



APPLICATIONS UNDER EXAMINATION

WHEAT

WHEAT (*Triticum aestivum*)

Proposed denomination: 'AAC Darby'
Application number: 22-10894
Application date: 2022/04/26
Applicant: Agriculture & Agri-Food Canada, Brandon, Manitoba
Agent in Canada: Agriculture & Agri-Food Canada, Saskatoon, Saskatchewan
Breeder: Santosh Kumar, Agriculture & Agri-Food Canada, Brandon, Manitoba

Varieties used for comparison: 'AAC Redstar', 'AAC Redwater' and 'AAC Hassler'

Summary: At booting, the flag leaf sheath of 'AAC Darby' has a medium degree of glaucosity whereas that of 'AAC Redstar' has strong to very strong glaucosity and those of 'AAC Redwater' and 'AAC Hassler' have strong glaucosity. The lower side of the flag leaf blade of 'AAC Darby' has medium to strong glaucosity whereas that of 'AAC Hassler' has strong to very strong glaucosity. The plants of 'AAC Darby' head earlier than those of 'AAC Redstar' and 'AAC Redwater'. At heading, the awns of 'AAC Darby' are equal to or longer than the spike whereas those of 'AAC Redstar' and 'AAC Redwater' are shorter than the spike. The beak on the lower glume of 'AAC Darby' is of a medium length whereas it is very long for 'AAC Hassler'. The kernel cheek shape of 'AAC Darby' is angular whereas it is rounded for 'AAC Hassler'.

Description:

PLANT: spring type, common wheat, semi-erect to intermediate growth habit at 5 to 9 tiller stage

SEEDLING (4-LEAF STAGE): medium to strong anthocyanin colouration of coleoptile

FLAG LEAF: medium glaucosity of sheath at heading, medium to strong glaucosity of lower side of leaf blade

CULM: medium to strong glaucosity of neck at heading

STRAW (AT MATURITY): pith of medium thickness in cross-section

SPIKE: medium to strong glaucosity at heading, tapering to parallel sided shape in profile, medium density, yellow at maturity

AWNS: equal to or longer than spike length

LOWER GLUME SHOULDER: medium width

LOWER GLUME BEAK: medium length

KERNEL: hard red type, medium to dark red, angular cheek shape

DISEASE REACTIONS: resistant to Leaf rust (*Puccinia triticina*) and Stripe rust (*Puccinia striiformis*); moderately resistant to Stem rust (*Puccinia graminis*); moderately resistant to moderately susceptible to Fusarium head blight (*Fusarium graminearum*)

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

Origin and Breeding: 'AAC Darby' (experimental designations PT495 and 11B22-DZ2H) originated from the cross between PT459 and 'CDC Titanium' conducted at the Agriculture and Agri-Food Canada, Beaverlodge Research and Development Centre in Beaverlodge, Alberta in 2011. The F1 progeny was increased in the greenhouse at the Beaverlodge Research Station in 2012 and 15 F2 bulk plots were seeded with 30 heads harvested per plot. From 2012 to 2013, 375 selected F3 heads were grown as hill plots in Palmerston North, New Zealand, from which 188 were selected with 4 heads harvested per plot. Selection criteria included seed appearance, stem rust, leaf rust, and common bunt resistance, protein concentration, flour yield and baking quality. Line progressions occurred between 2015 to 2018 resulting in an F11 line, designated as 11B22-DZ2H, which was tested in the Parkland Bread Wheat Registration trials as PT495 from 2018 to 2020.

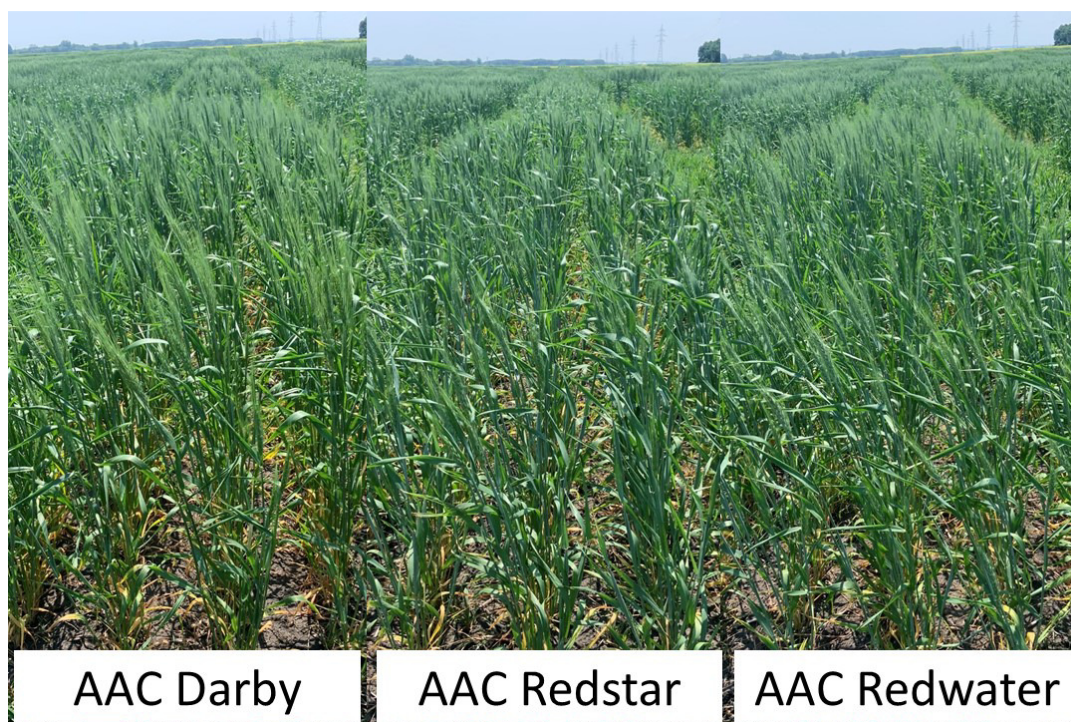
Breeder seed production commenced in 2020 at the Agriculture and Agri-Food Canada Seed Increase Unit, Indian Head, Saskatchewan.

Tests and Trials: The comparative trials for ‘AAC Darby’ were conducted at the Saskatoon Research and Development Centre in Saskatoon, Saskatchewan in 2021 and 2022. There were 3 replicates per variety arranged in an RCB design. Plots were 2.98 square metres, and consisted of 5 rows, 3.35 metres in length, with a row spacing of 18 cm. The planting density was 264 plants per square metre resulting in approximately 3000 plants per variety per year. Disease and insect reaction ratings were obtained from the Prairie Grain Development Committee assessed from 2018 to 2020.

