Registration of Idaho 471A and Idaho 471B Wheat Germplasms

Two soft white spring wheat (Triticum aestivum L.) germplasms, Idaho 471A (Reg. no. GP-518, PI 592984) and Idaho 471B (GP-519, PI 592985), were released by the Idaho Agricultural Experiment Station in cooperation with the USDA-ARS as improved germplasm with resistance to the Russian wheat aphid (Diuraphis noxia (Mordvilko)).

Idaho 471A and 471B are derived from the 1990 backcross, A90447S, with the pedigree PI 294994/4 Star Centennial. PI 294994 ('Strelinskaya Mestnaya') is a hard white winter wheat cultivar identified as resistant to D. noxia (1). Centennial is a high-yielding soft white spring wheat cultivar adapted to the Pacific Northwest of the United States and is susceptible to D. noxia. The BC3F2 families of A90447S were evaluated for D. noxia resistance in greenhouse trials at Moscow, ID, in 1992 following standard evaluation procedures (2). The most resistant plants were selected from families segregating for D. noxia resistance. A resistant BC2F2 plant was crossed to Centennial to produce BC3 seed. The BC3F2 families derived from the selected plants were planted in the field at Parma, ID, in spring 1992 and artificially infested with D. noxia. Plants were selected from families homozygous for resistance. In spring 1993, BC3F4 families, each tracing to individual BC3F3 plants, were planted in the field at Aberdeen, ID, and artificially infested with D. noxia.

Families were evaluated for uniformity of aphid resistance and morphological similarity to the recurrent parent Centennial. Twenty-three BC3F4 families tracing to the BC3F2 plant selection A90447S-B-3 were identified as homozygous resistant, semidwarf soft white spring wheats and were bulked together to form Idaho 471. Idaho 471 was entered into the Tri-State Spring Wheat Regional Nursery in 1994. In subsequent greenhouse evaluations for D. noxia host plant resistance, the 23 components of Idaho 471 were found to be variable for resistance. The families with the highest level of resistance, A90447S-B-3-3 and A90447S-B-3-8-OA, were designated Idaho 471A and Idaho 471B, respectively.

Idaho 471A and 471B are similar to Centennial and have green coleoptiles, erect juvenile growth habit, and without a waxy bloom. The heads of Idaho 471A are middense, erect, and awned. The heading date of Idaho 471A is approximately 2 d later than Centennial, while the heading date of Idaho 471B is similar to Centennial. Centennial in height between Idaho 471A and 471B and Idaho 471B is approximately 5 cm shorter than Idaho 471B. Idaho 471A and 471B have white chaff and soft white seed.

We thank C.C. Green for making the crosses, S.H. Baker and T.A. Peacock for testing Pee Dee strains, and O.F. Heath for technical assistance.

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References and Notes

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References and Notes
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