2.4 Oats and Triticale

2.4.1 Triticale variety trial - Bairnsdale, Vic

Location:
Bairnsdale Research Site.

Funding:
This was an SFS Geelong Branch funded trial.

Researchers:
Greg Forster, Damian Symington, Rose Maher & Ben O'Connor.

Author:
Ben O'Connor - SFS.

Acknowledgements:
Thanks to the Bairnsdale Branch Committee.

Background/Aim:
New triticale varieties need to be tested across a number of years before they will be considered in the domestic market. This trial evaluates a number of varieties that are either commercially available of close to commercial release that may be suitable for the growing conditions the south east of Victoria.

Paddock History:
2008: Wheat & canola, 2007: Field peas, green manure crop

Soil Type: Sandy clay loam

Treatment list:
5 current triticale varieties. Measurements included yield and grain quality components, including protein, test weight and screenings.

Sowing rate: Seeding rate based on seed size with a desire to establish 160 plants/m^2.

Sowing date: 3rd June 2009

Fertiliser:100kg/ha MAP at sowing, Urea at 100kg/ha at stem elongation (28th August)

Herbicides:
- 3/6/09 Round Up P/max @ 1.5L/ha + Triflur 480 @ 1.5L/ha
- 2/9/09 Hoegrass @ 1.0L/ha + Lontrel @ 0.15L/ha + Wetter @ 0.25L/ha

Harvest Date: 24th December 2009

Take home messages:
- The average yield for the Bairnsdale triticale trial was 2.77 t/ha. The highest yielding variety was AT5731 with 3.07 t/ha, a new variety due for commercial release in 2010.
- Grain quality was reduced due to unfavourable seasonal conditions during grain fill, the main parameter affected were test weights and screenings.
- The yield potential of the trial may have been reduced due to that later sowing date in comparison to the Bairnsdale wheat and barley variety trials.
- An evaluation of sowing date and effect of grazing was conducted in the 2009 Cereal Grazing Trial at the Bairnsdale research site.

Trial information:
Trial design consisted of a replicated randomised block design using 4 repetitions. Plot lengths were 18 metres long and 1.45m wide. Rainfall was highly variable throughout the season, with below average growing season rainfall. Late rainfall in November was not considered a contributor to yield results for this trial.

Rainfall:

Avg. Annual:	653.5mm, Bairnsdale 1942-2009
Avg. G.S.R.	479.8mm, Bairnsdale 1942-2009
2009 Total:	390.5mm, Bairnsdale Research Site
2009 G.S.R.	April – October = 259.2mm[1]
	(Bairnsdale Research Site; 131.3mm below average)

[1] Yield Potential: 1/3 of Jan (9mm) & Feb (44.2mm) with monthly totals above 20mm + ½ March (12.6mm) rainfall when total above 20mm + ((April – October rainfall) – 114mm*) x 20kg/mm/ha. In total December-March adjusted rainfall to stored soil water = 14.7mm, plus April-October = 259.2mm, minus evaporation factor of 114mm* => 159.9. Therefore, for Bairnsdale, the Triticale Variety Trial water limited yield should be 3.20t/ha, or 159.9mm x 20kg/mm/ha.
*Kirkagaard 2009, Evaporation intercept adjustment for a clay loam.

Results and discussion:
The average yield for the triticale variety trial for 2009 was 2.77 t/ha, the highest yielding variety was AT5731 with 3.07 t/ha, however this was not significantly different to any other variety. AT57321 is a new dual purpose triticale due for commercial release in 2010 by Highleaze Seeds.

The later sowing date may have reduced the yield potential of the trial as compared to the wheat and barley variety trials. Timeliness of sowing is a key management decision that producers will have to consider into the future to maximise their yield potential.

Grain quality was generally poor for the 2009 season where poor test weights and screenings were recorded. The average test weight for the triticale trial was 64% and screenings were 8.4%. This reduced quality may have been caused by the unseasonal hot conditions in early November during grain fill.

Table 1: Grain yield and quality analysis, including protein, test weight & screenings, corrected to 12.5% moisture. A WUE calculation and comparison to the 2008 yield performance is also included.

Variety	[1]Yield (t/ha)	[2]Sig. Diff.	2008 Ranking	[3]WUE % of 3.20t/ha	Protein %[4] (min)	Test Weight kg/hl[4]	Screenings below 2.0mm[4]
AT5731	3.07	a		96	10.83	62.7	5.3
Endeavour	2.99	a		94	11.95	57.8	5.3
Bogong	2.92	a		91	10.43	68.3	6.8
Tobruk	2.48	a		77	9.88	64.3	13.5
Canobolas	2.41	a		75	10.83	67.1	11.3
Mean	**2.77**				**10.8**	**64.0**	**8.4**
LSD (P=0.05)	**0.679**				**0.656**	**2.838**	**2.900**
CV	**15.88**				**3.95**	**2.88**	**22.38**
Trt Prob (F)	**0.165**				**0.001**	**0.001**	**0.001**

[1] Consideration needs to be taken for yields, as plots represent 72.5% of arable area and thus should be calculated using this percentage for comparison to local and commercial results.
[2]Means followed by the same letter do not significantly differ (P=0.05, LSD).
[3]Water Use Efficiency percentages are calculated based on the water limited potential yield of wheat at Bairnsdale for the 2009 growing season; being 159.9mm x 20kg/mm/ha, or 3.20t/ha.
[4]Quality parameterisation is based on 2009-2010 NACMA Wheat Standards (as no standard were available for triticale) and should be used as a guide only. Testing was undertaken at Riordan Grains, Inverleigh Office.

Summary:
The average yield for the triticale variety trial was 2.77 t/ha, the yield potential of the trial may have been reduced due to the time of sowing, where greater yields may be expected when sown earlier. The highest yielding variety was AT5731 with 3.07 t/ha, this variety is due for commercial release in 2010. Grain quality was reduced due to unfavourable seasonal conditions during grain fill, this affected test weights and screenings.