

SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

Title: CHEMICAL RIPENER TRIAL 7310/9

Cat No.: 1308

Object : To determine the effect of spraying chemical ripeners onto cultivars which may be released for commercial production.

This crop : Plant Age : 13,4 months (24:3:80 - 6:5:81)

Location : ZSA Experiment Station, Sable block, Field L3

Soil type : PE.1 sandy clay loam derived from gneiss

Spacing : Rows spaced 1,4m apart

Fertiliser : Nitrogen Phosphate
140 kg/ha 60 kg/ha

Rainfall : 924 mm

Irrigation : 1 070 mm

Treatments : Cultivars - Main plots (first digit)
1 NCo 376 - standard for comparison
2 CP 61-37 - early season cultivar
3 B 51129 - late season cultivar
4 M 305/51 - late season cultivar
5 Waya - late season cultivar

Chemical ripeners - Subplots (second digit)
1 Control
2 Ethrel 0,75 kg a.i./ha
3 Glyphosate 0,60 kg a.i./ha

Conduct : All chemical ripeners were mixed with water and a surfactant added if not already added by the manufacturers. Sufficient solution was made up to ensure that the correct levels of chemical ripeners were applied when 80 l of solution per ha was sprayed over the top of the cane canopy. A carbon dioxide pressurised knapsack sprayer with FS 480 jets on a T boom was used.

RESULTS

Relevant data are summarised in the attached tables :

Cane yields. There were highly significant cane yield differences between the cultivars tested. However, spraying these cultivars with Ethrel or glyphosate eight weeks before harvest had no effect on cane yields.

Purity %. Spraying plants with Ethrel as they were approaching maturation i.e. when Purity % was greater than 79% had no effect on natural ripening. On the other hand glyphosate was able to significantly increase stalk ripening when Purity % was about 82%.

ERC % cane. CP 61-37 and B 51129 produced significantly better quality than NCo 376 and M 305/51 and Waya. Ethrel had no significant effect on ripening, whereas glyphosate significantly increased ripening in all cultivars with the exception of NCo 376, and responses were greater amongst the late season cultivars.

TERC/ha. NCo 376 produced significantly greater TERC/ha than the other cultivars, which was independent of any benefits from glyphosate. Ethrel had no effect on TERC/ha whereas glyphosate produced a significant increase in TERC/ha. There was no significant interaction between glyphosate and the cultivars tested.

Stalk lengths. Spraying Ethrel and glyphosate eight weeks before harvest reduced stalk lengths by 3,3 and 6,7% respectively at harvest.

CONCLUSIONS

Cultivar responses to chemical ripeners early in the harvest season can vary markedly. These variations appear to be largely associated with stalk maturity and other factors. Hence when stalks are approaching maturation quality responses to Ethrel may not occur, whereas glyphosate can produce significant responses at higher levels of stalk maturity. This is probably due to glyphosate being able to inhibit stalk elongation soon after spraying and hence more carbohydrates can be stored as sucrose and less as structural carbohydrates. Also, in most years NCo 376 can be ripened by glyphosate, although no differences were observed in this experiment.

RJH/Feb. '82

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7310/9 CHEMICAL RIPENER TRIAL - CANE YIELDS, ERC% CANE - PLANT DATA

Table 1.

Treatments	Cane yields t/ha				ERC % cane							
					At time of spraying	At harvest 8 weeks after spraying					% response to Ethrel	% response to glyphosate
	Un-sprayed control	After Ethrel	After glypho-sate	Mean		Un-sprayed control	After Ethrel	After glypho-sate	Mean			
Cultivars												
NCo 376	182,7	177,8	174,2	178,3	8,40	12,19	12,68	12,57	12,48	4,0	3,1	
CP 61-37	134,7	131,4	132,6	132,9	11,10	13,17	13,07	14,13	13,44	-0,5	7,6	
B 51129	139,5	143,9	142,6	142,0	9,72	12,79	12,69	14,42	13,30	-0,8	12,7	
M 305/51	151,6	162,2	151,9	155,2	8,06	11,28	11,50	12,57	11,78	2,0	11,4	
Waya	144,2	137,4	143,2	141,6	8,60	11,68	11,77	12,81	12,09	0,8	9,7	
Means	150,5	150,3	149,9	150,0	9,18	12,21	12,34	13,30	12,62	1,1	8,9	
S.E. Cultivars means \pm	4,4					0,16						
S.E. chemical ripener means \pm	2,4					0,12						
S.E. subplot for same main plot \pm	5,3					0,27						
L.S.D. cultivars P=0,05	12,8					0,48						
P=0,01	17,5					0,65						
L.S.D. chemical ripeners P=0,05	N.S.					0,35						
P=0,01	N.S.					0,46						
L.S.D. difference between subplots for same main plot P=0,05	N.S.					0,78						
P=0,01	N.S.					1,03						
C.V.% cultivars	12,3					5,47						
C.V.% ripeners	8,7					5,30						

Table 2.

