

Aim

- To determine the benefits of deep ripping and the implications for N fertiliser management

Soil Test Results

Depth (cm)	pH	EC	OC	Nit N	Amm N	P	PBI	K	S	Al
0-10	4.8	0.08	0.5	17	8	19	11	55	8	
10-20	4.2	0.03	0.4	6	2	17	15	43	4	4
20-30	4.3	0.03	0.3	6	2	16	17	47	5	7

Trial Design

Trt	Deep Ripped*	Treatments			
		Banded (L/ha)	Z30 (kg/ha)	N	P
1	-	-	-	0	12
2	-	50 Flexi-N	-	21	12
3	-	100 Flexi-N	-	42	12
4	-	-	50 Flexi-N	21	12
5	-	-	100 Flexi-N	42	12
6	-	50 Flexi-N	100 Flexi-N	63	12
7	+	-	-	0	12
8	+	50 Flexi-N	-	21	12
9	+	100 Flexi-N	-	42	12
10	+	-	50 Flexi-N	21	12
11	+	-	100 Flexi-N	42	12
12	+	50 Flexi-N	100 Flexi-N	63	12

*Back half of trial deep ripped after sowing Basal 80 kg/ha Big Phos

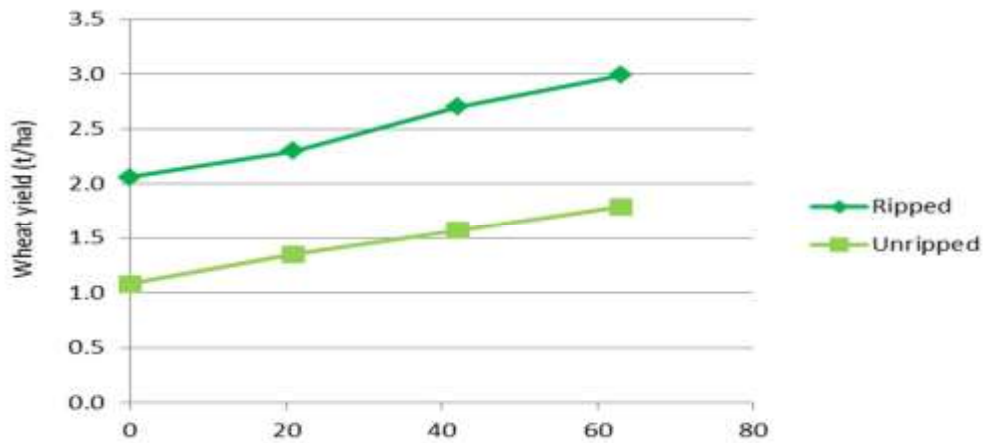
Deep Ripping Response



Yield Results

Trt	Treatments					Yield (t/ha)
	2015 Deep Ripped	Banded (L/ha)	Z30 (kg/ha)	N	P	
1	-	-	-	0	12	1.08
2	-	50 Flexi-N	-	21	12	1.30
3	-	100 Flexi-N	-	42	12	1.54
4	-	-	50 Flexi-N	21	12	1.39
5	-	-	100 Flexi-N	42	12	1.59
6	-	50 Flexi-N	100 Flexi-N	63	12	1.79
					Prob	<0.001
					LSD	0.18
7	+	-	-	0	12	2.06
8	+	50 Flexi-N	-	21	12	2.32
9	+	100 Flexi-N	-	42	12	2.50
10	+	-	50 Flexi-N	21	12	2.28
11	+	-	100 Flexi-N	42	12	2.89
12	+	50 Flexi-N	100 Flexi-N	63	12	2.99
					Prob	0.009
					LSD	0.30

