SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

Title: SPLIT APPLICATIONS OF NITROGEN TRIAL 6400/24

Cat No.: 1319

**Object :** To determine the effects of different split applications of nitrogen to late season cane.

**This crop :** Plant **Age :** 12,2 months (26.11.80 to 3.12.81)

**Location :** Section 25, field 9A, Hippo Valley Estates.

**Soil type :** Basalt clay

**Design :** Simple lattice, 4 replications

**Variety/Spacing :** NCo 376 in 1,5 m rows

**Fertiliser (kg/ha) :** Nitrogen : 150 N applied as per treatment table
Phosphate : 83 $P_2O_5$
Potash : Nil

**Treatments :** Nitrogen splits applied as per the treatment table.

| TREATMENTS | NITROGEN SPLITS | | | |
|---|---|---|---|---|
| | WEEKS AFTER PLANTING | | | |
| | 2 | 6 | 10 | 14 |
| 1 | 1/2 | 1/2 | 0 | 0 |
| 2 | 0 | 2/3 | 0 | 1/3 |
| 3 | 2/3 | 1/3 | 0 | 0 |
| 4 | 0 | 1/2 | 1/2 | 0 |
| 5 | 0 | 1/3 | 1/3 | 1/3 |
| 6 | 1 | 0 | 0 | 0 |
| 7 | 1/3 | 0 | 2/3 | 0 |
| 8 | 2/3 | 0 | 1/3 | 0 |
| 9 | 1/2 | 0 | 1/2 | 0 |
| 10 | 0 | 1/3 | 2/3 | 0 |
| 11 | 1/3 | 1/3 | 1/3 | 0 |
| 12 | 1/2 | 0 | 0 | 1/2 |
| 13 | 1/3 | 2/3 | 0 | 0 |
| 14 | 0 | 1/2 | 0 | 1/2 |
| 15 | 0 | 1 | 0 | 0 |
| 16 | 0 | 2/3 | 1/3 | 0 |

**Rainfall :** No records. **Irrigation :** Standard HVE practice.

RESULTS

Relevant plant crop data are presented in the attached tables.

Cane yields. No consistent pattern emerged from the un-grouped harvest data, although treatment 6, single nitrogen application at 2 weeks was ranked surprisingly high. The grouped data showed (i) triple applications were statistically superior to single applications and to 1/3 2/3 splits and slightly superior to 1/2 1/2 splits; (ii) all nitrogen applied by 6 weeks was statistically inferior to both later applications. The high performance of the single nitrogen application at 2 weeks tended to confuse any pattern that may have emerged from the grouping by time of application of nitrogen splits.

2./ Quality effects. ..

Quality effects. Both ERC % cane and ERF % cane showed very little difference between ungrouped treatments. There was a trend towards depressed quality with increased splits and later applications of nitrogen.

TERC/ha. There was no consistent TERC/ha pattern from ungrouped data. The same trends shown by grouped yield data were followed by TERC/ha data, although not with the same degree of statistical significance.

ERF yields. Yield trends in terms of tonnes cane and TERC/ha already described were shown by ERF yield data.

Rainfall effects. ZSA Experiment Station data have been used as none were available from Section 25 HVE. Significant falls only, likely to have been of a general nature, have been shown.

| FERTILISER APPLICATION DATE | RAINFALL RECORD | |
|---|---|---|
| | DATE | mm |
| 12.12.80 | No significant falls | |
| 6.1.81 | 9.1.81 | 50,0 |
| | 12.1.81 | 19,2 |
| | 17.1.81 | 24,2 |
| | 18.1.81 | 93,4 |
| 4.2.81 | 5.2.81 | 43,2 |
| | 6.2.81 | 43,2 |
| 4.3.81 | No significant falls | |

The high performance of treatment 6, all N applied at 2 weeks is consistent with the lack of rainfall subsequent to the first fertiliser application date. The second application of nitrogen may have been leached as a result of the heavy rainfall, which is consistent with the yields obtained.

## CONCLUSIONS

The data presented have shown that heavy seasonal rainfall during the first 4 months of the growth cycle can have a marked effect on ultimate yield if it falls shortly after nitrogen top-dressings, even on a basalt caly.

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JJR/Feb. '82.
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6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

HARVEST DATA : PLANT CROP

| TREATMENTS | | | | | CANE YIELD t/ha | ERC % CANE | ERF % CANE | TERC t/ha | ERF YIELD t/ha |
|---|---|---|---|---|---|---|---|---|---|
| No. | SPLITS | | | | | | | | |
| 9 | 1/2 | 0 | 1/2 | 0 | 118,83 | 13,64 | 14,86 | 16,23 | 17,69 |
| 8 | 2/3 | 0 | 1/3 | 0 | 118,82 | 13,50 | 14,70 | 16,11 | 17,47 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 117,39 | 13,31 | 14,51 | 15,69 | 17,09 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 116,96 | 13,50 | 14,70 | 15,75 | 17,16 |
| 7 | 1/3 | 0 | 2/3 | 0 | 116,73 | 13,60 | 14,83 | 15,91 | 17,33 |
| 14 | 0 | 1/2 | 0 | 1/2 | 113.55 | 13,08 | 14,33 | 14,81 | 16,26 |
| 6 | 1 | 0 | 0 | 0 | 112,68 | 13,50 | 14,76 | 15,20 | 16,58 |
| 12 | 1/2 | 0 | 0 | 1/2 | 112,11 | 13,72 | 14,93 | 15,41 | 16,74 |
| 1 | 1/2 | 1/2 | 0 | 0 | 111,84 | 13,60 | 14,68 | 15,24 | 16,47 |
| 4 | 0 | 1/2 | 1/2 | 0 | 110,27 | 13,88 | 14,94 | 15,34 | 16,49 |
| 3 | 2/3 | 1/3 | 0 | 0 | 106,35 | 13,49 | 14,60 | 14,38 | 15,57 |
| 16 | 0 | 2/3 | 1/3 | 0 | 105,37 | 13,83 | 14,88 | 14,53 | 15,65 |
| 10 | 0 | 1/3 | 2/3 | 0 | 105,04 | 13,47 | 14,65 | 14,16 | 15,38 |
| 2 | 0 | 2/3 | 0 | 1/3 | 102,38 | 13,48 | 14,72 | 13,78 | 15,06 |
| 13 | 1/3 | 2/3 | 0 | 0 | 100,23 | 13,18 | 14,46 | 13,19 | 14,51 |
| 15 | 0 | 1 | 0 | 0 | 87,47 | 13,71 | 14,76 | 11,98 | 12,92 |
| L.S.D. P = 0,05 | | | | | 13,08 | 0,80 | 0,63 | 2,19 | 2,24 |
| P = 0,01 | | | | | 17,58 | 1,07 | 0,84 | 2,94 | 3,01 |
| Trial mean | | | | | 109,75 | 13,53 | 14,71 | 14,86 | 16,15 |
| S.E. plot ± | | | | | 9,09 | 0,56 | 0,44 | 1,52 | 1,56 |
| S.E. mean ± | | | | | 4,55 | 0,28 | 0,22 | 0,76 | 0,78 |
| C.V.% | | | | | 8,28 | 4,16 | 2,99 | 10,24 | 9,65 |

## 6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

### GROUPING OF YIELD DATA

#### 1. Number and order of magnitude of splits

| GROUPING | No. OF TREATMENTS | CANE YIELD t/ha | TERC t/ha | ERF YIELD t/ha |
|---|---|---|---|---|
| A : Single application | 2 | 100,08 | 13,59 | 14,75 |
| B : Double application : 2/3 1/3 | 4 | 108,23 | 14,70 | 15,94 |
| C : " " : 1/2 1/2 | 5 | 113,32 | 15,41 | 16,73 |
| D : " " : 1/3 2/3 | 3 | 107,33 | 14,42 | 15,74 |
| E : Triple application | 2 | 117,18 | 15,72 | 17,13 |
| Mean | - | 109,75 | 14,86 | 16,15 |
| Significance | - | AC** AE* BE* DE* | AC* AE* | AC* AE* |

#### 2. Time of application of nitrogen splits

| GROUPING | No. OF TREATMENTS | CANE YIELD t/ha | TERC t/ha | ERF YIELD t/ha |
|---|---|---|---|---|
| F : All N applied by 2 wks. | 1 | 112,68 | 15,20 | 16,58 |
| G : " " " " 6 " | 4 | 101,47 | 13,70 | 14,87 |
| H : " " " " 10 " | 7 | 113,15 | 15,43 | 16,74 |
| I : " " " " 14 " | 4 | 111,36 | 14,92 | 16,29 |
| Mean | - | 109,75 | 14,86 | 16,15 |
| Significance | - | GH** GI* | GH** | GH** GI* |

NOTES :

1. When grouping by number and order of magnitude of splits it was assumed that time of application of nitrogen splits were non-significant. The converse assumption was made for the second grouping.
2. In both cases above, the data do not group the same treatments. In the first instance the number of splits are grouped independant of time of application of nitrogen, and in the second, time of nitrogen split applications are grouped independant of the number of splits.
3. Significance was tested by the t test using treatment totals, not treatment means.

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Cat. No.: 1319

# 6400/24 SPLIT APPLICATION OF NITROGEN TRIAL

**Object:** To determine the effects of different split applications of nitrogen to late season cane.

**This crop:** First ratoon **Age:** 11,9 months (3.12.81-25.11.82)

**Location:** Hippo Valley Estates, Section 25, field 9A.

**Soil type:** Basalt clay

**Design:** Simple lattice with 2 replications each of x and y groups.

**Variety/ Spacing:** NCo 376, with 1,5m between rows.

**Fertiliser**

| | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|
| P | 150 | 83 | NIL |
| 1R | 180 | 100 | NIL |

**Treatments:** Nitrogen splits applied as per the treatment table.

| TREATMENTS | NITROGEN SPLITS | | | |
|---|---|---|---|---|
| | WEEKS AFTER CUTTING | | | |
| | 2 | 6 | 10 | 14 |
| 1 | 1/2 | 1/2 | 0 | 0 |
| 2 | 0 | 2/3 | 0 | 1/3 |
| 3 | 2/3 | 1/3 | 0 | 0 |
| 4 | 0 | 1/2 | 1/2 | 0 |
| 5 | 0 | 1/3 | 1/3 | 1/3 |
| 6 | 1 | 0 | 0 | 0 |
| 7 | 1/3 | 0 | 2/3 | 0 |
| 8 | 2/3 | 0 | 1/3 | 0 |
| 9 | 1/2 | 0 | 1/2 | 0 |
| 10 | 0 | 1/3 | 2/3 | 0 |
| 11 | 1/3 | 1/3 | 1/3 | 0 |
| 12 | 1/2 | 0 | 0 | 1/2 |
| 13 | 1/3 | 2/3 | 0 | 0 |
| 14 | 0 | 1/2 | 0 | 1/2 |
| 15 | 0 | 1 | 0 | 0 |
| 16 | 0 | 2/3 | 1/3 | 0 |

Rainfall: No records Irrigation: Inter-row standard H.V.E. practice

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RESULTS

First ratoon harvest data, together with plant and first ratoon harvest data summaries, are presented in the attached tables.

(a) Cane yield: Cane yields from the trial area were particularly low, showing an 18 tonne yield drop from those of the plant crop. There were no statistically significant treatment effects from the un-grouped yield data or from data grouped according to number of nitrogen applications. Data grouped according to time of application of nitrogen splits showed that the ten week application gave the lowest yield level, being statistically (P = 0,01) inferior to both the 6 week and 14 week groupings.

(b) ERC % cane: There were no significant treatment effects from either grouped or ungrouped data. There was a trend towards depressed ERC % cane from delayed nitrogen applications.

(c) ERF % cane: There were no significant treatment effects from either grouped or un-grouped data. The trend towards dep essed ERF % cane from delayed nitrogen applications was evident although not to the same extent. This is consistent with previously reported patterns.

(d) ERC and ERF yield: TERC and ERF yield data followed the same trends exhibited by cane yield data. The only statistically significant treatment effects were the same as those shown by the cane yield data viz. 10 week nitrogen applications inferior (P = 0,01) to both 6 and 14 week nitrogen applications.

(e) Rainfall effects: Seasonal rainfall of a general nature is shown in the table below/overleaf. Only falls in excess of 10mm have been shown. The only nitrogen application that was likely to have been affected was that applied on 9/2/82, i.e. the 10 week application. This corresponds well with the grouped data which showed statistically significant yield depression from the all nitrogen by 10 week grouped data. This pattern was not shown by either 6400/22 (PE.1) or 6400/23 (P.3) where it was argued that the rainfall was probably too light to have caused appreciable leaching. The result on the heavy basalt clay is therefore surprising.

3/....

| Fertiliser application dates | Rainfall Record | |
|---|---|---|
| | Date | mm |
| 15.12.81 (2 week) | 3.1.82 | 11,5 |
| | 4.1.82 | 25,3 |
| 11.1.82 (6 week) | 23.1.82 | 12,4 |
| | 4.2.82 | 22,4 |
| 9.2.82 (10 week) | 11.2.82 | 13,2 |
| | 17.2.82 | 28,0 |
| | 18.2.82 | 53,4 |
| | 19.2.82 | 19,0 |
| | 3.3.82 | 28,4 |
| 10.3.82 (14 week) | - | NIL |

CONCLUSIONS

Not too much emphasis should be placed on the significant yield depression that was apparently caused by seasonal rainfall after the 10-week nitrogen application, as this effect was not shown in the weaker P.3 sandy loam. The plant crop did show that heavy seasonal rainfall can cause yield losses on a basalt clay, but more evidence would be required to show that these losses could also be caused by even moderate falls.

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JJR/March'83
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## 6400/24 : SPLIT APPLICATIONS OF NITROGEN TRIAL

### HARVEST DATA : FIRST RATOON

| TREATMENTS | | | | | CANE YIELD t/ha | ERC % CANE | ERF % CANE | TERC t/ha | ERF YIELD t/ha |
|---|---|---|---|---|---|---|---|---|---|
| No | SPLITS | | | | | | | | |
| 2 | 0 | 2/3 | 0 | 1/3 | 97,46 | 13,70 | 14,78 | 13,23 | 14,31 |
| 15 | 0 | 1 | 0 | 0 | 96,63 | 13,80 | 14,96 | 13,26 | 14,42 |
| 12 | 1/2 | 0 | 0 | 1/2 | 96,32 | 13,69 | 14,74 | 13,20 | 14,20 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 95,60 | 13,71 | 14,95 | 13,22 | 14,38 |
| 13 | 1/3 | 2/3 | 0 | 0 | 94,69 | 14,06 | 14,96 | 13,35 | 14,18 |
| 6 | 1 | 0 | 0 | 0 | 92,50 | 13,70 | 14,86 | 12,54 | 13,64 |
| 10 | 0 | 1/3 | 2/3 | 0 | 92,36 | 13,21 | 14,51 | 12,12 | 13,32 |
| 14 | 0 | 1/2 | 0 | 1/2 | 92,30 | 13,64 | 14,86 | 12,44 | 13,60 |
| 3 | 2/3 | 1/3 | 0 | 0 | 91,32 | 13,85 | 14,98 | 12,62 | 13,66 |
| 1 | 1/2 | 1/2 | 0 | 0 | 91,41 | 14,04 | 15,14 | 12,91 | 13,88 |
| 7 | 1/3 | 0 | 2/3 | 0 | 89,32 | 13,65 | 14,69 | 12,18 | 13,13 |
| 4 | 0 | 1/2 | 1/2 | 0 | 87,92 | 13,57 | 14,80 | 11,96 | 13,04 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 86,57 | 13,96 | 15,00 | 12,12 | 13,01 |
| 16 | 0 | 2/3 | 1/3 | 0 | 86,09 | 14,09 | 15,32 | 12,10 | 13,17 |
| 9 | 1/2 | 0 | 1/2 | 0 | 86,07 | 13,82 | 14,87 | 12,02 | 12,87 |
| 8 | 2/3 | 0 | 1/3 | 0 | 83,23 | 14,03 | 15,13 | 11,70 | 12,62 |
| L.S.D. P = 0,05 | | | | | 11,87 | 0,71 | 0,66 | 1,58 | 1,74 |
| P = 0,01 | | | | | 15,95 | 0,95 | 0,89 | 2,12 | 2,34 |
| Trial Mean | | | | | 91,24 | 13,78 | 14,91 | 12,56 | 13,59 |
| S.E. plot ± | | | | | 8,25 | 0,50 | 0,47 | 1,10 | 1,21 |
| S.E. Mean ± | | | | | 4,12 | 0,25 | 0,23 | 0,55 | 0,60 |
| C.V. % | | | | | 9,04 | 3,61 | 3,12 | 8,74 | 8,90 |

