

sterile gene *Ms3*, in a predominantly hard red winter wheat (HRW) background with a high frequency of alleles for snow mold [caused in southeastern Idaho by *Typhula idahoensis* Remsberg and *Microdochium nivale* (Fr.) Samuels & I.C. Hallet] tolerance and dwarf bunt (caused by *Tilletia controversa* Kühn in Rabenh.) resistance. IDSMMS- C_0 was developed by the Idaho Agricultural Experiment Station and released in cooperation with the USDA-ARS, as a base population for cereal researchers interested in selection of hard red winter wheat with snow mold tolerance and dwarf bunt resistance.

IDSMMS- C_0 was formed by successively mating the male sterile (*Ms3*) winter wheat population KS87UP9 (PI 535771) with cultivars, germplasms, and Idaho breeding lines. In fall 1988, 10 g of KS87UP9 seed, heterozygous for the male sterility gene (*Ms3ms3*), was blended with 125 g of seed from 20 male fertile inbred genotypes and planted in bulk at Aberdeen, ID. The inbred genotypes were (i) the highly snow mold-tolerant genotypes C1tr 14106 (1), PI 476212 (2), PI 476214 (2), 'Survivor' (3) (10 g each), (ii) the moderately snow mold-tolerant genotypes 'Blizzard' (4), 'Manning' (5), Idaho 301, and Idaho 355 (5 g each), (iii) the snow mold-susceptible, high-yield genotypes 'Arkan', 'Batem', 'Disponent', 'Fundulea 133', 'Hoff', Idaho 180, Idaho 391, 'Judith', 'TAM 200', and 'Weston' (5 g each), and (iv) the dwarf bunt resistance sources PI 564550 and 'Hohenheimer'/3*'Cheyenne' (5 g each). Approximately 300 male sterile heads (*Ms3ms3*) were tagged and harvested during summer 1989. A bulk of outcrossed seed from 1989 was blended with 475 g of segregating populations and 200 g of a composite of the snow mold resistance germplasms: C1tr 14106, PI 119333, and Survivor. The segregating population was composed of (i) first-backcross F_2 seed derived from the crosses Blizzard/'Sumner'//Blizzard, Manning/Survivor//Manning, Survivor/Sprague//Survivor, Survivor/Idaho 391 sib/Survivor, and Survivor/4/'WAID'/2*'Borah'//Idaho 180/3/Survivor (50 g each); and (ii) single-cross F_2 seed of the crosses Martonvasari 12/Idaho 300, Blizzard/Survivor, C1tr 14106/'Clement'/'McCall'/3/'Ranger'/4/Idaho 76 /Unknown/5/Blizzard, Blizzard/'Meridian' sib, Meridian sib/Blizzard, Survivor/Judith, Meridian sib/Survivor, Survivor/Idaho 364, and Survivor/Martonvasari 8 (25 g each). Approximately 700 male sterile heads were tagged at anthesis in summer 1989. Of the tagged heads, ≈ 400 were selected, using a stratified sampling to limit the selection of multiple tillers from the same plants. A composite of seed selected in 1990 was grown in 1991 and allowed to open-pollinate. Approximately 1000 male sterile heads were tagged and harvested in 1991 to form the IDSMMS- C_0 population.

The IDSMMS- C_0 population is segregating for a number of bunt resistance genes. Blizzard (4), Manning, Survivor (3), Weston, C1tr 14106 (1), PI 119333, PI 564550, PI 476212 (2), PI 476214 (2), Idaho 300, Idaho 364, and Hohenheimer/3*'Cheyenne' are highly resistant to dwarf bunt. The genes conferring dwarf bunt resistance in Blizzard, PI 476212, PI 476214, Idaho 300, and Idaho 364 are unknown. Survivor's resistance is derived from *Bt8* (Souza, unpublished data, 1994). Manning and Weston have one or more dwarf bunt resistance genes derived from PI 178383 (*Bt8*, *Bt9*, *Bt10*) (6). The bunt resistance allele in PI 119333 is designated *Bt12*. PI 564550 has bunt resistance that is probably conferred by *Bt8* (B. Goates, USDA-ARS, personal communication). The Hohenheimer/3*'Cheyenne' breeding line probably carries part of the resistance presently designated *Bt5*. IDSMMS- C_0 also carries alleles conferring resistance to stripe rust (caused by *Puccinia striiformis* Westend.). Weston, Batem, Hoff, Idaho 180, Idaho 300, Idaho 301, Idaho 364, and Martonvasari 8 are resistant to stripe rust in trials at Aberdeen using field races isolated from the cultivar Fieldwin, primarily races CDL-3 and CDL-20. In

the same trials, Blizzard, Fundulea 133, Idaho 355, Idaho 391, Idaho 391 sib, and Survivor were found to be moderately resistant to stripe rust.

Seed of IDSMMS- C_0 will be maintained by the University of Idaho at the Aberdeen Research and Extension Center. IDSMMS- C_0 samples of 50 g may be obtained from the corresponding author upon written request.

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References and Notes

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Registration of KS92WGRC26, Hessian Fly-Resistant Hard Red Winter Wheat Germplasm

KS92WGRC26 (Reg. no. GP-397, PI 572542) is a hard red winter wheat (*Triticum aestivum* L.) germplasm line resistant to Hessian fly (*Mayetiola destructor* Say) and cooperatively developed by the Wheat Genetics Resource Center, Kansas State University, USDA-ARS, and the Kansas Agricultural Experiment Station.

KS92WGRC26 is resistant to both Biotype L and a Moroccan population of the Hessian fly. KS92WGRC26 plants were 100% resistant, exhibiting only dead larvae in greenhouse tests repeated over a 2-yr period at Manhattan, KS, and in a greenhouse test at Settat, Morocco.

