



**BARLEY**  
(*Hordeum vulgare*)

**Proposed denomination:** 'Cerveza'  
**Application number:** 10-6949  
**Application date:** 2010/04/30  
**Applicant:** Agriculture & Agri-Food Canada, Brandon, Manitoba  
**Agent in Canada:** Agriculture & Agri-Food Canada, Lacombe, Alberta  
**Breeder:** Bill Legge, Agriculture & Agri-Food Canada, Brandon, Manitoba

**Varieties used for comparison:** 'Major', 'AC Metcalfe' and 'Newdale'

**Summary:** *The frequency of plants with recurved flag leaves is low in 'Cerveza' whereas it is absent or very low in 'AC Metcalfe'. The intensity of anthocyanin colouration of the flag leaf auricles of 'Cerveza' is medium whereas it is very weak on 'AC Metcalfe'. The intensity of anthocyanin colouration on the tips of the lemma awns of 'Cerveza' is very weak to weak to medium whereas it is very weak on 'AC Metcalfe'. The spikes of 'Cerveza' are longer than those of 'Major' and 'AC Metcalfe'. The first rachis segment of 'Cerveza' is longer than that of all reference varieties. The kernels of 'Cerveza' are longer than those of 'Major' and 'AC Metcalfe'. 'Cerveza' is resistant to true loose smut (Ustilago nuda) whereas 'Newdale' is very susceptible.*

**Description:**

**PLANT:** two row, spring malting barley, erect to semi-erect growth habit at tillering, absent or very sparse pubescence on the lower leaf sheaths

**FLAG LEAF:** low frequency of plants with recurved flag leaves, absent or very weak pubescence on blade

**FLAG LEAF SHEATH:** very strong glaucosity, absent or very weak pubescence

**AURICLES:** medium intensity of anthocyanin colouration, absent or very weak pubescence on the margins

**SPIKE:** emerges mid-season, medium to strong glaucosity, erect to semi-erect to horizontal attitude, v-shaped closed cup collar, tapering to parallel shape, medium density, parallel to weakly divergent to divergent attitude of sterile spikelet, glume and awn of the median spikelet is longer than the grain

**FIRST SEGMENT OF RACHIS:** short, very weak to strong curvature

**LEMMA AWNS:** very weak to medium intensity of anthocyanin colouration of the tips, longer than length of spike, rough spiculation on margins

**KERNEL:** absent or very weak intensity of anthocyanin colouration of nerves of the lemma at beginning of ripening, whitish aleurone layer, long rachilla hairs, husk present, weak to medium spiculation of inner lateral nerves of dorsal side of lemma, no hairiness of ventral furrow, clasping disposition of lodicules, horseshoe shape basal markings

**AGRONOMY:** fair to good resistance to lodging, very good malting quality

**DISEASE REACTION:** moderately resistant to moderately susceptible to Common root rot (*Cochliobolus sativus*, *Fusarium* spp.), Net blotch (*Pyrenophora teres*), Stem rust (*Puccinia graminis*) and Fusarium head blight (Scab) (*Fusarium graminearum*); perfect state (*Gibberella zeae*), resistant to moderately resistant to Spot blotch (*Cochliobolus sativus*), susceptible to Septoria speckled leaf blotch (*Septoria passerinii*), Scald (*Rhynchosporium secalis*) and Barley yellow dwarf virus and resistant to Covered smut (*Ustilago hordie*), False loose smut, Black semi-loose smut (*Ustilago nigra*) and True loose smut (*Ustilago nuda*)

