



APPLICATIONS UNDER EXAMINATION

WHEAT

WHEAT (*Triticum aestivum*)

Proposed denomination: '25R34'
Application number: 10-7013
Application date: 2010/06/21
Applicant: Pioneer Hi-Bred International, Inc., Des Moines, Iowa, United States of America
Agent in Canada: Pioneer Hi-Bred Ltd., Caledon, Ontario
Breeder: Greg Marshall, Pioneer Hi-Bred International, Inc., Windfall, Indiana, United States of America

Note: The applicant has requested an exemption from compulsory licensing to allow time to multiply and distribute propagating material of the variety. If the exemption is granted, it may be allowed for two years from the date rights are granted for the variety.

Varieties used for comparison: '25R47' and '25W41'

Summary: *The intensity of the anthocyanin colouration of the coleoptile of '25R34' is medium while it is absent to very weak for '25W41'. '25R34' has absent or very sparse hairiness of the convex surface of the apical rachis segment while it is medium for '25W41'. The beak shape of the lower glume of '25R34' is slightly curved while it is moderately curved in '25R47'. '25R34' has a slightly curved beak shape of the lower lemma while it is moderately curved in '25R47' and straight in '25W41'. The kernel of '25R34' is a medium red colour while the kernel of '25W41' is white. '25R34' and '25W41' are resistant to the Hessian Fly biotypes E & L while '25R47' is susceptible.*

Description:

PLANT: winter type, common wheat, semi-erect growth habit at the 5-9 tiller stage, high to very high frequency of plants with recurved flag leaves, weak to medium glaucosity of the culm at heading, medium maturity

SEEDLING (4 leaf stage): medium intensity of anthocyanin colouration of the coleoptile, glabrous sheaths and blades of the lower leaves

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

STRAW (AT MATURITY): thin pith in cross-section, no anthocyanin colouration

SPIKE: weak to medium glaucosity at heading, tapering profile, medium density, awns present, awns equal to slightly longer than the length of the spike

SPIKE AT MATURITY: white, white to light brown awns, nodding attitude, straight culm, absent or very sparse hairiness of convex surface of apical rachis segment

LOWER GLUME: very narrow shoulder, sloping shoulder shape, medium length and width, glabrous, short slightly curved beak, sparse extent of internal hairs

LOWEST LEMMA: slightly curved beak

KERNEL: soft red type, medium red colour, medium to large size, medium to long, medium width, oval, rounded cheek shape, medium length brush hairs, medium sized oval germ, narrow crease, shallow crease, light reaction to phenol

AGRONOMY: good winter survival, good resistance to pre-harvest sprouting

QUALITY: good pastry and bisquit quality

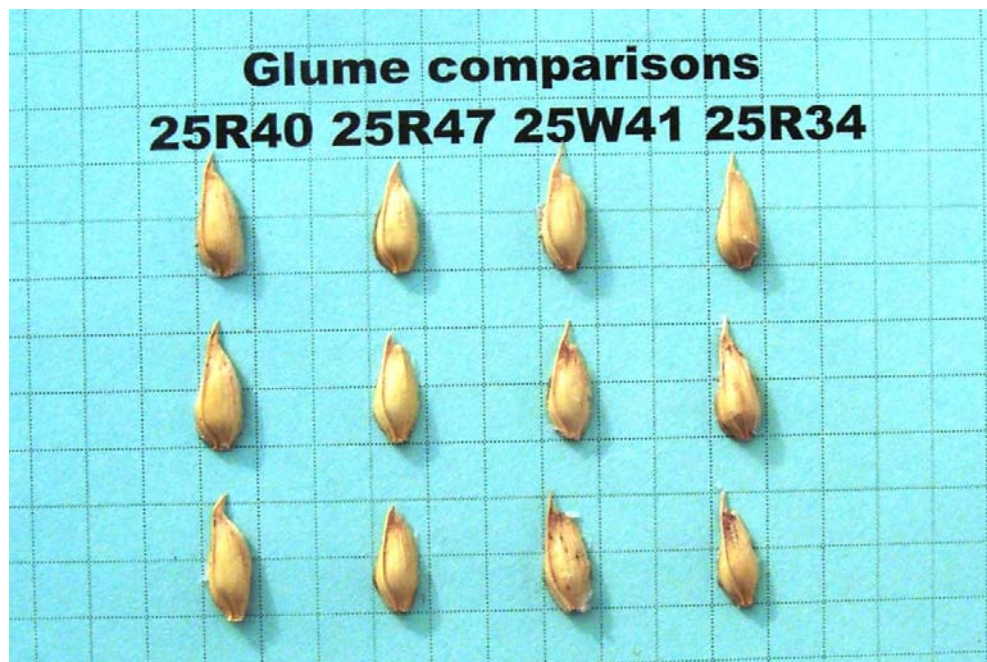
DISEASE REACTION: moderately resistant to Stripe Rust (*Puccinia striiformis*), moderately resistant to moderately susceptible to Septoria Tritici Blotch (*Septoria tritici*) and Leaf Rust (*Puccinia triticina*), moderately susceptible to Fusarium