No effects of deep ripping on N response



Economics

Trt	Treatments					Flexi-N Economics			
	2015 Deep Ripped	Banded (L/ha)	Z30 (kg/ha)	N	P	Yield (t/ha)	Returns (\$/ha)	Cost (\$/ha)	Profit (\$/ha)
1	-	-	-	0	12	1.08	-	-	-
2	-	50 Flexi-N	-	21	12	1.30	56	34	21
3	-	100 Flexi-N	-	42	12	1.54	115	69	46
4	-	-	50 Flexi-N	21	12	1.39	79	39	40
5	-	-	100 Flexi-N	42	12	1.59	130	74	56
6	-	50 Flexi-N	100 Flexi-N	63	12	1.79	179	108	71
					Prob	<0.001			
					LSD	0.18			
7	+	-	-	0	12	2.06	-	-	-
8	+	50 Flexi-N	-	21	12	2.32	65	34	31
9	+	100 Flexi-N	-	42	12	2.50	112	69	43
10	+	-	50 Flexi-N	21	12	2.28	55	39	16
11	+	-	100 Flexi-N	42	12	2.89	209	74	136
12	+	50 Flexi-N	100 Flexi-N	63	12	2.99	234	108	126
					Prob	0.009			
					LSD	0.30			

Protein and N Use Efficiency

Trt	2015 Deep Ripped	Banded (L/ha)	Treatments		Yield (t/ha)	Protein (%)	N (kg/ha)	NUE (%)
			Z30 (kg/ha)	N P				
1	-	-	-	0 12	1.08	11.3	21	-
2	-	50 Flexi-N	-	21 12	1.30	12.0	27	28
3	-	100 Flexi-N	-	42 12	1.54	11.7	31	24
4	-	-	50 Flexi-N	21 12	1.39	11.6	28	33
5	-	-	100 Flexi-N	42 12	1.59	12.3	35	33
6	-	50 Flexi-N	100 Flexi-N	63 12	1.79	12.7	40	30
				Prob	<0.001	<0.01	<0.001	
				LSD	0.18	0.52	5.7	
7	+	-	-	0 12	2.06	11.5	42	-
8	+	50 Flexi-N	-	21 12	2.32	11.7	48	29
9	+	100 Flexi-N	-	42 12	2.50	11.6	51	22
10	+	-	50 Flexi-N	21 12	2.28	11.4	59	41
11	+	-	100 Flexi-N	42 12	2.89	11.6	59	41
12	+	50 Flexi-N	100 Flexi-N	63 12	2.99	11.8	62	32
				Prob	0.009	0.38	<0.001	
				LSD	0.30	ns	4.80	

Grain Quality

Trt	2015 Deep Ripped	Treatments				Yield (t/ha)	Protein (%)	HL Wt (kg/hL)	Scrngs. (%)
		Banded (L/ha)	Z30 (kg/ha)	N	P				
1	-	-	-	0	12	1.08	11.3	66.6	8.7
2	-	50 Flexi-N	-	21	12	1.30	12.0	71.3	7.2
3	-	100 Flexi-N	-	42	12	1.54	11.7	72.2	7.0
4	-	-	50 Flexi-N	21	12	1.39	11.6	72.5	7.7
5	-	-	100 Flexi-N	42	12	1.59	12.3	72.8	7.4
6	-	50 Flexi-N	100 Flexi-N	63	12	1.79	12.7	72.9	6.4
						Prob	<0.001	<0.01	0.02
						LSD	0.18	0.52	2.5
7	+	-	-	0	12	2.06	11.5	75.7	6.2
8	+	50 Flexi-N	-	21	12	2.32	11.7	75.8	5.8
9	+	100 Flexi-N	-	42	12	2.50	11.6	75.8	6.0
10	+	-	50 Flexi-N	21	12	2.28	11.4	75.7	6.6
11	+	-	100 Flexi-N	42	12	2.89	11.6	76.7	6.0
12	+	50 Flexi-N	100 Flexi-N	63	12	2.99	11.8	75.8	6.1
						Prob	0.009	0.38	0.43
						LSD	0.30	ns	ns

Key Messages

Deep ripping enabled the crop to access about an extra 40 kg of soil N/ha*

- The crop was as responsive to Flexi-N after deep ripping
- There was no yield penalty from delaying Flexi-N application until the end of tillering
- Deep ripping and Flexi-N were very profitable at this site.