**Origin and Breeding:** 'Cerveza' (experimental designation 'TR06294') is a doubled haploid barley line developed from the cross 'TR251'/'Newdale'/'TR253'/'Newdale' made in the fall of 1998 at the Agriculture and Agri-Food Canada Brandon Research Centre, Brandon, Manitoba. Two seeds of the F1 generation were planted in each of 5 pots in July 1999. Spikes were collected for doubled haploid production and embryos developed. The anther culture treatment from the F1 plants produced numerous double haploid plants, one of which became BM9831D-290 which was transplanted in the greenhouse,

grown to maturity and harvested in April 2000. In May 2000, BM9831D-290 was planted as a single progeny row in the field at Brandon and selected based on height, maturity, lodging resistance, general appearance and field disease reaction. It was bulk increased in a winter nursery in Leeston, New Zealand that winter. The following spring, BM9831D-290 was planted out as a single plot in a preliminary yield test with repeated checks in Brandon and further selected for various agronomic, disease resistance and quality characteristics. BM9831D-290 was advanced to replicated yield tests and further evaluated for malting quality from 2002-2004. In 2005, BM9831D-290 was advanced to the Eastern Prairie Barley Test. In 2006, BM9831D-290 was advanced to the Western Cooperative Two-row Barley Registration Test where it was tested for two years as TR06294. In 2007-08, further evaluations were conducted in the Collaborative Malting Barley Trials as part of the registration recommending process under the auspices of the Prairie Recommending Committee for Oat and Barley.

**Tests and Trials:** Tests and trials for 'Cerveza' were conducted in Brandon, Manitoba during the summers of 2009 and 2010. The trials consisted of 4 replicates of each variety arranged in complete randomized block design. Each plot measured approximately 4 metres long x 1 metre wide spaced approximately 0.5 metres apart with a row spacing of 0.18 metres. Measured characteristics were based on approximately 20 measurements per variety per year.