KS92WGRC26 is a BC_2F_3 -derived line with the pedigree 'Karl'*3/TA2473. TA 2473 is a Hessian fly-resistant accession of *Triticum tauschii* (Coss.) Schmal. collected near Ramsar, Iran. KS92WGRC26 is similar to Karl in height, days to heading, disease reactions, and overall phenotype. Resistance to Hessian fly in KS92WGRC26 is conditioned by a single, completely dominant gene, *H26*, from TA 2473 (1). Monosomic analysis shows that the gene is located on chromosome 4D, and it is the first known gene for Hessian fly resistance to be located on that chromosome. It segregates independently of all other known resistance genes.

Small quantities (3 g) of seed of KS92WGRC26 are available from the corresponding author upon written request. Appropriate recognition of source should be given when these germplasms contribute to research or development of new cultivars. Seed stocks are maintained by the Wheat Genetics Resource Center, Dep. of Agronomy, Throckmorton Hall, Kansas State University, Manhattan, KS 66506.

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References and Notes

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2. T.S. Cox, USDA-ARS and Dep. of Agronomy; J.H. Hatchett, USDA-ARS and Dep. of Entomology; R.G. Sears, Dep. of Agronomy; and B.S. Gill, Dep. of Plant Pathology, Kansas State University, Manhattan, KS 66506.

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REGISTRATION OF PARENTAL LINES

Registration of Oh599 Parental Inbred Line of Maize

Inbred Oh599 (Reg. no. PL-171, PI 572413) is a yellow dent maize (*Zea mays* L.) line developed by the Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH. The line was released 6 Apr. 1993 for its potential value in the production of hybrid seed and as a source of germplasm in the development of proprietary inbreds by the hybrid seed industry.

Oh599 was developed from the cross Va17 $\times$ Oh551 backcrossed twice to Oh551. Inbreeding and selection of Oh599 by the pedigree method was initiated in 1983 with the second backcross generation and continued through 1991.

Oh599 was included in the testcrossing program beginning at the S_3 level of inbreeding as experimental line S18-2-G1. On the basis of testcross performance of the S_3 with B73 in three tests from 1987 to 1989, it was selfed and selected to the S_4 level. The S_4 testcrosses were evaluated from 1990 to 1992, resulting in a total of 13 performance tests. Yield of B73 $\times$ Oh599 was 11% higher than B73 $\times$ Mo17 and 1% less than the average of two out of three commercial hybrids (Pioneer 3343, Pioneer 3352, DeKalb 614) grown in each test. Grain moisture of B73 $\times$ Oh599 was 1 g kg⁻¹ higher than the commercial checks' average but was 4 g kg⁻¹ lower than that of B73 $\times$ Mo17. Incidence of stalk lodging was 5 percentage units less, and 2 percentage units higher, than B73 $\times$ Mo17 and the commercial checks' average, respectively. Root lodging was negligible in all locations tested with the exception of one. In that location, root lodging of Oh599 was equal to that of the commercial checks' average and was better than that of B73 $\times$ Mo17. Based on these results, the inbred was entered in the 1992 North Central Corn Breeding Research Committee (NCR-167) AES700 to AES800 maturity trials conducted in seven states. The yield of (B73 $\times$ B94) $\times$ Oh599 was 4% less than the average of three commercial hybrid checks (LH132 $\times$ MBS280, LH82 $\times$ MBS3871, MBS534 $\times$ MBS3871) and stalk lodging was 4 percentage units higher in the regional trials. Grain moisture of the Oh599 three-way cross was 21 g kg⁻¹ above that of the average of the commercial checks.

Two years of testing across a total of five locations have revealed that B73 $\times$ Oh599 displays good grain physical and compositional quality characteristics. Average protein content (dry matter basis) of B73 $\times$ Oh599 exceeded B73 $\times$ Mo17 by 6 g kg⁻¹ and the average of the commercial hybrids by 2 g kg⁻¹. Percent oil (dry matter basis) was 3 g kg⁻¹ higher than B73 $\times$ Mo17 and essentially equal to that of the commercial check average (1 g kg⁻¹ higher). Test weight of B73 testcrosses was improved by 35 and 23 kg m⁻³ above that of B73 $\times$ Mo17 and the average of the commercial checks, respectively.

Oh599 flowers 1-2 d later than B73, is moderately tall with thin leaves. Oh599 is moderately prolific and is an acceptable pollen producer. Kernels are yellow and medium in size. Oh599 produces 14-rowed, well filled, tapering ears intermediate in size ($\approx$ 13 cm long) between its parents, with sound, red cobs. Informal observations indicate Oh599 has good plant health. Oh599 was released at the S_5 level of inbreeding.

Breeder seed of Oh599 was produced by controlled self-pollination in the field. The distribution of 50-kernel samples, and maintenance of breeder seed, will be performed by the OSU Maize Germplasm Service, Department of Agronomy, OSU-OARDC, 1680 Madison Ave., Wooster, OH 44691. Recipients of seed are asked to make appropriate recognition of the source of the germplasm if it is used in the development of a new cultivar, germplasm, parental line, or genetic stock.

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References and Notes

1. R.C. Pratt and E.J. Dollinger (deceased), Dep. of Agronomy, Ohio Agric. Res. and Development Ctr., The Ohio State Univ., 1680 Madison Ave., Wooster, OH 44691. OARDC Journal Article no. 163-93. Salaries and research support provided by state and federal funds appropriated to the OARDC. The mention of firm names or trade products does not imply that they are endorsed or recommended by The Ohio State University over other firms or similar products not mentioned. Registration by CSSA. Accepted 31 Dec. 1993. *Corresponding author.

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