

Row Direction Trial

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RESEARCH

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Location

Minnipa Ag Centre

Rainfall

Av Annual: 325 mm

Av GSR: 242 mm

2010 Total: 410 mm

2010 GSR: 346 mm

Yield

Potential: 3.2 t/ha (P)

Actual: 2.4 - 5 t/ha

Soil

Red sandy loam

effect on grain yield.

- Ultimately direction of sowing will depend mostly on paddock shape and direction of sand hills.

Why do the trial?

This is the final year of a trial which has been running at Minnipa since 2005 to investigate the effects of row direction, row spacing and stubble cover on grain yield and quality. In 2010 the trial was sown to Kasper peas at a row spacing of 23 cm.

How was it done?

The trial at Minnipa Agricultural Centre has been sown with identical treatments in the same locations from 2005 to 2008. The trial had three treatments in those initial years; sowing direction (north-south vs east-west), row spacing (18, 23 and 30 cm) and stubble cover (retained vs burnt). In 2009 the treatments were over-sown with 50 kg/ha of Clearfield Janz all on 18 cm row spacing with only the row direction treatment maintained. In 2010 the paddock was in pasture so the trial was sown on 26 May with the row direction treatment maintained with Kasper peas @ 100 kg/ha with 50 kg/ha of 18:20 on 23 cm row spacing. Grain yield was measured.

What happened?

In 2010 grain yields were similar irrespective of direction of sowing and averaged 2.38 t/ha. The

previous treatments of stubble cover being burnt or retained (from 2005-08) also had no effect on pea yields in 2010.

What does this mean?

In low rainfall seasons, north-south sowing resulted in yields an average of 8.4% higher than with east-west sowing. Narrow row spacing with retained stubble also showed increased grain yield.

However, in 2009 (decile 9+ season) there was a 0.24 t/ha yield advantage of sowing east-west. In 2010, a decile 8-9 season with Kasper peas, the row direction of sowing had no effect on grain yield.

In low rainfall seasons the north-south sowing direction may decrease soil evaporation and other research shows this is the preferred direction of sowing. In seasons when soil moisture is not as limiting other factors such as increased light interception may impact on plant growth, final yield and grain quality. The growth habit of the crop will also affect the impact of sowing direction.

The results from this trial show north-south sowing is an advantage in low rainfall seasons however direction of sowing will largely depend on paddock shape and direction of sand hills for best efficiencies.

Key messages

- In low rainfall seasons, (2005-08), north-south sowing increased grain yield by an average of 8.4% compared to east-west.
- Narrow row spacing with retained stubble also showed increased grain yield.
- In 2009 (decile 9+ season) there was a 0.24 t/ha yield advantage in wheat with sowing east-west.
- In 2010 (decile 8-9 season) with Kasper peas, row direction at sowing had no

Table 1 Effect of row direction on grain yield (t/ha) at Minnipa, 2005 - 2008

Year	Row direction		Yield Advantage of Sowing N - S	
	N - S	E - W	(kg/ha)	(%)
2005	1.50	1.43	71	5.0
2006	0.31	0.25	64	25.7
2007	1.26	1.16	99	8.6
2008	0.91	0.84	71	8.5
2005 - 2008	0.99a	0.92b	76	8.3
LSD (P=0.05) (2005 - 2008)	0.06			

Table 2 Effect of row direction on wheat grain yield (t/ha) at Minnipa, 2009

Year	Row direction		Yield Advantage of Sowing N - S	
	N - S	E - W	(kg/ha)	(%)
2009*	2.99	3.23	- 240	- 7.4
LSD (P=0.05)	0.13			

* sown at 18cm row spacing

Table 3 Effect of row direction on Kaspa peas yield (t/ha) at Minnipa, 2010

Year	Row direction	
	N - S	E - W
2010*	2.41	2.34
LSD (P=0.05)	NS	

* sown at 23cm row spacing

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