Earth Life Pty. Ltd.

RESEARCH REPORT

Establish the effect if any of Bud Burst on the efficacy of Shirtan on Sugar Cane.

Trial conducted by D.E. & J.A. Gleeson, Agricultural Consultant

AIM:	To establish the effect if any of Bud Burst on the efficacy of Shirtan on Sugar Cane.
PROCEDURE:	Both products combined in the billet bath. 700 lt/ha of mix was applied in 2 furrows.
TREATMENTS:	Treatment A Shirtan/Bud Burst 2.5 L/ha Treatment B Shirtan/Bud Burst 3.75 L/ha Treatment C Shirtan/Bud Burst 5.0 L/ha Treatment D Shirtan Treatment E Bud Burst 2.5 L/ha

RAW RESULTS

Replicate	Treatment	Week 1	Week 2	Week 3	Week 4	Week 5
1	A	6	20	30	40	53
	B	2	5	22	35	44
	C	10	25	40	52	53
	D	8	19	23	42	54
	E	1	10	21	32	41
2	A	7	20	25	43	47
	B	2	13	26	40	44
	C	9	15	22	33	39
	D	0	1	4	20	24
	E	2	14	31	39	44
3	A	1	17	30	42	50
	B	6	18	24	43	54
	C	6	20	29	40	51
	D	6	9	18	35	50
	E	6	8	19	25	31
4	A	2	5	22	40	46
	B	0	2	8	29	39
	C	6	11	20	37	49
	D	0	1	4	19	25
	E	1	3	9	25	32
5	A	4	10	20	29	35
	B	3	8	19	30	40
	C	5	21	31	46	55
	D	1	3	8	23	35
	E	1	4	12	20	25

ANALYSIS:

SHIRTAN/BUD BURST TRIAL **Week 1** 21.10.97

Counts per 5 metre

Block	Treatment A	Treatment B	Treatment C	Treatment D	Treatment E	Total
1	6	2	10	8	1	27
2	7	2	9	0	2	20
3	1	6	6	6	6	25
4	2	0	6	0	1	9
5	4	3	5	1	1	14
Total	20	13	36	15	11	95
SS	106	53	278	101	43	581

$CF = \frac{(95)2}{25} = 361$

Block SS $= \frac{2031 - CF}{5} =$ 45.2

Treat. SS $= \frac{2211 - CF}{5} =$ 81.2

Total SS = 581 - 361 = 220

Analysis of Variance

Source	D.F.	SS	MS	F
Block	4	45.2		
Treatment	4	81.2	20.3	*
Error	16	93.6	5.85	
Total	24	220		

S.E. single yield = $\sqrt{5.85}$ = 2.42

CV $= \frac{2.42 \times 25 \times 100}{95} =$ 63.70%

S.E. of single treatment = $\sqrt{5}$xerror MS = 5.42

LSD = $\sqrt{10}$ x 5.85 x*t(16 D.F.)* = 3.16 x 2.42 x *t*

= 7.64 x 2.12 5%
2.92 1%

= 16.2 5%
22.3 1%

RESULTS Treatment totals in shoot counts/5 metre

T C 36
T A 20
T D 15
T B 13
T E 11

C vs E **
C vs D,B *
C vs A ns

S.E. ± x Conversion factor)
L.S.D.'s x conversion factor @ 5% **
x conversion factor @ 1% *

ANALYSIS cont:

SHIRTAN/BUD BURST TRIAL **Week 2** 31.10.97

Counts per 5 metre

Block	Treatment A	Treatment B	Treatment C	Treatment D	Treatment E	Total
1	20	5	25	19	10	79
2	20	13	15	1	14	63
3	17	18	20	9	8	72
4	5	2	11	1	3	22
5	10	8	21	3	4	46
Total	72	46	92	33	39	282
SS	1214	586	1812	453	385	4450

$CF = \frac{(282)2}{25} = 3181$

Block SS $= \frac{3559 - CF}{5} =$ 418

Treat. SS $= \frac{3401 - CF}{5} =$ 220.4

Total SS = 4450 - 3181 = 1269

Analysis of Variance

Source	D.F.	SS	MS	F
Block	4	418		
Treatment	4	220.4	55.1	*
Error	16	630.6	39.41	
Total	24	1269		

S.E. single yield = $\sqrt{39.41}$ = 6.27

CV = $\frac{6.27 \times 5 \times 100}{282}$ = 55.60%

S.E. of single treatment = $\sqrt{5}$ x Error MS = 2.24 x 6.27 = 14.04

LSD = = $\sqrt{10} \times 39.41$ = x*t(16 D.F.)* = 19.81 x *t*

= 19.81 x 2.12 5%
2.92 1%

= 42 5%
57.8 1%

RESULTS Treatment totals in shoot counts/5 metre

T C 92
T A 72
T B 46
T E 39
T D 33

S.E. ± x Conversion factor)
L.S.D.'s x conversion factor @ 5% **
x conversion factor @ 1% *

mean
C vs D **
C vs B,E *
A vs D ns
C vs A ns

ANALYSIS cont:

SHIRTAN/BUD BURST TRIAL **Week 3** 7.11.97

Counts per 5 metre

Block	Treatment A	Treatment B	Treatment C	Treatment D	Treatment E	Total
1	30	22	40	26	21	139
2	25	26	22	4	31	108
3	30	24	29	18	19	120
4	22	8	20	4	9	63
5	20	19	31	8	12	90
Total	127	99	142	60	92	520
SS	3309	2161	4286	1096	1988	12840

$$CF = \frac{(520)2}{25} = 10816$$

$$\text{Block SS} = \frac{57454 - CF}{5} = 675$$

$$\text{Treat. SS} = \frac{58158 - CF}{5} = 816$$

Total SS = 12840 - 10816 = 2024

Analysis of Variance

Source	D.F.	SS	MS	F
Block	4	675		
Treatment	4	816	204	*
Error	16	533	33.3	
Total	24	2024		

