REGISTRATION OF ‘SURVIVOR’ WHEAT

‘SURVIVOR’ (Reg. no. CV-773, PI 509503) is a hard red winter (HRW) wheat (Triticum aestivum L.) developed by the University of Idaho and the USDA-ARS, released and distributed to growers in 1991. Survivor was developed for the high elevation (> 1500 m) regions of Idaho and Utah where snow molds (causal organisms Microdochium nivale (Fr.) Samuels & I.C. Hallet and Typhula spp.) are severely limiting for winter wheat production. In southeastern Idaho, Survivor has the highest level of snow mold tolerance of HRW wheat cultivars grown in the U.S. Pacific Northwest.

Survivor is a pure-line selection from the 1970 cross A7018W, which had the parentage A65257W 5-7-9/ A65345W 1-130. A65257W 5-7 was derived from a winter/spring cross II 60-1/56/Chr 14106/‘Itana’. A65345W 1-130 was also derived from a winter/spring cross, ‘Norin 10’/‘Anahua’ B’/‘Winalta’/‘3’/‘Moran’. Seed from the A7018W cross was advanced in bulk in the F₂ population which was grown in Teton, ID, in 1975–1976. Heads of plants that survived severe snow mold at Tetonia were selected from the F₂ bulk and planted in F₃ head rows at Aberdeen, ID, in 1976–1977. Bulk selection A7018W -1 from a single F₃ head row was tested in yield trials for 5 yr and then reselected at Preston, ID, in 1982, following severe reduction of stands due to snow mold (20% survival of A7018W-1). The reselection A7018W-P was tested in yield trials in southeast Idaho in 1983–1984 and 1984–1985. A 1985 composite of A7018W-P plants that survived snow mold in plots at Tetonia was designated IDO332 and tested in the Western Regional Hard Red Winter Wheat Nursery from 1985–1986 to 1988–1989. Survivor breeders seed was formed from IDO332 following two cycles of selection for uniformity of height, chaff color, and seed color in ~200 headrows grown at Aberdeen.

Survivor is an intermediate height, dryland winter wheat, similar in height to ‘Blizzard’ and 40 mm shorter than ‘Weston’ in rain-fed nurseries. Straw strength of Survivor is intermediate between ‘Sprague’ and Blizzard. Juvenile growth of Survivor is dark green, with light anthocyanin pigmentation of lower leaf sheaths. Flag leaves are elongate, and similar in dimensions to ‘Necley’, with a shallow angle of attachment similar to ‘Manning’. Flag leaf auricles have pubescence and light anthocyanin pigmentation. Heads are middense and awned. Glumes are glabrous, dark green at heading, and tan to tannish-white at maturity. The glumes are narrow and midlong to long in length, with shoulders wanting, and beaks acuminate and narrow. Kernels of Survivor are medium red, short to midlong, intermediate wide at the crease, and ovate, but more tapered at the brush end than ovate-kernelled Blizzard or Weston. Survivor’s kernels are narrow and midlong to long in length, with shoulders wanting, and beaks acuminate and narrow. Kernels of Survivor are medium red, short to midlong, intermediate wide at the crease, and ovate, but more tapered at the brush end than ovate-kernelled Blizzard or Weston. Survivor’s kernels are distinct, having a smaller embryo than other currently grown intermountain hard red winter wheats.

Survivor has snow mold tolerance superior to all current hard red winter wheats and comparable or superior to the soft white winter wheat Sprague. In 5 location–yr at Preston and Tetonia, ID, with significant snow mold stand reductions, Survivor had an average spring stand of 61%, compared with 54% for Sprague, 51% for Blizzard, and 34% for Manning. In yield trials with mild snow mold, average grain yields at Tetonia for Survivor, Sprague, Blizzard, and Manning for 1984 through 1989 harvests were 2620, 3225, 3493, 3426 kg ha⁻¹, respectively. In yield trials at Tetonia and Preston, grain yield of Survivor has equalled or exceeded Manning when snow mold has reduced Manning’s stand to 55% or less. Test weight of Survivor has averaged 13 kg m⁻³ less than Blizzard and 26 kg m⁻³ greater than Sprague. Survivor is moderately resistant to dwarf bunt (causal organism Tilletia controversa Kühn in Rabenh.) and moderately susceptible to stripe rust (causal organism Puccinia striiformis Westend). Survivor has a higher milling yield than other Pacific Northwest hard red winter wheats except Blizzard, and a grain protein content intermediate between Manning and Blizzard. Dough mixing time and mixograph mixing tolerance of Survivor are intermediate between Manning and Weston, with interior and exterior pup loaf bread texture equal or superior to Manning. Pup loaf bread volume of Survivor grown at Aberdeen for the years 1984 to 1988 was 7% lower than Manning.

Breeder and foundation seed of Survivor will be maintained by the Idaho Agricultural Experiment Station.

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References and Notes

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RELEASE OF ‘VANDAL’ SPRING WHEAT

‘VANDAL’ (Reg. no. CV-774, PI 546056), a hard red spring wheat (Triticum aestivum L.), was released in 1991 by the University of Idaho and the USDA-ARS in cooperation with the Washington Agricultural Experiment Station. Vandal is a semidwarf wheat developed for high yield environments in the U. S. Pacific Northwest.

Vandal is a pure-line selection from the 1978 cross A78540S of CM16716-M-3M-2&-3M-OY/A72483S-3-2. CM16716-M-3M-2Y-0Y is a CIMMYT breeding line also designated as ‘Cowbird Sib’ and A72483S-3-2 is an Aberdeen, ID, breeding line with the pedigree ‘McCall’/’Baigo 66’/’4’/’TPP’/’Sonora 64’/’73’/’Lee’/’No. 58’/’Thatcher’. A78540S was advanced by the bulk breeding method in the F₃ and F₄ generations. In 1981, head selections were made from the F₃ bulk and grown as F₄ headrows in 1982. The head selection from which Vandal was derived was designated A78540S-20 and tested in southeastern Idaho yield trials from 1983 to 1985. In 1986, A78540S-20 was entered in the Tri-State Spring Wheat Nursery as advanced breeding line IDO341. IDO341 was tested in the Western Regional Spring Wheat Nursery from 1987 to 1989. Vandal is a composite of ~200 selections derived from 250 head samples from IDO341 in 1988 and selected in 1989 and 1990 for uniformity.

Vandal is similar in height and tillering response to ‘Westbred 906R’ and ‘Westbred 926’. Vandal is a long-season spring wheat, heading 4 and 6 d later than ‘Copper’ and ‘Westbred 906R, respectively. Leaf color is intermediate green, similar to ‘Borah’; anthocyanin pigmentation is absent from stems, leaf auricles, and anthers. The flag leaves are broad and semiect, similar in size and shape to Westbred 926. The inflorescence of Vandal is awned, middense, with short, wide, glumes that are glabrous, having oblique shoulders and acuminate beaks. Chaff color of Vandal is white to yellow-white at maturity. Vandal has seed shape consistent with the USDA-FGIS standards for