Treatments	TERC/ha				TF % cane							
	Un-sprayed control	After Ethrel	After glyphosate	Mean	At time of spraying	At harvest 8 weeks after spraying						
						Un-sprayed control	After Ethrel	After glyphosate	Mean	% response to Ethrel	% response to glyphosate	
<u>Cultivars</u>												
NCo 376	22,29	22,57	21,97	22,28	11,05	14,40	14,76	14,84	14,67	2,5	3,1	
CP 61-37	17,71	17,20	18,80	17,90	13,22	15,05	14,96	15,93	15,31	-0,6	5,8	
B 51129	17,87	18,26	20,55	18,89	12,00	14,80	14,79	16,35	15,31	-0,1	10,5	
M 305/51	17,10	18,68	19,08	18,29	10,50	13,52	13,59	14,52	13,88	0,5	7,4	
Waya	16,86	16,23	18,36	17,15	11,27	14,02	13,94	15,07	14,34	-0,6	7,5	
Mean	18,37	18,59	19,75	18,90	11,61	14,36	14,41	15,34	14,70	0,4	6,8	
S.E. cultivars means \pm	0,67											
S.E. chemical ripeners means \pm	0,38											
S.E. subplot for same main plot \pm	0,86											
L.S.D. cultivars P=0,05	1,98											
P=0,01	2,70											
L.S.D. chemical ripeners P=0,05	1,09											
P=0,01	1,46											
L.S.D. difference between subplots for same main plots P=0,05	N.S.											
P=0,01	N.S.											
C.V.% cultivars	15,07											
C.V.% ripeners	11,14											

7310/9 CHEMICAL RIPENER TRIAL - TF t/ha, STALK LENGTHS - PLANT CROP

Table 3.

Treatments	TF t/ha				Purity % at spraying	Stalk lengths (m)			
	Unsprayed Control	After Ethrel	After glyphosate	Mean		Unsprayed control	After Ethrel	After glyphosate	Mean
<u>Cultivars</u>									
NCo 376	26,34	26,28	25,93	26,18	78,8	3,13	2,98	2,93	3,01
CP 61-37	20,30	19,67	21,18	20,39	85,9	2,68	2,39	2,52	2,53
B 51129	20,67	21,26	23,30	21,75	83,0	3,03	2,88	2,81	2,91
M 305/51	20,51	22,08	22,04	21,54	83,7	3,19	3,35	3,09	3,21
Waya	20,22	19,19	21,59	20,34	82,5	3,01	2,94	2,73	2,89
	21,61	21,70	22,81	22,04	81,6	3,01	2,91	2,82	2,91

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Cat. No.: 1308

7310/9 CHEMICAL RIPENER TRIAL

Object: To determine the effect of spraying chemical ripeners onto cultivars which may be released for commercial production

This Crop: 1st ratoon Age: 12 months (6.5.81 - 5.5.82)

Location: ZSA Experiment Station, Sable block, Field L3.

Soil type: PE 1 sandy clay loam derived from gneiss.

Spacing: Rows spaced 1,4 m apart.

Fertilizer: Nitrogen Phosphate
180 kg/ha 60 kg/ha

Rainfall: 469,9 mm

Irrigation: 1092,0 mm

Treatments: Cultivars - main plots (first digit)
1. NCo 376 - standard for comparison
2. CP 61-37 - early-season cultivar
3. B 51129 - late-season cultivar
4. M 305/51 - late-season cultivar
5. WAYA - late-season cultivar

Chemical ripeners - sub plots (second digit)
1. Control
2. Ethrel 0,75 kg a.i./ha
3. Glyphosate 0,60 kg a.i./ha

Conduct: All chemical ripeners were mixed with water and a surfactant included if not already added by the manufacturers. Sufficient solution was made up to ensure that the correct levels of chemical ripeners were applied when 145 l of solution per ha. was sprayed over the top of the cane canopy. A carbon dioxide pressurised knapsack sprayer with FS 480 jets on a T-boom, was used.

2/...Results

RESULTS

Relevant data are summarised in the attached tables 1-3.

(a) Cane yields: Cane yields from the cultivars tested varied significantly. NCo 376 produced the greatest cane yields and B 51129 the least. Spraying Ethrel onto these cultivars eight weeks before harvest had no significant effect on cane yields, whereas spraying glyphosate at the same time significantly depressed cane yields. However the two-way table (Table 1) has shown that glyphosate had little effect on NCo 376, B51129 and Waya, but markedly reduced cane yield in both CP 61-37 and M 305/51.

(b) Purity %: With the exception of B 51129 spraying plants with Ethrel eight weeks before harvest as they were approaching maturation, i.e. when purity was greater than 73,2%, had no significant effect on the plants natural rate of ripening. However, spraying glyphosate at the same time did significantly increase ripening.

(c) ERC % Cane: At harvest in the unsprayed controls, CP 61-37 produced better quality than NCo 376 and B 51129, while M 305/51 and Waya produced the poorest quality. The effect of spraying Ethrel varied from a quality loss of 6,5% in M 305/51 to a significant quality increase of 9,7% in B 51129. Spraying glyphosate at the same time as Ethrel produced a significant quality response in all cultivars. These responses varied from 24,2% in Waya to 15,5% in CP 61-37.

These results have shown that the late season cultivars i.e. B 51129 M 305/51 and Waya, produced a greater quality response after spraying glyphosate than the early to mid-season cultivars i.e. CP 61-37 and NCo 376.

(d) TERC/ha: NCo 376 produced significantly greater TERC/ha than CP 61-37, while the late season cultivars, B 51129, M305/51 and Waya produced the poorest TERC/ha. Except for CP 61-37, in which glyphosate markedly depressed cane yields and hence TERC/ha, glyphosate significantly increased TERC/ha by 0,95 to 2,75 TERC/ha in the other cultivars. The apparent small average benefit from spraying Ethrel was largely due to a single significant response from B 51129.

