



APPLICATIONS UNDER EXAMINATION

WHEAT

WHEAT (*Triticum aestivum*)

Proposed denomination: '5604HR CL'
Previously proposed denomination: 'BW878'
Application number: 09-6690
Application date: 2009/07/21
Applicant: Syngenta Seeds Canada, Inc., Morden, Manitoba
Breeder: Francis Kirigwi, Syngenta Seeds Canada Inc., Morden, Manitoba

Varieties used for comparison: 'McKenzie' and 'WR859CL'

Summary: '5604HR CL' has a medium frequency of recurved flag leaves whereas 'McKenzie' has a high frequency and 'WR859CL' has a high to very high frequency. The straw pith of '5604HR CL' is thin in cross section whereas it is medium in thickness in 'McKenzie'. There is no anthocyanin colouration of the straw at maturity on '5604HR CL' whereas it is medium to strong in intensity on 'McKenzie'. The spike attitude at maturity of '5604HR CL' is erect whereas it is nodding on 'McKenzie' and inclined on 'WR859CL'. The spike of '5604HR CL' is longer than those of both reference varieties. The shoulder of the lower glume of '5604HR CL' is slightly sloping to straight whereas it is elevated on 'McKenzie'. The lower glume of '5604HR CL' is long whereas it is very short on 'McKenzie'. '5604HR CL' matures earlier than 'WR859CL'.

Description:

PLANT: spring type

SEEDLING (at four leaf stage): absent or very weak intensity of anthocyanin colouration of coleoptile, glabrous lower leaf sheath and blade

GROWTH HABIT (at 5-9 tiller stage): erect to semi-erect

FLAG LEAF (at booting): medium frequency of plants with recurved flag leaves, absent or very weak intensity of anthocyanin colouration on auricles, weak glaucosity on sheath, glabrous blade and sheath

SPIKE: very weak glaucosity, tapering, medium density, white in colour with erect attitude at maturity, medium hairiness of convex surface of apical rachis segment

CULM: absent or very weak glaucosity, very weak curvature

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

AWNS: present, long, very spreading attitude, white colour

LOWER GLUME: medium width and length, medium pubescence, sparse internal hairs

LOWER GLUME SHOULDER: narrow to medium width, slightly sloping to straight

LOWER GLUME BEAK: long, slightly curved

LOWEST LEMMA: slightly curved beak

KERNEL: hard red, dark to medium red, medium size, medium length and width, broad elliptical shape, rounded cheek, medium length brush hairs, medium to large round germ, medium width and deep crease

PERFORMANCE CHARACTERISTICS: good resistance to pre-harvest sprouting tendency, good bread making quality, resistant to Imazamox

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

Origin and Breeding: '5604HR CL' originated from the cross 'AC Barrie'//Butte86*4/FS4/3/ 'CDC Teal'*/4/ 'McKenzie'*/5/(BW288) 'AC Domain'*/2/'AC Cora' made at Berthoud, Colorado in 2000. Individual head selections were

made from an F2 population screened at the Syngenta Seeds Canada breeding nursery at Rosebank, Manitoba in 2001. Single seed descent was used to advance these selections through the F3 and F4 generations in the greenhouse. In the summer of 2002, F5 headrows were individually bulked from a selection nursery in Rosebank, Manitoba. The individual bulks (F6) were screened and selected from a two location observation nursery (Rosebank and Souris, Manitoba) in 2003. One of the bulk selections was designated 00S2142-7 and tested in Syngenta Seeds Canada research plots in 2004 and 2005. It was tested in the Western Bread Wheat Co-op as BW878 during 2006, 2007 and 2008 growing seasons. Eighty heads were picked for initial purity from an F8 (F4 derived) increase plot in 2005. Breeder seed was produced at Rosebank, Manitoba and Berthoud, Colorado in 2009.

Tests and Trials: Tests and trials for ‘5604HR CL’ were conducted during the 2008 and 2009 growing seasons at the Viterra Research Farm in Rosebank, Manitoba. Plots consisted of 6 rows, 5 meters in length by 1.4 meter in width with a row spacing of 15 cm. There were 3 replicates arranged in a RCB Design.

Comparison table for ‘5604HR CL’

	‘5604HR CL’	‘McKenzie’*	‘WR859CL’*
<i>Days to maturity</i>			
2008	82.3	82.6	84
2009	90.7	92.0	94
<i>Spike length (cm)</i>			
mean 2008	7.6	6.6	5.8
std. deviation	0.54	0.49	0.52
mean 2009	7.6	6.6	7.3
std. deviation	0.51	0.38	0.34

*reference varieties



Wheat: ‘5604HR CL’ (BW878) (left) with reference varieties ‘McKenzie’ (centre) and ‘WR859 CL’ (right)

Proposed denomination: 'Carberry'
Application number: 09-6613
Application date: 2009/04/20
Applicant: Agriculture & Agri-Food Canada, Swift Current, Saskatchewan
Agent in Canada: Agriculture & Agri-Food Canada, Lacombe, Alberta
Breeder: Ron De Pauw, Agriculture & Agri-Food Canada, Swift Current, Saskatchewan

Varieties used for comparison: 'Alsen', 'Stettler', 'CDC Go' and 'Superb'

Summary: *The plants of 'Carberry' have an intermediate growth habit while it is semi-erect in 'Stettler'. 'Carberry' has shorter flag leaves than those of 'Alsen'. The flag leaves of 'Carberry' are narrower than those of 'Stettler' and 'Superb'. 'Carberry' heads before 'Alsen', 'Stettler', and 'Superb'. 'Carberry' has no anthocyanin colouration of flag leaf auricles while it is medium in 'Superb'. The plants of 'Carberry' are shorter in height than those of 'Stettler'. 'Carberry' has shorter spikes than those of 'Alsen' and 'CDC Go'. The kernel size of 'Carberry' is small to medium while it is medium to large in 'Superb'. 'Carberry' has round embryos while they are oval in 'Alsen' and 'Superb'.*

Description:

PLANT: common spring type

SEEDLING (at four leaf stage): weak to medium intensity of anthocyanin colouration of coleoptiles, weak pubescence on lower leaf sheath and blade

GROWTH HABIT (at 5-9 tiller stage): intermediate

FLAG LEAF (at booting): medium to high frequency of plants with recurved flag leaves, no anthocyanin colouration on auricles, medium glaucosity on sheath, very weak to weak pubescence blade and sheath

