

SUGAR CANE TRIALS

CLIENT: KISMET INTERNATIONAL PTY. LTD.

For And On Behalf Of

GUANO AUSTRALIA PTY. LTD.

49 FIELD ST, SHEPPARTON 3630, VICTORIA



RESEARCH COMPANY: CROP TECH PTY LTD
410 Langbeckers East Road
Bundaberg 4670, Queensland

RESEARCH AGRONOMIST: Robert Doyle

OVERVIEW

A field trial was conducted in Bundaberg to evaluate the effectiveness of Reefsafe®/Agrispon®, a soil Bio-stimulant product made from natural plant extracts, on commercial cane sugar (CCS) and yield in sugar cane. The objectives of the trial were to ascertain whether reduced levels of nitrogen, combined with an application of Reefsafe®/Agrispon®, could maintain sugar cane yield and CCS levels.

Previous studies of the use of Reefsafe®/Agrispon® in sugar cane have shown nitrogen inputs to cane plantings can be reduced by up to 50%, while still maintaining sugar yield and CCS levels.

The trial was conducted in plant cane blocks. Both normal and reduced levels of nitrogen were used.

INTRODUCTION

Three trial sites were established around the Bundaberg region. The sites were representative of the wide diversity of soil types, irrigation methods, and crop rotation systems.

All sites were planted in the spring of 2003. They all had a sugar cane ratoon crop ploughed out in the 2002 sugar cane crushing season.

Table 1 shows the soil types and crops grown on each field between the previous cane crop, and the trial planting.

Table 1: Soil types and fallow crops of each site.

Site	Soil Type	Fallow Crop
1	red medium clay	sweet potatoes
2	grey fine sandy	sorghum followed by a crop of oats
3	grey sandy loam	caloona peas

TRIAL DESIGN

The trial was designed to duplicate previous Agrispon trials that have been conducted throughout the world. The reports from these trials can be viewed at the Agrispon website www.agrisciences.com. The common fertilizer practices that are employed in the sugar industry were considered.

The trial areas were laid out as a randomised complete block design, four treatments by four replications, giving a total of 16 plots. The four treatments are shown in Table 2.

Table 2: Treatments applied.

Treatment 1	Industry standard fertilizer
Treatment 2	Industry standard fertilizer + Reefsafe®/Agrispon® @ 1L/ha
Treatment 3	Industry standard fertilizer (N @ 75%) + Reefsafe®/Agrispon® @ 1L/ha
Treatment 4	Industry standard fertilizer (N @ 50%) + Reefsafe®/Agrispon® @ 1L/ha

Each plot was 20m long, by three rows wide. The plots were laid out consecutively along the length of the rows. A buffer zone of at least 10m was left at the beginning of each row, before the first treated plot. At least two rows were left as 'buffer rows' beside the headland.

METHODS AND MATERIALS

Planting

During land preparation each of the sites had a full soil test conducted. The results of the soil tests for sites 1, 2, and 3 are shown in Appendix 1, 2 and 3 respectively.

The standard pre-plant land preparation was conducted at each field. The respective treatments were marked out along the length of each row.

Planting was conducted at each of the sites using a conventional cane billet planter, as shown in Figure 1.

Figure 1: Planting of site two (dual row).



Reefsafe®/Agrispon® was applied to the plant billets as they were dropping through the planting chute. The Reefsafe®/Agrispon® rate of 1L/ha was determined by the width of the planter shoot furrow.

The four treatments at each site received the same basal application of fertilizer. The nitrogen differences were addressed at the time of side dress fertilizer application.

Post planting

Approximately one month after planting shoot emergence was monitored at each site. In each of the plots one root sample was dug up to compare root growth between the various treatments.

Side dress fertilizer application

One post plant application of fertilizer was applied at each of the sites. This was conducted approximately three months after planting, when the grower was side dressing the rest of the field.

Treatment 1 was applied by each grower with his own fertilizer rig. Treatments 2, 3 and 4 were applied by hand, positioning the fertilizer the same as in treatment one.

