

SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

2170/1 (a) and (b) PRE-RELEASE VARIETY TRIAL

CAT: 1504

OBJECT: Pre-release testing of N 14 and 4 local selections from the Advanced Variety Trial (2160/1) at two sites (a) and (b).

LOCATION: Site (a) : ZSA Experiment Station, Block M4
Site (b) : HVE Section 27, Field A15

SOIL TYPES: Site (a) : PE.1 sandy clay loam derived from gneiss
Site (b) : Basalt clay

THIS CROP: Plant

AGES: (a) 15,0 months 20.3.84 to 17.6.85
(b) 14,8 months 26.3.84 to 19.6.85

DESIGN: 6 x 6 Latin Squares

SPACING: 1,5 m between rows

<u>FERTILISER:</u> (kg/ha)	<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>
(a)	120	100	60
(b)	120	100	60

<u>IRRIGATION:</u> (mm)	<u>(a)</u>	<u>(b)</u>
<u>RAINFALL:</u> (mm)	1344.0	1840.0
<u>TOTAL:</u> (mm)	769.6	453.0
	2113.6	2293.0

RESULTS

Relevant data from the plant crop of the two trials are presented in the attached tables. Bartlett's test of homogeneity of variances indicated that the error variances of the individual trials were sufficiently homogenous to permit a combined analysis of variance.

- (a) Cane yields : Very high cane yields were recorded although no significant differences were found among varieties in either trial. Variety ZN 78-1910 outyielded all other varieties at both sites and N 14 also performed well, outyielding NCo 376 at both sites. Relative to NCo 376, variety ZN 78-912 performed better at site (a) while ZN 78-1610 performed better at site (b).

Cane yields were higher at site (a) than at site (b). When yields of the two sites were meaned, variety ZN 78-1910 performed best with N 14 also

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doing very well. No site x treatment interactions were recorded.

- (b) ERC% cane : N 14 was significantly higher ($P = 0.01$) than all other varieties at site (a). NCo 376 recorded the highest ERC% cane value at site (b) with varieties N 14 and ZN 78-1635 also giving high values.

In the combined analysis, a highly significant ($P = 0.00$) site x treatment interaction was recorded. When values of the two sites were meaned, N 14 and NCo 376 recorded the highest values.

- (c) ERC yield : Very high ERC yields were recorded due to the excellent cane yields produced. Differences between varieties were not significant at either of the two sites, or when meaned overall. N 14 recorded the highest ERC yield at site (a) and NCo 376 recorded the highest at site (b) with N 14 and ZN 78-1635 also doing well there. When meaned over the two sites, N 14 produced the highest ERC yield while ZN 78-1610 performed relatively poorly.

No site x treatment interactions were recorded.

- (d) Stalk counts : NCo 376 produced the highest stalk populations at both sites, and ZN 78-912 the lowest. All varieties produced more stalks at site (a) than (b) with the exception of N 14 which recorded similar counts at both sites.
- (e) Lodging : was very severe at site (a) with only N 14 showing resistance. Varieties lodged less at site (b) where N 14 and NCo 376 exhibited excellent resistance.
- (f) Flowering : Varieties N 14 and NCo 376 flowered at site (a) and variety ZN 78-1910 flowered at both sites. Evidence from other trials showed that all the varieties, with the exception of ZN 78-912, are prone to flowering.
- (g) Smut incidence : was very low with only a few whips being recorded in varieties N 14 and NCo 376. Nevertheless, smut trials have shown only variety ZN 78-1635 to be immune to smut.
- (h) Leaf scald : Varieties N 14 and ZN 78-1635 exhibited some symptoms of leaf scald at site (b) only. Although no other varieties showed symptoms, results from a leaf scald inoculation trial showed only two varieties, ZN 78-1610 and ZN 78-1910 to be resistant.

CONCLUSIONS

The site x treatment interaction for ERC% cane was highly significant suggesting that the ranking of varieties for that parameter was not constant at the two sites. Further ratooning and more trials at different sites will help explain the environmental factors influencing this. No variety x site interactions were detected for cane and ERC yields, either because the interactions did not exist or because they were masked by the large yield differences between the two sites. The trial at the Experiment Station received more than adequate moisture and fertility while the one at HVE sometimes suffered from moisture stress.