Comparison table for ‘AAC Darby’

	‘AAC Darby’	‘AAC Redstar’*	‘AAC Redwater’*	‘AAC Hassler’*
<i>Days to heading (number of days from planting to when 50% heads are fully emerged from boot)</i>				
mean 2021	42	46	47	44
mean 2022	49	51	51	50

*reference varieties



Wheat: ‘AAC Darby’ (left) with reference varieties ‘AAC Redstar’ (centre) and ‘AAC Redwater’ (right)

Proposed denomination: ‘AAC Dutton’
Application number: 22-10892
Application date: 2022/04/26
Applicant: Agriculture & Agri-Food Canada, Brandon, Manitoba
Agent in Canada: Agriculture & Agri-Food Canada, Saskatoon, Saskatchewan
Breeder: Santosh Kumar, Agriculture & Agri-Food Canada, Brandon, Manitoba

Varieties used for comparison: ‘AAC LeRoy’ and ‘Cardale’

Summary: *The coleoptile of ‘AAC Dutton’ has a very strong intensity of anthocyanin colouration whereas that of ‘AAC LeRoy’ has a weak intensity of anthocyanin colouration. At booting, the flag leaf sheath of ‘AAC Dutton’ has a weak to medium degree of glaucosity whereas those of the reference varieties have strong glaucosity. The lower side of the flag leaf*

blade of 'AAC Dutton' has medium glaucosity whereas those of the reference varieties have strong glaucosity. The plants of 'AAC Dutton' head earlier than those of 'Cardale'.

Description:

PLANT: spring type, common wheat, semi-erect to intermediate growth habit at 5 to 9 tiller stage

SEEDLING (4-LEAF STAGE): very strong anthocyanin colouration of coleoptile

FLAG LEAF: weak to medium glaucosity of sheath at heading, medium glaucosity of lower side of leaf blade

STRAW (AT MATURITY): pith of thin to medium thickness in cross-section

SPIKE: weak to medium glaucosity at heading, tapering in profile, dense, brown at maturity

AWNS: equal to or longer than spike length

KERNEL: hard red type, dark red

DISEASE REACTIONS: resistant to Leaf rust (*Puccinia triticina*) and Stem rust (*Puccinia graminis*); moderately resistant to Fusarium head blight (*Fusarium graminearum*) and Stripe rust (*Puccinia striiformis*)

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

Origin and Breeding: 'AAC Dutton' (experimental designations BW1094, BS402 and BL45*D0278) originated from the cross between BW486 and 'Cardale' conducted at the Agriculture and Agri-Food Canada Cereal Research Centre in 2011 in Winnipeg, Manitoba. Double haploid lines were created from the resulting F1 in 2013 at the Agriculture and Agri-Food Canada Research and Development Centre in Morden, Manitoba. From 2013 to 2014, 200 lines were grown as hill plots in Leeston, New Zealand and at Greenhouse Inc. with a loss due to flooding at the field nursery. 122 lines were increased in Leeston, New Zealand in rows with subsequent testing in Saskatoon, Saskatchewan in 2015. Selection criteria included plant height, lodging resistance, maturity, yield, test weight and thousand kernel weight, disease resistance to leaf rust, stem rust, Fusarium head blight, and common bunt and quality traits such as protein content, falling number, flour yield, and baking quality. In 2016, 25 lines were tested as BS402, with 10 lines tested in the Central Bread Wheat 'A' test in 2017, and 4 lines tested in the Central Bread Wheat 'B' test in 2018. The line designated as BL45*D0278 was tested in Central Bread Wheat 'C' registration tests as BW1094 from 2019 to 2021. Breeder seed production commenced in 2021 at the Agriculture and Agri-Food Canada Seed Increase Unit, Indian Head, Saskatchewan.

Tests and Trials: The comparative trials for 'AAC Dutton' were conducted at the Saskatoon Research and Development Centre in Saskatoon, Saskatchewan in 2021 and 2022. There were 3 replicates per variety arranged in an RCB design. Plots were 2.98 square metres, and consisted of 5 rows, 3.35 metres in length, with a row spacing of 18 cm. The planting density was 264 plants per square metre resulting in approximately 3000 plants per variety per year. Disease and insect reaction ratings were obtained from the Prairie Grain Development Committee assessed from 2019 to 2021.

Comparison table for 'AAC Dutton'

	'AAC Dutton'	'AAC LeRoy'*	'Cardale'*
<i>Days to heading (number of days from planting to when 50% heads are fully emerged from boot)</i>			
mean 2021	42	43	44
mean 2022	50	51	52

*reference varieties



Wheat: 'AAC Dutton' (left) with reference varieties 'AAC LeRoy' (centre) and 'Cardale' (right)

Proposed denomination: 'AAC Hassler'
Application number: 22-10895
Application date: 2022/04/26
Applicant: Agriculture & Agri-Food Canada, Brandon, Manitoba
Agent in Canada: Agriculture & Agri-Food Canada, Saskatoon, Saskatchewan
Breeder: Santosh Kumar, Agriculture & Agri-Food Canada, Brandon, Manitoba

Varieties used for comparison: 'AAC Redstar' and AAC Redwater'

Summary: *The coleoptile of 'AAC Hassler' has a strong intensity of anthocyanin colouration whereas that of 'AAC Redwater' has a medium intensity of anthocyanin colouration. At booting, the flag leaf sheath of 'AAC Hassler' has strong glaucosity whereas that of 'AAC Darby' has a medium degree of glaucosity. The lower side of the flag leaf blade of 'AAC Hassler' has strong to very strong glaucosity whereas that of 'AAC Darby' has a medium to strong degree of glaucosity. The shoulder on the lower glume of 'AAC Hassler' is narrow whereas it is medium to broad for 'AAC Redstar' and 'AAC Redwater', and of a medium width for 'AAC Darby'. The beak on the lower glume of 'AAC Hassler' is very long whereas it is of a medium length for the reference varieties. The kernel cheek shape of 'AAC Hassler' is rounded whereas it is angular for the reference varieties.*

Description:

PLANT: spring type, common wheat, semi-erect growth habit at 5 to 9 tiller stage

SEEDLING (4-LEAF STAGE): strong anthocyanin colouration of the coleoptile

FLAG LEAF: strong glaucosity of sheath at heading, strong to very strong glaucosity of lower side of leaf blade

CULM: strong glaucosity of neck at heading

STRAW (AT MATURITY): pith of medium thickness in cross-section

SPIKE: strong glaucosity at heading, tapering to parallel sided shape in profile, medium to dense, yellow at maturity

