

and essentially covered (sparse on the edges) with long hairs, and have medium-length, semi-rough glume awns. Lemma awns are widely long, flaring, and semi-rough, and stigmas are heavily feathered. The seed is covered, mid-long, slightly wrinkled, with long rachilla hairs, and a slight crease at the base. Aleurone color is white and 1000-kernel weight averages 41 g. Most stems have a snaky shaped neck and most spikes are marked by a closed collar at the base.

Brigham is recommended for production under irrigation or where annual precipitation is 400 mm or more. Its relatively short, stiff straw makes it well suited for production under wheel-line or surface irrigation. In Utah irrigated tests (96 site years), average yield of Brigham (6881 kg ha⁻¹) exceeded ($P < 0.05$) that of Steptoe (6654 kg ha⁻¹) and Bracken (6212 kg ha⁻¹); it was exceeded ($P < 0.05$) by that of 'Century' (7307 kg ha⁻¹) and 'Statehood' (7315 kg ha⁻¹). Its yield was not significantly different from that of 'Rollo' (6840 kg ha⁻¹) or 'Walker' (6765 kg ha⁻¹). In the 1997 Western Regional Spring Barley test (12 sites), Brigham ranked second in grain yield (5522 kg ha⁻¹); its yield exceeded ($P < 0.05$) that of Steptoe (4935 kg ha⁻¹), but was not significantly different from that of 'Millennium' (5511 kg ha⁻¹).

Brigham headed the same time as Steptoe (168 d after 1 January in Utah tests, and 176 d in Western Regional tests); it headed five days earlier ($P < 0.05$) than Rollo (168 vs. 173 d) in Utah tests and was not significantly different from Century, Statehood, Walker, or Bracken. In Utah irrigated tests (92 site years), Brigham (86 cm) was shorter ($P < 0.05$) than Steptoe (94 cm), Century (96 cm), Statehood (90 cm), Rollo (93 cm), Walker (100 cm), and Bracken (94 cm). In the same Utah tests, Brigham's lodging (4%) was less ($P < 0.05$) than Steptoe (50%), Century (20%), Statehood (14%), Rollo (36%), Walker (15%), and Bracken (31%). Average test weight for Brigham (658 kg m⁻³) was significantly ($P < 0.05$) higher than that of Rollo (639 kg m⁻³) and was not significantly different from that of Steptoe, Century, Statehood, Walker, or Bracken in Utah tests, or from Steptoe in Western Regional Spring Barley tests. In Utah tests (24 site years), average percent protein from Brigham (127 g kg⁻¹) was higher ($P < 0.05$) than that of Steptoe (123 g kg⁻¹), and Rollo (116 g kg⁻¹), and lower than that of Century (137 g kg⁻¹), Statehood (135 g kg⁻¹), and Bracken (142 g kg⁻¹); it was not significantly different from that of Walker (131 g kg⁻¹).

Brigham has shown resistance to barley loose smut [caused by *Ustilago nuda* (Jens.) Rostr.] and covered smut [caused by *Ustilago hordei* (Pers.) Lagerh.], and moderate susceptibility to powdery mildew (caused by *Blumeria graminis* DC. f. sp. *hordei* Em. Marchal) under natural infection conditions. Preliminary tests have shown Brigham to be susceptible to barley stripe rust (caused by *Puccinia striiformis* Westend). Its reaction to other diseases is not known.

The generation sequence of seed production of Brigham is Breeder, Foundation, Registered, and Certified. Brigham is protected under the U.S. Plant Variety Protection Act (including Title 5 option), Certificate No. 200000168. Breeder seed is maintained by the UAES, Utah State University, Logan, UT 84322-4810. Foundation seed is available from the Utah Crop Improvement Association, Utah State University, Logan, UT 843220-4855.

R.S. Albrechtsen and D.J. Hole*

R.S. Albrechtsen and D.J. Hole, Dep. of Plants, Soils, and Biometeorology, Utah State Univ., Logan, UT 84322-4820. Contribution of the Utah Agric. Exp. Stn., Journal Paper No. 7281. Registration by CSSA. Accepted 30 Sept. 2001. *Corresponding author (dhole@mendel.usu.edu).

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Registration of 'Brigham' Barley

'Brigham' spring barley (*Hordeum vulgare* L.) (Reg. no. CV-293, PI 613579) was developed by the Utah Agricultural Experiment Station (UAES) and released in 1998. It was initially selected at Logan, UT, in 1990 as an F₆ line derived from a single F₅ spike selected in 1989 from the 1985 cross UT81B275-248/UT Short #1. UT81B275-248 is a six-rowed breeding line from the cross UT S.D. B1-1009 (a sib to 'Bracken')/'Steptoe'. UT Short #1 is a six-rowed, semi-dwarf breeding line selected at Logan, UT, from the cross S.D.S.S. (a South Dakota breeding line)/'Primus', made by Dr. Phil B. Price at South Dakota State University. F₁ plants were grown in the greenhouse during the winter of 1985-1986. Segregating generations (F₂-F₅) were space-planted at Logan, UT, and advanced by a modified bulk method wherein agronomically desirable plants were selected each year from 1986 through 1989. Individual spikes from 262 F₅ plants were selected in 1989, based on agronomic appearance, and were evaluated as F₆ head rows in 1990. The F₅-derived line from which Brigham originated was yield-tested under irrigation at Logan, UT, in 1991 and 1992, and annually thereafter at four irrigated sites and two nonirrigated sites in Utah, where it was identified as UT90B772-2120. It was evaluated in the Western Regional Spring Barley Nursery in 1997 and in the Western Regional Dryland Spring Barley Nursery (1995-1997) as UT002120. Breeder seed was produced at Logan, UT, in 1996 from 300 F₁₀-derived head rows selected in 1995. Rows questionable for trueness to type were rogued and remaining rows were harvested in bulk. Foundation seed was produced at Cove, UT, in 1997. Registered and Certified seed were produced in 1998 and 1999, respectively.

Brigham is a six-rowed, midseason, erect-growing, semidwarf spring feed barley. It has a slightly tapering, erect (lax-to-dense) spike, with essentially no overlap of lateral kernels, and rachis edges covered with short hairs. Brigham has waxy leaves and slightly waxy spikes. Glumes are of medium length