3/ Fibre % cane.....

Fibre % cane

	<u>SITE (a)</u>	<u>SITE (b)</u>
N 14	11.65	13.95
NCo 376	12.33	13.72
ZN 78-912	9.53	10.42
ZN 78-1610	11.20	13.38
ZN 78-1635	10.73	13.00
ZN 78-1910	11.88	12.52

The table above shows the fibre % cane values at the two sites. NCo 376 and N 14 recorded the highest values while ZN 78-912 recorded the lowest.

The final table attached summarises the performance of the five test varieties relative to NCo 376 in all the trials they have been planted in up to date.

N 14 performed better than NCo 376 in both cane yields and ERC% cane and consequently ERC yield although only results of the May/June harvest months are available. Varieties ZN 78-912 and ZN 78-1910 showed that they could match or better the performance of NCo 376 when harvested late in the season, but varieties ZN 78-1610 and ZN 78-1635 did not do as well as NCo 376.

ERT/Sept'85

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2170/1 a and b PRE - RELEASE VARIETY TRIAL

CANE YIELD (t/ha) - PLANT CROP

VARIETY	a		b		Means	
	Yield t/ha	% of NCo 376	yield t/ha	% of NCo 376	yield t/ha	% of NCo 376
N 14	207,74	103,6	154,25	101,2	181,00	102,5
NCo 376	200,59	100,0	152,44	100,00	176,52	100,0
ZN 78-912	208,25	103,8	145,09	95,2	176,67	100,1
ZN 78-1610	190,86	95,1	153,22	100,5	172,04	97,5
ZN 78-1635	203,33	101,4	152,36	99,9	177,85	100,8
ZN 78-1910	211,12	105,2	163,57	107,3	187,35	106,1
L.S.D. P = 0,05	NS	-	NS	-	NS	-
P = 0,01	NS	-	NS	-	NS	-
Interaction	-	-	-	-	NS	-
Trial mean	203,65	101,5	153,49	100,7	178,57	101,2
S.E. plot ±	26,03	-	11,88	-	20,23	-
S.E. means ±	10,63	-	4,85	-	10,12	-
C.V. %	12,78	-	7,74	-	11,33	-

2170/1 a and b PRE - RELEASE VARIETY TRIAL

ERC % CANE (t/ha) - PLANT CROP

VARIETY	a		b		Means	
	ERC % cane	% of mean	ERC % cane	% of mean	ERC % cane	% of mean
N 14	13,24	112,9	12,92	103,4	13,08	107,9
NCo 376	12,16	103,7	13,11	104,9	12,64	104,3
ZN 78-912	11,61	99,0	12,41	99,3	12,01	99,1
ZN 78-1610	11,22	95,7	12,24	97,9	11,73	96,8
ZN 78-1835	10,75	91,6	12,96	103,7	11,86	97,9
ZN 78-1910	11,42	97,4	11,38	91,0	11,40	94,1
L.S.D. P = 0,05	0,77	-	0,58	-	NS	-
P = 0,01	1,05	-	0,79	-	NS	-
Interaction	-	-	-	-	***	-
Trial mean	11,73	100,0	12,50	100,0	12,12	100,0
S.E. plot ±	0,64	-	0,48	-	0,56	-
S.E. means ±	0,26	-	0,20	-	0,28	-
C.V. %	5,43	-	3,84	-	4,62	-

