

Effect of time of sowing and variety on grain yield: MAC demonstration

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DEMO

Cereals

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Location: Minnipa Agricultural Centre, paddock North 1

Rainfall

Av. Annual: 325 mm

Av. GSR: 241 mm

2016 Total: 391 mm

2016 GSR: 268 mm

Yield

Potential: 3.60 t/ha (W)

Actual: 2.90 t/ha

Paddock History

2016: Mace wheat

2015: Medic pasture

2014: Mace wheat

2013: Mace wheat

Soil Type

Red loam

Plot Size

8.6 m x 1.6 m x 3 reps

Why do the trial?

The aim of this paddock demonstration was to compare grain yield and grain quality of a mid-late maturing variety (Trojan) and two early-mid season maturing varieties (Mace and Scepter).

How it was done?

On 13 May Trojan was sown using a 30 ft (9 m) air seeder along the full length of the paddock using three repetitions at 70 kg/ha seeding rate with 60 kg/ha DAP (18:20:0:0). Knockdown chemicals used were 1.5 L/ha of glyphosate, 500 ml/ha ester 680 and 118 g/ha Sakura + SOA and Li 700. Sakura was used to help control grass weeds as there was little germination of weeds at sowing. Mace and Scepter were also sown at 70 kg/ha seeding rate with 60 kg/ha DAP (18:20:0:0) on this date for comparison between these two varieties (Table 1).

The late time of sowing was on 26 May with Mace and Scepter, using the same rates of seed and fertiliser as the Trojan. These varieties were sown on strips left between the early sowing, so no extra chemicals were used. As Trojan is a longer growing season wheat variety, it was not included in the later time of sowing.

The paddock strips were harvested using a plot header with four 8.6 m strips per variety with three repetitions done across the demonstration area. Only averages can be compared between varieties with different times of sowing.

What happened?

Sowing Trojan earlier on 13 May had similar grain yield (t/ha) as Mace and Scepter sown thirteen days later on 26 May. However Trojan had better grain quality with higher test weight and protein than Mace and Scepter (Table 2).

Mace grain yield was 3% higher when sown early. However, for 26 May sowing it yielded the same as Scepter, but had lower protein (11.2%) than Scepter (11.4%).

Key messages

- **There was no difference in grain yield (t/ha) between the early season variety (Trojan) and the later varieties (Mace and Scepter) sown 13 days later.**
- **In 2016 sowing Mace and Scepter earlier on 13 May reduced grain protein by 0.3% compared to sowing it thirteen days later.**
- **For the later sowing on 26 May, Mace and Scepter had similar grain yield, however, protein was higher for Scepter.**
- **When sown early, Trojan had higher protein than Mace and Scepter.**

Table 1 Grain yield and quality for Mace and Scepter sown on 13 May (time of sowing 1)

| Variety | Yield (t/ha) | Test weight (hL) | Protein (%) | Screenings (%) | Moisture (%) |
|-----------|--------------|------------------|-------------|----------------|--------------|
| Mace | 3.4 | 81.3 | 10.9 | 2.2 | 10.1 |
| Scepter | 3.3 | 82.3 | 10.6 | 1.1 | 10.1 |
| Site mean | 3.4 | 81.8 | 10.8 | 1.7 | 10.1 |

Table 2 Grain yield and quality for Trojan, Mace and Scepter sown at ideal sowing times

| Sowing Date | Variety | Yield (t/ha) | Test weight (hL) | Protein (%) | Screenings (%) | Moisture (%) |
|-------------|-----------|--------------|------------------|-------------|----------------|--------------|
| 13 May | Trojan | 3.4 | 82.4 | 11.6 | 2.5 | 10.3 |
| 26 May | Mace | 3.3 | 81.0 | 11.2 | 2.2 | 10.1 |
| 26 May | Scepter | 3.3 | 81.8 | 11.4 | 2.4 | 10.1 |
| | Site mean | 3.4 | 81.7 | 11.4 | 2.4 | 10.2 |

What does this mean?

Results from this one year broad acre demonstration at Minnipa Agricultural Centre show that there was no yield advantage in sowing Mace and Scepter earlier in this season. There was however a gain in grain protein by sowing these two varieties at the earlier sowing

date. Results also indicate that Mace and Scepter can achieve similar grain yield as Trojan when sown early in the season, but Trojan in this instance achieved higher grain protein. As the 2016 season ended with mild moist conditions, the longer season varieties performed well across the region. The protein and yield

data would presumably be quite different for each variety if the season had finished with warm dry weather.

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