(e) TF% cane and TF t/ha: Similar responses from spraying chemical ripeners on to the same cultivars were observed for ERC % cane and TF % cane and also for TERC/ha and TF/ha respectively.

(f) Stalk lengths: In all cultivars spraying plants with glyphosate markedly depressed stalk elongation while Ethrel only depressed stalk elongation in the early and mid-season cultivars.

3/....Conclusions.

Conclusions:

When purity was greater than about 73,2%, Ethrel was unable to increase the natural ripening of all cultivars except B 51129, whereas glyphosate, which markedly reduced stalk elongation, was able to significantly increase ripening at higher purities. Also the response from spraying chemical ripeners early in the harvest season was greater from late-season cultivars than from early-season cultivars.

PROGRESS REPORT

Planted: 24.3.80

<u>Harvested:</u>	<u>Harvest</u>	<u>Age</u>
P	6.5.81	13,4 months
IR	5.5.82	12,0 months

<u>Fertilizer:</u>	N	P
Plant	140 kgN/ha	60 kgP ₂ O ₅ /ha
IR	180 kgN/ha	60 kgP ₂ O ₅ /ha

Source - ammonium nitrate and single superphosphate

RESULTS

Relevant data are summarised in Table 4-9

(a) Cane yields: In both the plant and first ratoon NCo 376 produced significantly greater cane yields than the other cultivars, while the greatest decline in cane yields in the first ratoon (28,4%) occurred in B 51129. In the plant crop chemical ripeners had no significant effect on cane yields whereas glyphosate significantly depressed cane yields in the first ratoon. The decline was greater in CP 61-37 and M 305/51, than in the other cultivars.

4/...cane yields (graph)

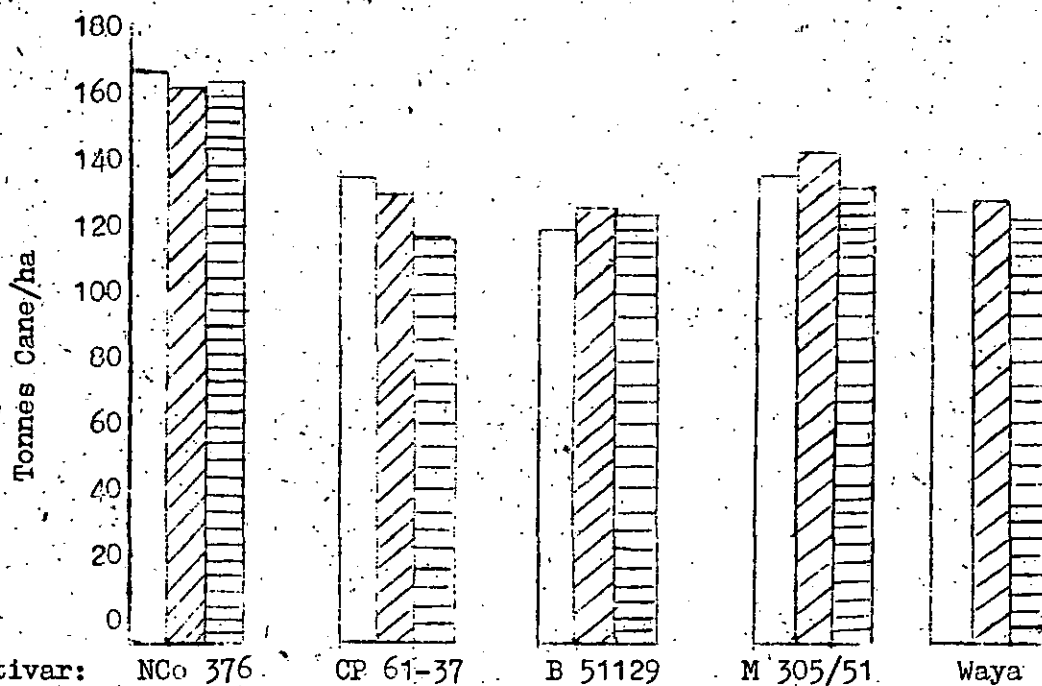


Fig.1 Average cane yields for plant and 1st ratoon for different cultivars sprayed with chemical ripeners.

Unsprayed control □ Ethrel ▨ and glyphosate ▩

(b) Purity: The average purity at the time of spraying the chemical ripeners in both crops, was greater than 73,2% and this probably was accountable for Ethrel producing no significant quality responses other than in B 51129 in the first ratoon. On the other hand glyphosate was able to ripen sugar cane at these higher purities.

(c) ERC % Cane: Quality differences between cultivars were similar in both the plant and first ratoon i.e. CP 61-37 produced the best quality and M 305/51 the poorest. Quality responses after spraying Ethrel were small and non-significant except for B 51129, in the first ratoon, whereas after spraying glyphosate, quality in all cultivars was significantly improved, except for NCo 376 in the plant crop. The greatest improvements occurred in the late-season cultivars i.e. 13,9 to 16,5% and the least in the early to mid-season cultivars i.e. 9,3 to 11,3%.