AWNS: equal to spike length

LOWER GLUME SHOULDER: narrow

LOWER GLUME BEAK: very long

KERNEL: hard red type, medium to dark red, rounded cheek shape

DISEASE REACTIONS: resistant to Leaf rust (*Puccinia triticina*), Stripe rust (*Puccinia striiformis*) and Stem rust (*Puccinia graminis*); moderately resistant to moderately susceptible to Fusarium head blight (*Fusarium graminearum*)

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

Origin and Breeding: ‘AAC Hassler’ (experimental designations PT496 and 12B10-BF3G) originated from the cross between ‘CDC Titanium’ and ‘Thorsby’ conducted at the Agriculture and Agri-Food Canada, Beaverlodge Research and Development Centre in Beaverlodge, Alberta in 2012. The F1 progeny was increased in the greenhouse at the Beaverlodge Research Station in 2012 and 10 F2 bulk plots were seeded with 25 heads harvested per plot. In the winter of 2013-2014, 126 selected F3 heads were grown as hill plots in Palmerston North, New Zealand, from which 104 were selected with 4 heads harvested per plot. Selection criteria included seed appearance, stem rust, leaf rust, and common bunt resistance, protein concentration, flour yield and baking quality. Line progressions occurred from 2015 to 2018 with an F11 line being designated as 12B10-BF3G. The line was tested in the Parkland Bread Wheat Registration trials as PT496 from 2019 to 2021. Breeder seed production commenced in 2021 at the Agriculture and Agri-Food Canada Seed Increase Unit, Indian Head, Saskatchewan.

Tests and Trials: The comparative trials for ‘AAC Hassler’ were conducted at the Saskatoon Research and Development Centre in Saskatoon, Saskatchewan in 2021 and 2022. There were 3 replicates per variety arranged in an RCB design. Plots were 2.98 square metres, and consisted of 5 rows, 3.35 metres in length, with a row spacing of 18 cm. The planting density was 264 plants per square metre resulting in approximately 3000 plants per variety per year. Disease and insect reaction ratings were obtained from the Prairie Grain Development Committee assessed from 2019 to 2021.



Wheat: ‘AAC Hassler’ (left) with reference varieties ‘AAC Redstar’ (centre) and ‘AAC Redwater’ (right)

Proposed denomination: 'Accelerate'
Application number: 19-9843
Application date: 2019/05/07
Applicant: Limagrain Cereals Research Canada, Saskatoon, Saskatchewan
Breeder: Limagrain Cereal Seeds, LLC, Fort Collins, Colorado, United States of America

Varieties used for comparison: 'MSCHEVELLE' and 'AAC Penhold'

Summary: *At maturity, the plants, including the spike and awns, of 'Accelerate' are taller than the plants of the reference varieties. The awns of 'Accelerate' are shorter than the spike whereas the awns of 'MSCHEVELLE' are equal to the length of the spike. The lower glume shoulder of 'Accelerate' is of medium width whereas the lower glume shoulder of 'MSCHEVELLE' is narrow. The lower glume of 'Accelerate' is short to medium in length and narrow to medium in width whereas the lower glume of 'AAC Penhold' is long and wide. The lower glume beak of 'Accelerate' is short whereas the lower glume beak of 'MSCHEVELLE' is of a medium length and that of 'AAC Penhold' is medium to long.*

Description:

PLANT: spring type, common wheat, semi-erect growth habit at 5 to 9 tiller stage, heads mid-season, matures mid-season

FLAG LEAF: medium degree of glaucosity of sheath at heading

STRAW (AT MATURITY): thin pith in cross-section

SPIKE: medium glaucosity at heading, tapering to parallel sided shape in profile, medium density, white at maturity

AWNS: shorter than spike length

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

LOWER GLUME SHOULDER: slightly sloping, medium width

LOWER GLUME BEAK: short, straight to slightly curved

KERNEL: hard red type, light to medium red, small to medium in size, medium width crease, shallow to medium depth of crease

GERM: elliptical to broad elliptical in shape

Origin and Breeding: 'Accelerate' (experimental designations LNR14-1299 and HY2077) was developed using a modified bulk breeding method. In 2011, a cross was conducted between the proprietary lines LNR10-0146 and LNR10-0177 in Fort Collins, Colorado, USA with the resulting F1 grown in Yuma, Arizona. From 2012 to 2014, the line was advanced from the F2 to the F4 generation with F5 selections grown as head rows for seed stock in Yuma, Arizona during the 2013-2014 growing season. Pre-breeder seed production commenced in Colorado, USA, in 2016. The variety was concurrently evaluated in multiple locations across the USA and Canada in 2015 and was entered in the High Yield Wheat Cooperative Registration Trials as LNR14-1299 from 2016 to 2018. 'Accelerate' was selected based on grain yield and stability, maturity, lodging resistance, plant height and disease resistance as well as end use characteristics such as protein content, milling performance, starch quality, gluten strength, gluten extensibility, baking and pasta quality.

Tests and Trials: The comparative trials for 'Accelerate' were conducted at Limagrain Cereals Research Canada in Saskatoon, Saskatchewan during the 2020 and 2021 growing seasons. There were a minimum of 3 replicates per variety in each year, arranged in an RCB design. Each plot was 4.5 square metres and consisted of 6 rows, 3.0 metres in length with 0.22 metre inter-row spacing. The seeding density resulted in 250 plants per square metre, resulting in a minimum of 3,375 plants per variety per year. Measured characteristics were based on a minimum of 40 measurements per variety per year. Mean differences were significant at the 5% probability level based on paired Student's t-tests.

Comparison table for 'Accelerate'

	'Accelerate'	'MSCHEVELLE'*	'AAC Penhold**
<i>Plant height at maturity (including spike and awns) (cm)</i>			
mean 2020	83	80	77
std. deviation 2020	5.0	3.0	5.0
mean 2021	52	50	45
std. deviation 2021	4.4	3.8	3.4

*reference varieties



Wheat: 'Accelerate' (left) with reference varieties 'MSCHEVELLE' (centre) and 'AAC Penhold' (right)

Proposed denomination: 'CDC Pilar CLPlus'
Application number: 19-9815
Application date: 2019/04/29
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Pierre Hucl, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Abound', 'CDC Landmark' and 'AAC Brandon'

Summary: At booting, 'CDC Pilar CLPlus' has a medium to high frequency of plants with recurved flag leaves whereas 'AAC Brandon' has a high to very high frequency of plants with recurved flag leaves. The flag leaf auricles of 'CDC Pilar CLPlus' have an absent or very weak to weak intensity of anthocyanin colouration whereas those of 'CDC Abound' have a medium intensity of anthocyanin colouration. At maturity, the hairiness of the convex surface of the apical rachis segment for 'CDC Pilar CLPlus' is of a medium density whereas it is absent or very sparse for 'CDC Landmark'. The lower glume shoulder of 'CDC Pilar CLPlus' is straight whereas it is strongly elevated with a second point present for 'CDC Landmark'.

