

**SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION**

Cat No : 1838
Project No. 3934
Code No : HW 393/90/P

Title: Transplant sensitivity to Eptam Super

1. Particulars of project

This crop	: Plant	Soil analysis Date : 22.1.1991					
Site	: La Mercy Field 709 A	pH	O.M.%	Clay%	P.D.I.		
Region	: North Coast - Coastal	5,55	-	6	-		
Soil System	: Umzinto coast lowlands	ppm					
Soil form/series	: Longlands/Waldene	P	K	Ca	Mg	Zn	Al
Design	: Randomised block	50	88	161	40	1,7	-
Variety	: See treatments	Age : 15,7 months					
Fertilizer	: N P K	Dates : 22.1.1991 - 12.5.1992					
At planting	T0 32 -	Rainfall : 1124 mm					
Top-dress	116 - 116	Irrigation : Nil					
Total	116 32 116	Total : 1124 mm					

2. Objectives:

To determine the sensitivity of different varieties raised as transplants to Eptam Super.

3. Treatments:

Rates (1 product/ha)

T1 Control	Handweed
T2 Eptam Super	3

Varieties: NCo376
N12
N14
N16
N17
N19
N21
CP66/1043

Notes on treatments

Eptam Super was incorporated into the soil immediately after spraying. The control panels were also rotovated.

The transplants were water planted at a spacing of 45 cm in the row.

Design:

Design : Randomised block
No. replications : 8
Whole plot size : 3 rows x 8 m = 24 m²
Net plot size : 3 rows x 6 m = 18 m²
Row spacing : 1 m

5) Chemical formulations used:

<u>Product</u>	<u>Formulation</u>	<u>Active ingredient</u>
Eptam Super	750 g/l (EC)	EPTC (thiocarbamate)

6) Application details:

Treatment date : 21.1.1992
Time : 10.15 am - 11.20 am
Applicator : CP3 knapsack
Nozzle : APM (Green)
Pressure : 150 kPa
Output : 38,15 ml/second
Output : 25,43 ml/m²
Method : Full cover

7) Weather conditions:

Treatment date : 21.1.1992
General : Slightly overcast
Dew : Nil
Soil surface : Slightly damp
Wind : Gusty (NE)
Sunshine hours : 7,5
Temperature (°C)
 08h00 : 26
 14h00 : 34
Relative humidity (%)
 08h00 : 90
 14h00 : 61
Rainfall (mm)
 On day of spray : Nil
 No. days to first rain : 1
 At first rain : 6
 In first 14 days : 96
 Total for duration of trial : 1124

8. Results

Table 1: Visual ratings of percentage leaf scorch and stunting (where 1 = very poor and 5 = no stunting) recorded at 43 days after spraying

Treatment		Rate (l product/ha)	% Leaf scorch	Stunting
NCo376	(control)	-	1,5	5
NCo376	+ Eptam Super	3	1,5	5
N12	(control)	-	3,3	5
N12	+ Eptam Super	3	2,3	5
N14	(control)	-	4,8	5
N14	+ Eptam Super	3	3,3	5
N16	(control)	-	8,8	5
N16	+ Eptam Super	3	10,8	5
N17	(control)	-	0	5
N17	+ Eptam Super	3	0	5
N19	(control)	-	0	5
N19	+ Eptam Super	3	0	5
N21	(control)	-	0	4,8
N21	+ Eptam Super	3	0	4,5
CP66/1043	(control)	-	10,8	5
CP66/1043	+ Eptam Super	3	13,8	5

Table 2: Treatment effects on stalk heights (cm to TVD) and populations (x 1000/ha) at 3 and 14 months after planting