5/...ERC % cane (graph)

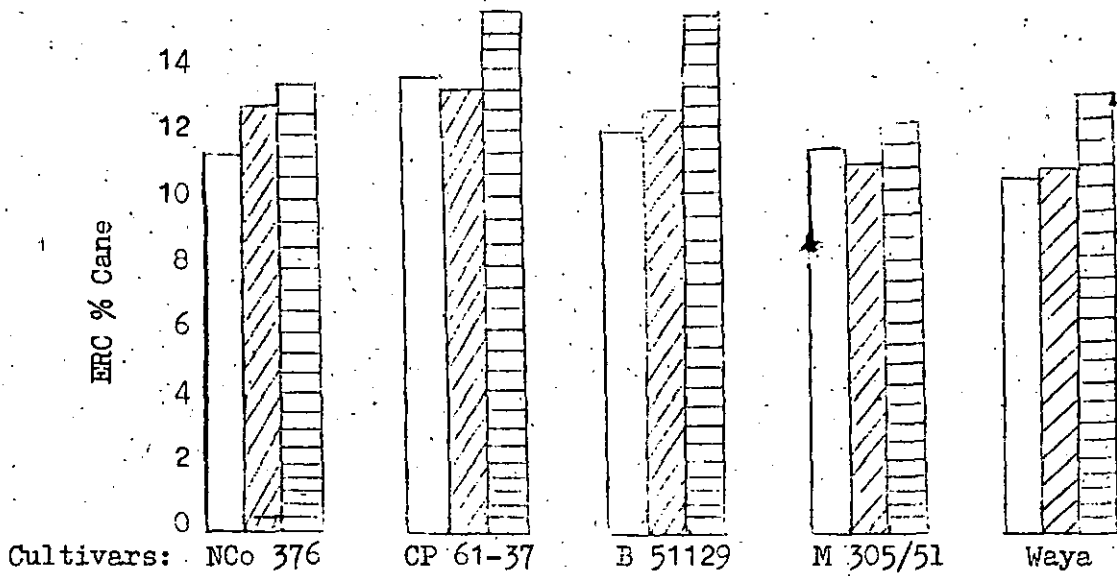


Fig. 2 Average ERC % cane for plant and first ratoon crops for different cultivars sprayed with chemical ripeners.

Unsprayed control □ Ethrel, ▨ and glyphosate. ▩

(d) TERC/ha: With the exception of B 51129 in the first ratoon, there were no significant TERC/ha responses to Ethrel among the cultivars. Also responses to glyphosate tended to be variable. In the plant crop there was no response in NCo 376 and similarly in CP 61-37 in the first ratoon. Otherwise, there was a positive response to cultivars in both crops.

6/...TERC/ha (graph)

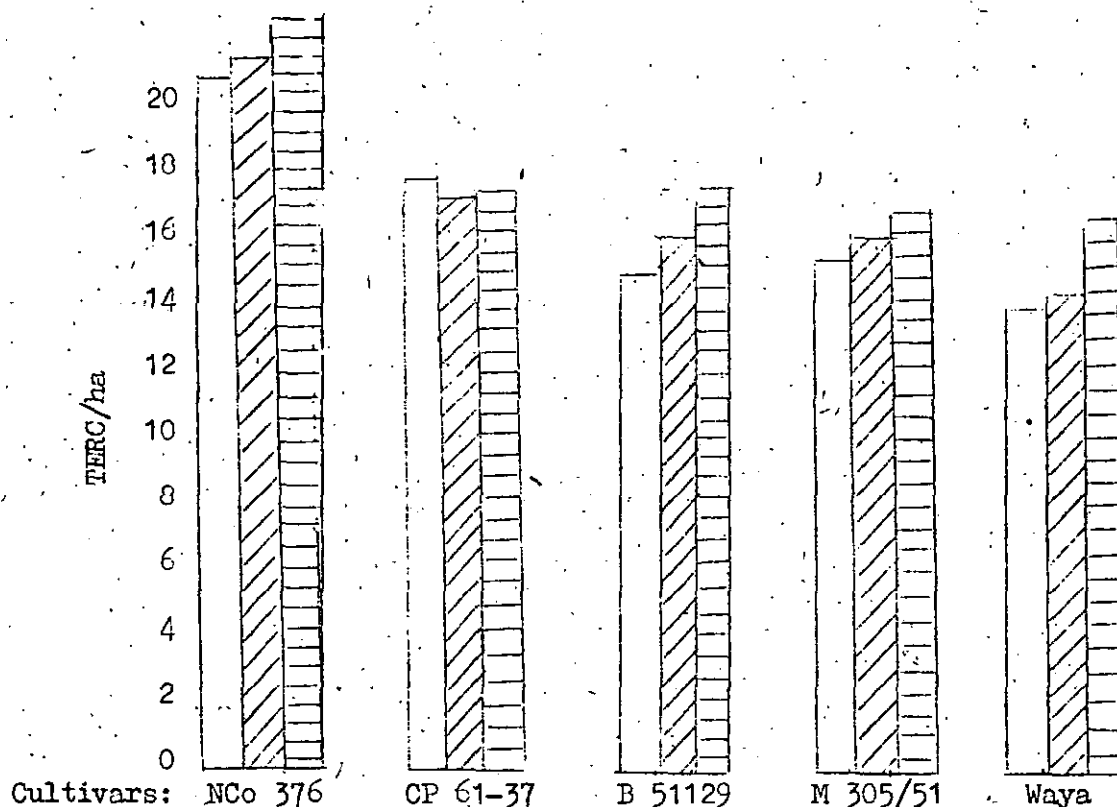


Fig. 3 Average TERC/ha for plant and 1st ratoon for different cultivars sprayed with chemical ripeners.