SPIKE: parallel sided, medium density, weak to medium glaucosity, white with striated copper colour, erect attitude at maturity

CULM: medium glaucosity, very weak curvature at maturity

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

AWNS: present, medium long length, white

LOWER GLUME: narrow to medium width, short to medium length, glabrous

LOWER GLUME SHOULDER: slightly sloping to straight, absent or very narrow width

LOWER GLUME BEAK: slightly curved, short length

KERNEL: hard red type, small to medium size, oval to ovate in shape, predominantly rounded cheek, midlong brush hairs, large round germ, midwide to wide width with shallow to mid-deep crease

PERFORMANCE CHARACTERISTICS: good resistance to shattering, good resistance to drought, fair pre-harvest sprouting tendency, good bread quality

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

Origin and Breeding: 'Carberry' (experimental designation 'BW874') is the result of the cross Alsen/Superb made in 2000 at the Semiarid Prairie Agricultural Research Centre of Agriculture and Agri-Food Canada, Swift Current, Saskatchewan. Doubled haploid lines were generated using the maize pollen method. In 2002, individual doubled haploid lines were inoculated with Common bunt and a rust epiphytotic nursery was established. Spikes were selected from 534 disease resistant doubled haploid lines that also matured early and had strong stems of acceptable height. In 2004, agronomic performance was assessed on 191 doubled haploid lines which were grown in Saskatchewan and Manitoba. The experimental doubled haploid line B0065&AK043 was identified based on reaction to Leaf and Stem rust, Loose smut and Common bunt, in response to fusarium, and grain quality and kernel characteristics. The experimental line was evaluated in the Western Bread Wheat 'A_3' test in 2004, Western Bread Wheat B test in 2005, and as 'BW874' in the Western Bread Wheat Cooperative test from 2006 to 2008.

Tests and Trials: The trials of 'Carberry' (experimental designation 'BW874') were conducted during 2008 and 2009 at the Agriculture and Agri-food Canada Research Station, Swift Current, Saskatchewan. A 4 repetition randomised complete block design was planted with each replicate consisting of 4 rows, measuring 3 metres in length spaced 23 cm apart, and seeded at a rate of 220 seeds/square metre. Kernel characteristics were described by the Inspection Division, Canadian Grain Commission. 'Carberry' was also trialed and tested for agronomic characteristics, disease reaction, and end-use suitability in the Western Bread Wheat Cooperative Test 2006-2008.

Comparison table for 'Carberry'

	'Carberry'	'Alsen'*	'Stettler'*	'CDC Go'*	'Superb'*
<i>Flag leaf: length (cm)</i>					
mean	19.2	21.7	18.1	20.2	18.8
std. deviation	4.3	4.9	4.1	4.9	4.0
<i>Flag leaf: width (mm)</i>					
mean	14.0	14.7	15.3	14.3	15.3
std. deviation	1.6	1.5	1.8	1.6	1.1
<i>Height (cm)</i>					
mean	87.9	88.7	92.7	89.8	91.4
std. deviation	2.4	3.0	2.9	3.3	2.5
<i>Spike: length (excluding awns and awnlets) (cm)</i>					
mean	8.2	9.0	8.1	8.6	8.3
std. deviation	0.3	0.4	0.4	0.3	0.3
<i>Heading (number of days from planting to 50% of heads fully emerged from boot)</i>					
mean	59.0	61.3	61.3	57.4	63.0

*reference varieties



Wheat: 'Carberry' (BW874) (left) with reference varieties 'Alsen' (centre left), 'Stettler' (centre), 'CDC Go' (centre right), and 'Superb' (right)

Proposed denomination: 'Muchmore'
Application number: 09-6614
Application date: 2009/04/20
Applicant: Agriculture & Agri-Food Canada, Swift Current, Saskatchewan
Breeder: Ron De Pauw, Agriculture & Agri-Food Canada, Swift Current, Saskatchewan

Varieties used for comparison: 'Alsen', 'Stettler', 'CDC Go' and 'Superb'

Summary: *The plants of 'Muchmore' have an intermediate growth habit while it is semi-erect in 'Stettler'. 'Muchmore' has longer flag leaves than 'Stettler'. The frequency of plants with recurved/drooping flag leaves is medium to high in 'Muchmore' while it is low to medium in 'Stettler'. 'Muchmore' has weak to medium anthocyanin colouration of flag leaf auricles while it is absent to very weak in 'Alsen', 'Stettler', and 'CDC Go'. The plants of 'Muchmore' are shorter in height than those of 'Stettler', 'CDC Go', and 'Superb'. 'Muchmore' heads 3 days before 'Superb', but 3 days after 'CDC Go'. The spike attitude of 'Muchmore' is erect while it is inclined in 'CDC Go'. 'Muchmore' has shorter spikes than those of 'Alsen', but longer than those of 'Stettler' and 'Superb'. The kernel size of 'Muchmore' is small to medium while it is medium to large in 'Superb'. 'Muchmore' has an ovate kernel shape while it is oval in 'Alsen'. The kernel cheek shape of 'Muchmore' is angular while it is rounded in 'Alsen'.*

Description:

PLANT: common spring type

SEEDLING (at four leaf stage): weak to medium intensity of anthocyanin colouration of coleoptiles, weak pubescence on lower leaf sheath and blade

GROWTH HABIT (at 5-9 tiller stage): intermediate

FLAG LEAF (at booting): medium to high frequency of plants with recurved flag leaves, weak to medium anthocyanin colouration on auricles, medium glaucosity on sheath, very weak to weak pubescence on blade and sheath

SPIKE: parallel sided, medium density, medium glaucosity, striated copper colour, erect attitude at maturity

CULM: medium glaucosity, very weak curvature at maturity

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

AWNS: present, medium length, white

LOWER GLUME: narrow to medium width, short to medium length, glabrous

LOWER GLUME SHOULDER: slightly sloping, narrow width

LOWER GLUME BEAK: slightly curved, short length

KERNEL: hard red type, small to medium size, ovate in shape, angular cheek, midlong brush hairs, large round germ, midwide to wide width with mid-deep crease

PERFORMANCE CHARACTERISTICS: good resistance to shattering, good resistance to drought, fair pre-harvest sprouting tendency, good bread quality