The total fertilizer applications for each site are shown in Table 3.

Table 3: fertilizer rates

Site 1	Treatments	N	P	K	Ca	Mg	S
Planting	1, 2, 3 & 4		22		50		28
Total (incl side dress)	1 & 2	116	32	88	50	0	51
	3	87	32	88	50	0	51
	4	58	32	88	50	0	51

Site 2	Treatments	N	P	K	Ca	Mg	S
Planting	1, 2, 3 & 4	15	20	16			10
Total (incl side dress)	1 & 2	141	20	93	0	0	24
	3	105.75	20	93	0	0	24
	4	70.5	20	93	0	0	24

Site 3	Treatments	N	P	K	Ca	Mg	S
Planting	1, 2, 3 & 4	20	22	20			10
Total (incl side dress)	1 & 2	149	22	134	0	0	36
	3	111.75	22	134	0	0	36
	4	74.5	22	134	0	0	36

Harvesting

Harvesting of the trial sites was aligned with commercial harvesting of the fields. The harvests were conducted during August and September. Due to the small scale of the trial, harvesting was carried out by hand.

At each property harvesting commenced from the headland, with each plot being harvested in succession along the treated rows. The harvested section from each plot was the central 14m, of the middle row, of each plot.

The yield of each plot was measured on a weigh trailer. CCS readings were measured from the top, middle and bottom of each stalk, using a refractometer. The total number of stalks in each harvested area was also recorded.

The results of the yield and CCS readings from each site were statistically analysed.

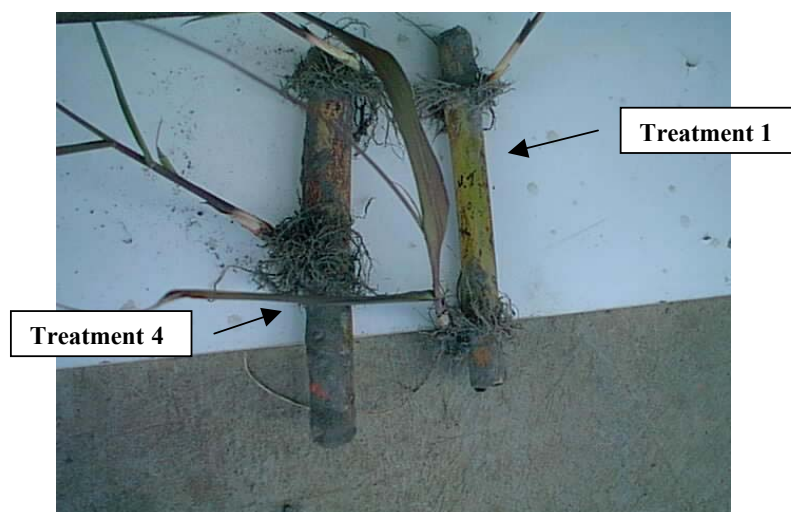
RESULTS

Shoot emergence and root appearance

The results obtained when monitoring shoot emergence and root appearance, were from observations made and measurements recorded. The results were not statistically analysed.

At the spiking stage of the crop, and on the lighter soils (sites two and three), total shoot numbers on the average were slightly lower on the Reefsafe®/Agrispon® treated plots. However on these soil types the plants appeared to have a more aggressive root system. Figure 2 shows a comparison of roots from site 3.

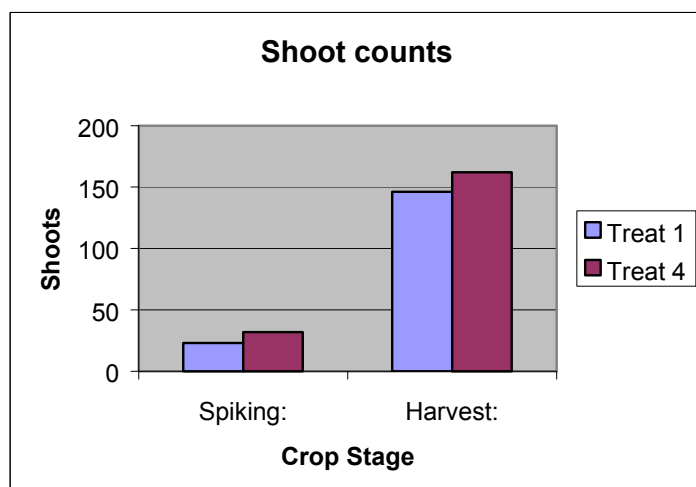
Figure 2: Aggressive root growth on Reefsafe®/Agrispon® treated plots.



