

**KANSAS STATE UNIVERSITY**

**Wheat Genetic and Genomic Resources Center, Department of Plant Pathology,  
Department of Agronomy, and the USDA–ARS Hard Red Winter Wheat Genetic  
Research Unit, Throckmorton Plant Sciences Center, Manhattan, KS 66506-5501, USA.**

***Notice of release of KS12WGGRC55 (TA5092) hard red winter wheat germ plasm homozygous for the *ph1b* gene.***

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Kansas Agricultural Experiment Station announces the release of KS12WGGRC55 (TA5092) hard red winter wheat germ plasm homozygous for the *ph1b* gene for breeding and experimental purposes. KS12WGGRC55 is derived from the cross ‘Overley/TA3809 F<sub>2</sub>//Overley F<sub>2</sub>/3/Amadina F<sub>2</sub>’, where TA3809 is a Chinese Spring stock homozygous for the *ph1b* mutant allele, which is a 70-Mbp deletion at the pairing homoeologous (*Ph1*) locus. In homozygous *ph1b* plants, homoeologous wheat chromosomes and, in ‘wheat x alien’ species hybrids, homoeologous wheat and alien chromosomes from related species can pair and recombine, allowing the production of wheat-alien recombinants. KS12WGGRC55 is homozygous for *ph1b*, which results in homoeologous chromosome pairing in about 46% of the pollen mother cells. The transfer of *ph1b* to adapted hard red winter wheats will accelerate the production and evaluation of wheat-alien recombinants under field conditions and their use in wheat improvement.

Small quantities (3 grams) of seed of KS12WGGRC55 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 Genetic and Genomic Resources Center, Throckmorton Plant Sciences Center, Kansas State University, Manhattan, KS 66506.

***Notice of release of KS12WGGRC56 (TA5619, TA5620, TA5621) stem rust-resistant wheat germ plasm.***

B. Friebe, W. Liu (Laboratory of Cell and Chromosome Engineering, College of Life Sciences, Henan Agricultural University, Zhengzhou, Henan 450002, PR China), D.L. Wilson, W.J. Raupp, M.O. Pumphrey (Department of Crop and Soil Sciences, Washington State University, Pullman, WA 99164-6420, USA), J. Poland and R.L. Bowden (USDA–ARS Hard Winter Wheat Genetic Research Unit), A.K. Fritz (Department of Agronomy), and B.S. Gill.

The Agricultural Research Service, U.S. Department of Agriculture and the Kansas Agricultural Experiment Station announce the release of KS12WGGRC56 wheat germ plasm with resistance to stem rust *Sr51* for breeding and experimental purposes. KS12WGGRC56 has the short arm 3S<sup>s</sup>S derived from *Ae. searsii* translocated to the long arms of wheat chromosomes 3A, 3B, and 3D in the form of the Robertsonian translocations T3AL·3S<sup>s</sup>S (KS12WGGRC56-3AL, TA5619), T3BL·3S<sup>s</sup>S (KS12WGGRC56-3BL, TA5620), and T3DL·3S<sup>s</sup>S (KS12WGGRC56-3DL, TA5621), respectively. KS12WGGRC56-3AL is derived from the cross ‘TA3809/TA6555 F<sub>4</sub>’, where TA3809 is the Chinese Spring stock homozygous for the homoeologous pairing mutant allele *ph1b* and TA6555 is a Chinese Spring–*Ae. searsii* disomic substitution line where the *Ae. searsii* chromosome 3S<sup>s</sup> is substituting for the loss of wheat chromosome 3A (DS3S<sup>s</sup>(3A)). KS12WGGRC56-3BL is derived from the cross ‘TA3809/TA6556 F<sub>4</sub>’, where TA6556 is a Chinese Spring–*Ae. searsii* disomic substitution line where the *Ae. searsii* chromosome 3S<sup>s</sup> is substituting for the loss of wheat chromosome 3B (DS3S<sup>s</sup>(3B)); and KS12WGGRC56-3DL is derived from the cross ‘TA3809/TA6557 F<sub>4</sub>’, where TA6557 is a Chinese Spring–*Ae. searsii* disomic substitution line where the *Ae. searsii* chromosome 3S<sup>s</sup> is substituting for the loss of wheat chromosome 3D (DS3S<sup>s</sup>(3D)). The 3S<sup>s</sup>S arm has a gene conferring resistance to stem rust (*Puccinia graminis* f. sp. *tritici* Eriks. & E. Henn.) races RKQQC and TTKSK designated as *Sr51*. The T3AL·3S<sup>s</sup>S, T3BL·3S<sup>s</sup>S, and T3DL·3S<sup>s</sup>S stocks are new sources of resistance to Ug99, are cytogenetically stable, and may be useful in wheat improvement.