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

Origin and Breeding: 'Muchmore' (experimental designation 'BW875') is the result of the cross Alsen/Superb made in 2000 at the Semiarid Prairie Agricultural Research Centre of Agriculture and Agri-Food Canada, Swift Current, Saskatchewan. Doubled haploid lines were generated using the maize pollen method. In 2002, individual doubled haploid lines were inoculated with Common bunt and a rust epiphytotic nursery was established. Spikes were selected from 534 disease resistant doubled haploid lines that also matured early and had strong stems of acceptable height. In 2004, agronomic performance was assessed on 18 doubled haploid lines which were grown in Saskatchewan and Manitoba. The experimental doubled haploid line B0065&BE057 was identified based on reaction to Leaf and Stem rust, Loose smut, Common bunt, in response to fusarium, and grain quality and kernel characteristics. The experimental line was evaluated in the Western Bread Wheat 'A_3' test in 2004, Western Bread Wheat B test in 2005, and as 'BW875' in the Western Bread Wheat Cooperative test from 2006 to 2008.

Tests and Trials: The trials of ‘Muchmore’ (experimental designation ‘BW875’) were conducted during 2008 and 2009 at the Agriculture and Agri-food Canada Research Station, Swift Current, Saskatchewan. A 4 repetitions randomised complete block design was planted with each replicate consisting of 4 rows, measuring 3 metres in length spaced 23 cm apart. Kernel characteristics were described by the Inspection Division, Canadian Grain Commission. ‘Muchmore’ was also trialed and tested for agronomic characteristics, disease reaction, and end-use suitability in the Western Bread Wheat Cooperative Test 2006-2008.

Comparison table for ‘Muchmore’

	‘Muchmore’	‘Alsen’*	‘Stettler’*	‘CDC Go’*	‘Superb’*
<i>Flag leaf: length (cm)</i>					
mean	20.2	21.7	18.1	20.2	18.8
std. deviation	4.0	4.9	4.1	4.9	4.0
<i>Heading (number of days from planting to 50% of heads fully emerged from boot)</i>					
mean	60.4	61.3	61.3	57.4	63.0
<i>Height (cm)</i>					
mean	85.4	88.7	92.7	89.8	91.4
std. deviation	3.3	3.0	2.9	3.3	2.5
<i>Spike: length (excluding awns and awnlets) (cm)</i>					
mean	8.5	9.0	8.1	8.6	8.3
std. deviation	0.4	0.4	0.4	0.3	0.3

*reference varieties



Wheat: ‘Muchmore’ (BW875) (left) with reference varieties ‘Alsen’ (centre left), ‘Stettler’ (centre), ‘CDC Go’ (centre right), and ‘Superb’ (right)

Proposed denomination: 'NRG010'
Application number: 09-6615
Application date: 2009/04/20
Applicant: Agriculture & Agri-Food Canada, Swift Current, Saskatchewan
Agent in Canada: Agriculture & Agri-Food Canada, Lacombe, Alberta
Breeder: Ron De Pauw, Agriculture & Agri-Food Canada, Swift Current, Saskatchewan

Varieties used for comparison: 'AC Crystal', 'AC Karma' and 'AC Vista'

Summary: *The intensity of anthocyanin colouration of the coleoptiles in 'NRG010' is absent or very weak while it is weak to medium in 'AC Crystal' and 'AC Karma'. 'NRG010' has absent or very weak anthocyanin colouration of the flag leaf auricles while it is weak to medium in 'AC Crystal' and medium in 'AC Vista'. The plants of 'NRG010' are taller than the reference varieties. 'NRG010' has longer spikes than those of 'AC Crystal'. 'NRG010' has white kernels while those of 'AC Crystal' are red in colour.*

Description:

PLANT: common spring type

SEEDLING (at four leaf stage): absent or very weak intensity of anthocyanin colouration of coleoptiles, weak pubescence on lower leaf sheath and blade

GROWTH HABIT (at 5-9 tiller stage): semi-erect to intermediate

FLAG LEAF (at booting): medium frequency of plants with recurved flag leaves, no anthocyanin colouration on auricles, medium glaucosity on sheath, weak pubescence on blade and sheath

SPIKE: parallel sided, medium density, medium to strong glaucosity, white in colour with predominantly inclined attitude at maturity

CULM: medium glaucosity, very weak curvature at maturity

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

AWNS: present, predominantly spreading attitude, white

LOWER GLUME: narrow to medium width, medium long, glabrous

LOWER GLUME SHOULDER: sloping, absent or very narrow width

LOWER GLUME BEAK: slightly curved, short length

KERNEL: hard white, large, ovate in shape, predominantly angular cheek, midlong to long brush hairs, midsize to large oval germ, midwide width with mid-deep crease

PERFORMANCE CHARACTERISTICS: good resistance to shattering, good resistance to drought

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

Origin and Breeding: 'NRG010' (experimental designation 'GP010') is the result of the cross 'ND2710'/'HY459'/'AC Vista' made in 2001 at the Semiarid Prairie Agricultural Research Centre of Agriculture and Agri-Food Canada, Swift Current, Saskatchewan. F2 seed were inoculated with Common bunt and grown in a Leaf and Stem rust epiphytotic nursery in Saskatchewan. Disease-free, strong-stemmed and early maturing individuals were selected and designated as CO104S. A subset of F2 seed was grown in a Fusarium head blight nursery in Manitoba. Spikes with low incidence of Fusarium head blight were selected and designated as CO104P. In the F3 generation, seeds from CO104S and CO104P were grown in New Zealand and plants with shorter stronger stature were selected. In the F4 generation, seeds were inoculated with Common bunt and grown in a Leaf and Stem rust nursery in Saskatchewan. The F5 generation was grown in New Zealand in a plant progeny row nursery. In the F6 generation, subpopulations were grown in replicated trials in Saskatchewan and Manitoba. The F7 generation was grown in New Zealand. The experimental line CO104P-DG44 was identified based on response to Leaf and Stem rust, Fusarium head blight, Loose smut and Common bunt and on grain quality and kernel characteristics. The experimental line CO104P-DG44 was evaluated in the Western Hard White 'B' test in 2006 and as 'GP010' in the 2007 High Yield Wheat Cooperative test and in the 2008 General Purpose Cooperative test.

