Registration of ‘AC Hawkeye’ Barley

‘AC Hawkeye’ (Reg. no. CV-271, PI 600680) is a six-row hulless spring barley (Hordeum vulgare L.) cultivar developed at the Agriculture and Agri-Food Canada (AAFC) Research Centre, Brandon, MB; it was registered on 15 Nov. 1996 by the Canadian Food Inspection Agency, Ottawa, ON. AC Hawkeye was tested at Brandon and in the Western Huslless Barley Cooperative Test (1994–1995) under the experimental numbers H67-3 and HB 103, respectively. AC Hawkeye was selected from the cross ‘Conquest’/‘Post’//‘Virdent’/3/‘G01-1’//‘Tupper’. Line G01-1 is a sibling of ‘Klondike’. Tupper is the source of the hulless character.

The hybrid population (Brandon No. H67) was developed by hand crossing in controlled environment facilities at the Brandon Research Centre, AAFC, in 1987. Fifty-six F3 seed were planted in the greenhouse and harvested in bulk. F3 seed were planted in the field as a single 3-m-long row and were bulk-harvested. The procedure was repeated for the F4 generation using two rows 3 m long. Fifteen hundred seeds were chosen at random from the F3 bulk sample and were grown as F4 spaced plants with 1-m spacing. AC Hawkeye originated from a single plant selected from the F4 population based on visual assessment for spike size and conformity, number of fertile tillers, vigor, and relative absence of disease. F5 selections were grown as plots 3 m long and 1 m wide in a nearest-neighbor design, with CDC Buck as the check cultivar repeated every 20 plots. A single plot (H67-3) was selected from this F5 population on the basis of superior agronomic performance relative to CDC Buck, including yield, straw strength, test weight, maturity, and percent hull retention. H67-3 was tested in a replicated field trial in Brandon in 1991. H67-3 was tested also in the laboratory for resistance to a wide variety of foliar, spike, and root pathogens. H67-3 was then tested at two locations in 1992 (Brandon, MB; Oak River, MB) and advanced to the Eastern Prairie Barley Test (EPBT) in 1993 on the basis of merit in yield, straw strength, and kernel quality. The EPBT was grown at seven locations in Manitoba and Saskatchewan. H67-3 was then advanced as HB 103 to the Western Cooperative Hulless Barley Registration Test (WCHHBRT) in 1994 based on merit for yield and kernel quality.

Over three years of evaluation in the WCHHBRT, AC Hawkeye was higher yielding than Falcon (the high-yielding check cultivar) in eastern Black Soils (13%) and Brown Soils (7%) of western Canada, and equal in yield in the western Black Soil and Gray Wooded Soil zones. AC Hawkeye has a lower percent hull retention (11.3%) than the kernel-quality check cultivar Condor, as well as 10% plumper kernels. AC Hawkeye heads at the same time as Falcon and is similar in maturity. Straw strength is intermediate (3.5) to Falcon (1.0) and Condor (4.8), on a scale of 1 to 9, where 1 = no lodging and 9 = completely lodged. AC Hawkeye is a tall cultivar, averaging 14 cm taller than CDC Buck, which averages 94 cm across western Canada. The spike is large (≥20 cm), seminodding, and decumbent; the palea and lemma are nearly completely deciduous (97%). Kernels are large and wide, with yellow (white) aleurone. Kernel feed quality, based on energy and fiber content, is similar to Condor (feed-quality check cultivar). Lemma awns are smooth.

AC Hawkeye is resistant to scald [incited by Rhynchosporium secalis (Oudem.) J.J. Davis] and common root rot [incited by Cochliobolus sativus (Ito & Kuribayashi) Drechs. ex Dastur]; it is susceptible to net blotch (incited by Pyrenophora teres Drechs.), all forms of smuts (incited by various Ustilago spp.), and septoria leaf blotch (incited by Septoria passerinii Sacc.).

Seed from 300 uniform F1 head rows were bulked to constitute the breeder seed of AC Hawkeye. Breeder seed is being maintained by AAFC at the Indian Head Research Farm, Indian Head, SK, Canada. The Canadian distributor for AC Hawkeye is Prairie Pools Inc., Ultradiv Div., Alberta Wheat Pool, Camrose Seed Business Unit, 4715 65th Street, Camrose, AB, Canada, T4V 3M5.

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References and Notes
1. AAFC, Brandon Research Centre, Box 10000, R.R. #3, Brandon, MB, Canada, R7A 5Y3. Registration by CSSA. Accepted 28 Feb. 1996. *Corresponding author (MTherrien@em.agr.ca).

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Registration of ‘AC Rosser’ Barley

‘AC Rosser’ (Reg. no. CV-272, PI 600679) is a six-row spring barley (Hordeum vulgare L.) cultivar developed at the Agriculture and Agri-Food Canada (AAFC) Research Centre, Brandon, MB; it was registered on 20 Jan. 1997 by the Canadian Food Inspection Agency, Ottawa, ON. AC Rosser was tested at Brandon and in the Western Cooperative Six-Row Barley Registration Test (1994–1995) under the experimental numbers F180-2 and BT 377, respectively. AC Rosser was selected from the cross ‘Steptoe/BBT 351’//‘Heartland’//3//‘Galt’//‘Johnston’. Line BT 351 is from the cross ‘Bonanza’//WA6415-66//ND 136. WA6415-66 is a selection from Washington State University and ND 136 is a selection from North Dakota State University.

The hybrid population (Brandon cross F180) was developed by hand crossing in controlled environment facilities at the Brandon Research Centre, AAFC, in 1987. Forty-two F, seed were planted in the greenhouse and harvested in bulk. F3 seed were planted in the field as a single 3-m-long row and were bulk-harvested. The procedure was repeated for the F4 generation using two rows 3 m long. Fifteen hundred seeds were chosen at random from the F3 bulk sample and were grown as F4 spaced plants with 1-m spacing. AC Rosser originated from a single plant selected from the F4 population based on visual assessment for number of spikelets per spike, number of fertile tillers, vigor, and relative absence of disease. F5 selections were grown as plots 3 m long and 1 m wide in a nearest-neighbor design, with AC Lacombe and ‘Brier’ as alternating check cultivars repeated every 20 plots. A single plot (F180-2) was selected from this F5 population on the basis of superior agronomic performance relative to the mean values of AC Lacombe and ‘Brier’, including yield, straw strength, test weight, and maturity. F180-2 was tested in a replicated field trial in Brandon in 1991. F180-2 also was tested in the laboratory for resistance to a wide variety of foliar, spike, and root pathogens. F180-2 was then tested at two locations in 1992 (Brandon, MB; Oak River, MB) and advanced to the Eastern Prairie Barley Test (EPBT) in 1993 on the basis of merit in yield and overall agronomic performance. The EPBT was grown at seven locations in Manitoba and Saskatchewan. F180-2 was then advanced as BT 377 to the Western Cooperative Six-Row Barley Registration Test (WCSBRT) in 1994 based on merit for yield and agronomic performance.