## 6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

### GROUPING OF HARVEST DATA

1. Number and order of magnitude of splits

| GROUPING | No. OF TREATMENTS | CANE YIELD t/ha | ERC % CANE | ERF % CANE | TERC t/ha | ERF YIELD t/ha |
|---|---|---|---|---|---|---|
| A : Single application | 2 | 94,57 | 13,75 | 14,91 | 12,90 | 14,03 |
| B : Double application ; 2/3 ; 1/3 | 4 | 89,53 | 13,92 | 15,05 | 12,41 | 13,44 |
| C : " " ; 1/2 ; 1/2 | 5 | 90,80 | 13,75 | 14,88 | 12,51 | 13,52 |
| D : " " : 1/3 ; /3 | 3 | 92,12 | 13,64 | 14,72 | 12,55 | 13,54 |
| E : Triple application | 2 | 91,09 | 13,84 | 14,98 | 12,67 | 13,70 |
| MEAN | - | 91,24 | 13,78 | 14,91 | 12,56 | 13,59 |
| SIGNIFICANCE | - | N.S. | N.S. | N.S. | N.S. | N.S. |

| GROUPING | No OF TREATMENTS | CANE YIELD t/ha | ERC % CANE | ERF % CANE | TERC t/ha | ERF YIELD t/ha |
|---|---|---|---|---|---|---|
| F : All N applied by 2 weeks | 1 | 92,50 | 13,70 | 14,87 | 12,54 | 13,64 |
| G : " " " " 6 " | 4 | 93,51 | 13,94 | 15,01 | 13,04 | 14,04 |
| H : " " " "10 " | 7 | 87,37 | 13,76 | 14,90 | 12,03 | 13,02 |
| I : " " " "14 " | 4 | 95,42 | 13,68 | 14,83 | 13,02 | 14,12 |
| MEAN | - | 91,24 | 13,78 | 14,91 | 12,56 | 13,59 |
| SIGNIFICANCE | - | G:H** | N.S. | N.S. | G:H** | G:H** |
| | - | I:H** | N.S. | N.S. | G:H** | G:H** |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

YIELD DATA SUMMARY : PLANT AND FIRST RATOON

| TREATMENTS | | | | | CANE YIELD t/ha | | | ERC YIELD t/ha | | | ERF YIELD t/ha | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. | SPLITS | | | | Plant | IR | Mean | Plant | IR | Mean | Plant | IR | Mean |
| 6 | 1 | 0 | 0 | 0 | 112,68 | 92,50 | 102,59 | 15,20 | 12,54 | 13,87 | 16,58 | 13,64 | 15,11 |
| 15 | 0 | 1 | 0 | 0 | 87,47 | 96,63 | 92,05 | 11,98 | 13,26 | 12,62 | 12,92 | 14,42 | 13,67 |
| 3 | 2/3 | 1/3 | 0 | 0 | 106,35 | 91,32 | 98,84 | 14,38 | 12,62 | 13,50 | 15,57 | 13,66 | 14,62 |
| 8 | 2/3 | 0 | 1/3 | 0 | 118,82 | 83,23 | 101,03 | 16,11 | 11,70 | 13,91 | 17,47 | 12,62 | 15,05 |
| 16 | 0 | 2/3 | 1/3 | 0 | 105,37 | 86,09 | 95,73 | 14,53 | 12,10 | 13,32 | 15,65 | 13,17 | 14,41 |
| 2 | 0 | 2/3 | 0 | 1/3 | 102,38 | 97,46 | 99,92 | 13,78 | 13,23 | 13,51 | 15,06 | 14,31 | 14,69 |
| 1 | 1/2 | 1/2 | 0 | 0 | 111,84 | 91,41 | 101,63 | 15,24 | 12,91 | 14,08 | 16,47 | 13,88 | 15,18 |
| 9 | 1/2 | 0 | 1/2 | 0 | 118,83 | 86,07 | 102,45 | 16,23 | 12,02 | 14,13 | 17,69 | 12,87 | 15,28 |
| 12 | 1/2 | 0 | 0 | 1/2 | 112,11 | 96,32 | 104,22 | 15,41 | 13,20 | 14,31 | 16,74 | 14,20 | 15,47 |
| 4 | 0 | 1/2 | 1/2 | 0 | 110,27 | 87,92 | 99,10 | 15,34 | 11,96 | 13,65 | 16,49 | 13,04 | 14,77 |
| 14 | 0 | 1/2 | 0 | 1/2 | 113,55 | 92,30 | 102,93 | 14,81 | 12,44 | 13,63 | 16,26 | 13,60 | 14,93 |
| 13 | 1/3 | 2/3 | 0 | 0 | 100,23 | 94,69 | 97,46 | 13,19 | 13,35 | 13,27 | 14,51 | 14,18 | 14,35 |
| 7 | 1/3 | 0 | 2/3 | 0 | 116,73 | 89,32 | 103,03 | 15,91 | 12,18 | 14,05 | 17,33 | 13,13 | 15,23 |
| 10 | 0 | 1/3 | 2/3 | 0 | 105,04 | 92,36 | 98,70 | 14,16 | 12,12 | 13,14 | 15,38 | 13,32 | 14,35 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 116,96 | 86,57 | 101,77 | 15,75 | 12,12 | 13,94 | 17,16 | 13,01 | 15,09 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 117,39 | 95,60 | 106,50 | 15,69 | 13,22 | 14,46 | 17,09 | 14,38 | 15,74 |
| L.S.D. P = 0,05 | | | | | 13,08 | 11,87 | - | 2,19 | 1,58 | - | 2,24 | 1,74 | - |
| P = 0,01 | | | | | 17,58 | 15,95 | - | 2,94 | 2,12 | - | 3,01 | 2,34 | - |
| Trial Mean | | | | | 109,75 | 91,24 | 100,50 | 14,86 | 12,56 | 13,71 | 16,15 | 13,59 | 14,87 |
| S.E. Plot ± | | | | | 9,09 | 8,25 | - | 1,52 | 1,10 | - | 1,56 | 1,21 | - |
| S.E. Mean ± | | | | | 4,55 | 4,12 | - | 0,76 | 0,55 | - | 0,78 | 0,60 | - |
| C.V.% | | | | | 8,28 | 9,04 | - | 10,24 | 8,74 | - | 9,65 | 8,90 | - |

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## 6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

Cat. No.1319

**Object:** To determine the effects of different split applications of nitrogen to late season cane.

**This crop:** Second ratoon **Age:** 12,0 months (25.11.82 to 24.11.83)

**Location:** Hippo Valley Estates, Section 25, field 9A.

**Soil type:** Basalt clay.

**Design:** Simple lattice with 2 replications each of X and Y groups.

**Variety/spacing:** NCo 376 in 1,5m rows.

**Fertiliser:** (kg/ha)

| | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|
| P | 150 | 83 | Nil |
| 1R | 100 | 100 | Nil |
| 2R | 100 | 100 | Nil |
| Application: | see treatments | at four weeks | |

**Treatments:** Nitrogen splits were applied as per treatment table:

| TREATMENTS | NITROGEN SPLITS | | | |
|---|---|---|---|---|
| | WEEKS AFTER CUTTING | | | |
| | 2 | 6 | 10 | 14 |
| 1 | 1/2 | 1/2 | 0 | 0 |
| 2 | 0 | 2/3 | 0 | 1/3 |
| 3 | 2/3 | 1/3 | 0 | 0 |
| 4 | 0 | 1/2 | 1/2 | 0 |
| 5 | 0 | 1/3 | 1/3 | 1/3 |
| 6 | 1 | 0 | 0 | 0 |
| 7 | 1/3 | 0 | 2/3 | 0 |
| 8 | 2/3 | 0 | 1/3 | 0 |
| 9 | 1/2 | 0 | 1/2 | 0 |
| 10 | 0 | 1/3 | 2/3 | 0 |
| 11 | 1/3 | 1/3 | 1/3 | 0 |
| 12 | 1/2 | 0 | 0 | 1/2 |
| 13 | 1/3 | 2/3 | 0 | 0 |
| 14 | 0 | 1/2 | 0 | 1/2 |
| 15 | 0 | 1 | 0 | 0 |
| 16 | 0 | 2/3 | 1/3 | 0 |

**Rainfall:** No records **Irrigation:** Inter-row standard HVE practice.

2/RESULTS.....

RESULTS

Relevant crop data are presented in the attached tables.

a) Cane yields: No statistically significant responses to treatments were recorded, although, when the data were grouped, the three-way nitrogen splits treatment gave slightly higher yields than the others. Delaying the final nitrogen application to 14 weeks resulted in marginally higher yields than obtained with the other treatments.

b) Quality effects: Both the ERC % cane and the ERF % cane data did not follow the previously reported trends of depressed quality with increased splits and later applications of nitrogen. In fact, the triple application of nitrogen treatment produced marginally higher ERC % cane and ERF % cane values, than the other splits.

Grouping of data by time of application indicates that delaying the final application of nitrogen until 14 weeks resulted in a significantly higher (t-test) yield compared to the 6 and 10 week final applications.

c) TERC/ha: ERC yield data showed no significant responses to treatments. The grouped data followed the pattern exhibited by cane yield data.

d) ERF yield: The trends in ERF yield data were similar to those exhibited by cane and ERC yield data.

e) Rainfall effects: ZSA Experiment Station data have been used as none were available from Section 25, H.V.E. Significant falls only, likely to have been of a general nature, have been shown.

| Fertiliser Application Dates | RAINFALL RECORD | |
|---|---|---|
| | Date | mm |
| 7.12.82 (2 weeks) | 8.12.82 | 43,9 |
| 4.1.83 (6 weeks) | No significant falls | |
| 4.2.83 (10 weeks) | 13.2.83 | 21,4 |
| 1.3.83 (14 weeks) | 9.3.83 | 31,0 |

When the rainfall figures were considered in conjunction with yield data it was apparent that the rain which fell immediately after the first (2 weeks) nitrogen application was heavy enough to have caused appreciable nitrogen losses.

CONCLUSIONS

No definite conclusions could be drawn from this season's harvest data since the rainfall pattern was atypical and since the total rainfall received, for the season, was below normal.

BM/Jan'84
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6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

HARVEST DATA: Second ratoon.

| TREATMENTS NO. | SPLITS | | | | CANE YIELD t/ha | ERC % CANE | ERF % CANE | TERC t/ha | ERF YIELD t/ha |
|---|---|---|---|---|---|---|---|---|---|
| 11 | 1/3 | 1/3 | 1/3 | 0 | 96,45 | 13,60 | 15,01 | 13,24 | 14,49 |
| 12 | 1/2 | 0 | 0 | 1/2 | 95,01 | 13,70 | 15,03 | 13,11 | 14,20 |
| 2 | 0 | 2/3 | 0 | 1/3 | 91,53 | 13,57 | 14,71 | 12,44 | 13,52 |
| 16 | 0 | 2/3 | 1/3 | 0 | 90,01 | 13,62 | 14,79 | 12,25 | 13,29 |
| 15 | 0 | 1 | 0 | 0 | 89,17 | 13,50 | 14,73 | 12,00 | 13,11 |
| 9 | 1/2 | 0 | 1/2 | 0 | 87,32 | 13,64 | 14,87 | 11,96 | 13,01 |
| 4 | 0 | 1/2 | 1/2 | 0 | 87,16 | 13,26 | 14,59 | 11,66 | 12,83 |
| 14 | 0 | 1/2 | 0 | 1/2 | 84,60 | 13,79 | 14,96 | 11,70 | 12,70 |
| 10 | 0 | 1/3 | 2/3 | 0 | 84,26 | 13,36 | 14,66 | 11,30 | 12,40 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 83,13 | 13,68 | 14,87 | 11,34 | 12,37 |
| 6 | 1 | 0 | 0 | 0 | 82,54 | 13,69 | 14,93 | 11,36 | 12,41 |
| 7 | 1/3 | 0 | 2/3 | 0 | 82,33 | 13,57 | 14,78 | 11,26 | 12,25 |
| 8 | 2/3 | 0 | 1/3 | 0 | 80,50 | 13,52 | 14,54 | 10,87 | 11,73 |
| 3 | 2/3 | 1/3 | 0 | 0 | 78,35 | 13,47 | 14,70 | 10,55 | 11,54 |
| 13 | 1/3 | 2/3 | 0 | 0 | 74,69 | 13,31 | 14,57 | 9,99 | 10,88 |
| 1 | 1/2 | 1/2 | 0 | 0 | 72,95 | 13,43 | 14,63 | 9,80 | 10,68 |
| Trial Mean | | | | | 85,00 | 13,55 | 14,77 | 11,55 | 12,59 |
| S.E. plot ± | | | | | 20,20 | 0,41 | 0,38 | 2,09 | 3,16 |
| S.E. mean ± | | | | | 10,10 | 0,29 | 0,27 | 1,44 | 1,50 |
| C.V.% | | | | | 23,76 | 3,03 | 2,56 | 24,98 | 25,09 |
| SIGNIFICANCE | | | | | N.S. | N.S. | N.S. | N.S. | N.S. |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

GROUPING OF HARVEST DATA

1. Number and order of magnitude of splits

| GROUPING | NO. OF TREATMENTS | CANE YIELD t/ha | ERC % CANE | ERF % CANE | TERC t/ha | ERF YIELD t/ha |
|---|---|---|---|---|---|---|
| A : Single application | 2 | 85,86 | 13,60 | 14,83 | 11,68 | 12,76 |
| B : Double application: 2/3; 1/3 | 4 | 85,40 | 13,55 | 14,69 | 11,53 | 12,52 |
| C : " " 1/2; 1/2 | 5 | 85,41 | 13,58 | 14,82 | 11,65 | 12,70 |
| D : " " 1/3; 1/3 | 3 | 80,43 | 13,41 | 14,67 | 10,82 | 11,84 |
| E : Triple application | 2 | 89,79 | 13,60 | 14,94 | 12,29 | 13,43 |
| MEAN | - | 85,00 | 13,55 | 14,77 | 11,55 | 12,59 |
| SIGNIFICANCE | - | N.S. | N.S. | N.S. | N.S. | N.S. |

2. Time of application of nitrogen splits

| GROUPING | NO. OF TREATMENTS | CANE YIELD t/ha | ERC % CANE | ERF % CANE | TERC t/ha | ERF YIELD t/ha |
|---|---|---|---|---|---|---|
| F : All N applied by 2 weeks | 1 | 82,54 | 13,69 | 14,93 | 11,36 | 14,21 |
| G : " " " " 6 " | 4 | 78,79 | 13,43 | 14,66 | 10,56 | 13,46 |
| H : " " " " 10 " | 7 | 86,86 | 13,52 | 14,75 | 11,79 | 14,21 |
| I : " " " " 14 " | 4 | 88,57 | 13,71 | 14,89 | 12,15 | 14,54 |
| MEAN | - | 85,00 | 13,55 | 14,77 | 11,55 | 12,59 |
| SIGNIFICANCE | - | N.S. | GI* HI* | N.S. | N.S. | N.S. |

5400/24 · SPLIT APPLICATIONS OF NITROGEN TRIAL

YIELD DATA SUMMARY : PLANT, FIRST AND SECOND RATOON

| TREATMENTS | | | | | CANE YIELD t/ha | | | | ERC YIELD t/ha | | | | ERF YIELD t/ha | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. | SPLITS | | | | P | 1R | 2R | MEAN | P | 1R | 2R | MEAN | P | 1R | 2R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 112,66 | 92,50 | 82,54 | 95,91 | 15,20 | 12,54 | 11,36 | 13,03 | 16,58 | 13,64 | 12,41 | 14,21 |
| 15 | 0 | 1 | 0 | 0 | 87,47 | 96,63 | 89,17 | 91,09 | 11,98 | 13,26 | 12,00 | 12,41 | 12,92 | 14,42 | 13,11 | 13,48 |
| 3 | 2/3 | 1/3 | 0 | 0 | 106,35 | 91,32 | 78,35 | 92,01 | 14,38 | 12,62 | 10,55 | 12,52 | 15,57 | 13,66 | 11,54 | 13,59 |
| 8 | 2/3 | 0 | 1/3 | 0 | 110,82 | 83,23 | 89,50 | 94,18 | 16,11 | 11,70 | 10,87 | 12,89 | 17,47 | 12,62 | 11,73 | 13,94 |
| 16 | 0 | 2/3 | 1/3 | 0 | 105,37 | 86,09 | 90,01 | 93,82 | 14,53 | 12,10 | 12,25 | 12,96 | 15,65 | 13,17 | 13,29 | 14,04 |
| 2 | 0 | 2/3 | 0 | 1/3 | 102,38 | 97,46 | 91,53 | 97,12 | 13,78 | 13,23 | 12,44 | 13,15 | 15,06 | 14,31 | 13,52 | 14,30 |
| 1 | 1/2 | 1/2 | 0 | 0 | 111,84 | 91,41 | 72,95 | 92,07 | 15,24 | 12,91 | 9,80 | 12,65 | 16,47 | 13,88 | 10,68 | 13,58 |
| 9 | 1/2 | 0 | 1/2 | 0 | 110,83 | 86,07 | 87,32 | 97,41 | 16,23 | 12,02 | 11,96 | 13,40 | 17,69 | 12,87 | 13,01 | 14,52 |
| 12 | 1/2 | 0 | 0 | 1/2 | 112,11 | 96,32 | 95,01 | 101,15 | 15,41 | 13,20 | 13,11 | 13,91 | 16,74 | 14,20 | 14,28 | 15,07 |
| 4 | 0 | 1/2 | 1/2 | 0 | 110,27 | 87,92 | 87,16 | 95,12 | 15,34 | 11,96 | 11,66 | 12,99 | 16,49 | 13,04 | 12,83 | 14,12 |
| 14 | 0 | 1/2 | 0 | 1/2 | 113,55 | 92,30 | 84,60 | 96,82 | 14,81 | 12,44 | 11,70 | 12,98 | 16,26 | 13,60 | 12,70 | 14,19 |
| 13 | 1/3 | 2/3 | 0 | 0 | 100,23 | 94,69 | 74,69 | 89,87 | 13,19 | 13,35 | 9,89 | 12,14 | 14,51 | 14,18 | 10,88 | 13,19 |
| 7 | 1/3 | 0 | 2/3 | 0 | 116,73 | 89,32 | 82,33 | 96,13 | 15,91 | 12,18 | 11,26 | 13,12 | 17,33 | 13,13 | 12,25 | 14,24 |
| 10 | 0 | 1/3 | 2/3 | 0 | 105,04 | 92,36 | 84,26 | 93,89 | 14,16 | 12,12 | 11,30 | 12,53 | 15,38 | 13,32 | 12,40 | 13,70 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 116,96 | 86,57 | 96,45 | 99,99 | 15,75 | 12,12 | 13,24 | 13,70 | 17,16 | 13,01 | 14,49 | 14,89 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 117,39 | 95,60 | 83,13 | 98,71 | 15,69 | 13,22 | 11,34 | 13,42 | 17,09 | 14,38 | 12,37 | 14,61 |
| Trial Mean | | | | | 109,75 | 91,24 | 85,00 | 95,33 | 14,86 | 12,56 | 11,55 | 12,99 | 16,15 | 13,59 | 12,59 | 14,11 |
| S.E. plot | | | | | 9,09 | 8,25 | 2,02 | - | 1,52 | 1,10 | 2,09 | - | 1,56 | 1,21 | 3,16 | - |
| S.E. Mean | | | | | 4,55 | 4,12 | 10,10 | - | 0,76 | 0,55 | 1,44 | - | 0,78 | 0,60 | 1,58 | - |
| C.V.% | | | | | 8,28 | 9,04 | 23,76 | - | 10,24 | 8,74 | 24,90 | - | 9,65 | 8,90 | 25,09 | - |
| SIGNIFICANCE | | | | | N.S. | N.S. | N.S. | - | N.S. | N.S. | N.S. | - | N.S. | N.S. | N.S. | - |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