2170/1 a and b PRE - RELEASE VARIETY TRIAL

ERC YIELD (t/ha) - PLANT CROP

VARIETY	a		b		Means	
	yield t/ha	% of NCo 376	yield t/ha	% of NCo 376	yield t/ha	% of NCo 376
N 14	27,29	111,9	19,94	99,8	23,61	106,4
NCo 376	24,38	100,0	19,97	100,0	22,18	100,0
ZN 78-912	24,18	99,2	17,97	90,0	21,07	95,0
ZN 78-1610	21,54	88,4	18,76	93,9	20,15	90,8
ZN 78-1635	21,82	89,5	19,78	99,0	20,80	93,8
ZN 78-1910	24,08	98,8	18,63	93,3	21,35	96,3
L.S.D. P = 0,05	NS	-	NS	-	NS	-
P = 0,01	NS	-	NS	-	NS	-
Interaction	-	-	-	-	NS	-
Trial mean	23,88	97,9	19,17	96,0	21,53	97,1
S.E. plot ±	3,44	-	1,70	-	2,71	-
S.E. means ±	1,40	-	0,70	-	1,36	-
C.V. %	14,39	-	8,88	-	12,59	-

2170/1 a and b PRE - RELEASE VARIETY TRIAL

STALK POPULATION, LODGING AND FLOWERING

VARIETY	STALKS(10^{-6} /ha)			LODGING %		FLOWERING %	
	a	b	mean	a	b	a	b
N 14	96,3	96,7	96,5	73	3	2	0
NCo 376	130,4	124,3	127,4	98	7	1	0
ZN 78-912	91,9	74,0	83,0	100	93	0	0
ZN 78-1610	95,9	89,3	92,6	99	90	0	0
ZN 78-1635	99,9	78,8	89,4	99	98	0	0
ZN 78-1910	118,3	96,0	107,2	100	68	3	21
MEAN	105,5	93,2	99,3	95	60	1	4

DISEASE RECORDS

VARIETY	SMUT			LEAF SCALD		LSIT** RATING
	WHIPS/HA(RATING)		SST* RATING	% STOOL INF		
	a	b		a	b	
N 14	0 (0)	77 (1)	6	0	0.06	-
NCo 376	340 (4)	77 (1)	9	0	0	4
ZN 78-912	0 (0)	0 (0)	5	0	0	5
ZN 78-1610	0 (0)	0 (0)	5	0	0	1
ZN 78-1635	0 (0)	0 (0)	0	0	0.12	5
ZN 78-1910	0 (0)	0 (0)	6	0	0	1

* Maximum rating from Smut Susceptibility Trial.

** Maximum rating from Leaf Scald Inoculation Trial.

PERFORMANCE OF VARIETIES RELATIVE TO NCo 376

VARIETY AND MONTH OF HARVEST	NO. OF CROPS	% OF NCo 376		
		CANE YIELD	ERC%CANE	ERC YIELD
<u>N 14</u> May/June	4	106,1	100,4	106,5
<u>78-912</u> June September	4 5	98,3 97,8	91,9 106,5	90,2 103,6
<u>78-1610</u> June September	4 5	94,5 97,5	92,2 98,2	87,3 94,7
<u>78-1635</u> June September	4 5	94,8 96,1	96,2 99,2	90,8 93,2
<u>78-1910</u> June September	4 5	102,6 102,8	89,6 100,5	91,7 100,1

SOUTH AFRICAN SUGAR INDUSTRY
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2170/1(a) and (b) PRE - RELEASE VARIETY TRIAL

Cat. No.: 1504

Object: Pre-release testing of N14 and 4 local selections from the Advanced Variety Trial 2160/1 at two sites.

This crop: First ratoon Ages: (a) 14,3 months 17.6.85 to 25.8.86
(b) 14,3 months 19.6.85 to 26.8.86

Location: Site (a) ZSA Experiment Station, Block M4.
Site (b) HVE Section 27, Field A15.

Soil type: Site (a) PE.1 sandy clay loam derived from gneiss.
Site (b) Basalt clay.

Design: 6 x 6 Latin Squares.

Spacing: 1,5m between rows.

<u>Fertiliser:</u>		<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>
kg/ha	(a)	180	60	60
	(b)	180	60	60

	(a)	(b)
<u>Rainfall (mm):</u>	631,0	546,0
<u>Irrigation (mm):</u>	1 476,0	1 461,0
<u>Total (mm):</u>	2 107,0	2 007,0

Conduct: The plant crop of this trial was harvested in June last year. But in the first ratoon crop the trial was harvested in August, at 14,3 months of age in order to evaluate late season performance. Samples for quality analysis were collected from each site at 12, 13, and 14,3 months to monitor maturation.