Unsprayed control □ Ethrel ▨ and glyphosate ▤

(e) TF % cane and TF t/ha: TF % cane responses to chemical ripeners were similar but smaller than those observed for ERC % cane and hence it follows that TF t/ha will also be similar and smaller than those observed for TERC/ha.

7/...TF % cane and TF t/ha (graph)

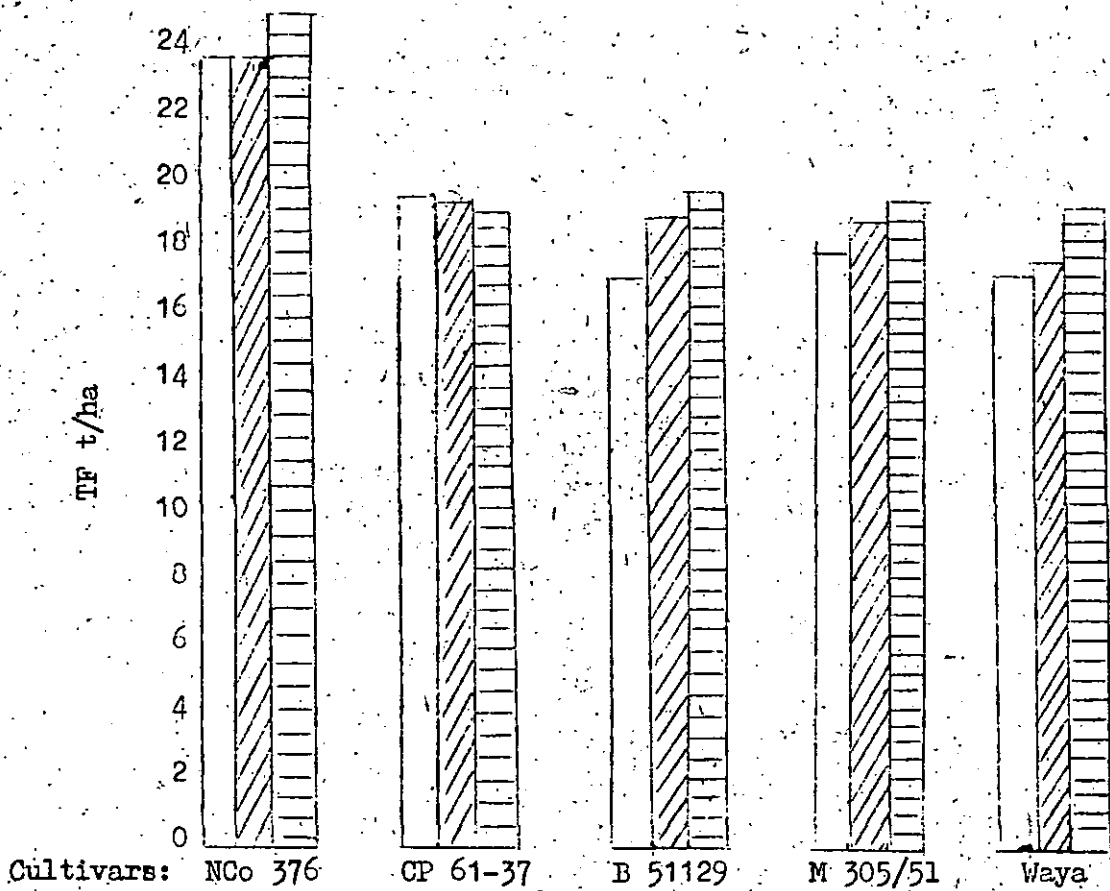


Fig. 4 Average TF t/ha for plant and 1st ratoon for different cultivars sprayed with chemical ripeners.

Unsprayed control □ Ethrel ▨ and glyphosate ▩

(f) Stalk lengths: There was a good relationship between chemical ripeners and stalk lengths at harvest for each cultivar, i.e. shorter stalk lengths were associated with greater ERC % cane and TF % cane, whereas greater stalk lengths were associated with greater cane yields.

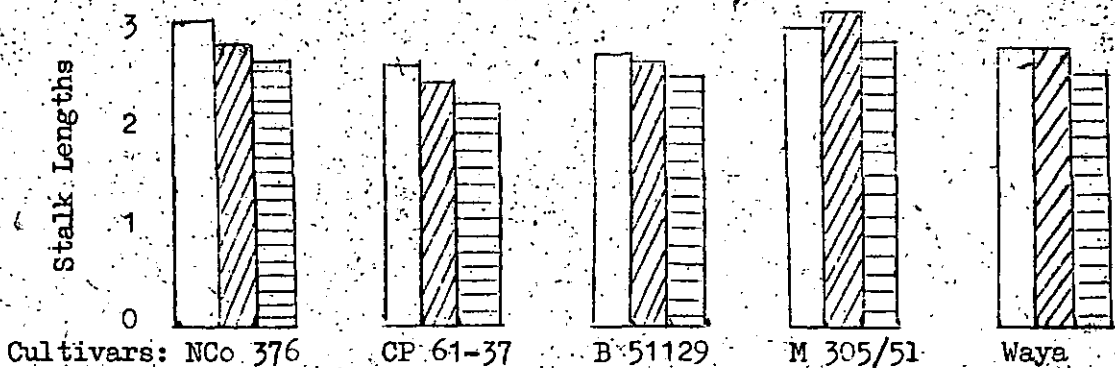


Fig. 5 Average stalk lengths for plant and 1st ratoon crops for different cultivars sprayed with chemical ripeners.