On the heavier red volcanic soil (site 1), the plant root systems appeared to be similar across all treatments, one month after planting. Shoot count assessments made at this time on treatments one and four only, show counts were up to 33% better on treatment four.

However, when statistically analysing the total millable stalks at harvest time, there was no significant differences found between any of the four treatments, at any of the sites. Figure 3 shows the progression of shoot counts over time of treatments one and four only, at site 1.

Figure 3: Shoot counts over time.



HARVEST

When statistically analysing the parameters of yield, CCS, and total millable stalks, no significant differences were found between any of the four treatments, at any of the sites. The analysed results from sites 1, 2 and 3 are shown in Appendix 4, 5 and 6 respectively.

DISCUSSION

Nitrogen application studies to many crops can produce varying results, due to the cycle of the nitrogen element. The recent history of crops on the site, length of fallow periods, and environmental conditions, can influence both the amount of residual nitrogen, and the form it is present in.

Crop performance will be limited by the most limiting ingredient. When nutritional elements or water are limited, or if pests and diseases are present above a threshold level, crops will not perform to their full potential, regardless of how much they may have of any one ingredient.

CONCLUSION

Under the conditions of this trial, nitrogen inputs to a plant crop of sugar cane can be reduced by up to 50%, without compromising sugar content or cane yield, when an application of Reefsafe®/Agrispon® is incorporated.

However, in an environment where all elements of the crops are monitored regularly, and the balance of crop inputs adjusted accordingly, Reefsafe®/Agrispon® could have worked to it's full potential, and the trial may have produced different results.



Appendix 1

Crop Tech

SOIL TEST RESULTS

410, Langbeckers East Road

Bundaberg QLD 4670

ABN: 13 010 782 975

Telephone: 07 4155 6344

E-mail: croptech@croptech.com.au

Facsimile: 07 41556656

Web site: <http://www.croptech.com.au>

The account for this test will be billed to:
please advise if details are incorrect

KISMET INTERNATIONAL PTY LTD

49 FIELD STREET

SHEPPARTON VIC 3630

Grower: KISMET INTERNATIONAL PTY LTD **Sample number:** 19

Block:

Date entered: 17-Sep-2003

Recommendation for: Sugarcane

Order no.:

Variety:	Unknown	Age:	TO BE PLANTED	Soil condition:	Friable
Irrigation type:	Trickle	Soil drainage:	Good	Soil colour:	Red
Soil type:	Clay Loam	Water penetration:	Fast	Preferred application:	
Yield goal (t/ha):	0.0	Crop duration (days):	0	Target pH:	0.0

Soil test results

Comments

pH:	6.1				Acidic
EC:	0.13	mS/cm	130	µS/cm	Good
Nitrate-N:	37	ppm			Good
Phosphate-P (BSES):	70	ppm			Good-high
Phosphate-P (Colwell):	120	ppm			High
Potassium:	99	ppm	0.25	meq %	Medium-good
% cations:	2.56	%			Low
Calcium:	1,109	ppm	5.55	meq %	Good
% cations:	55.87	%			Low
Magnesium:	442	ppm	3.68	meq %	High
% cations:	37.11	%			High
Sodium:	102	ppm	0.44	meq %	Medium
% cations:	4.47	%			Good
Sulfate - S:	20	ppm			Medium-good
Zinc:	23.5	ppm			High
Copper:	5.1	ppm			Good
Manganese:	0.50	ppm			Good
Iron:	1.3	ppm			Low
Boron:	0.04	ppm			Low
Organic carbon:	1.86	%			Medium-low
Chloride:	41	ppm			Good
K retention:	15	%			

Optional tests

Silicon:	ppm
Ammonium-N:	ppm
P retention:	0 %

Recommendations:

DISCLAIMER:

Results are based on analysis of the sample as received. Because of the variability of sampling procedures, environmental and managerial conditions the Company does not accept liability for lack of performance based on these recommendations. Recommendations are made in good faith based on the sample and information received.