Tests and Trials: The trials of 'NRG010' (experimental designation 'GP010') were conducted during 2008 and 2009 at the Agriculture and Agri-food Canada Research Station, Swift Current, Saskatchewan. A 4 repetition randomised complete block design was planted with each replicate consisting of 4 rows, measuring 3 metres in length spaced 23 cm apart, and seeded at a rate of 220 seeds/square meter. Kernel characteristics were described by the Inspection Division, Canadian Grain Commission. 'NRG010' was also trialed and tested for agronomic characteristics, disease reaction, and end-use suitability in the Western Bread Wheat Cooperative Test 2006-2008.

Comparison table for 'NRG010'

	'NRG010'	'AC Crystal'*	'AC Karma'*	'AC Vista'*
<i>Plant height (cm)</i>				
mean	90.8	83.0	87.8	86.3
std. deviation	2.5	2.8	2.9	2.7
<i>Spike: length (excluding awns and awnlets) (cm)</i>				
mean	10.2	9.2	9.8	9.7
std. deviation	0.4	0.4	0.5	0.6

*reference varieties



Wheat: 'NRG101' (GP010) (left) with reference varieties 'AC Crystal' (centre left), 'AC Karma' (centre right), and 'AC Vista' (right)

Proposed denomination: 'Princeton'
Application number: 08-6451
Application date: 2008/10/16
Applicant: Pflanzenzucht Oberlimpurg, Schwabisch Hall, Germany
Agent in Canada: C & M Seeds, Palmerston, Ontario
Breeder: Peter Franck, Pflanzenzucht Oberlimpurg, Schwabisch Hall, Germany

Varieties used for comparison: 'AC Morley' and 'Harvard'

Summary: The frequency of plants with recurved/drooping flag leaves is low to medium in 'Princeton' whereas it is high to very high in 'AC Morley' and high in 'Harvard'. The plants of 'Princeton' are taller than those of 'AC Morley' and shorter than those of 'Harvard'. The culm of 'Princeton' has medium glaucosity whereas 'Harvard' has strong to very strong glaucosity. At maturity, the spike of 'Princeton' is nodding whereas it is inclined in 'Harvard'. The awnlets at the tip of the spike of 'Princeton' are medium length whereas they are short on 'AC Morley'. The spike of 'Princeton' is longer than those of both reference varieties. The lower glume of 'Princeton' is medium to long whereas it is short to medium in 'AC Morley'. The shoulder of the lower glume of 'Princeton' is elevated whereas it is straight in both reference varieties. The beak of the lower glume of 'Princeton' is slightly curved whereas it is straight in 'AC Morley'. The germ of 'Princeton' is large whereas it is medium sized in both reference varieties.

Description:

PLANT: winter type, mid-season maturity

SEEDLING (at four leaf stage): absent or very weak intensity of anthocyanin colouration of coleoptile, glabrous lower leaf sheath and blade

GROWTH HABIT (at 5-9 tiller stage): erect

FLAG LEAF (at booting): low to medium frequency of plants with recurved flag leaves, no anthocyanin colouration on auricles, weak to medium glaucosity on sheath, glabrous blade and sheath

SPIKE: tapering, weak density, medium to strong glaucosity, white in colour with nodding attitude at maturity

CULM: medium glaucosity, very weak curvature at maturity

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

AWNS: awnlets present, medium length, white

LOWER GLUME: medium width, medium to long, glabrous

LOWER GLUME SHOULDER: elevated, narrow to medium width

LOWER GLUME BEAK: slightly curved, short to medium length

KERNEL: hard red type, dark red, large, medium to long, medium width, broad elliptical to elliptical in shape, angular cheek, long brush hairs, large oval germ

KERNEL CREASE: medium width, mid-deep to deep

PERFORMANCE CHARACTERISTICS: fair to good winter survival, fair to good bread making quality

DISEASE REACTION: moderately resistant to moderately susceptible to Septoria tritici blotch (*Septoria tritici*), moderately resistant to Powdery mildew (*Erysiphe graminis* f. sp. *tritici*), Fusarium head blight (*Fusarium graminearum*, *Fusarium* species), Leaf rust (*Puccinia triticina*), Stem rust (*Puccinia graminis* f. sp. *tritici*)

Origin and Breeding: 'Princeton' is the result of the cross FR227/17 x IP16/20 made in 1995 in Schwabisch Hall, Germany. Single plant selection was used from the F3 to F5 generations based on yield potential, milling and bread making quality and disease resistances. The F6 was bulked by random selection of the progeny of 600 single F5 plants. 'Princeton' was tested as ACS54037.

Tests and Trials: The tests and trials for 'Princeton' were conducted in Palmerston, Ontario during the 2008 and 2009 growing seasons. A 4 replicate RCB design was planted with each replicate consisting of 8 rows, measuring 4 metres in length, seeded at a rate of 400 seeds/square metre. Measured characteristics were based on a mean of two years, with 20 measurements recorded each year.

Comparison table for 'Princeton'

	'Princeton'	'AC Morley'*	'Harvard'*
<i>Plant height (cm)</i>			
mean	110.9	125.1	104.0
std. deviation	2.88	4.57	3.33

Spike length (mm)

mean	95.3	90.1	90.0
std. deviation	5.33	4.57	6.16

*reference varieties



Wheat: 'Princeton' (centre) with reference varieties 'AC Morley' (left) and 'Harvard' (right)



Wheat: 'Princeton' (centre) with reference varieties 'AC Morley' (left) and 'Harvard' (right)

Proposed denomination: 'Shaw'
Application number: 09-6616
Application date: 2009/04/21
Applicant: Agriculture & Agri-Food Canada, Winnipeg, Manitoba
Agent in Canada: Agriculture & Agri-Food Canada, Lacombe, Alberta
Breeder: Stephen Fox, Agriculture & Agri-Food Canada, Winnipeg, Manitoba

Varieties used for comparison: 'Harvest' and 'AC Barrie'

