

NOTICE OF RELEASE OF KS99WGRC42 AND KS99WGRC43
HESSIAN FLY-RESISTANT HARD RED WINTER AND HARD RED SPRING
WHEAT GERM PLASM

The Agricultural Research Service, U.S. Department of Agriculture, and the Kansas Agricultural Experiment Station announce the release of KS99WGRC42 hard red winter and KS99WGRC43 hard red spring wheat (*Triticum aestivum* L.) germ plasm with resistance to Hessian fly (caused by *Mayetiola destructor* Say) for breeding and experimental purposes. Scientists participating in this development were G. L. Brown-Guedira, J.H. Hatchett, and T.S. Cox, USDA-ARS Plant Science and Entomology Research Unit; R.G. Sears and J.O. Owuoché, Department of Agronomy, Kansas State University; and B. S. Gill, Department of Plant Pathology, Kansas State University, Manhattan, Kansas.

KS99WGRC42 and KS99WGRC43 are homogeneous for resistance (antibiosis) to biotype L of Hessian fly based on greenhouse tests of seedlings. KS99WGRC42 is an F3-derived line of the cross 'Karl 92 / PI428435 // Jagger*2'. KS99WGRC43 is an F4-derived line of the cross 'Karl 92 / I428435 // Jagger'. Hessian fly resistance in both germ plasm lines is derived from PI428435, an accession of cultivated emmer wheat (*T. turgidum* subsp. *dicoccum*) from Germany.

The resistance in PI428435 to Hessian fly is controlled by a single dominant gene. Thirteen genes for resistance to Hessian fly have been transferred to common wheat from durum wheat (*T. turgidum* subsp. *durum*), a species closely related to emmer wheat. Two of these genes, *H16* and *H17*, confer resistance to biotype L when tested at high temperatures. The reaction of *H28* to biotype L at high temperatures is not known, and the remaining ten genes transferred from durum wheat give a susceptible reaction when tested at temperatures above 25°C. The Hessian fly resistance gene in PI428435 is effective at high temperature. The resistance gene in PI428435 is independent of the *H16* gene. The relationship of this gene with *H17* and *H28* is not known.

KS99WGRC42 is a hard red winter wheat similar to the Karl 92 parent in height, days-to-heading, and overall phenotype. KS99WGRC43 is a selection with the spring growth habit of PI428435. This germ plasm is taller and later maturing than either of its winter wheat parents.

Small quantities (3 grams) of seed of KS99WGRC42 and KS99WGRC43 are available upon written request. We request that appropriate source be given when this germ plasm contributes to research or development of new cultivars. Seed stocks are maintained by B.S. Gill, 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.