Registration of ‘Wendy’ Wheat

‘Wendy’ (Reg. no. CV-991, PI 638521) hard white winter wheat (*Triticum aestivum* L.) was developed by the South Dakota Agricultural Experiment Station and released to seed producers in August 2004. Wendy was released on the basis of its white grain color, excellent winter survival, earliness, and high yield potential in South Dakota and the northern Great Plains region. Wendy has been named in memory of Wendy Wickersham, secretary for South Dakota Wheat Inc. from 2003 to 2004.

Wendy was derived from the cross SD89333/‘Abilene’ (PI 511307) made in 1992. SD89333 is an experimental line from South Dakota State University with the pedigree ‘Gent’ (CItr17293) (Wells et al., 1977)/‘Siouxland’ (PI 483469) (Schmidt et al., 1985). Wendy was developed by means of the bulk breeding method. The cross (coded X92259) was advanced to the *F*₃ generation as a bulk population. Seed harvested from the *F*₃ bulk was sorted for white kernel color in 1995. The bulk of selected white kernels was coded X92259W and was grown in the greenhouse in spring 1996. Single heads were harvested from this selected *F*₄ bulk and planted in the field as head rows in fall 1996. Wendy was derived as an *F*₅ line selected by S.D. Haley in 1997. Wendy was evaluated as SD97W604 in the South Dakota Early Yeld Trial nursery in 1998. It was advanced to the South Dakota Advanced Yeld Trial in 1999 due to superior performance. It was tested in the South Dakota Crop Performance Testing (CPT) Variety Trial between 2000 and 2004, in the Northern Regional Performance Nursery during 2001 and 2002, and in the Southern Regional Performance Nursery in 2004.

Wendy is an awned, white-glummed, early maturing, semidwarf hard white winter wheat. Wendy has green foliage at anthesis. The spike is tapered, inclined, and middense. The glume size is medium, and the glume shoulder has a wanting shape. The beak is medium in length with an acuminate tip. Kernels are white, hard textured, and elliptical in shape with a collar less short brush, rounded cheeks, and a shallow crease.

In 16 site–years of testing between 2002 and 2004 in the South Dakota CPT, Wendy was the earliest maturing wheat (146 d to heading from 1 January), 1 d earlier than ‘Expedition’ (PI 629060), 3 d earlier than ‘Wesley’ (PI 605742), and 6 d earlier than ‘Harding’ (PI 608049) (LSD0.05, 1 d). Plant height (75 cm) of Wendy is similar to Wesley and 15 cm less than Harding. The winter survival of Wendy is good to excellent (93%) similar to Harding (94%). Wendy has a short coleoptile (60 mm; 86% of Wesley; 75% of Expedition; and 67% of Harding). No lodging of Wendy was observed in these trials. Wendy has fair to good preharvest sprouting resistance (3.7 score; 1 = highly resistant to 9 = highly susceptible), similar to ‘Trego’ (PI 612576) (3.4), higher than ‘Millennium’ (PI 613009) (5.0) and ‘Jerry’ (PI 632433) (8.0), and lower than Expedition (1.9) and ‘Nekota’ (PI 584997) (1.0). Based on its level of sprouting resistance, Wendy is best adapted to areas west of the Missouri River in South Dakota, where it is usually dry and the decrease in noodle brightness (L value) of Wendy is similar to Trego (4.2 g kg⁻¹) and slightly greater than Nuplains (4.3 g kg⁻¹). Flour protein of Wendy is lower than Nuplains (115 g kg⁻¹) and higher than Trego (110 g kg⁻¹). In bread baking tests, bake absorption (60 g kg⁻¹) was lower than both Nuplains (615 g kg⁻¹) and Trego (612 g kg⁻¹), while its loaf volume was similar (0.88 L) and higher than Trego (0.85 L). The mixograph tolerance (1.0) of both Trego (3.0) (0 = unacceptable, 4 = acceptable, 6 = excellent) and Wendy had a lower mixograph mix time (3.4 min) and Nuplains (5.1 min). Wendy was an acceptable, 4 = acceptable, 6 = excellent) mill and acceptable bread baking quality. Wendy has low grain polyphenol oxidase (PPO) levels [3.2, 27.7, 28.7, and 21.4%, respectively. Wendy is susceptible to WSMV were conducted by the USDA Cereal Disease Laboratory, St. Paul, MN, in 2002. Wendy was released on the basis of its white grain color, excellent winter survival, earliness, and high yield potential in South Dakota and the northern Great Plains region. Wendy has been named in memory of Wendy Wickersham, secretary for South Dakota Wheat Inc. from 2003 to 2004.

Composite milling and bread baking properties were determined in 2001 and 2002 in cooperation with the USDA-ARS Hard Winter Wheat Quality Laboratory in Manhattan, KS. Milling scores were poor while baking scores were poor. Relative to check cultivars Trego and ‘Nuplains’ (PI 605742), Wendy had a medium-sized kernels (28.2 vs. 29.0 and 28.7 g ± 0.6% respectively). Flour extraction of Wendy, Trego, and ‘Nuplains’ (PI 605742) were similar to Trego (4.2 g kg⁻¹) and slightly greater than Nuplains (4.3 g kg⁻¹). Flour protein of Wendy was lower than Nuplains (115 g kg⁻¹) and higher than Trego (110 g kg⁻¹). In bread baking tests, bake absorption (60 g kg⁻¹) was lower than both Nuplains (615 g kg⁻¹) and Trego (612 g kg⁻¹), while its loaf volume was similar (0.88 L) and higher than Trego (0.85 L). The mixograph tolerance (1.0) of both Trego (3.0) (0 = unacceptable, 4 = acceptable, 6 = excellent) and Wendy had a lower mixograph mix time (3.4 min) and Nuplains (5.1 min). Wendy was an acceptable, 4 = acceptable, 6 = excellent) mill and acceptable bread baking quality.