RESULTS

Relevant data from the first ratoon crop of the two trials are presented in the attached tables together with plant crop data and means of the two crop cycles. Error variances of the individual trials were sufficiently homogenous to permit a combined analysis of variance.

(a) Cane Yields. Very high cane yields were recorded at both sites, (a) and (b). At site (a), variety ZN78-1910 recorded the highest cane yields with NCo376 and N14 yielding slightly less. Varieties ZN78-912, ZN78-1635 and ZN78-1610 produced yields significantly less ($P = 0,05$) than the top three varieties. At site (b), N14 and NCo376 recorded the highest cane yields significantly out-yielding the four local selections ($P = 0,05$).

When meaned over the two sites, varieties N14, NCo376 and ZN78-1910 were significantly better than the other three varieties. No site x treatment interactions were detected.

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- (b) ERC% cane. Very high ERC% cane values were recorded from all the varieties at both sites, with four varieties recording more than 14% ERC% cane. Variety ZN78-912 recorded the highest values at both sites, and was significantly higher than all the other varieties at site (b) ($P = 0,05$). Relative to the others, varieties ZN78-1635 and ZN78-1910 recorded low ERC% cane values.
- (c) ERC yields. Very high ERC yields were recorded, corresponding to the high cane yields and excellent ERC% cane values. N14 and NCo376 recorded the highest sugar yields at both sites, significantly outyielding ($P = 0,05$) most of the selections. Varieties ZN78-1910 and ZN78-912 performed nearly as well as NCo376 and N14 at site (a) and (b) respectively.
- When meaned over the two sites, N14 and NCo376 did not differ significantly but both outyielded three of the selections. No site x treatment interactions were recorded.
- (d) Fibre% cane. Varieties NCo376, ZN78-1635 and ZN78-1910 recorded the highest fibre values while variety ZN78-912 recorded the lowest. NCo376 gave the highest fibre overall, and was consistently higher than N14.
- (e) Stalk populations. NCo376 recorded the highest stalk numbers while ZN78-912 recorded the lowest, particularly at site (b).
- (f) Lodging. Varieties ZN78-912 and ZN78-1635 lodged badly at both sites. N14 exhibited good resistance at both sites while NCo376 showed resistance only at site (b).
- (g) Flowering. Four varieties, viz. N14, NCo376, ZN78-1610, and ZN78-1910 flowered at site (a) and ZN78-1910 was the only variety to flower at site (b).
- (h) Smut incidence. Although levels of infection were very low, N14 and NCo376 produced some smut whips at both sites. Variety ZN78-912 recorded a few whips only at site (b).
- (i) Leaf scald. No leaf scald symptoms were shown in any of the varieties at both sites. Nevertheless, most of the varieties have been rated moderate resistance in a Leaf Scald Inoculation Trial.

PROGRESS REPORT

Planted: (a) 20.3.84
(b) 26.3.84

<u>Harvested:</u>		<u>Harvest</u>	<u>Age</u>
P	(a)	17.6.85	15,0 months
	(b)	19.6.85	14,8 months
1R	(a)	25.8.86	14,3 months
	(b)	26.8.86	14,3 months

<u>Fertiliser:</u>		<u>N</u>	<u>P</u>	<u>K</u>
P	(a)	120	100	60
	(b)	120	100	60
1R	(a)	180	60	60
	(b)	180	60	60

RESULTS

Relevant data from the plant crop and the first ratoon and means of the two crop cycles are presented in the attached tables.

