



APPLICATIONS UNDER EXAMINATION

WHEAT

WHEAT (*Triticum aestivum*)

Proposed denomination: '5603HR'
Application number: 08-6392
Application date: 2008/06/26
Applicant: Syngenta Seeds Canada, Inc., Morden, Manitoba
Breeder: Kevin McCallum, Syngenta Seeds Canada, Inc., Morden, Manitoba

Variety used for comparison: 'McKenzie'

Summary: '5603HR' heads and matures later than 'McKenzie'. The pith in cross-section of '5603HR' is thinner than in 'McKenzie'. '5603HR' has sparser hairiness of the convex surface of the apical rachis segment of the spike than 'McKenzie'.

Description:

PLANT: spring type, erect to semi-erect growth habit

SEEDLING: absent or very weak intensity of anthocyanin colouration of coleoptile, absent or very weak pubescence on lower leaf sheaths, absent or very weak pubescence on lower leaf blades

FLAG LEAF: very high frequency of plants with recurved/drooping flag leaves, glabrous blades and sheaths, absent or very weak anthocyanin colouration of auricles, very weak to weak glaucosity of sheath

CULM NECK: absent or very weak glaucosity, very weak to weak curvature

STRAW: thin pith in cross section, strong anthocyanin colouration at maturity

SPIKE: tapering to parallel sided shape, lax to medium density, incline attitude and white at maturity, absent or very weak glaucosity, white awns present, long to very long awns, very strong spreading awn attitude, sparse to medium hairiness of convex surface of apical segment

LOWER GLUME: medium to wide width, short to medium length, medium pubescence, straight to elevated shape of shoulder, medium shoulder width, straight beak, very short beak, sparse internal hairs

LEMMA: straight beak

KERNEL: hard red type, dark red colour, small to medium sized kernel, short to midlong, midwide to wide, oval shape, rounded cheek shape, short brush hairs, medium sized brush, midsize to large germ, round shape of germ, midwide to wide crease, shallow crease

AGRONOMY: good resistance to pre-harvest sprouting

DISEASE RESISTANCE: moderately resistant to moderately susceptible to Fusarium head blight (*Fusarium graminearum* Fusarium species), resistant to moderately resistant to Common bunt (*Tilletia caries*, *Tilletia foetida*), moderately susceptible to Loose smut (*Ustilago tritici*), resistant to Leaf rust (*Puccinia triticina*) and moderately resistant to Stem rust (*Puccinia graminis* f.sp. *tritici*)

Origin and Breeding: '5603HR' (experimental designation BW388) originated from a cross of 'McKenzie'//FHB5227/Lars made in Berthoud, Colorado in 1998. Individual head selections were made from an F2 population at a breeding nursery in Rosebank, Manitoba in 2000. Single seed descent was used to advance the selections through the F3 and F4 generations in the greenhouse. In the summer of 2001, F5 headrows were individually bulked from a selection at Rosebank, Manitoba. The individual bulks in the F6 generation were screened and selected from a 2 location observation nursery in Rosebank, Manitoba in 2002. One of the bulk selections was designated 98S2015-02 and tested at Syngenta Seeds Canada research plots in 2003 and 2004. It was tested in the Central Bread Wheat Co-op as BW388 during 2005, 2006 and 2007 seasons. Selection criteria included height, maturity, yield, quality characteristics and disease reaction.

Tests and Trials: Test and trials were conducted during the summers of 2007 and 2008 in Rosebank, Manitoba. Plots consisted of 7 rows with a row length of 5 meters and a row spacing of 15 centimeters. There were 3 replicates arranged in a RCB design.

Comparison table for '5603HR'

	'5603HR'	'McKenzie'*
<i>Days to heading</i>		
2007	55.1	51.1
2008	55.8	52.2
<i>Days to maturity</i>		
2007	88.1	84.8
2008	84.3	82.0

*reference variety



Wheat: '5603HR' (right) with reference variety 'McKenzie' (left)



Wheat: '5603HR' (left) with reference variety 'McKenzie' (right)



Wheat: '5603HR' (right) with reference variety 'McKenzie' (left)

Proposed denomination: 'WR859 CL'
Application number: 08-6393
Application date: 2008/06/26
Applicant: Syngenta Seeds Canada, Inc., Morden, Manitoba
Breeder: Kevin McCallum, Syngenta Seeds Canada, Inc., Morden, Manitoba

Varieties used for comparison: 'Superb' and 'CDC Abound'

Summary: 'WR859CL' has absent to very weak anthocyanin colouration of the flag leaf auricles while it is strong in 'Superb'. The shape of the neck of the culm at maturity of 'WR859CL' is straighter than 'Superb' and 'CDC Abound'.

