

Irrigator Biodegradable Soil Surfactants

Aim: Determine if there are economic and agronomic advantages with using soil ‘wettters’ at seeding to improve crop emergence of Wheat (Arrino) in hydrophobic soils (non-wetting).

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Company: SACOA



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Location: Buntine - Marchagee Rd, Marchagee

Background: SACOA Irrigator Banding Soil Wetter is a proven crop establishment tool and one of the latest advances for minimum tillage farming systems available to farmers whose soils suffer for water repellency or are generally non-wetting.

Banded surfactant applied to the furrow during seeding will improve dry sown lupin, canola and barley establishment on non-wetting soil by up to 30% and be complementary to other strategies for better management of non-wetting problems. The use of banding soil wettters involves minimal soil disturbance, and precision sowing and spraying of the product into the base of furrow

Trial Details:

Plot size and replication	3 reps 2.5m x 20m Randomised Complete Block			
Soil type	Friable non wetting sands			
Sowing date	26-May-04			
Conditions at sowing	Dry top 3-4cm – Moist underneath			
Machinery	Primaries			
Seeding rate	75 kg/ha			
Fertiliser	26/05/04 Banded K-Gold 100kg/ha seeding 08/0704 Topdressed Urea 100kg @ early tillering 21/07/04 Flexi-N 40 L/Ha			
Herbicides and Insecticides	26 th May	Powermax	1.5 L/ha	Pre Sow
		TriflurX 480	1.5 L/ha	
		Trisulfuron	35 g/ha	
		Chlorpyrifos	1 L/ha	
	27 th July	Paragon	300 mL/ha	Post
		LVE MCPA	200 mL/ha	
		Glean	10 g/ha	

Table 1: Effect of irrigator on establishment and crop vigour.**Results:**

				Wheat	Wheat	Wheat	Wheat
				Crop	Crop	Crop	Crop
				Vigour	Vigour	Emergence	Biomass
				1 - 9	1 - 9	1 - 9	1 - 9
				10/06/04	29/06/04	29/06/04	30/08/2004
							Z39
Trt-Eval Interval				15 DA-A	34 DA-A	34 DA-A	96 DA-A
No.	Treatment	Rate	Timing				
1	Untreated Control			8 a	8 abc	8 a	5.3 b
2	IRRIGATOR	0.6 L/ha	Behind Press Wheels	8 a	8 bc	8 a	5.7 ab
3	IRRIGATOR	1.2 L/ha	Behind Press Wheels	8 a	8 abc	8 a	5.3 b
4	IRRIGATOR x 10	0.6 L/ha	Behind Press Wheels	8 a	8 abc	8 a	5.7 ab
5	IRRIGATOR x 10	1.2 L/ha	Behind Press Wheels	8 a	8 abc	8 a	5.7 ab
6	PE 62	0.6 L/ha	Behind Press Wheels	8 a	8 ab	8 a	6.3 ab
7	PE 62	1.2 L/ha	Behind Press Wheels	8 a	8 bc	8 a	6 ab
8	Irrigator 2	0.6 L/ha	Behind Press Wheels	8 a	8 ab	8 a	5.7 ab
9	Jockey	4.5 mL/kg	On Seed	7 b	7 d	8 b	6.7 ab
10	Jockey	4.5 mL/kg	Behind Press Wheels	8 a	7 cd	8 ab	6.3 ab
11	Jockey + IRRIGATOR TM	4.5 mL/kg 0.6 L/ha	Behind Press Wheels Behind Press Wheels	8 a	8 ab	8 a	5.7 ab
12	Impact	400 mL/ha	On Fertiliser	8 a	8 abc	8 a	6 ab
13	Impact	400 mL/ha	Behind Press Wheels	8 a	8 abc	8 a	7 a
14	Impact + IRRIGATOR TM	400 mL/ha 0.6 L/ha	Behind Press Wheels Behind Press Wheels	8 a	8 ab	8 a	7 a
15	TBD Hormone treatment	1 L/ha	Behind Press Wheels	8 a	9 a	8 a	6.3 ab
LSD (P=.05)				0.7	0.7	0.4	1.52
CV				5.08	5.14	2.81	15.05
Replicate F				0.154	5.044	0.766	6.154
Replicate Prob(F)				0.8581	0.0135	0.4745	0.0061
Treatment F				1.84	3.897	1.75	1.086
Treatment Prob(F)				0.0846	0.0011	0.1009	0.4093

Means followed by same letter do not significantly differ (P=.05,

LSD)

Part Rated Rating Data Type Rating Unit Rating Date Trt-Eval Interval				Crop Yield t/ha 15/11/2004 173 DA-A
No.	Treatment	Rate	Timing	
1	Untreated Control			2.104 c
2	IRRIGATOR	0.6 L/ha	Behind Press Wheels	2.33 abc
3	IRRIGATOR	1.2 L/ha	Behind Press Wheels	2.299 abc
4	IRRIGATOR x 10 (DS2691)	0.6 L/ha	Behind Press Wheels	2.407 abc
5	IRRIGATOR x 10 (DS2691)	1.2 L/ha	Behind Press Wheels	2.346 abc
6	PE 62	0.6 L/ha	Behind Press Wheels	2.443 abc
7	PE 62	1.2 L/ha	Behind Press Wheels	2.397 abc
8	DS8574 (Irrigator 2)	0.6 L/ha	Behind Press Wheels	2.227 bc
9	Jockey	4.5 mL/kg	On Seed	2.464 ab
10	Jockey	4.5 mL/kg	Behind Press Wheels	2.269 bc
11	Jockey IRRIGATOR TM	4.5 mL/kg 0.6 L/ha	Behind Press Wheels Behind Press Wheels	2.284 abc
12	Impact	400 mL/ha	On Fertiliser	2.315 abc
13	Impact	400 mL/ha	Behind Press Wheels	2.613 a
14	Impact IRRIGATOR TM	400 mL/ha 0.6 L/ha	Behind Press Wheels Behind Press Wheels	2.407 abc
15	TBD Hormone treatment	1 L/ha	Behind Press Wheels	2.207 bc
LSD (P=.05)				0.3428
CV				8.76
Replicate F				69.835
Replicate Prob(F)				0.0001
Treatment F				1.07
Treatment Prob(F)				0.4222

Means followed by same letter do not significantly differ (P=.05, LSD)

Summary:

- Not a significant difference between treatments, but interesting trend supporting combined use of protectant fungicides with soil surfactants, delivered on furrow rather than on fertiliser (this is not a registered use pattern).
- Warrants further investigations in 2005.