Summary: *The flag leaves of 'Shaw' are longer than those of both reference varieties. The flag leaves of 'Shaw' are wider than those of 'Harvest' and narrower than those of 'AC Barrie'. The plants of 'Shaw' head later than those of 'Harvest'. At maturity, the plants of 'Shaw' are taller than both reference varieties. The spike of 'Shaw' is longer than that of 'Harvest'. The spike of 'Shaw' is white at maturity whereas it is tan coloured on 'Harvest'. The lower glume of 'Shaw' is short with a medium to broad shoulder whereas the lower glume of 'AC Barrie' is medium in length with a narrow to medium width shoulder. 'Shaw' is resistant to current races of leaf rust (*Puccinia triticina*) whereas 'AC Barrie' is susceptible. 'Shaw' is susceptible to loose smut (*Ustilago tritici*) whereas 'AC Barrie' is resistant. 'Shaw' is resistant to Orange Blossom Wheat Midge (*Sitodiplosis mosellana*) whereas the reference varieties are susceptible.*

Description:

PLANT: spring type, medium intensity of anthocyanin colouration of coleoptile

SEEDLING (at four leaf stage): pubescence on lower leaf sheath and blade

GROWTH HABIT (at 5-9 tiller stage): semi-erect

FLAG LEAF (at booting): high frequency of plants with recurved flag leaves, no anthocyanin colouration on auricles, weak to medium glaucosity on sheath, no pubescence on blade and sheath

SPIKE: weak glaucosity, semi-clavate, medium density, white in colour with inclined attitude at maturity, very sparse hairiness of convex surface of apical rachis segment

CULM: weak to medium glaucosity

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

AWNS: awnlets present, moderately spreading attitude, white colour

LOWER GLUME: short, medium width, pubescent, very sparse internal hairs

LOWER GLUME SHOULDER: medium to broad, slightly sloping to straight

LOWER GLUME BEAK: very short, very slightly curved

LOWEST LEMMA: slightly curved beak

KERNEL: hard red, medium red, small to medium size, short to medium length, medium width, oval shape, angular cheek, medium length brush hairs, medium size round germ, narrow to medium width crease with very shallow depth

PERFORMANCE CHARACTERISTICS: good resistance to shattering, good bread making quality,

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

INSECT REACTION: resistant to Orange Blossom Wheat Midge (*Sitodiplosis mosellana*)

Origin and Breeding: ‘Shaw’ was derived from the cross, ‘Harvest’ (BW259)/BW313 (RL4979) made in 2001, and is one of 218 double haploids produced for this cross at the Agriculture & Agri-Food Canada Cereal Research Centre, Winnipeg, Manitoba in 2002. A doubled haploid line identified as BA51*B92 was increased at a contra season nursery in New Zealand in 2002-2003. In summer 2003, BA51*B92 was tested in a one location, single replicate yield test with associated disease nurseries to evaluate resistance to leaf rust, stem rust and Fusarium head blight. Following two years of testing in multi-location yield trials in 2004 and 2005, BA51*B92 was entered in the Central Bread Wheat Coop in 2006 under the experimental designation BW394.

Tests and Trials: The tests and trials used to described the morphology for ‘Shaw’ were conducted in Portage la Prairie, Manitoba during the 2008 and 2009 growing seasons. A 4 replicate RCB design was planted with each replicate consisting of 5 rows, measuring 4.3 metres in length, spaced 0.15 metres between rows and seeded at a rate of 269 seeds/square metre. Measured characteristics were based on a mean of two years, with 20 measurements recorded each year.

Comparison table for ‘Shaw’

	‘Shaw’	‘Harvest’*	‘AC Barrie’*
<i>Flag leaf length (cm)</i>			
mean	19.0	17.0	18.0
std. deviation	3.0	2.0	3.0
<i>Flag leaf width (mm)</i>			
mean	14.0	13.0	15.0
std. deviation	1.3	0.8	1.6
<i>Days to heading</i>			
mean	54	51	53
<i>Plant height (cm)</i>			
mean	112.0	99.0	106.0
std. deviation	5.5	4.9	7.2
<i>Spike length (cm)</i>			
mean	8.0	7.0	8.0
std. deviation	0.6	0.5	0.5

*reference varieties



Wheat: 'Shaw' (centre) with reference varieties 'AC Barrie' (left) and 'Harvest' (right)

Proposed denomination: 'Stanford'
Application number: 08-6452
Application date: 2008/10/16
Applicant: Pflanzenzucht Oberlimpurg, Schwabisch Hall, Germany
Agent in Canada: C & M Seeds, Palmerston, Ontario
Breeder: Peter Franck, Pflanzenzucht Oberlimpurg, Schwabisch Hall, Germany

Varieties used for comparison: 'Carlisle' and 'Maxine'

Summary: *The flag leaves of 'Stanford' are longer and narrower than those of both reference varieties. The plants of 'Stanford' are shorter than those of both reference varieties. 'Stanford' matures mid-season whereas 'Carlisle' matures early. The straw pith of 'Stanford' is thin in cross section whereas it is medium to thick in 'Carlisle'. The spike of 'Stanford' is shorter than that of 'Carlisle'. The lower glume of 'Stanford' is long with a moderately curved beak whereas it is medium length with a slightly curved beak in 'Maxine'. The beak of the lower glume of 'Stanford' is very long whereas it is long on 'Carlisle' and medium length on 'Maxine'.*

Description:

PLANT: winter type, mid-season maturity

SEEDLING (at four leaf stage): absent or very weak intensity of anthocyanin colouration of coleoptile, glabrous lower leaf sheath and blade

GROWTH HABIT (at 5-9 tiller stage): erect

FLAG LEAF (at booting): very low frequency of plants with recurved/drooping flag leaves, no anthocyanin colouration on auricles, medium to strong glaucosity on sheath, glabrous blade and sheath

SPIKE: tapering, medium to dense, weak glaucosity, white in colour with inclined attitude at maturity

CULM: weak to medium glaucosity, medium curvature at maturity

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

AWNS: awns present, short, spreading, white

LOWER GLUME: narrow to medium width, long, glabrous

LOWER GLUME SHOULDER: slightly sloping to straight, narrow

LOWER GLUME BEAK: moderately curved, very long

KERNEL: hard red type, dark red, medium to large, medium length, medium width, elliptical shape, rounded cheek, long brush hairs, large oval germ

KERNEL CREASE: medium width, mid-deep

PERFORMANCE CHARACTERISTICS: fair to good winter survival, good bread making quality