Description:

PLANT: spring type, common wheat, erect growth habit at 5 to 9 tiller stage, medium to high frequency of plants with recurved flag leaves, heads 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 to 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 (AT MATURITY): pith of medium thickness in cross-section, anthocyanin colouration absent

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

AWNS: shorter than spike length, white at maturity

LOWER GLUME: medium to long, medium to wide, glabrous, medium extent of internal hairs

LOWER GLUME SHOULDER: medium to broad, straight

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

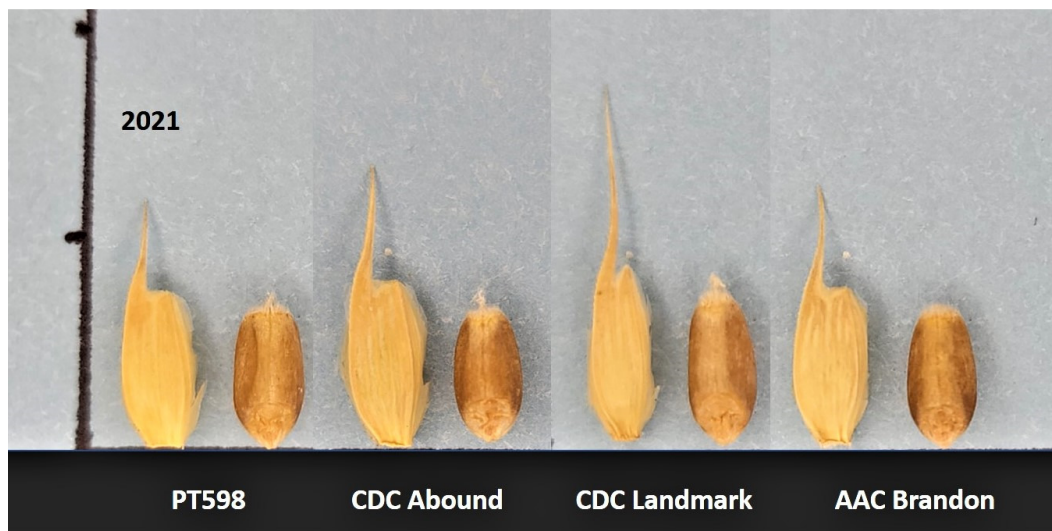
LOWEST LEMMA: straight

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

GERM: medium sized, rounded or broad elliptical shape

Origin and Breeding: ‘CDC Pilar CLPlus’ (experimental designation PT598) originated from a controlled cross conducted in Swift Current, Saskatchewan between the line BW876 and the resultant progeny from a cross conducted between BW390 and IR05250 in 2006. The resultant F1 progeny was grown in a growth chamber during the winter of 2006-2007. The F2 plants were grown as a bulk plot in Saskatoon in 2007. The F3 generation was grown in a bulk plot in a winter nursery in New Zealand during the winter of 2007 and 2008. The F4 to F6 generations were grown in bulk plots in Saskatoon in 2008, 2009, and 2010 respectively. At the F7 generation selections were made for plant type and straw length. At the F8 generation, lines were grown in plots and selected for yield, plant height and straw length. PT598 was evaluated in the Western Wheat ‘B’ tests and in the Parkland Cooperative Test from 2016 to 2018.

Tests and Trials: The comparative trials for ‘CDC Pilar CLPlus’ were conducted at the University of Saskatchewan, Crop Science Field Facility in Saskatoon, Saskatchewan during the 2020 and 2021 growing seasons. There were 4 replications per variety arranged in an RCB design. Plots consisted of 5 rows, each row 3.6 metres long with an inter-row spacing of 0.23 metres. Measured characteristics were based on 40 measurements per variety per year.



Wheat: ‘CDC Pilar CLPlus’ (left) with reference varieties ‘CDC Abound’ (centre left), ‘CDC Landmark’ (centre right) and ‘AAC Brandon’ (right)

Proposed denomination: ‘CDC Silas’
Application number: 21-10464
Application date: 2021/04/20
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Pierre Hucl, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: ‘Glenn’, ‘Parata’ and ‘CDC Bradwell’

Summary: *At the 4 leaf stage, the coleoptile of ‘CDC Silas’ has an absent or very weak intensity of anthocyanin colouration whereas that of ‘Parata’ has a weak intensity of anthocyanin colouration. At booting, ‘CDC Silas’ has a high frequency of plants with recurved flag leaves whereas ‘Parata’ and ‘CDC Bradwell’ have a medium frequency of plants with recurved flag leaves. The flag leaf sheath of ‘CDC Silas’ has a medium degree of glaucosity whereas that of ‘Glenn’ has weak glaucosity.*

Description:

PLANT: spring type, common wheat, erect growth habit at 5 to 9 tiller stage, high frequency of plants with recurved flag leaves, heads 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 low intensity of anthocyanin colouration of auricles, medium glaucosity of sheath, glabrous blade and sheath

CULM: medium glaucosity, curved neck

STRAW (AT MATURITY): medium width pith in cross-section, anthocyanin colouration absent

