



Department of
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Wheat variety trial- response to sowing time

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Aim

To support growers with agronomic decisions such as sowing time and variety selection to enhance industry profitability through improved wheat yields and grain quality.

Background

Twenty four commercially popular, recently released wheat varieties or unreleased varieties were sown at two sowing times at East Maya to provide growers with useful information to understand the impact of sowing time on the yield and quality. This trial is one of a state wide set of trials conducted by DAFWA's GRDC supported project 'Variety specific agronomy for wheat yield and quality in the Western Region'.

Trial Details

| | |
|------------------------------------|---|
| Property | Rob Nankivel, East Maya |
| Plot size & replication | 1.54 x 18m x 3 replicates |
| Soil type | Red Sandy Loam |
| Soil pH | 0-10cm: 5.2, 10cm-30cm: 4.5, 30cm-60cm: 5.2 |
| EC | 0-10cm: 0.078dS/m , 10cm-30cm: 0.036dS/m, 30cm-60cm: 0.047dS/m |
| Sowing date | TOS1: 25 th May; TOS2: 15 th June. |
| Seeding rate | 70 kg/ha |
| Fertiliser | 100 kg/ha Agstar Extra drilled and 80 kg/ha Urea topdressed at seeding |
| Paddock rotation | 08 Wheat, 09 Peas |
| Herbicides | SpraySeed, Dominex and Talstar at seeding. Ally and Barracuda post emergent |
| Growing Season Rainfall | 141mm |

Results

Table 1: Yield and quality of wheat sown at East Maya on 25th of May and 15th of June 2010.

| | Yield (t/ha) | | Protein (%) | | Screenings (%) (inc whole and cracked grain) | | Hectolitre Wt | |
|-----------------|--------------|--------|-------------|--------|---|--------|---------------|--------|
| | 25-May | 15-Jun | 25-May | 15-Jun | 25-May | 15-Jun | 25-May | 15-Jun |
| EGA Bonnie Rock | 1.83 | 1.15 | 14.1 | 15.8 | 5.7 | 23.4 | 82.1 | 76.0 |
| King Rock | 1.82 | 1.34 | 14.0 | 15.0 | 6.0 | 17.5 | 81.4 | 77.1 |
| IGW 3119 | 1.77 | 1.37 | 14.1 | 15.1 | 4.1 | 22.9 | 81.9 | 74.4 |
| Espada | 1.76 | 1.32 | 14.0 | 16.7 | 7.2 | 13.7 | 78.2 | 73.7 |
| IGW 3186 | 1.74 | 1.17 | 14.0 | 15.8 | 4.4 | 23.4 | 82.1 | 74.8 |
| Katana | 1.74 | 1.17 | 15.1 | 16.6 | 5.3 | 23.4 | 82.1 | 76.8 |
| Mace | 1.74 | 1.32 | 14.1 | 15.2 | 4.3 | 25.8 | 79.8 | 75.2 |
| Wyalkatchem | 1.73 | 1.28 | 14.2 | 16.2 | 3.7 | 16.6 | 79.1 | 73.9 |
| RAC 1683 | 1.72 | 1.23 | 13.7 | 16.3 | 6.0 | 18.9 | 76.3 | 71.5 |
| IGW 3167 | 1.69 | 1.28 | 14.6 | 16.6 | 5.0 | 16.0 | 81.4 | 75.0 |
| Westonia | 1.68 | 1.18 | 14.1 | 15.6 | 6.9 | 12.5 | 77.7 | 73.3 |
| Gladius | 1.62 | 1.07 | 14.4 | 17.1 | 6.4 | 17.5 | 79.4 | 73.2 |
| Fortune | 1.59 | 1.06 | 14.9 | 16.2 | 9.9 | 14.0 | 75.6 | 73.5 |

| | Yield (t/ha) | Protein (%) | Screenings (%) | Hectolitre Wt |
|--|--------------|-------------|----------------|---------------|
|--|--------------|-------------|----------------|---------------|

| | | | | | (inc whole and cracked grain) | | | |
|-------------------------|--------|--------|--------|--------|-------------------------------|--------|--------|--------|
| | 25-May | 15-Jun | 25-May | 15-Jun | 25-May | 15-Jun | 25-May | 15-Jun |
| Binnu | 1.58 | 1.29 | 13.5 | 14.6 | 10.8 | 26.2 | 77.9 | 74.7 |
| Magenta | 1.56 | 1.08 | 14.2 | 16.6 | 11.0 | 15.5 | 75.8 | 74.6 |
| Calingiri | 1.55 | 1.08 | 14.8 | 16.7 | 11.5 | 9.9 | 75.0 | 75.9 |
| Tammarin Rock | 1.54 | 1.25 | 14.2 | 16.0 | 5.4 | 16.7 | 79.3 | 72.3 |
| IGW 2944 | 1.52 | 1.14 | 15.0 | 17.3 | 9.8 | 14.9 | 74.6 | 71.9 |
| Carnamah | 1.51 | 1.08 | 13.8 | 15.9 | 8.6 | 11.1 | 76.1 | 75.1 |
| IGW 2886 | 1.46 | 1.03 | 15.3 | 17.8 | 8.7 | 23.6 | 78.2 | 75.1 |
| IGW 3097 | 1.39 | 1.30 | 15.6 | 15.8 | 2.3 | 13.6 | 81.1 | 74.5 |
| Average within each TOS | 1.66 | 1.2 | 14.26 | 16.18 | 6.75 | 18.25 | 78.8 | 74.3 |
| TOS (lsd) | 0.004 | (0.12) | 0.034 | (0.4) | 0.022 | (7.5) | 0.014 | (2.3) |
| Var (lsd) | <.001 | (0.13) | <.001 | (0.4) | <.001 | (2.7) | <.001 | (1.1) |
| Var (lsd) between TOS | 0.002 | (0.19) | 0.031 | (0.7) | <.001 | (5.8) | <.001 | (2) |
| Var (lsd) within TOS | | (0.18) | | (0.6) | | (3.9) | | (1.6) |
| %CV | | 7.8 | | 4.8 | | 19.1 | | 1.3 |

Comments

EGA Bonnie Rock and King Rock (1.8 t/ha) were the highest yielding varieties with screenings at 5.7 and 6% when sown on the 25th May. The next sowing opportunity was the 15th June and this delay reduced yields by 680 and 480 kg/ha for EGA Bonnie Rock and King Rock and screenings increased to 23.4 and 17.5% respectively.

Espada, Katana, Mace, Wyalkatchem and Westonia all yielded similarly to EGA Bonnie Rock and King Rock at time of sowing 1 however only Mace and Wyalkatchem had screenings of less than 5%.

In 2010, a season based on very low rainfall, the water use efficiencies of the crops which were sown on the 25th May ranged from 30 – 38 kg per millimeter of rain (Note evaporation was calculated at 2/3 of GSR). Screenings ranged from 3.7% (Wyalkatchem at 1.37 t/ha) to 11.5% (Magenta at 1.56 t/ha). Delayed seeding caused WUE to drop to 22 – 29 kg/mm of rain and screenings to increase to a range of 9.9% (Calingiri at 1.08 t/ha) to 26% (Binnu at 1.29 t/ha).

A number of unreleased cultivars were assessed at this site in 2010. The two IMI wheat varieties in the trial, AGT1683 and IGW3097, both had screenings of less than 5%. However AGT1683 yielded significantly higher than IGW3097. IGW2944 (a noodle type) yielded similarly to Calingiri. The potential APW and hard wheat varieties (IGW 3119, IGW 3186 and IGW 3167) all yielded similarly to EGA Bonnie Rock and King Rock.

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