



## APPLICATIONS UNDER EXAMINATION

OAT

### OAT (*Avena sativa*)

**Proposed denomination:** 'CDC Seabiscuit'  
**Application number:** 10-6851  
**Application date:** 2010/02/23  
**Applicant:** University of Saskatchewan, Saskatoon, Saskatchewan  
**Agent in Canada:** Canterra Seeds Ltd., Winnipeg, Manitoba  
**Breeder:** Brian Rossnagel, University of Saskatchewan, Saskatoon, Saskatchewan

**Varieties used for comparison:** 'CDC Dancer' and 'AC Morgan'

**Summary:** *The density of pubescence on the lower leaf sheath of 'CDC Seabiscuit' is medium to dense while it is sparse to medium in 'CDC Dancer' and very dense in 'AC Morgan'. The pubescence on the leaf margins of 'CDC Seabiscuit' is medium while it is sparse in 'CDC Dancer'. The frequency of plants with recurved flag leaves is high in 'CDC Seabiscuit' while it is low to medium in 'CDC Dancer'. 'CDC Seabiscuit' heads later than the reference varieties. The plants of 'CDC Seabiscuit' are shorter in height than 'CDC Dancer'. The glaucosity of the lemma of 'CDC Seabiscuit' is strong while it is weak in 'AC Morgan'. 'CDC Seabiscuit' has a weak to medium tendency to be awned while it is absent to very weak in the reference varieties. There are basal hairs on the kernel of 'CDC Seabiscuit' while there is none in 'CDC Dancer'. 'CDC Seabiscuit' is susceptible to Crown rust (*Puccinia coronata*) while 'CDC Dancer' is moderately susceptible and 'AC Morgan' is highly susceptible. 'CDC Seabiscuit' is moderately resistant to moderately susceptible to Stem rust (*Puccinia graminis f.sp. avena*) while 'CDC Dancer' is resistant and 'AC Morgan' is highly susceptible. 'CDC Seabiscuit' is moderately resistant to Black loose smut (*Ustilago avenae*) while 'CDC Dancer' is resistant and 'AC Morgan' is susceptible. 'CDC Seabiscuit' is susceptible to Red Leaf (Barley yellow dwarf virus) while 'AC Morgan' is moderately susceptible.*

#### Description:

**SEEDLING** (5-9 tiller stage): semi-erect to intermediate juvenile growth habit, medium to dense pubescence of lower leaf sheath and medium pubescence of lower blade

**LEAF** (at booting stage): medium green, medium pubescence of the margins, weak to medium intensity of glaucosity, high frequency of plants with recurved flag leaves, medium to very dense pubescence/hairiness above and below upper culm node

**PANICLE** (just after heading): equilateral/symmetrical orientation, medium to dense density

**PANICLE BRANCHES:** semi-erect to horizontal attitude, 30 to 45 degree angle between the rachis and dominant side branch

**SPIKELET:** medium to strong glaucosity of glumes, fracture separation of spikelet with semi-nodding to nodding attitude

**RACHILLA:** medium to long length between primary and secondary florets, medium length grooves, sparse pubescence

**LEMMA:** strong glaucosity, small to medium lateral overlap on palea, white to yellow at maturity, sparse to medium pubescence on the lateral and dorsal surfaces, weak to medium tendency to be awned

**KERNEL** (primary kernels from upper spikelets): hulled, short to medium length basal hairs, cream to yellow, two grains per spikelet, pointed medium-sized scutellum, medium to dense density of groat pubescence

**AGRONOMIC CHARACTERISTICS:** good lodging resistance, daylength sensitive

**DISEASE RESISTANCE:** susceptible to Crown Rust (*Puccinia coronata*) and Red Leaf (Barley yellow dwarf virus), moderately resistant to moderately susceptible to Stem rust (*Puccinia graminis f. sp. avenae*) and moderately resistant to Black loose smut (*Ustilago avenae*)

**Origin and Breeding:** 'CDC Seabiscuit' (experimental designation OT3036) was developed at the Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan using a pedigree breeding system. It arose from the cross 'OT396'/'HiFi' made in 2001. The F1 generation was grown as a bulk population in a nursery in New Zealand. The F2 population was grown as a bulk population in Saskatoon, Saskatchewan. During the winter of 2002 and 2003, the F3-F4

