

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Code: A(DROUGHT)5/80/P

Cat. No.: 1253

TITLE: Management of droughted cane

1. Particulars of the project

This crop : Plant
Site : Egolomi Est. Tongaat
Region : North Coast Coastal
Soil system : Umzinto Coast Lowlands
Soil form/series : Glenrosa
Design : Randomised block
Variety : NCo 310
Fertilizer kg/ha : N P K
Ameliorants 118 75 118
Filtercake in furrow at unknown rate

Soil analysis: Date: 16/07/1980

<u>pH</u>	<u>O.M.%</u>	<u>Clay %</u>	<u>P.D.I.</u>
5,6	-	18	0,65

ppm

<u>P</u>	<u>K</u>	<u>Ca</u>	<u>Mg</u>	<u>Zn</u>	<u>Al</u>
46	217	547	211	> 4,0	3

Age: T1. 11,5 months Dates: 15/07/80 - 2/07/81

Age: T2. 27,0 months Dates: /04/79 - 2/07/81

Rainfall: T1 1 147 mm LTM: 1 033 mm

Rainfall: T2 1 856 mm LTM: 2 086 mm

2. Objectives

1. To determine whether severely droughted cane with too little stick to harvest should be cut back or left, and
2. To assess the need to reapply fertilizer to the cane once the drought breaks.

3. Treatments

- T1 Cane cut back
- T2 Cane left standing
- F0 No fertilizer applied
- F1 Fertilizer applied

NOTES ON FERTILIZER 150 kg N/ha as urea was applied to the F1 plots in split applications - half in September and half in October. Soil P & K levels were relatively high.

Condition of the crop - No green leaf visible, upper internodes flaccid and pithy but meristem and buds were still alive; stalk length varied between 300 and 400 mm.

4. Results1. Yield

Treatments	Cane t/ha	Ers % cane	Sucrose % cane	Ers t/ha	Sucrose t/ha
Cane cut back - no fertilizer	55	9,4	11,0	5,2	6,1
Cane cut back - with fertilizer	62	9,7	11,3	6,1	7,1
Cane left standing - no fertilizer	46	9,9	11,5	4,5	5,3
Cane left standing - with fertilizer	35	9,4	11,0	3,3	3,8
Mean	49	9,6	11,2	4,8	5,6
C.V. %	19,7	9,0	6,9	24,7	23,4
S.E. of treatment mean	± 5,6	0,50	0,45	0,68	0,75
L.S.D. (0,05)	19,4	1,7	1,55	2,36	2,61
(0,01)	29,5	2,6	2,35	3,58	3,96

2. Harvested crop characteristics and yield/month

Treatments	tc/ha/month	ters/ha/month	Stalk counts $\times 10^{-3}$ /ha	Stalk length (cm)	Kg/stalk
Cane cut back - no fertilizer	4,62	0,44	107	176	0,50
Cane cut back - with fertilizer	5,21	0,51	113	186	0,54
Cane left standing - no fertilizer	1,84	0,18	73	171	0,62
Cane left standing - with fertilizer	1,40	0,13	63	156	0,56
Mean	3,27	0,32	89	172	0,56

3. Third leaf % d.m. values at 6, (8/01/81) 7, (6/02/81) 8, (4/03/81) and 9 (7/04/81) months of age

Treatments	N % d.m.				P % d.m.				K % d.m.				
	Age	6	7	8	9	6	7	8	9	6	7	8	9
Cane cut back- -fert		2,3	2,1	2,3	2,0	0,22	0,21	0,24	0,22	1,2	1,3	1,3	1,5
Cane cut back- +fert		2,3	2,0	2,2	1,8	0,21	0,20	0,23	0,21	1,3	1,5	1,4	1,6
	Age	19	20	21	22	19	20	21	22	19	20	21	22
Cane left standing- -fert		2,0	2,0	2,0	1,9	0,19	0,20	0,22	0,21	1,0	1,3	1,3	1,5
Cane left standing- +fert		2,1	2,0	2,1	1,9	0,19	0,21	0,24	0,22	1,0	1,4	1,3	1,6

4. % stalks damaged by eldana

Treatment	No fertilizer	With fertilizer	Mean
Cut back cane	55	54	55
Cane left standing	62	71	67