- (a) Cane yields. First ratoon yields were lower than plant crop yields at site (a) but higher at site (b). When averaged over the two crops and two sites, N14 and ZN78-1910 both outyielded NCo376. Varieties ZN78-912 and ZN78-1635 consistently recorded the lowest yields.
- (b) ERC% cane. First ratoon ERC% cane values were much higher than plant crop values. Varieties NCo376, N14 and ZN78-912 consistently recorded above average values while variety ZN78-1910 was consistently the lowest.
- (c) ERC yields. Site (a) yields were best in the plant crop while site (b) yields were best in the first ratoon crop. Varieties N14 and NCo376 gave the highest sugar yields over all sites and crops.
- (d) Fibre% cane. Variety ZN78-912 consistently recorded the lowest fibre values. First ratoon fibre values. First ratoon fibre values were higher than plant crop values.
- (e) Stalk populations. First ratoon stalk counts were higher than plant crop counts. NCo376 recorded the highest stalk populations throughout while variety ZN78-912 was consistently the lowest.
- (f) Lodging. Varieties lodged less at site (b) than at site (a). Variety N14 generally exhibited good resistance to lodging.
- (g) Flowering. Two varieties, viz. ZN78-912 and ZN78-1635 did not flower at all although they are known to be prone to flowering. Variety ZN78-1910 flowered in all crops at all sites.

- (h) Smut incidence. Three varieties, viz. ZN78-1610, ZN78-1635, and ZN78-1910 did not produce any whips at all throughout. A few whips were recorded most of the time from NCo376 and N14. With the exception of ZN78-1635, all the varieties have been rated 5 or more in Smut Susceptibility Trials. Variety ZN78-1635 has remained completely immune to smut.
- (i) Leaf scald. Varieties were generally free from leaf scald although N14 and ZN78-1635 exhibited mild symptoms at site (b) in the plant crop.

CONCLUSIONS

No site x treatment interactions were detected for cane yield and ERC yield in both the plant and the first ratoon crops. Interactions were evident in the case of ERC% cane in the plant crop only. This was probably influenced by the time of year the trial was harvested. This will be more apparent after the first ratoon harvest of another trial 2170/2 which also exhibited ERC% cane site x treatment interactions in the plant crop.

ERC% cane values were much higher in the first ratoon than in the plant crop. The first ratoon crops were harvested at 14,3 months and at a time of the year when ERC% cane values are at their highest. That fact and also the longer-than-normal cold season may have enhanced the ERC% cane values.

When averaged over all crops and sites, N14 recorded both high cane yields and above average quality and consequently the highest sugar yields. Of the selections, variety ZN78-1910 produced the highest cane yields but unfortunately recorded below average quality while variety ZN78-912 recorded low cane yields but very high ERC% cane values. None of the selections recorded sugar yields higher than N14 and NCo376. Nevertheless, their agronomic performance was satisfactory.

The selections exhibited very high resistance to both smut and leaf scald. In any case, infection levels in N14 and NCo376 were very low throughout.

A final table summarises the performance of the five varieties relative to NCo376 in all the trials they have been planted to date.

N14: A variety yielding consistently higher cane yields than NCo376 with ERC% cane values higher or similar to NCo376 consequently giving higher sugar yields than NCo376. A variety of above average stalk population and good resistance to lodging despite the high yields. N14 flowered as heavily as NCo376 and is rated intermediate susceptible to smut and has shown mild susceptibility to leaf scald. This variety has already been pre-released.

ZN78-912: Yields less than NCo376 but when harvested later in the season gives better quality and consequently higher sugar yields than NCo376. A very low population variety, susceptible to lodging with thick stalks that are very brittle. The variety is not prone to flowering. Rated intermediate average for smut, ZN78-912 has potential especially as a late-season variety.

ZN78-1610: A mediocre variety with lower cane yields and quality than NCo376. The ERC% cane improves relative to NCo376 when harvested later in the season. A variety of average stalk populations, which is susceptible to lodging and prone to flowering. Rated intermediate average for smut, it has not shown any leaf scald symptoms.

ZN78-1635: Yields about 10% lower than NCo376 and the ERC% cane values are slightly less than those of NCo376. Consequently gives lower sugar yields. A variety of average stalk populations, it is susceptible to lodging and does not flower. ZN78-1635 is completely immune to smut but has shown slight susceptibility to leaf scald.

ZN78-1910: Yields slightly better than NCo376 but because of lower ERC% cane values, records lower sugar yields than NCo376. This variety records relatively better quality later in the season than early. A variety of above average stalk population, it is susceptible to lodging and flowers heavily. It is rated intermediate susceptible to smut and has not shown any leaf scald symptoms.

