Registration of ‘Lebsock’ Durum Wheat

‘Lebsock’ (Reg. no. CV-911, PI 613620), 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 1 July 1999. Lebsock was named in honor of Dr. Kenneth L. Lebsock, a USDA-ARS durum wheat breeder stationed in Fargo, ND where he worked in close collaboration with researchers at North Dakota Agricultural Experiment Station developing durum wheat cultivars. Lebsock was released because of its high yield and test weight, and good quality.

Lebsock was tested as D901442 and was selected from the cross ‘Munich’/D8469 made in 1986 by R.G. Cantrell. The parent D8469 was derived from the cross D79220/D79122. The pedigree of D79122 is ‘Edmore’/’Wakooma’. D79220 was derived from the cross ‘Vic’/D7025. D7025 was derived from the cross D6468//D61130/’Leeds’. Lebsock was developed using the pedigree method and was bulked in the F5 generation as an F4-derived line in 1990. Lebsock was tested for agronomic and quality traits at 51 location-years from 1994 to 1998.

Lebsock is a daylength-sensitive durum wheat that is similar in heading date to ‘Ben’ (5) (58 d) and 1.3 d earlier than ‘Mountrail’ (4). Lebsock's plant height averages 85 cm and is 4 cm shorter than Ben and 14 cm taller than the semidwarf cultivar ‘Lloyd’ (2). The culms are white and the peduncle is slightly recurved. Lebsock’s spikes are midlong, awned, oblong, middense, and erect. The awns are white and 12 to 13 cm in length. The glumes are glabrous, white, long, and wide. The kernels are amber, hard, long, and elliptical; the germ is midsized; the crease is midwide and shallow; and the brush is absent.

Mean grain yield of Lebsock (3696 kg ha⁻¹) was 4.0 and 4.6% higher than Ben and ‘Renville’ (1), respectively, based on 51 location-years of testing in the Uniform Regional Durum Nursery from 1994 to 1998. Lebsock (3286 kg ha⁻¹) had a 8.2 and 7.7% higher mean yield than both Ben and Renville, respectively based on 23 location-years in the North Dakota Research Extension Centers’ varietal trials from 1994 to 1998. Lebsock had 781.8 kg m⁻³ grain volume weight and 37.7 mg kernel weight when tested at 51 location-years in the Uniform Regional Durum Nursery. Lebsock has 10.3 kg m⁻³ higher grain volume weight and 2.0 mg lower kernel weight than Ben.

Based on 30 location-years in North Dakota field plots (1994 to 1998), the semolina extraction rate of Lebsock (61.2%) on the Buhler-Miag laboratory mill at the Department of Cereal Science, North Dakota State University, is higher than Ben (60.8%). Other milling characteristics and spaghetti color were favorable. Lebsock has strong gluten mixing characteristics (classification: 6.0) as estimated by mixograph, weaker than ‘Maier’ (3) and similar to Ben (classification: 7.0 and 6.0, respectively). Semolina protein of Lebsock was 136 g kg⁻¹, which is similar to Ben and Renville but lower than Maier (144 g kg⁻¹).

Lebsock was evaluated at the USDA-ARS, Northern Crop Science Laboratory, Fargo, ND for wheat stem rust (caused by Puccinia graminis Pers.:Pers. f. sp. tritici Eriks. & E. Henn) and was found to be highly resistant to pathotypes Pgt-QCCJ, -QTHJ, -RTQJ, -TMLK, -TPMK, and -HPHJ. Lebsock’s adult plant resistance in the field to leaf rust (caused by P. triticina Eriks.) is high (5R) and is similar to Ben and Renville. Lebsock has a moderate level of resistance to tan spot [caused by Pyrenophora tritici-repentis (Died.) Drechs]. Lebsock is moderately susceptible to Fusarium head blight [caused by Fusarium graminearum Schwabe; teleomorph Gibberella zeae (Schweinitz) Petch].
Breeder seed will be maintained by the Seedstocks Project, Agricultural Experiment Station, North Dakota State Univ., Fargo, ND 58105-5051. Protection for Lebsock 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