Unsprayed control □ Ethrel ▨ and glyphosate ▩

CONCLUSIONS

Although the mechanism for the ripening of sugarcane by different chemical ripeners is not fully understood, these results suggest that Ethrel is unable to ripen stalks significantly as they approach maturation i.e. when purities are greater than 73%, whereas glyphosate is able to ripen stalks significantly at greater purities. This data suggests that ripening with chemicals early in the harvest season is largely associated with the suppression of stalk elongation, and presumably greater ripening and storage of sucrose occurs when the rates of photosynthesis and respiration are not markedly affected. Hence TERC/ha and TF/ha differences are probably associated with the amount of carbohydrates distributed between structural carbohydrates for greater stalk elongation, the amount of sucrose stored, and the amount of reducing sugars present.

These results have shown that there is a greater response from spraying glyphosate early in the harvest season onto late-season cultivars than early to mid-season cultivars. In spite of these benefits TERC/ha and TF t/ha were on average less than the unsprayed controls in the early and mid-season cultivars.

The small non-significant benefits obtained from spraying Ethrel onto stalks approaching maturation in this experiment and the observed benefits from immature stalks in earlier experiments, suggests that more work is required to determine the ripening effects of Ethrel when applied at a range of purity levels.

RJH/Aug'82
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7310/9 CHEMICAL RIPENER TRIAL - CANE YIELDS, ERC% CANE -1st RATOON

Table 1

Treatments	Cane yields t/ha				ERC % Cane						
					At harvest 8 weeks after spraying.						
	Un-sprayed control	After Ethrel	After glyphosate	Mean	At time of spraying	Un-sprayed control	After Ethrel	After glyphosate	Mean	% response to Ethrel	% response to glyphosate
<u>Cultivars</u>											
NCU 376	153,8	147,1	152,5	151,1	6,86	11,14	11,94	12,92	12,00	7,2	16,0
CP 61-37	130,0	127,2	99,8	119,0	10,35	12,38	12,22	14,30	12,96	-1,3	15,5
B 51129	98,7	107,6	98,7	101,7	7,50	11,29	12,38	13,62	12,43	9,7	20,6
M 305/51	123,7	127,2	144,0	121,6	6,87	10,25	9,58	11,96	10,60	-6,5	16,7
Waya	107,5	118,4	106,5	110,8	6,65	10,42	10,57	12,94	11,31	1,4	24,2
Mean	122,7	125,5	114,3	120,8	7,64	11,10	11,34	13,15	11,86	2,1	18,5
S.E. cultivars means [±]			4,3		0,26			0,19			
S.E. chemical ripener means [±]			2,1		—			0,13			
S.E. subplot for same main plot [±]			4,8		—			0,30			
L.S.D. cultivars P=0,05			12,7		0,77			0,56			
P=0,01			17,3		1,05			0,76			
L.S.D. chemical ripeners P=0,05			6,0		—			0,30			
P=0,01			8,0		—			0,50			
L.S.D. differences between subplots for same main plot P=0,05			13,5		—			0,84			
P=0,01			18,0		—			1,12			
C.V. % cultivars			15,1		14,47			6,75			
C.V. % ripeners			9,6		—			6,11			

7310/9 CHEMICAL RIPENER TRIAL - TERC/ha AND TF % CANE - 1st RATOON

Table 2

Treatments	TERC/ha				TF % cane						
	Un-sprayed control	After Ethrel	After glyphosate	Mean	At time of Spraying	At harvest 8 weeks after spraying					
						Un-sprayed control	After Ethrel	After glyphosate	Mean	% response to Ethrel	% response to glyphosate
<u>Cultivars</u>											
NCo 376	17,12	17,60	19,69	18,14	9,96	13,22	13,80	14,72	13,91	4,4	11,3
CP61-37	16,07	15,58	14,23	15,29	12,46	14,14	13,94	15,98	14,69	-1,4	13,0
B. 51129	11,11	13,35	13,50	12,65	10,40	13,14	14,27	15,52	14,31	0,6	18,1
M 305/51	12,68	12,18	13,63	12,83	9,57	12,18	11,60	13,86	12,54	-4,8	13,8
Waya	11,28	12,54	13,70	12,50	9,75	12,58	12,70	14,07	13,38	1,0	18,2
Mean	13,65	14,25	14,95	14,28	10,43	13,05	13,26	14,99	13,77	1,2	14,9
S.E. cultivar means †		0,53			0,22			0,17			
S.E. chemical ripeners means †		0,31						0,12			
S.E. subplot for same main plot †		0,70						0,27			
L.S.D. cultivars P=0,05		1,55			0,65			0,51			
P=0,01		2,12			0,88			0,69			
L.S.D. chemical ripeners P=0,05		0,89						0,34			
P=0,01		N.S.						0,45			
L.S.D. difference between subplots for same main plot P=0,05		1,98						0,76			
P=0,01		N.S.						1,01			
C.V. % cultivars		15,77			8,92			5,28			
C.V. % ripeners		11,97			5,28			4,76			

