

2013 Wheat variety trial

Background

This is the fourth year the wheat variety trial has been run on Kangaroo Island. This year the trial included nine soft and hard wheat varieties and one triticale. The trial was located on a well drained site at S & W Veitch's lease property (owned by Jenkins) on Margies Rd.

The soil was a sandy loam with good fertility (Colwell P of 77mg/kg, Colwell K of 161mg/kg and Sulphur of 10.2mg/kg). The soil was acidic with pH (CaCl₂) of 4.3.

The trial received 704mm of rain for 2013 compared to the average of 600mm. The trial was not waterlogged for any length of time.

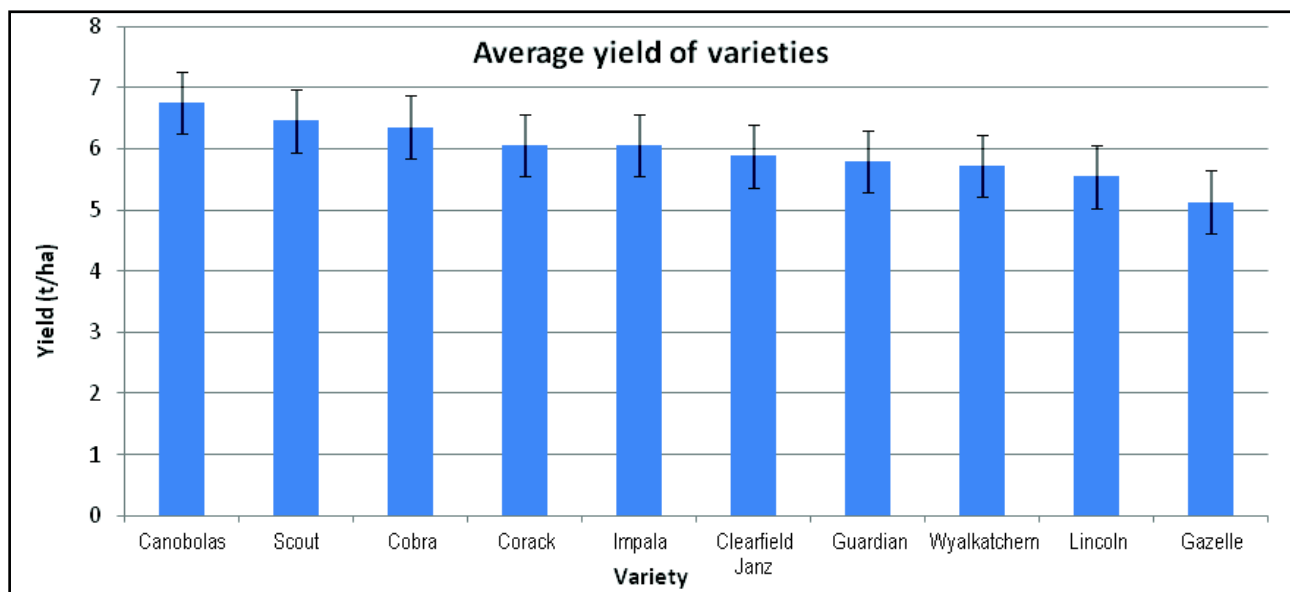
What was done

- Knockdown Glyphosate and Sakura 26th May
- Varieties sown on 28th May at 100kg/ha plus 90kg/ha DAP
- 100kg/ha Urea applied on 2nd Aug
- 50kg/ha Urea applied on 17th Aug
- Mn, Zn, Cu and Mo applied 11th Sep
- Terbuconazole applied at 290ml/ha 11th Sep
- 60kg/ha AMS applied 12th Sep.

The trial was a randomised block design with 4 replicates. This means that each variety appeared 4 times in the trial, once in each of the four blocks. Each plot was 8.5m long by 1.1m wide.

Results

FIGURE 1. Above shows a graphic comparison of average yield over four replicates with error bars.



From FIGURE 1 above; for the varieties whose error bars do not overlap, we can be 95% certain that their average true yield would not differ if grown together again at that site under the same conditions (the yields are statistically significant at the 95% confidence level).

Statistically significant differences at the 95% confidence level can be summarised in TABLE 1. Varieties are all listed across the top in bold. The bold variety across the top yielded significantly higher than the varieties listed in italics below, if any.

TABLE 1. Summary statistically significant differences at 95% confidence level.

Canobolas trit	Scout	Cobra	Corack	Impala	Clearfield Janz	Guardian	Wyalkatchem	Lincoln	Gazelle
<i>Corack</i>	<i>Clearfield Janz</i>	<i>Guardian</i>	<i>Lincoln</i>	<i>Gazelle</i>	<i>Gazelle</i>	<i>Gazelle</i>	<i>Gazelle</i>		
<i>Impala</i>	<i>Guardian</i>	<i>Wyalkatchem</i>	<i>Gazelle</i>						
<i>Clearfield Janz</i>	<i>Wyalkatchem</i>	<i>Lincoln</i>							
<i>Guardian</i>	<i>Lincoln</i>	<i>Gazelle</i>							
<i>Wyalkatchem</i>	<i>Gazelle</i>								
<i>Lincoln</i>									
<i>Gazelle</i>									

Grain yield

Gazelle's performance was poor compared to last year on a relative basis. In 2012 Gazelle was 5th highest yielding of 12 varieties, this year it was the lowest yielding of 10 varieties. Gazelle's relative profitability has also declined. In 2012 it had the highest gross margin; this year it was ranked 5th. This is most likely explained by a severe powdery mildew infection as seen by the spring field day attendees. Gazelle was not treated with a fungicide registered for powdery mildew control. If this can be controlled, Gazelle could perform well in the future.

