BARLEY
(Hordeum vulgare)

Proposed denomination: **'AAC Prairie'**
Application number: 20-10399
Application date: 2020/12/11
Applicant: Agriculture & Agri-Food Canada, Brandon, Manitoba
Agent in Canada: Agriculture & Agri-Food Canada, Saskatoon, Saskatchewan
Breeder: Ana Badea, Agriculture & Agri-Food Canada, Brandon, Manitoba

Varieties used for comparison: 'AC Metcalfe', 'CDC Kindersley', 'AAC Synergy' and 'AAC Connect'

Summary: *At tillering, 'AAC Prairie' has sparse to medium density of pubescence on the lower leaf sheaths while 'AC Metcalfe' has absent or very sparse pubescence on the lower leaf sheaths. At booting, the frequency of plants with recurved flag leaves is low for 'AAC Prairie' while it is absent or very low for 'AC Metcalfe' ,'CDC Kindersley', and 'AAC Connect'. The flag leaf of 'AAC Prairie' is narrower than that of 'AAC Connect'. The lemma awn tips of 'AAC Prairie' have a medium to strong intensity of anthocyanin colouration, while anthocyanin colouration is absent on the lemma awn tips of 'AC Metcalfe' and 'AAC Synergy'. At maturity, the plants, including the awns, of 'AAC Prairie' are shorter than the plants of 'AC Metcalfe'. The spike, excluding the awns, of 'AAC Prairie' is shorter than those of 'AAC Synergy' and 'AAC Connect'. The first segment of the rachis for 'AAC Prairie' is long while it is short for 'AC Metcalfe' and of medium length for 'CDC Kindersley'. The inner lateral nerves of the dorsal side of the lemma on the kernel of 'AAC Prairie' have a medium degree of spiculation while those of 'CDC Kindersley' have absent or very weak spiculation and those of 'AAC Connect' have strong spiculation.*

Description:
YOUNG PLANT: semi-erect to intermediate growth habit at tillering, sparse to medium density pubescence on lower leaf sheaths
PLANT: two row, spring malting barley, low frequency of plants with recurved flag leaves, spike emergence occurs mid-season

FLAG LEAF (AT BOOTING): absent or very sparse to sparse pubescence on blade
FLAG LEAF SHEATH: very strong glaucosity, absent or very sparse pubescence
AURICLES: weak to medium intensity of anthocyanin colouration, absent or very sparse to sparse pubescence on margins

SPIKE: medium to strong glaucosity, erect to semi-erect attitude, v-shaped to cup shaped collar, parallel shape, medium to dense, weakly divergent to divergent sterile spikelet attitude, glume and awn of the median spikelet are equal in length relative to the grain
LEMMA AWNS: medium to strong intensity of anthocyanin colouration of tips, longer than spike, rough spiculations on margins
FIRST SEGMENT OF RACHIS: long, medium to strong curvature

KERNEL: whitish aleurone layer, long rachilla hairs, husk present, absent or very weak anthocyanin colouration of nerves of lemma, medium spiculation of inner lateral nerves of dorsal side of lemma, hairless ventral furrow, clasping disposition of lodicules, horseshoe shaped basal markings, medium in length and width

AGRONOMIC CHARACTERISTICS: fair to good resistance to lodging, good malting quality

DISEASE REACTIONS: moderately resistant to Stem rust (*Puccinia graminis*), Net blotch-net form (*Pyrenophora teres forma teres*), Covered smut (*Ustilago hordei*), False loose smut (*Ustilago nigra*); moderately resistant to moderately susceptible to Spot blotch (*Cochliobolus sativus*), Net blotch-spot form (*Pyrenophora teres forma maculate*), Fusarium head blight (*Fusarium graminearum*); susceptible to True loose smut (*Ustilago nuda*)

Origin and Breeding: 'AAC Prairie' (experimental designations TR17255, BM0850-029, and SB140071) originated from the cross conducted between the varieties 'CDC Kindersley' and TR08204 conducted in 2008 at the Agriculture and Agri-Food Canada Brandon Research Centre in Brandon, Manitoba. The F1 generation was bulked in the greenhouse and the F2 grown