Head Blight (*Fusarium graminearum*, *Fusarium species*) Spindle Streak Mosaic Virus and Soil Bourne Mosaic virus, and moderately susceptible to susceptible to Powdery Mildew (*Erysiphe graminis*, *fsp. tritici*)

INSECT REACTION: resistant to Hessian Fly (*Mayetiola destructor*) Biotypes E & L

Origin and Breeding: '25R34' (experimental designations W000344M1, YW08C, XW08C) is a soft red winter wheat variety developed by Pioneer Hi-Bred International Inc., using a modified pedigree selection breeding method. The final cross, 8302 sib. / WBL0484B2 // 25R47 occurred in 1999 in Windfall, Indiana, USA and was designated W000344. Preliminary yield testing of an F5 selection from an F6 hill plot bulk, designated W000344M1, began in the 2004-2005 growing season. Elite yield testing began in the F9 thru F12 generations. Selection criteria included disease resistance, plant type, height, head type, straw strength, maturity, yield, test weight, and milling and baking qualities.

Tests and Trials: Test and trials were conducted in Caledon, Ontario during the 2008-09 and 2009-10 growing seasons. Plots consisted of 6 rows with a row length of 6 meters and a row spacing of 30 cm. There were 3 replicates arranged in an RCB design.



Wheat: '25R34' (far right) with reference varieties '25R40' (far left), '25R47' (center left) and '25W41' (center right)



Wheat: '25R34' (far right) with reference varieties '25R40' (far left), '25R47' (center left) and '25W41' (center right)

Proposed denomination: '25R40'
Application number: 10-7014
Application date: 2010/06/21
Applicant: Pioneer Hi-Bred International, Inc., Des Moines, Iowa, United States of America
Agent in Canada: Pioneer Hi-Bred Ltd., Caledon, Ontario
Breeder: Greg Marshall, Pioneer Hi-Bred International, Inc., Windfall, Indiana, United States of America

Note: The applicant has requested an exemption from compulsory licensing to allow time to multiply and distribute propagating material of the variety. If the exemption is granted, it may be allowed for two years from the date rights are granted for the variety.