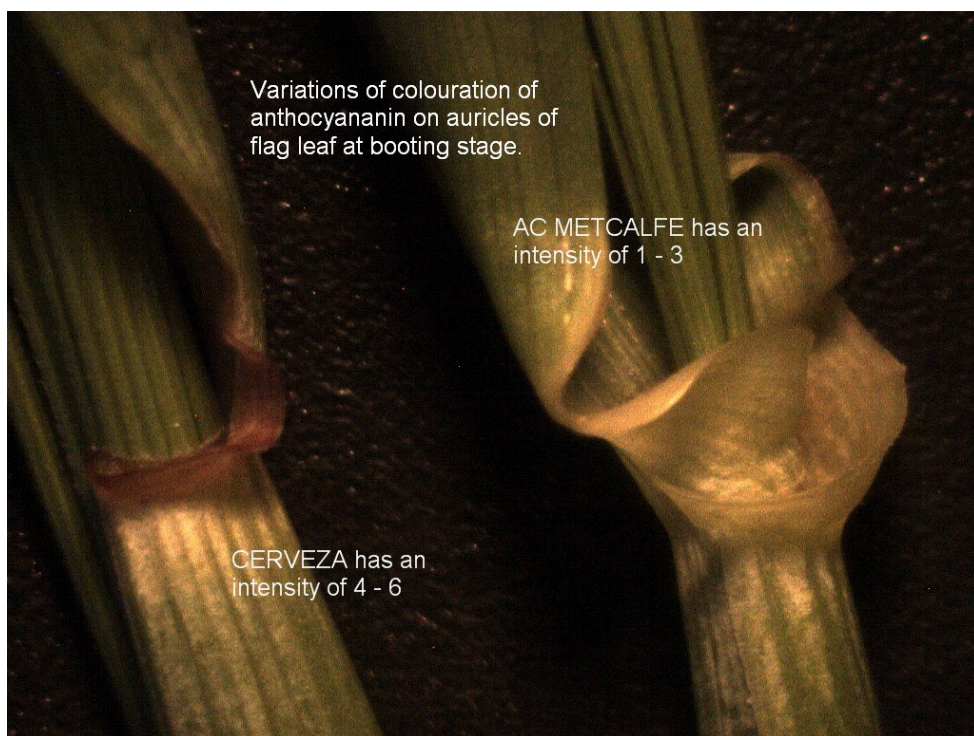
**Comparison table for 'Cerveza'**

	'Cerveza'	'Major'*	'AC Metcalfe'*	'Newdale'*
<i>Spike length, excluding awns (cm)</i>				
mean 2009	10.5	9.9	8.8	10.5
std. deviation	0.8	1.0	1.0	0.8
mean 2010	8.9	8.0	7.6	9.0
std. deviation	0.7	0.3	0.6	0.8
<i>Length of first rachis segment (mm)</i>				
mean 2009	3.8	2.9	2.2	2.8
std. deviation	0.9	0.3	0.2	0.3
mean 2010	2.5	2.2	1.8	2.0
std. deviation	0.5	0.2	0.3	0.2
<i>Kernel length (mm)</i>				
mean 2009	10.2	9.7	9.2	9.5
std. deviation	0.5	0.3	0.4	0.4
mean 2010	9.9	9.3	9.2	9.8
std. deviation	0.7	0.7	0.5	1.0

\*reference varieties



Barley: 'Cerveza' (left) with reference variety 'Major' (right)



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





Barley: 'Cerveza' (bottom) with reference variety 'Newdale' (top)

**Proposed denomination:** 'Major'  
**Application number:** 09-6631  
**Application date:** 2009/04/23  
**Applicant:** Agriculture & Agri-Food Canada, Brandon, Manitoba  
**Agent in Canada:** Agriculture & Agri-Food Canada, Lacombe, Alberta  
**Breeder:** Bill Legge, Agriculture & Agri-Food Canada, Brandon, Manitoba

**Varieties used for comparison:** 'Cerveza', 'AC Metcalfe' and 'Newdale'

**Summary:** *The frequency of plants with recurved flag leaves is low in 'Major' whereas it is absent or very low on 'AC Metcalfe'. The intensity of anthocyanin colouration on the flag leaf auricles and the lemma awn tips of 'Major' is weak to medium whereas it is very weak on 'AC Metcalfe'. The plants of 'Major' are shorter than those of 'AC Metcalfe'. The spikes of 'Major' are shorter than those of 'Cerveza' and 'Newdale' and longer than those of 'AC Metcalfe'. The length of the first rachis segment of 'Major' is shorter than that of 'Cerveza' and longer than that of 'AC Metcalfe'. 'Major' has shorter kernel length than 'Cerveza'. 'Major' is resistant to true loose smut (Ustilago nuda) whereas 'Newdale' is very susceptible.*

**Description:**

**PLANT:** two row, spring malting barley, erect growth habit at tillering, absent or very sparse pubescence on the lower leaf sheaths

**FLAG LEAF:** low frequency of plants with recurved flag leaves, absent or very weak pubescence on blade

**FLAG LEAF SHEATH:** very strong glaucosity, absent or very weak pubescence

**AURICLES:** weak to medium intensity of anthocyanin colouration, absent or very weak pubescence on the margins

**SPIKE:** emerges mid-season, medium to strong glaucosity, erect to semi-erect to horizontal attitude, v-shaped closed cup collar, tapering to parallel shape, medium density, parallel to weakly divergent to divergent attitude of sterile spikelet, glume and awn of the median spikelet is longer than the grain

**FIRST SEGMENT OF RACHIS:** short, weak to strong curvature

**LEMMA AWNS:** weak to medium intensity of anthocyanin colouration of the tips, longer than length of spike, rough spiculations on margins



**KERNEL:** absent or very weak intensity of anthocyanin colouration of nerves of the lemma at beginning of ripening, whitish aleurone layer, long rachilla hairs, husk present, weak to medium spiculation of inner lateral nerves of dorsal side of lemma, no hairiness of ventral furrow, clasping disposition of lodicules, horseshoe shape basal markings

