



WB236 and WB238, New malting varieties with potential.

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Abstract.

Two new malting barley lines, WB236 and WB238, sister lines of (AB6/Franklin//Franklin-early)/3/(Rubin/Skiff-early), have been developed at NSW Agriculture as alternatives to Schooner. These lines have improved grain yield, disease resistance, grain size and malting quality.

Source of data.

Estimated mean grain yields (Table 1) were obtained from a combined analysis of data from all relevant stage 3 and 4 NSW Agriculture variety trials from 1994-2000. The method of analysis is as described in Smith et al. (2001a). Estimated means for malting quality traits (Figure 1 and Table 2) were obtained from a combined analysis of data from the 1999 stage 3 variety trials. The method of analysis is as described in Smith et al. (2001b). Mean trait values are expressed as a percentage of Schooner and are supplemented with the probability that the true trait value for the variety is greater than that of Schooner. Note that separate analyses were conducted for data from early and main season sown trials.

Key advantages.

AGRONOMY: Chief features are high yield (Table 1) in a strong straw type derived from Franklin but with earlier maturity and plump grain.

GRAIN SIZE: Improved thousand grain weight and improved plump grain.

MALTING QUALITY: Both WB236 and WB238 have higher diastase than Schooner while maintaining similar grain protein levels. WB236 had 4% higher germinative energy and 2% higher extract. WB238 was comparable or above Schooner in extract.

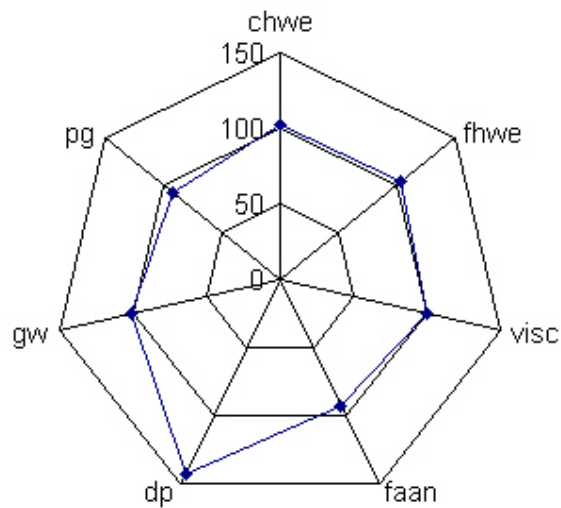
Table 1. Grain yields (t/ha) of WB236 and WB238 expressed as a % of Schooner accompanied by probability^a of exceeding Schooner and number of trials in each region. Based on combined analysis of 1994-2000 stage 3 and 4 variety trials.

Variety	Central NSW			South NSW		
	yield	probability	trials	yield	probability	trials
WB236 early	109	na	19	108	na	33
WB236 main	107	0.99	13	108	>0.99	27
WB238 main	111	>0.99	27	113	>0.99	37

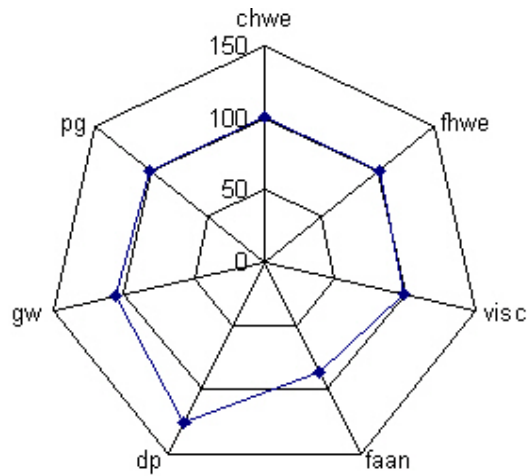
^a probabilities near 1 indicate strong likelihood that true trait value is greater than that of Schooner; probabilities near 0 indicate strong likelihood that true trait value is less than that of Schooner.

Quality comparisons with Schooner: 1999 stage 3 trials

WB236 as % Schooner-early sown



WB236 as % Schooner - mainseason



WB238 as % Schooner - mainseason

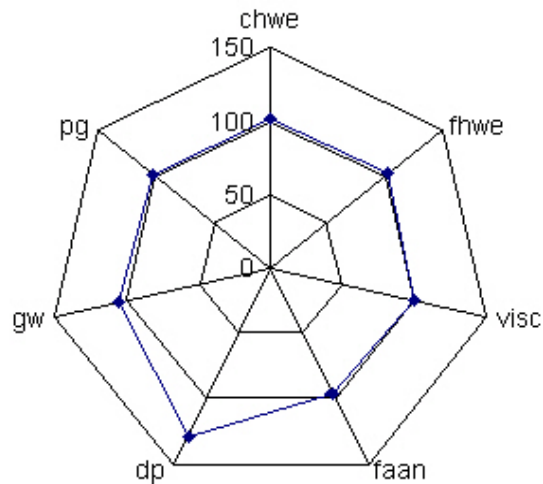


Table 2. Malting quality traits for WB236 and WB238: probability^a of exceeding Schooner and number of trials () in which traits were measured. Based on combined analysis of 1999 stage 3 variety trials.

Variety	Plump Grain	1000GW	Fine extract	Viscosity	FaAN	DP
WB236 early	0.11 (7)	0.55 (7)	0.99 (7)	0.35 (7)	0.02 (7)	>0.99 (7)
WB236 main	0.57 (13)	>0.99 (13)	0.99 (10)	0.22 (10)	<.01 (10)	>0.99 (10)
WB238 main	0.58 (13)	0.99 (13)	>0.99 (10)	0.43 (10)	0.07 (10)	>0.99

^a probabilities near 1 indicate strong likelihood that true trait value is greater than that of Schooner; probabilities near 0 indicate strong likelihood that true trait value is less than that of Schooner.

Industry testing.

These two barley lines have been in industry testing for two years and have successfully undergone pilot malt and brewing with favourable results.

NSW Agriculture Barley Breeding Program.

- A public breeding program for developing advanced barley cultivars for brewing and feed markets.
- Funded and operated through NSW Agriculture and GRDC. The program is part of the southern GRDC barley improvement program and closely interacts with both the western and northern barley improvement programs.
- One of the keystone objectives of the program is to cross and select barley lines that combine significant improvements in malting quality with agronomically competitive characteristics.
- Selection on agronomic performance is of primary importance to achieve varieties with improved yield potential, resistance to disease and desirable plant type and maturity.
- Emphasis is on selecting varieties that will be competitive and profitable for both grower and end user.

In addition

- We incorporate statistical analyses on data obtained from across sites and years in our evaluation process, ensuring only superior material passes through the program.
- The program has the advantage of exploiting the diversity of agronomic environments, that constitute the NSW grain growing belt, for tackling disease resistance to suit a range of target environments.
- We utilise a fully developed relational database system for facilitating the identification of lines that exceed existing quality requirements.
- We take a collaborative approach with other public programs for optimising standardised laboratory methods, appropriate disease resistances and yield potential for environments in our target region.

Acknowledgments.

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