

ha<sup>-1</sup>) and 'Twiggs' (2237 kg ha<sup>-1</sup>) (Buss and Camper, 1987; Frey et al., 1988).

The seed of VS94-11 contained 389 g kg<sup>-1</sup> protein and 183 g kg<sup>-1</sup> oil. VS94-12 had 371 g kg<sup>-1</sup> protein, 192 g kg<sup>-1</sup> oil, and VS94-21 had 373 g kg<sup>-1</sup> protein and 158 g kg<sup>-1</sup> oil.

These genetic materials are available for research purposes, including the development and commercialization of new cultivars. Upon written request, packets of 50 seeds of VS94-11, VS94-12, and VS94-21 may be obtained from Dr. Tadesse Mebrahtu, Agricultural Research Station of Virginia State University, P. O. Box 9061, Petersburg, VA 23806. It is requested that appropriate recognition be made if these germplasm lines contribute to the development of new breeding line or cultivar.

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- rust [caused by *Puccinia triticina* Eriks. = *P. recondita* Roberge ex Desmaz. f. sp. *tritici* (Eriks. & E. Henn.) D.M. Henderson] developed cooperatively by the ARS, USDA, the Kansas Agricultural Experiment Station, and the Wheat Genetics Resource Center. It was released as germplasm August 2000.
- KS00WGRC44 is a BC<sub>2</sub> F<sub>6</sub>-derived line with the pedigree 'TAM 107'\*3/TA 1715. TAM 107 is a hard red winter wheat cultivar (Porter et al., 1987), and TA 1715 is a leaf rust resistant accession of *Aegilops tauschii* Coss. collected in Iran. The F<sub>1</sub> hybrids between TAM 107 and TA 1715 were produced in the greenhouse in 1995 using TAM 107 as the female parent. F<sub>1</sub> embryos were rescued on artificial media (Gill and Raupp, 1987) and F<sub>1</sub> plants were backcrossed as females to TAM 107. The BC<sub>1</sub> F<sub>1</sub> plants were backcrossed as females to TAM 107 and the BC<sub>2</sub> F<sub>1</sub> plants were grown in the greenhouse to produce the BC<sub>2</sub> F<sub>2</sub> generation. The pedigree breeding method was used to develop the BC<sub>2</sub> F<sub>6</sub>-derived line with selection in the field and greenhouse for leaf rust resistance and recurrent parent plant type.
- Seedlings of KS00WGRC44 exhibited a low infection type of small necrotic uredinia [IT = 1 or lower on a scale of 0 to 4 (Roelfs et al., 1992)] when inoculated with 15 races of leaf rust, CBB-10,18, CDB-10, KDB-10, LBB-10,18, MCR-10, MCD-10, MBG-10,18, MBR-10, MFB-10, PBB-10, PBJ-10, PNM-10,18, TBD-10, TCR-10, and TFG-10 (Long and Kolmer, 1989). High infection types of 3 to 4 (moderate to large uredinia, lacking chlorosis or necrosis) were observed on seedlings of TAM 107 with all the races of leaf rust tested. Adult plants of KS00WGRC44 displayed a hypersensitive fleck (IT = ; ) level of resistance when exposed to moderate to heavy leaf rust inoculum levels in the field at Manhattan and Hutchinson, KS, in 1999, 2000, and 2001 and under heavy inoculum pressure at Uvalde and Beaumont, TX, in 2000.
- Leaf rust resistance in KS00WGRC44 is due to a single dominant gene from TA 1715. Differences in infection type of seedlings when inoculated with diverse isolates of *P. triticina* indicate that the gene in KS00WGRC44 is different from the *Ae. tauschii*-derived genes *Lr32*, *Lr39*, *Lr41*, and *Lr42*. KS00WGRC44 had a lower infection type of 1 (flecks with small necrotic uredinia) when inoculated with leaf rust race PNM-10,18 at the seedling stage than that observed on the lines TA 4186 (*Lr39*; IT = 4) and KS90WGRC10 (*Lr41*; IT = 3C, moderate size uredinia with chlorosis). When seedlings of KS00WGRC44 and RL5713 (*Lr32*) were inoculated with the TFG-10 race of leaf rust, ITs 0 (no visible infection) and 2+ (small to moderate size uredinia with chlorosis) were observed, respectively. When inoculated with race KDB-10, seedlings of KS91WGRC11 (*Lr42*) had an IT 2C (small uredinia with chlorosis) while no sporulation was observed on seedlings of KS00WGRC44 (IT = ;). Absence of the 1.36-kb fragment amplified by the primer pair KSUD14, which corresponds to a portion of the cloned *Lr21* gene, indicates that the gene in KS00WGRC44 is different from *Lr21* (Huang et al., 2003).

