



APPLICATIONS UNDER EXAMINATION

WHEAT

WHEAT (*Triticum aestivum*)

Proposed denomination: 'AAC Broadacres'
Application number: 19-9833
Application date: 2019/05/01
Applicant: Agriculture & Agri-Food Canada, Swift Current, Saskatchewan
Agent in Canada: Agriculture & Agri-Food Canada, Saskatoon, Saskatchewan
Breeder: Richard Cuthbert, Agriculture & Agri-Food Canada, Swift Current, Saskatchewan

Varieties used for comparison: 'AAC Alida', 'Carberry', 'AAC Starbuck' and 'AAC Wheatland'

Summary: *The coleoptile of 'AAC Broadacres' has an absent or very weak to weak intensity of anthocyanin colouration while the coleoptile of 'AAC Alida' has a strong to very strong intensity of anthocyanin colouration. At booting, the frequency of plants with recurved flag leaves is medium to high for 'AAC Broadacres' while the frequency is low to medium for 'AAC Alida'. The intensity of anthocyanin colouration on the flag leaf auricles of 'AAC Broadacres' is absent or very weak while the intensity is medium to strong on the auricles of 'AAC Alida'. At maturity, the plants of 'AAC Broadacres' are shorter than the plants of 'AAC Alida' and taller than those of 'Carberry' and 'AAC Wheatland'. The awns of 'AAC Broadacres' are equal to or longer than the length of the spike while those of the reference varieties are shorter than the spike. The spike of 'AAC Broadacres' has an erect attitude while the spike of 'AAC Starbuck' has an inclined attitude.*

Description:

PLANT: common spring type, intermediate growth habit at the 5 to 9 tiller stage, medium to high frequency of plants with recurved flag leaves, heads emerge mid-season

SEEDLING (4 LEAF STAGE): absent or very weak to weak intensity of anthocyanin colouration of coleoptile, glabrous sheath and blade of lower leaves

FLAG LEAF: absent or very weak intensity of anthocyanin colouration of auricles, medium degree of glaucosity of sheath and lower side of leaf blade, glabrous blade and sheath

CULM: medium to strong glaucosity

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

SPIKE: medium to strong glaucosity at heading, tapering and parallel sided shape in profile, lax to medium density, white at maturity, erect attitude

AWNS: equal to or longer than length of spike, white at maturity

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

LOWER GLUME BEAK: short to medium length, straight to slightly curved shape

KERNEL: hard red, dark red

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

Origin and Breeding: 'AAC Broadacres' (experimental designations B0919-EJ05C and BW5028) originated from the cross between 'Vesper' and 'Carberry' with a subsequent backcross to 'Carberry' made in 2009 at the Swift Current Research and Development Centre of Agriculture and Agri-Food Canada in Swift Current, Saskatchewan. In 2010, the F1 seeds were increased and 10,000 F2 seeds space planted in an epiphytotic field nursery near Swift Current, Saskatchewan. Based on straw strength, time of maturity, kernel characteristics and disease resistance, 286 F2 lines were selected and grown in head rows in a contra season nursery in Lincoln, New Zealand in 2011. Based on relative maturity, plant height and straw strength, 157 F3 lines were selected, harvested individually and the F4 grown in four-row plots in locations near Swift Current, Indian Head and Regina, Saskatchewan and assessed for disease resistance near Portage la Prairie, Manitoba. Based on agronomic performance, 46 families were selected and grown as head rows in Irwell, New Zealand. F5 selections were based on grain

quality and kernel attributes and 179 lines grown in yield trials located near Swift Current, Indian Head and Lacombe, Alberta and assessed for disease resistance near Portage la Prairie, Manitoba. Satisfying all criteria, in 2013, a single F6 plant was identified as B0919-EJ05C. From the F6 to F8 generations, further agronomic assessments were conducted in multiple locations in Western Canada and near Irwell, New Zealand while disease reactions were assessed in Carman and Glenlea, Manitoba and near Swift Current, Saskatchewan. B0919-EJ05C was evaluated in the Western Bread Wheat 2 test in 2014, in the Western Bread Wheat B test in 2015 and as BW5028 in the Western Bread Wheat Registration test from 2016 to 2018.