QUALITY ANALYSIS DATA SUMMARY : PLANT, FIRST AND SECOND RATOON

| TREATMENTS | | | | | ERC % CANE | | | | ERF % CANE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. | SPLITS | | | | P | 1R | 2R | MEAN | P | 1R | 2 R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 13,50 | 13,70 | 13,69 | 13,63 | 14,76 | 14,86 | 14,93 | 14,85 |
| 15 | 0 | 1 | 0 | 0 | 13,71 | 13,80 | 13,50 | 13,67 | 14,76 | 14,96 | 14,73 | 14,82 |
| 3 | 2/3 | 1/3 | 0 | 0 | 13,49 | 13,85 | 13,47 | 13,60 | 14,60 | 14,98 | 14,70 | 14,76 |
| 8 | 2/3 | 0 | 1/3 | 0 | 13,50 | 14,03 | 13,52 | 13,68 | 14,70 | 15,13 | 14,54 | 14,79 |
| 16 | 0 | 2/3 | 1/3 | 0 | 13,83 | 14,09 | 13,62 | 13,85 | 14,88 | 15,32 | 14,79 | 15,00 |
| 2 | 0 | 2/3 | 0 | 1/3 | 13,48 | 13,70 | 13,57 | 13,58 | 14,72 | 14,78 | 14,71 | 14,74 |
| 1 | 1/2 | 1/2 | 0 | 0 | 13,60 | 14,04 | 13,43 | 13,69 | 14,68 | 15,14 | 14,63 | 14,82 |
| 9 | 1/2 | 0 | 1/2 | 0 | 13,64 | 13,82 | 13,64 | 13,70 | 14,86 | 14,87 | 14,87 | 14,87 |
| 12 | 1/2 | 0 | 0 | 1/2 | 13,72 | 13,69 | 13,78 | 13,73 | 14,93 | 14,74 | 15,03 | 14,90 |
| 4 | 0 | 1/2 | 1/2 | 0 | 13,88 | 13,57 | 13,26 | 13,75 | 14,94 | 14,80 | 14,59 | 14,78 |
| 14 | 0 | 1/2 | 0 | 1/2 | 13,88 | 13,64 | 13,79 | 13,50 | 14,33 | 14,86 | 14,96 | 14,72 |
| 13 | 1/3 | 2/3 | 0 | 0 | 13,18 | 14,06 | 13,31 | 13,52 | 14,46 | 14,96 | 14,57 | 14,66 |
| 7 | 1/3 | 0 | 2/3 | 0 | 13,60 | 13,65 | 13,57 | 13,61 | 14,83 | 14,69 | 14,78 | 14,77 |
| 10 | 0 | 1/3 | 2/3 | 0 | 13,47 | 13,21 | 13,36 | 13,35 | 14,65 | 14,51 | 14,66 | 14,61 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 13,50 | 13,96 | 13,68 | 13,71 | 14,70 | 15,00 | 15,01 | 14,90 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 13,31 | 13,71 | 13,68 | 13,57 | 14,51 | 14,95 | 14,87 | 14,78 |
| | Trial Mean | | | | 13,53 | 13,78 | 13,55 | 13,63 | 14,71 | 14,91 | 14,77 | 14,80 |
| | S.E. plot ± | | | | 0,56 | 0,50 | 0,41 | - | 0,44 | 0,47 | 0,38 | - |
| | S.E. mean ± | | | | 0,28 | 0,25 | 0,29 | - | 0,22 | 0,23 | 0,27 | - |
| | C.V.% | | | | 4,16 | 3,61 | 3,03 | - | 2,99 | 3,12 | 2,56 | - |
| | SIGNIFICANCE | | | | N.S. | N.S. | N.S. | - | N.S. | N.S. | N.S. | - |

N1 23

## 6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

Cat. No.: 1319

**Object** To determine the effects of different split applications of nitrogen to late-season cane.

**This crop:** Third ratoon **Age:** 11,9 months(24.11.03 to 21.11.04)

**Location:** Hippo Valley Estates, Section 25, Field 9A.

**Soil type:** Basalt clay.

**Design:** A 4 x 4 lattice in 4 replications.

**Variety/spacing:** NCo 376 in 1,5m rows.

**Fertiliser:**

| | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|
| Amount kg/ha | 180 | 100 | Nil |
| Application: | see treatments | all at 2 weeks | |

**Treatments:** Nitrogen splits were applied as per treatment table:

| TREATMENTS | NITROGEN SPLITS WEEKS AFTER CUTTING | | | |
|---|---|---|---|---|
| | 2 | 6 | 10 | 14 |
| 1 | 1/2 | 1/2 | 0 | 0 |
| 2 | 0 | 2/3 | 0 | 1/3 |
| 3 | 2/3 | 1/3 | 0 | 0 |
| 4 | 0 | 1/2 | 1/2 | 0 |
| 5 | 0 | 1/3 | 1/3 | 1/3 |
| 6 | 1 | 0 | 0 | 0 |
| 7 | 1/3 | 0 | 2/3 | 0 |
| 8 | 2/3 | 0 | 1/3 | 0 |
| 9 | 1/2 | 0 | 1/2 | 0 |
| 10 | 0 | 1/3 | 2/3 | 0 |
| 11 | 1/3 | 1/3 | 1/3 | 0 |
| 12 | 1/2 | 0 | 0 | 1/2 |
| 13 | 1/3 | 2/3 | 0 | 0 |
| 14 | 0 | 1/2 | 0 | 1/2 |
| 15 | 0 | 1 | 0 | 0 |
| 16 | 0 | 2/3 | 1/3 | 0 |

**Rainfall:** No records **Irrigation:** Standard HVE practice.

2/RESULTS.....

RESULTS

Relevant data are presented in the attached tables.

a) Cane yield. Highly significant (P=0,01) differences between treatments were obtained in the trial as a whole. Cane yields obtained when the nitrogen topdressing was spread over 14 weeks (Treatment I) were statistically superior (P=0,05) to yields obtained when all the nitrogen was applied by 6 weeks. Treatment I yields were also significantly higher (P=0,05) than those obtained when all the nitrogen was applied by 10 weeks.

b) Quality effects. There were no significant responses to treatments.

c) ERC yield. Although treatment effects were highly significant (P=0,01) in the trial as a whole, grouped data did no exhibit any significant differences.

d) ERF yield. The ungrouped data showed significant treatment responses. The grouped data indicated that applying all the nitrogen by 14 weeks was more beneficial (P=0,01) than applying it all by 6 weeks.

e) Rainfall effects. ZSA Experiment Station data have been used as none were available from Section 25, Hippo Valley Estates. Significant falls only, likely to have been of a general nature, have been shown.

| FERTILISER APPLICATION DATES | RAINFALL RECORD | |
|---|---|---|
| | Date | mm |
| 9.12.83 (2 weeks) | 10.12.83 | 39,0 |
| 5.1.84 (6 weeks) | 12.1.84<br>14.1.84 | 25,2<br>21,0 |
| 3.2.84 (10 weeks) | 3.2.84 | 49,2 |
| 28.2.84 (14 weeks) | - | Nil |

The first, second and third nitrogen applications were apparently followed by rain which was heavy enough to have caused significant losses of applied nitrogen.

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CONCLUSION

The trial indicated that when heavy falls of rain are received soon after nitrogen topdressings, significant losses of applied nitrogen can occur. It was beneficial in such situations to split the nitrogen application and apply the splits over a longer period (14 weeks).

EM/Jan'85
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## 6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

HARVEST DATA: Third ratoon

| TREATMENTS No. | SPLITS | | | | Cane yield (t/ha) | ERC % Cane | ERF % Cane | ERC yield (t/ha) | ERF yield (t/ha) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 2/3 | 0 | 1/3 | 112,30 | 13,23 | 14,21 | 14,84 | 15,97 |
| 10 | 0 | 1/3 | 2/3 | 0 | 106,87 | 13,27 | 14,29 | 14,26 | 15,36 |
| 12 | 1/2 | 0 | 0 | 1/2 | 106,50 | 13,45 | 14,37 | 14,36 | 15,34 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 102,95 | 13,15 | 14,20 | 13,53 | 14,61 |
| 4 | 0 | 1/2 | 1/2 | 0 | 101,05 | 13,03 | 14,20 | 13,24 | 14,43 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 101,44 | 13,37 | 14,33 | 13,69 | 14,64 |
| 14 | 0 | 1/2 | 0 | 1/2 | 100,96 | 13,08 | 14,15 | 13,20 | 14,28 |
| 16 | 0 | 2/3 | 1/3 | 0 | 100,62 | 13,22 | 14,30 | 13,22 | 14,30 |
| 7 | 1/3 | 0 | 2/3 | 0 | 100,46 | 13,01 | 14,70 | 13,96 | 14,01 |
| 6 | 1 | 0 | 0 | 0 | 98,93 | 12,95 | 14,02 | 12,00 | 13,06 |
| 9 | 1/2 | 0 | 1/2 | 0 | 97,07 | 13,23 | 14,22 | 12,99 | 13,98 |
| 3 | 2/3 | 1/3 | 0 | 0 | 97,36 | 13,30 | 14,30 | 13,06 | 14,00 |
| 1 | 1/2 | 1/2 | 0 | 0 | 96,50 | 13,19 | 14,17 | 12,69 | 13,66 |
| 13 | 1/3 | 2/3 | 0 | 0 | 95,59 | 13,10 | 14,20 | 12,49 | 13,55 |
| 15 | 0 | 1 | 0 | 0 | 93,90 | 13,03 | 14,10 | 12,32 | 13,29 |
| 8 | 2/3 | 0 | 1/3 | 0 | 93,53 | 13,18 | 14,20 | 12,29 | 13,22 |
| Significance | | | | | ** | N.S. | N.S. | ** | * |
| L.S.D. P=0,05 | | | | | 9,13 | - | - | 1,52 | 1,54 |
| P=0,01 | | | | | 12,27 | - | - | 2,04 | - |
| Trial mean | | | | | 100,50 | 13,23 | 14,25 | 13,31 | 14,33 |
| S.E. plot ± | | | | | 6,35 | 0,43 | 0,36 | 1,06 | 1,07 |
| S.E. mean ± | | | | | 3,17 | 0,22 | 0,18 | 0,53 | 0,54 |
| C.V.% | | | | | 6,32 | 3,26 | 2,54 | 7,94 | 7,48 |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

GROUPING OF HARVEST DATA. Third ratoon

1. Number and order of magnitude of splits.

| GROUPING | No. of treat-ments | Cane yield (t/ha) | ERC % Cane | ERF % Cane | ERC yield (t/ha) | ERF yield (t/ha) |
|---|---|---|---|---|---|---|
| A : Single application | 2 | 96,46 | 12,99 | 14,06 | 12,57 | 13,58 |
| B : Double application: 2/3;1/3 | 4 | 100,97 | 13,25 | 14,27 | 13,35 | 14,37 |
| C : " " : 1/2;1/2 | 5 | 100,77 | 13,20 | 14,22 | 13,30 | 14,34 |
| D : " " : 1/3;2/3 | 3 | 100,97 | 13,39 | 14,40 | 13,57 | 14,57 |
| E : Triple application | 2 | 102,20 | 13,26 | 14,27 | 13,61 | 14,63 |
| Mean | - | 100,50 | 13,23 | 14,25 | 13,31 | 14,33 |
| Significance | - | N.S. | N.S. | N.S. | N.S. | N.S. |

2. Time of application of nitrogen trial

| GROUPING | No. of treat-ments | Cane yield (t/ha) | ERC % Cane | ERF % Cane | ERC yield (t/ha) | ERF yield (t/ha) |
|---|---|---|---|---|---|---|
| F : All N applied by 2 weeks | 1 | 98,93 | 12,95 | 14,02 | 12,80 | 13,86 |
| G : " " " " 6 weeks | 4 | 95,80 | 13,18 | 14,21 | 12,64 | 13,63 |
| H : " " " " 10 weeks | 7 | 100,38 | 13,30 | 14,32 | 13,38 | 14,39 |
| I : " " " " 14 weeks | 4 | 105,72 | 13,23 | 14,23 | 13,98 | 15,05 |
| Mean | - | 100,50 | 13,23 | 14,25 | 13,31 | 14,33 |
| Significance | - | GI** HI* | N.S. | N.S. | N.S. | GI** |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

CANE YIELD DATA SUMMARY: Plant, first, second and third ratoon

| TREATMENTS | | | | | CANE YIELD (t/ha) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| No. | SPLITS | | | | P | 1R | 2R | 3R | Mean |
| 6 | 1 | 0 | 0 | 0 | 112,68 | 92,50 | 82,54 | 98,93 | 96,66 |
| 15 | 0 | 1 | 0 | 0 | 87,47 | 96,63 | 89,17 | 93,98 | 91,81 |
| 3 | 2/3 | 1/3 | 0 | 0 | 106,35 | 91,32 | 78,35 | 97,36 | 93,35 |
| 8 | 2/3 | 0 | 1/3 | 0 | 118,82 | 83,23 | 80,50 | 93,53 | 94,02 |
| 16 | 0 | 2/3 | 1/3 | 0 | 105,37 | 86,09 | 90,01 | 100,62 | 95,52 |
| 2 | 0 | 2/3 | 0 | 1/3 | 102,38 | 97,46 | 91,53 | 112,38 | 100,94 |
| 1 | 1/2 | 1/2 | 0 | 0 | 111,84 | 91,41 | 72,95 | 96,58 | 93,20 |
| 9 | 1/2 | 0 | 1/2 | 0 | 118,83 | 86,07 | 87,32 | 97,87 | 97,52 |
| 12 | 1/2 | 0 | 0 | 1/2 | 112,11 | 96,32 | 95,01 | 106,58 | 102,51 |
| 4 | 0 | 1/2 | 1/2 | 0 | 110,27 | 87,92 | 87,16 | 101,85 | 96,80 |
| 14 | 0 | 1/2 | 0 | 1/2 | 113,55 | 92,30 | 84,60 | 100,96 | 97,85 |
| 13 | 1/3 | 2/3 | 0 | 0 | 100,23 | 94,69 | 74,69 | 95,59 | 91,30 |
| 7 | 1/3 | 0 | 2/3 | 0 | 116,73 | 89,32 | 82,33 | 100,46 | 97,21 |
| 10 | 0 | 1/3 | 2/3 | 0 | 105,04 | 92,36 | 84,26 | 106,87 | 97,13 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 116,96 | 86,57 | 96,45 | 101,44 | 100,36 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 117,39 | 95,60 | 83,13 | 102,95 | 99,77 |
| Trial mean | | | | | 109,75 | 91,24 | 85,00 | 100,50 | 96,62 |
| S.E. plot ± | | | | | 9,09 | 8,25 | 2,02 | 6,35 | - |
| S.E. mean ± | | | | | 4,55 | 4,12 | 10,10 | 3,17 | - |
| C.V.% | | | | | 8,28 | 9,04 | 23,76 | 6,32 | - |
| Significance | | | | | N.S. | N.S. | N.S. | ** | - |
| L.S.D. P=0,05 | | | | | - | - | - | 9,13 | - |
| P=0,01 | | | | | - | - | - | 12,27 | - |

