

## Time of sowing and seeding rate in wheat

This trial was funded by GRDC

### Key findings

- The highest yielding treatment in the wheat time of sowing trial at Hart in 2009 was Gladius sown on the 30<sup>th</sup> of April.
- Later maturing varieties were best sown in early May.
- Axe is a good option for sowing in late May.

### Why do the trial?

To measure the effect of time of sowing (TOS) and plant density on wheat varieties with different development habits and maturities.

### How was it done?

<b>Plot size</b>	1.4m x 10m	<b>Fertiliser</b>	DAP @ 60 kg/ha + 2% Zn Urea @ 50 kg/ha 10 <sup>th</sup> August
<b>Seeding date</b>	TOS 1 30 <sup>th</sup> April 2009 TOS 2 14 <sup>th</sup> May 2009 TOS 3 29 <sup>th</sup> May 2009		

The trial was a randomised block design with 3 replicates 4 wheat varieties, 3 plant densities and 3 times of sowing.

The wheat varieties used were Axe (early maturing), Gladius (early-mid maturing), Correll (mid maturing) and Frame (mid-late maturing).

The plant densities achieved are shown in table 1.

Table 1: Wheat plant density (plants per square metre) for Axe, Correll, Frame and Gladius at Hart in 2009.

Plant density	Wheat plant density (plants/m <sup>2</sup> )
Low	127
Medium	171
High	215
LSD (0.05)	8

Plot edge rows were removed prior to harvest.

All plots were assessed for grain yield, protein, test weight, grain weight and screenings with a 2.0 mm screen.

## Results

The grain yields of wheat were similar when sown prior to May 14<sup>th</sup> (TOS 2) for all varieties and plant densities (Table 2). Delaying sowing until the 29<sup>th</sup> May reduced average grain yields by 0.31 t/ha, and extended the dates of flowering (Figure 1).

Table 2: Grain yield (t/ha) and time of sowing at Hart in 2009, averaged for variety.

Time of sowing	Grain yield (t/ha)
Apr-30	2.81
May-14	2.73
May-29	2.46
LSD (0.05)	0.20

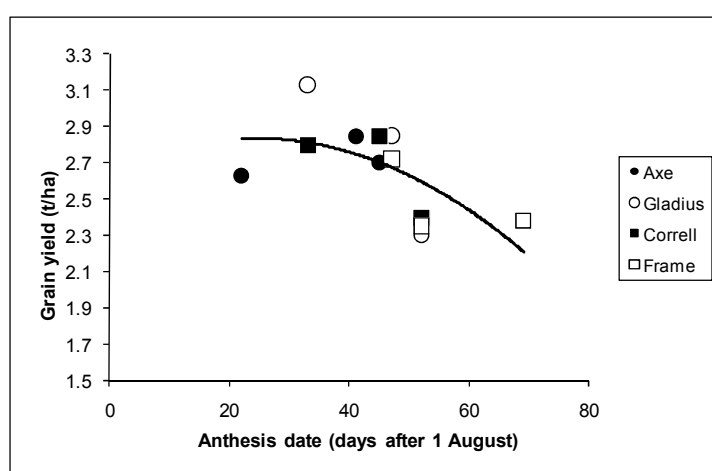


Figure 1. Grain yield (t/ha) and flowering date for Axe, Gladius, Correll and Frame at Hart in 2009.

At the first time of sowing (TOS 1) Gladius produced the highest grain yield of 3.13 t/ha, across all plant densities (Figure 2). There was no significant difference between the other varieties averaging 2.71 t/ha.

Sowing on May 14<sup>th</sup> (TOS 2) produced similar yields compared to April 30<sup>th</sup>, with Axe, Gladius and Correll averaging 2.85 t/ha. However, the mid-late maturing variety (Frame) was significantly lower yielding, 2.35 t/ha (Figure 2).

The earliest maturing variety Axe produced a similar yield in TOS 3 (2.71 t/ha) compared to TOS 2 (2.82 t/ha). Delaying sowing until May 29<sup>th</sup> (TOS 3) significantly reduced grain yields for Gladius (2.33 t/ha) and Correll (2.43 t/ha), while the grain yield for Frame did not change compared to TOS 2 (Figure 2).