Grower: KISMET INTERNATIONAL PTY LTD **Sample number:** 19
Block: **Date entered:** 17-Sep-2003
Recommendation for: Sugarcane **Order no.:**

Variety:	Unknown	Age:	TO BE PLANTED	Soil condition:	Friable
Irrigation type:	Trickle	Soil drainage:	Good	Soil colour:	Red
Soil type:	Clay Loam	Water penetration:	Fast	Preferred application:	
Yield goal (t/ha):	0.0	Crop duration (days):	0	Target pH:	0.0

Pre plant

Due to soil pH slightly high for planting with suscon and low calcium availability consider
Gypsum @ 1.5-2t/ha [broadcast and incorporate .]

Note

Due to high zinc level watch over application .also Suscon can be drilled in at fill in stage for best results

Plant

Approx 125-130 units of N
 20 units of P
 and 100 units of K required for criop
 as straights
 Superphosphate @ 250kg/ha
 Sulphate of potash @ 250-260kg/ha
 and Ammonium nitrate @ 375-390kg/ha

Note

Would consider at planting
 Super @ 250kg/ha [All phosphorus,drilled into rows]
 and Sulphate of potash @ 75-90kg/ha
 and Ammonium nitrate @ 100kg/ha [sulphate of potash and ammonium nitrate can be drilled in or
 fertigated .]

Side dress/Fertigate

Sulphate of potash @ 150-175kg/ha
 and Ammonium nitrate @ 275-290kg/ha [amounts can be split into 3-4 monthly applications and fertigated
 from 1 mtr stage .]

Foliars [As test strips for response .]

Iron sulphate @ 100g/100L
 next
 Solubor @ 100g/100L [consider 1 application at 1 mtr 1

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Grower:

Sample number: 8

Block: 1A
Recommendation for: Sugarcane

Date entered: 22-Jul-2003
Order no.:

Variety:	UNKNOWN	Age:	TO BE PLANTED	Soil condition:	Friable
Irrigation type:	Overhead	Soil drainage:	Good	Soil colour:	Grey
Soil type:	Clay Loam	Water penetration:	Slow	Preferred application:	
Yield goal (t/ha):	25.0	Crop duration (days):	112	Target pH:	0.0

Pre plant

Due to low calcium levels and slightly higher than optimum pH
consider

Gypsum @ 1.5-2 t/ha [broadcast and incorporate]

Note

pH has been reviewed and tested over a longer settlement and we have revised pH to 6 ,Gypsum application remains and would still consider soil pH slightly high for planting with suscon ,consider acidifying and drilling in suscon if required at side dressing [fill in stage]

Plant

Approx 150 units of N
20-25 units of P

and 110-120 units of K required for crop
as Industry standard with low potassium levels a NPK blend at planting would be recommended
consider

Option 1

CK 66 @ 225kg/ha [drilled into rows .]

Side dress

HF 16 @ 450kg/ha

Note

Will supply 148 units of N 28 units of P and 114 units of K

Ratoon

HF 14 S @ 750kg/ha

Trial

Option 2

Drilled into rows

Urea @ 50kg/ha

Guano @ 240kg/ha

Muriate of potash @ 75kg/ha

Side dress

HF 16 F @ 450kg/ha

Ratoon

HF 14 S @ 750kg/ha

Foliars [As test strips for response .]

