Registration of ‘AC Alta’ Spring Triticale

‘AC Alta’ spring triticale (xTriticosecale Wittmack) (Reg. no. CV-14, PI 590945) was developed at the Semiarid Prairie Agricultural Research Centre, Research Branch, Agriculture and Agri-Food Canada, Swift Current, SK, as part of the Triticale Breeding Project. Canadian Reg. no. 4113 was issued for AC Alta in May 1995 by the Plant Health and Plant Products Directorate, Food Production and Inspection Branch, Agriculture and Agri-Food Canada. AC Alta is well adapted to the soils of the Canadian Prairies, with shorter and stronger straw than the best check cultivars. AC Alta has a large kernel that meets the criteria of the Canada Triticale class.

AC Alta was derived from a cross made at the University of Manitoba between CTN/CNO/3/BGL//Merino’S and Entry no. 169 (W74.103-ADX/BGL’S-M2AIRA) obtained from the International Maize and Wheat Improvement Centre (CIMMYT) via the 12th International Triticale Screening Nursery (ITSN).

AC Alta was developed using modified pedigree and early generation yield testing procedures. In 1984, when the triticale breeding program was terminated at the University of Manitoba, F3 head rows were introduced and selection was continued at Swift Current. The F3, F5, and F7 generations were grown in a winter nursery near Brawley, CA, to multiply seed for early generation yield tests. The F9, F12, and F16 generations were grown as replicated yield trials at Swift Current and Indian Head in Saskatchewan to evaluate agronomic performance. The line designated UMB401A-29E1 was evaluated in pre-cooperative tests in 1988 and entered into the Western Spring Triticale Cooperative Test in 1989 as T103. In 1990, the breeder lines were observed to be segregating for anthesis date. Late heading lines were selected and entered into the Western Spring Triticale Cooperative Test in 1991 as T122 and it was evaluated at 11 or 12 locations from 1991 to 1993. The 42 breeder lines grown at Swift Current during 1990 in 3-m rows and at Brawley during 1993–1994 in 7-m rows derive from an F0-derived F1 single-plant progeny row.

In 33 performance trials grown on the Canadian Prairies, AC Alta outyielded the best triticale check, ‘Frank’, by 6.0% and outyielded ‘Biggar’ spring wheat (Triticum aestivum L.) by 28.4%. The test weight of AC Alta (66.7 kg hl~1) is equal to that of ‘Wapiti’, but significantly (P < 0.05) less than that of Frank and ‘AC Copia’. The kernel weight of AC Alta is 47.5 mg, 3.3 mg greater than that of the largest check cultivar, AC Copia. AC Alta is 7 cm shorter than the shortest check, Frank, and more resistant to lodging than the best check cultivar, Wapiti. AC Alta is 1 d later in maturity than the checks Frank, Wapiti, and AC Copia. More detailed information can be found elsewhere (1).

AC Alta is resistant to the prevalent races of stem rust (caused by Puccinia graminis Pers.:Pers. f. sp. tritici Eriks. & E. Henn.), leaf rust (caused by P. recondita Roberge ex Desmaz. f. sp. tritici), and common bunt [caused by Tilletia laevis Kühn in Rabenh. and T. caries (DC.) Tul. & C. Tul.] and is moderately resistant to common root rot [caused primarily by Bipolaris sorokiniana (Sacc.) Shoemaker].

AC Alta is on average equal to Wapiti in protein content (94 g kg~1) and is 12 kg hl~1 lower than Biggar wheat; grain hardness is slightly softer than other check triticale cultivars; flour yield is equal to Wapiti. AC Alta is eligible for the grades of Canada Triticale.

AC Alta is suitable for food, feed, and industrial uses. The kernels are larger in size than the check cultivars, red (39 mg), and in maturity than the checks.

AC Alta has been released to Progressive Seeds Ltd., 155-4752 Ross St., Red Deer, AB T4N 1X2, Canada, for multiplication and distribution. Breeder seed will be maintained by the Seed Increase Unit of the Research Farm, Indian Head, SK, SOG 2K0, Canada.

References and Notes


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Registration of ‘AC Certa’ Spring Triticale

‘AC Certa’ spring triticale (xTriticosecale Wittmack) (Reg. no. CV-15, PI 590946) was developed by the International Maize and Wheat Improvement Centre (CIMMYT) and introduced by the Semiarid Prairie Agricultural Research Centre, Research Branch, Agriculture and Agri-Food Canada, Swift Current, SK, as Entry no. 20 of the 21st International Triticale Screening Nursery (ITSN) in 1989 as part of the Canada Rye Breeding Program. Canadian Reg. no. 4153 was issued for AC Certa in June 1995 by the Plant Health and Plant Products Directorate, Food Production and Inspection Branch, Agriculture and Agri-Food Canada.

AC Certa was selected from the progeny of a cross ‘Hare 263’/‘Civet’S’ made by CIMMYT at El Batan, Mexico, in 1982. AC Certa was developed using a modified pedigree system. The F2, F3, F4, F5, F6, F7, F8, and F12 generations were harvested in bulk, while the F2, F3, F5, F6, and F7 generations were space planted and harvested as individual plants. Full details are published elsewhere (1).

AC Certa was introduced in 1989 and designated 8930-020. The performance of AC Certa was evaluated in 1989 in the ITSN and in the Pre-Cooperative Triticale Tests at Swift Current and Indian Head, SK, in 1990 and at Swift Current, Stewart Valley, Indian Head, and Regina, SK, and Lacombe and Drumheller, AB, in 1991. AC Certa was subsequently evaluated under the experimental designation T128 in the Canadian Western Spring Triticale Cooperative Test from 1992 to 1994 at 12 locations on the southern Canadian Prairies each year.

AC Certa is well adapted to the soils of the Canadian Prairies with overall grain yield equal to the best check, ‘AC Alta’. On average, AC Certa was significantly greater (P < 0.05) yielding than ‘AC Copia’ and ‘Banjo’ triticale and the Canada Prairie Winter Triticale (CPWT) wheat (Triticum aestivum L.) cultivar ‘Biggar’. It was not significantly different from ‘Wapiti’, ‘Frank’, or AC Alta triticale.

The test weight of AC Certa (74 kg hl~1) represents a 3 kg hl~1 improvement over AC Copia, the best check cultivar. The kernel weight of AC Certa (41 mg) was significantly greater than Frank (39 mg), but less than all of the other check cultivars. AC Certa has good lodging resistance. AC Certa was 1 to 2 d earlier in maturity than the checks.

AC Certa has a long, middense, glaucous spike that is nodding, awned, and tapered at maturity. The chiast is white; the awns are long, white, and spreading at maturity. The glumes are narrow, long, glabrous, and white, with glume shoulders wanting and narrow and glume beaks narrow and acuminate. The kernel is red, soft, and elliptical, with rounded creases. The kernel crease is of medium depth and narrow. The brush hairs are of medium length,