'WR859CL' has a less spreading awn attitude than 'Superb'. The hairiness of the convex surface of the apical rachis segment of the spike of 'WR859CL' is denser than 'Superb' and 'CDC Abound'. 'WR859CL' has a sloping to slightly sloping shape of the shoulder of the lower glume while it is slightly sloping to straight in 'Superb' and elevated in 'CDC Abound'. The width of the shoulder of the lower glume in 'WR859CL' is narrower than in 'Superb'. 'WR859CL' has a longer beak of the lower glume than 'Superb' and 'CDC Abound'. 'WR859CL' is resistant to Imazamox herbicides while 'Superb' is not.

Description:

PLANT: spring type, erect to semi-erect growth habit

SEEDLING: absent or very weak intensity of anthocyanin colouration of coleoptile, absent or very weak pubescence on lower leaf sheaths, absent or very weak pubescence on lower leaf blades

FLAG LEAF: high to very high frequency of plants with recurved/drooping flag leaves, glabrous blades and sheaths, absent to very weak anthocyanin colouration of auricles, very weak to weak glaucosity of sheath

CULM NECK: absent or very weak glaucosity, very weak to weak curvature

STRAW: thin pith in cross section, no anthocyanin colouration at maturity

SPIKE: tapering shape, medium density, incline attitude and white at maturity, absent or very weak glaucosity, white awns present, long to very long awns, medium spreading awn attitude, medium to dense hairiness of convex surface of apical segment

LOWER GLUME: medium width, medium length, medium to strong pubescence, sloping to slightly sloping shape of shoulder, very narrow to narrow shoulder width, slightly to moderately curved beak, long beak, sparse internal hairs

LEMMA: straight to slightly curved beak

KERNEL: hard red type, dark red colour, medium sized kernel, short to midlong, narrow to midwide, broad elliptical to elliptical shape, rounded cheek shape, midlong brush hairs, medium sized germ, oval shape of germ, narrow to midwide crease, deep crease

AGRONOMY: good resistance to pre-harvesting sprouting

DISEASE RESISTANCE: moderately resistant to Fusarium head blight (*Fusarium graminearum* Fusarium species) resistant to moderately resistant to Common bunt (*Tilletia caries*, *Tilletia foetida*) and Loose smut (*Ustilago tritici*), resistant to Leaf rust (*Puccinia triticinia*)

HERBICIDE RESISTANCE: resistant to Imazamox

Origin and Breeding: 'WR859CL' (experimental designation BW859) originated from the cross of BW267/3/(97S2199-105-1)AC Barrie//Butte 86*4/FS4 made in Berthoud, Colorado in 1999. Individual head selections were made from an F2 population screened with the Clearfield chemistry at the Syngenta Seeds Canada breeding nursery in Rosebank, Manitoba in 2000. Single seed descent was used to advance these selections through the F3 and F4 generations in a greenhouse. In 2001, F5 headrows were individually bulked from a selection that was screened using Clearfield at Rosebank, Manitoba. The individual bulks in the F6 generation were screened and selected from a 2 location observation nursery in 2002. One of the bulk selections was designated 99S2232-10 and tested in Syngenta Seeds Canada research yield plots in 2003 and 2004. It was tested in the Western Bread Wheat Co-op trials as BW859 during the 2005, 2006 and 2007 seasons. Selection criteria included height, maturity, yield, quality characteristics and disease reaction as well as resistance to Imazamox herbicide.

Tests and Trials: Test and trials were conducted during the summers of 2007 and 2008 in Rosebank, Manitoba. Plots consisted of 7 rows with a row length of 5 meters and a row spacing of 15 centimeters. There were 3 replicates arranged in a RCB design. 'CDC Abound' was grown in the 2008 trials only.



Wheat: 'WR859 CL' (right) with reference variety 'Superb' (left)



Wheat: 'WR859 CL' (right) with reference variety 'Superb' (left)