

## Registration of 'Utah-100' Wheat

'Utah-100' hard red winter wheat (*Triticum aestivum* L.) (Reg. no. CV-844, PI 594920) was developed by the Utah Agricultural Experiment Station (UAES) and released in 1996. Utah-100 is derived from the cross 'Weston'/'Ark'/'Manning' and was released to provide superior yield when grown under dryland conditions, where dwarf bunt (caused by *Tilletia controversa* Kühn in Rabenh.) can be severe. Utah-100 has a high level of resistance to dwarf bunt derived from PI 178383 and 'Ridit', two parents of Manning (1). PI 178383 is also a parent of Weston. Utah-100 was named to commemorate the centennial anniversary of Utah statehood.

The F<sub>2</sub> through F<sub>5</sub> generations were grown as bulks with selection for agronomic types and resistance to common bunt [caused by *Till. tritici* (Bjerk.) G. Wint. in Rabenh.] and dwarf bunt. Individual heads from desirable F<sub>5</sub> plants were selected and planted in 1985 as headrows in nurseries at the Greenville Experimental Farm, Logan, and Blue Creek Experimental Farm, Blue Creek, UT. The plants in headrows at the Greenville Experimental Farm were inoculated with dwarf bunt spores in the fall and selected for resistance and agronomic characteristics. Superior headrows were selected for agronomic traits at Blue Creek and resistance to dwarf bunt was determined for these selections in the Logan nursery. The resulting F<sub>5</sub>-derived lines were evaluated for yield and agronomic traits in an unreplicated plot nursery at Logan and Blue Creek in 1987, and in a replicated yield trial at Blue Creek in 1988. The lines continued to be tested for resistance to dwarf bunt in Logan.

Utah-100 was evaluated for yield and other agronomic traits in six nurseries, with four replications each, located at various sites in Utah from 1989 through 1995. Yields at 6 locations over 7 yr (42 site-years) averaged 2426 kg ha<sup>-1</sup> for 'Promontory' and 2502 kg ha<sup>-1</sup> for Utah-100. Additional yield evaluations were conducted from 1993 through 1995 in the Western Regional Hard Red Winter Wheat Nursery, where Utah-100 was tested under the designation UT000150. For these 3 yr (34 site-years), Utah-100 averaged 5436 kg ha<sup>-1</sup>.

Two hundred heads were selected from F<sub>15</sub> plants and grown as head rows in 1995. After roguing to remove nonuniform offtype rows, 175 F<sub>15</sub>-derived lines were harvested and bulked as breeder seed.

Utah-100 has awned, bronze-chaffed, fusiform, middense, and inclined spike characteristics. The coleoptile is white, and juvenile growth is semierect. The average heading date for Utah-100 is 4 d later than Manning. Plants are green at the boot growth stage and the flag leaf is recurved. The kernel is ovate, has rounded creaks, with a midwide, deep seed crease, and medium-sized brush length. The average height of Utah-100 is 4.8 cm taller than Manning and 4.3 cm shorter than Weston.

Bread-making quality was evaluated by the Pillsbury Mill in Ogden, UT, in 1989 and 1990. In subsequent years (1991-1995), Utah-100 was evaluated by the USDA-ARS Western Quality Laboratory in Pullman, WA. Milling characteristics of Utah-100 are slightly poorer than Manning primarily due to a slightly lower flour yield although flour protein is usually higher. Baking quality is equal to or better than Manning with higher loaf volumes, although Utah-100 does average 0.5 min shorter mix time.

Breeders seed of Utah-100 will be maintained by the Utah Agricultural Experiment Station at Logan.

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### References and Notes

1. Dewey, W.G. 1981. Registration of 'Manning' wheat. *Crop Sci.* 21:636.
2. Dep. of Plants, Soils, and Biometeorology, Utah State University, Logan, UT 84322-4820. Contribution of the Utah Agric. Exp. Stn., Journal Paper no. 3938. Registration by CSSA. Accepted 30 Sept. 1996. \*Corresponding author (dhole@mendel.usu.edu).