

Wheat variety trial

Background

Variety trial work has been carried out on mainland SA for many years. This has provided some value to local croppers for variety selection but conditions on KI are unique. As a result a variety trial was set up on the Island to determine which wheat varieties perform best under local conditions. The trial included a number of bread wheats, but also some noodle and biscuit wheats.

What was done

Site Selection

The trial was located on Simon and Wayne Veitch's property on Birchmore road. The location has relatively well drained lateritic sandy loam over clay soil. Table 1 shows the results for soil test taken in March.

TABLE 1

Soil test results

| | Result | Comment |
|-------------------------|--------|---------|
| Colwell P | 68ppm | High |
| Colwell K | 246ppm | High |
| pH (CaCl ₂) | 4.8 | Acidic |

The site received approx 540 mm of rainfall for the 2010 calendar year which was slightly above average. The previous crop was canola.

Trial design

Twelve wheat varieties were selected by a reference group of local farmers and agronomists. These varieties are listed in table 2 of the results. Four replicates of each variety were sown in a randomized block design using a small plot cone seeder. Plots were 1.1 m wide by 8.5 m long.

Trial Agronomy

The trial was grown in a paddock of Annuello wheat and treated in a similar manner.

- 29 May: paddock sprayed with 2 L/ha Sprayseed + 300 g/ha Diuron + 30 g/ha Logran
- 5 June: trial sown (100 kg each wheat variety+ 90 kg/ha DAP
- 3 July: post emergence spray, 400 g/ha Achievetm + 750 Superchargetm. Wheat at GS13
- 27 July: post emergence spray, 1 L/ha MCPA LVE + 2 kg/ha manganese sulphate + 1 kg/ha zinc sulphate
- 12 August: urea applied at 95 kg/ha, wheat at GS31
- 29 September: rust spray applied, 290 ml/ha Tebuconazole + 1 L/ha Smartace copper applied by air. Crop at late booting stage.
- 30 December: trial harvested.

What was measured

Soil test, number of tillers, grain yield and quality.