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

AWNS: shorter or equal to spike length, white at maturity

LOWER GLUME: medium length and width, glabrous, medium density of internal hairs

LOWER GLUME SHOULDER: medium to broad, straight

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

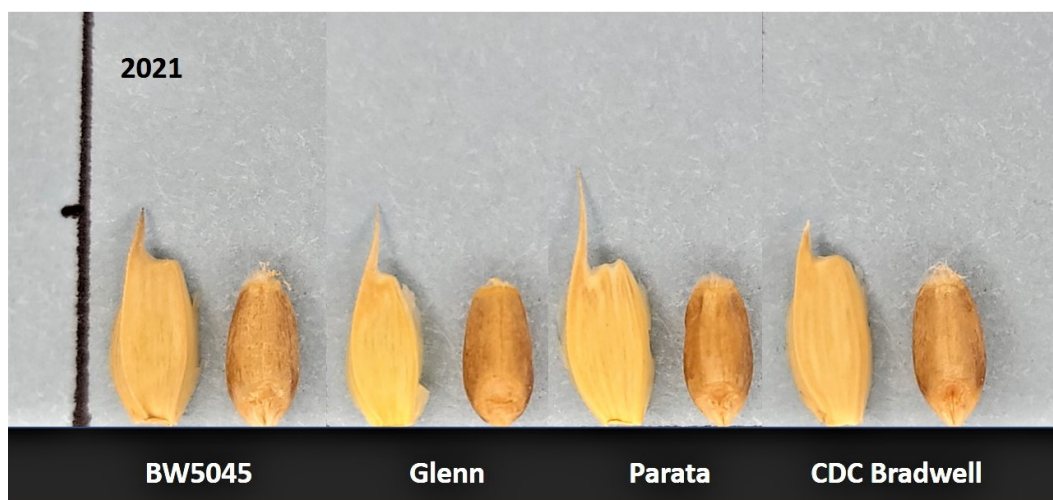
LOWEST LEMMA: straight

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

GERM: medium sized, rounded or broad elliptical shape

Origin and Breeding: ‘CDC Silas’ (experimental designations 12ORG20 and BW5045) originated from a controlled cross conducted in Saskatoon, Saskatchewan between the variety ‘Alsen’ and the line W01361 in 2003. The F1 progeny was grown in New Zealand during the winter of 2003-2004. Subsequent generations were grown as bulk plots from 2004 to 2007 in Saskatoon, Saskatchewan. F6 lines were grown as hill plots in 2008 and F7 head rows grown in 2010. Further development was paused in 2009 and 2010 due to a lack of funding. From 2011 to 2015 a line designated as 12ORG20 was tested for reaction to leaf and stem rust and simultaneously grown in replicated yield trails in organic crop rotations in Saskatoon and the University of Alberta in 2012, 2014, and 2015. The line was entered in the Western Bread Wheat ‘B’ test in 2016 and in the Western Bread Cooperative Test from 2017 to 2019 as BW5045.

Tests and Trials: The comparative trials for ‘CDC Silas’ were conducted at the University of Saskatchewan, Crop Science Field Facility in Saskatoon, Saskatchewan during the 2020 and 2021 growing seasons. There were 4 replications per variety arranged in an RCB design. Plots consisted of 5 rows, each row 3.6 metres long with an inter-row spacing of 0.23 metres. Measured characteristics were based on 40 measurements per variety per year.



Wheat: ‘CDC Silas’ (left) with reference varieties ‘Glenn’ (centre left), ‘Parata’ (centre right) and ‘CDC Bradwell’ (right)

Proposed denomination: 'CDC SKRush'
Application number: 20-10325
Application date: 2020/07/29
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Agent in Canada: SeCan Association, Kanata, Ontario
Breeder: Pierre Hucl, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'Glenn', 'Parata' and 'CDC Bradwell'

Summary: *At the 4 leaf stage, the coleoptile of 'CDC SKRush' has an absent or very weak intensity of anthocyanin colouration whereas that of 'Parata' has a weak intensity of anthocyanin coloration. At booting, 'CDC SKRush' has a medium frequency of plants with recurved flag leaves whereas 'Glenn' has a high to very high frequency of plants with recurved flag leaves. At maturity, the hairiness of the convex surface of the apical rachis segment for 'CDC SKRush' is medium to dense whereas it is sparse for 'CDC Bradwell'.*

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

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

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

CULM: medium to strong glaucosity, curved neck

STRAW (AT MATURITY): pith of thin to medium thickness in cross-section, anthocyanin colouration absent

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

AWNS: shorter or equal to spike length, white at maturity

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

LOWER GLUME SHOULDER: medium to broad, slightly to moderately curved

LOWER GLUME BEAK: long, slightly to moderately curved

LOWEST LEMMA: straight

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

GERM: medium sized, rounded or broad elliptical shape

Origin and Breeding: 'CDC SKRush' (experimental designations PT599 and W13679) originated from a controlled cross conducted in Swift Current, Saskatchewan between the lines W04619 and W06023 in 2008. The resultant F1 progeny was grown in New Zealand during the winter of 2008-2009. The F2 generation was grown as a bulk plot in Saskatoon in 2009. The F3 generation was grown in bulk plots in a winter nursery in New Zealand during the winter of 2009-2010. The F4 generation was grown in bulk plots at the Viterra Research Farm in Rosebank, Manitoba in 2010 with one line designated as W13679. Subsequent generations were grown in plots and further selections were made based on yield, plant height, and straw length. The variety was evaluated in the Parkland Cooperative Test from 2016 to 2018 as PT599.

Tests and Trials: The comparative trials for 'CDC SKRush' were conducted at the University of Saskatchewan, Crop Science Field Facility during the 2020 and 2021 growing seasons. There were 4 replications per variety arranged in an RCB design. Plots consisted of 5 rows, each row 3.6 metres long with an inter-row spacing of 0.23 metres. Measured characteristics were based on 40 measurements per variety per year.



Wheat: 'CDC SKRush' (left) with reference varieties 'Glenn' (centre left), 'Parata' (centre right) and 'CDC Bradwell' (right)

Proposed denomination: 'CDC Succession CLPlus'
Application number: 19-9814
Application date: 2019/04/29
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Pierre Hucl, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Abound', 'CDC Landmark' and 'AAC Brandon'

Summary: *At booting, the flag leaf auricles of 'CDC Succession CLPlus' have a weak to medium intensity of anthocyanin colouration whereas those of 'CDC Landmark' and 'AAC Brandon' have an absent or very weak intensity of anthocyanin colouration. The straw pith of 'CDC Succession CLPlus' is thin to a medium thickness in cross section whereas it is medium to thick for 'CDC Abound'. At maturity, the hairiness of the convex surface of the apical rachis segment for 'CDC Succession CLPlus' is of a medium density whereas it is absent or very sparse for 'CDC Landmark'. The lower glume shoulder of 'CDC Succession CLPlus' is straight whereas it is strongly elevated with a second point present for 'CDC Landmark'.*

Description:

PLANT: spring type, common wheat, erect growth habit at 5 to 9 tiller stage, high frequency of plants with recurved flag leaves, heads 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: weak to medium intensity of anthocyanin colouration of auricles, weak glaucosity of sheath, glabrous blade and sheath

CULM: weak to medium glaucosity, curved neck

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

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

AWNS: shorter to equal than spike length, white at maturity

LOWER GLUME: medium to long, medium to wide, glabrous, medium density of internal hairs

LOWER GLUME SHOULDER: medium to broad, straight

LOWER GLUME BEAK: medium to long, moderately curved

LOWEST LEMMA: straight

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

GERM: medium sized, rounded to broad elliptical shape

Origin and Breeding: ‘CDC Succession CLPlus’ (experimental designation BW5031) originated from a controlled cross conducted in Swift Current, Saskatchewan between the line BW876 and resultant progeny from a cross conducted between the lines 05F0071 and IR05030 in 2006. The resultant F1 progeny was grown in a growth chamber during the winter of 2006-2007. The F2 plants were grown as a bulk plot in Saskatoon in 2007. The F3 generation was grown in a bulk plot in a winter nursery in New Zealand during the winter of 2007-2008. The F4 to F6 generations were grown in bulk plots in Saskatoon in 2008, 2009, and 2010 respectively. At the F7 generation selections were made based on plant type and straw length. Selected F8 lines were grown in hill plots and further selections made based on yield, plant height, and straw length. One line designated as BW5031 was entered in the Western Wheat Cooperative tests from 2016 to 2018.

