



## APPLICATIONS UNDER EXAMINATION

## WHEAT

### WHEAT (*Triticum aestivum*)

**Proposed denomination:** 'Conquer'  
**Application number:** 09-6627  
**Application date:** 2009/04/22  
**Applicant:** Agriculture & Agri-Food Canada, Winnipeg, Manitoba  
**Agent in Canada:** Agriculture & Agri-Food Canada, Lacombe, Alberta  
**Breeder:** P. D. Brown, Agriculture & Agri-Food Canada, Winnipeg, Manitoba

**Varieties used for comparison:** 'AC Crystal' and '5701PR'

**Summary:** 'Conquer' heads approximately 3 days later than '5701PR' and matures earlier than '5701PR' and earlier than 'AC Crystal'. The plants of 'Conquer' are taller than those of both reference varieties. The spike of 'Conquer' is longer than that of '5701PR' and shorter than that of 'AC Crystal'. The beak on the lower glume of 'Conquer' is short whereas it is medium length on 'AC Crystal' and long on '5701PR'. 'Conquer' is resistant to Hessian fly and Orange Blossom Wheat Midge whereas 'AC Crystal' is highly susceptible to both pests. '5701PR' was not tested for resistance to Hessian fly and is moderately susceptible to Orange Blossom Wheat Midge.

#### Description:

PLANT: semi-erect growth habit

SEEDLING: very weak intensity of anthocyanin colouration of coleoptile, very weak pubescence on lower leaf sheaths and lower leaf blades

FLAG LEAF: high to very high frequency of plants with recurved/drooping flag leaves, glabrous blades and sheaths, moderate anthocyanin colouration of auricles, medium glaucosity of sheath

CULM NECK: weak to medium glaucosity, weak curvature

STRAW: thin pith in cross section, no anthocyanin colouration at maturity

SPIKE: parallel sided, lax to medium density, white at maturity, very weak glaucosity, very sparse hairiness of convex surface of apical rachis segment

AWNS: present, white, short to medium length, weak to medium spreading attitude

LOWER GLUMES: medium width, medium to long, very weak pubescence, straight shoulder of narrow to medium width, straight to slightly curved short beak

LEMMA: slightly curved

KERNEL: common hard red spring type, medium red colour, medium to large in size, midlong to long, midwide to wide, ovate shape, rounded to angular cheek, midlong brush hairs, midsize germ observed from dorsal view, oval shape of germ, narrow to midwide crease, mid-deep crease, CPS class

INSECT RESISTANCE: resistant to Hessian fly and Orange Blossom Wheat Midge

DISEASE RESISTANCE: moderately resistant to Leaf rust (*Puccinia triticina*), resistant to Stem rust (*Puccinia graminis* f. sp. *tritici*), moderately resistant to moderately susceptible to Loose smut (*Ustilago tritici*) and very resistant to Common bunt (*Tilletia caries*, *Tilletia foetida*)

**Origin and Breeding:** 'Conquer' (experimental number HY682) was derived from the cross HY639/99 EPWA-Mdg61 made at the Agriculture & Agri-Food Canada Cereal Research Centre, Winnipeg, Manitoba during the winter of 1999-2000. The objective of the breeding program was to develop a high protein, high yielding, Canadian Prairie Spring red wheat adapted to the eastern prairies with resistance to orange blossom wheat midge and Hessian fly. A modified pedigree breeding method was used to develop HY682 with contra-season nurseries in New Zealand for the F3, F5 and F7 generations to hasten variety development. Twenty F6:F8 lines were planted and screened for yield and agronomic performance along with resistance to