DISEASE REACTION: moderately susceptible to Septoria avenae blotch (*Septoria avenae* f. sp. *triticea*), moderately resistant to Powdery mildew (*Erysiphe graminis* f. sp. *tritici*), Fusarium head blight (*Fusarium graminearum*, *Fusarium* species), Leaf rust (*Puccinia triticina*), and Stem rust (*Puccinia graminis* f. sp. *tritici*)

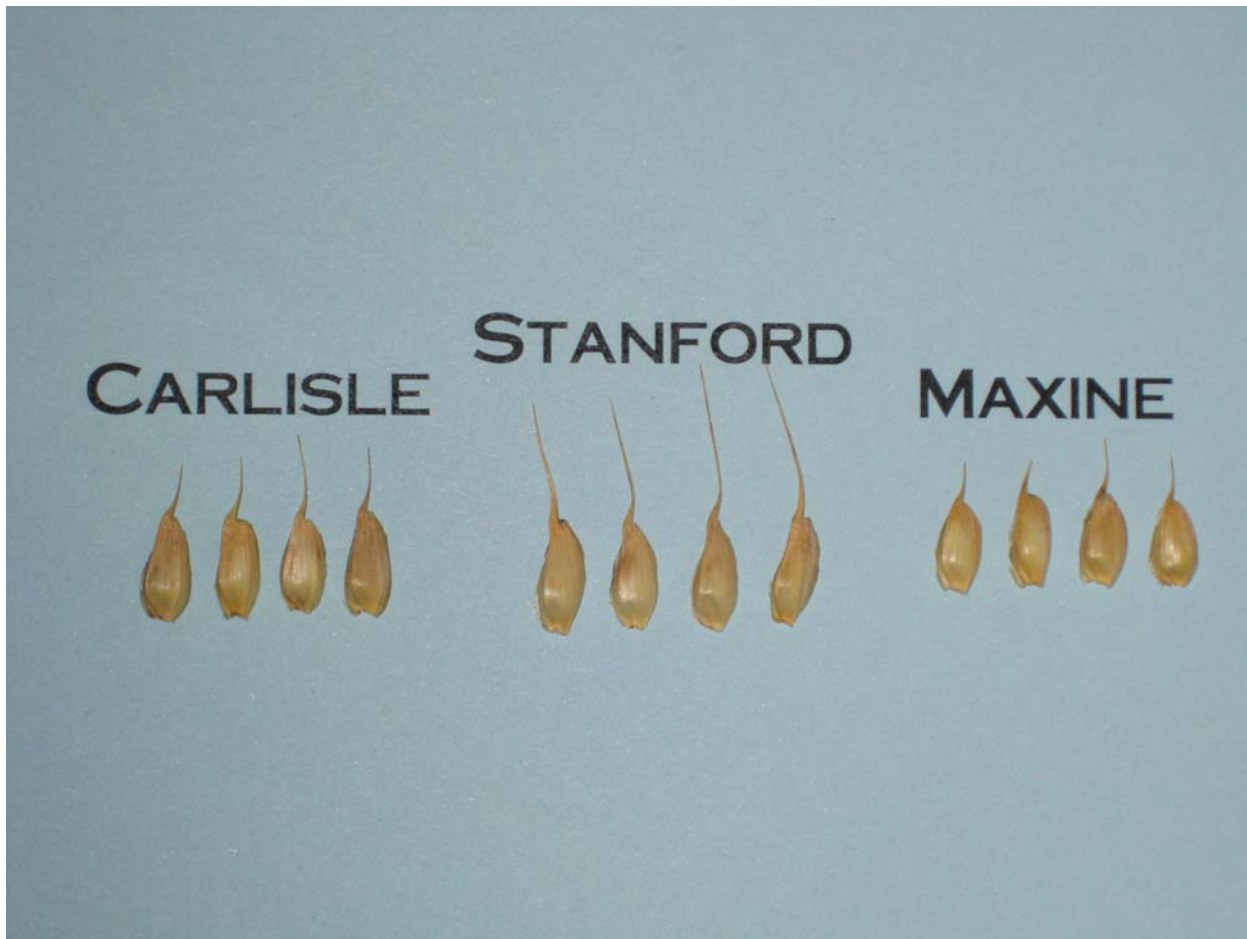
Origin and Breeding: ‘Stanford’ is the result of the cross 712-91/FR84-8 made in 1991 in Schwabisch Hall, Germany. Single plant selection was used from the F3 to F6 generations based on yield potential, resistance to lodging, milling and bread making quality and disease resistance. The F7 was bulked by random selection of the progeny of 600 single F6 plants. ‘Stanford’ was tested as ACS52062.

Tests and Trials: The tests and trials for ‘Stanford’ were conducted in Palmerston, Ontario during the 2008 and 2009 growing seasons. A 4 replicate RCB design was planted with each replicate consisting of 8 rows, measuring 4 metres in length, seeded at a rate of 400 seeds/square metre. Measured characteristics were based on a mean of two years, with 20 measurements recorded each year.

Comparison table for ‘Stanford’

	‘Stanford’	‘Carlisle’*	‘Maxine’*
<i>Flag leaf length (cm)</i>			
mean	24.4	20.5	22.1
std. deviation	2.42	1.75	2.58
<i>Flag leaf width (mm)</i>			
mean	16.5	18.0	17.2
std. deviation	1.09	1.22	1.52
<i>Plant height (cm)</i>			
mean	87	92	94
std. deviation	4.38	2.84	3.24
<i>Spike length (mm)</i>			
mean	74	80	74
std. deviation	4.02	2.82	4.56
<i>Days to maturity</i>			
mean	166	161	163

*reference varieties



Wheat: 'Stanford' (centre) with reference varieties 'Carlisle' (left) and 'Maxine' (right)

Proposed denomination: 'Whitebear'
Application number: 08-6453
Application date: 2008/10/16
Applicant: Pflanzenzucht Oberlimpurg, Schwabisch Hall, Germany
Agent in Canada: C & M Seeds, Palmerston, Ontario
Breeder: Peter Franck, Pflanzenzucht Oberlimpurg, Schwabisch Hall, Germany

Varieties used for comparison: 'Carlisle' and 'Maxine'