1 application at 1 mtr]

Manganese sulphate @ 100g/100L

next

Solubor @ 100g/100L

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Sugarcane: Soil Analysis Report - Topsoil

BUNDABERG SUGAR LTD
P O BOX 500

BUNDABERG 4670
Phone No: 07 4150 8945
Fax No: 07 4150 8911
Email:

Customer No: 67395
Sample No: 10125407
Sample Taken: 09/04/2003
Reported: 23/04/2003
Order No: 254072

Paddock Name	CHRIS TOWNSON	Size	0 ha	Paddock dGPS Ref
Sample Name	27A, 28A&28B	Depth		Northings
Paddock Location	BUNDABERG			Easting

TEST	RESULT	VERY LOW	MARGINAL	OPTIMAL HIGH	EXCESS	OPTIMAL RANGE
Phosphorus - BSES (P)	36 mg/kg					40-60
Potassium - soil reserve (K)	60 mg/kg					234-3900
Available Sulphur - BSES (S)	4.8 mg/kg					10-50
Zinc (Zn)	0.22 mg/kg					>0.3
Zinc - BSES (Zn)	0.36 mg/kg					>0.6
Copper (Cu)	0.52 mg/kg					>.4
Iron (Fe)	145.00 mg/kg					2-100
Manganese (Mn)	6.63 mg/kg					4-100
Boron (B)	0.26 mg/kg					0.3-2
Electrical Conductivity (EC)	0.03 dS/m					<0.14
Organic Carbon (OC)	0.96 %					>0.9
Silicon BSES (Si)	28 mg/kg					> 100
Nitrate Nitrogen (NO3)	6.6 mg/kg					
EC of saturated extract (ECe)	0.42 dS/m					
pH water	5.50					
pH CaCl2	4.60					
Soil Texture	SANDY LOAM					
Soil Colour	Brown					
Total Cation Exchange Capacity	2.04 meq/100gm					>4
Aluminium (Al)	0.18	9%				<10%
Calcium (Ca)	1.20	59%				>1.25meq
Magnesium (Mg)	0.54	27%				>0.25meq
Sodium (Na)	0.03	1%				<6%
Potassium (K)	0.09	4%				0.3-0.5me
Calcium to Magnesium Ratio	2.22					>3

Moderately Acidic



FERTILISER STRATEGY

Grower Name: Chris Townson
Block No.: 27A & 28A
Advisor: Julian Collins
Date: 23-04-2003

Crop: Sugarcane + Fallow Plant
Sample No: 10125437
Depth: 25 cm
Target Yield: 100 t/ha

Target nutrient rate	N	P	K	S	Zn
Plant	120	20	120	10	10
Ratoons	150	20	120	10	0

Recommendation:

Crop Time	Product	Rate/ha	Comments
Pre planting	Lime	1 t/ha	
Planting	DAP + 8% Zn	125 kg/ha 1 bag/cowk	
Side dressing	Caneboosta 50/50(S)	460 kg/ha 3.7 bags/acre	
Ratoons	Caneboosta 40(S)	650 kg/ha 5.2 bags/acre	
Comments	<p>Nitrogen rate has been reduced due to Organic carbon level Potassium, Calcium, Sulfur, Zinc and Silicon levels are all low To alleviate Zinc deficiency Use DAP+8% Zn at Planting Or apply 45 kg/ha Zinc sulfate heptahydrate on the soil prior to planting If using suScon apply lime 3 months prior to planting Take a leaf test in the 1st ratoon crop to check adequacy of nutrients</p>		

For further advice regarding this recommendation please call:
Julian Collins mobile 0407 144 487

Note

Interpretations and recommendations given here are a guide only, and depend upon proper and depend upon proper and representative samples being analysed, additionally environmental and managerial factors influence production, therefore SSS and Sugarservices do not accept any liability whatsoever arising out of these interpretations and recommendations for any damage loss or injury at any point and the user takes these interpretations and recommendations on these terms.
This recommendation is made in good faith, based on the best available information available.