**AGRONOMY:** good resistance to lodging, very good malting quality

**DISEASE REACTION:** moderately susceptible to common root rot (*Cochliobolus sativus*, *Fusarium* spp.), moderately resistant to spot blotch (*Cochliobolus sativus*), Covered smut (*Ustilago hordie*) and False loose smut, Black semi-loose smut (*Ustilago nigra*), moderately resistant to moderately susceptible to resistant to net blotch (*Pyrenophora teres*), susceptible to Septoria speckled leaf blotch (*Septoria passerinii*), Scald (*Rhynchosporium secalis*) and Barley yellow dwarf virus, moderately resistant to moderately susceptible to Stem rust (*Puccinia graminis*) and Fusarium head blight (Scab) (*Fusarium graminearum*); perfect state (*Gibberella zeae*) and resistant to True loose smut (*Ustilago nigra*)

**Origin and Breeding:** 'Major' (experimental designation 'TR06297') arose from the cross 'Rivers'/'Newdale' made in 1999 at Agriculture and Agri-Food Canada's Brandon Research Centre, Brandon, Manitoba. Early generations were handled using a modified bulk method. The F1 to F4 generations were sown and bulked in Brandon and Leeston, New Zealand. About 1000 spikes were randomly selected, threshed individually and planted as a single F5 progeny row in the field in Brandon in 2002. One row, which became BM9929-524, was selected based on height, maturity, resistance to lodging, general appearance and field disease reaction. Selected F6 lines were grown as single plots in a preliminary yield test with repeated checks in Brandon in 2003 with further selection for various agronomic, disease resistance and quality characteristics. BM9929-524 was advanced to a replicated yield test at Brandon in 2002 where it was further evaluated. In 2005, BM9929-524 was grown in advanced yield tests and additional malting quality evaluations were conducted. Beginning in 2006, BM9929-524 was advanced to the Western Cooperative Two-row Barley Registration Test where it was evaluated as TR06297. TR06297 was also evaluated in the 2007 and 2008 Collaborative Malting Barley Trials as part of the registration recommending process under the auspices of the Prairie Recommending Committee for Oat and Barley.

**Tests and Trials:** Tests and trials for 'Major' were conducted in Brandon, Manitoba during the summers of 2009 and 2010. The trials consisted of 4 replicates of each variety arranged in complete randomized block design. Each plot measured approximately 4 metres long x 1 metre wide spaced approximately 0.5 metres apart with a row spacing of 0.18 metres. Measured characteristics were based on approximately 20 measurements per variety per year.

**Comparison table for 'Major'**

	'Major'	'Cerveza'*	'AC Metcalfe'*	'Newdale**
<i>Plant height, including awns (cm)</i>				
mean 2009	53.3	57.3	60.5	53.8
std. deviation	7.9	8.2	4.1	8.7
mean 2010	69.0	69.3	75.8	68.8
std. deviation	5.2	7.3	3.6	3.2
<i>Spike length, excluding awns (cm)</i>				
mean 2009	9.9	10.5	8.8	10.5
std. deviation	1.0	0.8	1.0	0.8
mean 2010	8.0	8.9	7.6	9.0
std. deviation	0.3	0.7	0.6	0.8
<i>Length of first rachis segment (mm)</i>				
mean 2009	2.9	3.8	2.2	2.8
std. deviation	0.3	0.9	0.2	0.3
mean 2010	2.2	2.5	1.8	2.0
std. deviation	0.2	0.5	0.3	0.2
<i>Kernel length (mm)</i>				
mean 2009	9.7	10.2	9.2	9.5
std. deviation	0.3	0.5	0.4	0.4
mean 2010	9.3	9.9	9.2	9.8
std. deviation	0.7	0.7	0.5	1.0

\*reference varieties



Barley: 'Major' (right) with reference variety 'Cerveza' (left)



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



Barley: 'Major' (right) with reference variety 'Newdale' (left)

