

Wider Rows For Larger Cereal Grain in Low Rainfall

Aim: To develop systems to protect grain quality and yield in a low rainfall area. Trying wider rows to conserve moisture instead of fallow.

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Location: Marlingu, Pindar

Background: The low rainfall eastern wheatbelt on shallow soils often gets screenings levels greater than 10%, which reduces farm income. It is possible to store soil moisture between wider rows and help regulate soil moisture supply to cereals during dry periods. This may depend on soil depth and soil type. We tested double spaced rows and double skip rows, compared to 300mm rows in 2003. We will compare this to fallow in 2004.

Trial Details:

Plot size and replication	500m long runs of a 15m wide air seeder, with three row spacings and a covariate. 4 reps in a randomised block design.
Soil type	Sand over gravel and sandy loam.
Sowing date and rates	26 th May Arrino at 60 kg/ha and 60 kg/ha DAPS.
Machinery	DBS bar, knife points and press wheels.
Fertiliser post	60 kg/ha urea at six weeks after seeding.
Herbicides and Insecticides	5g Ally, 10g glean, 1L Roundup+ 1.5 L stomp pre 4g ally, 7g logran and 0.5 L MCPA 9 th July 2003.
Paddock History	2002 = Pasture. 221 mm of rain in 2003, excluding November.

Results: Hand harvest yield and quality results from 8 replicates of each treatment.

Soil	Row spacing	300mm	600mm	300/900mm	LSD _{0.05}
Sandy loam	Yield t/ha	1.62	1.69	1.60	0.169 ns
Sandy loam	Kg/hl	78.45	79.15	81.3	0.974 *
Sandy loam	Protein	13.75	13.55	12.85	1.31 ns
Sandy loam	Small go#	7.6	5.9	5.4	1.67 *
Sandy loam	Screenings1	0.93	0.72	0.56	0.19 *
Sandy loam	Screenings2	0.73	0.51	0.47	0.185 *
Sand	Yield t/ha	1.49	1.58	1.52	0.198 ns
Sand	Kg/hl	77.68	80.0	79.45	1.68 *
Sand	Protein	13.75	13.3	13.72	0.42 ns
Sand	Small gr#	13.3	8.7	9.1	4.23 ns
Sand	Screenings1	1.93	1.25	1.43	0.72 ns
Sand	Screenings2	1.51	1.09	1.12	0.71 ns

small grain 2.4-2.0 mm; 1= screenings from dockage tester; 2= CBH screenings.

Summary: The results, even after relatively good spring rains, support the idea of conserving soil moisture between wide rows and reducing drought effects.

- Row spacing had no effect on yield, despite lower plant numbers in the wider rows.
- Grain size (hlwt) was improved by wider rows; 300/900 for loam, either for sand.
- Screenings and small grain were greater at 300mm spacing on the loam, variability disguised effects on the sand. A drier spring could have caused more screenings.
- Protein was not affected, but did tend to decline with wider rows. This may help meeting noodles segregation limits in some circumstances.
- Inter-row shield spraying for grass weeds will be needed in many circumstances.