Varieties used for comparison: '25R47' and '25W41'

Summary: *The intensity of the anthocyanin colouration of the coleoptile of '25R40' is medium while it is absent to very weak for '25W41'. '25R40' has absent or very sparse hairiness of the convex surface of the apical rachis segment while it is medium for '25W41'. The glaucosity of the neck of the culm in '25R40' is strong while it is weak to medium for the reference varieties. '25R40' is slightly shorter at maturity than '25R47'. '25R40' has a slightly curved beak shape of the lower lemma while it is moderately curved in '25R47' and straight in '25W41'. The lower glume beak of '25R40' is medium in length while it is short in length for '25R47'. The kernel of '25R40' is a medium red colour while the kernel of '25W41' is white. '25R40' and '25W47' are susceptible to the Hessian Fly biotypes E & L while '25R41' is resistant.*

Description:

PLANT: winter type, common wheat, semi-erect growth habit at the 5-9 tiller stage, medium to high frequency of plants with recurved flag leaves, strong glaucosity of the culm at heading, medium maturity

SEEDLING (4 leaf stage): medium intensity of anthocyanin colouration of the coleoptile, glabrous sheaths and blades of the lower leaves

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

STRAW (AT MATURITY): thin pith in cross-section, no anthocyanin colouration

SPIKE: weak to medium glaucosity at heading, tapering profile, medium density, awns present, awns equal to slightly longer than the length of the spike

SPIKE AT MATURITY: white, white to light brown awns, nodding attitude, straight culm, absent or very sparse hairiness of convex surface of apical rachis segment

LOWER GLUME: very narrow shoulder, sloping shoulder shape, medium length and width, glabrous, medium length moderately curved beak, sparse extent of internal hairs

LOWEST LEMMA: slightly curved beak

KERNEL: soft red type, medium red colour, medium to large size, medium to long, medium width, oval and elliptical, rounded cheek shape, short brush hairs, medium sized round germ, narrow crease, shallow crease, light reaction to phenol

AGRONOMY: fair winter survival, good resistance to pre-harvest sprouting

QUALITY: fair pastry and bisquit quality

DISEASE REACTION: resistant to moderately resistant to Powdery Mildew (*Erysiphe graminis, fsp. tritici*) and Stripe Rust (*Puccinia striiformis*), moderately resistant to Leaf Rust (*Puccinia triticina*), moderately resistant to moderately susceptible to Spindle Streak Mosaic Virus and Soil Borne Mosaic virus, moderately susceptible to Septoria Tritici Blotch (*Septoria tritici*) and moderately susceptible to susceptible to Fusarium Head Blight (*Fusarium graminearum, Fusarium species*)

INSECT REACTION: susceptible to Hessian Fly (*Mayetiola destructor*) Biotypes E & L

Origin and Breeding: '25R40' (experimental designations W000557C1, YW07W, XW07W) is a soft red winter wheat variety developed by Pioneer Hi-Bred International Inc., using a modified pedigree selection breeding method. The final cross, 25R37 / 25R47 occurred in 1999 in Windfall, Indiana, USA and was designated W000557. Preliminary yield testing of an F4 selection from an F5 headrow, designated W000557C1, began in the 2004-2005 growing season. Elite yield testing began in the F8 thru F11 generations. Selection criteria included disease resistance, plant type, height, head type, straw strength, maturity, yield, test weight, and milling and baking qualities.

Tests and Trials: Test and trials were conducted in Caledon, Ontario during the 2008-09 and 2009-10 growing seasons. Plots consisted of 6 rows with a row length of 6 meters and a row spacing of 30 cm. There were 3 replicates arranged in an RCB design.

Comparison table for '25R40'

	'25R40'	'25R47'*	'25W41'*
<i>Plant height at maturity (cm)</i>			
mean 2009	83.5	91.7	96.0
std. deviation	4.2	5.3	3.3
mean 2010	81.3	88.2	83.3
std. deviation	2.6	2.6	2.7

*reference varieties



Wheat: '25R40' (far left) with reference varieties '25R47' (center left), '25W41' (center right) and '25R34' (far right)



Wheat: '25R40' (far left) with reference varieties '25R47' (center left), '25W41' (center right) and '25R34' (far right)

WHEAT*(Triticum turgidum subsp. durum)*

Proposed denomination: 'Enterprise'
Application number: 09-6628
Application date: 2009/04/22
Applicant: Agriculture & Agri-Food Canada, Swift Current, Saskatchewan
Agent in Canada: Agriculture & Agri-Food Canada, Lacombe, Alberta
Breeder: Asheesh K. Singh, Agriculture and Agri-Food Canada, Swift Current, Swift Current, Saskatchewan