Tests and Trials: The comparative trials of ‘AAC Broadacres’ were conducted during the 2018 and 2019 growing seasons at the Agriculture and Agri-Food Canada Swift Current Research and Development Centre, Swift Current, Saskatchewan. There were 4 replicates arranged in an RCB Design. Plots consisted of 4 rows, with a row length of 4 metres and row spacing of 23 cm. Measured characteristics were based on 20 measurements per variety per year. Mean differences are significant at the 5% probability level based on LSD values. Insect reaction ratings were provided through the Western Bread Wheat C Registration Trials conducted 2016 to 2018.

Comparison table for ‘AAC Broadacres’

	‘AAC Broadacres’	‘AAC Alida’*	‘Carberry’*	‘AAC Starbuck’*	‘AAC Wheatland’*
<i>Plant height at maturity (including awns) (cm)</i>					
mean 2018 (LSD=1.3)	90.5	93.0	86.4	89.4	87.6
std. deviation 2018	2.0	2.4	2.5	2.8	1.8
mean 2019 (LSD=1.5)	91.9	96.5	88.5	90.3	89.4
std. deviation 2019	2.7	2.7	3.0	2.5	2.8

*reference varieties



Wheat: ‘AAC Broadacres’ (left) with reference varieties ‘AAC Alida’ (centre left), ‘Carberry’ (centre), ‘AAC Starbuck’ (centre right) and ‘AAC Wheatland’ (right)



Wheat: 'AAC Broadacres' (left) with reference varieties 'AAC Alida' (centre left), 'Carberry' (centre), 'AAC Starbuck' (centre right) and 'AAC Wheatland' (right)

Proposed denomination: 'AAC Russell'
Application number: 19-9834
Application date: 2019/05/01
Applicant: Agriculture & Agri-Food Canada, Swift Current, Saskatchewan
Agent in Canada: Agriculture & Agri-Food Canada, Saskatoon, Saskatchewan
Breeder: Richard Cuthbert, Agriculture & Agri-Food Canada, Swift Current, Saskatchewan

Varieties used for comparison: 'AAC Alida', 'BW876', 'Carberry' and 'AAC Starbuck'

Summary: *The coleoptile of 'AAC Russell' has a strong to very strong intensity of anthocyanin colouration while the coleoptile of 'Carberry' and 'AAC Starbuck' have an absent or very weak to weak intensity of anthocyanin colouration. At booting, the frequency of plants with recurved flag leaves is high for 'AAC Russell' while the frequency is low to medium for 'AAC Alida' and 'BW876'. The intensity of anthocyanin colouration on the flag leaf auricles of 'AAC Russell' is absent or very weak while it is medium to strong on the auricles of 'AAC Alida' and of a medium intensity on the auricles of 'BW876'. At heading, the spike of 'AAC Russell' has a weak degree of glaucosity while the spike of 'AAC Alida' has a medium to strong degree of glaucosity. At maturity, the plants of 'AAC Russell' are shorter than the plants of 'AAC Alida' and taller than those of 'Carberry'. The spike of 'AAC Russell' has an inclined attitude while the spike of 'AAC Alida' and 'BW876' have an erect attitude.*

Description:

PLANT: common spring type, intermediate growth habit at the 5 to 9 tiller stage, high frequency of plants with recurved flag leaves, heads emerge early to mid-season

SEEDLING (4 LEAF STAGE): strong to very strong intensity of anthocyanin colouration of coleoptile, glabrous sheath and blade of lower leaves

FLAG LEAF: absent or very weak intensity of anthocyanin colouration of auricles, medium glaucosity of sheath and lower side of leaf blade

CULM: weak to medium glaucosity

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

SPIKE: weak glaucosity at heading, parallel sided shape in profile, medium density, white at maturity, incline attitude