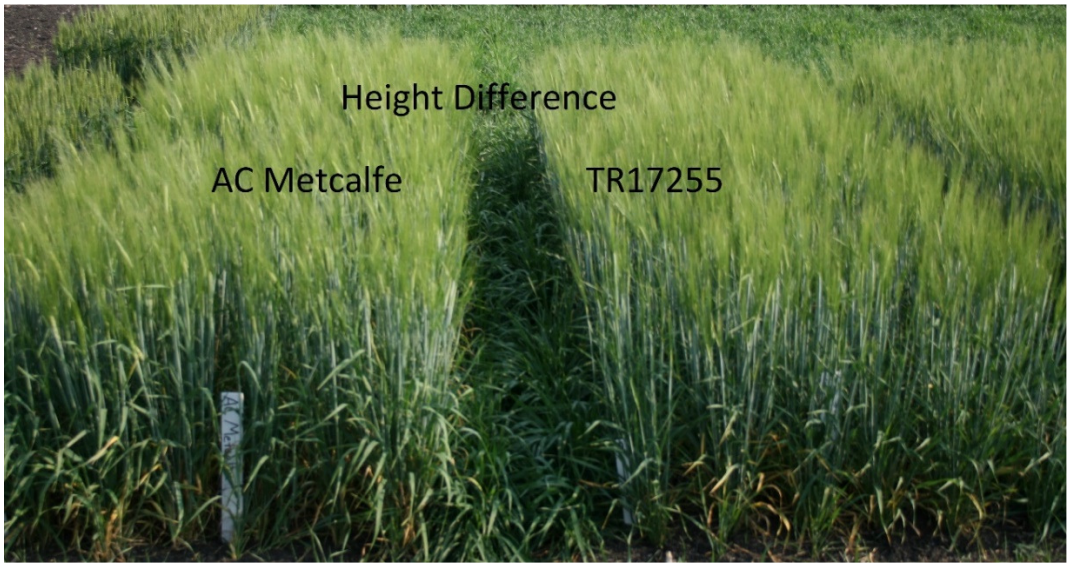
in a bulk plot in the field in Brandon, Manitoba. In 2009-2010, the F3 generation was bulk increased at a winter nursery in Leeston, New Zealand and in 2010, the F4 generation was grown as two bulk plots in Brandon, Manitoba. Three hundred spikes were harvested and threshed individually and planted as single F5 hill plots in the irrigated field leaf disease nursery in Brandon, Manitoba. The 162 lines selected were grown as F6 progeny rows. One of the selected 49 lines, designated as BM0850-029, was grown as a single plot for preliminary yield tests in 2013 and was advanced to replicated preliminary yield trials in 2014, in Brandon but these were lost due to flooding. The line was entered into a new intermediate yield test, grown in Brandon, Manitoba and Lacombe, Alberta. BM0850-029 was grown in an advanced yield test at 5 locations in Western Canada in 2016 and advanced as a malting line in the 2017 Western Cooperative Two-row Barley Registration test as TR17255. TR17255 was also evaluated in the 2018 and 2019 Collaborative Malting Barley Trials. Breeder seed was established from a bulk of 191 F13 derived lines in 2019. Selection criteria included agronomic appearance, plant height, plant maturity, lodging resistance, yield, heading date, kernel plumpness, test weight, kernel weight, kernel brightness, hull peeling, malting quality and disease resistances.

Tests and Trials: The comparative trials for 'TR17255' were conducted during the 2018 and 2021 growing seasons at the Agriculture and Agri-Food Canada, Brandon Research and Development Centre in Brandon, Manitoba. There were 4 replicates per variety arranged in an RCB design. Plots consisted of 6 rows with a row length of 4 metres and 0.18 metre inter row spacing. The seeding density was 1200 seeds per plot resulting in approximately 4800 plants per variety. Measured characteristics were based on a minimum of 20 measurements per variety per year. Mean differences were significant at the 5% probability level based on a paired Student's t-test. Disease reaction ratings were provided through the Disease Evaluation team of the Prairie Recommending Committee for Oat and Barley conducted in 2018 and 2019.

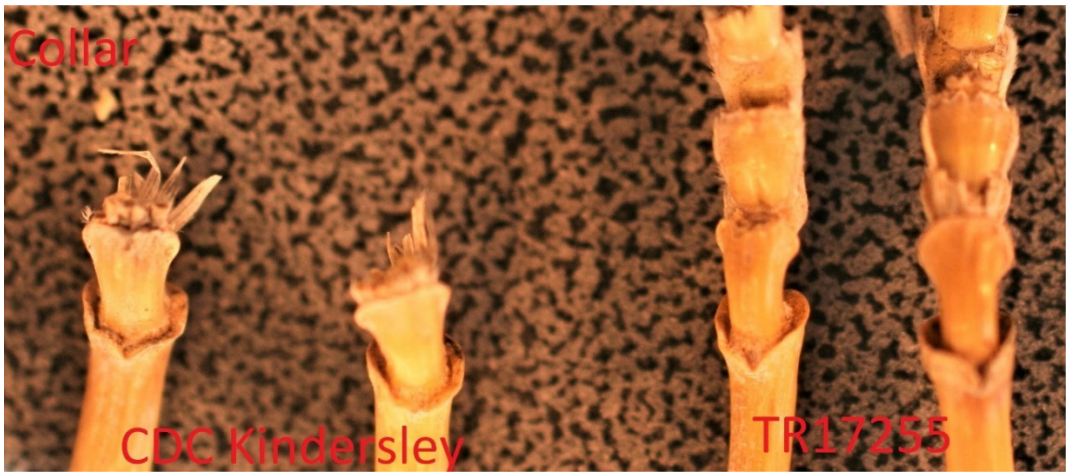
Comparison table for 'AAC Prairie'

	'AAC Prairie'	'AC Metcalfe'*	'CDC Kindersley'*	'AAC Synergy'*	'AAC Connect'*
Flag leaf width (mm)					
mean 2018	6.0	6.35	6.15	6.30	7.55
std. deviation 2018	1.30	2.03	1.09	1.26	2.19
mean 2021	5.45	6.35	5.65	7.30	6.75
std. deviation 2021	0.69	1.53	1.04	1.03	1.48
Plant height (stem plus spike, including awns) (cm)					
mean 2018	64.7	65.85	64.30	65.10	65.45
std. deviation 2018	0.60	0.74	0.64	0.69	0.54
mean 2021	63.8	67.1	63.75	63.95	66.45
std. deviation 2021	0.77	0.91	0.79	0.60	1.00
Spike length (excluding the awns) (cm)					
mean 2018	6.42	6.56	6.84	7.04	7.74
std. deviation 2018	0.60	0.74	0.64	0.69	0.54
mean 2021	7.71	8.01	8.07	9.20	9.31
std. deviation 2021	0.78	0.77	0.43	0.65	0.78