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

Summary: 'Enterprise' has strong to very strong anthocyanin colouration of the coleoptile while it is medium in 'Commander' and weak in 'AC Navigator'. The flag leaf of 'Enterprise' is longer than the flag leaf of 'AC Navigator'. 'Enterprise' has medium glaucosity of the sheath of the flag leaf while it is strong in the reference varieties. 'Enterprise' heads later than 'AC Avonlea'. The plant height of 'Enterprise' is taller than that of 'Commander' and 'AC Navigator'. 'Enterprise' has a thin pith in cross section while it is medium thickness in 'Commander' and 'AC Navigator'. The spike of 'Enterprise' is longer than the spike of 'Commander' and 'AC Navigator'. At maturity, the awns of 'Enterprise' are white while they are black in 'Commander' and 'AC Navigator'. 'Enterprise' has a short lower glume length while it is medium length in 'Commander' and 'AC Navigator'. The thousand kernel weight of 'Enterprise' is lighter than the reference varieties.

Description:

PLANT: spring type, durum wheat, erect growth habit at the 5-9 tiller stage, medium to strong glaucosity of the culm at heading, medium maturity

SEEDLING (4 leaf stage): strong to very strong intensity of anthocyanin colouration of the coleoptile, glabrous sheaths and blades of the lower leaves

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

STRAW (AT MATURITY): thin pith in cross-section, no anthocyanin colouration

SPIKE: strong glaucosity at heading, tapering profile, dense, awns present, awns longer than the length of the spike

SPIKE AT MATURITY: white, whitish/yellow awns

LOWER GLUME: very narrow shoulder width, sloping to slightly sloping shoulder shape, short length, narrow width, glabrous, short to medium length beak, slightly to strongly curved beak

KERNEL: durum type, amber colour, medium to large size, elliptical, rounded to angular cheek shape, short to medium length brush hairs, medium to large sized oval germ, medium width crease, shallow to medium depth crease

AGRONOMY: good resistance to shattering

QUALITY: good pastry quality

DISEASE REACTION: resistant to Leaf Rust (*Puccinia triticina*) and Stem Rust (*Puccinia graminis* f. sp. *tritici*), moderately resistant to moderately susceptible to Common Bunt (*Tilletia caries*, *Tilletia foetida*) Tan Spot (*Pyrenophora tritici-repentis*) Septoria Tritici Blotch (*Septoria tritici*) Spot Blotch (*Cochliobolus sativus*) and Septoria Nodorum Blotch (*Septoria nodorum*) and moderately susceptible to Loose Smut (*Ustilago tritici*) and Fusarium Head Blight (*Fusarium graminearum*, *Fusarium* spp)

Origin and Breeding: 'Enterprise' (experimental designations A0013-KC02, DT787) was selected from the cross 9488C-CK2 / Strongfield made in 2000 at the Semiarid Prairie Agricultural Research Centre, Swift Current, Saskatchewan. F1 plants were grown near Christchurch, New Zealand. The F2 generation was grown near Swift Current in 2001. Individual heads from selected plants, based on height, straw strength and days to maturity were grown in F3 rows in New Zealand.