Treatment		Rate l product/ha)	Stalk heights (cm to TVD)		Populations (x 1000/ha)	
			3 m	14 m	3 m	14 m
NCo376	(control)	-	28	151	38	123
NCo376	+ Eptam Super	3	30	152	72	124
N12	(control)	-	23	154	38	129
N12	+ Eptam Super	3	28	153	75	135
N14	(control)	-	23	127	25	81
N14	+ Eptam Super	3	23	129	42	80
N16	(control)	-	27	145	48	109
N16	+ Eptam Super	3	33	157	60	117
N17	(control)	-	34	176	63	104
N17	+ Eptam Super	3	42	196	93	123
N19	(control)	-	44	218	100	102
N19	+ Eptam Super	3	43	222	123	113
N21	(control)	-	72	234	40	105
N21	+ Eptam Super	3	73	243	78	113
CP66/1043	(control)	-	22	69	17	50
CP66/1043	+ Eptam Super	3	20	67	18	48

Table 3: Treatment effects on cane yield (tons/ha)
sucrose % cane and sucrose yield (tons/ha)

Treatment	Rate (l product/ha)	Cane yield (tons/ha)	Sucrose % cane	Sucrose (tons/ha)
NCo376 (control)	-	68	13,9	9,5
NCo376 + Eptam Super	3	66	13,7	9,0
N12 (control)	-	70	13,2	9,3
N12 + Eptam Super	3	75	13,5	10,2
N14 (control)	-	47	11,8	5,5
N14 + Eptam Super	3	43	11,3	5,0
N16 (control)	-	58	13,7	7,9
N16 + Eptam Super	3	71	13,7	10,0
N17 (control)	-	55	15,1	8,3
N17 + Eptam Super	3	81**	15,1	12,2**
N19 (control)	-	94	15,0	14,1
N19 + Eptam Super	3	106	15,2	15,9
N21 (control)	-	82	12,3	10,2
N21 + Eptam Super	3	94	12,8	12,1
CP66/1043 (control)	-	10	12,9	1,4
CP66/1043 + Eptam Super	3	6	13,9	0,9
CV%		15,2	5,4	17,9
Standard error - treatment means ±		4,9	0,4	0,8
LSD (0,05)		14	1,1	2,3
LSD (0,01)		20	1,5	3,2

9. Comments

Conditions were dry at this site and total rainfall for the period was only ± 75% of the long term mean. Varieties reacted differently to droughted conditions with CP66/1043 being the most affected while N12, N19 and N21 appear to have been the least affected. The Eptam Super treated plots were largely free of weeds while the controls had to be continually hand weeded (± 6 times) to prevent competition. This was difficult to achieve due to delayed canopy formation of transplants.

Scorch and stunting

Table 1 shows the scorch and stunting ratings for each variety at approximately 6 weeks after spraying. Scorch symptoms recorded from varieties N16 and CP66/1043 were higher than the others, but were more than likely due to dry conditions rather than herbicide phytotoxicity as control cane showed similar symptoms. None of the varieties were stunted by the treatment.

Stalk height measurements and populations

Stalk measurements showed no evidence of treatment related stunting. On the contrary, growth appeared to be better for cane grown where Eptam Super had been applied. Growth improvements were particularly evident for varieties N16 and N17 where an 8% and 11% increase respectively was recorded 14 months after spraying (Table 2).

Stalk populations were without exception improved by the treatment three months after transplanting. Populations for certain varieties were increased by almost 100% but differences were insignificant for most varieties one year later. The exception was N17 that still had \pm 18% more stalks in the treated plots at this stage.

Yields

Eptam Super did not appear to effect yields adversely for any variety, although percentage reductions for CP66/1043 were relatively high. Highly significant ($P = 0,01$) increases in both cane and sucrose yields were recorded for N17 while yields for N16, N19 and N21 also appeared to have been improved in the Eptam Super plots (NS).

10. Conclusions

There is no evidence from the results to show Eptam Super related yield reductions. Although an attempt was made to keep the trial free of weeds, some competition certainly occurred which may explain the large yield differences within varieties. The relatively good yield for treated N17 and to a lesser degree N16, N19 and N21, suggests that these varieties are more sensitive to weed competition, and that weed related losses would more than likely be greater than from Eptam Super phytotoxicity.

NBL/lb
22 June 1992