AWNS: longer than length of spike, white at maturity

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

LOWER GLUME BEAK: short, straight to slightly curved shape

KERNEL: hard red, dark red

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

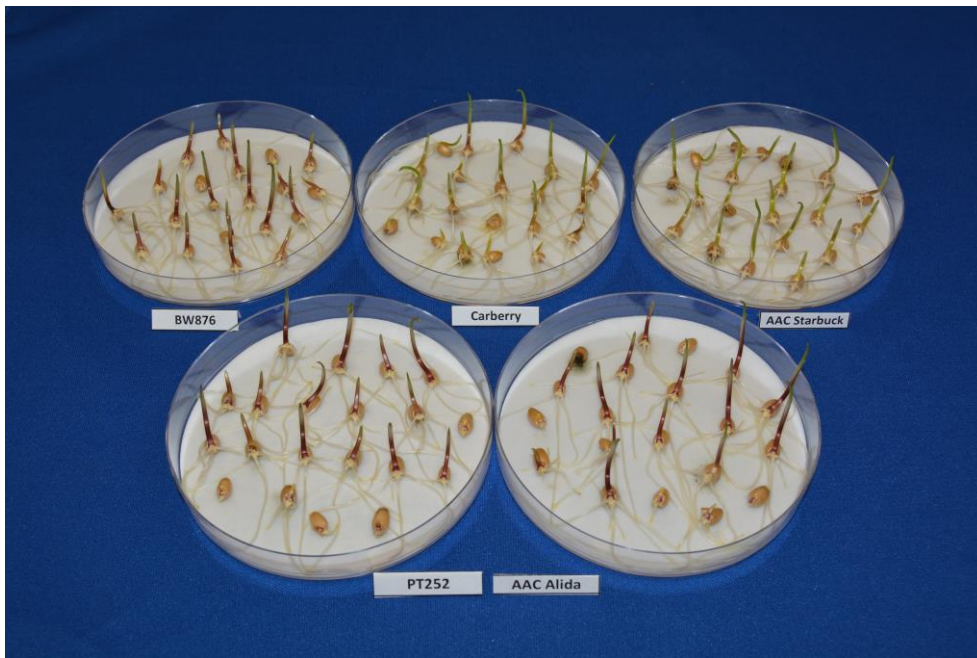
Origin and Breeding: ‘AAC Russell’ (experimental designations B0921-CX03B and PT252) originated from the cross between ‘BW876’ and ‘CDC Kernen’ and a subsequent cross to ‘Carberry’, made in 2009 at the Swift Current Research and Development Centre of Agriculture and Agri-Food Canada in Swift Current, Saskatchewan. In 2010, the F1 plants were increased in a greenhouse and screened for the Orange Wheat Blossom Midge resistance gene. Approximately 10,000 F2 seeds were space planted in an epiphytotic field nursery near Swift Current, Saskatchewan. Based on plant stature, time of maturity, straw strength, disease resistance and kernel characteristics, 303 F2 lines were sent to a contra season nursery in Lincoln, New Zealand in 2011. Remnant F3 seed was concurrently screened for the presence of the genes linked to Orange Wheat Blossom Midge and leaf rust resistance. Based on relative maturity, plant height, straw strength and the genotyping results, 76 F3 lines were selected, harvested individually and the F4 grown in four-row plots near Swift Current, Indian Head and Regina, Saskatchewan to assess yield and agronomic performance and assessed for disease resistance near Portage la Prairie, Manitoba. Based on agronomic performance, 18 families were selected from the trials near Swift Current and the F5 grown as head rows in Irwell, New Zealand. Lines were selected from these acceptable families based on additional assessment of grain quality and kernel attributes from remnant seed from the F4 yield trials. 76 F6 lines were selected and grown in yield trials near Swift Current and Indian Head, Saskatchewan and Lacombe, Alberta and assessed for disease resistance in a nursery near Portage la Prairie. Satisfying all criteria, in 2013, a single F6 plant was identified as B0921-CX03B. From the F6 to F8 generations, further agronomic assessments were conducted in multiple locations in Western Canada and near Irwell, New Zealand while disease reactions were assessed in Carman and Glenlea, Manitoba and near Swift Current, Saskatchewan. B0921-CX03B was evaluated in the Western Bread Wheat 3 test in 2014, in the Western Bread Wheat B test in 2015 and as PT252 in the Parkland Wheat Registration test from 2016 to 2018.