**Proposed denomination:** 'Taylor'  
**Application number:** 09-6630  
**Application date:** 2009/04/23  
**Applicant:** Agriculture & Agri-Food Canada, Brandon, Manitoba  
**Agent in Canada:** Agriculture & Agri-Food Canada, Lacombe, Alberta  
**Breeder:** Bill Legge, Agriculture & Agri-Food Canada, Brandon, Manitoba

**Varieties used for comparison:** 'CDC Freedom' and 'CDC McGwire'

**Summary:** *The plant growth habit of 'Taylor' is erect to semi-erect at tillering whereas it is intermediate in 'CDC McGwire'. The frequency of plants with recurved flag leaves is low in 'Taylor' whereas it is high in 'CDC McGwire'. The plant height of 'Taylor' is taller than that of both reference varieties. The lemma awns of 'Taylor' are semi-smooth whereas they are rough on 'CDC McGwire'. The rachilla hairs of 'Taylor' are long whereas they are short to long on both reference varieties. There is strong spiculation of the inner lateral nerves of the dorsal side of the lemma of 'Taylor' whereas it is medium on 'CDC Freedom' and absent or very weak on 'CDC McGwire'.*

**Description:**

**PLANT:** two row, spring feed and malting barley, erect to semi-erect growth habit at tillering, absent or very sparse pubescence on the lower leaf sheaths

**FLAG LEAF:** low frequency of plants with recurved flag leaves, absent or very weak pubescence on blade

**FLAG LEAF SHEATH:** strong to very strong glaucosity, absent or very weak pubescence

**AURICLES:** medium intensity of anthocyanin colouration, absent or very weak pubescence on the margins

**SPIKE:** emerges mid-season, very weak glaucosity, semi-erect to horizontal attitude, v-shaped open collar, parallel shape, medium density, parallel to weakly divergent to divergent attitude of sterile spikelet, glume and awn length of the median spikelet is longer than the grain

**FIRST SEGMENT OF RACHIS:** short, absent or very weak to very strong curvature

**LEMMA AWNS:** strong intensity of anthocyanin colouration of the tips, longer than length of spike, semi-smooth spiculations on margins

**KERNEL:** absent or very weak intensity of anthocyanin colouration of nerves of the lemma at beginning of ripening, whitish aleurone layer, long rachilla hairs, husk absent, strong spiculation of inner lateral nerves of dorsal side of lemma, no hairiness of ventral furrow, clasping disposition of lodicules, horseshoe and incomplete horseshoe shape basal markings



AGRONOMY: fair to good resistance to lodging, fair malting quality

DISEASE REACTION: moderately susceptible to common root rot (*Cochliobolus sativus*, *Fusarium* spp.) and spot blotch (*Cochliobolus sativus*), moderately susceptible to moderately resistant to Net blotch (*Pyrenophora teres*), Stem rust (*Puccinia graminis*), Covered smut (*Ustilago hordie*) and False loose smut, Black semi-loose smut (*Ustilago nigra*), susceptible to Septoria speckled leaf blotch (*Septoria passerinii*) and Scald (*Rhynchosporium secalis*), resistant to moderately resistant to Fusarium head blight (Scab) (*Fusarium graminearum*); perfect state (*Gibberella zeae*) and resistant to True loose smut (*Ustilago nuda*)

**Origin and Breeding:** ‘Taylor’ (experimental designation ‘HB705’) is a doubled haploid barley line developed from the cross ‘CDC Freedom’/‘Rivers’ conducted at the Agriculture and Agri-Food Canada Brandon Research Centre, Brandon, Manitoba. The original cross was made in the greenhouse in 2000 with 2 seeds of the F1 generation being planted in each of 5 pots in July 2001. Spikes were collected for doubled haploid production using *in vitro* selection with *Fusarium* mycotoxins applied during the anther culture step and embryos developed. Numerous doubled haploid plants resulted, one of which became BM0058DT-5-1, which was transplanted in the greenhouse, grown to maturity and harvested in April 2002. In 2002, BM0058DT-5-1 was planted out in the nursery, inoculated with three different isolates of *Fusarium graminearum*, visually evaluated, hand harvested, analyzed for deoxynivalenol content and bulked in a winter nursery in Leeston, New Zealand the following winter. In spring 2003, BM0058DT-5-1 was planted out in Brandon and evaluated for various agronomic, disease resistance and quality characteristics. BM0058DT-5-1 was advanced to preliminary yield tests and further evaluated during the 2004 and 2005 growing season. From 2006 to 2008, BM0058DT-5-1 was evaluated in the Western Cooperative Hulless Barley Registration Test as HB705. Further evaluation of malting quality potential in multi-site trials were undertaken from 2007-2008.