Tests and Trials: The comparative trials for ‘CDC Succession CLPlus’ were conducted at the University of Saskatchewan, Crop Science Field Facility in Saskatoon, Saskatchewan during the 2020 and 2021 growing seasons. There were 4 replications per variety arranged in an RCB design. Plots consisted of 5 rows, each row 3.6 metres long with an inter-row spacing of 0.23 metres. Measured characteristics were based on 40 measurements per variety per year.



Wheat: ‘CDC Succession CLPlus’ (left) with reference varieties ‘CDC Abound’ (centre left), ‘CDC Landmark’ (centre right) and ‘AAC Brandon’ (right)

Proposed denomination: ‘Daybreak’
Application number: 19-9844
Application date: 2019/05/07
Applicant: Limagrain Cereals Research Canada, Saskatoon, Saskatchewan
Breeder: Limagrain Cereal Seeds, LLC, Fort Collins, Colorado, United States of America

Varieties used for comparison: ‘Glenn’ and ‘AAC Brandon’

Summary: *The plants of ‘Daybreak’ head earlier than the plants of ‘AAC Brandon’. The lower glume of ‘Daybreak’ is long whereas the lower glume of ‘Glenn’ is of a medium length. The lower glume beak of ‘Daybreak’ is long to very long whereas the lower glume beak of ‘Glenn’ is short and that of ‘AAC Brandon’ is medium in length. The kernel of ‘Daybreak’ is medium red while the kernel of ‘AAC Brandon’ is dark red.*

Description:

PLANT: spring type, common wheat, semi-erect growth habit at 5 to 9 tiller stage, heads mid-season, matures mid-season

FLAG LEAF: medium degree of glaucosity of sheath at heading

STRAW (AT MATURITY): thin pith in cross-section

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

AWNS: shorter than spike length

LOWER GLUME: long, medium to wide, glabrous

LOWER GLUME SHOULDER: straight to elevated, narrow to medium width

LOWER GLUME BEAK: long to very long, slightly curved

KERNEL: hard red type, medium red, medium in size, oval

Origin and Breeding: ‘Daybreak’ (experimental designation LNR13-0601 and BW5056) was developed using a modified bulk breeding method. In 2010, a cross was conducted between proprietary lines in Northfield, Colorado, USA with the resulting F1 grown in Fort Collins, Colorado. From 2011 to 2013, the line was advanced from the F2 to the F4 generation with F5 selections grown as head rows for seed stock in Yuma, Arizona during the 2012-2013 growing season. Pre-breeder seed production commenced in Minnesota, USA, in 2016. The variety was concurrently evaluated in multiple locations across the USA and Canada from 2014 to 2016 and was entered in the Western Bread Wheat Cooperative Registration Trials as BW5056 from 2017 to 2018. ‘Daybreak’ was selected based on grain yield and stability, maturity, lodging resistance, plant height and disease resistance as well as end use quality traits such as protein content, milling performance, starch quality, gluten strength, gluten extensibility, baking and pasta quality.

Tests and Trials: The comparative trials for ‘Daybreak’ were conducted at Limagrain Cereals Research Canada in Saskatoon, Saskatchewan during the 2020 and 2021 growing seasons. There were a minimum of 3 replicates per variety in each year, arranged in an RCB design. Each plot was 4.5 square metres and consisted of 6 rows, 3.0 metres in length with 0.22 metre row spacing. The seeding density resulted in 250 plants per square metre, resulting in a minimum of 3,375 plants per variety per year.

Comparison table for ‘Daybreak’

	‘Daybreak’	‘Glenn’*	‘AAC Brandon’*
<i>Days to heading (number of days from planting to 50% of heads fully emerged from boot)</i>			
mean 2020	58	57	60
mean 2021	50	50	52

*reference varieties



Wheat: ‘Daybreak’ (left) with reference varieties ‘Glenn’ (centre) and ‘AAC Brandon’ (right)

Proposed denomination: ‘WPB Whistler’
Application number: 19-9715
Application date: 2019/02/01
Applicant: Wiersum Plantbreeding BV, Winschoten, Netherlands
Agent in Canada: Plantomar Ltd., Canmore, Alberta
Breeder: Ingeborg Westerdijk-Hoks, Wiersum Plantbreeding, Netherlands

Varieties used for comparison: ‘Alderon’, ‘Pasteur’ and ‘Sparrow’

Summary: At the 5 to 9 tiller stage, the plants of ‘WPB Whistler’ have an erect to semi-erect growth habit whereas the plants of ‘Alderon’ have an intermediate, between semi-erect and semi-prostrate, growth habit. The plants of ‘WPB Whistler’ head earlier than those of ‘Alderon’ and ‘Sparrow’. At booting, the glaucosity on the flag leaf sheath of ‘WPB Whistler’ is medium to strong whereas the glaucosity on the flag leaf sheath of ‘Sparrow’ is absent or very weak to weak. The

lower side of the flag leaf blade of 'WPB Whistler' has a medium degree of glaucosity whereas that of 'Sparrow' has an absent or very weak to weak glaucosity. At heading, the spike of 'WPB Whistler' has medium to strong glaucosity whereas glaucosity is absent or very weak to weak on the spike of 'Pasteur' and weak to medium on that of 'Sparrow'. At maturity, the spike of 'WPB Whistler' has an inclined attitude whereas those of the reference varieties have an erect attitude.

Description:

PLANT: common wheat, spring type, erect to semi-erect growth habit at the 5 to 9 tiller stage, heads emerge mid to late season, matures mid to late season

SEEDLING (4 LEAF STAGE): glabrous sheath and blade of lower leaves

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

CULM: strong glaucosity

STRAW (AT MATURITY): thin to medium thickness of pith in cross section, no anthocyanin colouration

SPIKE: medium to strong degree of glaucosity at heading, parallel-sided shape in profile, medium density, yellowish white at maturity, inclined attitude

AWNS: shorter than spike length, yellowish white at maturity

LOWER GLUME: glabrous

LOWER GLUME SHOULDER: slightly sloping shape

KERNEL: medium red

Origin and Breeding: 'WPB Whistler' (experimental designation WPB 10SW010-06) originated from the cross between LW 018W004-01 and 'Hamlet' made in 2010 at the Wiersum Plant Breeding Station near Dronten, The Netherlands. The F1 to F5 generations were processed at the Wiersum Plant Breeding Station. The F1 and F3 generations were grown in a greenhouse while the F2 generation was bulked from the field. In 2012, F4 head rows were grown in the field and selections made based on heading time, plant height, lodging resistance and disease resistance. In 2013, F5 micro plots were visually selected for all possible characteristics and lines further selected based on the specific weight, thousand grain weight and protein content. In 2014, seven F6 lines were planted in observations trials near Taber, Alberta and Fort Whyte, Manitoba, Canada. Two of the seven F7 lines were entered into yield trials in five locations in 2015. One line, designated as WPB 10SW010-06, was advanced to the Special Purpose Registration Trials in 2016. In parallel to the F7 testing, maintenance breeding started on the F8 plant progenies obtained in the winter of 2014-2015. Six plant progenies were chosen based on uniformity of morphology and phenol colouration and were grown, compared, rogued for off-types and bulked from 36 square metre plots in 2016. Selected ears were grown in 120 head rows in 2017. In 2018, five head rows were harvested separately and used to form 5 blocs of 30 head rows which were bulked to produce breeder seed at the Wiersum Plant Breeding Station near Dronten.