7310/9 CHEMICAL RIPENER TRIAL - TF t/ha, PURITY % CANE AND STALK LENGTHS - 1st RATOON

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Table 3

Treatments	TF t/ha				Purity % at spraying	Stalk lengths (m)				
	At harvest 8 weeks after spraying									
	Un-sprayed control	After Ethrel	After glyphosate	Mean		Un-sprayed control	After Ethrel	After glyphosate	Mean	
<u>Cultivars</u>										
NCo 376	20,32	20,33	22,42	21,02	74,2	2,72	2,47	2,27	2,49	
CP 61-37	18,36	17,77	15,92	17,35	85,1	2,41	2,27	2,02	2,23	
B 51129	12,95	15,37	15,36	14,56	75,0	2,26	2,21	1,99	2,15	
M 305/51	15,06	14,73	15,80	15,20	76,8	2,52	2,03	2,31	2,55	
Wayá	13,59	15,05	15,77	14,80	73,2	2,29	2,40	2,05	2,25	
Mean	16,06	16,65	17,06	16,59	76,9	2,44	2,44	2,13	2,33	
S.E. cultivars means ±			0,60							
S.E. chemical ripeners means ±			0,34							
S.E. subplot for same main plot ±			0,76							
L.S.D. cultivars P=0,05			1,77							
P=0,01			2,41							
L.S.D. chemical ripeners P=0,05			N.S.							
P=0,01			N.S.							
L.S.D. difference between subplots for same main plots P=0,05			2,17							
P=0,01			N.S.							
C.V.%cultivars			15,34							
C.V.%ripeners			11,26							

7310/9 - CHEMICAL RIPENER TRIAL - CANE YIELDS - PLANT AND 1st RATOON

Table 4

Treatments	Cane yield t/ha											
	P				IR				Mean P + IR			
	Un-sprayed control	After Ethrel	After glyphosate	Mean	Un-sprayed control	After Ethrel	After glyphosate	Mean	Un-sprayed control	After Ethrel	After glyphosate	Mean
<u>Cultivars</u>												
NCo 376	182,7	177,8	174,2	178,3	153,8	147,1	152,5	151,1	168,2	162,4	163,3	164,6
CP 61-37	134,7	131,4	132,6	132,9	130,0	127,2	99,8	119,0	132,4	129,3	116,2	126,0
B 51129	139,5	143,9	142,6	142,0	98,7	107,6	98,7	101,7	119,2	125,8	120,6	121,9
M 305/51	151,6	162,2	151,9	155,2	123,7	127,2	114,0	121,6	137,6	144,7	133,0	138,4
Waya	144,2	137,4	143,2	141,6	107,5	118,4	106,5	110,8	125,8	127,9	124,8	126,2
Mean	150,5	150,3	149,9	150,0	122,7	125,5	114,3	120,8	136,6	138,0	131,6	135,4
S.E. cultivar means ±			4,4				4,3				--	
S.E. chemical ripeners means ±			2,4				2,1				--	
S.E. subplot for same main plot means ±			5,3				4,8				--	
L.S.D. cultivars P=0,05			12,8				12,7				--	
P=0,01			17,5				17,3				--	
L.S.D. chemical ripeners P=0,05			N.S.				6,0				--	
P=0,01			N.S.				8,0				--	
L.S.D. difference between subplots for same main plot P=0,05			N.S.				13,5				--	
P=0,01			N.S.				18,0				--	
C.V. % cultivars			12,3				15,1				--	
C.V. % ripeners			8,7				9,6				--	

7310/9 CHEMICAL RIPENER TRIAL - ERC % CANE - PLANT AND 1st RATOON

Table 5b

Treatments	ERC % Cane - at time of spraying and at harvest						
	Mean P + IR					% response to Ethrel glyphosate	
	At time of spraying	Unsprayed control	After Ethrel	After glyphosate	Mean		
<u>Cultivars</u>							
NCo 376	7,60	11,66	12,31	12,74	12,24	5,6	9,3
CP 61-37	10,72	12,78	12,64	14,22	13,21	-1,1	11,3
B 51129	8,61	12,04	12,54	14,02	12,87	4,2	16,4
M 305/51	7,46	10,76	10,54	12,26	11,19	-2,0	13,9
Waya	7,62	11,06	11,17	12,88	11,70	1,0	16,5
Mean	8,40	11,66	11,84	13,22	12,24	1,5	13,5
S.E. cultivar means ±			---				
S.E. chemical ripeners means ±			---				
S.E. subplot for same main plot - means ±			---				
L.S.D. cultivars P=0,05			---				
P=0,01			---				
L.S.D. chemical ripeners P=0,05			---				
P=0,01			---				
L.S.D. difference between subplots for same main plot P=0,05			---				
P=0,01			---				
C.V. % cultivars			---				
C.V. % ripeners			---				

7310/9 CHEMICAL RIPENER TRIAL - TERC/ha - PLANT AND 1st RATOON

Table 6

Treatments	TERC/ha											
	P				IR				Mean P + IR			
	Un-sprayed control	After Ethrel	After glyphosate	Mean	Un-sprayed control	After Ethrel	After glyphosate	Mean	Un-sprayed control	After Ethrel	After glyphosate	Mean
<u>Cultivars</u>												
NCo 376	22,29	22,57	21,97	22,28	17,12	17,60	19,69	18,14	19,70	20,08	20,83	20,20
CP 61-37	17,71	17,20	18,80	17,90	16,07	15,58	14,23	15,29	16,89	16,39	16,52	16,60
B 51129	17,87	18,26	20,55	18,89	11,11	13,35	13,50	12,65	14,49	15,80	17,02	15,77
M 305/51	17,10	18,68	19,08	18,29	12,68	12,18	13,63	12,83	14,89	15,43	16,36	15,56
Waya	16,86	16,23	18,36	17,55	11,28	12,54	13,70	12,50	14,07	14,38	16,03	14,83
Mean	18,37	18,59	19,75	18,90	13,65	14,25	14,95	14,28	16,01	16,42	17,35	16,59
S.E. cultivar means \pm			0,67				0,53				---	
S.E. chemical ripeners means \pm			0,38				0,31				---	
S.E. subplot for same main plot means \pm			0,86				0,70				---	
L.S.D. cultivars P=0,05			1,98				1,55				---	
P=0,01			2,70				2,12				---	
L.S.D. chemical ripeners P=0,05			1,09				0,89				---	
P=0,01			1,46				N.S.				---	
L.S.DD difference between subplots for same main plots P=0,05			N.S.				1,98				---	
P=0,01			N.S.				N.S.				---	
C.V.%cultivars			15,07				15,77				---	
C.V.%ripeners			11,14				11,97				---	