4. Results - contd

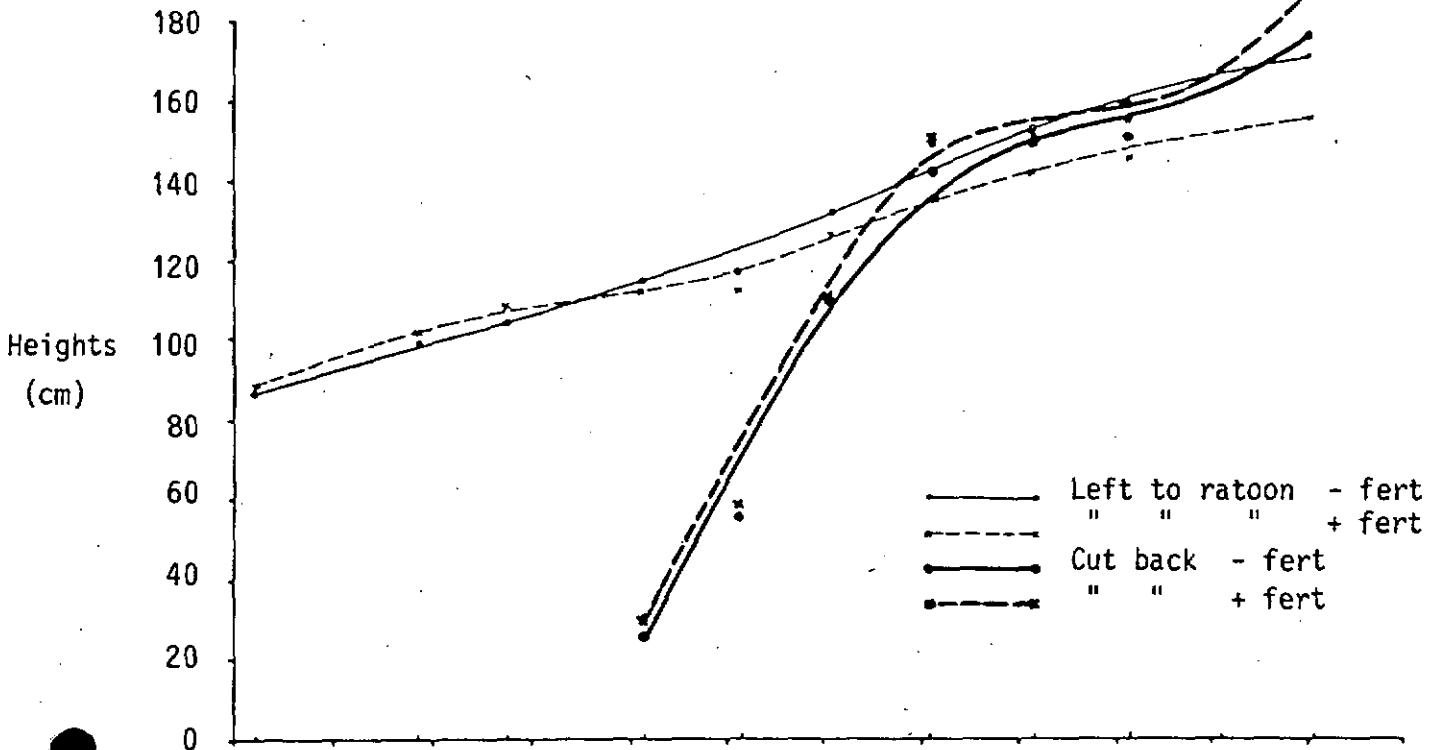
5. Stalks which survived through to harvest in plots where cane was left standing 13,4%
6. Analysis of cut back material which was left on the plots as a mulch

	N%	P%	K%	Ca%	Mg%
Tops	0,94	0,18	2,26	0,18	0,30
Trash	0,30	0,02	0,64	0,19	0,25
Stalk	0,90	0,10	1,88	0,06	0,13

5. Comments

1. This is one of the few trials in which variety NCo 310 was used and where it was beneficial to slash back the droughted cane. It resulted in higher yields ($P=0,05$) of cane and sucrose due mainly to a much higher stalk population at harvest.
2. The rate of stalk elongation of the cane that was left standing was very slow compared with that which was slashed back.
3. The cane in both treatments was badly infested with eldana but the older cane was more heavily infested particularly the older stalks which survived the drought (only 13%), and this is likely to have contributed to the lower yields in those plots where the cane was left standing.
4. Top-dressing with N at 150 kg/ha had no effect on the cane that was left standing except for a slight (n.s.) depression in cane quality, but it tended to increase yields of the cane that was cut back (n.s.). Third leaf data indicated adequacy in all treatments indicating a substantial reserve of nutrients in the soil from earlier application of fertilizer and filtercake.

Stalk elongation



Stalk counts