Tests and Trials: The comparative trials for 'WPB Whistler' were conducted near Fort Whyte, Manitoba during the 2020 and 2021 growing seasons. There were 4 replications arranged in an RCB design. Each plot consisted of 4 rows, with a row length of 4.5 metres spaced 18 cm apart. The planting density of 307 plants per metre squared resulted in 1000 plants per replicate per variety.

Comparison table for 'WPB Whistler'

	'WPB Whistler'	'Alderon'*	'Pasteur'*	'Sparrow'*
<i>Days to heading (number of days from planting to when 50% heads are fully emerged from boot)</i>				
mean 2020	51	55	50	53
mean 2021	49	52	50	51

*reference varieties



Wheat: 'WPB Whistler' (left) with reference varieties 'Alderon' (centre left), 'Pasteur' (centre right) and 'Sparrow' (right)

WHEAT*(Triticum turgidum subsp. durum)*

Proposed denomination: 'AAC Antler'
Application number: 22-10893
Application date: 2022/04/26
Applicant: Agriculture & Agri-Food Canada, Swift Current, Saskatchewan
Agent in Canada: Agriculture & Agri-Food Canada, Saskatoon, Saskatchewan
Breeder: Yuefeng Ruan, Agriculture & Agri-Food Canada, Swift Current, Saskatchewan

Varieties used for comparison: 'AAC Donlow', 'CDC Credence', 'CDC Defy' and 'Transcend'

Summary: *The coleoptile of 'AAC Antler' has a very strong intensity of anthocyanin colouration while the coleoptile of 'CDC Credence' has a medium intensity of anthocyanin colouration. The frequency of plants with recurved flag leaves for 'AAC Antler' is medium to high while the frequency is high to very high for the plants of 'CDC Credence' and 'Transcend' and very high for those of 'CDC Defy'. The flag leaf of 'AAC Antler' is shorter than the flag leaf of 'CDC Defy' and narrower than that of 'AAC Donlow'. The flag leaf sheath of 'AAC Antler' has medium glaucosity while those of 'CDC Defy' and 'Transcend' have strong glaucosity. The plants of 'AAC Antler' head later than the plants of 'CDC Defy' and 'Transcend'. The spike of 'AAC Antler' has strong glaucosity while the spike of 'CDC Credence' has medium glaucosity and that of 'CDC Defy' has weak glaucosity. The culm of 'AAC Antler' has a medium degree of glaucosity while the culm of 'AAC Donlow' has very strong glaucosity, the culm of 'CDC Defy' has weak glaucosity and that of 'Transcend' has strong glaucosity. At maturity, the plants, including the spike and awns, of 'AAC Antler' are shorter than the plants of 'CDC Credence', 'CDC Defy' and 'Transcend'. Excluding the awns, the spike of 'AAC Antler' is shorter than those of 'CDC Defy' and 'Transcend'. The awns of 'AAC Antler' are white while those of 'CDC Credence' are black. The culm of 'AAC Antler' is straight while those of the reference varieties are curved. The lower glume of 'AAC Antler' is longer than the lower glumes of 'AAC Donlow' and 'CDC Credence' and shorter than that of 'CDC Defy'. The 1000 kernel weight of 'AAC Antler' is less than those of 'CDC Credence', 'CDC Defy' and 'Transcend'.*

Description:

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

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

FLAG LEAF (AT BOOTING): absent or very weak anthocyanin colouration of auricles, medium degree of glaucosity of sheath, absent or very weak glaucosity on lower side of leaf blade, glabrous sheath and blade

CULM: absent or very sparse hairiness of uppermost node, medium glaucosity at anthesis, straight neck at maturity

STRAW (AT MATURITY): thin pith in cross-section, absent or very weak anthocyanin colouration at maturity

SPIKE: strong glaucosity at heading, tapering to parallel sided shape in profile, dense, off-white at maturity, erect attitude, absent or very sparse hairiness of convex surface of apical rachis segment

AWNS: longer than spike length, white

LOWER GLUME: medium oblong in shape, medium length and width, glabrous

LOWER GLUME SHOULDER: slightly sloping, narrow

LOWER GLUME BEAK: short, slightly curved

LOWEST LEMMA BEAK: slightly curved

KERNEL: amber, large, long, medium width, elliptical, rounded cheek

GERM: oval

AGRONOMIC TRAITS: good resistance to shattering, good pasta quality

DISEASE REACTIONS: resistant to Common bunt (*Tilletia tritici* and *Tilletia laevis*), Leaf rust (*Puccinia triticina*), Stem rust (*Puccinia graminis*) and Stripe rust (*Puccinia striiformis*); moderately resistant to Fusarium head blight (*Fusarium graminearum*)

Origin and Breeding: ‘AAC Antler’ (experimental designations A1323-EW05 and DT2015) was derived from a three-way cross conducted at the Agriculture & Agri-Food Canada Swift Current Research and Development Centre in Swift Current, Saskatchewan. In 2013, an initial cross was conducted between ‘CDC Dynamic’ and DT858 followed by a subsequent cross to ‘Transcend’. In 2014, the F1 seeds were grown in a greenhouse and the resulting F2 generation space planted in a disease epiphytic field nursery near Swift Current, Saskatchewan. Two hundred and thirty two individual F2 plants were selected and grown in 2 metre rows near Lincoln, New Zealand. One hundred and twenty nine F3 lines were selected and the F4 generation grown in unreplicated plot trials under dryland conditions near Swift Current and Indian Head, Saskatchewan in 2015. Nineteen F5 families, each with 7 lines, were selected and grown in 2 metre rows near Lincoln, New Zealand. In 2016, 69 selected F6 lines were grown in plots under dryland conditions near Swift Current and Saskatoon, Saskatchewan and under irrigation in Lethbridge, Alberta. One of the lines, satisfying all selection criteria, was designated as A1323-EW05. Quality assessments were conducted by Agriculture & Agri-Food Canada Central Quality Laboratory in Winnipeg, Manitoba and at the Agriculture & Agri-Food Canada Semiarid Prairie Agricultural Research Centre, Swift Current, Saskatchewan. The line was entered in the Durum ‘A6’ test in 2017 and the Durum-B test in 2018 and further evaluated at multiple locations in Alberta, Manitoba, Ontario and Saskatchewan for various disease resistances. The variety was entered in the Durum Registration Test as DT2015 from 2019 to 2021. ‘AAC Antler’ was selected based on disease resistance, plant height, straw strength, maturity, performance and quality characteristics such as protein content, pigment and gluten strength and milling performance.

