



APPLICATIONS UNDER EXAMINATION

TRITICALE

TRITICALE (×*Triticosecale*)

Proposed denomination: 'Bumper'
Application number: 08-6463
Application date: 2008/10/30
Applicant: CIMMYT, International, Mexico D.F., Mexico
Agent in Canada: Agriculture & Agri-Food Canada, Lacombe, Alberta
Breeder: Karim Ammar, CIMMYT, International, Mexico D.F., Mexico

Varieties used for comparison: 'Pronghorn', 'AC Ultima' and 'Tyndal'

Summary: 'Bumper' is a hexaploid, spring triticale variety which heads earlier than 'Pronghorn' and 'Tyndal'. The plants of 'Bumper' are shorter than those of the reference varieties. The culm of 'Bumper' has sparse pubescence whereas it is medium on 'Pronghorn' and dense on 'AC Ultima'. The glaucosity of the spike of 'Bumper' is weak whereas it is medium on 'AC Ultima' and very strong on 'Tyndal'. The spikes of 'Bumper' are fully awned whereas they are half awned on 'Tyndal'. There is absent or very weak intensity of anthocyanin colouration of the awns of 'Bumper' whereas it is weak on 'Pronghorn' and medium on 'Tyndal'. There are hairs present on the external surface of the lower glume of 'Bumper' whereas they are absent on the reference varieties.

Description:

COLEOPTILE: absent or very weak intensity of anthocyanin colouration

PLANT AT BOOTING: erect growth habit

FLAG LEAF: erect attitude, absent or very low frequency of plants with recurved/drooping flag leaves, absent or very weak intensity of anthocyanin colouration on auricles, absent or very weak glaucosity on sheath

PLANT AFTER HEADING: mid season maturity

NECK OF CULM: sparse pubescence, strong curvature, thin pith in cross section

SPIKE: medium density, weak glaucosity, slightly coloured at maturity, narrow in profile view

AWNS: fully awned, absent or very weak intensity of anthocyanin colouration

LOWER GLUME: long first beak, small second beak, hair on external surface present

ANTHERS: absent or very weak intensity of anthocyanin colouration

KERNEL: red colour, large, long, midwide, elliptical, light phenol reaction

AGRONOMIC TRAITS: good resistance to shattering

REACTION TO DISEASE: moderately susceptible to Fusarium head blight (*Fusarium graminearum*, *Fusarium* species) and stripe rust (*Puccinia striiformis*), resistant to common bunt (*Tilletia caries*, *Tilletia foetida*), leaf rust (*Puccinia triticina*) and stem rust (*Puccinia graminis* f.sp. *tritici*)

Origin and Breeding: 'Bumper' was developed by pedigree selection from the simple cross of the lines DAHBI_6 and ARDL_TOPO1419//ERIZO_9 made in 1993 at the Centro Internacional de Mejoramiento de Maíz y Trigo (CIMMYT), El Batán station, Mexico. The F1 was sown, selected and harvested in bulk in Oregon during the winter-spring 1993-94. A single F2 plant was selected and threshed individually to produce F3 seed. This process was repeated at various locations for the F3 to F7 generations at which time it was considered to be a stable line. During the winter-spring seasons of 1997-2000, the line was yield tested and multiplied. In 2002, it was included in the 40th International Triticale Screening Nursery grown near Swift Current, Saskatchewan in a paired row plot where it was selected for further testing due to its large kernel size, high yield and test weight. From 2003 and 2007, it was further evaluated in the Triticale 'A' and 'B' tests and the Western Spring Triticale Co-operative Test as T196.

Tests and Trials: Trials for 'Bumper' were conducted during the summers of 2009 and 2010 at the Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, Alberta. Each plot was replicated 4 times and seeded at a rate of 1600 seeds/plot. Plots consisted of 4 rows, planted 3.0 metres in length with a row spacing of 23 cm. Measured characteristics were based on a minimum of 30 measurements.

Comparison table for 'Bumper'

	'Bumper'	'Pronghorn'*	'AC Ultima'*	'Tyndal'*
<i>Days to heading</i>				
mean 2009	55	57	56	58
mean 2010	70	72	71	73
<i>Plant height (cm)</i>				
mean (2009)	112.2	128.8	121.6	118.5
std. deviation (2009)	4.6	5.5	4.2	4.5
mean (2010)	93.7	108.4	100.8	98.1
std. deviation (2010)	3.5	5.2	7.8	4.2
<i>Length of awns above tip of spike (cm)</i>				
mean (2009)	4.1	4.8	5.1	1.9
std. deviation (2009)	0.6	0.7	0.5	0.6
mean (2010)	3.5	3.4	4.1	1.4
std. deviation (2010)	0.7	0.6	0.5	0.7
<i>Spike length (excluding awns) (cm)</i>				
mean (2009)	11.1	13.1	10.9	10.7
std. deviation (2009)	0.7	0.7	0.6	0.7
mean (2010)	10.6	12.4	10.7	10.0
std. deviation (2010)	0.7	1.0	0.9	0.7

*reference varieties



Triticale: 'Bumper' (centre right) with reference varieties 'Tyndal' (left), 'AC Ultima' (centre left) and 'Pronghorn' (right)