## 6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

ERC AND ERF YIELD DATA SUMMARY: Plant, first, second and third ratoon

| TREATMENTS | | | | | ERC YIELD (t/ha) | | | | | ERF YIELD (t/ha) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | SPLITS | | | | P | 1R | 2R | 3R | Mean | P | 1R | 2R | 3R | Mean |
| 6 | 1 | 0 | 0 | 0 | 15,20 | 12,54 | 11,36 | 12,80 | 12,98 | 16,58 | 13,64 | 12,41 | 13,86 | 14,12 |
| 15 | 0 | 1 | 0 | 0 | 11,98 | 13,26 | 12,00 | 12,32 | 12,39 | 12,92 | 14,42 | 13,11 | 13,29 | 13,44 |
| 3 | 2/3 | 1/3 | 0 | 0 | 14,38 | 12,62 | 10,55 | 13,06 | 12,65 | 15,57 | 13,66 | 11,54 | 14,00 | 13,69 |
| 8 | 2/3 | 0 | 1/3 | 0 | 16,11 | 11,70 | 10,87 | 12,29 | 12,74 | 17,47 | 12,62 | 11,73 | 13,22 | 13,76 |
| 16 | 0 | 2/3 | 1/3 | 0 | 14,53 | 12,10 | 12,25 | 13,22 | 13,03 | 15,65 | 13,17 | 13,29 | 14,30 | 14,10 |
| 2 | 0 | 2/3 | 0 | 1/3 | 13,78 | 13,23 | 12,44 | 14,84 | 13,57 | 15,06 | 14,31 | 13,52 | 15,97 | 14,72 |
| 1 | 1/2 | 1/2 | 0 | 0 | 15,24 | 12,91 | 9,80 | 12,69 | 12,66 | 16,47 | 13,88 | 10,68 | 13,66 | 13,67 |
| 9 | 1/2 | 0 | 1/2 | 0 | 16,23 | 12,02 | 11,96 | 12,99 | 13,30 | 17,69 | 12,87 | 13,01 | 13,98 | 14,39 |
| 12 | 1/2 | 0 | 0 | 1/2 | 15,41 | 13,20 | 13,11 | 14,36 | 14,02 | 16,74 | 14,20 | 14,28 | 15,34 | 15,14 |
| 4 | 0 | 1/2 | 1/2 | 0 | 15,34 | 11,96 | 11,66 | 13,24 | 13,05 | 16,49 | 13,04 | 12,83 | 14,43 | 14,20 |
| 14 | 0 | 1/2 | 0 | 1/2 | 14,81 | 12,44 | 11,70 | 13,20 | 13,04 | 16,26 | 13,60 | 12,70 | 14,28 | 14,21 |
| 13 | 1/3 | 2/3 | 0 | 0 | 13,19 | 13,35 | 9,89 | 12,49 | 12,23 | 14,51 | 14,18 | 10,88 | 13,55 | 13,28 |
| 7 | 1/3 | 0 | 2/3 | 0 | 15,91 | 12,18 | 11,26 | 13,96 | 13,33 | 17,33 | 13,13 | 12,25 | 14,81 | 14,38 |
| 10 | 0 | 1/3 | 2/3 | 0 | 14,16 | 12,12 | 11,30 | 14,26 | 12,96 | 15,38 | 13,32 | 12,40 | 15,36 | 14,12 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 15,75 | 12,12 | 13,24 | 13,69 | 13,70 | 17,16 | 13,01 | 14,49 | 14,64 | 14,83 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 15,69 | 13,22 | 11,34 | 13,53 | 13,45 | 17,09 | 14,38 | 12,37 | 14,61 | 14,61 |
| Trial mean | | | | | 14,86 | 12,56 | 11,55 | 13,31 | 13,07 | 16,15 | 13,59 | 12,59 | 14,33 | 14,17 |
| S.E. plot ± | | | | | 1,52 | 1,10 | 2,99 | 1,06 | - | 1,56 | 1,21 | 3,16 | 1,07 | - |
| S.E. mean ± | | | | | 0,76 | 0,55 | 1,44 | 0,53 | - | 0,78 | 0,60 | 1,58 | 0,54 | - |
| C.V.% | | | | | 10,24 | 8,74 | 24,98 | 7,94 | - | 9,65 | 8,90 | 25,09 | 7,48 | - |
| Significance | | | | | N.S. | N.S. | N.S. | ** | - | N.S. | N.S. | N.S. | * | - |
| L.S.D. P=0,05 | | | | | - | - | - | 1,52 | - | - | - | - | 1,54 | - |
| P=0,01 | | | | | - | - | - | 2,04 | - | - | - | - | - | - |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

QUALITY ANALYSIS DATA SUMMARY: Plant, first, second and third ratoon

| TREATMENTS | | | | | ERC % CANE | | | | | ERF % CANE | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | SPLITS | | | | P | 1R | 2R | 3R | Mean | P | 1R | 2R | 3R | Mean |
| 6 | 1 | 0 | 0 | 0 | 13,50 | 13,70 | 13,69 | 12,95 | 13,46 | 14,76 | 14,86 | 14,93 | 14,02 | 14,64 |
| 5 | 0 | 1 | 0 | 0 | 13,71 | 13,80 | 13,50 | 13,03 | 13,51 | 14,76 | 14,96 | 14,73 | 14,10 | 14,64 |
| 3 | 2/3 | 1/3 | 0 | 0 | 13,49 | 13,85 | 13,47 | 13,38 | 13,55 | 14,60 | 14,98 | 14,70 | 14,38 | 14,67 |
| 8 | 2/3 | 0 | 1/3 | 0 | 13,50 | 14,03 | 13,52 | 13,18 | 13,56 | 14,70 | 15,13 | 14,54 | 14,20 | 14,64 |
| 16 | 0 | 2/3 | 1/3 | 0 | 13,83 | 14,09 | 13,62 | 13,22 | 13,69 | 14,88 | 15,32 | 14,79 | 14,30 | 14,82 |
| 2 | 0 | 2/3 | 0 | 1/3 | 13,48 | 13,70 | 13,57 | 13,23 | 13,50 | 14,72 | 14,78 | 14,71 | 14,21 | 14,61 |
| 1 | 1/2 | 1/2 | 0 | 0 | 13,60 | 14,04 | 13,43 | 13,19 | 13,57 | 14,68 | 15,14 | 14,63 | 14,17 | 14,66 |
| 9 | 1/2 | 0 | 1/2 | 0 | 13,64 | 13,82 | 13,64 | 13,23 | 13,58 | 14,86 | 14,87 | 14,87 | 14,22 | 14,71 |
| 12 | 1/2 | 0 | 0 | 1/2 | 13,72 | 13,69 | 13,78 | 13,45 | 13,66 | 14,93 | 14,74 | 15,03 | 14,37 | 14,77 |
| 4 | 0 | 1/2 | 1/2 | 0 | 13,88 | 13,57 | 13,26 | 13,03 | 13,44 | 14,94 | 14,80 | 14,59 | 14,20 | 14,63 |
| 14 | 0 | 1/2 | 0 | 1/2 | 13,08 | 13,64 | 13,79 | 13,08 | 13,40 | 14,33 | 14,86 | 14,96 | 14,15 | 14,58 |
| 13 | 1/3 | 2/3 | 0 | 0 | 13,18 | 14,06 | 13,31 | 13,10 | 13,41 | 14,46 | 14,96 | 14,57 | 14,20 | 14,55 |
| 7 | 1/3 | 0 | 2/3 | 0 | 13,60 | 13,65 | 13,57 | 13,81 | 13,66 | 14,83 | 14,69 | 14,78 | 14,70 | 14,75 |
| 10 | 0 | 1/3 | 2/3 | 0 | 13,47 | 13,21 | 13,36 | 13,27 | 13,33 | 14,65 | 14,51 | 14,66 | 14,29 | 14,53 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 13,50 | 13,96 | 13,68 | 13,37 | 13,63 | 14,70 | 15,00 | 15,01 | 14,33 | 14,76 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 13,31 | 13,71 | 13,68 | 13,15 | 13,46 | 14,51 | 14,95 | 14,87 | 14,20 | 14,63 |
| Trial mean | | | | | 13,53 | 13,78 | 13,55 | 13,23 | 13,52 | 14,71 | 14,91 | 14,77 | 14,25 | 14,66 |
| S.E. plot ± | | | | | 0,56 | 0,50 | 0,41 | 0,43 | - | 0,44 | 0,47 | 0,38 | 0,36 | - |
| S.E. mean ± | | | | | 0,28 | 0,25 | 0,29 | 0,22 | - | 0,22 | 0,23 | 0,27 | 0,18 | - |
| C.V.% | | | | | 4,16 | 3,61 | 3,03 | 3,26 | - | 2,99 | 3,12 | 2,56 | 2,54 | - |
| Significance | | | | | N.S. | N.S. | N.S. | N.S. | - | N.S. | N.S. | N.S. | N.S. | - |

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

# 6400/24 SPLIT APPLICATION OF NITROGEN TRIAL

Cat: 1319

**Object:** To determine the effects of different split applications of nitrogen to late-season cane.

**This crop:** Fourth ratoon **Age:** 11,5 months (21.11.84 to 6.11.85)

**Location:** Hippo Valley Estates, Section 25, Field 9A.

**Soil type:** Basalt clay.

**Design:** A 4x4 lattice in 4 replications.

**Variety/Spacing:** NCo 376 in 1,5 m rows.

**Fertiliser:**

| | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|
| Amount(kg/ha) | 180 | 100 | Nil |
| Application: | see treatments | all at 2 weeks | |

**Treatments:** Nitrogen splits were applied as per treatment table:

| TREATMENTS | NITROGEN SPLITS | | | |
|---|---|---|---|---|
| | WEEKS AFTER CUTTING | | | |
| | 2 | 6 | 10 | 14 |
| 1 | 1/2 | 1/2 | 0 | 0 |
| 2 | 0 | 2/3 | 0 | 1/3 |
| 3 | 2/3 | 1/3 | 0 | 0 |
| 4 | 0 | 1/2 | 1/2 | 0 |
| 5 | 0 | 1/3 | 1/3 | 1/3 |
| 6 | 1 | 0 | 0 | 0 |
| 7 | 1/3 | 0 | 2/3 | 0 |
| 8 | 2/3 | 0 | 1/3 | 0 |
| 9 | 1/2 | 0 | 1/2 | 0 |
| 10 | 0 | 1/3 | 2/3 | 0 |
| 11 | 1/3 | 1/3 | 1/3 | 0 |
| 12 | 1/2 | 0 | 0 | 1/2 |
| 13 | 1/3 | 2/3 | 0 | 0 |
| 14 | 0 | 1/2 | 0 | 1/2 |
| 15 | 0 | 1 | 0 | 0 |
| 16 | 0 | 2/3 | 1/3 | 0 |

**Rainfall:** No records **Irrigation:** Standard HVE practice

2/RESULTS.....

RESULTS

Relevant harvest data are presented in the attached tables.

Three statistical analyses were done on each set of data. The first compared the treatment means of the trial as a whole. The second and third were done after grouping the treatment means according to the number and order of magnitude of splits, and according to the time of application of nitrogen splits, respectively.

(a) Cane yield: There were no significant differences between treatments. Grouped data did not exhibit any significant differences. Splitting the nitrogen application resulted in slightly higher yields than obtained with single applications. When data was grouped according to the time of application of the nitrogen splits (treatments F, G, H and I), the lowest cane yield was recorded in treatment G, where all the nitrogen was applied by 6 weeks.

(b) ERC% cane: There were no significant treatment differences. Grouped data did not exhibit any significant differences. Treatment G gave a lower ERC% cane value than either F, H or I.

(c) ERF% cane: The only significant differences were obtained after the data was grouped according to the time of application of nitrogen splits. Thus, applying all the nitrogen by 10 or by 14 weeks resulted in significantly higher ERF% cane values than obtained by applying it all in 6 weeks. Treatment G gave a lower ERF% cane value than either F, H or I.

(d) ERC yield: There were no significant differences between treatments in the trial as a whole, and also after grouping the harvest data. Split applications resulted in slightly higher yields than single applications. The highest yield was obtained when total nitrogen application was delayed to 14 weeks (treatment I) while the lowest yield was recorded for treatment G.

(e) ERF yield: Significant (P = 0,05) treatment differences were obtained. No significant trends were observed after grouping the data, although split applications gave higher yields than single dressings, and spreading nitrogen applications over 14 weeks gave a higher yield than applying it all over 2, 6 or 10 weeks only. The lowest ERF yield was obtained in treatment G.

(f) Rainfall effects: ZSA Experiment Station data have been used as none were available from Section 25, Hippo Valley Estates. Significant falls only (above 20 mm) , likely to have been of a general nature, have been shown:

3/.....

| FERTILISER APPLICATION DATE | RAINFALL RECORD | |
|---|---|---|
| | DATE | mm |
| 5.12.84 (2 weeks) | 15.12.84 | 36,2 |
| 11. 1.85 (6 weeks) | 15. 1.85<br>19. 1.85 | 27,8<br>33,0 |
| 31. 1.85 (10 weeks) | 3. 2.85<br>5. 2.85<br>10. 2,85 | 20,0<br>25,6<br>32;0 |
| 28. 2.85 (14 weeks) | - | Nil |

Relatively heavy falls may have followed the first, second and third nitrogen applications. It appears that no heavy rainfall was received immediately after the fourth nitrogen application.

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CONCLUSIONS

It appears that rains which were sufficiently heavy to cause appreciable applied nitrogen leaching losses fell soon after the 6 week nitrogen dressing.

The fourth ratoon harvest data indicate that appreciable losses of applied nitrogen can occur on a heavy textured soil, if heavy falls of rain are received soon after the nitrogen application. In such instances, higher yields of crystal and fermentables may be obtained by splitting the nitrogen application and by applying the splits over 14 weeks.

Similar conclusions were drawn from the third ratoon harvest data.
Plant cane data also supported these conclusions, excepting that it was most beneficial in plant cane to apply the total nitrogen over 10 weeks.

The first and second ratoon crops showed mixed treatment responses and trends, and no useful general conclusions could be drawn from the data.

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BM/Feb'86
lc

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

HARVEST DATA Fourth Ratoon

| TREATMENTS | | | | | CANE YIELD (t/ha) | ERC% CANE | ERF% CANE | ERC YIELD (t/ha) | ERF YIELD (t/ha) |
|---|---|---|---|---|---|---|---|---|---|
| NO. | SPLITS | | | | | | | | |
| 10 | 0 | 1/3 | 2/3 | 0 | 114,35 | 13,39 | 14,71 | 15,29 | 16,82 |
| 2 | 0 | 2/3 | 0 | 1/3 | 113,41 | 13,28 | 14,49 | 15,03 | 16,39 |
| 14 | 0 | 1/2 | 0 | 1/2 | 111,02 | 13,34 | 14,52 | 14,78 | 16,02 |
| 7 | 1/3 | 0 | 2/3 | 0 | 110,47 | 13,20 | 14,33 | 14,58 | 15,87 |
| 6 | 1 | 0 | 0 | 0 | 108,62 | 13,26 | 14,39 | 14,37 | 15,54 |
| 12 | 1/2 | 0 | 0 | 1/2 | 108,53 | 13,17 | 14,41 | 14,31 | 15,66 |
| 16 | 0 | 2/3 | 1/3 | 0 | 108,29 | 13,13 | 14,35 | 14,20 | 15,50 |
| 8 | 2/3 | 0 | 1/3 | 0 | 107,09 | 13,14 | 14,33 | 14,06 | 15,31 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 105,98 | 13,37 | 14,44 | 14,21 | 15,36 |
| 3 | 2/3 | 1/3 | 0 | 0 | 105,37 | 12,98 | 14,06 | 13,66 | 14,84 |
| 4 | 0 | 1/2 | 1/2 | 0 | 104,75 | 13,03 | 14,22 | 13,61 | 14,85 |
| 1 | 1/2 | 1/2 | 0 | 0 | 104,71 | 12,92 | 14,05 | 13,55 | 14,76 |
| 13 | 1/3 | 2/3 | 0 | 0 | 103,51 | 13,21 | 14,21 | 13,71 | 14,75 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 103,08 | 13,05 | 14,25 | 13,48 | 14,78 |
| 9 | 1/2 | 0 | 1/2 | 0 | 100,26 | 13,39 | 14,46 | 13,45 | 14,59 |
| 15 | 0 | 1 | 0 | 0 | 99,93 | 12,99 | 14,06 | 12,96 | 14,06 |
| Significance | | | | | N.S. | N.S. | N.S. | N.S. | * |
| L.S.D. P = 0,05 | | | | | - | - | - | - | 1,66 |
| P = 0,01 | | | | | - | - | - | - | - |
| Trial mean | | | | | 106,83 | 13,18 | 14,33 | 14,08 | 15,32 |
| S.E. plot ± | | | | | 7,81 | 0,30 | 0,31 | 1,03 | 1,16 |
| S.E. mean ± | | | | | 5.52 | 0,15 | 0,16 | 0,73 | 0,82 |
| C.V.% | | | | | 7,31 | 2,31 | 2,20 | 7,34 | 7,54 |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

