Registration of ‘Alkabo’ Durum Wheat

E.M. Elias* and F.A. Manthey

A lkabo’ (Reg. No. CV-1008, PI 642020), spring durum wheat (Triticum turgidum L. var. durum Desf.) was developed by the North Dakota Agricultural Experiment Station in cooperation with the USDA-ARS and released on 1 June 2005. Alkabo is the name of a former community in northwestern Divide County in western North Dakota. The Alkabo name comes from the alkali-gumbo soil common to the area. Alkabo was released on the basis of its high grain yield, test weight, and quality.

Alkabo was tested as the experimental line D96604 and was selected from the cross D901247/D89263 made in 1992. The parent D901247 was derived from the cross D81154/’Renville’ (PI 510696)/LDN(Dic-5B). The pedigree of D81154 is PI19571/’Ward’(CI 15892). LDN(Dic-5B) is a substitution line of ‘Langdon’ (CI 13165) with chromosome 5B of Triticum dicoccoides accession FA-15-3 (Joppa and Cantrell, 1990). D89263 was derived from the cross ‘Fjord’/D8194. D8194 was derived from the cross D7690/’Vic’ (Cl 17789). The pedigree of D7690 is D68111/’Rugby’ (CI 17284)/’Crosby’ (CI 17282). D68111 was derived from the cross D65150/’Leeds’ (CI 13768). The cross of D65150 is PI/TM//2*Tc/3ZB/’Wells’ (CI 1333). Alkabo was developed using the pedigree breeding method and was bulked in the F₄ generation as an F₄-derived line in 1996. Six thousand F₄₃ heads were selected from quality drill strips at Langdon, ND, for seed purification. Heads were threshed individually and seeded as headrows at Yuma, AZ, in 2004. Nonuniform rows were discarded, and the remaining rows were bulk harvested as Breeder seed. Alkabo is a daylength-sensitive durum wheat that is similar in heading date (64 d from seeding to when approximately 50% of the plants had heads completely emerged from the boot) to ‘Pierce’ (Elias et al., 2004) and 1 d earlier than ‘Mountrail’ (Elias and Miller, 2000b). Alkabo has an average plant height of 85 cm, which is 5 cm shorter than Ben (Elias and Miller, 1999) and 2 cm than the semidwarf cultivar Plaza (Elias et al., 1999). The culm of Alkabo is white, and the peduncle is midlong spikes that are awned, oblong, lax, and white and 14 to 15 cm long. The glumes are amber, hard, and wide. The kernels are amber, hard, long, and elliptical; the germ is large; the crease is midwide and shallow, and the flour brush is medium.

Based on 49 location years of testing in the Uniform Regional Durum Nursery (URDN) from 2000 to 2004, the mean grain yield of Alkabo (3951 kg ha⁻¹) was higher than Ben (3729 kg ha⁻¹), ‘Maier’ (3689 kg ha⁻¹) (Elias and Miller, 2000a), Mountrail (3917 kg ha⁻¹), and Pierce (3843 kg ha⁻¹). In those same trials, Alkabo had a 774.1 kg m⁻³ grain volume weight compared with 761.2 kg m⁻³ for Maier and 779.2 kg m⁻³ for ‘Lebsock’ (Elias et al., 2001a). Alkabo had a 37.4 mg kernel weight compared with 35.1 mg for Maier and 39.1 mg for Ben. Based on 49 location years of testing in the Uniform Regional Durum Nursery trials from 2000 to 2004, Alkabo had higher grain yield (3702 kg ha⁻¹) than Ben (3501 kg ha⁻¹), Maier (3447 kg ha⁻¹), and Pierce (3501 kg ha⁻¹). In those same trials, Alkabo had a 784.4 kg m⁻³ grain volume weight compared with 775.4 kg m⁻³ for Maier and 788.3 kg m⁻³ for ‘Lebsock’.

Grain samples from quality drill strips grown at 19 site years in the North Dakota Research Extension Centers’ varietal trials from 2000 to 2004, Alkabo had higher protein content (11.8%) than Ben (11.1%), Maier (10.9%), and Pierce (10.8%). Alkabo had a 775.4 kg m⁻³ grain volume weight compared with 775.4 kg m⁻³ for Maier and 788.3 kg m⁻³ for ‘Lebsock’.

Semolina protein of Alkabo was 136 g kg⁻¹ compared with 137 g kg⁻¹ of Lebsock and Mountrail. Pasta protein was 13.9% for Alkabo, 13.4% for Lebsock, and 13.8% for Mountrail. Based on 49 location years of testing in the Uniform Regional Durum Nursery, Alkabo had a 64.4% gluten content similar to Maier and Lebsock when evaluated in the URDN. Based on 49 location years of testing in the Uniform Regional Durum Nursery, Alkabo had a 774.1 kg m⁻³ grain volume weight compared with 761.2 kg m⁻³ for Maier and 779.2 kg m⁻³ for ‘Lebsock’ (Elias et al., 2001a). Alkabo had a 37.4 mg kernel weight compared with 35.1 mg for Maier and 39.1 mg for Ben. Based on 49 location years of testing in the Uniform Regional Durum Nursery trials from 2000 to 2004, Alkabo had higher grain yield (3702 kg ha⁻¹) than Ben (3501 kg ha⁻¹), Maier (3447 kg ha⁻¹), and Pierce (3501 kg ha⁻¹). In those same trials, Alkabo had a 784.4 kg m⁻³ grain volume weight compared with 775.4 kg m⁻³ for Maier and 788.3 kg m⁻³ for ‘Lebsock’.

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