*reference varieties



Barley: 'AAC Prairie' (right) with reference variety 'AC Metcalfe' (left)



Barley: 'AAC Prairie' (right) with reference variety 'CDC Kindersley' (left)

Proposed denomination: **'AB BrewNet'**
Application number: 19-10050
Application date: 2019/12/03
Applicant: Alberta Agriculture and Forestry, Olds, Alberta
Agent in Canada: SeedNet inc., Lethbridge, Alberta
Breeder: Patricia Juskiw, Alberta Agriculture and Forestry, Lacombe, Alberta

Varieties used for comparison: 'Canmore' and 'Lowe'

Summary: *The lemma awn tips of 'AB BrewNet' have a weak intensity of anthocyanin colouration while anthocyanin colouration is absent on the lemma awn tips of 'Lowe'. At maturity, the plants, including the awns, of 'AB BrewNet' are taller than those of 'Canmore'. The spike of 'AB BrewNet' is of a medium density while that of 'Lowe' is lax. The spike, excluding the awns, of 'AB BrewNet' is longer than that of 'Canmore'. The sterile spikelet for 'AB BrewNet' has a divergent attitude while that of 'Canmore' has a parallel to weakly divergent attitude.*

Description:
YOUNG PLANT: semi-erect to intermediate growth habit at tillering, absent or very sparse pubescence on lower leaf sheaths
PLANT: two row, spring malting barley, low frequency of plants with recurved flag leaves, spike emergence occurs mid-season

FLAG LEAF (AT BOOTING): sparse pubescence on blade
FLAG LEAF SHEATH: medium glaucosity, sparse pubescence
AURICLES: strong intensity of anthocyanin colouration, sparse pubescence on margins

SPIKE: medium glaucosity, semi-erect attitude, cup shaped collar, tapering, medium density, divergent sterile spikelet attitude, glume and awn of the median spikelet are equal in length relative to the grain
LEMMA AWNS: weak intensity of anthocyanin colouration of tips, longer than spike, rough spiculations on margins
FIRST SEGMENT OF RACHIS: medium length, weak degree of curvature

KERNEL: whitish aleurone layer, long rachilla hairs, husk present, absent or very weak anthocyanin colouration of nerves of lemma, strong spiculation of inner lateral nerves of dorsal side of lemma, hair present on ventral furrow, clasping disposition of lodicules, horseshoe shaped basal markings, medium in length and width

AGRONOMIC CHARACTERISTICS: good resistance to lodging, good resistance to shattering, good tolerance to straw breakage, fair tolerance to drought, good malting quality

Origin and Breeding: 'AB BrewNet' (experimental designations TR16629 and J06039004) originated from the cross between the varieties J06018 F1 and 'Merit' conducted in 2006 at the Alberta Agriculture and Forestry Field Crop Development Centre in Lacombe, Alberta. The F2 and F3 generations were bulked in Lacombe in 2007 and in California in the winter of 2007-2008, respectively. Two hundred F3 heads were selected and the seed advanced to the F6 generation with disease pressure in Lacombe, Alberta. In 2011, 200 F7 head rows were grown in Lacombe where one line designated J06039004 was selected based on marker assisted selection for resistance to scald, grain yield, test weight, kernel weight, lodging resistance, straw strength and maturity. J06039004 underwent further disease testing from 2012 to 2015 and was entered in the Western Cooperative Two-row Barley Test as TR16629 in 2016.

Tests and Trials: The comparative trials for 'AB BrewNet' were conducted during the 2020 and 2021 growing seasons at Olds College Field Crop Development Centre in Lacombe, Alberta. The trial was arranged in a RCB design with 3 replicates. Each plot consisted of 8 rows with a row length of 2.5 metres. There was 0.14 metre inter row spacing with 0.4 metres between the plots. The seeding density was 269 seeds per squared metre resulting in approximately 2250 plants per variety. Measured characteristics were based on 30 measurements per variety per year. Mean differences were significant at the 5% probability level based on a paired Student's t-test.

Comparison table for 'AB BrewNet'

	'AB BrewNet'	**'Canmore'***	**'Lowe'***
Plant height (stem plus spike, including awns) (cm)			
mean 2020	117.87	113.07	110.30
std. deviation 2020	5.32	3.95	4.73
mean 2021	101.37	101.97	91.73
std. deviation 2021	6.15	5.12	4.51
Spike length (excluding the awns) (cm)			
mean 2020	8.55	9.49	7.60
std. deviation 2020	0.68	0.78	0.73
mean 2021	10.44	9.62	8.44
std. deviation 2021	0.80	0.92	0.75

*reference varieties

Barley: 'AB BrewNet' (centre) with reference varieties 'Lowe' (left) and 'Canmore' (right)

Barley: 'AB BrewNet' (left) with reference varieties 'Lowe' (centre) and 'Canmore' (right)

Proposed denomination: **'AB Hague'**
Application number: 20-10159
Application date: 2020/04/24
Applicant: Alberta Agriculture and Forestry, Olds, Alberta
Agent in Canada: FP Genetics Inc., Regina, Saskatchewan
Breeder: Patricia Juskiw, Alberta Agriculture and Forestry, Lacombe, Alberta

Variety used for comparison: 'CDC Austenson'

Summary: *At booting, the flag leaf of 'AB Hague' is narrower than that of 'CDC Austenson'. The spike of 'AB Hague' is lax while that of 'CDC Austenson' is of a medium density. The spike, excluding the awns, of 'AB Hague' is longer than that of 'CDC Austenson'. The sterile spikelet of 'AB Hague' has a parallel attitude while that of 'CDC Austenson' has a parallel to weakly divergent attitude.*

