Registration of ‘Sublette’ Barley

‘Sublette’ (Reg. no. CV-323, PI 639908), a two-rowed spring malting barley (Hordeum vulgare L.) was developed and released in 2005 by the USDA-ARS, Aberdeen, ID, in cooperation with the University of Idaho Agricultural Experiment Station. Sublette was named after William L. ‘Bill’ Sublette, an early explorer of the western United States, and the Sublette Reservoir, an outstanding natural area in southern Idaho.

Sublette was tested as experimental line 90Ab241 and is a selection from the cross A517/2 ‘Harrington’ (Harvey and Rossnagel, 1984). The parent A517 is a proanthocyanin-free selection from the line WA 9037–75 developed at Washington State University. WA 9037–75 has the pedigree ‘Klages’/4/ ‘Betzes’(PI 129430)/‘Heines Hanna’(PI 321794)/‘Piroline’ (PI 262218)/3/Foma (GSHO 467). Klages (Wesenberg et al., 1974) contributes significantly to both A517 and Harrington. Harrington is a two-rowed malting barley released by the Crop Development Centre, University of Saskatchewan, and is the current western two-rowed malting industry standard. Sublette has semismooth awns with a medium-lax spike. The kernel has long rachilla hairs and white aleurone. Sublette is adapted to both irrigated and dryland conditions of the U.S. Intermountain West.

In 1989, following pedigree selection for resistance to lodging, shattering, and favorable plant and spike type in the F2 through F4 generations grown under irrigated conditions at Aberdeen, ID, 100 spikes were selected from the cross A517/2 ‘Harrington and grown as rows in 1990. The row designated no. 241 was selected due to favorable spike type and resistance to lodging and shattering. It was given the designation 90Ab241 and entered into replicated yield trials in 1994.

Sublette was tested in various trials throughout Idaho from 1994 to 2002, and 2004. It was tested in both the Western Regional Spring Barley Nursery (WRSBN) and the Western Regional Dryland Spring Barley Nursery (WRDSBN) from 1996 to 1998. It was evaluated in the American Malting Barley Association (AMBA) sponsored pilot scale malt tests from 1999 to 2001 and received favorable ratings in 1999. In 2000 it was tested in the 1998 WRSBN.

Sublette was headed 1 d earlier and was 3 cm shorter than both Harrington and Merit. Sublette yielded 6554 kg ha\(^{-1}\) compared with 6304 and 6702 kg ha\(^{-1}\) for Harrington and Merit, respectively. Sublette had a test weight value of 64.5 kg hL\(^{-1}\) for Harrington, and had a test weight value of 64.8 kg hL\(^{-1}\) for Sublette. Sublette headed 1 d earlier than Harrington and was 2 cm shorter than Harrington.

In regional trials under natural infection of stripe rust (caused by Puccinia striiformis Westend.) at Tammeh, Sublette showed no symptoms of stripe rust while Harrington showed a trace. At Fairfield, MT, disease symptoms showed a trace. At Fairfield, MT, disease symptoms were very similar with values of 66.8, 66.6, and 65.8 kg hL\(^{-1}\) for Merit, Sublette, and Harrington, respectively. Based on these results, it is uncertain if Sublette is more resistant to stripe rust than Harrington and Sublette is considered to be highly resistant.

Malt quality was assessed under irrigated conditions at Aberdeen and Teton, ID from 1996 to 2001. Across years, Sublette7 averaged 95% plump kernels compared to 85% for Harrington and 88% for Merit. Sublette had similar values for percentage of malt extract with values of 80.1 and 80.2% while Harrington averaged 78.4%. Percent-grain protein values were similar, with values of 13.1% for Sublette, 13.0% for Harrington, and 13.2% for Merit. Sublette and Harrington each had test weights of 68.2 kg hL\(^{-1}\) compared with 67.5 kg hL\(^{-1}\) for Merit. Sublette was superior to both Harrington and Merit for kernel plumpness. Kernels retained on a sieve with 0.24 by 1.9 cm slotted openings (American Society of Brewing Chemists, 1992) were considered plump. Sublette had 92% plump kernels compared to 86% for Harrington and 84% for Merit. Sublette averaged 84% for plump kernels compared to 69% for Harrington and 74% for Merit.

Across 26 location–years from 1996 to 1999, Sublette yielded 5215 kg ha\(^{-1}\) compared with 5115 kg ha\(^{-1}\) for Merit and 5322 kg ha\(^{-1}\) for Merit. These yields were very similar with values of 66.8, 66.6, and 66.4 kg hL\(^{-1}\) for Sublette, Harrington, and Merit, respectively. Sublette headed 1 d earlier than Merit and was 2 cm shorter than Harrington and Merit. As was shown in other tests, Sublette had a significantly lower plump kernel than both Harrington and Merit. Sublette had 91% compared with 83% for Harrington and Merit.

Across 11 location–years in the 1998 WRDSBN, Sublette yielded 5100 kg ha\(^{-1}\) compared with 4998 kg hL\(^{-1}\) for Harrington and had 80% plump kernels compared with 71% for Harrington. Sublette and Harrington each had test weight values of 64.5 kg hL\(^{-1}\) and had heading dates of 64.5 kg hL\(^{-1}\). Sublette was 1 cm shorter than Harrington and was 2 cm shorter than Merit.

Across 26 location–years from 1996 to 1997 in the WRSBN, Sublette yielded 4835 kg ha\(^{-1}\) compared with 4998 kg hL\(^{-1}\) for Harrington, and had a test weight value of 64.5 kg hL\(^{-1}\) for Harrington. Merit and Sublette each headed 1 d earlier than Merit and was 2 cm shorter than Merit.

In WRDSBN trials across 11 location years from 1998 to 2001, Sublette and Harrington were evaluated for malt quality across nine location–years. Sublette and Harrington each yielded 5100 kg ha\(^{-1}\) compared with 4998 kg hL\(^{-1}\) for Harrington and had 80% plump kernels compared with 71% for Harrington. Merit and Sublette each headed 1 d earlier than Merit.

In 40 irrigated trials across Idaho from 1994 to 2002, Sublette yielded 5100 kg ha\(^{-1}\) compared with 4998 kg hL\(^{-1}\) for Harrington and had 80% plump kernels compared with 71% for Harrington. Merit and Sublette each headed 1 d earlier than Merit and was 2 cm shorter than Merit.