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_2//Overley F_2/3/Amadina F_2', 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.

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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 $3S^sS$ derived from *Ae. searsii* translocated to the long arms of wheat chromosomes 3A, 3B, and 3D in the form of the Robertsonian translocations T3AL·$3S^sS$ (KS12WGGRC56-3AL, TA5619), T3BL·$3S^sS$ (KS12WGGRC56-3BL, TA5620), and T3DL·$3S^sS$ (KS12WGGRC56-3DL, TA5621), respectively. KS12WGGRC56-3AL is derived from the cross 'TA3809/TA6555 F_4', 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 $3S^s$ is substituting for the loss of wheat chromosome 3A (DS3S^s(3A). KS12WGGRC56-3BL is derived from the cross 'TA3809/TA6556 F_4', where TA6556 is a Chinese Spring–*Ae. searsii* disomic substitution line where the *Ae. searsii* chromosome $3S^s$ is substituting for the loss of wheat chromosome 3B (DS3S^s(3B); and KS12WGGRC56-3DL is derived from the cross 'TA3809/TA6557 F_4', where TA6557 is a Chinese Spring–*Ae. searsii* disomic substitution line where the *Ae. searsii* chromosome $3S^s$ is substituting for the loss of wheat chromosome 3D (DS3S^s(3D). The $3S^sS$ 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·$3S^sS$, T3BL·$3S^sS$, and T3DL·$3S^sS$ 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_3', 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^{g}L derived from *Ae. geniculata* in the form of an interstitial translocation Ti5DS·5DL-5M^{g}L-5DL (KS12WGGRC58-Ti, TA5630) and terminal translocations T5DL-5MgL·5M^{g}S (KS12WGGRC58-T1, TA5625) and T5DL-5MgL·5M^{g}S (KS12WGGRC58-T2, TA5643). KS12WGGRC58-Ti is derived from the cross 'TA5599/Lakin F_3', 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^{g}L, and the complete short arm 5M^{g}S, and Lakin is a Kansas hard red winter wheat cultivar. KS12WGGRC58-T1 and KS12WGGRC58-T2 are derived from the cross 'TA5599/TA3808 F_3' where TA3809 is the Chinese Spring stock homozygous for the homoeologous pairing mutant allele *ph1b*, with 5M^{g}L shortened by 10% and 20%, respectively, compared to that of TA5599. The 5M^{g}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^{g}L-5DL and T5DL-5MgL·5M^{g}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 KS12WGGRC58 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 KS12WGGRC59 wheat streak mosaic virus- and Triticum mosaic virus-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 KS12WGGRC59 hard red winter wheat germ plasm with resistance to wheat streak mosaic virus and *Triticum* mosaic virus for breeding and experimental purposes. KS12WGGRC59 is derived from the cross 'TA3061/TA7700//TA3809 F_4', where TA3061 is a Chinese Spring wheat stock monosomic for chromosome 7D (CSM7D), TA7700 is a ditelosomic wheat–*Thinopyrum intermedium* addition line having the long *Th. intermedium* chromosome arm 7S#3L added to the wheat genome, and TA3809 is a Chinese Spring stock homozygous for the *ph1b* mutant allele. KS08WGGRC59 has the 7S#3L translocated to the short arm of wheat chromosome 7B in form of the Robertsonian translocation T7BS·7S#3L. The 7S#3L arm has a gene conferring resistance to Wheat streak mosaic virus (WSMV) and *Triticum* mosaic virus (TriMV) designated as *Wsm3*. *Wsm3* confers resistance to WSMV at 18°C and 24° and also confers resistance to TriMV at 18°C but is not effective against this virus above 24°C. The T7BS·7S#3L stock is a new source of resistance to WSMV and TriMV, is cytogenetically stable, and may be useful in wheat improvement.

Small quantities (3 grams) of seed of KS12WGGRC59 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.

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NEBRASKA

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In 2010, 1,600,000 acres of wheat were planted in Nebraska and 1,490,000 were harvested with an average yield of 43 bu/acre for a total production of 64,070,000 bu. This crop would be considered a small crop. Autumn rains in 2009 prevented much of eastern Nebraska from harvesting corn and soybeans in time to plant wheat after the summer crop. In 2009, 1,700,000 acres of wheat were planted in Nebraska and 1,600,000 were harvested with an average yield of 48 bu/acre for a total production of 76,800,000 bu. In 2008, 1,750,000 acres of wheat were planted in Nebraska and 1,670,000 were harvested with an average yield of 44 bu/acre for a total production of 73,500,000 bu.

New cultivars.

In 2010, two new wheat cultivars were formally released. **NE01481**, to be marketed as **Husker Genetics Brand McGill**, in honor of a legendary professor of genetics at the University of Nebraska, was selected from the cross 'NE92458/Ike'. The pedigree of NE92458 is 'OK83201/Redland' and the pedigree of OK83201, an experimental line developed by Oklahoma State University is 'Vona//Chisholm/Plainsman V'. McGill was recommended for release primarily due to its superior adaptation to rainfed wheat production systems in eastern and west central Nebraska and its excellent resistance to wheat soil borne mosaic virus (WSBMV). McGill is moderately resistant to moderately susceptible to stem rust (caused by *Puccinia graminis Pers.: Pers. f. sp. tritici* Eriks & E. Henn.) in field nursery tests inoculated with a composite of stem rust races (RCRS, QFCS, QTHJ, RKQQ, and TPMK). In greenhouse tests, it is resistant to races TPMK, QFCS, and RCRS, but susceptible to race TTTT and RKQQ. It is moderately resistant to moderately susceptible to leaf rust (caused by *P. triticina* Eriks), and moderately susceptible to susceptible to stripe rust (caused by *P. striiformis* Westendorp f. sp. t*ritici*). McGill is susceptible to Hessian fly (*Mayetiola destructor* Say) and to wheat streak mosaic virus (field observations in NE). McGill has acceptable milling and baking end-use quality.

The second line is **NI04421**, which will be marketed as **Husker Genetics Brand Robidoux** in honor of a pioneer French trapper who had a trading post between Nebraska and Wyoming. Robidoux was selected from the cross 'NE96644/Wahoo (sib)' where the pedigree of NE96644 is 'Odesskaya P/Cody//Pavon 76/3*Scout 66'. Robidoux was released primarily for its superior performance under irrigation and rainfed conditions in western Nebraska (west of North Platte, where drought is common) and irrigated production sites in western Nebraska and eastern Wyoming. This cultivar seems to have good drought tolerance and does best in irrigated environments in the drier areas (eastern WY). Robidoux is moderately resistant to stripe rust (caused by *P. striiformis* Westendorp f. sp. t*ritici*), moderately resistant to moderately susceptible to stem rust (caused by *P. graminis Pers.: Pers. f. sp. tritici* Eriks & E. Henn.) in field nursery tests inoculated with a composite of stem rust races, moderately susceptible to leaf rust (caused by *P. triticina* Eriks). Robidoux is susceptible to Hessian fly (*M. destructor* Say) and to wheat streak mosaic virus. Robidoux is susceptible to common bunt (syn. stinking smut, caused by *Tilletia spp*.) and seed treatments are recommended. Where common bunt was present, Robidoux was the only line with the tell-tale odor and diseased kernels. The overall end-use quality characteristics for