**Tests and Trials:** Tests and trials for ‘Taylor’ were conducted in Brandon, Manitoba during the summers of 2009 and 2010. The trials consisted of 4 replicates of each variety arranged in complete randomized block design. Each plot measured approximately 4 metres long x 1 metre wide spaced approximately 0.5 metres apart with a row spacing of 0.18 metres. Measured characteristics were based on approximately 20 measurements per variety per year.

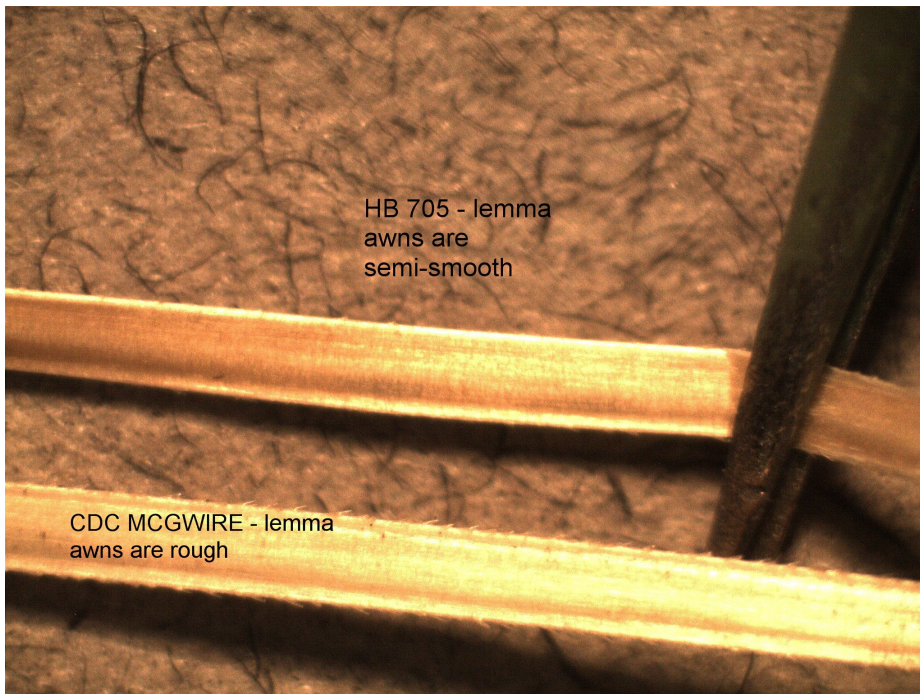
**Comparison table for ‘Taylor’**

	‘Taylor’	‘CDC Freedom’*	‘CDC McGwire’*
<i>Plant height, including awns (cm)</i>			
mean 2009	65.8	57.3	60.5
std. deviation	3.3	3.5	4.9
mean 2010	83.3	69.3	75.8
std. deviation	7.1	6.5	3.5
<i>Spike length, excluding awns (cm)</i>			
mean 2009	12.3	12.0	11.6
std. deviation	0.9	1.8	1.8
mean 2010	9.5	9.5	8.6
std. deviation	1.4	1.2	0.9

\*reference varieties



Barley: 'Taylor' (top) with reference variety 'CDC Freedom' (bottom)



Barley: 'Taylor' (top) with reference variety 'CDC McGwire' (bottom)