Description:
YOUNG PLANT: semi-erect growth habit at tillering, absent or very sparse pubescence on lower leaf sheaths
PLANT: two row, spring feed barley, low frequency of plants with recurved flag leaves, spike emergence occurs mid-season

FLAG LEAF (AT BOOTING): sparse pubescence on blade
FLAG LEAF SHEATH: medium glaucosity, sparse pubescence
AURICLES: medium intensity of anthocyanin colouration, sparse pubescence on margins

SPIKE: medium glaucosity, semi-erect attitude, cup shaped collar, tapering, lax, parallel attitude of sterile spikelet, glume and awn of the median spikelet are equal in length relative to the grain
LEMMA AWNS: weak intensity of anthocyanin colouration of tips, longer than spike, rough spiculations on margins
FIRST SEGMENT OF RACHIS: medium length, medium degree of curvature

KERNEL: long rachilla hairs, husk present, weak anthocyanin colouration of nerves of lemma, weak spiculation of inner lateral nerves of dorsal side of lemma, absent or very weak degree of hairiness of ventral furrow, clasping disposition of lodicules, transverse crease shaped basal markings, medium in length and width

AGRONOMIC CHARACTERISTICS: good resistance to lodging, good resistance to shattering, good tolerance to straw breakage, good tolerance to drought, poor malting quality

Origin and Breeding: 'AB Hague' (experimental designations TR18647 and T07041002003) originated from the cross between varieties 'Xena', as the female parent, and H94061120, as the male parent, conducted in 2007 at the Alberta Agriculture and Forestry Field Crop Development Centre in Lacombe, Alberta. The F2 seed was bulked in Lacombe in 2008 and entered into a single seed descent program with the F3 and F4 grown indoors during the winter of 2008-2009, in Lacombe, Alberta. Selected F4 heads were grown as F5 headrows in the field, in 2009. One line was designated T07041002003 and was tested for yield and disease resistance from 2010 to 2014 and was entered in the Western Cooperative Six-row Barley Test (Coop) as TR18647 in 2015. Selection criteria included grain and forage yield, test weight, kernel weight, lodging resistance, disease resistance, maturity as well as feed and forage quality.

Tests and Trials: The comparative trials for 'AB Hague' were conducted during the 2020 and 2021 growing seasons at Olds College Field Crop Development Centre in Lacombe, Alberta. The trial was arranged in a RCB design with 3 replicates. Each plot consisted of 8 rows with a row length of 2.5 metres. There was 0.14 metre inter row spacing with 0.4 metres between the plots. The seeding density was 269 seeds per squared metre resulting in approximately 2250 plants per variety. Measured characteristics were based on 30 measurements per variety per year. Mean differences were significant at the 5% probability level based on a paired Student's t-test.

Comparison table for 'AB Hague'

	'AB Hague'	'CDC Austenson'*
Flag leaf width (mm)		
mean 2020	7.00	8.07
std. deviation 2020	1.46	2.00
mean 2021	8.50	9.77
std. deviation 2021	1.61	1.14
Spike length (excluding the awns) (cm)		
mean 2020	9.11	7.80
std. deviation 2020	0.80	0.53
mean 2021	9.36	7.61
std. deviation 2021	0.68	0.79

*reference variety

Barley: 'AB Hague' (right) with reference variety 'CDC Austenson' (left)

Barley: 'AB Hague' (left) with reference variety 'CDC Austenson' (right)

Proposed denomination: **'AB Tofield'**
Application number: 20-10065
Application date: 2020/01/02
Applicant: Alberta Agriculture and Forestry, Olds, Alberta
Agent in Canada: SeCan Association, Kanata, Ontario
Breeder: Joseph Nyachiro, Alberta Agriculture and Forestry, Lacombe, Alberta

Varieties used for comparison: 'AC Ranger' and 'Vivar'

Summary: *At tillering, the plants of 'AB Tofield' have a semi-erect growth habit while those of 'AC Ranger' have an intermediate, between semi-erect and semi-prostate, growth habit. At booting , anthocyanin colouration is absent on the flag leaf auricle of 'AB Tofield' while it is of a weak intensity on the flag leaf auricles of 'AC Ranger' and 'Vivar'. The flag leaf of 'AB Tofield' is wider than that of 'AC Ranger' and larger than that of 'Vivar'. At maturity, the plants, including the awns, of 'AB Tofield' are taller than those of 'Vivar'. The collar on the spike of 'AB Tofield' is open while those of the reference varieties are v-shaped. The lemma awns of 'AB Tofield' are smooth while those of the reference varieties have rough spiculations on the margins.*

Description:
YOUNG PLANT: semi-erect growth habit at tillering, absent or very sparse pubescence on lower leaf sheaths
PLANT: six row, spring feed barley, absent or very low frequency of plants with recurved flag leaves, spike emergence occurs mid-season

FLAG LEAF (AT BOOTING): sparse pubescence on blade
FLAG LEAF SHEATH: medium glaucosity, sparse pubescence
AURICLES: anthocyanin colouration absent, sparse pubescence on margins

SPIKE: weak to medium glaucosity, semi-erect attitude, open collar, tapering, lax, glume and awn of the median spikelet are longer relative to the grain
LEMMA AWNS: weak intensity of anthocyanin colouration of tips, longer than spike, smooth spiculations on margins
FIRST SEGMENT OF RACHIS: short, weak degree of curvature