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Crop Tech Pty Ltd
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Bundaberg QLD 4670
ABN: 13 010 782 975

23/12/2004

Appendix 4

AGRISPON SITE 1

Number of Sticks

```
              ANALYSIS OF VARIANCE
            Df  Sum Sq Mean Sq F value Pr(>F)
block        3   603.69   201.23   1.7264 0.2309
treatment    3   771.69   257.23   2.2068 0.1568 not significant
Residuals    9  1049.06   116.56
> model.tables(numberofsticks,"means")
Tables of means
Grand mean

157.1875

      block
      1      2      3      4
148.75 154.00 164.00 162.00

      treatment
      1      2      3      4
145.50 158.50 163.00 161.75
```

NO SIGNIFICANT DIFFERENCES BETWEEN TREATMENTS

Yield

```
              ANALYSIS OF VARIANCE
            Df  Sum Sq Mean Sq F value Pr(>F)
block        3   190.62    63.54   0.2629 0.8505
treatment    3  1138.40   379.47   1.5699 0.2634
Residuals    9  2175.47   241.72

Tables of means
Grand mean

239.7125

      block
      1      2      3      4
237.98 236.47 238.90 245.50

      treatment
      1      2      3      4
225.83 240.75 244.12 248.15
```

NO SIGNIFICANT DIFFERENCES BETWEEN TREATMENTS

CCS Readings

NO SIGNIFICANT DIFFERENCES BETWEEN TREATMENTS

No difference between treatments, but position of taking sample is highly significant.

Locsample = top, middle or bottom

```
ANALYSIS OF VARIANCE
Error: blk:treat
      Df Sum Sq Mean Sq  F value
blk      3 61.945   20.648    7.68 **
treat     3 20.258    6.753    2.51 not significant
blk:treat  9 24.184    2.687          (experimental error values)
```

```
Error: Within
      Df Sum Sq Mean Sq  F value    Pr(>F)
locsample  2 2104.91 1052.45 588.2449 < 2.2e-16 ***
treat:locsample  6    7.03    1.17  0.6544  0.686485
blk:treat:samp  64 198.12    3.10          (sampling error)
Residuals    152  271.95    1.79
```

* = 5%; ** = 1%; *** = <1% (probability levels)

Tables of means

Grand mean

22.90875

```
blk
      1      2      3      4
      22.61 22.7 23.78 22.54
rep 60.00 60.0 60.00 60.00
```

```
treat
      1      2      3      4
      23.26 22.66 22.59 23.12
rep 60.00 60.00 60.00 60.00
```

```
locsample
      Bottom Middle   Top
      25.76  24.13 18.83
rep  80.00  80.00 80.00
```

```
blk:treat
      treat
blk  1      2      3      4
  1  22.613 22.387 22.593 22.860
  rep 15.000 15.000 15.000 15.000
  2  23.227 22.353 22.353 22.860
  rep 15.000 15.000 15.000 15.000
  3  23.613 23.933 23.680 23.907
  rep 15.000 15.000 15.000 15.000
  4  23.600 21.953 21.733 22.873
  rep 15.000 15.000 15.000 15.000
```

treat:locsample

```

      locsample
treat Bottom Middle Top
  1  25.985 24.300 19.505
  rep 20.000 20.000 20.000
  2  25.720 23.725 18.525
  rep 20.000 20.000 20.000
  3  25.355 24.075 18.340
  rep 20.000 20.000 20.000
  4  25.995 24.440 18.940
  rep 20.000 20.000 20.000

blk:treat:samp
, , samp = 1

      treat
blk  1      2      3      4
  1  23.533 23.600 23.200 23.500
  rep 3.000 3.000 3.000 3.000
  2  23.467 20.800 22.933 21.700
  rep 3.000 3.000 3.000 3.000
  3  25.000 23.133 22.000 25.267
  rep 3.000 3.000 3.000 3.000
  4  23.933 22.067 22.333 22.900
  rep 3.000 3.000 3.000 3.000

, , samp = 2

      treat
blk  1      2      3      4
  1  20.633 21.233 22.200 22.867
  rep 3.000 3.000 3.000 3.000
  2  24.500 21.333 21.300 23.400
  rep 3.000 3.000 3.000 3.000
  3  23.600 25.400 24.000 23.267
  rep 3.000 3.000 3.000 3.000
  4  23.333 22.067 20.600 22.333
  rep 3.000 3.000 3.000 3.000

, , samp = 3

      treat
blk  1      2      3      4
  1  23.233 22.567 22.733 21.400
  rep 3.000 3.000 3.000 3.000
  2  21.867 23.833 21.733 22.833
  rep 3.000 3.000 3.000 3.000
  3  23.600 23.667 24.800 24.400
  rep 3.000 3.000 3.000 3.000
  4  23.867 21.400 24.267 21.767
  rep 3.000 3.000 3.000 3.000

, , samp = 4

      treat
blk  1      2      3      4
  1  21.367 21.233 22.333 22.933
  rep 3.000 3.000 3.000 3.000
  2  21.833 23.800 22.867 23.500