Summary: *The flag leaves of 'Whitebear' are longer and narrower than those of both reference varieties. The frequency of plants with recurved/drooping flag leaves is weak in 'Whitebear' whereas it is medium in 'Maxine'. The plants of 'Whitebear' are shorter than those of both reference varieties. Curvature of the culm of 'Whitebear' is weak whereas it is medium in 'Carlisle' and strong in 'Maxine'. The spike of 'Whitebear' is longer than those of both reference varieties. The beak of the lower glume of 'Whitebear' is moderately to strongly curved whereas it is slightly curved in 'Maxine'. 'Whitebear' is a hard white wheat variety whereas the reference varieties are both hard red varieties.*

Description:

PLANT: winter type, early to mid-season maturity

SEEDLING (at four leaf stage): absent or very weak intensity of anthocyanin colouration of coleoptile, glabrous lower leaf sheath and blade

GROWTH HABIT (at 5-9 tiller stage): erect

FLAG LEAF (at booting): low frequency of plants with recurved flag leaves, no anthocyanin colouration on auricles, medium glaucosity on sheath, glabrous blade and sheath

SPIKE: tapering, medium to dense, medium glaucosity, white in colour with nodding attitude at maturity

CULM: strong glaucosity, weak curvature at maturity

STRAW: medium to thick pith in cross section, no anthocyanin colouration at maturity

AWNS: awns present, medium length, white, strong spreading

LOWER GLUME: narrow, medium to long, glabrous

LOWER GLUME SHOULDER: sloping to slightly sloping, narrow to medium width

LOWER GLUME BEAK: moderately to strongly curved, medium to long

KERNEL: hard white type, white, large, medium to long, medium to wide, elliptical in shape, rounded to angular cheek, long brush hairs, large oval germ

KERNEL CREASE: medium width, mid-deep to deep

PERFORMANCE CHARACTERISTICS: fair winter survival, good bread making quality

DISEASE REACTION: moderately susceptible to Septoria avenae blotch (*Septoria avenae* f. sp. *triticea*), Fusarium head blight (*Fusarium graminearum*, *Fusarium* species), resistant to moderately resistant to Powdery mildew (*Erysiphe graminis* f. sp. *tritici*) and moderately resistant to Leaf rust (*Puccinia triticina*) and Stem rust (*Puccinia graminis* f. sp. *tritici*)

Origin and Breeding: ‘Whitebear’ is the result of the cross ‘Magda’/FW2-11 made in 1991 in Schwabisch Hall, Germany. Single plant selection was used from the F3 to F6 generations based on yield potential, resistance to lodging, milling and bread making quality and disease resistance. The F7 was bulked by random selection of the progeny of 600 single F6 plants. ‘Whitebear’ was tested as ACS54050.

Tests and Trials: The tests and trials for ‘Whitebear’ were conducted in Palmerston, Ontario during the 2008 and 2009 growing seasons. A 4 replicate RCB design was planted with each replicate consisting of 8 rows, measuring 4 metres in length, seeded at a rate of 400 seeds/square metre. Measured characteristics were based on a mean of two years, with 20 measurements recorded each year.

Comparison table for ‘Whitebear’

	‘Whitebear’	‘Carlisle’*	‘Maxine’*
<i>Flag leaf length (cm)</i>			
mean	26.5	20.5	22.1
std. deviation	2.04	1.75	2.58
<i>Flag leaf width (mm)</i>			
mean	15.5	18.0	17.2
std. deviation	1.05	1.22	1.52
<i>Plant height (cm)</i>			
mean	88	92	94
std. deviation	2.33	2.84	3.24
<i>Spike length (mm)</i>			
mean	86	80	74
std. deviation	4.91	2.82	4.56

*reference varieties



Wheat: 'Whitebear' (centre) with reference varieties 'Carlisle' (left) and 'Maxine' (right)



Wheat: 'Whitebear' (centre) with reference varieties 'Carlisle' (left) and 'Maxine' (right)

Proposed denomination: 'Wilkin'
Application number: 08-6436
Application date: 2008/09/17
Applicant: Pflanzenzucht Oberlimpurg, Schwabisch Hall, Germany
Agent in Canada: C & M Seeds, Palmerston, Ontario
Breeder: Peter Franck, Pflanzenzucht Oberlimpurg, Schwabisch Hall, Germany

Varieties used for comparison: '606' and 'Sable'

Summary: *The flag leaf sheath, the culm and spike of 'Wilkin' all have weak to weak to medium glaucosity whereas it ranges from strong to medium to strong on '606' and strong to weak to medium on 'Sable'. The plants of 'Wilkin' are taller than those of 'Sable'. At maturity, the spike of 'Wilkin' is white whereas it is brown on 'Sable'. 'Wilkin' has awnlets present whereas there are awns on both reference varieties. The spike of 'Wilkin' is longer than both reference varieties. The lower glume shoulder of 'Wilkin' is sloping to slightly sloping whereas it is elevated to strongly elevated with 2nd point present in 'Sable'. The kernel of 'Wilkin' is small whereas both reference varieties are medium sized.*

Description:

PLANT: spring type

SEEDLING (at four leaf stage): absent or very weak intensity of anthocyanin colouration of coleoptile, glabrous lower leaf sheath and blade

GROWTH HABIT (at 5-9 tiller stage): semi-erect

FLAG LEAF (at booting): low to medium frequency of plants with recurved flag leaves, no anthocyanin colouration on auricles, weak to medium glaucosity on sheath, glabrous blade and sheath

SPIKE: parallel-sided, medium to dense, weak glaucosity, white in colour with nodding attitude at maturity

CULM: weak glaucosity, very weak curvature at maturity

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

AWNS: awnlets present, very short

LOWER GLUME: narrow to medium width, short to medium length

LOWER GLUME SHOULDER: sloping to slightly sloping, narrow to medium width

LOWER GLUME BEAK: straight, short

KERNEL: hard red type, dark red, small, short, narrow to medium width, oval shape, angular cheek, medium to long brush hairs, large round germ

KERNEL CREASE: wide, shallow to mid-deep

PERFORMANCE CHARACTERISTICS: fair to good bread making quality

DISEASE REACTION: moderately susceptible to Septoria avenae blotch (*Septoria avenae* f. sp. *triticea*), Septoria nodorum blotch (glume blotch) (*Septoria nodorum*) and Fusarium head blight (*Fusarium graminearum*, *Fusarium* species) and moderately resistant to Powdery mildew (*Erysiphe graminis* f. sp. *tritici*), Leaf rust (*Puccinia triticina*), Stem rust (*Puccinia graminis* f. sp. *tritici*) and Yellow Dwarf Virus and BYDV.