GROUPING OF HARVEST DATA Fourth Ratoon

1. Number and order of magnitude of splits

| GROUPING | NO OF TREATMENTS | CANE YIELD (t/ha) | ERC% CANE | ERF% CANE | ERC YIELD (t/ha) | ERF YIELD (t/ha) |
|---|---|---|---|---|---|---|
| A : Single application | 2 | 104,28 | 13,13 | 14,23 | 13,67 | 14,80 |
| B : Double application : 2/3; 1/3; | 4 | 108,54 | 13,13 | 14,31 | 14,24 | 15,51 |
| C : Double application : 1/2; 1/2; | 5 | 105,85 | 13,17 | 14,35 | 13,94 | 15,17 |
| D : Double application : 1/3; 2/3; | 3 | 109,44 | 13,27 | 14,42 | 14,53 | 15,81 |
| E : Triple application : | 2 | 104,53 | 13,21 | 14,35 | 13,85 | 15,07 |
| MEAN | - | 106,84 | 13,18 | 14,34 | 14,08 | 15,32 |
| Significance | - | N.S. | N.S. | N.S. | N.S. | N.S. |

2. Time of application of Nitrogen splits

| GROUPING | NO OF TREATMENTS | CANE YIELD (t/ha) | ERC% CANE | ERF% CANE | ERC YIELD (t/ha) | ERF YIELD (t/ha) |
|---|---|---|---|---|---|---|
| F : All N applied by 2 weeks | 1 | 108,62 | 13,26 | 14,39 | 14,37 | 15,54 |
| G : All N applied by 6 weeks | 4 | 103,38 | 13,03 | 14,10 | 13,47 | 14,60 |
| H : All N applied by 10 weeks | 7 | 106,90 | 13,19 | 14,38 | 14,10 | 15,39 |
| I : All N applied by 14 weeks | 4 | 109,74 | 13,29 | 14,47 | 14,58 | 15,86 |
| MEAN | - | 106,84 | 13,18 | 14,34 | 14,08 | 15,32 |
| Significance | - | N.S. | N.S. | GI** GH** | N.S. | N.S. |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

CANE YIELD DATA SUMMARY - P, 1R, 2R, 3R and 4R

| TREATMENTS | | | | | CANE YIELD (t/ha) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | SPLITS | | | | P | 1R | 2R | 3R | 4R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 112,68 | 92,50 | 82,54 | 98,93 | 108,62 | 99,05 |
| 15 | 0 | 1 | 0 | 0 | 87,47 | 96,63 | 89,17 | 93,98 | 99,93 | 93,44 |
| 3 | 2/3 | 1/3 | 0 | 0 | 106,35 | 91,32 | 78,35 | 97,36 | 105,37 | 95,75 |
| 8 | 2/3 | 0 | 1/3 | 0 | 118,82 | 83,23 | 80,50 | 93,53 | 107,09 | 96,63 |
| 16 | 0 | 2/3 | 1/3 | 0 | 105,37 | 86,09 | 90,01 | 100,62 | 108,29 | 98,08 |
| 2 | 0 | 2/3 | 0 | 1/3 | 102,38 | 97,46 | 91,53 | 112,38 | 113,41 | 103,43 |
| 1 | 1/2 | 1/2 | 0 | 0 | 111,84 | 91,41 | 72,95 | 96,58 | 104,71 | 95,50 |
| 9 | 1/2 | 0 | 1/2 | 0 | 118,83 | 86,07 | 87,32 | 97,87 | 100,26 | 98,07 |
| 12 | 1/2 | 0 | 0 | 1/2 | 112,11 | 96,32 | 95,01 | 106,85 | 108,53 | 103,71 |
| 4 | 0 | 1/2 | 1/2 | 0 | 110,27 | 87,92 | 87,16 | 101,85 | 104,75 | 98,39 |
| 14 | 0 | 1/2 | 0 | 1/2 | 113,55 | 92,30 | 84,60 | 100,96 | 111,02 | 100,49 |
| 13 | 1/3 | 2/3 | 0 | 0 | 100,23 | 94,69 | 74,69 | 95,59 | 103,51 | 93,74 |
| 7 | 1/3 | 0 | 2/3 | 0 | 116,73 | 89,32 | 82,33 | 100,46 | 110,47 | 99,86 |
| 10 | 0 | 1/3 | 2/3 | 0 | 105,04 | 92,36 | 84,26 | 106,87 | 114,35 | 100,58 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 116,96 | 86,57 | 96,45 | 101,44 | 103,08 | 100,90 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 117,39 | 95,60 | 83,13 | 102,95 | 105,98 | 101,01 |
| Trial mean | | | | | 109,75 | 91,24 | 85,00 | 100,50 | 106,83 | 98,66 |
| S.E. plot ± | | | | | 9,09 | 8,25 | 2,02 | 6,35 | 7,81 | - |
| S.E. mean ± | | | | | 4,55 | 4,12 | 10,10 | 3,17 | 5,52 | - |
| C.V.% | | | | | 8,28 | 9,04 | 23,76 | 6,32 | 7,31 | - |
| Significance | | | | | N.S. | N.S. | N.S. | ** | N.S. | - |
| L.S.D. P = 0,05 | | | | | - | - | - | 9,13 | - | - |
| P = 0,01 | | | | | - | - | - | 12,27 | - | - |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

ERC YIELD DATA SUMMARY - P, 1R, 2R, 3R and 4R

| TREATMENTS | | | | | ERC YIELD (t/ha) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | SPLITS | | | | P | 1R | 2R | 3R | 4R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 15,20 | 12,54 | 11,36 | 12,80 | 14,37 | 13,25 |
| 15 | 0 | 1 | 0 | 0 | 11,98 | 13,26 | 12,00 | 12,32 | 12,96 | 12,50 |
| 3 | 2/3 | 1/3 | 0 | 0 | 14,38 | 12,62 | 10,55 | 13,06 | 13,66 | 12,85 |
| 8 | 2/3 | 0 | 1/3 | 0 | 16,11 | 11,70 | 10,87 | 12,29 | 14,06 | 13,01 |
| 16 | 0 | 2/3 | 1/3 | 0 | 14,53 | 12,10 | 12,25 | 13,22 | 14,20 | 13,26 |
| 2 | 0 | 2/3 | 0 | 1/3 | 13,78 | 13,23 | 12,44 | 14,84 | 15,03 | 13,86 |
| 1 | 1/2 | 1/2 | 0 | 0 | 15,24 | 12,91 | 9,80 | 12,69 | 13,55 | 12,84 |
| 9 | 1/2 | 0 | 1/2 | 0 | 16,23 | 12,02 | 11,96 | 12,99 | 13,45 | 13,33 |
| 12 | 1/2 | 0 | 0 | 1/2 | 15,41 | 13,20 | 13,11 | 14,36 | 14,31 | 14,08 |
| 4 | 0 | 1/2 | 1/2 | 0 | 15,34 | 11,96 | 11,66 | 13,24 | 13,61 | 13,16 |
| 14 | 0 | 1/2 | 0 | 1/2 | 14,81 | 12,44 | 11,70 | 13,20 | 14,78 | 13,39 |
| 13 | 1/3 | 2/3 | 0 | 0 | 13,19 | 13,35 | 9,89 | 12,49 | 13,71 | 12,53 |
| 7 | 1/3 | 0 | 2/3 | 0 | 15,91 | 12,18 | 11,26 | 13,96 | 14,58 | 13,58 |
| 10 | 0 | 1/3 | 2/3 | 0 | 14,16 | 12,12 | 11,30 | 14,26 | 15,29 | 13,43 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 15,75 | 12,12 | 13,24 | 13,69 | 13,48 | 13,66 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 15,69 | 13,22 | 11,34 | 13,53 | 14,21 | 13,60 |
| Trial mean | | | | | 14,86 | 12,56 | 11,55 | 13,31 | 14,08 | 13,27 |
| S.E. plot ± | | | | | 1,52 | 1,10 | 2,89 | 1,06 | 1,03 | - |
| S.E. mean ± | | | | | 0,76 | 0,55 | 1,44 | 0,53 | 0,73 | - |
| C.V.% | | | | | 10,24 | 8,74 | 24,98 | 7,94 | 7,34 | - |
| Significance | | | | | N.S. | N.S. | N.S. | ** | N.S. | - |
| L.S.D. P = 0,05 | | | | | - | - | - | 1,52 | - | - |
| P = 0,01 | | | | | - | - | - | 2,04 | - | - |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

ERF YIELD DATA SUMMARY - P, 1R, 2R, 3R and 4R

| TREATMENTS | | | | | ERF YIELD (t/ha) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | SPLITS | | | | P | 1R | 2R | 3R | 4R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 16,58 | 13,64 | 12,41 | 13,86 | 15,54 | 14,41 |
| 15 | 0 | 1 | 0 | 0 | 12,92 | 14,42 | 13,11 | 13,29 | 14,06 | 13,56 |
| 3 | 2/3 | 1/3 | 0 | 0 | 15,97 | 13,66 | 11,54 | 14,00 | 14,84 | 13,92 |
| 8 | 2/3 | 0 | 1/3 | 0 | 17,47 | 12,62 | 11,73 | 13,22 | 15,31 | 14,07 |
| 16 | 0 | 2/3 | 1/3 | 0 | 15,65 | 13,17 | 13,29 | 14,30 | 15,50 | 14,38 |
| 2 | 0 | 2/3 | 0 | 1/3 | 15,06 | 14,31 | 13,52 | 15,97 | 16,39 | 15,05 |
| 1 | 1/2 | 1/2 | 0 | 0 | 16,47 | 13,88 | 10,68 | 13,66 | 14,76 | 13,89 |
| 9 | 1/2 | 0 | 1/2 | 0 | 17,69 | 12,87 | 13,01 | 13,98 | 14,58 | 14,43 |
| 12 | 1/2 | 0 | 0 | 1/2 | 16,74 | 14,20 | 14,28 | 15,34 | 15,66 | 15,24 |
| [illegible] | 0 | 1/2 | 1/2 | 0 | 16,49 | 13,04 | 12,83 | 14,43 | 14,85 | 14,33 |
| 14 | 0 | 1/2 | 0 | 1/2 | 16,26 | 13,60 | 12,70 | 14,28 | 16,02 | 14,57 |
| 13 | 1/3 | 2/3 | 0 | 0 | 14,51 | 14,18 | 10,88 | 13,55 | 14,75 | 13,57 |
| 7 | 1/3 | 0 | 2/3 | 0 | 17,33 | 13,13 | 12,25 | 14,81 | 15,87 | 14,68 |
| 10 | 0 | 1/3 | 2/3 | 0 | 15,38 | 13,32 | 12,40 | 15,36 | 16,82 | 14,66 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 17,16 | 13,01 | 14,49 | 14,64 | 14,78 | 14,82 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 17,09 | 14,38 | 12,37 | 14,61 | 15,36 | 14,76 |
| Trial mean | | | | | 16,15 | 13,59 | 12,59 | 14,33 | 15,32 | 14,40 |
| S.E. plot ± | | | | | 1,56 | 1,21 | 3,16 | 1,07 | 1,16 | - |
| S.E. mean ± | | | | | 0,78 | 0,60 | 1,58 | 0,54 | 0,82 | - |
| C.V.% | | | | | 9,65 | 8,90 | 25,09 | 7,48 | 7,54 | - |
| Significance | | | | | N.S. | N.S. | N.S. | * | * | - |
| L.S.D. P = 0,05 | | | | | - | - | - | 1,54 | 1,66 | - |
| P = 0,01 | | | | | - | - | - | - | - | - |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

ERC% CANE DATA SUMMARY - P, 1R, 2R, 3R and 4R.

| TREATMENTS | | | | | ERC% CANE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | SPLITS | | | | P | 1R | 2R | 3R | 4R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 13,50 | 13,70 | 13,69 | 12,95 | 13,26 | 13,42 |
| 15 | 0 | 1 | 0 | 0 | 13,71 | 13,80 | 13,50 | 13,03 | 12,99 | 13,41 |
| 3 | 2/3 | 1/3 | 0 | 0 | 13,49 | 13,85 | 13,47 | 13,38 | 12,98 | 13,43 |
| 8 | 2/3 | 0 | 1/3 | 0 | 13,50 | 14,03 | 13,52 | 13,18 | 13,14 | 13,47 |
| 16 | 0 | 2/3 | 1/3 | 0 | 13,83 | 14,09 | 13,62 | 13,22 | 13,13 | 13,58 |
| 2 | 0 | 2/3 | 0 | 1/3 | 13,48 | 13,70 | 13,57 | 13,23 | 13,28 | 13,45 |
| 1 | 1/2 | 1/2 | 0 | 0 | 13,60 | 14,04 | 13,43 | 13,19 | 12,92 | 13,44 |
| 9 | 1/2 | 0 | 1/2 | 0 | 13,64 | 13,82 | 13,64 | 13,23 | 13,39 | 13,54 |
| 12 | 1/2 | 0 | 0 | 1/2 | 13,72 | 13,69 | 13,78 | 13,45 | 13,17 | 13,56 |
| 4 | 0 | 1/2 | 1/2 | 0 | 13,88 | 13,57 | 13,26 | 13,03 | 13,03 | 13,35 |
| 14 | 0 | 1/2 | 0 | 1/2 | 13,08 | 13,64 | 13,79 | 13,08 | 13,34 | 13,39 |
| [illegible] | 1/3 | 2/3 | 0 | 0 | 13,18 | 14,06 | 13,31 | 13,10 | 13,21 | 13,37 |
| 7 | 1/3 | 0 | 2/3 | 0 | 13,60 | 13,65 | 13,57 | 13,81 | 13,20 | 13,57 |
| 10 | 0 | 1/3 | 2/3 | 0 | 13,47 | 13,21 | 13,36 | 13,27 | 13,39 | 13,34 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 13,50 | 13,96 | 13,68 | 13,37 | 13,05 | 13,51 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 13,31 | 13,71 | 13,68 | 13,15 | 13,37 | 13,44 |
| Trial mean | | | | | 13,53 | 13,78 | 13,55 | 13,23 | 13,18 | 13,45 |
| C.E. plot ± | | | | | 0,56 | 0,50 | 0,41 | 0,43 | 0,30 | - |
| S.E. mean ± | | | | | 0,28 | 0,25 | 0,29 | 0,22 | 0,15 | - |
| C.V.% | | | | | 4,16 | 3,61 | 3,03 | 3,26 | 2,31 | - |
| Significance | | | | | N.S. | N.S. | N.S. | N.S. | N.S. | - |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

ERF% CANE DATA SUMMARY - P, 1R, 2R, 3R and 4R

| TREATMENTS | | | | | ERF% CANE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | SPLITS | | | | P | 1R | 2R | 3R | 4R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 14,76 | 14,86 | 14,93 | 14,02 | 14,39 | 14,59 |
| 15 | 0 | 1 | 0 | 0 | 14,76 | 14,96 | 14,73 | 14,10 | 14,06 | 14,52 |
| 3 | 2/3 | 1/3 | 0 | 0 | 14,60 | 14,98 | 14,70 | 14,38 | 14,06 | 14,54 |
| 8 | 2/3 | 0 | 1/3 | 0 | 14,70 | 15,13 | 14,54 | 14,20 | 14,33 | 14,58 |
| 16 | 0 | 2/3 | 1/3 | 0 | 14,88 | 15,32 | 14,79 | 14,30 | 14,35 | 14,73 |
| 2 | 0 | 2/3 | 0 | 1/3 | 14,72 | 14,78 | 14,71 | 14,21 | 14,49 | 14,58 |
| 1 | 1/2 | 1/2 | 0 | 0 | 14,68 | 15,14 | 14,63 | 14,17 | 14,05 | 14,53 |
| 9 | 1/2 | 0 | 1/2 | 0 | 14,86 | 14,87 | 14,87 | 14,22 | 14,46 | 14,66 |
| 12 | 1/2 | 0 | 0 | 1/2 | 14,93 | 14,74 | 15,03 | 14,37 | 14,41 | 14,70 |
| 4 | 0 | 1/2 | 1/2 | 0 | 14,94 | 14,80 | 14,59 | 14,20 | 14,22 | 14,55 |
| [illegible] | 0 | 1/2 | 0 | 1/2 | 14,33 | 14,86 | 14,96 | 14,15 | 14,52 | 14,56 |
| 13 | 1/3 | 2/3 | 0 | 0 | 14,46 | 14,96 | 14,57 | 14,20 | 14,21 | 14,48 |
| 7 | 1/3 | 0 | 2/3 | 0 | 14,83 | 14,69 | 14,78 | 14,70 | 14,33 | 14,67 |
| 10 | 0 | 1/3 | 2/3 | 0 | 14,65 | 14,51 | 14,66 | 14,29 | 14,71 | 14,56 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 14,70 | 15,00 | 15,01 | 14,33 | 14,25 | 14,66 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 14,51 | 14,95 | 14,87 | 14,20 | 14,44 | 14,59 |
| Trial mean | | | | | 14,71 | 14,91 | 14,77 | 14,25 | 14,33 | 14,59 |
| S.E. plot ± | | | | | 0,44 | 0,47 | 0,38 | 0,36 | 0,31 | - |
| S.E. mean ± | | | | | 0,22 | 0,23 | 0,27 | 0,18 | 0,16 | - |
| C.V.% | | | | | 2,99 | 3,12 | 2,56 | 2,54 | 2,20 | - |
| Significance | | | | | N.S. | N.S. | N.S. | N.S. | N.S. | - |

SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

## 6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

Cat. No.: 1319

**Object:** To determine the effects of different split applications of nitrogen on late season cane.

**This crop:** Fifth ratoon **Age:** 12,0 months (6.11.85 to 6.11.86)

**Location:** Hippo Valley Estates, Section 25, Field 9A.

**Soil type:** Basalt clay.

**Design:** A 4 x 4 lattice in 4 replications.

**Variety/Spacing:** NCo376 in 1,5m rows.

**Fertiliser:**

| | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|
| Amount (kg/ha) | 180 | 100 | 60 |
| Application: | see treatments | all at 6 weeks | ⅓ at 2 weeks<br>⅔ at 10 weeks |

**Treatments:** Nitrogen splits were applied as per treatment table:

| TREATMENTS | NITROGEN SPLITS | | | |
|---|---|---|---|---|
| | WEEKS AFTER CUTTING | | | |
| | 2 | 6 | 10 | 14 |
| 1 | 1/2 | 1/2 | 0 | 0 |
| 2 | 0 | 2/3 | 0 | 1/3 |
| 3 | 2/3 | 1/3 | 0 | 0 |
| 4 | 0 | 1/2 | 1/2 | 0 |
| 5 | 0 | 1/3 | 1/3 | 1/3 |
| 6 | 1 | 0 | 0 | 0 |
| 7 | 1/3 | 0 | 2/3 | 0 |
| 8 | 2/3 | 0 | 1/3 | 0 |
| 9 | 1/2 | 0 | 1/2 | 0 |
| 10 | 0 | 1/3 | 2/3 | 0 |
| 11 | 1/3 | 1/3 | 1/3 | 0 |
| 12 | 1/2 | 0 | 0 | 1/2 |
| 13 | 1/3 | 2/3 | 0 | 0 |
| 14 | 0 | 1/2 | 0 | 1/2 |
| 15 | 0 | 1 | 0 | 0 |
| 16 | 0 | 2/3 | 1/3 | 0 |

**Rainfall:** No records. **Irrigation:** Standard HVE practice.

2/RESULTS.....