KERNEL: long rachilla hairs, husk present, absent or very weak anthocyanin colouration of nerves of lemma, medium spiculation of inner lateral nerves of dorsal side of lemma, hairless ventral furrow, clasping disposition of lodicules, incomplete horseshoe shaped basal markings, medium in length and width

AGRONOMIC CHARACTERISTICS: poor winter survival, good resistance to lodging, poor malting quality

Origin and Breeding: 'AB Tofield' (experimental designations SR17515 and H07057014) originated from the cross between the varieties H97094002, as the female parent, and 'Sundre', as the male parent, conducted in 2007 at the Alberta Agriculture and Forestry Field Crop Development Centre in Lacombe, Alberta. The F2 and F3 generations were bulked in Lacombe in 2007 and in El Centro, California in the winter of 2008-2009, respectively. The F4 and F5 generations were advanced in Lacombe in 2009 and 2010 with selected F5 heads grown as F6 headrows in 2011. One line, designated as H07057014, was tested in multi-location replicated trials and disease nurseries in Western Canada from 2012 to 2016 and entered the Western Cooperative Six-row Barley Test (Coop) as SR17515 in 2017. Selection criteria included grain and forage yield, test weight, kernel weight, lodging resistance, disease resistance, maturity and feed quality.

Tests and Trials: The comparative trials for 'AB Tofield' were conducted during the 2020 and 2021 growing seasons at Olds College Field Crop Development Centre in Lacombe, Alberta. The trial was arranged in a RCB design with 3 replicates. Each plot consisted of 8 rows with a row length of 2.5 metres. There was 0.14 metre inter row spacing with 0.4 metres between the plots. The seeding density was 269 seeds per squared metre resulting in approximately 2250 plants per variety. Measured characteristics were based on 30 measurements per variety per year. Mean differences were significant at the 5% probability level based on a paired Student's t-test.

Comparison table for 'AB Tofield'

	'AB Tofield'	**'AC Ranger'***	**'Vivar'***
Flag leaf length (cm)			
mean 2020	14.71	14.67	12.43
std. deviation 2020	2.86	2.02	3.07
mean 2021	18.19	16.61	15.42
std. deviation 2021	3.09	3.05	3.12
Flag leaf width (mm)			
mean 2020	14.73	12.5	12.83
std. deviation 2020	1.60	1.33	2.34
mean 2021	16.07	13.00	14.00
std. deviation 2021	1.46	1.64	1.76
Plant height (stem plus spike, including awns) (cm)			
mean 2020	113.43	113.30	103.40
std. deviation 2020	3.36	3.16	4.02
mean 2021	96.00	93.33	86.67
std. deviation 2021	3.71	2.89	2.48

*reference varieties

Barley: 'AB Tofield' (centre) with reference varieties 'Vivar' (left) and 'AC Ranger' (right)

Barley: 'AB Tofield' (centre) with reference varieties 'AC Ranger' (left) and 'Vivar' (right)

Proposed denomination: **'CDC Renegade'**
Application number: 21-10442
Application date: 2021/02/17
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Aaron Beattie, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Maverick' and 'Oreana'

Summary: *At booting, the frequency of plants with recurved flag leaves is medium to high for 'CDC Renegade' while the frequency of plants with recurved flag leaves is low for 'CDC Maverick'. The anthocyanin colouration on the flag leaf auricle for 'CDC Renegade' is absent or of a very weak to weak intensity while it is of a medium intensity on the flag leaf auricle of 'CDC Maverick'. The flag leaf of 'CDC Renegade' is larger than those of 'CDC Maverick' and 'Oreana'. At maturity, the plants, including the awns, of 'CDC Renegade' are shorter than the plants of 'CDC Maverick' and taller than those of 'Oreana'. The spike of 'CDC Renegade' is very lax to lax while that of 'Oreana' is of a medium density. The spike, excluding the awns, of 'CDC Renegade' is longer than those of the reference varieties. The lemma awns of 'CDC Renegade' are shorter or equal in length compared to the spike while the lemma awns of 'Oreana' are longer than the spike. The lemma awns of 'CDC Renegade' are smooth while those of 'Oreana' have rough spiculations on the margins. Spiculation of the inner lateral nerves of the dorsal side of the lemma on the kernel of 'CDC Renegade' is absent or very weak while it is of a medium degree for 'Oreana'. The kernel weight for 'CDC Renegade' is less than that of 'CDC Maverick'.*

Description:
YOUNG PLANT: semi-erect growth habit at tillering, absent or very sparse pubescence on lower leaf sheaths
PLANT: two row, spring forage barley, medium to high frequency of plants with recurved flag leaves, spike emergence occurs mid-season

FLAG LEAF (AT BOOTING): absent or very sparse pubescence on blade
FLAG LEAF SHEATH: medium glaucosity, absent or very sparse pubescence
AURICLES: absent or very weak to weak intensity of anthocyanin colouration, absent or very sparse pubescence on margins

SPIKE: weak to medium glaucosity, semi-erect to horizontal attitude, v-shaped to open collar, parallel shape, very lax to lax, reduced sterile spikelet, glume and awn of the median spikelet are longer than grain
LEMMA AWNS: absent or very weak to weak intensity of anthocyanin colouration of tips, shorter to equal than length of spike, smooth spiculations on margins
FIRST SEGMENT OF RACHIS: medium length, weak to strong curvature