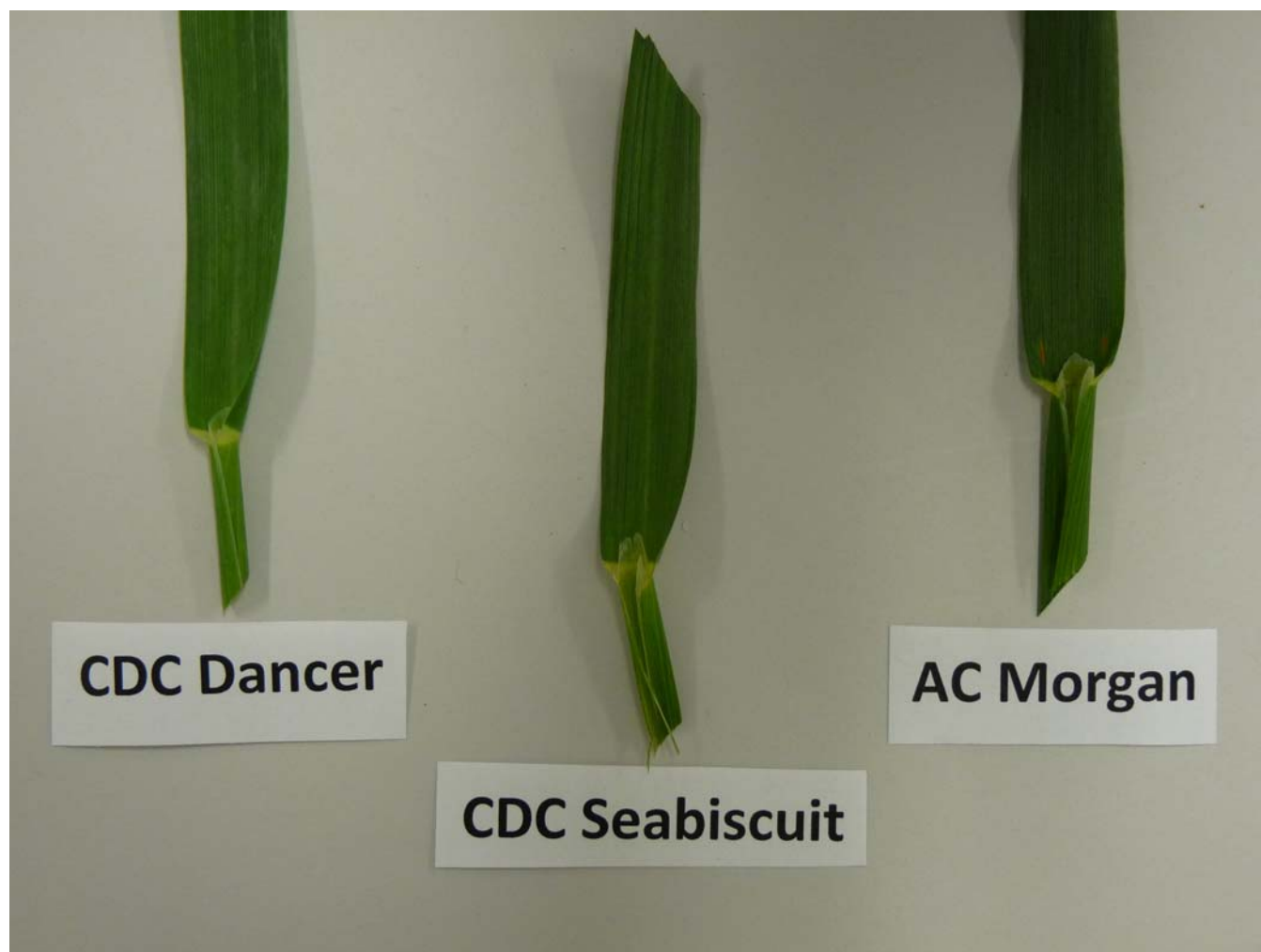
generations were grown as single seed derived lines and 'CDC Seabiscuit' was grown and selected in the field as a F5 hill plot in Saskatoon, Saskatchewan. It was then tested in CDC yield trials in 2005-2006, followed by testing in the Western Canadian Oat Cooperative trials during 2007 and 2008. Selection criteria for 'CDC Seabiscuit' included high grain yield combined with excellent milling yield, strong straw, good kernel quality, grain plumpness and disease resistance.