Tests and Trials: The comparative trials of ‘AAC Russell’ were conducted during the 2018 and 2019 growing seasons at the Agriculture and Agri-Food Canada Swift Current Research and Development Centre, Swift Current, Saskatchewan. There were 4 replicates arranged in an RCB Design. Plots consisted of 4 rows, with a row length of 4 metres and row spacing of 23 cm. Measured characteristics were based on 20 measurements per variety per year. Mean differences are significant at the 5% probability level based on LSD values. Insect reaction ratings were provided through the Western Bread Wheat C Registration Trials conducted 2016 to 2018.

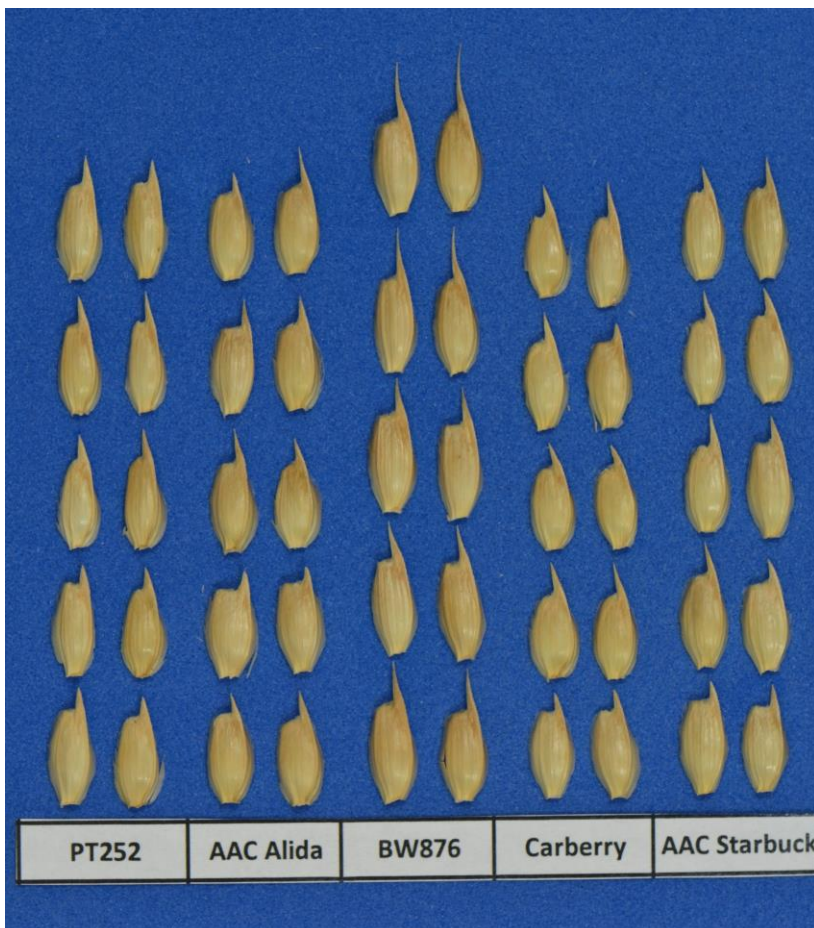
Comparison table for ‘AAC Russell’

	‘AAC Russell’	‘AAC Alida’*	‘BW876’*	‘Carberry’*	‘AAC Starbuck’*
<i>Plant height at maturity (including awns) (cm)</i>					
mean 2018 (LSD=1.3)	90.3	93.0	91.9	86.4	89.4
std. deviation 2018	2.0	2.4	2.5	2.5	2.8
mean 2019 (LSD=1.5)	94.1	96.5	95.1	88.5	90.3
std. deviation 2019	2.8	2.7	3.1	3.0	2.4

*reference varieties



Wheat: 'AAC Russell' (bottom left) with reference varieties 'BW876' (top left), 'Carberry' (top centre), 'AAC Starbuck' (top right) and 'AAC Alida' (bottom right)



Wheat: 'AAC Russell' (left) with reference varieties 'AAC Alida' (centre left), 'BW876' (centre), 'Carberry' (centre right) and 'AAC Starbuck' (right)

Proposed denomination: 'CDC Ortona'
Application number: 18-9414
Application date: 2018/04/03
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Pierre Hucl, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Plentiful', 'CDC Stanley' and 'Thorsby'