7310/9 CHEMICAL RIPENER TRIAL - TF % CANE - PLANT AND 1st RATOON

Table 7b

Treatments	TF % Cane - at time of spraying and at harvest						
	Mean P + IR.					% response to Ethrel glyphosate	
	At time of spraying	Unsprayed control	After Ethrel	After glyphosate	Mean		
<u>Cultivars</u>							
NCo 376	10,50	13,81	14,28	14,78	14,29	3,4	7,0
CP 61-37	12,84	14,60	14,45	15,96	15,00	-1,0	9,3
B 51129	11,20	13,97	14,53	15,94	14,81	4,0	14,1
M 305/51	10,04	12,85	12,60	14,19	13,21	-1,9	10,4
Waya	10,51	13,30	13,32	14,97	13,86	0,2	12,6
Mean	11,02	13,71	13,84	15,17	14,23	0,9	10,7
S.E. cultivar means \pm							
S.E. chemical ripeners means \pm							
S.E. subplot for same main plot means \pm							
L.S.D. cultivars P=0,05							
P=0,01							
L.S.D. chemical ripeners P=0,05							
P=0,01							
L.S.D. difference between subplots for same main plot P=0,05							
P=0,01							
C.V. % cultivars							
C.V. % ripeners							

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CHEMICAL RIPENER TRIAL - TF t/ha - PLANT AND 1st RATOON

Table 8

Treatments	TF t/ha											
	P				IR				Mean P + IR			
	Un-sprayed Control	After Ethrel	After glypho-sate	Mean	Un-sprayed control	After Ethrel	After glypho-sate	Mean	Un-sprayed control	After Ethrel	After glypho-sate	Mean
<u>Cultivars</u>												
NCo 376	26,34	26,28	25,93	26,18	20,32	20,33	22,42	21,02	23,33	23,30	24,18	23,60
CP 61-37	20,30	19,67	21,18	20,39	18,36	17,77	15,92	17,35	19,33	18,72	18,55	18,87
B 51129	20,67	21,26	23,30	21,75	12,95	15,37	15,36	14,56	16,81	18,32	19,33	18,15
M 305/51	20,51	22,08	22,04	21,54	15,06	14,73	15,00	15,20	17,78	18,40	18,92	18,37
Waya	20,22	19,19	21,59	20,34	13,59	15,05	15,77	14,80	16,90	17,12	18,60	17,57
Mean	21,61	21,70	22,81	22,04	16,06	16,65	17,06	16,59	18,83	19,17	19,93	19,31
S.E. cultivar means ±			---				0,60				---	
S.E. chemical ripeners means ±			---				0,34				---	
S.E. subplot for same main plot means ±			---				0,76				---	
L.S.D. cultivars P=0,05			---				1,77				---	
P=0,01			---				2,41				---	
L.S.D. chemical ripeners P=0,05			---				N.S.				---	
P=0,01			---				N.S.				---	
L.S.D. difference between subplots for same main plots P=0,05			---				2,17				---	
P=0,01			---				N.S.				---	
C.V. % cultivars			---				15,34				---	
C.V. % ripeners			---				11,26				---	

7310/9 CHEMICAL RIPENER TRIAL - PURITY % AND STALK LENGTHS - PLANT AND 1st RATOON

Table 9

Treatments	Purity % at spraying			Stalk lengths (m)											
				P				IR				Mean P + IR			
	P	IR	Mean P + IR	Un-sprayed	After	After	Mean	Un-sprayed	After	After	Mean	Un-sprayed	After	After	Mean
				Control	Ethrel	glypho-sate		Control	Ethrel	glypho-sate		Control	Ethrel	glypho-sate	
<u>Cultivars</u>															
NCo 376	78,8	74,2	76,5	3,13	2,98	2,93	3,01	2,72	2,47	2,27	2,49	2,92	2,72	2,60	2,75
CP 61-37	85,9	85,1	85,5	2,68	2,39	2,52	2,53	2,41	2,27	2,02	2,23	2,54	2,33	2,27	2,38
B 51129	83,0	75,0	79,0	3,03	2,88	2,81	2,91	2,26	2,21	1,99	2,15	2,64	2,54	2,40	2,53
M 305/51	83,7	76,8	80,2	3,19	3,35	3,09	3,21	2,52	2,83	2,31	2,55	2,86	3,09	2,70	2,88
Waya	82,5	73,2	77,8	3,01	2,94	2,73	2,89	2,29	2,40	2,05	2,25	2,65	2,57	2,39	2,57
Mean	81,6	76,9	79,8	3,01	2,91	2,82	2,91	2,44	2,44	2,13	2,33	2,72	2,67	2,47	2,62