Registration of 'BELZER' Durum Wheat

'Belzer' (Reg. no. 868, PI 603286), spring durum wheat (*Triticum turgidum* L. var. *durum* Desf.) was developed by the North Dakota Agricultural Experiment Station in cooperation with USDA-ARS and officially released on 14 July 1997. Belzer was tested as D87240 and was selected from the cross D7798/DT367 made in 1983 by R.G. Cantrell. The parent D7798 was derived from the cross D71110/Edmore(5). The pedigree of D71110 is D6580/Ward(7). D6580 was derived from the cross Lakota/DwF4-Ldn//Leeds(3). DT367 (4) was developed at the Agricultural Canada Research Station at Swift Current, SK and was released as a high-yielding durum wheat germplasm in 1991. Belzer was developed using the pedigree method and was bulked in the F5 generation as an F4-derived line in 1987. Belzer was named in honor of the late Terry Belzer, durum wheat producer of Cando, ND, in recognition of his efforts to secure funds for research on Fusarium head blight [caused by *Fusarium graminearum* Schwabe; teleomorph *Gibberella zeae* (Schweinitz.) Petch]. Belzer was tested for agronomic and quality traits at 68 location-years from 1991 to 1996. Belzer was released because of its high yield, large kernels, very strong gluten, and moderate level of resistance to Fusarium head blight relative to Renville (1).

Belzer is a daylength-sensitive durum wheat that is similar in heading date to Lloyd (2) (63.7 d) and is 1 d later than Renville. Belzer's plant height averages 94.3 cm and is 1.7 cm shorter than Vic (6) and Renville and 22.2 cm taller than the semidwarf cultivar Lloyd. The culms are white and the peduncle is slightly recurved. Belzer's spikes are midlong, awned, oblong, middense, and erect. The awns are white and 12 to 14 cm in length. The glumes are glabrous, white, long, and medium wide. The kernels are amber, hard, long, and elliptical; the germ is midsized; the crease is midwide and shallow; and the brush is absent.

The grain yield of Belzer (3520.8 kg ha⁻¹) was 10.9% and 1.2% greater than that of Vic and Renville, respectively, based on 68 location-years of testing in the Uniform Regional Durum Nursery from 1991 to 1996. Belzer had 5.7% yield advantage over Vic and similar yield to Renville (3339.9 kg ha⁻¹) based on 32 location-years in the North Dakota Research Extension Centers varietal trials from 1991 to 1996. Belzer had 740.6 kg m⁻³ grain volume weight and 39.9 mg kernel weight when tested at 68 location-years in the Uniform Regional Durum Nursery. Relative to Renville, Belzer's grain volume weight is 21.9 kg m⁻³ lower whereas the kernel weight is 2.5 mg greater.

Based on 36 location-years in North Dakota field plots (1991-1996), the semolina extraction rate of Belzer on the Buhler-Miag laboratory mill at the Department of Cereal Sciences, North Dakota State University is 2.3% and 0.8% less than Renville and Vic, respectively. Other milling characteristics and spaghetti color were favorable. Belzer has very strong gluten mixing characteristics (classification: 6.9) as estimated by mixograph, stronger than Vic and Renville (classification: 5.8). Semolina protein of Belzer was 138 g kg⁻¹, which was similar to Vic and Renville.

Belzer was evaluated at the USDA-ARS, Northern Crop Science Laboratory, Fargo, ND for wheat stem rust (caused by *Puccinia graminis* Per.:Per. f. sp. *tritici* Eriks. & E. Henn) and was found to be highly resistant to pathotypes Pgt-QCC, -QTH, -RTQ, -RCR, -TML, -TPM, and -HPH. The adult plant resistance in the field to leaf rust (caused by *P. recondita* Roberge ex Desmaz) is high in Belzer (10R) and is similar to Vic and Renville. Belzer has a moderate level of resistance to tan spot [caused by *Pyrenophora tritici-repentis* (Died) Drechs].
Breeder seed will be maintained by the Seedstocks Project, Agricultural Experiment Station, North Dakota State Univ., Fargo, ND 58105-5051. Protection for Belzer will be applied for under the U.S. Plant Variety Protection Act for foundation, registered, and certified seed.

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References and Notes

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