Summary: *At booting, the flag leaf of 'CDC Ortona' is longer and narrower than that of 'CDC Plentiful' and narrower than that of 'CDC Stanley'. The plants of 'CDC Ortona' are shorter than the plants of 'CDC Plentiful' and 'Thorsby'. 'CDC Ortona' has a longer spike than that of 'CDC Plentiful'. The hairiness on the convex surface of the apical rachis segment of 'CDC Ortona' is dense whereas it is very dense on that of 'CDC Plentiful' and 'Thorsby'.*

Description:

PLANT: spring type, common wheat, erect growth habit at 5 to 9 tiller stage, medium frequency of plants with recurved flag leaves, heads mid-season, matures mid-season

SEEDLING (4 LEAF STAGE): absent or very weak intensity of anthocyanin colouration of coleoptile, glabrous sheath and blade of lower leaves

FLAG LEAF: very weak to weak intensity of anthocyanin colouration of auricles, medium to strong glaucosity of sheath, glabrous blade and sheath

CULM: strong glaucosity, straight neck

STRAW: slight to medium pith in cross-section, anthocyanin colouration absent at maturity

SPIKE: strong glaucosity at heading, tapering shape in profile, medium length, medium density, yellow at maturity, erect attitude, dense hairiness of convex surface of apical rachis segment

AWNS: tip awnlets present, shorter than spike, white at maturity

LOWER GLUME: medium length and width, glabrous, sparse extent of internal hair

LOWER GLUME SHOULDER: medium width, straight

LOWER GLUME BEAK: short, slightly curved

LOWEST LEMMA: moderately curved beak

KERNEL: hard red, medium red, medium size, medium length and width, oval shape, rounded cheek, medium length brush hairs, medium width and depth of crease

GERM: medium size

DISEASE REACTIONS : resistant to Leaf rust (*Puccinia recondita*), Stem rust (*Puccinia graminis* f. sp. *tritici*) and Stripe rust (*Puccinia striiformis*); moderately resistant to moderately susceptible to Fusarium head blight (*Fusarium graminearum*, *Fusarium* species) and susceptible to Common bunt (*Tilletia caries*, *Tilletia foetida*).

Origin and Breeding: 'CDC Ortona' (experimental designations 'PT596' and W12769) originated from the initial cross between 'CDC Stanley' and an experimental line, BW876, made during the summer of 2007, which was backcrossed to 'CDC Stanley' in the fall of 2007 at the Crop Development Centre, Saskatoon, Saskatchewan. In 2008, the F1 generation was grown in the field in Saskatoon and the F2 generation was bulked in a winter nursery in Leeston, New Zealand. In 2009, the F3 generation was grown in a space-seeded nursery in Saskatoon. In 2010 and 2011, seed from single-plant selections based on plant type, straw strength and leaf and stem rust reactions, were grown out as F4 and F5 hills, respectively. F6 seed was bulked from a single F5 hill and entered into a replicated yield trial nursery in Saskatoon in 2012. 'PT596' was evaluated under the experimental code W12769 in preliminary yield trials at three sites in Saskatchewan and a single site in Manitoba in 2013, in the Western Bread Wheat B Test in 2014 and subsequently evaluated in the Parkland Wheat Cooperative Test from 2015 to 2017.

Tests and Trials: The comparative trials for 'CDC Ortona' were conducted at the University of Saskatchewan during the 2018 and 2019 growing seasons. There were 4 replicates arranged in an RCB Design. Plots were 3.6 metres long by 1.2 metres wide. Each plot consisted of five rows and 1400 seeds per plot. Measured characteristics were based on 20 measurements per variety per year. Mean differences were significant at the 5% confidence probability level based on a LSD values. Disease ratings for 'CDC Ortona' were provided through the Disease Evaluation team of the Prairie Recommending

Committee for Wheat, Rye and Triticale and Prairie Grain Development Committee from trials conducted from 2015 to 2017.

