

## Registration of 'Dilse' Durum Wheat

'Dilse' (Reg. CV-938, PI 632367), spring durum wheat (*Triticum turgidum* L. var. *durum* Desf.) was developed by the North Dakota Agricultural Experiment Station in cooperation with USDA-ARS and released on 1 June 2002. Dilse was named in honor of the late Frank Dilse, North Dakota Wheat Commissioner and well known wheat industry leader. Dilse was released based on its high grain protein concentration and high grain yield, and quality.

Dilse was tested as D941261 and was selected from the cross 'Maier'/D88273 made in 1992 (Elias and Miller, 2000a). The parent D88273 was derived from the cross D8189/D81141. The pedigree of D8189 is D68111/'Rugby'(CI 17284)/'Ward'(CI 15892)/3/'Vic'(CI 17789). D81141 was derived from the cross D72114/'Edmore'(CI 17748)/D781. Dilse was developed using the pedigree breeding method and was bulked in the F<sub>5</sub> generation as an F<sub>4</sub>-derived line in 1994. One thousand F<sub>4,9</sub> heads were selected from quality drill strips at Langdon, ND for seed purification. Heads were threshed individually and seeded as head rows at Langdon ND, in 1999. None-uniform rows were discarded and the remaining rows were bulk harvested as breeder seed. Dilse is a daylength-sensitive durum wheat that is similar in heading date (63 d from seeding to when approximately 50% of the plants had heads completely emerged from the boot) to 'Plaza' (Elias et al., 2001b) and 1 d later than 'Maier'. Dilse has an average plant height of 89 cm, which is 5 cm shorter than 'Ben' (Elias and Miller, 1998) and 12 cm taller than the semidwarf cultivar Plaza. The culm of Dilse is white and the peduncle is slightly recurved. Dilse has midlong spikes that are awned, oblong, lax, and inclined. The awns are white and 14 to 15 cm long. The glumes are glabrous, white, long, and wide. The kernels are amber, hard, long, and elliptical; the germ is mid-sized; the crease is mid-wide and shallow; and the brush is short.

Based on 37 location-years of testing in the Uniform Regional Durum Nursery (URDN) from 1998 to 2001. The mean grain yield of Dilse (3615 kg ha<sup>-1</sup>) was similar to Maier (3609 kg ha<sup>-1</sup>) and 2.3% higher than Ben (3534 kg ha<sup>-1</sup>). In those same trials, Dilse had a 758.6 kg m<sup>-3</sup> grain volume weight which was 6.4 kg m<sup>-3</sup> greater than Maier and 5.2 kg m<sup>-3</sup> lower than Ben. Dilse had a 32.6 mg kernel weight which was greater than Maier (31.8 mg) and lower than Ben (36.0 mg). Based on 22 location-years in the North Dakota Research Extension Centers' varietal trials from 1998 to 2001. Dilse had a similar yield (3534 kg ha<sup>-1</sup>) to Maier (3528 kg ha<sup>-1</sup>) and Ben (3541 kg ha<sup>-1</sup>) and 5% lower mean yield than 'Mountrail' (3709 kg ha<sup>-1</sup>) (Elias and Miller, 2000b). In those same trials, Dilse had a 771.5 kg m<sup>-3</sup> grain volume weight which was 2.6 kg m<sup>-3</sup> greater than Maier and 10.3 kg m<sup>-3</sup> lower than Ben.

Grain samples from quality drill strips grown at 23 sites-years (1998 to 2001) were tested for durum wheat quality at North Dakota State University (NDSU). The semolina extraction rate of Dilse (62.7%) on the Buhler-Miag laboratory mill at the Department of Cereal and Food Sciences, NDSU, is identical to 'Lebsock' (Elias et al., 2001a) but higher than Mountrail (61.9%). Dilse has strong gluten mixing characteristics (classification: 6.0) as estimated by mixograph, weaker than Maier (7.0) and stronger than Mountrail (5.0). Semolina protein of Dilse was 138 g kg<sup>-1</sup>, which is similar to Maier (136 g kg<sup>-1</sup>) but higher than Mountrail (132 g kg<sup>-1</sup>). Pasta produced from Dilse has a color score of 9.4 which is similar to Lebsock (9.3) and higher than Mountrail (9.1).

Dilse was evaluated at the USDA-ARS, Northern Crop Science Laboratory, Fargo, ND for wheat stem rust (caused by *Puccinia graminis* Per.:Pers. f. sp. *tritici* Eriks. & E. Henn) and was found to be resistant to pathotypes Pgt-QCCJ, -QTHJ, -RTQQ, -TMLK, -TPMK, and -HPHJ. Dilse has exhibited adult plant resistance

to leaf rust (caused by *P. triticina* Eriks.) similar to ‘Munich’ (Elias et al., 1997) and Plaza when evaluated in the URDN at Langdon, ND from 1999 to 2001. Dilse has a moderate level of resistance to tan spot [caused by *Pyrenophora tritici-repentis* (Died.) Drechs] similar to Maier and Mountrail. Dilse is moderately susceptible to Fusarium head blight [caused by *Fusarium graminearum* Schwabe; teleomorph *Gibberella zeae* (Schweinitz) Petch] similar to Lebsock and Plaza.

Breeder seed will be maintained by the Seedstocks Project, Agricultural Experiment Station, North Dakota State Univ., Fargo, ND 58105-5051. Dilse is protected under Th U.S. Plant Variety Protection Act for Foundation, Registered, and Certified seed classes (PVP Certificate no. 200300036). Small quantity of seed may be obtained from the corresponding author for research purposes.

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### References and Notes

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