Tests and Trials: The comparative trials for ‘AAC Antler’ were conducted at the Swift Current Research and Development Centre, Swift Current, Saskatchewan during the 2021 and 2022 growing seasons. There were 4 replicates per variety arranged in an RCB design. Each plot consisted of 4 rows, 3.0 metres in length, with 0.23 metre inter-row spacing. The seeding density of 270 seeds per metre squared resulted in 3000 plants per variety per year. Measured characteristics were based on a minimum of 20 measurements per variety per year, except kernel weight which was based on 4 measurements per variety per year. Mean differences were significant at the 5% probability level based on LSD values.

Comparison table for ‘AAC Antler’

	‘AAC Antler’	‘AAC Donlow’*	‘CDC Credence’*	‘CDC Defy’*	‘Transcend’*
<i>Flag leaf length (cm)</i>					
mean 2021 (LSD=2.0)	22.4	22.9	23.4	26.5	23.0
std. deviation 2021	2.9	2.6	1.9	2.8	2.0
mean 2022 (LSD=1.7)	25.0	24.1	25.3	27.0	23.8
std. deviation 2022	2.1	1.7	2.9	2.3	2.2
<i>Flag leaf width (mm)</i>					
mean 2021 (LSD=0.9)	15.3	16.6	16.2	15.4	5.6
std. deviation 2021	1.4	1.2	1.1	1.1	1.4
mean 2022 (LSD=0.6)	16.0	17.0	15.6	15.3	15.3
std. deviation 2022	0.9	1.1	1.0	1.3	1.1
<i>Days to heading (number of days from planting to 50% of heads fully emerged from boot)</i>					
2021 (LSD=1.0)	64	63	64	61	62
2022 (LSD=1.0)	56	55	55	53	55
<i>Plant height at maturity (including spike and awns) (cm)</i>					
mean 2021 (LSD=1.1)	93.4	93.2	99.8	99.4	100.5
std. deviation 2021	3.3	3.1	2.9	2.7	3.3
mean 2022 (LSD=2.9)	97.9	97.0	101.9	103.0	104.5
std. deviation 2022	3.3	3.9	2.5	3.7	4.5
<i>Spike length (excluding awns) (m)</i>					
mean 2021 (LSD=2.2)	7.1	7.0	7.2	7.8	7.5
std. deviation 2022	0.4	0.2	0.3	0.3	0.3
mean 2022 (LSD=2.7)	7.0	7.0	7.1	7.8	7.6
std. deviation 2022	0.3	0.3	0.4	0.5	0.5

Lower glume length (mm)

mean 2021 (LSD=0.3)	9.1	8.7	8.7	10.0	8.9
std. Deviation 2021	0.3	0.3	0.4	0.4	0.4
mean 2022 (LSD=0.3)	9.6	9.1	9.0	10.5	9.5
std. deviation 2022	0.4	0.4	0.3	0.5	0.4

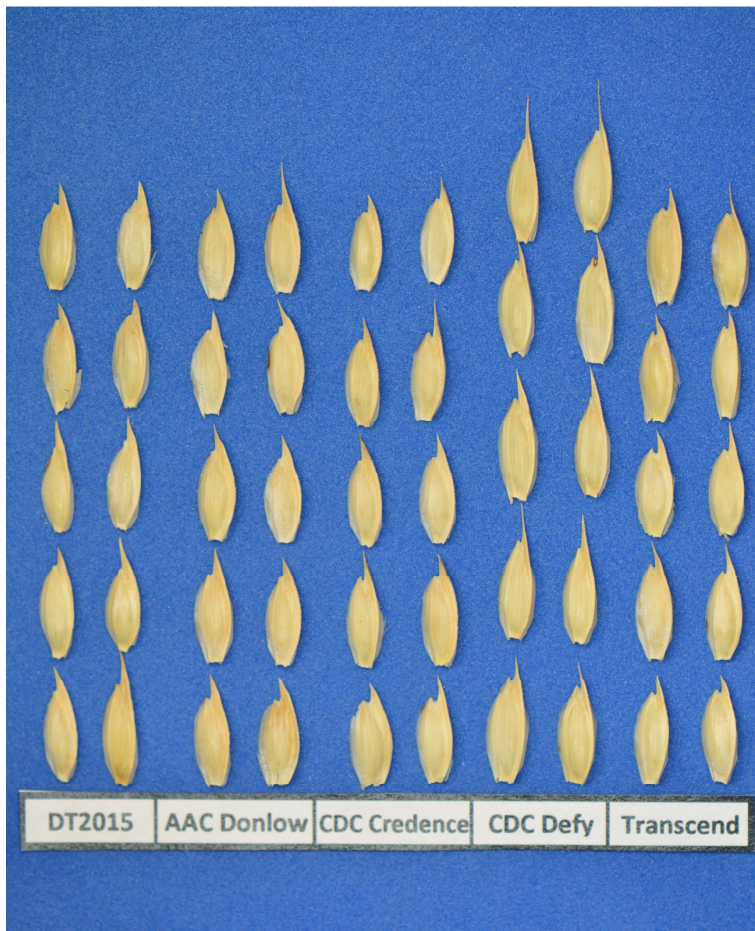
Kernel weight (grams per 1000 kernels)

mean 2021 (LSD=1.5)	41.9	43.5	42.8	44.0	43.4
std. deviation 2021	0.6	1.4	1.2	0.7	0.9
mean 2022 (LSD=2.2)	41.6	43.0	43.8	44.1	41.9
std. deviation 2022	1.7	1.2	1.0	1.1	0.6

*reference varieties



Wheat: 'AAC Antler' (left) with reference varieties 'AAC Donlow' (centre left), 'CDC Credence' (centre), 'CDC Defy' (centre right) and 'Transcend' (right)



Wheat: 'AAC Antler' (left) with reference varieties 'AAC Donlow' (centre left), 'CDC Credence' (centre), 'CDC Defy' (centre right) and 'Transcend' (right)