Registration of ‘Sundre’ Barley

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‘Sundre’ barley (Hordeum vulgare L.) (Reg. No. CV-332, PI 643445) is a six-rowed, hulled, smooth-awned, spring feed barley. It has medium-strong straw and is adapted to western Canada. Sundre was developed at the Field Crop Development Centre (FCDC) of Alberta Agriculture, Food and Rural Development (AAFRD). It was recommended by the Prairie Registration Recommending Committee for Grain–Barley and Oats Subcommittee for registration in February 2005. Sundre was registered in Canada (Reg. no. 6115) on 28 Apr. 2006. Sundre barley was named after the town of Sundre, Alberta, Canada.

Sundre barley is derived from the cross H92068 (BT 636/‘Tukwa’) made at the FCDC in 1992. The line BT 636 originated from the Lacombe Research Centre, Agriculture and Agri-Food Canada (AAFC). The pedigree of BT 636 is LA659-207/BT 324. LA659-207/BT 324 is a sister line of ‘Diamond’ (Kaufmann and Kibite, 1985), which originated from the cross of ‘Galt’/‘Unitan’ (Harder and Legge, 2000; Martin et al., 1991). Galt (Wells, 1967) is a Canadian cultivar, and Unitan (Eslick and Hockett, 1965) is an introduced cultivar to Canada from the USA. Line BT 324 is from the cross of NDB 135/Br. 6355-14. Line NDB 135 is a North Dakota six-rowed feed barley developed in the 1960s that was noted then for its good leaf disease resistance. The pedigree of NDB 135 is Dickson/3/CIho 4738//Traill/UM 570 (Peterson et al., 1968; Lambert, 1958). The pedigree of UM 570 is ‘Newal’ (CIho 6088)/‘Peatland’ (CIho 2613)/‘Montcalm’ (CIho 7149). Line Br. 6355-14 was developed in 1963 at the Brandon Research Centre, AAFC (likely a six-rowed malt cross), whose pedigree is not traceable.

Tukwa was released by the FCDC and registered in 1992 (Helm et al., 1996). Tukwa originated from the cross of I74161/‘Hiproly’. Hiproly (PI 60693) is a two-rowed hulless cultivar that originated from Ethiopia. The line I74161 (FCDC accession code number) was introduced as DL69 (PI383854) to the AAFRD barley program from the International Centre for Agricultural Research in Dry Areas (ICARDA)/International Improvement Centre (CIMMYT) program in 1984. I74161 is six-rowed, hulled, semi-dwarf barley developed in Punjab, India from the cross of BG643445 (PI383854) with an Indian barley variety, whose pedigree is not traceable.

Sundre was evaluated as line H92068001 in the AAFRD barley yield trials and as BT 566 in competitive Six-Rowed Barley trials. A modified pedigree method was used to advance early generation F2 generation was grown as a bulk population near Lacombe, Alberta in 1993. The whole F3 population was harvested in bulk and seed was screened for purifying resistance of 2.7 (on 0–9 scale), where 0 = no lodging and 9 = severe lodging. The lodging resistance of Sundre is lower than for ‘Vivar’. Sundre has an intermediate-erect form in appearance and bulked to form the breeder’s seed.

The selections from the California winter nursery were grown at Lacombe for subsequent bulking, and selected from 1994 to 1996. In 1996, 200 spikes were harvested in bulk and grown in 1997 as single-spike-derived progeny rows. Sundre was selected for single-spike-derived progeny rows in 1997 from yield trials in 1998 that were conducted in replicated plots and at multiple locations in Alberta. In 2003 and 2004, Sundre was evaluated in the Cooperative Six-Rowed Barley Test conducted at multiple locations across western Canada, AAFRD barley field trials and Western Cooperative Six-Rowed Barley tests.