Origin and Breeding: 'Wilkin' is the result of the cross KA/GACU/SX/5MS-Prog/ 'Kolibri'// 'Garant'/ Ke54B made in 1992 in Schwabisch Hall, Germany. Single plant selection was used from the F2 to F6 generations based on yield potential, milling and bread making quality and disease resistance. The F9 was bulked by random selection of the progeny of 600 single plants. 'Wilkin' was tested as ACS54617.

Tests and Trials: The tests and trials for 'Wilkin' were conducted in Palmerston, Ontario during the 2008 and 2009 growing seasons. A 4 replicate RCB design was planted with each replicate consisting of 8 rows, measuring 4 metres in length, seeded at a rate of 400 seeds/square metre. Measured characteristics were based on a mean of two years, with 20 measurements recorded each year.

Comparison table for 'Wilkin'

	'Wilkin'	'606'*	'Sable'*
<i>Plant height (cm)</i>			
mean	101	99	96
std. deviation	3.01	6.92	3.07
<i>Spike length (mm)</i>			
mean	87	74	82
std. deviation	3.28	3.4	3.96

*reference varieties



Wheat: 'Wilkin' (centre) with reference varieties '606' (left) and 'Sable' (right)

WHEAT

(*Triticum turgidum* subsp. *durum*)

Proposed denomination: 'CDC Verona'
Application number: 08-6316
Application date: 2008/04/29
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Agent in Canada: Paterson Grain Ltd., Winnipeg, Manitoba
Breeder: Curtis Pozniak, University of Saskatchewan, Crop Development Centre, Saskatoon, Saskatchewan

Varieties used for comparison: 'Strongfield', 'Commander' and 'AC Avonlea'

Summary: The anthocyanin colouration of the coleoptiles is absent or very weak in 'CDC Verona' while it strong in 'Strongfield' and weak to medium in 'Commander'. 'CDC Verona' has longer flag leaves than those of 'Strongfield' and 'Commander'. The frequency of plants with recurved/drooping flag leaves is medium in 'CDC Verona' while it is high in 'Strongfield' and high to very high in 'Commander'. The flag leaf attitude 'CDC Verona' is drooping while those of 'Strongfield' and 'AC Avonlea' are intermediate. The plants of 'CDC Verona' are taller than those of 'Commander'. 'CDC Verona' heads 3 days after 'Strongfield' and 'AC Avonlea' and 2 days after 'Commander'. The plants of 'CDC Verona' mature 4 days earlier than those of 'Commander'. The spike shape of 'CDC Verona' is parallel-sided while those of 'Strongfield' and 'Commander' are tapering and those of 'AC Avonlea' are semi-clavate. The spike density of 'CDC Verona' is medium while it is dense in 'Commander'. 'CDC Verona' has white spikes while those of 'Commander' are purple to

black. The awns of 'CDC Verona' are light brown while those of 'Commander' are black. The lower glumes of 'CDC Verona' are medium whereas they are wide on 'Commander'.

Description:

PLANT: durum type, spring season maturity

SEEDLING (at four leaf stage): absent or very weak intensity of anthocyanin colouration of coleoptiles, glabrous to slightly pubescent lower leaf sheath and blade

GROWTH HABIT (at 5-9 tiller stage): erect to semi-erect

FLAG LEAF (at booting): medium frequency of plants with recurved flag leaves, very weak to weak anthocyanin colouration on auricles, glabrous to slightly pubescent blade and sheath, drooping attitude

SPIKE: parallel sided, medium density, medium to strong glaucosity, white in colour with erect attitude at maturity

CULM: medium to strong glaucosity, strong curvature at maturity

STRAW: thin pith in cross section, absent to weak anthocyanin colouration at maturity

AWNS: present, longer than spike at the tip of spike, light brown, spreading attitude

LOWER GLUME: medium width, medium to long, glabrous

LOWER GLUME SHOULDER: straight, narrow to medium width

LOWER GLUME BEAK: slightly curved, short to medium length

KERNEL: hard amber, medium to large, elliptical in shape, predominantly rounded to slightly angular cheek, very short brush hairs, midsize oval germ, midwide width with mid-deep crease

Origin and Breeding: 'CDC Verona' (experimental designation 'DT540') is the result of the cross D95253/D95212 made in 1996 at the Crop Development Centre of the University of Saskatchewan, using a bulk technique. The F1 was increased at a contra-season in New Zealand and the F2 was planted in Saskatchewan. F2 plants selected and bulk harvested were grown in New Zealand as the F3 generation. F4 and F5 generations were planted in Saskatchewan in a leaf/stem rust nursery. The line D44-2428 was identified based on maturity and height and grown in 2000-2001 in Saskatchewan and Alberta. The F7 generation was grown in a rust nursery in Saskatchewan and selected based on performance, disease resistance, and grain quality. D44-2428 was further evaluated in various locations in Saskatchewan and Alberta in the Western Durum Wheat A-test in 2002 and advanced for yield trialing in the 2003 Durum Wheat B-test. D44-2428 was evaluated as 'DT540' in the Durum Wheat co-operative tests from 2004 to 2006. Selection criteria were yield potential, plant maturity, plant height, disease resistance, and grain quality.

Tests and Trials: The trials of 'CDC Verona' (experimental designation DT540) were conducted during 2008 and 2009 at the Crop Science Research Farm, Saskatoon, Saskatchewan. A two replicate, randomised complete block design was planted with each replicate consisting of 5 rows. The plot size was 4.5 square metres with a density of 230 plants per square metre.

Comparison table for 'CDC Verona'

	'CDC Verona'	'Strongfield'*	'Commander'*	'AC Avonlea'*
<i>Flag leaf: length (cm)</i>				
mean	18.9	15.5	15.8	17.1
std. deviation	1.94	1.85	1.71	3.22
<i>Heading (number of days from planting to 50% of heads fully emerged from boot)</i>				
days	63	60	61	60
<i>Maturity (number of days from planting to maturity)</i>				
days	94	95	98	94
<i>Height (cm)</i>				
mean	90	87	74	96
std. deviation	3.8	4.1	3.3	4.2

*reference varieties



Wheat: 'CDC Verona' (centre left) with reference varieties 'AC Avonlea' (left), 'Commander' (centre right), and 'Strongfield' (right)