

Registration of KS96WGRC38 and KS96WGRC39 Tan Spot-Resistant Hard Red Winter Wheat Germplasms

KS96WGRC38 (Reg. no. GP-557, PI 604223) and KS96WGRC39 (Reg. no. GP-558, PI 604224) are hard red winter wheat (*Triticum aestivum* L.) germplasms resistant to tan spot [caused by *Pyrenophora tritici-repentis* (Died.) Drechs.] developed cooperatively by the USDA-ARS, the Kansas Agricultural Experiment Station, and the Wheat Genetics Resource Center. They were released as germplasm in August 1996.

KS96WGRC38 is a BC₂F₃-derived line with the pedigree KS90WGRC10*3/TA 895. Its recurrent parent, KS90WGRC10, is a tan spot-susceptible hard red winter wheat germplasm ('TAM 107' *3/TA 2460) carrying the *Lr41* gene for resistance to leaf rust (caused by *Puccinia recondita* Roberge ex Desmaz.) from TA 2460. The donor parent, TA 895, is a tan spot-resistant accession of *Triticum timopheevii* (Zhuk.) Zhuk. subsp. *armeniicum* (Jakubz.) van Slageren (syn. subsp. *araraticum*) from northern Iraq. KS96WGRC39 is a BC₂F₃-derived line with the pedigree TAM 107*3/TA 2460. TA 2460 is an accession of *Aegilops tauschii* Coss. with resistance to leaf rust (*Lr41*) and tan spot. Both resistances were transferred from TA 2460 to KS96WGRC39.

In replicated tests at the seedling stage in the greenhouse, KS96WGRC38 and KS96WGRC39 averaged 27.6% and 25.3%, respectively, of leaf area affected by tan spot. This was similar to the level of infestation observed in the test on the tan spot resistant cultivar 'Jagger' that had 25.1% diseased leaf area. The susceptible cultivar 'Newton' averaged 55% of leaf area affected by tan spot. In inoculated tests in the field at Manhattan, KS, in 1995, KS96WGRC38 and KS96WGRC39 exhibited significantly lower tan spot infection at post-anthesis stages than did their respective recurrent parents. Whereas KS96WGRC38 had a negative reaction

to the *Ptr* toxin produced by *P. tritici-repentis*, the reaction of KS96WGRC39 was positive. The genetic basis of tan spot resistance in the two germplasms is not fully known; however, resistance to the *Ptr* toxin in KS96WGRC38 is conditioned by a single recessive gene (Brown-Guedira, unpublished data). Tan spot resistances in the two germplasms are not conditioned by the same genetic loci, because the two donor species do not have a common genome.

Except for their resistances to leaf rust and tan spot, the two germplasms are similar to TAM 107 (e.g., in height, days to heading, and overall phenotype). However, KS96WGRC38 segregates for red and white chaff color. KS96WGRC39 was tested in the 1994 to 1996 Southern Regional Performance Nurseries as KS93U206. Its grain yield was 110 and 117% that of TAM 107 over 28 locations in 1994 and 23 locations in 1995, respectively.

Small quantities (2 g) of seed of KS96WGRC38 and KS96WGRC39 are available upon written request. Appropriate recognition of source should be given when this germplasm contributes to research or development of a new breeding line or cultivar. Seed stocks are maintained by the Wheat Genetics Resource Center, Dep. of Plant Pathology, Throckmorton Plant Sciences Center, Kansas State University, Manhattan, KS 66506-5502.

G. L. BROWN-GUEDIRA,* T. S. COX, W. W. BOCKUS,
B. S. GILL, AND R. G. SEARS (1)

References and Notes

1. G.L. Brown-Guedira, USDA-ARS and Dep. of Agronomy, and R.G. Sears, Dep. of Agronomy, Kansas State Univ. (KSU), Manhattan, KS 66506-5501; T.S. Cox, ICRISAT, Patancheru PO, AP 502 324, India (formerly USDA-ARS and KSU); W.W. Bockus and B.S. Gill, Dep. of Plant Pathology, KSU, Manhattan, KS 66506-5502. Cooperative investigations of the USDA-ARS and the Kans. Agric. Exp. Stn., Contribution no. 98-398-J, Kansas Agric. Exp. Stn., KSU, Manhattan, KS 66506-4008. Registration by CSSA. Accepted 31 Oct. 1998. *Corresponding author (gbg@ksu.edu).

Published in *Crop Sci.* 39:596 (1999).