

## Application for Variety Certification

### A. Variety Name:

D 3100

### B. Origin and Breeding History:

D 3100 semi-dwarf spring durum was derived from a F<sup>2</sup> head selection made in World Wide Wheat, LLC's (W<sup>3</sup>) 1993 Male Sterile Facilitated Recurrent Selection (MSFRS) quality durum population. In the F<sup>3</sup> generation, a "best plant" head selection was made at Moscow, Idaho under severe Hessian fly pressure. Best Plant Selection continued through the F<sup>4</sup>, and performance evaluation began in the F<sup>5</sup> generation. In 1996 at Maricopa the F<sup>6</sup> breeder strip was grown to supply basic germplasm for the variety. In 1997, a breeder strip was grown in Ronan, Montana; the seed source for approximately five (5) acres being increased for Foundation seed by Elk Grove Ranch in Kern County California in 1998.

Genetic recessive sterility utilized in development and off type plants were rogued out in the F<sup>6</sup> and subsequent increases in Montana and California. Because outcross seed set on unidentified male sterile plants and an apparent genetic tie with dominant black awned genes, one can expect 1 in 500 male sterile and/or black awned plants in the Foundation Planting. Head rows are being grown at Maricopa, Arizona in 1998 to decrease or eliminate continued occurrence of males steriles and black awns.

D 3100 has exhibited uniformity, repeated yield and quality stability when grown under low input regimes in Idaho & Montana. D 3100 continues to perform well under high input irrigated production in Arizona. It has excellent pasta qualities that are comparable with the identity preserved varieties in Arizona and rainfed durums in Montana. Data is presented.

### C. Detailed Description:

D 3100 is a semi-dwarf spring durum adapted to low input production and, except for the following differences, is similar and most like Utopia.

- 1) D 3100 has white glumes and awns; Utopia has white to tannish glumes with black semi-deciduous awns at maturity.
- 2) The backs of D 3100 glume beaks are white, while Utopia beaks are black and the color extends to ridge of glume shoulder.

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- 3) D 3100, like Mexicali 75, has a tendency to lodge, particularly when inputs are increased and weather is a factor. Utopia seldom lodges under any condition.
- 4) D 3100 will have spikes with 13 rachis internodes and 4.5 centimeters long, where Utopia spikes are more compact and will have 11 internodes and be 3.25 centimeters long.

D 3100 juvenile growth is erect to semi-erect without pigmentation. At maturity spikes are white with white long awns and are more lax than Utopia or Mexicali 75. Spikes are slightly tapered and typically incline at a 10% angle at Maturity. Plant height, maturity and test weight as well as seed size and weight will vary somewhat on the time, amount or degree of water and fertilizer input & weather conditions.

Seeds of D3100 durum are large, long, elliptical and collared with short, almost invisible brush at times, yellow amber color and generally free of black point and yellow berry. They have a shallow crease and rounded cheeks. With irrigated input, seed size and weight at 61 grams per 1000 kernels is greater than many I.P. varieties, although less than Utopia at 64.5 grams. Test weight for the 1996 production under high input condition was 65 lbs. per bushel.

#### D. Performance Data:

Durum Yield Trials conducted by Plant Breeder I. Moscow, Idaho  
Under low input (rainfall) conditions for 5 location years 1995-1996.  
Yield in pounds per acre.

	D 3100	D 8529	DOI 930	DOI 933	Westbred 881	Mexicali 75	Pennawawa
Joeln, MT 95	1,203	1,887	2,035	886	737	1,213	1,107
Tamany 95	1,048	746	328	1,027	811	883	1,871
Echo, OR 95	3,473	2,573	2,178	2,894	2,069	1,130	2,136
Tamany 98	1,029	1,156	1,170	-	1,977	645	1,214
Ferdinand	1,152	1,015	1,382	-	1,118	700	1,046
<b>Average</b>	<b>1,881</b>	<b>1,470</b>	<b>1,418</b>	<b>1,829</b>	<b>1,162</b>	<b>810</b>	<b>1,478</b>

1. Pennawawa is high yielding soft white wheat.
2. DOI 933 - Release name: LUTOPIA
3. Westbred 881 - Identity preserved durum variety with excellent quality.
4. Mexicali 75 - Low input check used in Arizona.