KERNEL: whitish aleurone layer, long rachilla hairs, husk present, weak anthocyanin colouration of nerves of lemma, absent or very weak spiculation of inner lateral nerves of dorsal side of lemma, hairless ventral furrow, clasping disposition of lodicules, horseshoe shaped basal markings, medium in length and width

AGRONOMIC CHARACTERISTICS: fair resistance to lodging, good resistance to shattering, good tolerance to straw breakage, fair to good tolerance to drought

Origin and Breeding: 'CDC Renegade' (experimental designations FB209 and SB140071) originated from the cross conducted between the varieties 'Xena' and SB090601 conducted in 2010 at the University of Saskatchewan Crop Development Centre in Saskatoon, Saskatchewan. The F1 and F2 generations were bulked in New Zealand in the winter of 2010-2011 and in Saskatoon, Saskatchewan in 2011, respectively. The F3 was bulked in New Zealand in the winter of 2011-2012 and the F4 space planted in Saskatoon in 2012. Selected F5 heads were grown as hill plots in Saskatoon in 2013 and the bulked F6 seed from one selected hill plot was designated as SB140071. SB140071 underwent yield trials from 2014 to 2017 and was tested in the Western Cooperative Forage Barley Registration Trials as FB209 in 2018 and 2019. Selection criteria included hull presence, awn smoothness, forage yield and quality, grain yield, physical grain quality, lodging resistance, maturity and disease resistances.

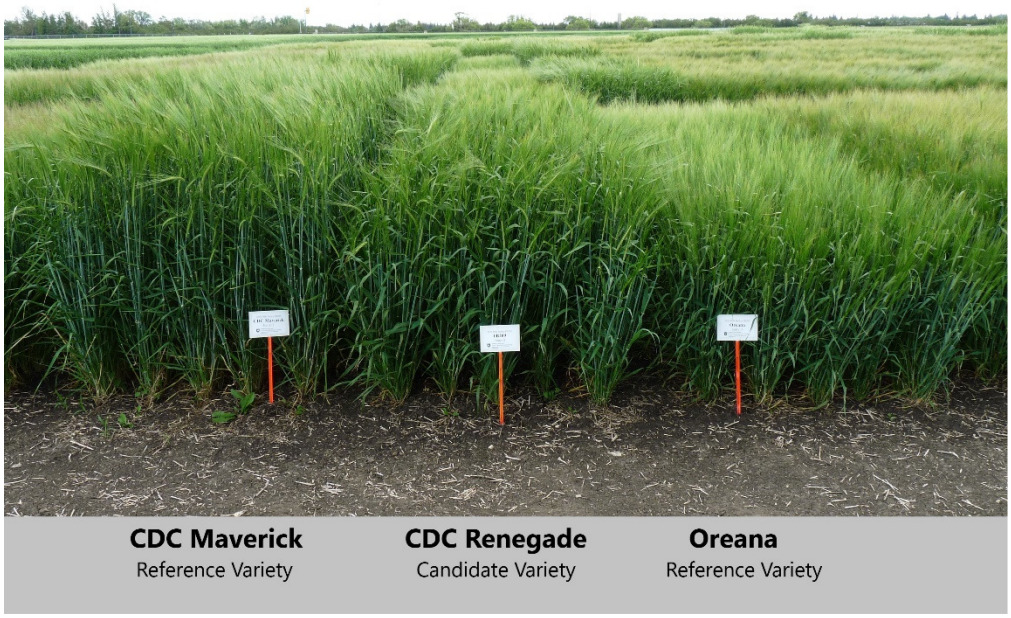
Tests and Trials: The comparative trials for 'CDC Renegade' were conducted during the 2020 and 2021 growing seasons at the University of Saskatchewan Crop Science Field Laboratory in Saskatoon, Saskatchewan. The trial was arranged in a RCB design with 4 replicates. Each plot consisted of 4 or 5 rows with a row length of 3.66 metres and 0.2 metre inter row spacing. The seeding density was 215 seeds per squared metre resulting in approximately 4500 plants per variety. Measured

characteristics were based on a minimum of 24 measurements per variety per year, except for kernel weight, which was based on 10 measurements per variety per year. Mean differences were significant at the 5% probability level based on LSD values.

Comparison table for 'CDC Renegade'

	'CDC Renegade'	'CDC Maverick'*	'Oreana'*
Flag leaf length (cm)			
mean 2020 (LSD=1.0)	19.9	16.8	18.1
std. deviation 2020	2.9	2.1	2.4
mean 2021 (LSD=0.9)	15.4	13.1	13.2
std. deviation 2021	2.4	2.4	2.0
Flag leaf width (mm)			
mean 2020 (LSD=0.5)	15.8	11.3	9.8
std. deviation 2020	1.5	1.1	1.0
mean 2021 (LSD=0.6)	13.4	9.2	8.6
std. deviation 2021	1.8	1.3	1.2
Plant height (stem plus spike, including awns) (cm)			
mean 2020 (LSD=0.7)	104.2	114.7	78.9
std. deviation 2020	2.1	1.9	2.3
mean 2021 (LSD=3.0)	68.7	75.2	52.2
std. deviation 2021	2.2	2.1	2.0
Spike length (excluding the awns) (cm)			
mean 2020 (LSD=0.2)	11.6	9.8	7.5
std. deviation 2020	0.7	0.4	0.5
mean 2021 (LSD=0.5)	11.8	10.4	8.7
std. deviation 2021	1.1	0.5	1.0
Kernel weight (grams per 1000 kernels)			
mean 2020 (LSD=0.8)	50.6	55.5	42.1
std. deviation 2020	0.4	0.8	1.2
mean 2021 (LSD=0.8)	48.6	54.1	49.6
std. deviation 2021	0.9	1.1	0.5

