Registration of KS96WGRC37
Powdery Mildew-Resistant Hard White Winter Wheat Germplasm

KS96WGRC37 (Reg. no. GP-556, PI 604222) is a powdery mildew-resistant hard white winter wheat (Triticum aestivum L.) germplasm developed cooperatively by the USDA-ARS, the Kansas Agricultural Experiment Station, and the Wheat Genetics Resource Center. It was released as a germplasm in August 1996.

KS96WGRC37 is an F₃-derived line with the pedigree ‘Arlin’ × TA 895. Arlin is a hard white winter wheat cultivar, and TA 895 is a powdery mildew-resistant accession of Triticum timopheevii (Zukh.) Zhuk. subsp. armeniacum (Jakubz.) van Slageren (syn. subsp. araraticum) from northern Iraq. Seedlings of KS96WGRC37 exhibited a low to intermediate infection type (<4 on a scale of 0 to 9) when inoculated with isolate 8 of Erysiphe graminis DC. f. sp. tritici Ém. Marchal [syn. Blumeria graminis (DC.) E.O. Speer f. sp. tritici], the causal agent of powdery mildew. Isolate 8 elicits a high infection type on the gene Pm6, which was transferred previously from T. timopheevii subsp. timopheevii. Detached leaves of Arlin and KS96WGRC37 were inoculated with 37 diverse isolates of E. graminis f. sp. tritici. Arlin had a low infection type (0) with one isolate, an intermediate infection type (4) with one isolate, and a high infection type (7–9) with the remaining 35 isolates. KS96WGRC37 had a low infection type (0–3) with nine, an intermediate infection type (4–6) with 25, and a high infection type (7–9) with three isolates (1).

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 KS-90WGRC10*3/TA 895. Its recurrent parent, KS90WGRC10, is a tan spot-susceptible hard red winter wheat germplasm (*T. 107* × 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 (Zukh.) Zhuk. subsp. armeniacum (Ja-kubz.) van Slageren (syn. subsp. araraticum) from northern Iraq. KS96WGRC39 is a BC₃F₃-derived line with the pedigree TAM 10783/TA 2460. TA 2460 is an accession of Aegilops tauschii (Ja-kubz.) D.C. from northern Iraq.

Experimental line U2659-2-9-M2. It is similar to the Pm6 toxin produced by P. tritici-repentis (P. tritici). The reaction of KS96WGRC39 was positive. The genetic basis for resistance to leaf rust in the two germplasms is not fully known; however, the Pm6 toxin in KS96WGRC38 is conditioned by a single gene (Brown-Guedira, unpublished data). The genetic basis for resistance to tan spot in the two germplasms is not known; however, resistance to tan spot in KS96WGRC38 was positive. The genetic basis for resistance to tan spot in KS96WGRC39 is conditioned by a single recessive gene (Brown-Guedira, unpublished data). The resistance to tan spot in the two germplasms is not conditioned by the same genetic loci, as the reaction of KS96WGRC38 is conditioned by a single recessive gene for resistance to leaf rust (Brown-Guedira, unpublished data).

Except for their resistances to leaf rust and tan spot, the two germplasms are similar to TAM 107 (e.g., in heading, kernel color, and overall phenotype). However, they differ in morphological features for red and white chaff color. KS96WGRC38 and KS96WGRC39 were positive in replicated tests at 27 locations in 1994 and 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.

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References and Notes


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