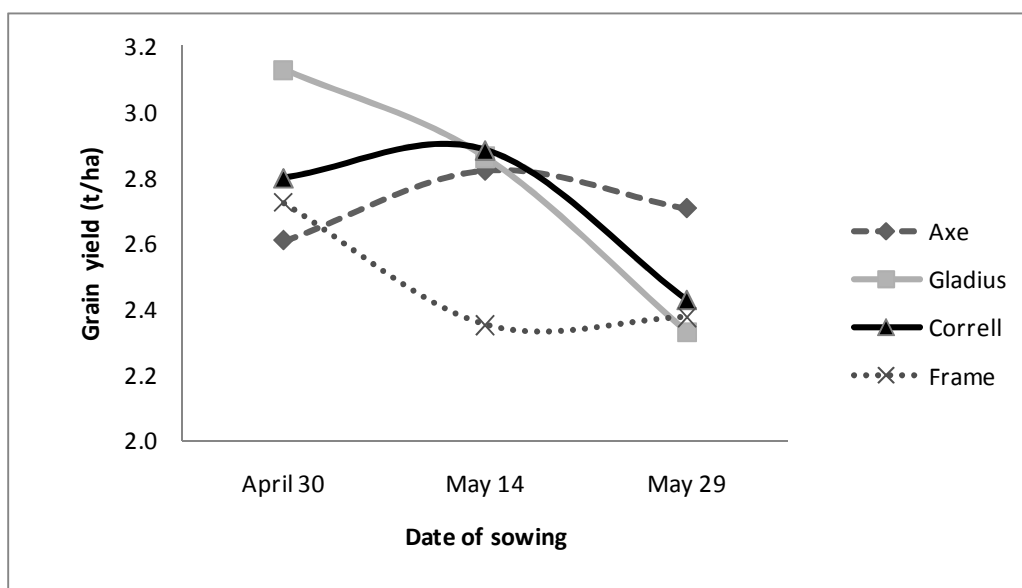


Figure 2: The effect of time of sowing on grain yield (t/ha) for wheat at Hart in 2009, averaged for plant density.

Plant density did not significantly influence grain yields for any time of sowing or any of the wheat varieties (Table 3).

Wheat head density at harvest ranged from 335 heads/m<sup>2</sup> to 352 heads/m<sup>2</sup> for all TOS, variety and seeding rates.

Table 3: The response of grain yield (t/ha) to time of sowing and plant density, for all wheat varieties at Hart in 2009.

Time of sowing		Plant density (plants/m <sup>2</sup> )		
		127	171	215
TOS 1	Apr-30	2.90	2.80	2.75
TOS 2	May-14	2.69	2.75	2.75
TOS 3	May-29	2.42	2.48	2.48
LSD (0.05)				
Plant density * TOS			0.20	

Protein ranged from 12.4% (Correll, TOS 2) to 13.7% (Frame, TOS 2) (Table 4). Plant density had no significant impact on grain protein. Protein increased significantly for all varieties with delay in sowing.

Table 4: The response of grain protein (%) to time of sowing and wheat variety for all plant densities at Hart in 2009.

Time of sowing		Axe	Correll	Frame	Gladius
TOS 1	Apr-30	13.3	12.8	12.8	13.0
TOS 2	May-14	13.3	12.4	13.7	13.1
TOS 3	May-29	13.5	12.7	13.4	13.3
LSD (0.05)					
Variety * TOS			0.2		

The lowest screenings were produced in TOS 1 and TOS 2 averaging 1.0% for all varieties. At TOS 3 screenings increased to 1.5% and 1.7% at the medium and high seeding rates respectively and then increased further to 2.1% at the lowest sowing rate.

Axe produced the lowest screenings at all times of sowing averaging 0.8%. Generally the screenings increased in the other varieties as sowing was delayed. Frame sown at TOS 3 had the highest screenings at 2.1%.

All treatments produced grain with a test weight greater than 74.0 kg/hL, the limit for maximum allowable grade. Frame produced the highest test weight in the trial in TOS 1 (81.4 kg/hL) and also produced the highest test weights in TOS 2 and TOS 3. Axe sown on the 30<sup>th</sup> April produced the lowest test weight in the trial (74.7 kg/hL), but also produced the second highest in TOS 2 and TOS 3.

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*Chris White representing Clare TAFE  
inside the 2009 Hart Field Day marquee*