Comparison table for 'CDC Ortona'

	'CDC Ortona'	'CDC Plentiful'*	'CDC Stanley'*	'Thorsby'*
<i>Flag leaf length (cm)</i>				
mean 2018 (LSD=1.56)	19.0	17.1	19.2	17.5
std. deviation 2018	2.4	1.4	2.6	3.3
mean 2019 (LSD=1.69)	24.5	20.9	22.5	22.7
std. deviation 2019	3.1	2.4	2.9	2.1
<i>Flag leaf width (mm)</i>				
mean 2018 (LSD=0.79)	12.4	15.8	13.8	12.9
std. deviation 2018	1.7	1.1	1.1	1.0
mean 2019 (LSD=0.76)	12.6	17.8	14.2	13.9
std. deviation 2019	0.9	1.5	1.2	1.0
<i>Plant height at maturity (stem plus spike, including awns) (cm)</i>				
mean 2018 (LSD=1.48)	75.7	80.9	76.5	81.6
std. deviation 2018	1.6	2.0	2.9	2.7
mean 2019 (LSD=2.25)	89.9	92.5	93.5	96.7
std. deviation 2019	3.3	3.9	3.2	3.80
<i>Spike length (excluding awns) (mm)</i>				
mean 2018 (LSD=2.94)	84.9	77.1	83.3	88.7
std. deviation 2018	4.8	3.1	4.7	5.7
mean 2019 (LSD=4.59)	91.9	73.0	89.9	92.2
std. deviation 2019	6.3	5.5	9.2	7.6

*reference varieties



Wheat: 'CDC Ortona' (left) with reference varieties 'CDC Plentiful' (centre left), 'Thorsby' (centre right) and 'CDC Stanley' (right)

Proposed denomination: 'SY Rorke'
Application number: 19-9847
Application date: 2019/05/10
Applicant: Syngenta Participations AG, Basel, Switzerland
Agent in Canada: Syngenta Canada Inc., Guelph, Ontario
Breeder: Syngenta Participations AG, Basel, Switzerland

Variety used for comparison: 'Glenn'

Summary: At booting, the intensity of anthocyanin colouration on the auricles of the flag leaf of 'SY Rorke' is absent or very weak whereas it is strong on the auricles of 'Glenn'. At maturity, the spike colour of 'SY Rorke' is light yellow whereas the spike of 'Glenn' is brown. The lower glume beak is of medium length for 'SY Rorke' whereas it is short for 'Glenn'.

Description:

PLANT: spring type, common wheat, erect to semi-erect growth habit at 5 to 9 tiller stage, low to medium frequency of plants with recurved flag leaves, heads and matures mid-season

SEEDLING (4 LEAF STAGE): absent or very weak intensity of anthocyanin colouration of coleoptile, glabrous sheath and blade of lower leaves

FLAG LEAF: absent or very weak intensity of anthocyanin colouration of auricles, absent or very weak to weak glaucosity of sheath, glabrous blade and sheath

CULM: weak to medium glaucosity, curved neck

STRAW: thin to medium thickness of pith in cross-section, anthocyanin colouration absent at maturity

SPIKE: weak glaucosity at heading, tapering shape in profile, medium density, light yellow at maturity, erect attitude, absent or very sparse to sparse hairiness of convex surface of apical rachis segment