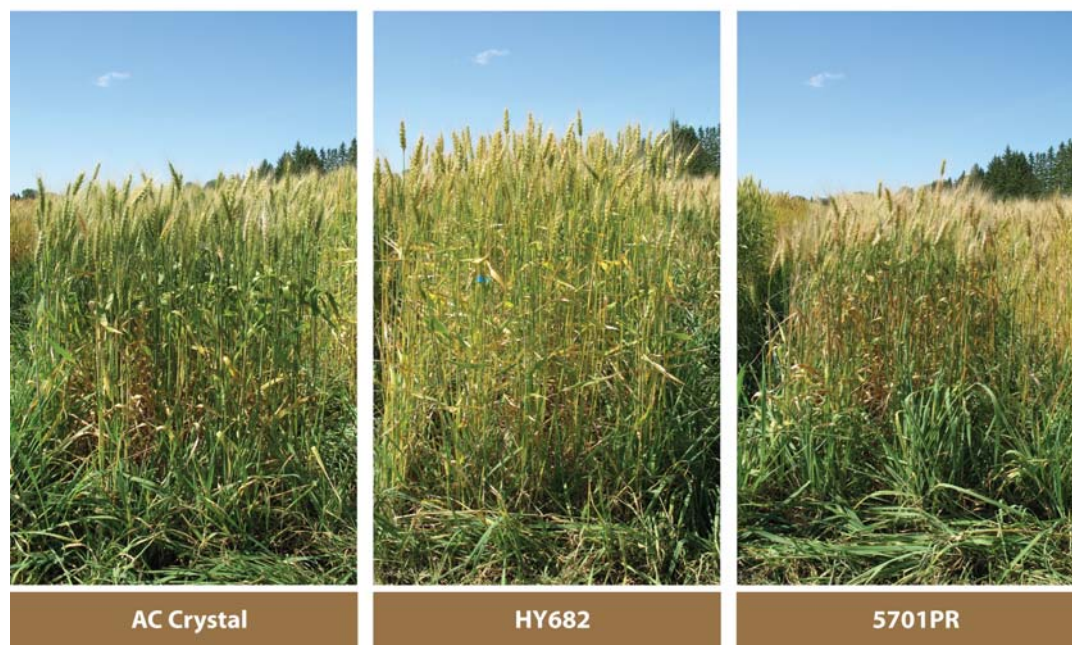
leaf rust, stem rust, bunt and Fusarium head blight resistance. Yield, disease and quality testing occurred at the F9 and F10 generations in 3 replicate, multiple location tests. HY682 was tested in the 2006-2008 High Yield Wheat co-op test.

**Tests and Trials:** Trials for 'Conquer' were conducted during 2008 and 2009 at Portage La Prairie, Manitoba. A 4 replicate randomized complete block design experiment was planted using 3.25 square metre harvested area plots, seeded at a rate of 269 seeds/square metre. Measured characteristics were based on a mean of two years, with 20 measurements taken per year.

**Comparison table for 'Conquer'**

|   | 'Conquer' | 'AC Crystal'* | '5701PR'* |
|---|-----------|---------------|-----------|
| <i>Flag leaf length (cm)</i>              |           |               |           |
| mean                                      | 16.1      | 20.1          | 19.1      |
| std. deviation                            | 3.4       | 2.8           | 2.5       |
| <i>Flag leaf width (mm)</i>               |           |               |           |
| mean                                      | 13.4      | 16.9          | 13.9      |
| std. deviation                            | 1.4       | 1.0           | 1.3       |
| <i>Days to maturity</i>                   |           |               |           |
| mean                                      | 101.5     | 105.9         | 102.9     |
| <i>Plant height (cm) (including awns)</i> |           |               |           |
| mean                                      | 110.1     | 100.3         | 93.8      |
| std. deviation                            | 4.3       | 3.8           | 3.7       |
| <i>Spike length (cm) (excluding awns)</i> |           |               |           |
| mean                                      | 8.1       | 9.2           | 6.9       |
| std. deviation                            | 0.8       | 0.8           | 0.5       |

\*reference varieties



Wheat: 'Conquer' (centre) with reference varieties 'AC Crystal' (left) and '5701PR' (right)



Wheat: 'Conquer' (centre) with reference varieties 'AC Crystal' (left) and '5701PR' (right)