*reference varieties



Barley: 'CDC Renegade' (centre) with reference varieties 'CDC Maverick' (left) and 'Oreana' (right)

Barley: 'CDC Renegade' (centre) with reference varieties 'CDC Maverick' (left) and 'Oreana' (right)

Barley: 'CDC Renegade' (centre) with reference varieties 'CDC Maverick' (left) and 'Oreana' (right)

Proposed denomination: **'CDC Valdres'**
Application number: 20-10097
Application date: 2020/02/20
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Aaron Beattie, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC McGwire' and 'CDC Rattan'

Summary: *At booting, the frequency of plants with recurved flag leaves is high for 'CDC Valdres' while the frequency is low to medium for 'CDC McGwire' and low for 'CDC Rattan'. The flag leaf of 'CDC Valdres' is longer than the flag leaf of 'CDC McGwire' and larger than that of 'CDC Rattan'. At maturity, the plants, including the awns, of 'CDC Valdres' are shorter than the plants of 'CDC McGwire'. The spike, excluding the awns, of 'CDC Valdres' is shorter than those of the reference varieties. The first segment of the rachis for 'CDC Valdres' has a medium curvature while that of 'CDC McGwire' is strongly curved. The kernel of 'CDC Valdres' has short rachilla hairs while the kernels of 'CDC McGwire' and 'CDC Rattan' have long rachilla hairs. Spiculation of the inner lateral nerves of the dorsal side of the lemma on the kernel of 'CDC Valdres' is medium to strong while it is absent or very weak for 'CDC McGwire'. The kernel weight for 'CDC Valdres' is greater than that of 'CDC Rattan'.*

Description:
YOUNG PLANT: semi-erect growth habit at tillering, absent or very sparse pubescence on lower leaf sheaths
PLANT: two row, spring food barley, high frequency of plants with recurved flag leaves, spike emergence occurs mid-season

AURICLES: weak to medium intensity of anthocyanin colouration

SPIKE: medium glaucosity, semi-erect attitude, platform shape collar, parallel shape, lax, sterile spikelet of parallel to weakly divergent attitude
LEMMA AWNS: strong intensity of anthocyanin colouration of tips, equal to longer than spike, rough spiculations on margins
FIRST SEGMENT OF RACHIS: medium length, medium curvature

KERNEL: whitish aleurone layer, short rachilla hairs, husk absent, absent or very weak to medium anthocyanin colouration of nerves of lemma, medium to strong spiculation of inner lateral nerves of dorsal side of lemma, hairless ventral furrow, clasping disposition of lodicules

AGRONOMIC CHARACTERISTICS: good resistance to lodging, good resistance to shattering, good tolerance to straw breakage, fair to good tolerance to drought

DISEASE REACTION: resistant to True loose smut (*Ustilago nuda*)

Origin and Breeding: 'CDC Valdres' (experimental designations HB17340 and SH140017) originated from the cross conducted between the varieties 'CDC Marlina' and 'CDC Austenson' conducted in 2010 at the University of Saskatchewan Crop Development Centre in Saskatoon, Saskatchewan. The F1 and F2 generations were bulked in New Zealand in the winter of 2010-2011 and in Saskatoon, Saskatchewan in 2011, respectively. The F3 generation was bulked in New Zealand in the winter of 2011-2012 and the F4 generation space planted in Saskatoon in 2012. Selected F5 heads were grown as hill plots in Saskatoon in 2013 and the bulked F6 seed from one selected hill plot was designated as SH140017. SH140017 underwent yield trials from 2014 to 2016 and was tested in the Western Cooperative Hulless Barley Registration Trials as HB17340 in 2017 and 2018. Selection criteria included hull absence, plant height, grain plumpness and yield, maturity, lodging resistance, threshability and disease resistances.

Tests and Trials: The comparative trials for 'CDC Valdres' were conducted during the 2019 and 2021 growing seasons at the University of Saskatchewan Crop Science Field Laboratory in Saskatoon, Saskatchewan. The trial was arranged in a RCB design with 4 replicates. Each plot consisted of 4 or 5 rows with a row length of 3.66 metres and 0.2 metre inter row spacing. The seeding density was 215 seeds per squared metre resulting in approximately 4500 plants per variety. Measured characteristics were based on a minimum of 24 measurements per variety per year except for kernel weight which was based on a minimum of 10 measurements per variety per year. Mean differences were significant at the 5% probability level based

on LSD values. The disease reaction rating was provided through the Disease Evaluation team of the Prairie Recommending Committee for Oat and Barley conducted in 2017 and 2018.

