

‘Alzada’
Durum Wheat

19.a. Exhibit A. Origin and Breeding History

‘Alzada’ is a durum wheat that originated from the cross ‘Mohawk’/‘Kofa’ made near Maricopa, AZ, in March 1991. The breeding method used was single-head descent, modified pedigree. The F₁ increase from which ‘Alzada’ originated was grown in the field near Maricopa, AZ in 1992. The F₂ generation was grown near Bozeman, MT, in 1992. Individual spikes were selected and bulked together to grow the F₃ generation near Maricopa, AZ, in 1993. Individual spikes were selected and bulked together to grow the F₄ generation near Bozeman, MT, in 1993. Individual spikes were harvested in September 1993 and planted as spike rows near Maricopa, AZ, in November 1993. The final, single plant selection was made in May 1994 from within one F₅ row, and this selection was increased near Bozeman, MT in the summer of 1994. The resulting plot was designated ‘YU894-75’ and harvested in bulk. ‘Alzada’ was first tested in a replicated yield trial as an F₇ line near Maricopa, AZ, in 1995. Replicated yield testing was done at six locations in the 1997 through 1999 growing seasons. (Maricopa, AZ.; Yuma, AZ.; Yuma Late, AZ.; El Centro, CA.; Corcoran, CA.; and Fire Baugh, CA.) Replicated yield testing was also done at five spring-planted sites in the 1997 through 2003 growing seasons. (Bozeman, MT.; Burley, ID.; Moses Lake, WA.; Conrad, MT.; and Black Foot, ID.)

In 1996, 96 spikes were selected from within a seed increase plot near Bozeman, MT, and planted as spike rows near Yuma, AZ, in 1997. Sixty identical and uniform spike rows were harvested, bulked, and the resultant seed used to plant one acre near Bozeman, MT, in 1997. Seed harvested from this one-acre increase was used to plant a breeder’s seed increase of ‘Alzada’ near Yuma, AZ, in 1998. Additional Breeder’s seed was produced in El Centro, CA, in 2002. Foundation and Registered seed was produced in Idaho in 2003. Certified seed of ‘Alzada’ will be first offered for sale in the spring of 2004.

‘Alzada’ has been observed for 7 generations of reproduction and seed increase and is stable and uniform. A variant that is black-awned occurs at a frequency of .2% (20 per 10,000). A variant that is 15cm to 30 cm taller occurs at a frequency of .2% (20 per 10,000). The variants are otherwise identical to the variety in all other characteristics.

19.b. Exhibit B. Statement of Distinctness

'Alzada' is most similar to the spring durum variety 'Kofa'. 'Kofa' is planted on approximately 20,000 acres in AZ and California. 'Alzada' can be distinguished from 'Kofa' by the following morphological characteristics:

1. 'Alzada' has blue-green (5BG 4/2 Munsell) leaf color at booting while 'Kofa' has green color. (2.5G 4/4)
2. 'Alzada' has wanting glume shoulders while 'Kofa' has apiculate glume shoulders.

The above comparisons, along with the complete Objective Description (Exhibit C), show 'Alzada' to be a novel variety of durum wheat.

Table 1. Agronomic Characteristics of 'Alzada' compared to check varieties in Westbred, LLC trials. (1997-2003) (Average of 29 location/years)

Entry	Yield Lbs/A	T.W. Lbs/bu	Protein %	SDS Sed.	Semolina Color*	Plt. Hth Cm	Heading After 7/1	Lodging %
'Alzada'	5401	60.8	13.9	72	34.3	81	3	22
'Kronos'	5211	59.6	14.3	69	33.2	75	2	11
'Kofa'	4690	59.8	14.3	73	33.7	78	4	2

* 'b' value of semolina color measured by the Minolta Colorimeter

Table 2

MILLING AND PASTA QUALITY-AVERAGE 3 LOCATIONS*

	ALZADA	KRONOS	KOFA
% Protein	13.6	13.5	13.7
% Ash	1.74	1.73	1.78
gms/1000K	50.6	50.0	48.6
% Semolina Extraction	65.7	65.0	64.8
Specks	40	35	50
Alveograph			
W	212	183	268
P/L	2.0	2.0	1.3
Semolina Col: "b'	25.8	25.4	27.2
Pasta Analysis			
Color Score	10	10	9.5
Cooked Wt (g)	30.5	31.5	29.3
% Cooking Loss	7.5	7.6	6.5
Firmness Score	6.6	6.5	7.9

*Analysis Performed by the California Wheat Commission