

SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

Code: HW 224
Cat. No: 1419

Title: Herbicide sensitivity of N8 and N13

1. Particulars of the project

This crop : 1st ratoon
Site : Felixton
Region : Zululand
Soil system : Berea
Soil form/series : Fernwood/Fernwood
Design : Random blocks
Variety : N8 and N13
Fertilizer : N P K
Top dressing : 129 - 129
kg/ha

Temik : 20 kg/ha

<u>Soil analysis:</u>		Date: 28. 9. 82					
pH	OM%	Clay%	Silt%	Sand%			
5,91	-	2	5	93			
ppm							
P	K	Ca	Mg	Zn	Al		
>80	70	547	59	>4,0	-		
<u>Age:</u> 12,0 months		<u>Dates:</u> 29/9/82 - 28/9/83					
<u>Sprayed:</u> 29.10.82							
<u>Rainfall:</u>	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Actual	112	139	45	83	75	43	10
L.T.M.	128	124	134	143	163	163	128
% of LTM	88	122	34	58	46	26	8

	May	Jun	Jul	Aug	Sep	Total	
Actual	46	70	107	158	59	947	
L.T.M.	38	56	62	69	98	1356	
% of LTM	52	125	173	229	60	70	

2. Objectives

To test commonly used herbicide mixtures for their effect on ratoon cane of varieties N8 and N13 growing on weak sands

3. Treatments

Variety	Treatment	Rate kg or l prod/ha	Formulation (%)
N8	Control (untreated)	-	
N8	Sencor + diuron	2 + 2	90, 80
N8	Velpar	0,75	90
N8	Dual + ametryne + paraquat	2,75 + 2 + 1	72, 50, 20
N8	Ametryne + MSMA	3 + 3	50, 72
N13	Control (untreated)	-	-
N13	Sencor + diuron	2 + 2	70, 80

4. Experimental

Application details and details of weather conditions were:

Applicator	:	CP ₃ knapsack sprayer
Nozzle	:	APM Green
Output	:	301 l/ha
Method	:	Directed interrow
Cane growth stage	:	Shoot ht (cm) Canopy ht (cm) No leaves/shoot (mean)
N8	:	5,3 23 2,7
N13	:	8 28 2,3
Estimated spray coverage	:	100% of cane foliage
Temperature %	8 am	: 18,6
	2 pm	: 20,6
Rel. humidity %	8 am	: 71
	2 pm	: 50
Sunshine hours	:	6,3
Soil condition	:	moist
Rainfall (mm)	:	3,0
Within two weeks	:	119
Days to first rain	:	1
Amount of first rain	:	14,0

Plot size was 5 rows of 8 metres with net plots of 3 rows of 6 m. Measurements were taken regularly during the growth period.

Heavy weed populations were present uniformly in the trial at the time of spray application. Unsprayed plots were weeded completely nine days after herbicide applications to treated plots. All treatments provided excellent weed control and the whole trial was weeded 25 days after the first treatments.

Severe drought conditions were subsequently experienced.

5. Results

Table 1 Weed infestation ratings (% ground cover) and leaf scorch ratings (%) taken at spraying and subsequently

Year	Treatment	Weed infestation (% ground cover)/Days after spray						Leaf scorch (%)		
		Grasses			Broadleaf		All weeds	Days after spray		
		0	31	47	0	31	7	7	31	47
N8	Control (handhoed)	23	2	8	5	1	70	0	2	3
	Diuron + Sencor	27	1	5	4	0	1	13	5	2
	Velpar	30	0	2	4	1	1	11	6	4
	Dual+amet.+par	33	2	9	3	0	1	52	9	2
	Ametryne + MSMA	35	2	8	4	0	1	28	10	3
N13	Control (handhoed)	28	3	13	2	1	73	3	4	4
	Diuron + Sencor	37	2	6	5	1	2	14	5	5

Table 2. Crop growth measurements taken 13 days and 3 and six and a half months after spraying

Treatments	Rate in kg or l/ha ai or ae	Stalk length (cm)			Stalk popln. (1000/ha)		
		13	3	6,5	13	3	6,5
N8 Control (handhoed)	-	12	43	61	265	247	115
Sencor + diuron	1,4 + 1,6	10	41	59	262	264	118
Velpar	0,675	11	44	59	264	269	123
Dual+ametryne+paraquat	2,0+1,0+0,2	9	35	54	203	285	124
Ametryne + MSMA	1,5 + 2,16	8	37	55	229	278	115
N13 Control (handhoed)	-	12	38	49	184	171	100
Sencor + diuron	1,4 + 1,6	12	37	49	215	218	106

Table 3 Yield data at harvest

Treatments	Rate in kg or l ai or ae/ha	Yield			Stalk length (cm)	Stalk popln (1000/ha)
		Cane t/ha	Sucrose % cane	Sucrose t/ha		
N8 Control (handhoed)	-	23,2	9,13	2,1	104	109
Sencor + diuron	1,4 + 1,6	21,2	9,23	2,0	101	106
Velpar	0,675	20,9	9,31	2,0	103	103
Dual+ametryne+paraquat	2,0+1,0+0,2	19,9	8,35	1,7	96	109
Ametryne+MSMA	1,5 + 2,16	20,9	9,17	1,9	99	107
N13 Control (handhoed)	-	18,5	10,47	1,9	72	90
Sencor + diuron	1,4 + 1,6	16,3	10,33	1,7	71	92
CV%		23,6	7,7	25,6	7,5	11,4
LSD (0,05)		6,197	0,9470	0,6343	9,075	15,20
LSD (0,01)		8,389	1,282	0,8586	12,28	20,66

6. Comments

Weed control and cane scorch (Table 1)

A very heavy infestation of *Panicum maximum* at the 2-3 leaf stage was present at spraying and all treatments provided excellent control. The soil was very moist at the time of spraying. Unsprayed control plots were thoroughly weeded seven days after the applications to treated plots. Thereafter all plots were weeded regularly.

Extremely severe leaf scorch was produced by most treatments with Velpar being the least severe initially. All symptoms grew out and were not visible 47 days after spraying.

Crop measurements (Table 2)

1. All treatments caused some effect on stalk length of N8 with paraquat and MSMA combinations being the worst.
2. Stalk population increase appeared to be delayed by paraquat and MSMA treatments.
3. N13 was not affected in terms of stalk length or population at any stage by Sencor + diuron.

Yield data at harvest

1. High variability was apparent in yield results and this may have been caused by the very severe drought experienced by this crop.
2. In spite of the high variability, unsprayed control plots of both varieties yielded slightly higher than all treated plots.

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