Comparison table for 'CDC Valdres'

	'CDC Valdres'	'CDC McGwire'*	'CDC Rattan'*
Flag leaf length (cm)			
mean 2019 (LSD=1.1)	18.0	14.5	12.6
std. deviation 2019	2.8	2.5	2.6
mean 2021 (LSD=1.2)	15.6	13.0	10.6
std. deviation 2021	2.7	1.6	1.8
Flag leaf width (mm)			
mean 2019 (LSD=0.6)	9.1	8.8	8.1
std. deviation 2019	1.5	1.4	1.6
mean 2021 (LSD=0.8)	9.7	10.2	8.1
std. deviation 2021	1.6	1.3	1.3
Plant height (stem plus spike, including awns) (cm)			
mean 2019 (LSD=0.9)	74.6	82.3	72.4
std. deviation 2019	2.9	3.5	3.0
mean 2021 (LSD=4.1)	54.8	64.5	56.4
std. deviation 2021	3.6	5.1	4.2
Spike length (excluding the awns) (cm)			
mean 2019 (LSD=0.3)	9.4	10.4	10.0
std. deviation 2019	0.6	0.8	0.7
mean 2021 (LSD=0.5)	9.0	10.3	10.1
std. deviation 2021	0.9	1.0	0.8
Kernel weight (grams per 1000 kernels)			
mean 2019 (LSD=0.4)	42.0	43.3	39.5
std. deviation 2019	0.6	0.4	0.5
mean 2021 (LSD=0.4)	40.2	39.7	37.0
std. deviation 2021	0.2	0.6	0.5

*reference varieties

Barley: 'CDC Valdres' (centre) with reference varieties 'CDC McGwire' (left) and 'CDC Rattan' (right)

Barley: 'CDC Valdres' (centre) with reference varieties 'CDC McGwire' (left) and 'CDC Rattan' (right)

Proposed denomination: **'Doriane'**
Application number: 20-10193
Application date: 2020/05/08
Applicant: La Coop fédérée, Saint-Hyacinthe, Quebec
Breeder: Christian Azar, La Coop fédérée, Saint-Hyacinthe, Quebec

Varieties used for comparison: 'Cyane' and 'Boroe'

Summary: *At tillering, the plants of 'Doriane' have an intermediate, between semi-erect and semi-prostate, growth habit while the plants of 'Cyane' have a semi-erect growth habit and those of 'Boroe' have an erect to semi-erect growth habit. At booting, the frequency of plants with recurved flag leaves is medium to high for 'Doriane' while the frequency of plants with recurved flag leaves is low for 'Boroe'. The anthocyanin colouration on the auricles of the flag leaf of 'Doriane' is of a weak to medium intensity while it is absent or very weak on the auricles of the flag leaf of 'Boroe'. The flag leaf of 'Doriane' is shorter than the flag leaf of 'Boroe'. The lemma awns of 'Doriane' have a strong intensity of anthocyanin colouration on the tips while the lemma awns of 'Cyane' have a weak intensity of anthocyanin colouration on the tips. The first segment of the rachis for 'Doriane' is short to medium in length while the first segment of the rachis is medium to long for 'Boroe'. When the caryopsis is hard, the glume and awn of the median spikelet is longer than the grain for 'Doriane' while the glume and awn are equal in length to the grain for 'Boroe'. The inner lateral nerves of the dorsal side of the lemma on the kernel of 'Doriane' has a weak to medium degree of spiculation while that of 'Boroe' has absent or very weak spiculation.*

Description:

YOUNG PLANT: intermediate between semi-erect and semi-prostrate growth habit at tillering, absent or very sparse pubescence on lower leaf sheaths
PLANT: six row, spring barley, medium to high frequency of plants with recurved flag leaves

FLAG LEAF (AT BOOTING): absent or very sparse pubescence on blade
FLAG LEAF SHEATH: strong glaucosity, absent or very sparse pubescence
AURICLES: weak to medium intensity of anthocyanin colouration, absent or very sparse pubescence on margins

SPIKE: emerges mid-season, absent or very weak glaucosity, semi-erect attitude, open collar, parallel shape, medium density, glume and awn of the median spikelet are longer than length of grain
LEMMA AWNS: strong intensity of anthocyanin colouration of tips, equal to longer than length of spike, semi-smooth to rough due to presence of spiculations on two thirds to entire margin
FIRST SEGMENT OF RACHIS: short to medium, absent to very weak curvature

KERNEL: short rachilla hairs, husk present, absent or very weak anthocyanin colouration of nerves of lemma, weak to medium spiculation of inner lateral nerves of dorsal side of lemma, hairless ventral furrow

Origin and Breeding: 'Doriane' (experimental designation CFO1505) originated from the cross conducted between 'Cyane', as the female parent, and 99050.18000000001, as the male parent, conducted in 2008 at La Coop Fédérée in Saint-Hyacinthe, Quebec. A modified mass selection technique was used from the F1 to F5 generations based on yield, maturity, lodging resistance, test weight, 1000 kernel weight and disease resistance. At the F5 generation, one line was designated CFO1505. Individual spikes, representing 29 lines at the F9 generation, were selected and bulked to establish breeder seed in 2015.

Tests and Trials: The comparative trials for 'Doriane' were conducted at La Coop Fédérée Research Farm in Saint- Hyacinthe, Quebec in 2019 and 2021. There were 4 replicates per variety arranged in an RCB design. In 2019, the size of the plots were 6 square metres and consisted of seven 5 m long rows spaced 0.18 m apart. In 2021, the size of the plots were 5 square metres and consisted of seven 4.5 m long rows spaced 0.18 m apart. The seeding density was 375 seeds per metre squared resulting in a minimum of 6500 plants per variety per year. Measured characteristics were based on 20 measurements per variety per year. Mean differences were significant at the 5% probability level based on a Tukey test.

Comparison table for 'Doriane'

	'Doriane'	'Cyane'*	'Boroe'*
Flag leaf length (cm)			
mean 2019	9.5	9.2	12.7
std. deviation 2019	1.6	1.2	1.4
mean 2021	9.7	10.7	11.9
std. deviation 2021	2.3	2.0	2.5

*reference varieties

Barley: 'Doriane' (centre) with reference varieties 'Boroe' (left) and 'Cyane' (right)