RESULTS

Relevant harvest data are presented in the attached tables.

(a) Cane, ERC and ERF yields, ERC and ERF% cane: There were no significant treatment differences in the trial as a whole.
The grouped data did not show any significant differences.

(b) Rainfall effects: ZSA Experiment Station data have been used as none were available from Section 25, HVE. Significant falls only (above 20mm) likely to have been of a general nature, have been shown:

| FERTILISER APPLICATION DATE | RAINFALL RECORD | |
|---|---|---|
| | DATE | mm |
| 21. 1.85 (2 weeks) | 5.12.85 | 20,2 |
| 18.12.85 (6 weeks) | 1. 1.86<br>4. 1.86 | 46,4<br>40,6 |
| 16. 1.86 (10 weeks) | 16. 1.86 | 56,8 |
| 13. 2.86 (14 weeks) | - | nil |

Heavy falls may have followed the second and the third applications of N.

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CONCLUSIONS

It appears that either the rains received on the trial site were light, or if they were heavy, they fell in a pattern that did not result in any significant differences in applied nitrogen losses between treatments.

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BM/Jan'87
lo

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

HARVEST DATA : FIFTH RATOON

| TREATMENTS NO | SPLITS | | | | CANE YIELD (t/ha) | ERC% CANE | ERF% CANE | ERC YIELD (t/ha) | ERF YIELD (t/ha) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 2/3 | 0 | 1/3 | 123,49 | 14,79 | 15,72 | 18,71 | 19,83 |
| 8 | 2/3 | 0 | 1/3 | 0 | 120,31 | 14,19 | 15,08 | 16,88 | 17,97 |
| 13 | 1/3 | 2/3 | 0 | 0 | 119,94 | 14,33 | 15,15 | 17,16 | 18,13 |
| 1 | 1/2 | 1/2 | 0 | 0 | 119,57 | 14,92 | 15,75 | 17,86 | 18,86 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 119,38 | 14,75 | 15,64 | 17,47 | 18,56 |
| 3 | 2/3 | 1/3 | 0 | 0 | 118,98 | 14,12 | 14,93 | 16,72 | 17,70 |
| 10 | 0 | 1/3 | 2/3 | 0 | 118,70 | 14,75 | 15,56 | 17,85 | 18,78 |
| 4 | 0 | 1/2 | 1/2 | 0 | 118,62 | 14,57 | 15,39 | 17,23 | 18,20 |
| 9 | 1/2 | 0 | 1/2 | 0 | 118,45 | 14,64 | 15,49 | 17,33 | 18,35 |
| 14 | 0 | 1/2 | 0 | 1/2 | 118,17 | 14,29 | 15,20 | 17,24 | 18,28 |
| 7 | 1/3 | 0 | 2/3 | 0 | 118,12 | 14,38 | 15,31 | 16,76 | 17,91 |
| 6 | 1 | 0 | 0 | 0 | 117,37 | 14,67 | 15,52 | 17,46 | 18,45 |
| 15 | 0 | 1 | 0 | 0 | 117,21 | 14,25 | 15,02 | 16,59 | 17,51 |
| 12 | 1/2 | 0 | 0 | 1/2 | 112,47 | 14,27 | 15,20 | 15,93 | 16,99 |
| 16 | 0 | 2/3 | 1/3 | 0 | 111,52 | 14,44 | 15,30 | 16,06 | 17,00 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 108,50 | 14,52 | 15,31 | 15,60 | 16,50 |
| Trial mean | | | | | 117,56 | 14,49 | 15,35 | 17,05 | 18,06 |
| S.E. plot ± | | | | | 8,17 | 0,55 | 0,54 | 1,45 | 1,53 |
| S.E. mean ± | | | | | 5,78 | 0,27 | 0,27 | 0,73 | 1,08 |
| C.V.% | | | | | 6,95 | 3,77 | 3,52 | 8,53 | 8,46 |
| Significance | | | | | N.S. | N.S. | N.S. | N.S. | N.S. |

CANE YIELD DATA SUMMARY : P to 5R inclusive

| TREATMENTS NO | SPLITS | | | | CANE YIELD (t/ha) P | 1R | 2R | 3R | 4R | 5R | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 1 | 0 | 0 | 0 | 112,68 | 92,50 | 82,54 | 98,93 | 108,62 | 117,37 | 102,11 |
| 15 | 0 | 1 | 0 | 0 | 87,47 | 96,63 | 89,17 | 93,98 | 99,93 | 117,21 | 97,40 |
| 3 | 2/3 | 1/3 | 0 | 0 | 106,35 | 91,32 | 78,35 | 97,36 | 105,37 | 118,98 | 99,62 |
| 8 | 2/3 | 0 | 1/3 | 0 | 118,82 | 83,23 | 80,50 | 93,53 | 107,09 | 120,31 | 100,58 |
| 16 | 0 | 2/3 | 1/3 | 0 | 105,37 | 86,09 | 90,01 | 100,62 | 108,29 | 111,52 | 100,32 |
| 2 | 0 | 2/3 | 0 | 1/3 | 102,38 | 97,46 | 91,53 | 112,38 | 113,41 | 123,49 | 106,78 |
| 1 | 1/2 | 1/2 | 0 | 0 | 111,84 | 91,41 | 72,95 | 96,58 | 104,71 | 119,57 | 99,51 |
| 9 | 1/2 | 0 | 1/2 | 0 | 118,83 | 86,07 | 87,32 | 97,87 | 100,26 | 118,45 | 101,47 |
| 12 | 1/2 | 0 | 0 | 1/2 | 112,11 | 96,32 | 95,01 | 106,85 | 108,53 | 112,47 | 105,22 |
| 4 | 0 | 1/2 | 1/2 | 0 | 110,27 | 87,92 | 87,16 | 101,85 | 104,75 | 118,62 | 101,76 |
| 14 | 0 | 1/2 | 0 | 1/2 | 113,55 | 92,30 | 84,60 | 100,96 | 111,02 | 118,17 | 103,43 |
| 13 | 1/3 | 2/3 | 0 | 0 | 100,23 | 94,69 | 74,69 | 95,59 | 103,51 | 119,94 | 98,11 |
| 7 | 1/3 | 0 | 2/3 | 0 | 116,73 | 89,32 | 82,33 | 100,46 | 110,47 | 118,12 | 102,91 |
| 10 | 0 | 1/3 | 2/3 | 0 | 105,04 | 92,36 | 84,26 | 106,87 | 114,35 | 118,70 | 103,60 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 116,96 | 86,57 | 96,45 | 101,44 | 103,08 | 108,50 | 102,17 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 117,39 | 95,60 | 83,13 | 102,95 | 105,98 | 119,38 | 104,07 |
| Trial mean | | | | | 109,75 | 91,24 | 85,00 | 100,50 | 106,83 | 117,56 | 101,81 |
| S.E. plot ± | | | | | 9,09 | 8,25 | 2,02 | 6,35 | 7,81 | 8,17 | - |
| S.E. mean ± | | | | | 4,55 | 4,12 | 10,10 | 3,17 | 5,52 | 5,78 | - |
| C.V.% | | | | | 8,28 | 9,04 | 23,76 | 6,32 | 7,31 | 6,95 | - |
| Significance | | | | | N.S. | N.S. | N.S. | ** | N.S. | N.S. | - |
| L.S.D. P = 0,05 | | | | | - | - | - | 9,13 | - | - | - |
| P = 0,01 | | | | | - | - | - | 12,27 | - | - | - |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

GROUPING OF HARVEST DATA : FIFTH RATOON

1. NUMBER AND ORDER OF MAGNITUDE OF SPLITS

| GROUPING | NO. OF TREATMENTS | CANE YIELD (t/ha) | ERC% CANE | ERF% CANE | ERC YIELD (t/ha) | ERF YIELD (t/ha) |
|---|---|---|---|---|---|---|
| A : Single application | 2 | 119,85 | 14,47 | 15,36 | 17,18 | 18,27 |
| B : Double application : 2/3; 1/3 | 4 | 118,56 | 14,47 | 15,32 | 17,17 | 18,19 |
| C : Double application : 1/2; 1/2 | 5 | 115,16 | 14,42 | 15,23 | 16,53 | 17,47 |
| D : Double application : 1/3; 2/3 | 3 | 116,47 | 14,62 | 15,49 | 17,08 | 18,10 |
| E : Triple application | 2 | 120,83 | 14,54 | 15,46 | 17,98 | 19,06 |
| MEAN | - | 117,56 | 14,49 | 15,35 | 17,05 | 18,06 |
| Significance | - | N.S. | N.S. | N.S. | N.S. | N.S. |

2. TIME OF APPLICATION OF NITROGEN SPLITS

| GROUPING | NO. OF TREATMENTS | CANE YIELD (t/ha) | ERC% CANE | ERF% CANE | ERC YIELD (t/ha) | ERF YIELD (t/ha) |
|---|---|---|---|---|---|---|
| F : All N applied by 2 weeks | 1 | 120,31 | 14,19 | 15,08 | 16,88 | 17,97 |
| G : All N applied by 6 weeks | 4 | 117,23 | 14,69 | 15,55 | 17,18 | 18,19 |
| H : All N applied by 10 weeks | 7 | 118,51 | 14,50 | 15,35 | 17,29 | 18,30 |
| I : All N applied by 14 weeks | 4 | 115,50 | 14,36 | 15,21 | 16,55 | 17,55 |
| MEAN | - | 117,56 | 14,49 | 15,35 | 17,05 | 18,06 |
| Significance | - | N.S. | N.S. | N.S. | N.S. | N.S. |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

ERC YIELD DATA SUMMARY : P to 5R inclusive

| TREATMENTS | | | | | ERC YIELD (t/ha) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NO | SPLITS | | | | P | 1R | 2R | 3R | 4R | 5R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 15,20 | 12,54 | 11,36 | 12,80 | 14,37 | 17,46 | 13,96 |
| 15 | 0 | 1 | 0 | 0 | 11,98 | 13,26 | 12,00 | 12,32 | 12,96 | 16,59 | 13,19 |
| 3 | 2/3 | 1/3 | 0 | 0 | 14,38 | 12,62 | 10,55 | 13,06 | 13,66 | 16,72 | 13,50 |
| 8 | 2/3 | 0 | 1/3 | 0 | 16,11 | 11,70 | 10,87 | 12,29 | 14,06 | 16,88 | 13,65 |
| 16 | 0 | 2/3 | 1/3 | 0 | 14,53 | 12,10 | 12,25 | 13,22 | 14,20 | 16,06 | 13,73 |
| 2 | 0 | 2/3 | 0 | 1/3 | 13,78 | 13,23 | 12,44 | 14,84 | 15,03 | 18,71 | 14,67 |
| 1 | 1/2 | 1/2 | 0 | 0 | 15,24 | 12,91 | 9,80 | 12,69 | 13,55 | 17,86 | 13,68 |
| 9 | 1/2 | 0 | 1/2 | 0 | 16,23 | 12,02 | 11,96 | 12,99 | 13,45 | 17,33 | 14,00 |
| 12 | 1/2 | 0 | 0 | 1/2 | 15,41 | 13,20 | 13,11 | 14,36 | 14,31 | 15,93 | 14,39 |
| 4 | 0 | 1/2 | 1/2 | 0 | 15,34 | 11,96 | 11,66 | 13,24 | 13,61 | 17,23 | 13,84 |
| 14 | 0 | 1/2 | 0 | 1/2 | 14,81 | 12,44 | 11,70 | 13,20 | 14,78 | 17,24 | 14,03 |
| 13 | 1/3 | 2/3 | 0 | 0 | 13,19 | 13,35 | 9,89 | 12,49 | 13,71 | 17,16 | 13,30 |
| 7 | 1/3 | 0 | 2/3 | 0 | 15,91 | 12,18 | 11,26 | 13,96 | 14,58 | 16,76 | 14,11 |
| 10 | 0 | 1/3 | 2/3 | 0 | 14,16 | 12,12 | 11,30 | 14,26 | 15,29 | 17,85 | 14,16 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 15,75 | 12,12 | 13,24 | 13,69 | 13,48 | 15,60 | 13,98 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 15,69 | 13,22 | 11,34 | 13,53 | 14,21 | 17,47 | 14,24 |
| Trial mean | | | | | 14,86 | 12,56 | 11,55 | 13,31 | 14,08 | 17,05 | 13,90 |
| S.E. plot ± | | | | | 1,52 | 1,10 | 2,89 | 1,06 | 1,03 | 1,45 | - |
| S.E. mean ± | | | | | 0,76 | 0,55 | 1,44 | 0,53 | 0,73 | 0,73 | - |
| C.V.% | | | | | 10,24 | 8,74 | 24,98 | 7,94 | 7,34 | 8,53 | - |
| Significance | | | | | N.S. | N.S. | N.S. | ** | N.S. | N.S. | - |
| L.S.D. P = 0,05 | | | | | - | - | - | 1,52 | - | - | - |
| P = 0,01 | | | | | - | - | - | 2,04 | - | - | - |

ERC YIELD DATA SUMMARY : P to 5R inclusive

| TREATMENTS | | | | | ERC YIELD (t/ha) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NO | SPLITS | | | | P | 1R | 2R | 3R | 4R | 5R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 16,58 | 13,64 | 12,41 | 13,86 | 15,54 | 18,45 | 15,08 |
| 15 | 0 | 1 | 0 | 0 | 12,92 | 14,42 | 13,11 | 13,29 | 14,06 | 17,51 | 14,22 |
| 3 | 2/3 | 1/3 | 0 | 0 | 15,57 | 13,66 | 11,54 | 14,00 | 14,84 | 17,70 | 14,55 |
| 8 | 2/3 | 0 | 1/3 | 0 | 17,47 | 12,62 | 11,73 | 13,22 | 15,31 | 17,97 | 14,72 |
| 16 | 0 | 2/3 | 1/3 | 0 | 15,65 | 13,17 | 13,29 | 14,30 | 15,50 | 17,00 | 14,82 |
| 2 | 0 | 2/3 | 0 | 1/3 | 15,06 | 14,31 | 13,52 | 15,97 | 16,39 | 19,83 | 15,85 |
| 1 | 1/2 | 1/2 | 0 | 0 | 16,47 | 13,88 | 10,68 | 13,66 | 14,76 | 18,86 | 14,72 |
| 9 | 1/2 | 0 | 1/2 | 0 | 17,69 | 12,87 | 13,01 | 13,98 | 14,58 | 18,35 | 15,08 |
| 12 | 1/2 | 0 | 0 | 1/2 | 16,74 | 14,20 | 14,28 | 15,34 | 15,66 | 16,99 | 15,54 |
| 4 | 0 | 1/2 | 1/2 | 0 | 16,49 | 13,04 | 12,83 | 14,43 | 14,85 | 18,20 | 14,97 |
| 14 | 0 | 1/2 | 0 | 1/2 | 16,26 | 13,60 | 12,70 | 14,28 | 16,02 | 18,28 | 15,19 |
| 13 | 1/3 | 2/3 | 0 | 0 | 14,51 | 14,18 | 10,88 | 13,55 | 14,75 | 18,13 | 14,33 |
| 7 | 1/3 | 0 | 2/3 | 0 | 17,33 | 13,13 | 12,25 | 14,81 | 15,87 | 17,91 | 15,22 |
| 10 | 0 | 1/3 | 2/3 | 0 | 15,38 | 13,32 | 12,40 | 15,36 | 16,82 | 18,78 | 15,34 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 17,16 | 13,01 | 14,49 | 14,64 | 14,78 | 16,50 | 15,10 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 17,09 | 14,38 | 12,37 | 14,61 | 15,36 | 18,56 | 15,40 |
| Trial mean | | | | | 16,15 | 13,59 | 12,59 | 14,33 | 15,32 | 18,06 | 15,01 |
| S.E. plot ± | | | | | 1,56 | 1,21 | 3,16 | 1,07 | 1,16 | 1,53 | - |
| S.E. mean ± | | | | | 0,78 | 0,60 | 1,58 | 0,54 | 0,82 | 1,08 | - |
| C.V.% | | | | | 9,65 | 8,90 | 25,09 | 7,48 | 7,54 | 8,46 | - |
| Significance | | | | | N.S. | N.S. | N.S. | * | * | N.S. | - |
| L.S.D. P = 0,05 | | | | | - | - | - | 1,54 | 1,66 | - | - |
| P = 0,01 | | | | | - | - | - | - | - | - | - |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