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### Registration of KS00WGRC44 Leaf Rust-Resistant Hard Red Winter Wheat Germplasm

KS00WGRC44 (Reg. no. GP-744, PI 632343) is a hard red winter wheat (*Triticum aestivum* L.) with resistance to leaf

When evaluated in replicated field plots at Manhattan and Hutchinson, KS, in the 2000 and 2001 growing seasons, the heading date of KS00WGRC44 was within one day of the recurrent parent. The mean yield and test weight of KS00WGRC44 was not significantly different than that of TAM 107. However, KS00WGRC44 was significantly taller than TAM 107 (110 vs. 102 cm, respectively).

Small quantities (2 g) of seed of KS00WGRC44 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. Seed stocks are maintained by the Wheat Genetics Resource Center, Dep. of Plant Pathology, Throckmorton Plant Sciences Center, Kansas State University, Manhattan, KS 66506-5502.

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## REGISTRATION OF PARENTAL LINES

### Registration of B116 Inbred Line of Maize

Inbred B116 (Reg. no. PL-311, PI 632746) is a yellow maize (*Zea mays* L.) line developed cooperatively by the Iowa Agriculture and Home Economics Experiment Station and USDA-ARS. The line was released 1 March 2003 for its potential value as either a parent for hybrids or as source germplasm in pedigree selection programs.

B116 was derived from an  $F_2$  population developed by selfing the cross of B97 (Hallauer et al., 1994) and B99 (Hallauer et al., 1995). Pedigree selection methods were used in the development of B116; the pedigree of B116 is (B97  $\times$  B99)-047-1-1-1-1-1. Parents of B116 are included in the non-Iowa Stiff Stalk Synthetic (BSSS) heterotic group, usually designated as the Lancaster Sure Crop heterotic group or non-BSSS group.  $S_1$  progenies derived from the (B97  $\times$  B99)  $F_2$  population were screened in the breeding and pest screening nurseries for plant type, seed set and ear size, time of flowering, synchrony of silk emergence and pollen shed, root and stalk strength, and relative resistance to 1st and 2nd generations of European corn borer (*Ostrinia nubilalis* Hübner), northern corn leaf blight (caused by *Exserohilum turcicum* Pass.), gray leaf spot (caused by *Cercospora zae-maydis* Tehon & E.Y. Daniels), and common corn rust (caused by *Puccinia sorghi* Schw.). Greater root strength was emphasized among  $S_1$  progenies because of the poorer root strength of B97. At the  $S_2$  generation, progenies were included in the topcross nursery; tester was a B73 related line. Inbreeding and selection among  $S_2$  progenies were continued in the breeding and pest nurseries. On the basis of 2-yr testcross trials, selected progenies were advanced by inbreeding and crossed to BSSS related lines. Single-cross trials were conducted at 10 to 11 locations for 2 yr within Iowa and also included in the North Central Regional (NCR-167) trials conducted in Nebraska, Iowa (three locations), Illinois, Ohio, Missouri, Pennsylvania, Delaware, and Texas (NCR-167 Annual Report, 2002). In all instances, crosses that included B116 as one parent exhibited consistently high yield levels either comparable to or better than the hybrid checks. Stand levels, stalk strength, plant and ear heights, and

days to flower were similar to the check hybrids. At some location-year trials, B116 had greater moisture levels at harvest and greater incidence of root lodging, but in other instances they were similar to the hybrid checks.

B116 is a tall, vigorous line that has good tolerance to 1st and 2nd generations European corn borer, gray leaf spot, and northern corn leaf blight. Plant and ear heights of B116 are similar to B110 but greater than for B73 and Mo17. Flowering dates of B116 are similar to Mo17 but 3 d later than for B73. Hybrids that include B116 had moisture levels at harvest 1 to 2% greater than the adapted check hybrids. B116 would be classified in the AES700-800 maturity group. B116 has long ears with 12-kernel rows of large semident kernels on pink cobs. Good quality grain is obtained with good seed set either by hand- or open-pollination. In some instances, *Fusarium moniliforme* J. Sheld. var. *subglutinans* Wollenweb. & Reinking has been observed on the tips of the ear. B116, as a line, has a clean plant type and has exhibited good stalk and root strength in the breeding nurseries.

Seed of B116 is maintained by the Iowa Agriculture and Home Economics Experiment Station, and is distributed upon request by the Committee for Agriculture Development, 133 Curtiss Hall, Iowa State University, Ames, IA 50011-1050.

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