



## APPLICATIONS UNDER EXAMINATION

## BARLEY

### BARLEY (*Hordeum vulgare*)

**Proposed denomination:** 'Innovation'  
**Application number:** 10-6935  
**Application date:** 2010/04/12  
**Applicant:** Busch Agricultural Resources LLC, Fort Collins, Colorado, United States of America  
**Agent in Canada:** Canterra Seeds Holdings Ltd., Winnipeg, Manitoba  
**Breeder:** Busch Agricultural Resources LLC, Fort Collins, Colorado, United States of America

**Varieties used for comparison:** 'Celebration' and 'Legacy'

**Summary:** *The glaucosity of the flag leaf sheath of 'Innovation' is absent or very weak while it is weak in 'Celebration' and medium in 'Legacy'. The intensity of anthocyanin colouration of the lemma awn tips of 'Innovation' is weak while it is medium in 'Legacy'. The plants and spikes of 'Innovation' are shorter than those of the reference varieties. The length of the first rachis segment of 'Innovation' is short while it is medium in 'Celebration' and long in 'Legacy'. The kernel rachilla hair length of 'Innovation' is long while it is short in 'Celebration'. Days to spike emergence in 'Innovation' is one day earlier than 'Celebration' and two days earlier than 'Legacy'*

#### **Description:**

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

**FLAG LEAF:** absent or very weak pubescence on blade

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

**AURICLES:** no intensity of anthocyanin colouration, absent or very weak pubescence on the margins

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

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

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

**KERNEL:** medium intensity of anthocyanin colouration of nerves of the lemma at beginning of ripening, whitish aleurone layer, long rachilla hairs, husk present, medium spiculation of inner lateral nerves of dorsal side of lemma, weak hairiness of ventral furrow, clasping disposition of lodicules, incomplete horseshoe shape basal markings

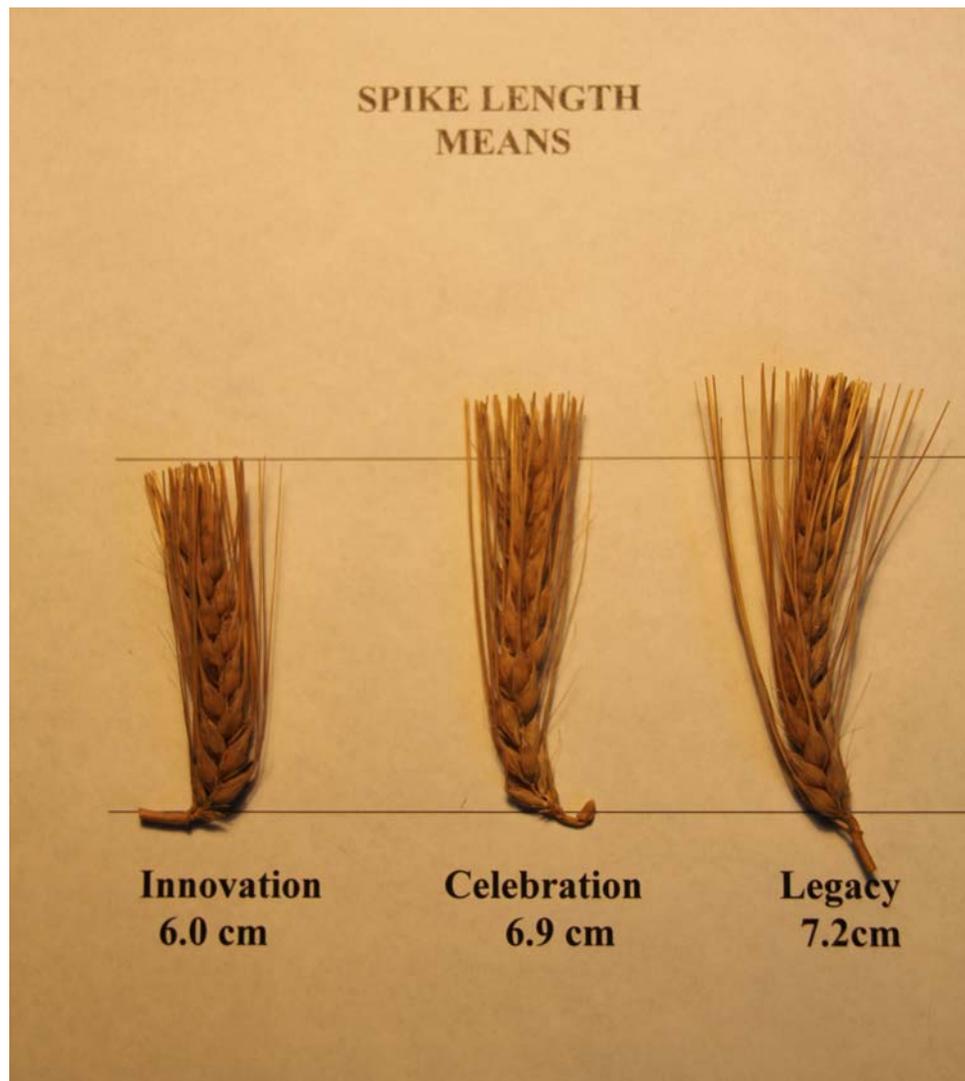
**Origin and Breeding:** 'Innovation' (experimental designations 6B03-4478 and BT989) was derived from the cross between 6B98-9438 and 6B97-2331 in May 2000 in Ft. Collins, Colorado. F1 generation was increased in the fall of 2000 and exposed heads were inoculated with a suspension of *F. graminearum* macroconidia. F2 generation was analyzed for DON content. Selected F2 heads were bulk threshed and used to plant F3 populations. Individual F3 heads were planted as F4 head rows. One row was selected and designated as 6B03-4498 and further tested in North Dakota in 2003. Selection was based on yield, maturity, straw strength, disease resistance to Fusarium head blight (DON) and net blotch. The most important malting traits are extract level and beta-glucan barley, malt and soluble protein levels, rations and enzyme levels (alpha amylase and diastatic power). In 2007 and 2008, the line was entered into regional trials. In 2009, it was entered into the Canadian Western Six-Row Braley Cooperative Registration Trials as BT989.

**Tests and Trials:** Trials for 'Innovation' were conducted in Neapolis, Alberta during the summer of 2010. The trials consisted of 3 replicates of each variety. Plots consisted of 5 rows of 5 metres long with a row spacing of 0,23 metres. Planting density was 290 seeds per meter square. Results were supported by the official technical report purchased from the Plant Variety Protection Office in the USA (PVP # 201000091).

Comparison table for 'Innovation'

	'Innovation'	'Celebration'*	'Legacy'*
<i>Plant height (stem plus spike including awns)(cm)</i>			
mean	93	102	100
standard deviation	3.6	6.7	5.9
<i>Spike length (excluding awns) (cm)</i>			
mean	6.0	6.9	7.2
standard deviation	0.033	0.50	0.064
<i>Time of spike emergence (days)</i>			
mean	60	61	62
standard deviation	0.49	0.45	0.62

\*reference varieties



Barley: 'Innovation' (left) with reference varieties 'Celebration' (centre) and 'Legacy' (right)