AWNS: shorter than length of spike, light brown

LOWER GLUME: long, medium width, glabrous, sparse extent of internal hair

LOWER GLUME SHOULDER: narrow to medium width, straight shape

LOWER GLUME BEAK: medium length, straight shape

LOWEST LEMMA: slightly curved beak

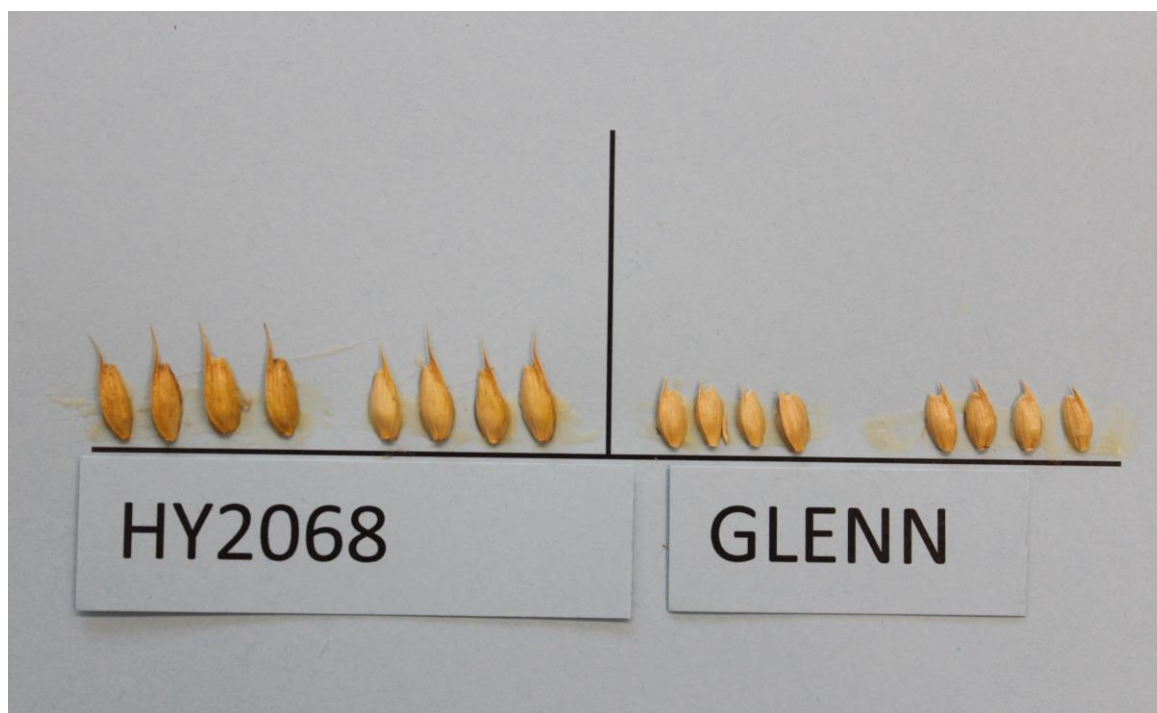
KERNEL: hard red, medium red, medium size, medium length, narrow to medium width, elliptical shape, rounded cheek, short to medium length brush hairs, narrow crease, shallow to medium depth of crease

GERM: medium size, oval

BREAD MAKING QUALITY: good

Origin and Breeding: ‘SY Rorke’ (experimental designations HY2068, NH005 and CS11300017-3) originated from the cross between ‘HY993’ and ‘05S0043-20W’ made in Berthoud, Colorado, USA, in 2011. Individual head selections were made from the F2 population at Syngenta Canada Inc. in Rosebank, Manitoba, in 2012, based on plant height, maturity, and leaf rust, leaf disease complex and Fusarium head blight resistance. A single seed descent technique was used to advance these selections through the F3 and F4 generations in a greenhouse. In 2013, F5 headrows were selected and individually bulked from a nursery and entered into a yield trial in Rosebank, Manitoba in 2014. One of the selections was designated as CS11300017-3 and sent to a winter nursery in New Zealand for generation advancement in 2014. The resulting F8 was entered in Syngenta Canada, Inc. multi-location research plots in 2015. In 2015, 100 heads were selected for initial purity from the F9 increase plots, based on yield, test weight, plant height, maturity, comprehensive milling and baking quality, and leaf rust, leaf disease complex and Fusarium head blight resistance. In 2016, 100 progeny rows were planted in Rosebank, Manitoba and progeny plots subsequently planted in Berthoud, Colorado in 2017. In 2018, the 100 progeny rows were selected based on agronomy, pathology and quality assessment and bulked for breeder seed. The variety was tested as NH005 in the Canadian Northern Hard Red Co-op in 2016 and tested as HY2068 in the High Yield Bread Wheat Co-op in 2017 and 2018.

Tests and Trials: The comparative trials for ‘SY Rorke’ were conducted during the 2018 and 2019 growing seasons near Rosebank, Manitoba. There were three replicates arranged in a RCB Design. Plots consisted of 7 rows, with a row length of 3 metres and row spacing of 18 cm. Planting density resulted in each plot having approximately 2400 plants per variety. Measured characteristics were based on 20 measurements per variety per year.



Wheat: 'SY Rorke' (left) with the reference variety 'Glenn' (right)