms.

Limited samples of achenes for plant breeders and other research workers may be obtained from the Dep. of Entomology, Kansas State Univ., Manhattan, KS 66506, respectively. Progeny from F2 plant selections were tested for resistance to greenbug and Hessian fly. Seed from 25 homozygous resistant F2 plants was bulked for KS81H1640GB and seed from 33 homozygous Hessian fly resistant F2 plants was bulked for KS81H1640HF. KS81H1640GB has a low frequency of greenbug resistant plants. Both lines are homozygous for wheat soil-borne mosaic virus resistance.

Most agronomic and quality characteristics are unknown but non-threshing and fragile rachis characters were seen in the F2.

Seed of these lines (20 seeds/line) may be obtained from the Fort Hays Branch Agric. Exp. Stn., Hays, KS.

REGISTRATION OF GREENBUG AND HESSIAN FLY RESISTANT WHEAT GERMPLASM
(Reg. Nos. GP 197 and GP 198)

T. J. Martin, T. L. Harvey, and J. H. Hatchett

KS8H640GB (CI 17959) and KS81H1640HF (CI 17960) are hard red winter wheats, Triticum aestivum L. em. Thell., resistant to biotypes C and E greenbug, Schizaphis graminum (Rondani) and all known biotypes of Hessian fly, Mayetiola destructor (Say), respectively. They were developed and released January 1982, as germplasm cooperatively by the Kansas Agricultural Experiment Station and USDA-ARS.

Both lines are bulks of seed from F2 plants selected from the cross Kyoto University (KU) 221-14/‘Eagle’/NE73640 (‘Bennett’ sib)/3/‘Cheney’. KU221-14 is a synthetic hexaploid wheat developed from interspecific crosses between Triticum turgidum L., T. tauschii Coss., and Aegilops geniculata L. X T. turgidum. The achenes are black or black and grey striped, and plant height is from 1.3 to 1.5 m. The final cross was made in 1979 and the lines were grown in the field at Hays, Kans., in 1980 and 1981, respectively. Progeny from F2, plant selections were tested for resistance to greenbug and Hessian fly. Seed from 25 homozygous resistant F2 plants were bulked for KS81H1640GB and seed from 33 homozygous Hessian fly resistant F2 plants was bulked for KS81H1640HF. KS81H1640GB has a low frequency of greenbug resistant plants. Both lines are homozygous for wheat soil-borne mosaic virus resistance.

Most agronomic and quality characteristics are unknown but non-threshing and fragile rachis characters were seen in the F2.

Seed of these lines (20 seeds/line) may be obtained from the Fort Hays Branch Agric. Exp. Stn., Hays, KS.

1Registered by the Crop Sci. Soc. of Am. Accepted 5 Apr. 1982.
2Distinguished professor of Botany, Dep. of Biology, Indiana Univ., Bloomington, IN 47405. This work was carried out with the aid of a grant from the National Science Foundation, and Indiana Univ. September 1981. Achenes of cms HA 89, HA 89, RHA 265 and RHA 266 were kindly supplied by M. L. Kinman.