

Irrigator® Banded Surfactant Evaluation

Aim: To evaluate specially formulated biodegradable soil wetters ability to improve crop establishment and yields in hydrophobic (non-wetting) soils.

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Company: Agritech, SACOA

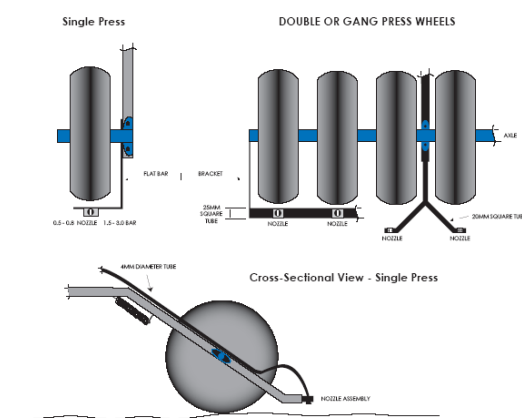
Farmer: Clinton Hunt
Location: Marchagee



Background: This trial looked to investigate possibility of combining other crop protection products with banded soil wetters, such as the fungicide flutriafol (Impact 250SC®) and trace elements including zinc and manganese. The trial also field assessed the suitability of this as an alternative application method. With the increased adoption of minimal tillage and precision sowing, growers are recognising the importance non-wetting soils have on crop emergence and establishment. SACOA and their research partners are revisiting research conducted by Dept of Ag WA (*P. Blackwell et al.*) in the mid to late 1990's, which highlighted the possible cost effectiveness and agronomic advantages of farmers using banded soil wetters as a crop establishment tool. Some issues of persistent with traditional soil wetters causing excessive late season nutrient leaching, and thus reduction in yield, were overcome by formulating degradable, low leaching products. SACOA have been developing soil wetters suitable for a wide range of soil types, and degree's of water repellence.

Delivery System

Application of **IRRIGATOR™** is by fine jet (0.5-0.8 mm) sprayed behind press wheel assemblies into the furrow, directly above the seed.



Trial Details:

Plot size and replication	20m x 2.5m with 3 complete randomised replications
Soil type	Light Yellow Sand
Sowing date	19 th May 2003
Conditions at sowing	Friable and moist
Machinery	Ausplow DBS assemblies, Knife points on 24cm spacing
Seeding rate	Wyalkatchem wheat @ 100 kg/ha
Fertiliser	19 th May 2003: 100 kg/ha MAP banded 2 nd July 2003: 100 kg/ha Urea top dressed
Herbicides and Insecticides	14 th May 2003: 800 mL/ha Touchdown 19 th May 2003: 2 L/ha Sprayseed 19 th May 2003: 1.5 L/ha Trifluralin 19 th May 2003: 35 g/ha Logran 19 th May 2003: 1 L/ha Chlorpyrifos 2 nd July 2003: 25 g/ha Monza 2 nd July 2003: 350 mL/ha MCPA LVE
Paddock History	2002 = Wheat

Results:

Crop	Wheat	Wheat	Wheat	Wheat	Wheat	Wheat
Part Rated	Crop	Crop	Crop	Crop	Crop	Crop
Rating Data Type	Counts	Vigour	Counts	Vigour	Vigour	Yield

Rating Unit Rating Date Crop Stage Trt-Eval Interval				/m row 29/05/03	1-9 29/05/03	/m row 24/06/03	1-9 24/06/03	1-9 13/08/03 Z53	t/ha 24/11/03
				10 DAS	10 DAS	35 DAS	35 DAS	85 DAS	103 DAS
No.	Treatment	Rate	Application						
1	Untreated Control			38d	5.33ab	33ab	7.5b	7a	0.869bc
2	Total Volume 50L per Furrow ha Irrigator	0.6 L/ha	Behind press	43bcd	5.33ab	32b	7.5b	7a	0.792c
3	Total Volume 50L per Furrow ha Irrigator	1.2 L/ha	Behind press	46a-d	5.67ab	31b	7.5b	7a	1.286ab
4	Total Volume 50L per Furrow ha Irrigator 2	0.6 L/ha	Behind press	49ab	6.5a	33ab	7.5b	7a	0.926abc
5	Total Volume 50L per Furrow ha Irrigator 3	0.6 L/ha	Behind press	50ab	5.67ab	32b	7.5b	7a	0.874abc
6	Total Volume 50L per Furrow ha Horticultural soil wetter	1.2 L/ha	Behind press	45a-d	5.67ab	33ab	7.5b	7a	1.085abc
7	Total Volume 50L per Furrow ha Teprosyn Manganese	0.3 L/ha	Behind press	45a-d	5b	32b	7.5b	7a	1.049abc
8	Total Volume 50L per Furrow ha Teprosyn Manganese Irrigator	0.3 L/ha 0.6 L/ha	Behind press Behind press	48abc	5.67ab	33ab	7.5b	7a	1.152abc
9	Total Volume 50L per Furrow ha Teprosyn Zinc	0.3 L/ha	Behind press	52a	6ab	35a	7.5b	7a	1.116abc
10	Total Volume 50L per Furrow ha Teprosyn Zinc Irrigator	0.3 L/ha 0.6L/ha	Behind press Behind press	47abc	5.33ab	32ab	7.5b	7a	1.111abc
11	Jockey	4.5 mL /kg	On seed	40cd	5.67ab	26c	8a	6b	1.332ab
12	Total Volume 50L per Furrow ha Jockey	4.5mL/kg	In furrow	47abc	5.33ab	31b	7.5b	7a	1.301ab
13	Total Volume 50L per Furrow ha Jockey Irrigator	4.5 mL/kg 0.6 L/ha	Behind press Behind press	51ab	6ab	32ab	7.5b	7a	1.271ab
14	Total Volume 50L per Furrow ha Impact	480 mL/ha	In furrow	44a-d	6.33ab	32b	7.5b	7a	1.219abc
15	Total Volume 50L per Furrow ha Impact	480 mL /ha	Behind press	47a-d	5.67ab	31b	7.5b	7a	1.337a
16	Total Volume 50L per Furrow ha Impact Irrigator	480 mL/ha 0.6 L/ha	Behind press Behind press	45a-d	5.67ab	32b	7.5b	7a	1.003abc
LSD (P=.05)				8.9	1.385	3.1	0.000	0	0.4637
CV				11.73	14.81	5.8	0.0	0	25.41

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

Eg 0.869bc and 0.792c do not differ significantly as they are both followed by 'c'. 0.792c and 1.286ab do differ significantly as they are followed by different letters.

Summary:

- Site experienced extended dry conditions after seeding due to late follow up rain.
- Received belting from sand and dust storms in late May.
- Site also experienced extensive bird damage in late November prior to harvest.
- Irrigator significantly increased plant numbers at emergence.
- Unfortunately there was nil disease in any plots including UTC, so unable to complete disease ratings in fungicide treatments.
- SACOA will continue local soil surfactant research and evaluations in 2004.