S.E. single yield = $\sqrt{33.3}$ = 5.77

$$CV = \frac{5.77 \times 25 \times 100}{520} = 27.70\%$$

S.E. of single treatment = $\sqrt{5}$ x Error MS = 12.92

LSD = $\sqrt{10 \times 33.3}$ x t*(16 D.F.)* = 18.23x t

= 18.23x 2.12 5%

2.92 1%

= 38.6 5%

53.2 1%

RESULTS Treatment totals in shoot counts/5 metre

T C 142
T A 127
T B 99
T E 92
T D 60
mean

C vs A ns
C vs D **
C vs B,E *
A vs D *
B vs D *

S.E. ± x Conversion factor)
L.S.D.'s: x conversion factor @ 5% **
x conversion factor @ 1% *

ANALYSIS cont:

SHIRTAN/BUD BURST TRIAL **Week 4** 15.11.97

Counts per 5 metre

Block	Treatment A	Treatment B	Treatment C	Treatment D	Treatment E	Total
1	40	35	52	42	32	201
2	43	40	33	20	39	175
3	42	43	40	35	25	185
4	40	29	37	19	25	150
5	29	30	46	23	20	148
Total	194	177	208	139	141	859
SS	7654	6415	8878	4279	4195	31421

CF = $\frac{(859)2}{25}$ = 29515

Block SS = $\frac{149655 - CF}{5}$ = 416

Treat. SS = $\frac{151431 - CF}{5}$ = 771

Total SS = 31421 - 29515 = 1906

Analysis of Variance

Source	D.F.	SS	MS	F
Block	4	416		
Treatment	4	771	192.75	*
Error	16	719	44.94	
Total	24	1906		

S.E. single yield = √44.94 = 6.7

CV = $\frac{6.7 \times 25 \times 100}{859}$ = 19.50%

S.E. of single treatment = √5 x Error MS = 15.01

LSD = √10 x 44.94 x*t(16 D.F.)* = 21.17x *t*

= 21.17x 2.12 5%
2.92 1%

= 45 5%

62 1%

RESULTS Treatment totals in shoot counts/5 metre

T C 208
T A 179
T B 177
T E 141
T D 136

S.E. ± x Conversion factor)
L.S.D.'s x conversion factor @ 5% **
x conversion factor @ 1% *

mean C vs D, E **
C vs A, B ns

ANALYSIS cont:

SHIRTAN/BUD BURST TRIAL **Week 5** 24.11.97

Counts per 5 metre

Block	Treatment A	Treatment B	Treatment C	Treatment D	Treatment E	Total
1	53	44	53	54	41	245
2	47	44	39	24	44	198
3	50	54	51	50	31	236
4	46	39	49	25	32	191
5	35	40	55	35	25	190
Total	231	221	247	188	173	1060
SS	10859	9909	12357	7842	6227	47194

$$CF = \frac{(10600)2}{25} = 44944$$

$$\text{Block SS} = \frac{227506 - CF}{5} = 557.2$$

$$\text{Treat. SS} = \frac{228484 - CF}{5} = 752.8$$

$$\text{Total SS} = 47194 - 44944 = 2250$$

Analysis of Variance

Source	D.F.	SS	MS	F
Block	4	557.2		
Treatment	4	752.8	188.2	
Error	16	940	58.75	
Total	24	2250		

S.E. single yield = $\sqrt{58.75}$ = 7.66

$$CV = \frac{7.66 \times 25 \times 100}{1060} = 18.06\%$$

S.E. of single treatment = $\sqrt{5}$ x error MS = 17.16

LSD = $\sqrt{10}$ x 58.75 x t*(16 D.F.)* = 24.2x t

= 2402 x 2.12 5%
2.92 1%

= 51.3 5%

70.7 1%

RESULTS Treatment totals in shoot counts/5 metre

T C 247
T A 231
T B 221
T D 188
T E 173

S.E. ± x Conversion factor)
L.S.D.'s x conversion factor @ 5%
x conversion factor @ 1%

mean

C vs E **
C vs D *
C vs A, B ns
A vs E *

RESULTS:

Summary of significant differences between treatments over weeks

Week 1			**	Significant at 5%
	C vs E	**	*	Significant at 1%
	C vs D, B	*		
	C vs A	**ns**		
Week 2				
	C vs D	**		
	C vs B, E	*		
	A vs D	**ns**		
	C vs A	**ns**		
Week 3				
	C vs D	**		
	C vs B, E	*		
	A vs D	*		
	B vs D	*		
	C vs A	**ns**		
Week 4				
	C vs D	**		
	C vs A, B	**ns**		
Week 5				
	C vs E	**		
	C vs D	*		
	A vs D	*		
	C vs A, B	**ns**		

CONCLUSIONS:

1. Bud Burst does not harm the efficacy of Shirtan. In fact the addition of Bud Burst to the Shirtan bath increases number of shoots per metre over a five week period and also increases the rate of shoot emergence.

2. Bud Burst at 5 L/ha (Treat C) significantly increases the number of shoots/metre compared with 3.75 L/ha rate (Treatment B) but not 2.5 L/ha rate (Treatment A). This would indicate that a proportional increase in the rate of Bud Burst does not give a corresponding increase in rate of emergence or no. of shoots in first 5 week period.

3. Treatment A (Shirtan/BB @ 2.5 L/ha) is consistently significantly different from Treatment D (Shirtan only).

4. Treat E (Bud Burst only) does not give greater shoot counts than Shirtan treatment only. This indicates that Bud Burst has no fungicidal activity.