```



```

rep  3.000  3.000  3.000  3.000
3    23.400  24.200  23.867  23.400
rep  3.000  3.000  3.000  3.000
4    23.400  22.233  21.200  23.333
rep  3.000  3.000  3.000  3.000

, , samp = 5

      treat
blk   1      2      3      4
1    24.300  23.300  22.500  23.600
rep   3.000   3.000   3.000   3.000
2    24.467  22.000  22.933  22.867
rep   3.000   3.000   3.000   3.000
3    22.467  23.267  23.733  23.200
rep   3.000   3.000   3.000   3.000
4    23.467  22.000  20.267  24.033
rep   3.000   3.000   3.000   3.000

Means
bottom                middle                top
25.764                24.135                18.828

LSD(5%) 0.4178  LSD(1%) 0.55167

2 ** 1      3 ** 1      3 ** 2

```



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Appendix 5

AGRISPON SITE 2

Number of sticks

```

              Analysis of Variance
      Df Sum Sq Mean Sq F value Pr(>F)
blk      3 4294.2  1431.4   4.1715 0.04151 *
trt      3  1621.3   540.4   1.5749 0.26231
Residuals 9  3088.2   343.1
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Tables of means
Grand mean

215.375

```

blk
  1      2      3      4
222.75 200.00 200.00 238.75
```

```

trt
  1      2      3      4
215.00 231.50 204.25 210.75
```

NO SIGNIFICANT DIFFERENCES BETWEEN TREATMENTS

Yield

```

              Analysis of Variance
      Df Sum Sq Mean Sq F value Pr(>F)
blk      3   783.7   261.2   0.6084 0.6262
trt      3  1488.8   496.3   1.1557 0.3788
Residuals 9  3864.6   429.4
```

Tables of means
Grand mean

214.6625

```

blk
  1      2      3      4
215.20 205.38 213.08 225.00
```

```

trt
  1      2      3      4
216.50 229.23 209.80 203.13
```

NO SIGNIFICANT DIFFERENCES BETWEEN TREATMENTS

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www.croptech.com.au

CCS Readings

```

      Analysis of Variance
Error: blk:trt
      Df  Sum Sq Mean Sq F value
blk      3   7.1605   2.3868   1.46
trt      3   4.7235   1.5745   0.97
blk:trt:samp 9 14.6804   1.6312 (Expt error)

Error: Within
      Df Sum Sq Mean Sq F value    Pr(>F)
location    2 47.958   23.979 45.9911 2.404e-16 ***
trt:location  6  3.064    0.511  0.9796 0.441124
blk:trt:samp 64 56.632    0.885 (sampling error)
Residuals   152 79.251    0.521
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