IMAGE 1

Sowing the trial with the cone seeder

Results

FIGURE 1

Average yield tonnes per hectare

Note: LSD 95 equals 0.49 t/ha

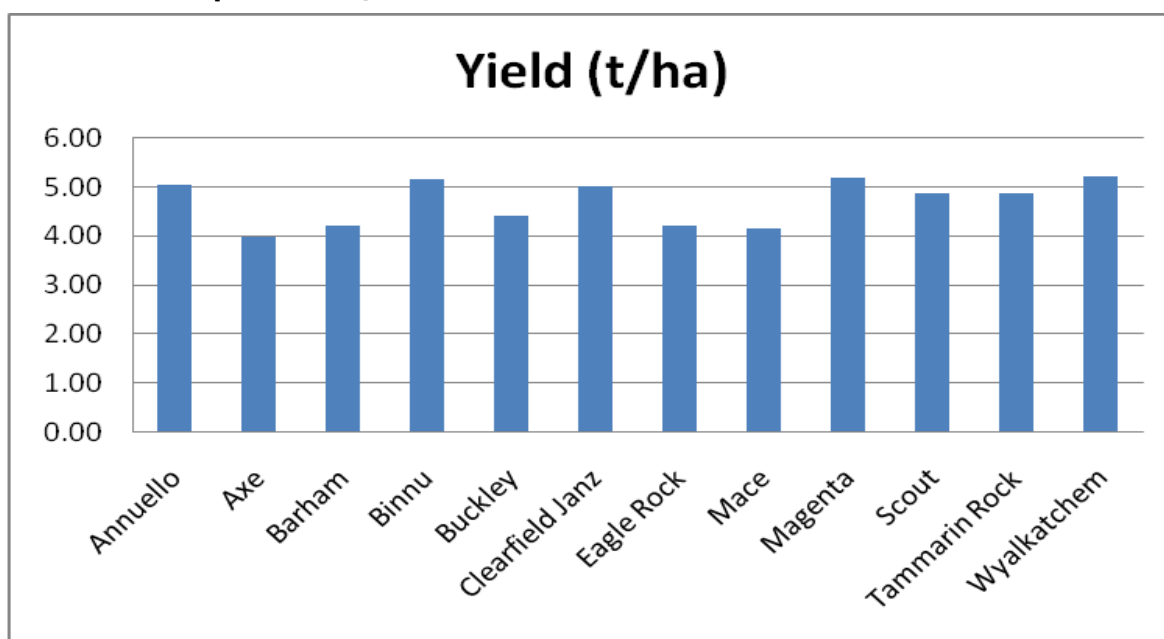


TABLE 1

Grain quality, value and gross margin

| | Test weight (g/L) | Protein % | Screenings % | Classification | Value (\$/tonne) | Average yield (\$/t/ha) | On farm value (\$/t) | Gross margin (\$/ha) |
|-------------------|-------------------|-----------|--------------|----------------|------------------|-------------------------|----------------------|----------------------|
| Annuello | 79 | 8.9 | 0.9 | ASW1 | \$240 | 5.04 | 190 | \$507 |
| Axe | 77.2 | 11.1 | 1.0 | APW1 | \$250 | 3.97 | 200 | \$343 |
| Barham (biscuit) | 76.4 | 8.9 | 1.4 | SFE1 | \$250 | 4.21 | 200 | \$392 |
| Binnu (noodle) | 75.4 | 8.1 | 1.5 | AGP1 | | 5.15 | Not available | - |
| Buckley (biscuit) | 75.6 | 8.5 | 0.9 | SFE1 | \$250 | 4.41 | 200 | \$431 |
| Clearfield Janz | 78.2 | 8.9 | 0.8 | ASW1 | \$240 | 5.01 | 190 | \$501 |
| Eagle rock | 77 | 10.2 | 0.9 | ASW1 | \$250 | 4.22 | 200 | \$395 |
| Mace | 78.8 | 9.3 | 1.3 | ASW1 | \$240 | 4.16 | 190 | \$340 |
| Magenta | 79.6 | 9 | 1.5 | ASW1 | \$250 | 5.19 | 200 | \$587 |
| Scout | 81 | 9.5 | 1.5 | ASW1 | \$240 | 4.87 | 190 | \$476 |
| Tammarin rock | 76.6 | 9.8 | 1.4 | ASW1 | \$250 | 4.86 | 200 | \$522 |
| Wyalkatchem | 79.6 | 9.6 | 1.1 | ASW1 | \$250 | 5.22 | 200 | \$595 |

Assumptions:

Prices for APW and ASW wheat are KIPG estimated pool returns for 3 December 2010

Biscuit wheat prices are based on APW.

Gross margin assumes freight cost of \$50 per tonne in addition to \$450 per ha to grow wheat crop.



IMAGE 2

Farmers and agronomists at the November variety trial field day

Statistical results

The statistical analysis showed that some of the varieties average yield differed significantly. LSD 95 was 0.49 t/ha. Hence all varieties that had average yields that differed by more than 0.49 t/ha were significantly different at the 95% confidence level.

It is important to note that this was only one season's data, and variety yield and quality could be different in another season. Varietal performance will also differ with location.

Discussion

Consistent with the wheat variety work in 2009 Wyalkatchem was the best performing variety achieving the highest yield and gross margin per ha. This further reinforces its value on for KI conditions. Magenta and Annuello also performed well and were not far behind Wyalkatchem for yield and gross margin.

Eagle Rock and Tammarin Rock are Western Australian (WA) varieties that are thought to be tolerant to waterlogging in WA conditions. These varieties yielded well in the well drained variety trial. More information on their performance under waterlogged conditions is provided in the waterlogging trial report.

Protein for all varieties was low with most varieties only making ASW wheat. The only exception was Axe wheat which

made APW classification. Axe is a short season wheat commonly grown in low rainfall regions of SA. Axe was the lowest yielding variety but if there had been a greater than \$10 premium for APW on ASW it would have performed well for gross margin.

Noodle wheat

Binnu is a noodle wheat that is used for pasta production. Locally this constituted a small market. Binnu yielded very well and could be a viable option on KI pending a market. For more information on market availability speak to your wheat buyer.

Biscuit wheat

Buckley and Barham biscuit wheat also yielded well but market access was also a problem. Domestic demand was limited and in 2010 the mid-north alone produced twice South Australia's requirements. If markets become available these varieties could be an option on KI.

More information on varieties can be found on the NVT website www.nvtonline.com.au.

Future work

A similar variety trial could be grown in 2011 to enable comparison of varieties in a number of different years.

A variety trial could be grown for canola varieties.



IMAGE 3

The trial harvester in action on the variety trial

For further information contact

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Take home messages

- Wyalkatchem wheat reinforces its position in the cropping rotation
- Annuello and Magenta also performed well
- Biscuit and noodle wheats performed well but market access needs to be checked.