

NOTICE OF RELEASE OF KS04WGRC49 HARD WINTER WHEAT GERM PLASM WITH UNIQUE GLUTENIN AND GLIADIN PROTEINS

The Agricultural Research Service, U.S. Department of Agriculture, and the Kansas Agricultural Experiment Station announce the release of KS04WGRC49 hard red winter wheat (*Triticum aestivum* L.) germ plasm with unique high molecular weight glutenin and gliadin sub-units for breeding and experimental purposes. Scientists participating in this development were G.L. Brown-Guedira, USDA-ARS, Department of Agronomy, Kansas State University, Manhattan, Kansas; M. Guedira and A.K. Fritz, Department of Agronomy, Kansas State University, Manhattan, Kansas; T.J. Martin, Department of Agronomy, KSU Agricultural Research Center, Hays, KS; O.K. Chung, G.L. Lookhart, and B.W. Seabourn, USDA-ARS Grain Quality and Structure Research Unit (Hard Winter Wheat Quality Laboratory), Manhattan, KS; B.S. Gill, Department of Plant Pathology, Kansas State University, Manhattan, Kansas; and T.S. Cox, Land Institute, Salina, KS.

KS04WGRC49 is a BC₂F₄-derived hard red winter wheat line from the cross 'Karl 92*3 / TA2473. Karl 92 is a hard red winter wheat cultivar, and TA2473 is an accession of *Ae. tauschii*. KS04WGRC49 was selected based on the presence of unique *Ae. tauschii*-derived high-molecular-weight (HMW) gliadin protein subunits and novel HMW glutenin protein subunits (HMW-GS), designated 43 (allele *Glu-D1-1j*) and 44 (allele *Glu-D1-2i*). The effects of HMW-GS 43 and 44 and the *Ae. tauschii*-derived gliadin proteins on the milling and baking quality of KS04WGRC49 were determined in experiments grown at Hays and Colby, KS, during the 1999 growing season and at Hays and Hutchinson, KS, during the 2001 growing season. Across locations, the mixing time and mixing-tolerance score of KS04WGRC49 (4.05 min and 4.47, respectively) were not significantly different ($P = 0.05$) from that observed for Karl 92 (4.60 min and 4.24, respectively). KS04WGRC49 had significantly greater loaf volume (993 cc) than Karl 92 (946 cc) in these experiments. These data indicate that the novel glutenin and gliadin protein subunits in KS04WGRC49 can have the effects of increasing loaf volume while slightly decreasing mixing time.

Small quantities (3-g) of KS04WGRC49 seed are available upon written request. We request that the appropriate source be given when this germ plasm contributes to research or development of new cultivars. Seed stocks are maintained by the Wheat Genetics Resource Center, Throckmorton Hall, Kansas State University, Manhattan, KS 66506-5502. Genetic material of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including the development of new cultivars.