Registration of ‘Strongfield’ Durum Wheat

‘Strongfield’ spring durum wheat (Triticum turgidum L. var. durum) (Reg. no. CV-1000, PI 641223) was developed at the Semiarid Prairie Agricultural Research Centre, Agriculture and Agri-Food Canada, Swift Current, SK, and received registration no. 5819 from the Canadian Food Inspection Agency on 18 May 2004. It was released because of its superior agronomic performance, end-use quality attributes, and reduced grain cadmium concentration. ‘Strongfield’ was granted Plant Breeder’s Rights by the Canadian Food Inspection Agency, certificate no. 2105, on 13 May 2005.

‘Strongfield’ is similar in height to Kyle (97 cm), AC Avonlea (86 cm), and shorter than Kyle (97 cm). It has intermediate straw height (85 cm), similar to Morse (105 cm), and 1 d earlier than Kyle and AC Navigator. Time to maturity of ‘Strongfield’ (105 d) was similar to that of AC Avonlea (105 d) and AC Navigator (94 d), and 1 d earlier than Kyle and AC Navigator. ‘Strongfield’ has intermediate straw height (85 cm), similar to Morse (105 cm), and 1 d earlier than Kyle and AC Navigator. ‘Strongfield’ has intermediate straw height (85 cm), similar to Morse (105 cm), and 1 d earlier than Kyle and AC Navigator.

‘Strongfield’ is resistant to prevalent leaf rust, stem rust, and common bunt races. It is resistant to ‘Kyle’/’Nile’; ‘Nile’ was obtained from the International Centre for Agricultural Research in the Dry Areas, Aleppo, Syria and Kyle (Townley-Smith et al., 1987) is from our program. The F2 generation was grown in 1995 as individual plants in a nursery inoculated with leaf (caused by Puccinia triticina Eriks.) and stem rust (caused by Puccinia graminis Pers.:Pers. f.sp. tritici Eriks. & E. Henn.). Individual spikes from selected plants were grown in F2, single 3 m rows near Swift Current in 1996. The F3:4 and F5:6 generations were grown as head rows in a winter nursery near Christchurch, New Zealand to produce seed for yield tests. Unreplicated F3:5 and F5:7 yield trials were grown near Swift Current and Regina, Saskatchewan and Lethbridge, Alberta in 1997 and 1998 and selected for agronomic performance, disease resistance, and quality (protein, pigment, and gluten strength). An F5:8 line designated 9468-CL5 was evaluated in pre-registration trials in 1999 (five locations), and under the designation DT712 in the Durum Cooperative Test in 2000 to 2002 (10 to 12 locations per year).

Each year stem and leaf rust were evaluated in inoculated field trials near Winnipeg, Manitoba using mixtures of prevalent races. The stem rust races used were: QFC (C75), QTH (C25), TPM (C53), TMR (C10), TMR (C95), RTH (C57), RRQ (C63), and RQK (C63). The races of leaf rust used were MCDS, MBDS, MBR, MBRJ, MGB, TJB, TBJB, TGBJ, and T19 of common bunt [caused by Tilletia laevis (Pers.), T. tritici (Bjerk.) G. Wint. in Rabenh.]. T. tritici (Bjerk.) was used for screening of the Durum Cooperative Test entries in inoculated field trials near Lethbridge, Alberta. The race designations are those described by Roelfs and Martens (1988) for stem rust, Long and Kolmer (1989) for leaf rust, and Hoffmann and Metzger (1976) for common bunt. ‘Strongfield’ is resistant to prevalent leaf rust, stem rust, and common bunt races. It is susceptible to loose smut [caused by Ustilago tritici (Pers.) Rostr.] races T32 and T33, and resistant to race T26, the races prevalent in western Canada.

Grain yield of ‘Strongfield’ (4030 kg ha−1) was greater than the checks ‘AC Morse’ (3810 kg ha−1), Kyle (3550 kg ha−1), AC Avonlea (3750 kg ha−1), ‘AC Melita’ (3580 kg ha−1), and ‘AC Navigator’ (3410 kg ha−1) in 34 station trials near Winnipeg, Manitoba using mixtures of prevalent leaf rust, stem rust, and common bunt races. It is resistant to

References


