

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

CODE: NCo376 x RIPENER 32/90/Sw SIS 'R'

EXPERIMENT RESULT

CAT. NO.: 1767

TITLE: EARLY SEASON CHEMICAL RIPENING OF NCo376 IN SWAZILAND

1. PARTICULARS OF PROJECT

This Crop : 14th ratoon	<u>Spray Details</u>	<u>Ethrel</u>	<u>Fusilade</u>
Site : SIS - Vuvulane Estate. Field P3/3	Date applied:	27/02/90	11/04/90
Region : Northern Irrigated (Swaziland)	Age at spray:	8.75 m	10.25 m
Soil Set : 'R'	Weeks before harvest :	12	8.5
Variety : NCo376	Juice Purity:	56 %	Unsp. :71% Ethrel:76%
Design Randomized Blocks with six replicates	<u>Conditions at spraying</u> Ethrel - Early morning, calm with gusts of wind Fusilade - Early morning, calm and overcast.		
Fertiliser: N P K (Kg/ha) 150 30 -	<u>Spray methods:</u> CO <sub>2</sub> constant pressure knapsack with hand held "T" boom. Delivery rate ± 49 l/ha through two T K 1.5 nozzles.		
Dates : 27/05/89 - 01/06/90			
Age at Harvest : 12 m			
Irrigation: 1079 mm			
Rainfall : 733 mm			
Total : 1812 mm			

2. OBJECTIVES

- \* To determine the ripening effects of varying rates of Ethrel, a standard rate of Fusilade and combinations of the two on early cut NCo376.

3. TREATMENTS

- 3.1 Control
- 3.2 Ethrel @ 1.00 l/ha
- 3.3 Ethrel @ 1.50 l/ha
- 3.4 Fusilade @ 0.45 l/ha
- 3.5 Ethrel @ 1.00 l/ha + Fusilade @ 0.45 l/ha
- 3.6 Ethrel @ 1.50 l/ha + Fusilade @ 0.45 l/ha

\* Notes on treatments (see page 1)

4. SAMPLING METHODS

- 4.1 Sucrose sampling commenced at the time of Ethrel spraying and continued at approximately two monthly intervals until harvest.
- 4.2 Samples comprised 20 stalks taken from 4 localities in the net lines of each plot.

5. RESULTS5.1 Table 1: Harvest Data

Treatments	Tons Cane/Ha	Ers % Cane	Tons Ers/Ha	Sucrose % Cane	Tons Sucrose/Ha
Control	149	10.85	16.2	12.70	18.9
Ethrel @ 1.0 l/ha	148	11.64	17.2	13.34	19.7
Ethrel @ 1.5 l/ha	139	12.96	18.1	14.52	20.2
Fusilade @ 0.45 l/ha	144	11.41	16.5	13.20	19.0
E @ 1.0 + F @ 0.45 l/ha	148	12.52	18.6	14.15	21.0
E @ 1.5 + F @ 0.45 l/ha	144	13.51	19.6	15.05	21.8
LSD Treatments					
(0.05)	13	0.99	2.3	0.87	2.4
(0.01)	18	1.34	3.15	1.18	3.2
Significance	NS	**	*	**	*
Mean	146	12.15	17.7	13.83	20.1
CV %	8	6.9	11.1	5.3	9.9

5.2 Table 2: Mean Differences between Ripened Treatments and Unripened Controls

TREATMENTS	T CANE/HA	ERS %	T ERS/HA	SUC %	T SUC/HA
E @ 1.0 l/ha	- 1	0.79	1.0	0.64	0.8
E @ 1.5 l/ha	- 10	2.11**	1.9	1.82**	1.3
F @ 0.45 l/ha	- 5	0.56	0.3	0.50	0.1
E @ 1.0 + F @ 0.45 l/ha	- 0.5	1.67**	2.4*	1.45**	2.1
E @ 1.5 + F @ 0.45 l/ha	4	2.66**	3.4**	2.35**	2.9*

\* Significant (P = 0.05)

\*\* Highly significant (P = 0.01)

5.3 Table 3: Sample Data

TREATMENTS	WEEKS AFTER APPLICATION								
	Ethrel 0			6			12		
	Fusilade -			0			6.5		
	g/stalk	%ERC	g ERC stalk	g/stalk	%ERC	g ERC stalk	g/stalk	%ERC	g ERC stalk
Control	790	3.02	24	968	6.06	58	1151	10.85	124
Ethrel @1.0 l ha <sup>-1</sup>	816	3.16	26	910	7.77	71	1130	11.64	132
Ethrel @1.5 l ha <sup>-1</sup>	784	3.28	25	975	8.44	83	1079	12.96	195
Fusilade @0.45 l ha <sup>-1</sup>	849	2.93	25	995	6.46	65	1120	11.41	128
E @1.0+F @0.45 l ha <sup>-1</sup>	791	2.84	23	1077	8.03	86	1143	12.52	143
E @1.5+F @0.45 l ha <sup>-1</sup>	731	3.16	23	959	8.25	78	1149	13.51	156
LSD (0.05)	120	0.57	6	166	0.79	14	121	0.99	70
(0.01)	162	0.78	9	225	1.07	19	164	1.34	95
Significance	NS	NS	NS	NS	**	**	NS	**	NS
Mean	794	3.06	24	981	7.50	74	1129	12.15	146
CV%	13	15.8	22.2	14	8.8	16.0	9	6.7	40.4

## 6. COMMENTS

### 6.1 Cane Yield

Effects on cane yield were variable in this trial and although there were some reductions in yield, the differences were not statistically significant.

### 6.2 Cane Quality

All ripening treatments tended to increase cane quality. In terms of single treatments the most effective treatment was the higher rate of Ethrel. The responses to the lower rate of Ethrel and Fusilade in particular were relatively poor in this trial.

The combination treatments were considerably more effective than either of the single treatments. The responses tended to be best where the higher rate of Ethrel was used.

### 6.3 Sucrose Yield

Yields of Sucrose were increased by all treatments except Fusilade applied alone. The responses were only statistically significant in the combination treatments particularly where the higher rate of Ethrel was used.

## 7. CONCLUSION

- \* These results further confirm the responsiveness of early harvested NCo376 to the combination treatment.
- \* The combination treatment was most effective when the higher rate of Ethrel was applied. This confirms the results of a similar trial this year (Ripener 34) but is contrary to the results of previous trials (Ripener 24 and 30).
- \* Results of a number of trials indicate that the higher rate of Ethrel in the combination treatment produces more consistent responses than the lower rate.

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