ERC % CANE DATA SUMMARY : P to 5R inclusive

| TREATMENTS | | | | | ERC % CANE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NO | SPLITS | | | | P | 1R | 2R | 3R | 4R | 5R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 13,50 | 13,70 | 13,69 | 12,95 | 13,26 | 14,67 | 13,63 |
| 15 | 0 | 1 | 0 | 0 | 13,71 | 13,80 | 13,50 | 13,03 | 12,99 | 14,25 | 12,55 |
| 3 | 2/3 | 1/3 | 0 | 0 | 13,49 | 13,85 | 13,47 | 13,38 | 12,98 | 14,12 | 13,55 |
| 8 | 2/3 | 0 | 1/3 | 0 | 13,50 | 14,03 | 13,52 | 13,18 | 13,14 | 14,19 | 13,59 |
| 16 | 0 | 2/3 | 1/3 | 0 | 13,83 | 14,09 | 13,62 | 13,22 | 13,13 | 14,44 | 13,72 |
| 2 | 0 | 2/3 | 0 | 1/3 | 13,48 | 13,70 | 13,57 | 13,23 | 13,28 | 14,79 | 13,68 |
| 1 | 1/2 | 1/2 | 0 | 0 | 13,60 | 14,04 | 13,43 | 13,19 | 12,92 | 14,92 | 13,68 |
| 9 | 1/2 | 0 | 1/2 | 0 | 13,64 | 13,82 | 13,64 | 13,23 | 13,39 | 14,64 | 13,73 |
| 12 | 1/2 | 0 | 0 | 1/2 | 13,72 | 13,69 | 13,78 | 13,45 | 13,17 | 14,27 | 13,68 |
| 4 | 0 | 1/2 | 1/2 | 0 | 13,88 | 13,57 | 13,26 | 13,03 | 13,03 | 14,57 | 13,56 |
| 14 | 0 | 1/2 | 0 | 1/2 | 13,08 | 13,64 | 13,79 | 13,08 | 13,34 | 14,29 | 13,54 |
| 13 | 1/3 | 2/3 | 0 | 0 | 13,18 | 14,06 | 13,31 | 13,10 | 13,21 | 14,33 | 13,53 |
| 7 | 1/3 | 0 | 2/3 | 0 | 13,60 | 13,65 | 13,57 | 13,81 | 13,20 | 14,38 | 13,70 |
| 10 | 0 | 1/3 | 2/3 | 0 | 13,47 | 13,21 | 13,36 | 13,27 | 13,39 | 14,75 | 13,58 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 13,50 | 13,96 | 13,68 | 13,37 | 13,05 | 14,52 | 13,68 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 13,31 | 13,71 | 13,68 | 13,15 | 13,37 | 14,75 | 13,66 |
| Trial mean | | | | | 13,53 | 13,78 | 13,55 | 13,23 | 13,18 | 14,49 | 13,63 |
| S.E. plot ± | | | | | 0,53 | 0,50 | 0,41 | 0,43 | 0,30 | 0,55 | - |
| S.E. mean ± | | | | | 0,28 | 0,25 | 0,29 | 0,22 | 0,15 | 0,27 | - |
| C.V.% | | | | | 4,16 | 3,61 | 3,03 | 3,26 | 2,31 | 3,77 | - |
| Significance | | | | | N.S. | N.S. | N.S. | N.S. | N.S. | N.S. | - |

ERF % CANE DATA SUMMARY : P to 5R inclusive

| TREATMENTS | | | | | ERF % CANE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NO | SPLITS | | | | P | 1R | 2R | 3R | 4R | 5R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 14,76 | 14,86 | 14,93 | 14,02 | 14,39 | 15,52 | 14,75 |
| 15 | 0 | 1 | 0 | 0 | 14,76 | 14,96 | 14,73 | 14,10 | 14,06 | 15,02 | 14,61 |
| 3 | 2/3 | 1/3 | 0 | 0 | 14,60 | 14,98 | 14,70 | 14,38 | 14,06 | 14,93 | 14,61 |
| 8 | 2/3 | 0 | 1/3 | 0 | 14,70 | 15,13 | 14,54 | 14,20 | 14,33 | 15,08 | 14,66 |
| 16 | 0 | 2/3 | 1/3 | 0 | 14,88 | 15,32 | 14,79 | 14,30 | 14,35 | 15,30 | 14,82 |
| 2 | 0 | 2/3 | 0 | 1/3 | 14,72 | 14,78 | 14,71 | 14,21 | 14,49 | 15,72 | 14,77 |
| 1 | 1/2 | 1/2 | 0 | 0 | 14,68 | 15,14 | 14,63 | 14,17 | 14,05 | 15,75 | 14,74 |
| 9 | 1/2 | 0 | 1/2 | 0 | 14,86 | 14,87 | 14,87 | 14,22 | 14,46 | 15,49 | 14,80 |
| 12 | 1/2 | 0 | 0 | 1/2 | 14,93 | 14,74 | 15,03 | 14,37 | 14,41 | 15,20 | 14,78 |
| 4 | 0 | 1/2 | 1/2 | 0 | 14,94 | 14,80 | 14,59 | 14,20 | 14,22 | 15,39 | 14,69 |
| 14 | 0 | 1/2 | 0 | 1/2 | 14,33 | 14,86 | 14,96 | 14,15 | 14,52 | 15,20 | 14,67 |
| 13 | 1/3 | 2/3 | 0 | 0 | 14,46 | 14,96 | 14,57 | 14,20 | 14,21 | 15,15 | 14,59 |
| 7 | 1/3 | 0 | 2/3 | 0 | 14,83 | 14,69 | 14,78 | 14,70 | 14,33 | 15,31 | 14,77 |
| 10 | 0 | 1/3 | 2/3 | 0 | 14,65 | 14,51 | 14,66 | 14,29 | 14,71 | 15,56 | 14,73 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 14,70 | 15,00 | 15,01 | 14,33 | 14,25 | 15,31 | 14,77 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 14,51 | 14,95 | 14,87 | 14,20 | 14,44 | 15,64 | 14,77 |
| Trial mean | | | | | 14,71 | 14,91 | 14,77 | 14,25 | 14,33 | 15,35 | 14,72 |
| S.E. plot ± | | | | | 0,44 | 0,47 | 0,38 | 0,36 | 0,31 | 0,54 | - |
| S.E. mean ± | | | | | 0,22 | 0,23 | 0,27 | 0,18 | 0,16 | 0,27 | - |
| C.V.% | | | | | 2,99 | 3,12 | 2,56 | 2,54 | 2,20 | 3,52 | - |
| Significance | | | | | N.S. | N.S. | N.S. | N.S. | N.S. | N.S. | - |

SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

24

## 6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

Cat: 1319

**Object:** To determine the effects of different split applications of nitrogen on late-season cane.

**This crop:** Sixth ratoon **Age:** 11,5 months (6.11.86 to 19.10.87)

**Location:** Hippo Valley Estates, Section 25, Field 9A.

**Soil type:** Basalt clay.

**Design:** 4 x 4 lattice in 4 replications.

**Variety/Spacing:** NCo376 in 1,5m rows.

**Fertiliser:**

| | N | $P_2O_5$ | $K_2O$ |
|---|---|---|---|
| amount (kg/ha) | 180 | 100 | 60 |
| application | see treatments | all at 4 weeks | ½ at 2 weeks<br>½ at 10 weeks |

**Treatments:** Nitrogen splits were applied as per treatment table:

| TREATMENTS | NITROGEN SPLITS WEEKS AFTER CUTTING | | | |
|---|---|---|---|---|
| | 2 | 6 | 10 | 14 |
| 1 | ½ | ½ | 0 | 0 |
| 2 | 0 | ⅔ | 0 | ⅓ |
| 3 | ⅔ | ⅓ | 0 | 0 |
| 4 | 0 | ½ | ½ | 0 |
| 5 | 0 | ⅔ | ⅓ | ⅓ |
| 6 | 1 | 0 | 0 | 0 |
| 7 | ⅓ | 0 | ⅔ | 0 |
| 8 | ⅔ | 0 | ⅓ | 0 |
| 9 | ½ | 0 | ½ | 0 |
| 10 | 0 | ⅓ | ⅔ | 0 |
| 11 | ⅓ | ⅔ | ⅓ | 0 |
| 12 | ½ | 0 | 0 | ½ |
| 13 | ⅔ | ⅓ | 0 | 0 |
| 14 | 0 | ½ | 0 | ½ |
| 15 | 0 | 1 | 0 | 0 |
| 16 | 0 | ⅔ | ⅓ | 0 |

**Rainfall:** Only heavy falls recorded. **Irrigation:** Standard HVE practice.

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**RESULTS**

Relevant harvest data are presented in the attached tables.

a) Cane yield: There were no significant differences between treatments, however, grouping the data by time of application of N splits showed that significantly higher yields were obtained when all the N was applied by 2 weeks than when applied over 6, 10 or 14 weeks.

b) ERC and ERF% cane: No significant differences were recorded between treatments and the grouped data did not exhibit and significant trends.

2/c)....

c) ERC and ERF yields: Though there were no significant treatment effects in the trial as a whole, grouped data showed that applying all the N by 2 weeks gave a significantly higher yield than applying all the N by 6 or 10 weeks.

d) Rainfall effects: Significant falls of rain in relation to nitrogen application dates are shown in the table below:

| FERTILISER APPLICATION DATE | RAINFALL RECORD | |
|---|---|---|
| | DATE | mm |
| 21.11.86 (2 weeks) | 30.11.86<br>8.12.86 | 40<br>22 |
| 19.12.86 (6 weeks) | - | nil |
| 16. 1.87 (10 weeks) | - | nil |
| 13. 2.87 (14 weeks) | - | nil |

The first nitrogen top-dressing was followed by heavy rain.

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CONCLUSIONS

The rainfall received this season was below average and did not appear to have caused significant losses of applied nitrogen.

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BM/Jan'88
lc

6400/24 SPLIT APPLICATION OF NITROGEN TRIAL

HARVEST DATA : SIXTH RATOON - Table 1

| TREATMENTS NO | SPLITS | | | | CANE YIELD (t/ha) | ERC% CANE | ERF% CANE | ERC YIELD (t/ha) | ERF YIELD (t/ha) |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 1 | 0 | 0 | 0 | 91,44 | 14,66 | 15,64 | 13,41 | 14,31 |
| 3 | 2/3 | 1/3 | 0 | 0 | 89,31 | 14,75 | 15,71 | 13,15 | 14,02 |
| 2 | 0 | 2/3 | 0 | 1/3 | 86,28 | 14,73 | 15,68 | 12,72 | 13,54 |
| 13 | 1/3 | 2/3 | 0 | 0 | 83,31 | 14,61 | 15,53 | 12,18 | 12,95 |
| 12 | 1/2 | 0 | 0 | 1/2 | 83,16 | 14,75 | 15,68 | 12,25 | 13,02 |
| 14 | 0 | 1/2 | 0 | 1/2 | 83,11 | 14,61 | 15,56 | 12,14 | 12,95 |
| 7 | 1/3 | 0 | 2/3 | 0 | 82,23 | 14,32 | 15,25 | 11,79 | 12,55 |
| 10 | 0 | 1/3 | 2/3 | 0 | 81,71 | 14,43 | 15,43 | 11,79 | 12,61 |
| 9 | 1/3 | 0 | 1/2 | 0 | 81,32 | 14,35 | 15,31 | 11,68 | 12,47 |
| 8 | 2/5 | 0 | 3/5 | 0 | 80,96 | 14,87 | 15,81 | 12,03 | 12,79 |
| 5 | 0 | 1/3 | 2/3 | 1/3 | 80,70 | 14,87 | 15,79 | 12,02 | 12,76 |
| 1 | 1/2 | 1/2 | 0 | 0 | 80,69 | 14,65 | 15,64 | 11,85 | 12,64 |
| 16 | 0 | 2/3 | 1/3 | 0 | 80,42 | 14,61 | 15,61 | 11,74 | 12,53 |
| 4 | 0 | 1/2 | 1/2 | 0 | 77,57 | 14,63 | 15,61 | 11,35 | 12,11 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 77,04 | 14,81 | 15,74 | 11,42 | 12,14 |
| 15 | 0 | 1 | 0 | 0 | 76,44 | 14,28 | 15,24 | 10,91 | 11,65 |
| Trial mean | | | | | 82,23 | 14,62 | 15,58 | 12,03 | 12,81 |
| S.E. plot ± | | | | | 8,78 | 0,39 | 0,39 | 1,34 | 1,42 |
| S.E. mean ± | | | | | 4,39 | 0,20 | 0,19 | 0,67 | 0,71 |
| C.V.% | | | | | 10,68 | 2,68 | 2,48 | 11,17 | 11,06 |
| Significance | | | | | N.S. | N.S. | N.S. | N.S. | N.S. |

GROUPING OF HARVEST DATA : SIXTH RATOON

1. NUMBER AND ORDER OF MAGNITUDE OF SPLITS - Table 2A

| GROUPING | NO. OF TREATMENTS | CANE YIELD (t/ha) | ERC% CANE | ERF% CANE | ERC YIELD (t/ha) | ERF YIELD (t/ha) |
|---|---|---|---|---|---|---|
| A : Single application | 2 | 83,94 | 14,47 | 15,44 | 12,16 | 12,98 |
| B : Double application : 2/3 ; 1/3 | 4 | 84,24 | 14,74 | 15,70 | 12,41 | 13,22 |
| C : Double application : 1/2 ; 1/2 | 5 | 81,17 | 14,60 | 15,56 | 11,85 | 12,64 |
| D : Double application : 1/3 ; 2/3 | 3 | 82,42 | 14,45 | 15,40 | 11,92 | 12,70 |
| E : Triple application | 2 | 78,87 | 14,84 | 15,77 | 11,72 | 12,45 |
| MEAN | - | 82,23 | 14,62 | 15,58 | 12,03 | 12,81 |
| Significance | - | N.S. | N.S. | N.S. | N.S. | N.S. |

2. TIME OF APPLICATION OF NITROGEN SPLITS - Table 2B

| GROUPING | NO. OF TREATMENTS | CANE YIELD (t/ha) | ERC% CANE | ERF% CANE | ERC YIELD (t/ha) | ERF YIELD (t/ha) |
|---|---|---|---|---|---|---|
| F : All N applied by 2 weeks | 1 | 91,44 | 14,66 | 15,64 | 13,41 | 14,31 |
| G : All N applied by 6 weeks | 4 | 82,44 | 14,57 | 15,53 | 12,02 | 12,82 |
| H : All N applied by 10 weeks | 7 | 80,18 | 14,57 | 15,54 | 11,69 | 12,46 |
| I : All N applied by 14 weeks | 4 | 83,31 | 14,74 | 15,68 | 12,28 | 13,07 |
| MEAN | - | 82,23 | 14,62 | 15,58 | 12,03 | 12,81 |
| Significance | - | FH** FG* FI* | N.S. | N.S. | FH** FG* | FH** FG* |