**Tests and Trials:** Tests and trials for 'CDC Seabiscuit' were conducted in Saskatoon, Saskatchewan during the summers of 2009 and 2010. Plots consisted of 5 rows with a row length of 3.7 metres and a row spacing of 20 cm. There were 2 replicates arranged in a RCB design.

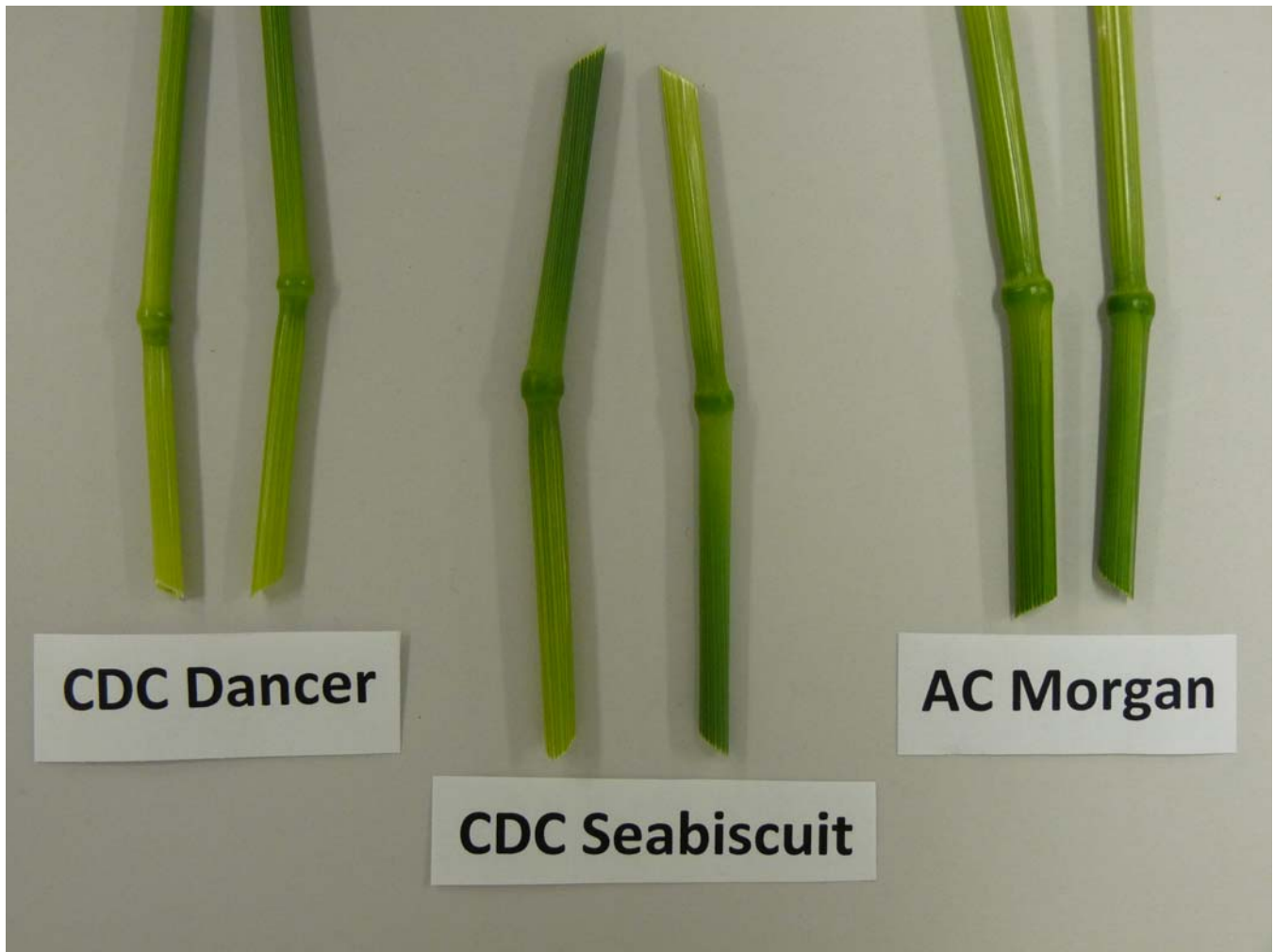
**Comparison table for 'CDC Seabiscuit'**

	'CDC Seabiscuit'	'CDC Dancer'*	'AC Morgan'*
<i>Number of days to heading (from planting to 50% of panicles fully emerged from boot)</i>			
mean 2009	59	56	57
mean 2010	65	63	61
<i>Plant height (culm plus panicle)(cm)</i>			
mean 2009	99.50	104.50	100.15
standard deviation	4.17	2.72	2.43
mean 2010	98.25	103.35	99.15
standard deviation	3.35	4.07	4.72