GENERAL MEAN
23.6012

Blk means

Blk	Blk	Blk	Blk
1	2	3	4
23.5900	23.6967	23.7900	23.3283

Trt means

Trt	Trt	Trt	Trt
1	2	3	4
23.4967	23.6550	23.8050	23.4483

NO SIGNIFICANT DIFFERENCES BETWEEN TREATMENTS

Location means Top, Middle, Bottom

	Top	Middle	Bottom
	22.9912	24.0500	23.7625

S.E. MEAN 0.80730e-01 LSD(5P.C.) 0.22556 LSD(1P.C.) 0.29782

SIG DIFFS
Middle ** Top
Middle * Bottom
Bottom ** Top

Table Trt:Location

	Trt 1	Trt 2	Trt 3	Trt 4
Location				
Top	23.0600	23.0000	23.2450	22.6600
Middle	23.9900	24.0500	24.2350	23.9250
Bottom	23.4400	23.9150	23.9350	23.7600

S.E. MEAN 0.16146 LSD(5P.C.) 0.45113 LSD(1P.C.) 0.59564



- Laboratory Services
- Agricultural Consulting
- Monitoring Equipment
- Software
- Commercial R & D

Crop Tech Pty Ltd
410 Langbeckers East Rd
Bundaberg QLD 4670
ABN: 13 010 782 975

23/12/2004

Appendix 6

AGRISPON SITE 3

Number of Sticks

Analysis of Variance					
	Df	Sum Sq	Mean Sq	F value	Pr(>F)
blk	3	67.50	22.50	0.2465	0.8618
trt	3	416.00	138.67	1.5192	0.2751
Residuals	9	821.50	91.28		

Grand mean

192.25

blk				
	1	2	3	4
189.50	195.25	191.75	192.50	

trt				
	1	2	3	4
200.25	192.25	190.25	186.25	

NO SIGNIFICANT DIFFERENCES BETWEEN TREATMENTS

Yield

Analysis of Variance					
	Df	Sum Sq	Mean Sq	F value	Pr(>F)
blk	3	1449.7	483.2	0.8273	0.5114
trt	3	1550.9	517.0	0.8851	0.4848
Residuals	9	5256.8	584.1		

Grand mean

273.2438

blk				
	1	2	3	4
265.48	288.88	272.98	265.65	

trt				
	1	2	3	4
287.50	273.73	272.03	259.73	

NO SIGNIFICANT DIFFERENCES BETWEEN TREATMENTS

CCS Readings

```

      Analysis of Variance
Error: blk:trt
      Df  Sum Sq Mean Sq F value  Pr(>F)
blk      3 12.2600   4.0867  3.8571   0.050 *
trt      3   2.3423   0.7808  0.7369
blk:trt:samp 9   9.5357   1.0595

Error: Within
      Df  Sum Sq Mean Sq F value  Pr(>F)
pos      2   3.091   1.546   4.2562 0.01590 *
trt:pos   6   1.814   0.302   0.8325 0.54649
blk:trt:samp 64 184.261   2.879
Residuals 152  55.195   0.363
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

GENERAL MEAN                23.4483

MEANS      blk
           blk      blk      blk      blk
           1        2        3        4
           23.1717   23.4117   23.4083   23.8017

      S.E. MEAN 0.13289      LSD(5P.C.) 0.42512      LSD(1P.C.) 0.61074

      SIG DIFFS
4 ** 1

MEANS      trt
           trt      trt      trt      trt
           1        2        3        4
           23.4033   23.4783   23.5900   23.3217

      S.E. MEAN 0.13289      LSD(5P.C.) 0.42512      LSD(1P.C.) 0.61074

NO SIGNIFICANT DIFFERENCES BETWEEN TREATMENTS

MEANS      pos
           pos      pos      pos
           1        2        3
           23.3638   23.6087   23.3725

      S.E. MEAN 0.67372E-01 LSD(5P.C.) 0.18824      LSD(1P.C.) 0.24854

      SIG DIFFS
2 * 1      2 * 3

MEANS      trt:pos
           trt      trt      trt      trt
           1        2        3        4
pos
1      23.5150   23.3500   23.4200   23.1700
2      23.4350   23.6350   23.8600   23.5050
3      23.2600   23.4500   23.4900   23.2900

      S.E. MEAN 0.13474      LSD(5P.C.) 0.37649      LSD(1P.C.) 0.49708

```