SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

Code : R97/R/84
Cat. No.: 1431

TITLE: N14 x Ripeners - early season (Pongola)

1. **Particulars of the crop:**

This crop	:	1st ratoon
Site	:	Pongola Field S. Blk 606 & 607
Region	:	N. irrigated
Soil system	:	Komatipoort
Soil form/series	:	Hutton/Makatini
Design	:	Randomised blocks (5 reps)
Plot size	:	2 rows x 13 m x 1,4 m
Variety	:	N14
Date & age at spraying:		19/5/84 ≙ 10 months
Date & age at harvest	:	24/7/84 ≙ 12 months
Sampling dates	:	19/5/84 - 0 weeks
		6/6/84 - 2,5 weeks
		24/7/84 - 9 weeks

	May	June	July
Irrigation (mm)	122	61	0
Rainfall (mm)	6	44	61

Spray method: CP_3 knapsack with overhead boom fitted with two TK 1,0 floodjets

Pressure: 200 kPa

Volume : 79 ℓ

Weather at spraying: Calm, warm and cloudless.

Condition of cane at spraying:

14 to 15 green leaves
17 to 20 internodes
Very well grown

Sampling technique:

4 stalks taken from 4 predetermined points in the net rows. Starting point advanced by 1 m at each sampling occasion.

2. **Objectives:**

- To determine what effect glyphosate has on the cane quality of N14 during the early part of the milling season.
- To continue assessing the potential of PP005 and HOE 2501 H as chemical ripeners.

3. **Treatments:**

Trial A

1. Control - not sprayed
2. Roundup 0,8 ℓ -ha
3. Roundup 1,6 ℓ -ha
4. PP005 0,35 ℓ -ha
5. PP005 0,7 ℓ -ha
6. HOE 2501 3 ℓ -ha
7. HOE 2501 6 ℓ -ha

Trial B

1. Control - unsprayed
2. Roundup 0,8 ℓ -ha
3. Roundup 1,6 ℓ -ha

4. Results

Sampling results
Trial A

Treatments	Ers % cane changes from 0 wks			stalk mass (g/stalk) changes from 0 wks			Ers g/stalk changes from 0 wks			Purity %		
	Dates and weeks after spraying											
	19/5 0	6/6 2,5	24/7 9	19/5 0	6/6 2,5	24/7 9	19/5 0	6/6 2,5	24/7 9	19/5 0	6/6 2,5	24/ 9
Control	8,1	+0,6	+2,4	1500	+ 91	0	122	+16	+36	77	74	80
Roundup 0,8 ℓ	8,0	+0,7	+2,8	1599	+ 32	- 99	128	+13	+34	77	74	82
Roundup 1,6 ℓ	8,0	+0,1	+2,5	1577	+ 30	+107	126	+ 5	+51	76	73	80
PP 0,35 ℓ	8,0	+0,4	+2,8	1499	+ 76	+ 76	119	+14	+51	77	74	80
PP 0,7 ℓ	8,4	+0,3	+2,8	1585	+ 76	- 38	133	+12	+40	78	74	81
HOE 3 ℓ	7,7	+0,7	+2,8	1565	+ 39	+ 79	120	+15	+53	76	73	79
HOE 6 ℓ	8,3	+0,4	+2,2	1512	+127	-102	125	+17	+24	78	74	79
Mean	8,1	+0,5	+2,6	1542	1612	1545	124	138	165	77	74	80
CV %	10,8	9,4	8,3	8,8	8,3	12,4	14,3	12,9	16,7	3,4	3,4	4,1
LSD (P=0,05)	1,1	1,1	1,1	177	174	248	23,1	23,1	35,7	3,4	3,3	4,2
Trial B												
Control	8,4	-0,2	+2,4	1285	+140	+ 9	108	+ 8	+33	79	76	82
Roundup 0,8 ℓ	8,0	+0,6	+2,7	1516	+ 36	-180	120	+13	+22	77	77	81
Roundup 1,6 ℓ	7,1	+0,7	+3,3	1412	+ 29	-170	102	+13	+28	76	74	80
Mean	7,8	8,2	10,6	1405	1473	1290	110	+11	+28	77	76	81
CV %	14,8	12,9	9,7	9,3	15,7	10,4	21,7	17,9	17,1	3,4	3,7	3,0
LSD (P=0,05)	1,7	1,6	1,6	190	337	208	35	13,7	36,5	3,8	4,1	3,7

Harvest results

Treatments	Tons cane-ha	Ers % cane	Tons ers-ha	Tons suc-ha	Stalk height (cm)	Stalk populn. (1000-ha)
Trial A						
Control	148	10,5	15,5	18,6	326	86
Roundup 0,8 ℓ	158	10,8	17,0	20,1	318	90
Roundup 1,6 ℓ	143	10,5	15,0	17,9	329	90
PP 350 mℓ	160	10,8	17,3	20,6	314	85
PP 700 mℓ	149	11,2	16,6	19,6	326	86
HOE 3 ℓ	146	10,5	15,4	18,4	320	89
HOE 6 ℓ	147	10,5	15,5	18,6	314	90
Mean	150	10,7	16,0	19,0	322	88
CV %	16,6	8,3	19,9	19,2	5,2	14,3
LSD (P=0,05)	32	1,1	4,1	4,8	22	16
Trial B						
Control	151	10,8	16,4	19,3	-	-
Roundup 0,8 ℓ	172	10,7	18,2	21,6	-	-
Roundup 1,6 ℓ	150	10,4	15,7	18,9	-	-
Mean	158	10,6	16,8	19,9	-	-
CV %	10,3	9,7	17,1	14,6	-	-
LSD (P=0,05)	25	1,6	4,3	4,5	-	-

5. Comments

- There is no statistical evidence that any of the treatments improved cane quality.

Glyphosate

- The increase of 1,5 t suc $^{-ha}$ (ns) from Roundup applied at 0,8 ℓ $^{-ha}$ may have been partly due to the small improvement (0,3 suc units) in cane quality and the higher cane yields in Roundup treated plots.

- The 2 x standard rate of Roundup had no effect on cane quality and cane yields and consequently sucrose yields were similar to the untreated cane.

PP005

The response to 350 mℓ $^{-ha}$ was similar to that from the standard rate of glyphosate. Sucrose yields were 2 tons $^{-ha}$ greater than in untreated cane. This may have been due to the higher cane yields (12 tc $^{-ha}$)

and the slight improvement in cane quality as in the glyphosate treated cane.

Cane treated with the higher rate of PP005 (700 $m\ell^{-ha}$) had similar cane yields to untreated cane and the small increase in cane quality improved sucrose yields by 1 ton $^{-ha}$.

HOE 2501

Except for the marked leaf scorch and 'burning' of the stalk no ripening effects were evident from applying this product to N14.

6. General

- Growth was very variable and consequently CV% were high.
- The mean daily air temperatures dropped markedly during June and there is some evidence that natural ripening was accelerated. This may have caused chemical ripening to be less effective.
- Rain and strong winds caused cane to lodge in the whole trial two days before harvesting

RAD/IS
14 September 1984