This is the first year that a triticale variety has been included in the variety trial. Canobolas Triticale was the highest yielding variety (note this is not statistically significant). Triticale is typically a feed grain and hence its gross margin was calculated using the feed wheat price. This could be a good option for feed, but does not provide the market flexibility of wheat.

Wyalkatchem was the 3rd lowest yielding variety and yielded statistically significantly lower than Cobra, Scout and Canobolas trit. FIGURE 2 compares 2012 and 2013 and also depicts Wyalkatchem's poor yield on a relative basis when compared to the newer varieties.

Grain quality

Scouts grain quality was poor due to staining - 18% of the grain was stained. If staining was less than 5% Scout would have been H2 classification. Staining discounted Scout \$30 per tonne from H2 to FED. In the 2011 variety trial Scout also had the highest amount of staining at 30% while other varieties, such as Wyalkatchem at 2%, were low. In 2012 conditions were not conducive of staining and no varieties had issues. Staining was also high for Corack this year but we have no across season data for this variety.

Impala was classified FGP2 because protein was too high. It may have been possible to manage this with N fertiliser, which may have increased its dollar value per tonne and gross margin.

TABLE 2. Grain quality classification and gross margin.

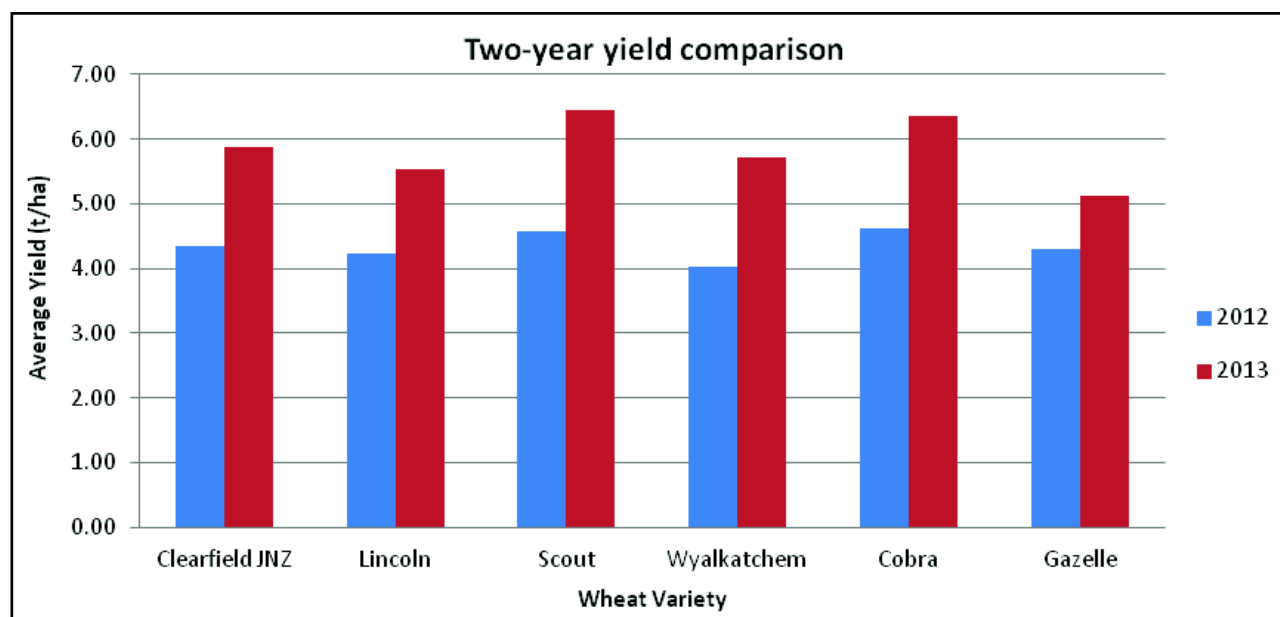
Variety	Yield (t/ha)	Protein (%)	Test weight (g/hl)	Screenings (%)	Falling Numbers	Staining (%)	Classification	On farm value (\$/t)*	gross margin (\$/ha)^
Clearfield Janz	5.88	11.2	79	1.4	387	<5	APW1	198	714
Cobra	6.36	12.1	79.4	2.4	319	<5	H2	208	872
Corack	6.06	12.6	78	1.1	270	12	AGP	178	629
Gazelle	5.13	10.4	73.2	2.1	330	<5	SFE2	228	720
Guardian	5.79	11.5	78.8	2.44	425	<5	H2	208	754
Impala	6.05	11.2	80	1.5	374	<5	FGP2	208	809
Lincoln	5.55	11.5	78.2	3.6	395	<5	H2	208	704
Scout	6.46	11.5	79.2	1.7	435	18	FED1	178	699
Wyalkatchem	5.72	12.5	78	1.7	304	<5	APW1	198	683
Canobolas Trit	6.75	9.7	79.4	2.4		<5	FED1	178	752

* Based on KIPG estimated pool returns Feb 2014, less cleaning, freight and marketing fees.

^ Gross margin based on cost of \$450 per ha to grow crop.

Comparing two very different seasons

FIGURE 2. **Wheat average yield comparison for 2012 and 2013**



From FIGURE 2 above; it can be seen that 2013 was a much higher yielding season or site. 2012 and 2013 were two very different seasons. 2012 had one of driest springs on record while 2013 was one of the wettest. It is interesting to note that yield rank did not seem to change much between seasons. This means the highest yielding varieties in 2012 were also the highest yielding in 2013. This is reassuring.

Take home messages

- Two seasons data reaffirms newer varieties performing well.
- Variety relative performance consistent last two seasons.
- Need to consider gross margin.
- Gross margin driven by yield and quality.
- Canobolas Trit high yielding feed option.

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- Andrew Ware (SARDI) for statistical analysis.

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