

REGISTRATION OF KS89WGRC3 AND KS89WGRC6 HESSIAN FLY-RESISTANT HARD RED WINTER WHEAT GERMPLASM

KS89WGRC3 (Reg. no. GP-324, PI 535766) and KS89WGRC6 (Reg. no. GP-325, PI 535769) are Hessian fly [*Mayetiola destructor* (Say)]-resistant hard red winter wheat (*Triticum aestivum* L.) germplasm lines developed cooperatively by the Kansas Agricultural Experiment Station, the USDA-ARS, and the Wheat Genetics Resource Center (WGRC), Kansas State University. They were released as germplasm in January 1990.

KS89WGRC3 and KS89WGRC6 are homogenous for resistance to Biotype D of Hessian fly, based on greenhouse tests of seedlings. KS89WGRC3 is a bulk F₆ progeny derived from a BC₁F₂ plant of the cross TA 1642/2*Wichita' (1). TA 1642 is a Hessian fly-resistant accession of *Aegilops squarrosa* L. [syn. *T. tauschii* (Coss.) Schmal.] var. *strangulata* collected near Gorgan, on the Caspian coast of Iran (2). KS89WGRC6 is a bulk F₆ progeny derived from an F₂ plant of the cross TA 2452/TA 1645//2*Wichita'/3/'Newton' (1). TA 2452 and TA 1645 are Hessian fly-resistant accessions of *A. squarrosa* collected by the Vavilov Institute, USSR, in Iran. All three *A. squarrosa* accessions were obtained by the WGRC from the University of California, Riverside (2).

The resistance of KS89WGRC3 to Hessian fly is governed by a dominant gene on Chromosome 6D, based on monosomic analysis (3). The gene is independent of all known loci governing Hessian fly resistance, with the exception of *H13*, to which it is linked at a distance of approximately 25 centimorgans (4). Resistance in KS89WGRC6 is governed by a dominant gene located on Chromosome 3D, based on monosomic analysis (3). Therefore, it is independent of any other known loci governing Hessian fly resistance. Results of unpublished genetic studies show that this gene is conferred by TA 1645.

The cytoplasm of KS89WGRC3 and KS89WGRC6 are derived from *A. squarrosa*. KS89WGRC3 is similar to Wichita in plant height and overall phenotype, but heads slightly later. In experiments at Manhattan and Hutchinson, KS, in 1986–1987, its mean grain yield was ≈75% that of Wichita. KS89WGRC6 is similar to Wichita in height, but in a single-field experiment at Manhattan, under severe soil-borne mos-

aic virus infection, it headed significantly later than either Wichita or Newton. Its mean grain yield was only 74% that of Wichita and 42% that of Newton. KS89WGRC3 and KS89WGRC6 are susceptible to leaf rust (caused by *Puccinia recondita* Roberge ex Desmaz.) and soil-borne mosaic virus. The Hessian fly resistance of KS89WGRC3 and KS89WGRC6 has proven stable through three generations of field propagation.

Seed of KS89WGRC3 and KS89WGRC6 (5 g) is available upon written request. It is asked that appropriate recognition of source be given when this germplasm contributes to research or development of new cultivars. Seed stocks are maintained by the WGRC, Department of Plant Pathology, Throckmorton Hall, Kansas State University, Manhattan, KS 66506.

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References and Notes

1. Gill, B.S., and W.J. Raupp. 1987. Direct genetic transfers from *Aegilops squarrosa* L. to hexaploid wheat. *Crop Sci.* 27:445–450.
2. Gill, B.S., W.J. Raupp, H.C. Sharma, L.E. Browder, J.H. Hatchett, T.L. Harvey, J.G. Moseman, and J.G. Waines. 1986. Resistance in *Aegilops squarrosa* to wheat leaf rust, wheat powdery mildew, greenbug, and Hessian fly. *Plant Dis.* 70:553–556.
3. Wilson, D.L., B.S. Gill, W.J. Raupp, and J.H. Hatchett. 1989. Chromosomal mapping of three new Hessian fly resistance genes in common wheat, derived from *Aegilops squarrosa*. p. 106. *Agronomy abstracts*. ASA, Madison, WI.
4. Amri, A. 1989. Inheritance and expression of resistance to Hessian fly [*Mayetiola destructor* (Say)] in wheat. Ph.D. diss. Kansas State Univ., Manhattan.
5. B.S. Gill, D.L. Wilson, and W.J. Raupp, Dep. of Plant Pathology; J.H. Hatchett, USDA-ARS and Dep. of Entomology; T.S. Cox, USDA-ARS and Dep. of Agronomy; A. Amri, Dep. of Agronomy (present address: Natl. Inst. for Agric. Res., Settat, Morocco); and R.G. Sears, Dep. of Agronomy, Kansas State Univ., Manhattan, KS 66506. Cooperative investigations of the Kansas Agric. Exp. Stn. and the USDA-ARS. Contribution no. 90-345-J, Kansas Agric. Exp. Stn., Kansas State Univ. Research supported in part by the Kansas Wheat Commission, Kansas Crop Improvement Assoc., and the MidAmerica International Agricultural Consortium, Univ. of Nebraska, USAID Morocco Project no. 608-0136. Registration by CSSA. Accepted 30 June 1990. *Corresponding author.