\*reference varieties



Oat: 'CDC Seabiscuit' (centre) with reference varieties 'CDC Dancer' (left) and 'AC Morgan' (right)



Oat: 'CDC Seabiscuit' (centre) with reference varieties 'CDC Dancer' (left) and 'AC Morgan' (right)

**Proposed denomination:** 'Dieter'  
**Application number:** 08-6437  
**Application date:** 2008/09/24  
**Applicant:** Agriculture & Agri-Food Canada, Ottawa, Ontario  
**Agent in Canada:** Agriculture & Agri-Food Canada, Lacombe, Alberta  
**Breeder:** Weiwei Yan, Agriculture & Agri-food Canada - Ottawa, Ottawa, Ontario

**Variety used for comparison:** 'Capital'

**Summary:** *The foliage and glumes of 'Dieter' are yellow green whereas they are medium green on 'Capital'. The panicle of 'Dieter' has medium density whereas it is dense on 'Capital'. The glume and lemma of 'Dieter' have weak glaucosity whereas it is medium on 'Capital'. The angle between the rachis and dominant side branch of the panicle of 'Dieter' is 30 to 45 degrees whereas it is less than 30 degrees on 'Capital'. The lower glume and kernel of 'Dieter' are longer than those of 'Capital'.*

**Description:**

SEEDLING (5-9 tiller stage): semi-erect juvenile growth habit, very sparse pubescence of lower leaf sheath and absent to very sparse pubescence of blade

LEAF (at booting stage): yellow green, absent to very sparse pubescence of the margins, medium intensity of glaucosity, high frequency of plants with recurved flag leaves, ranging from absent to very sparse to very dense pubescence/hairiness above upper culm node and absent to very sparse to dense pubescence below upper culm node

PANICLE (just after heading): equilateral/symmetrical orientation, medium density

PANICLE BRANCHES: semi-erect to horizontal attitude, 30 to 45 degree angle between the rachis and dominant side branch, few hairs or spines on lowest panicle node

SPIKELET: weak glaucosity of glumes, semi-abscission separation of spikelet with semi-nodding attitude

RACHILLA: medium length between primary and secondary florets, absent to very short grooves, sparse pubescence

LEMMA: weak glaucosity, small lateral overlap on palea, white at maturity, absent to very sparse pubescence on the lateral and dorsal surfaces, absent to very weak tendency to be awned

KERNEL (primary kernels from upper spikelets): hulled, no basal hairs, light brown, two grains per spikelet, pointed medium-sized scutellum, medium density of groat pubescence

AGRONOMIC CHARACTERISTICS: fair resistance to lodging and good resistance to shattering

**Origin and Breeding:** 'Dieter' (experimental designation OA1063-8) arose from the cross Pc68/ 'Donegal'// 'Capital' made in 1997 at the Agriculture and Agri-Food Canada Eastern Cereal and Oilseed Research Centre in Ottawa, Ontario using a modified single seed descent method. F6 lines were grown in single rows in 2001 and screened for agronomic traits, diseases in the field and for groat content, groat oil and groat protein in the Near Infra-Red Analysis lab in Ottawa. F7 and F8 lines were evaluated for yield and comprehensive evaluation in the 'Home Test' and 'Preliminary Tests' at the Central Experimental Farm in Ottawa. Since 2004, registration tests were conducted at several locations across Ontario.

**Tests and Trials:** Tests and trials for 'Dieter' were conducted by Agriculture and Agri-Food Canada at the Eastern Cereal and Oilseed Research Centre, Ottawa, Ontario during the summers of 2008 and 2009. Plots consisted of 4 replicates/variety with 4 rows/replicate, 3.6 meters in length, spaced approximately 0.25 metres apart between replicates.

**Comparison table for 'Dieter'**

	'Dieter'	'Capital'*
<i>Flag leaf width (mm)</i>		
mean	1.635	1.825
std. deviation	0.05	0.17
<i>Lower glume length (mm)</i>		
mean	23.15	21.8
std. deviation	0.15	0.13
<i>Kernel length (mm)</i>		
mean	9.7	9.3
std. deviation	0.49	0.51

\*reference variety



Oat: 'Dieter' (right) with reference variety 'Capital' (left)