Small quantities (3 grams) of seed of KS12WGGRC56 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 Genetic and Genomic Resources Center, Throckmorton Plant Sciences Center, Kansas State University, Manhattan, KS 66506.

### ***Noatice of release of KS12WGGRC57 (TA5617) stem rust-resistant wheat germ plasm.***

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The Agricultural Research Service, U.S. Department of Agriculture and the Kansas Agricultural Experiment Station announce the release of KS12WGGRC57 hard red winter wheat germ plasm with the stem rust resistance gene *Sr52* for breeding and experimental purposes. KS12WGGRC57 is derived from the cross 'TA3060/TA7682 F<sub>3</sub>', where TA3060 is a Chinese Spring wheat stock monosomic for chromosome 6D (CSM6D) and TA7682 is a Chinese Spring-*Dasypyrum villosum* disomic chromosome addition line for the *D. villosum* chromosome 6V#3 (DA6V#3). KS12WGGRC57 has the long arm 6V3#L derived from *D. villosum* translocated to the short arm of wheat chromosome 6AS in the form of a Robertsonian T6AS·6V#3L translocation. The 6V3#L arm in T6AS·6V#3L has a gene conferring resistance to stem rust (*Puccinia graminis* f. sp. *tritici* Eriks. & E. Henn.) (races RKQQC and TTKSK) designated as *Sr52*. *Sr52* is temperature-sensitive and is most effective at 16°C, partially effective at 24°C, and ineffective at 28°C. The T6AS·6V#3L stock is a new source of resistance to Ug99, is cytogenetically stable, and may be useful in wheat improvement.

Small quantities (3 grams) of seed of KS12WGGRC57 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 Genetic and Genomic Resources Center, Throckmorton Plant Sciences Center, Kansas State University, Manhattan, KS 66506.

### ***Notice of release of KS12WGGRC58 (TA5630, TA5625, TA5643) stem rust-resistant wheat germ plasm.***

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The Agricultural Research Service, U.S. Department of Agriculture and the Kansas Agricultural Experiment Station announce the release of KS12WGGRC58 wheat germ plasm with resistance to stem rust *Sr53* for breeding and experimental purposes. KS12WGGRC58 has a segment of the long arm 5M<sup>e</sup>L derived from *Ae. geniculata* in the form of an interstitial translocation Ti5DS·5DL-5M<sup>e</sup>L-5DL (KS12WGGRC58-Ti, TA5630) and terminal translocations T5DL-5MgL·5M<sup>e</sup>S (KS12WGGRC58-T1, TA5625) and T5DL-5MgL·5M<sup>e</sup>S (KS12WGGRC58-T2, TA5643). KS12WGGRC58-Ti is derived from the cross 'TA5599/Lakin F<sub>3</sub>', where TA5599 is a wheat-*Ae. geniculata* terminal translocation stock consisting of part of the long arm of wheat chromosome 5D, part of the long arm of the *Ae. geniculata* chromosome arm 5M<sup>e</sup>L, and the complete short arm 5M<sup>e</sup>S, and Lakin is a Kansas hard red winter wheat cultivar. KS12WGGRC58-T1 and KS12WGGRC58-T2 are derived from the cross 'TA5599/TA3808 F<sub>3</sub>', where TA3809 is the Chinese Spring stock homozygous for the homoeologous pairing mutant allele *ph1b*, with 5M<sup>e</sup>L shortened by 10% and 20%, respectively, compared to that of TA5599. The 5M<sup>e</sup>L arm has a gene conferring resistance to stem rust (*Puccinia graminis* f. sp. *tritici* Eriks. & E. Henn.) races RKQQC and TTKSK designated as *Sr53*. The Ti5DS·5DL-5M<sup>e</sup>L-5DL and T5DL-5MgL·5M<sup>e</sup>S stocks are new sources of resistance to Ug99, are cytogenetically stable, and may be useful in wheat improvement.