

9100076

EXHIBIT A

ORIGIN AND BREEDING HISTORY OF D5317

D5317 durum wheat was derived by Farmers Marketing Corporation from a single  $F_2$  head selection from a genetic male sterile facilitated recurrent selection population. The population was developed by the University of Arizona and released as AZ-MSFRS-86 Quality Enhanced Spring Durum Wheat Germplasm. Seed from a single plant from the  $F_2$  headrow grown in Montana, was increased at El Centro, California in 1986. The bulk  $F_3$  was grown at Yuma, Arizona in 1987. Twenty-four representative heads were snapped and grown in individual rows at Post Falls, Idaho in the summer of 1987. Sixteen uniform non-segregating rows were bulked and increased at Yuma, Arizona in 1988. With evidence of further segregation, forty-eight headrows were grown at Yuma in 1989. Thirty-eight of these rows were bulked and increased at Mt. Vernon, Washington in the summer of 1989 to form the present designated breeder seed for foundation seed production.

D5317 is uniform and stable. Genetic recessive male sterile plants appeared and were rogued from the 1990 foundation seed field increase at frequency of less than 1 in 1000. Some further occurrence of male sterility is possible from seed set on unidentified male sterile plants. A brown chaff variant observed in the headrow bulk was rogued from the foundation seed increase field at frequency of less than 1 in 500 plants.

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EXHIBIT D

ADDITIONAL DESCRIPTION

D5317 is a short stiff strawed, early maturing spring durum with excellent semolina quality characteristics of color, protein percent, gluten content, gluten strength, and cooking stability. Yield and test weight is similar to Mexicali 75. Plants are generally 6 cm shorter with less lodging and maturity 2 days later than Mexicali 75. Under environmental conditions subject to severe black point ~~exhibited~~ exhibited less black point than any of the commonly grown commercial varieties.

Juvenile plant growth habit is erect. Plant at boot is yellow-green. Heads are strap, dense, awned and white at maturity. Glumes are white, glabrous, wide and long. Shoulders are relatively narrow and apiculate. Beaks are acuminate, long and narrow. Seeds are moderately large, elliptical, long, vitreous and amber. The brush is very short and not collared. The crease is of moderate width, medium depth and cheeks are rounded. D5317 has white awns, is similar to Mexicali 75 in appearance and yield, but more similar to Durex and Westbred 881 in semolina quality.