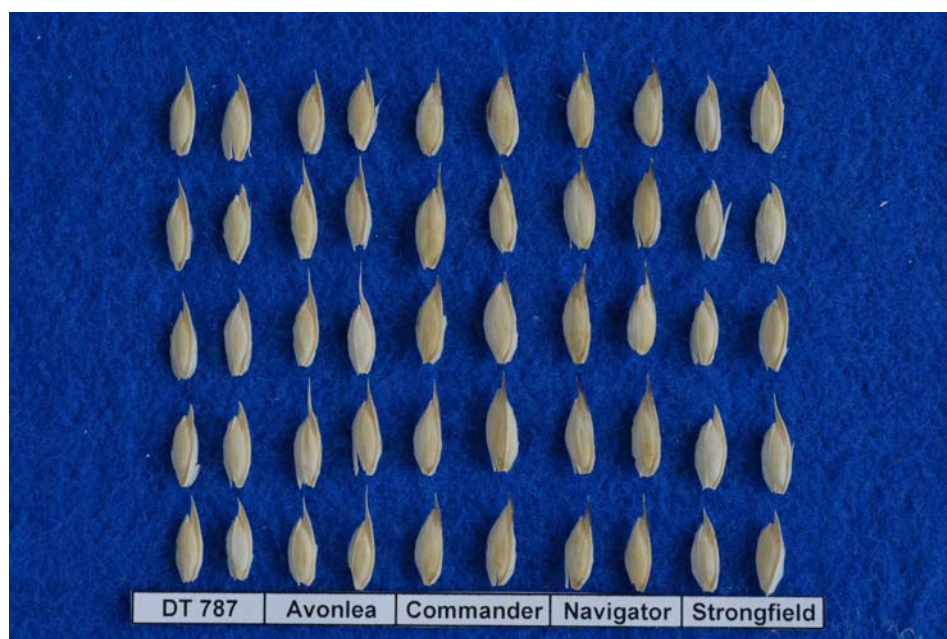
The F4 unreplicated 4-row plots was grown near Swift Current and Regina, Saskatchewan. in 2002 and evaluated for grain yield, days to maturity, straw strength, grain pigment, grain protein concentration and gluten strength. 4 heads per selected line were grown as individual F5 head rows in New Zealand. The F6 unreplicated 4-row plots was grown near Lethbridge, Alberta, Swift Current and Regina, Saskatchewan in 2003 and selected for agronomic performance, disease resistance and quality characteristics. An F4:7 line designated A0013-KC02 was advanced to the Durum Western A-2 Test in 2004. A0013-KC02 was advanced to the Durum 'B' test in 2005. A0013-KC02 was evaluated in the 2006-2008 Durum Cooperative Test as 'DT787'.

Tests and Trials: Tests and trials were conducted during the summers of 2008 and 2009 at the Agriculture & Agri-Food Canada, Semiarid Prairie Agricultural Research Centre, Swift Current, Saskatchewan. Plots consisted of 4 rows with a row length of 3 meters and a row spacing of 0.23 meters. There were 4 replicates arranged in an RCB design. Means of the flag leaf length, days to heading, plant height and spike length are an average of measurements from 2008 and 2009.

Comparison table for 'Enterprise'

	'Enterprise'	'AC Avonlea'*	'Commander'*	'AC Navigator'*	'Strongfield'*
<i>Flag leaf length (cm)</i>					
mean	20.9	21.6	20.7	17.7	22.0
std.deviation	2.3	2.4	2.2	2.1	3.3
<i>Days to heading</i>					
mean	62	60	62	63	61
<i>Plant height at maturity (including awns) (cm)</i>					
mean	94	92	81	85	89
std.deviation	5.0	5.2	2.8	1.8	7.6
<i>Spike length (excluding awns and awnlets)(cm)</i>					
mean	7.2	7.7	6.2	5.5	6.9
std.deviation	0.5	0.4	0.4	0.3	0.5
<i>Thousand kernel weight (gm)</i>					
mean	43.3	48.3	51.1	50.6	47.4
std.deviation	0.3	2.1	0.9	1.5	1.3

*reference varieties



Wheat: 'Enterprise' (far left) with reference varieties 'AC Avonlea' (center left), 'Commander' (center), 'AC Navigator' (center right) and 'Strongfield' (far right)



Wheat: 'Enterprise' (top left) with reference varieties 'AC Avonlea' (top center), 'Commander' (top right), 'AC Navigator' (bottom left) and 'Strongfield' (bottom right)