6400/24 SPLIT APPLICATION OF NITROGEN TRIAL

CANE YIELD DATA P to 6R (Inclusive) - Table 3

| TREATMENTS NO | SPLITS | | | | CANE YIELD (t/ha) P | 1R | 2R | 3R | 4R | 5R | 6R | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 1 | 0 | 0 | 0 | 112,68 | 92,50 | 82,54 | 98,93 | 108,62 | 117,37 | 91,44 | 100,58 |
| 15 | 0 | 1 | 0 | 0 | 87,47 | 96,63 | 89,17 | 93,98 | 99,93 | 117,21 | 76,44 | 94,40 |
| 3 | 2/3 | 1/3 | 0 | 0 | 106,35 | 91,32 | 78,35 | 97,86 | 105,37 | 118,98 | 89,31 | 98,15 |
| 8 | 2/3 | 0 | 1/3 | 0 | 118,82 | 83,23 | 80,50 | 93,53 | 107,07 | 120,31 | 80,96 | 97,78 |
| 16 | 0 | 2/3 | 1/3 | 0 | 105,37 | 86,09 | 90,01 | 100,62 | 108,29 | 111,52 | 80,42 | 97,47 |
| 2 | 0 | 2/3 | 0 | 1/3 | 102,38 | 97,46 | 91,53 | 110,38 | 113,41 | 123,49 | 86,28 | 103,85 |
| 1 | 1/2 | 1/2 | 0 | 0 | 111,84 | 91,41 | 72,95 | 96,58 | 104,71 | 119,57 | 80,69 | 96,82 |
| 9 | 1/2 | 0 | 1/2 | 0 | 118,83 | 86,07 | 87,32 | 97,87 | 100,26 | 118,45 | 81,32 | 98,59 |
| 12 | 1/2 | 0 | 0 | 1/2 | 112,11 | 96,32 | 95,01 | 106,85 | 108,53 | 112,47 | 83,16 | 102,06 |
| 4 | 0 | 1/2 | 1/2 | 0 | 110,27 | 87,92 | 87,16 | 101,85 | 104,75 | 118,62 | 77,57 | 98,31 |
| 14 | 0 | 1/2 | 0 | 1/2 | 113,55 | 92,30 | 84,60 | 100,96 | 111,02 | 118,17 | 83,11 | 100,53 |
| 13 | 1/3 | 1/3 | 1/3 | 0 | 100,23 | 94,69 | 74,69 | 95,59 | 103,51 | 119,94 | 83,31 | 95,88 |
| 7 | 1/3 | 0 | 2/3 | 0 | 116,73 | 89,32 | 82,33 | 100,46 | 110,47 | 118,12 | 82,23 | 99,95 |
| 10 | 0 | 1/3 | 2/3 | 0 | 105,04 | 92,36 | 84,26 | 106,87 | 114,35 | 118,70 | 81,71 | 100,47 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 116,96 | 86,57 | 96,45 | 101,44 | 113,08 | 108,50 | 77,04 | 98,58 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 117,39 | 95,60 | 83,13 | 102,95 | 105,98 | 119,38 | 80,70 | 100,73 |
| Trial mean | | | | | 109,75 | 91,24 | 85,00 | 100,50 | 106,83 | 117,56 | 82,23 | 99,02 |
| S.E. plot ± | | | | | 9,09 | 8,25 | 2,02 | 6,35 | 7,81 | 8,17 | 8,78 | - |
| S.E. mean ± | | | | | 4,55 | 4,12 | 10,10 | 3,17 | 5,52 | 5,78 | 4,39 | - |
| C.V.% | | | | | 8,28 | 9,04 | 23,76 | 6,32 | 7,31 | 6,95 | 10,68 | - |
| Significance | | | | | N.S. | N.S. | N.S. | ** | N.S. | N.S. | N.S. | - |
| LSD P = 0,05 | | | | | - | - | - | 9,13 | - | - | - | - |
| P = 0,01 | | | | | - | - | - | 12,27 | - | - | - | - |

ERC% CANE DATA SUMMARY P to 6R (Inclusive) - Table 4

| TREATMENTS NO | SPLITS | | | | ERC % CANE P | 1R | 2R | 3R | 4R | 5R | 6R | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 1 | 0 | 0 | 0 | 13,50 | 13,70 | 13,69 | 12,95 | 13,26 | 14,67 | 14,66 | 13,78 |
| 15 | 0 | 1 | 0 | 0 | 13,71 | 13,80 | 13,50 | 13,03 | 12,99 | 14,25 | 14,28 | 13,65 |
| 3 | 2/3 | 1/3 | 0 | 0 | 13,49 | 13,85 | 13,47 | 13,38 | 12,98 | 14,12 | 14,75 | 13,72 |
| 8 | 2/3 | 0 | 1/3 | 0 | 13,50 | 14,03 | 13,52 | 13,18 | 13,14 | 14,19 | 14,87 | 13,78 |
| 16 | 0 | 2/3 | 1/3 | 0 | 13,83 | 14,09 | 13,62 | 13,22 | 13,13 | 14,44 | 14,61 | 13,85 |
| 2 | 0 | 2/3 | 0 | 1/3 | 13,48 | 13,70 | 13,57 | 13,23 | 13,28 | 14,79 | 14,73 | 13,83 |
| 1 | 1/2 | 1/2 | 0 | 0 | 13,60 | 14,04 | 13,43 | 13,19 | 12,92 | 14,92 | 14,65 | 13,82 |
| 9 | 1/2 | 0 | 1/2 | 0 | 13,64 | 13,82 | 13,64 | 13,23 | 13,39 | 14,64 | 14,35 | 13,82 |
| 12 | 1/2 | 0 | 0 | 1/2 | 13,72 | 13,69 | 13,78 | 13,45 | 13,17 | 14,27 | 14,75 | 13,83 |
| 4 | 0 | 1/2 | 1/2 | 0 | 13,88 | 13,57 | 13,26 | 13,03 | 13,03 | 14,57 | 14,63 | 13,71 |
| 14 | 0 | 1/2 | 0 | 1/2 | 13,08 | 13,64 | 13,79 | 13,08 | 13,34 | 14,29 | 14,61 | 13,69 |
| 13 | 1/3 | 1/3 | 1/3 | 0 | 13,18 | 14,06 | 13,31 | 13,10 | 13,21 | 14,33 | 14,61 | 13,69 |
| 7 | 1/3 | 0 | 2/3 | 0 | 13,60 | 13,65 | 13,57 | 13,81 | 13,20 | 14,38 | 14,32 | 13,79 |
| 10 | 0 | 1/3 | 2/3 | 0 | 13,47 | 13,21 | 13,36 | 13,27 | 13,39 | 14,75 | 14,43 | 13,70 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 13,50 | 13,96 | 13,68 | 13,37 | 13,05 | 14,52 | 14,81 | 13,84 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 13,31 | 13,71 | 13,68 | 13,15 | 13,37 | 14,75 | 14,87 | 13,83 |
| Trial mean | | | | | 13,53 | 13,78 | 13,55 | 13,23 | 13,18 | 14,49 | 14,62 | 13,77 |
| S.E. plot ± | | | | | 0,53 | 0,50 | 0,41 | 0,43 | 0,30 | 0,55 | 0,39 | - |
| S.E. mean ± | | | | | 0,28 | 0,25 | 0,29 | 0,22 | 0,15 | 0,27 | 0,20 | - |
| C.V.% | | | | | 4,16 | 3,61 | 3,03 | 3,26 | 2,31 | 3,77 | 2,68 | - |
| Significance | | | | | N.S. | N.S. | N.S. | N.S. | N.S. | N.S. | N.S. | - |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

ERC YIELD DATA SUMMARY P to 6R (Inclusive) - Table 5

| TREATMENTS | | | | | ERC YIELD (t/ha) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NO | SPLITS | | | | P | 1R | 2R | 3R | 4R | 5R | 6R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 15,20 | 12,54 | 11,36 | 12,80 | 14,37 | 17,46 | 13,41 | 13,88 |
| 15 | 0 | 1 | 0 | 0 | 11,98 | 13,26 | 12,00 | 12,32 | 12,96 | 16,59 | 10,91 | 12,86 |
| 3 | 2/3 | 1/3 | 0 | 0 | 14,38 | 12,62 | 10,55 | 13,06 | 13,66 | 16,72 | 13,15 | 13,45 |
| 8 | 2/3 | 0 | 1/3 | 0 | 16,11 | 11,70 | 10,97 | 12,29 | 14,06 | 16,98 | 12,03 | 13,42 |
| 16 | 0 | 2/3 | 1/3 | 0 | 14,53 | 12,10 | 12,35 | 13,22 | 14,20 | 16,06 | 11,74 | 13,44 |
| 2 | 0 | 2/3 | 0 | 1/3 | 13,78 | 13,23 | 12,44 | 14,84 | 15,03 | 18,71 | 12,72 | 14,39 |
| 1 | 1/2 | 1/2 | 0 | 0 | 15,24 | 12,91 | 9,80 | 12,69 | 13,55 | 17,86 | 11,85 | 13,41 |
| 9 | 1/2 | 0 | 1/2 | 0 | 16,23 | 12,02 | 11,96 | 12,99 | 13,45 | 17,33 | 11,68 | 13,67 |
| 12 | 1/2 | 0 | 0 | 1/2 | 15,41 | 13,20 | 13,11 | 14,36 | 14,31 | 15,93 | 12,25 | 14,08 |
| 4 | 0 | 1/2 | 1/2 | 0 | 15,34 | 11,96 | 11,66 | 13,24 | 13,61 | 17,23 | 11,35 | 13,48 |
| 14 | 0 | 1/2 | 0 | 1/2 | 14,21 | 12,44 | 11,70 | 13,20 | 14,78 | 17,24 | 12,14 | 13,76 |
| 13 | 1/3 | 2/3 | 0 | 0 | 13,19 | 13,35 | 9,89 | 12,49 | 13,71 | 17,16 | 12,18 | 13,14 |
| 7 | 1/3 | 0 | 2/3 | 0 | 15,91 | 12,19 | 11,26 | 13,96 | 14,58 | 16,76 | 11,79 | 13,78 |
| 10 | 0 | 1/3 | 2/3 | 0 | 14,16 | 12,12 | 11,30 | 14,26 | 15,29 | 17,85 | 11,79 | 13,82 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 15,75 | 12,12 | 13,24 | 13,69 | 13,48 | 15,60 | 11,42 | 13,61 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 15,69 | 13,22 | 11,34 | 13,53 | 14,21 | 17,47 | 12,02 | 13,93 |
| Trial mean | | | | | 14,86 | 12,56 | 11,55 | 13,31 | 14,08 | 17,05 | 12,03 | 13,63 |
| S.E. plot ± | | | | | 1,52 | 1,10 | 2,89 | 1,06 | 1,03 | 1,45 | 1,34 | - |
| S.E. mean ± | | | | | 0,76 | 0,55 | 1,44 | 0,53 | 0,73 | 0,73 | 0,67 | - |
| C.V.% | | | | | 10,24 | 8,74 | 24,98 | 7,94 | 7,34 | 0,53 | 11,17 | - |
| Significance | | | | | N.S. | N.S. | N.S. | ** | N.S. | N.S. | N.S. | - |
| LSD P = 0,05 | | | | | - | - | - | 1,52 | - | - | - | - |
| P = 0,01 | | | | | - | - | - | 2,04 | - | - | - | - |

ERF% CANE DATA SUMMARY P to 6R (Inclusive) - Table 6

| TREATMENTS | | | | | ERF % CANE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NO | SPLITS | | | | P | 1R | 2R | 3R | 4R | 5R | 6R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 14,76 | 14,86 | 14,93 | 14,02 | 14,39 | 15,52 | 15,64 | 14,87 |
| 15 | 0 | 1 | 0 | 0 | 14,76 | 14,96 | 14,73 | 14,10 | 14,06 | 15,02 | 15,24 | 14,70 |
| 3 | 2/3 | 1/3 | 0 | 0 | 14,60 | 14,98 | 14,70 | 14,38 | 14,06 | 14,93 | 15,71 | 14,69 |
| 8 | 2/3 | 0 | 1/3 | 0 | 14,70 | 15,13 | 14,54 | 14,20 | 14,33 | 15,08 | 15,81 | 14,83 |
| 16 | 0 | 2/3 | 1/3 | 0 | 14,88 | 15,32 | 14,79 | 14,30 | 14,35 | 15,30 | 15,61 | 14,94 |
| 2 | 0 | 2/3 | 0 | 1/3 | 14,72 | 14,78 | 14,71 | 14,21 | 14,49 | 15,72 | 15,68 | 14,90 |
| 1 | 1/2 | 1/2 | 0 | 0 | 14,68 | 15,14 | 14,63 | 14,17 | 14,05 | 15,75 | 15,64 | 14,87 |
| 9 | 1/2 | 0 | 1/2 | 0 | 14,86 | 14,87 | 14,87 | 14,22 | 14,46 | 15,49 | 15,31 | 14,87 |
| 12 | 1/2 | 0 | 0 | 1/2 | 14,93 | 14,74 | 15,03 | 14,37 | 14,41 | 15,20 | 15,68 | 14,91 |
| 4 | 0 | 1/2 | 1/2 | 0 | 14,94 | 14,80 | 14,59 | 14,20 | 14,22 | 15,39 | 15,61 | 14,82 |
| 14 | 0 | 1/2 | 0 | 1/2 | 14,33 | 14,86 | 14,96 | 14,15 | 14,52 | 15,20 | 15,56 | 14,80 |
| 13 | 1/3 | 2/3 | 0 | 0 | 14,46 | 14,96 | 14,57 | 14,20 | 14,21 | 15,15 | 15,53 | 14,73 |
| 7 | 1/3 | 0 | 2/3 | 0 | 14,83 | 14,69 | 14,78 | 14,70 | 14,33 | 15,31 | 15,25 | 14,84 |
| 10 | 0 | 1/3 | 2/3 | 0 | 14,65 | 14,51 | 14,66 | 14,29 | 14,71 | 15,36 | 15,43 | 14,80 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 14,70 | 15,00 | 15,01 | 14,33 | 14,25 | 15,31 | 15,74 | 14,91 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 14,51 | 14,95 | 14,87 | 14,20 | 14,44 | 15,64 | 15,79 | 14,91 |
| Trial mean | | | | | 14,71 | 14,91 | 14,77 | 14,25 | 14,33 | 15,35 | 15,58 | 14,84 |
| S.E. plot ± | | | | | 0,44 | 0,47 | 0,38 | 0,36 | 0,31 | 0,54 | 0,39 | - |
| S.E. mean ± | | | | | 0,22 | 0,23 | 0,27 | 0,18 | 0,16 | 0,27 | 0,19 | - |
| C.V.% | | | | | 2,99 | 3,12 | 2,56 | 2,54 | 2,20 | 3,52 | 2,48 | - |
| Significance | | | | | N.S. | N.S. | N.S. | N.S. | N.S. | N.S. | N.S. | - |

6400/24 SPLIT APPLICATIONS OF NITROGEN TRIAL

ERF YIELD DATA SUMMARY P to 6R (Inclusive)- Table 7

| TREATMENTS | | | | | ERF YIELD (t/ha) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NO | SPLITS | | | | P | 1R | 2R | 3R | 4R | 5R | 6R | MEAN |
| 6 | 1 | 0 | 0 | 0 | 16,58 | 13,64 | 12,41 | 13,86 | 15,54 | 18,45 | 14,31 | 14,97 |
| 15 | 0 | 1 | 0 | 0 | 12,92 | 14,42 | 13,11 | 13,29 | 14,06 | 17,51 | 11,65 | 13,85 |
| 3 | 2/3 | 1/3 | 0 | 0 | 15,57 | 13,66 | 11,54 | 14,00 | 14,84 | 17,70 | 14,02 | 14,48 |
| 8 | 2/3 | 0 | 1/3 | 0 | 17,47 | 12,62 | 11,73 | 13,22 | 15,31 | 17,97 | 12,79 | 14,44 |
| 16 | 0 | 2/3 | 1/3 | 0 | 15,65 | 13,17 | 13,29 | 14,30 | 15,50 | 17,00 | 12,53 | 14,49 |
| 2 | 0 | 2/3 | 0 | 1/3 | 15,06 | 14,31 | 13,52 | 15,97 | 16,39 | 19,83 | 13,54 | 15,52 |
| 1 | 1/2 | 1/2 | 0 | 0 | 16,47 | 13,88 | 10,68 | 13,66 | 14,76 | 18,86 | 12,64 | 14,42 |
| 9 | 1/2 | 0 | 1/2 | 0 | 17,69 | 12,87 | 13,01 | 13,98 | 14,58 | 18,35 | 12,47 | 14,71 |
| 12 | 1/2 | 0 | 0 | 1/2 | 16,74 | 14,20 | 14,28 | 15,34 | 15,66 | 16,99 | 13,02 | 15,18 |
| 4 | 0 | 1/2 | 1/2 | 0 | 16,49 | 13,04 | 12,83 | 14,43 | 14,85 | 18,20 | 12,11 | 14,56 |
| 14 | 0 | 1/2 | 0 | 1/2 | 16,26 | 13,60 | 12,70 | 14,28 | 16,02 | 18,28 | 12,95 | 14,87 |
| 13 | 1/3 | 1/3 | 1/3 | 0 | 14,51 | 14,18 | 10,88 | 13,55 | 14,75 | 18,13 | 12,95 | 14,14 |
| 7 | 1/3 | 0 | 1/3 | 1/3 | 17,33 | 13,13 | 12,25 | 14,81 | 15,87 | 17,91 | 12,55 | 14,84 |
| 10 | 0 | 1/3 | 1/3 | 1/3 | 15,38 | 13,32 | 12,40 | 15,36 | 16,82 | 18,78 | 12,61 | 14,95 |
| 11 | 1/3 | 1/3 | 1/3 | 0 | 17,16 | 13,01 | 14,49 | 14,64 | 14,78 | 16,50 | 12,14 | 14,67 |
| 5 | 0 | 1/3 | 1/3 | 1/3 | 17,09 | 14,38 | 12,37 | 14,61 | 15,36 | 18,56 | 12,76 | 15,02 |
| Trial mean | | | | | 16,15 | 13,59 | 12,59 | 14,33 | 15,32 | 18,06 | 12,82 | 14,69 |
| S.E. plot ± | | | | | 1,56 | 1,21 | 3,16 | 1,07 | 1,16 | 1,53 | 1,42 | - |
| S.E. mean ± | | | | | 0,78 | 0,60 | 1,58 | 0,54 | 0,82 | 1,08 | 0,71 | - |
| C.V.% | | | | | 0,65 | 0,90 | 25,09 | 7,48 | 7,54 | 8,46 | 11,06 | - |
| Significance | | | | | N.S. | N.S. | N.S. | * | * | N.S. | N.S. | |
| LSD P = 0,05 | | | | | - | - | - | 1,54 | 1,66 | - | - | - |
| P = 0,01 | | | | | - | - | - | - | - | - | - | - |