

RAD/cvp
20 January 1992

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Code No : Wuxal Obs./90
Cat No : 1793

Title : Wuxal - E Transvaal

1. Particulars of the crop

| | | | | | | | |
|-------------------|----------------------------|---|-----|--------|------|--------|--|
| This crop | : 4th ratoon | <u>Soil analysis: Date : 28 June 1991</u> | | | | | |
| Site | : La Rochelle Malelane | pH | OM% | Clay % | PDI | | |
| Region | : Northern area | 7,1 | 2,2 | 61 | | | |
| Soil system | : Komatipoort | ppm | | | | | |
| Soil form/series: | Shortlands | P | K | Ca | Mg | Zn S | |
| Design | : Randomised blocks | 45 | 152 | 2680 | 1550 | 1,6 25 | |
| Variety | : N14 | Age : 10,4 m Dates: 15.8.90 - 26. | | | | | |
| Fertiliser | : N P K kg/ha 150 0 150 | Rainfall : 391 mm LTM : 599 mm | | | | | |
| Ameliorants | : See treatments | Irrigation : 42 mm on 8 day cycle | | | | | |

2. Objectives

To determine whether the application of Wuxal to the foliage of sugarcane enhances growth.

3. Treatments

- 3.1 Control (only standard fertiliser)
- 3.2 Wuxal 4 l/ha (16 November) + 4 l/ha (20 December)
- 3.3 Wuxal 8 l/ha (16 November)
- 3.4 FeSO₄ 6.8 kg/ha (16 November)

Note: The entire trial area was fertilised before the treatments were applied.

4. Results

Table 1: 3rd leaf nutrient levels

| Date and age (month) | Treatment | % dm | | | | | | ppm | | | | |
|-------------------------|-----------|------|------|------|------|------|------|-----|----|-----|-----|------|
| | | N | P | K | S | Ca | Mg | Zn | Mn | Cu | Fe | B |
| 16.11.90 (3.2 mnths) | 1 | 1,90 | 0,22 | 0,36 | 0,24 | 0,47 | 0,65 | 18 | 28 | 2,3 | 103 | - |
| | 2 | 1,89 | 0,21 | 0,37 | 0,25 | 0,46 | 0,67 | 17 | 27 | 3,3 | 108 | - |
| | 3 | 1,89 | 0,22 | 0,35 | 0,25 | 0,47 | 0,65 | 18 | 26 | 3,7 | 122 | - |
| | 4 | 1,90 | 0,21 | 0,32 | 0,25 | 0,48 | 0,68 | 17 | 28 | 4,2 | 166 | - |
| 20.12.90 (4.3 mnths) | 1 | 1,82 | 0,22 | 0,54 | 0,19 | 0,36 | 0,51 | 17 | 31 | 5,2 | 83 | 7,00 |
| | 2 | 1,86 | 0,21 | 0,54 | 0,19 | 0,36 | 0,49 | 17 | 31 | 4,8 | 77 | 6,95 |
| | 3 | 1,86 | 0,21 | 0,54 | 0,19 | 0,37 | 0,50 | 17 | 29 | 5,3 | 80 | 5,80 |
| | 4 | 1,87 | 0,21 | 0,49 | 0,19 | 0,39 | 0,54 | 18 | 32 | 4,8 | 78 | 6,95 |
| 22.1.91 (5.3 mnths) | 1 | 1,56 | 0,21 | 0,93 | 0,16 | 0,23 | 0,30 | 17 | 23 | 4,3 | 49 | 6,25 |
| | 2 | 1,57 | 0,20 | 0,92 | 0,17 | 0,23 | 0,30 | 19 | 21 | 4,8 | 56 | 7,90 |
| | 3 | 1,55 | 0,20 | 0,92 | 0,16 | 0,22 | 0,31 | 19 | 26 | 4,7 | 65 | 6,50 |
| | 4 | 1,60 | 0,21 | 0,86 | 0,17 | 0,25 | 0,33 | 18 | 24 | 4,8 | 64 | 6,20 |

Table 2: Stalk heights (cm) and populations (x1000/ha)

| Date | 16 Nov* | | 20 Dec | | 26 June | |
|--------------------|---------|-----|--------|-----|---------|-----|
| Treatment | Hts | Pop | Hts | Pop | Hts | Pop |
| Cont | 28 | 334 | 74 | 316 | 276 | 100 |
| Wux 4+4l | 27 | 337 | 71 | 322 | 269 | 101 |
| Wux 8l | 27 | 349 | 72 | 321 | 267 | 107 |
| Fe SO ₄ | 26 | 327 | 70 | 311 | 264 | 104 |
| Mean | 27 | 337 | 72 | 318 | 267 | 103 |

* Before applying treatments

Table 3: Yields at harvest

| Treatment | Cane t/ha | pol% ^c | suc t/ha | Stalk | |
|-------------------|-----------|-------------------|----------|--------------|--------------|
| | | | | Heights (cm) | Pop x1000/ha |
| Cont | 121 | 12,0 | 14,5 | 267 | 100 |
| Wux. 4+4ℓ | 114 | 12,4 | 14,1 | 269 | 101 |
| Wux. 8ℓ | 129 | 12,0 | 15,5 | 267 | 107 |
| FeSO ₄ | 124 | 12,5 | 15,6 | 264 | 104 |
| Mean | 122 | 12,2 | 14,9 | 267 | 103 |
| CV % | 17 | 7,6 | 17,0 | 4,5 | 6,6 |
| SED ± | 12 | 0,5 | 1,5 | 6,9 | 3,9 |
| LSD 05 | 25,5 | 1,1 | 3,1 | 14,7 | 8,4 |

Comments

- ° Population counts prior to applying treatments suggest that Wuxal (8 ℓ/ha) plots had slightly higher stalk numbers on average than in other treatments.
- ° Wuxal 8 ℓ/ha raised 3rd leaf Fe levels. The Fe levels from the FeSO₄ treatment were substantially higher than from any of the other treatments in the leaves taken shortly after spraying.
- ° Leaf K levels were initially very low. They improved with time and were acceptable on 22 January when the crop was 5,3 months old.
- ° There is no evidence that Wuxal improved cane growth or yields. FeSO₄ was clearly more effective in raising leaf Fe levels immediately after spraying. The small differences in cane yield (3 ± 12 t/ha) cannot be attributed to treatment effects.