ERT/Nov'86

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2170/1 (a) and (b) PRE - RELEASE VARIETY TRIAL

CANE YIELDS (t/ha) PLANT AND FIRST RATOON CROPS

VARIETY	(a) P		(b) P		MEAN (a)&(b)		(a) 1R		(b) 1R		MEANS(a)&(b)1R		MEANS(a)&(b)P-1R	
	YIELD t/ha	% of NCo376	YIELD t/ha	% of NCo376	YIELD t/ha	% of NCo376	YIELD t/ha	% of NCo376	YIELD t/ha	% of NCo376	YIELD t/ha	% of NCo376	YIELD t/ha	% of NCo376
N14	207,74	103,6	154,25	101,2	181,00	102,5	164,99	98,4	180,11	102,1	172,55	100,3	176,78	101,4
NCo376	200,59	100,0	152,44	100,0	176,52	100,0	167,66	100,0	176,40	100,0	172,03	100,0	174,28	100,0
ZN78-912	208,25	103,8	145,09	95,2	176,67	100,1	137,92	82,3	153,81	87,2	145,87	84,8	161,27	92,5
ZN78-1610	190,86	95,1	153,22	100,5	172,04	97,5	152,59	91,0	158,87	90,1	155,73	90,5	163,89	94,0
ZN78-1635	203,33	101,4	152,36	99,9	177,85	100,8	143,84	88,8	141,78	80,4	145,31	84,5	161,58	92,7
ZN78-1910	211,12	105,2	163,57	107,3	187,35	106,1	175,49	104,7	164,71	93,4	170,10	98,9	178,73	102,6
L.S.D. P = 0,05	N.S.	-	N.S.	-	N.S.	-	11,27	-	10,55	-	10,58	-	-	-
P = 0,01	N.S.	-	N.S.	-	N.S.	-	15,37	-	14,39	-	14,15	-	-	-
Interaction	-	-	-	-	N.S.	-	-	-	-	-	N.S.	-	-	-
Trial mean	203,65	101,5	153,49	100,7	178,57	101,2	157,92	94,2	162,61	92,2	160,26	93,2	169,42	97,2
S.E. plot ±	26,03	-	11,88	-	20,23	-	9,36	-	8,76	-	12,82	-	-	-
S.E. mean ±	10,63	-	4,85	-	10,12	-	3,82	-	3,58	-	3,70	-	-	-
C.V.%	12,78	-	7,74	-	11,33	-	5,93	-	5,39	-	8,00	-	-	-

2170/1 (a) and (b) PRE - RELEASE VARIETY TRIAL

ERC % CANE PLANT AND FIRST RATOON CROPS

VARIETY	(a) P		(b) P		MEANS(a)&(b)		(a) 1R		(b) 1R		MEANS(a)&(b) 1R		MEANS(a)&(b)P-1R	
	ERC % cane	% of mean	ERC % cane	% of mean	ERC % cane	% of mean	ERC % cane	% of mean	ERC % cane	% of mean	ERC % cane	% of mean	ERC % cane	% of mean
BT4	13,34	112,9	12,92	103,4	13,08	107,9	14,80	103,4	14,06	99,7	14,43	101,5	13,76	104,5
NC0376	12,16	103,7	13,11	104,9	12,64	104,3	14,39	100,6	14,09	99,9	14,24	100,2	13,44	102,1
ZN78-912	11,61	99,0	12,41	99,3	12,01	99,1	15,34	107,2	15,64	110,9	15,49	109,0	13,75	104,4
ZN78-1610	11,22	95,7	12,24	97,9	11,73	96,8	13,52	94,5	13,84	98,2	13,68	96,3	12,71	96,5
ZN78-1635	10,75	91,6	12,96	103,7	11,86	97,9	14,11	98,6	14,13	100,2	14,12	99,4	12,99	98,6
ZN78-1910	11,42	97,4	11,38	91,0	11,40	94,1	13,69	95,7	12,85	91,1	13,27	93,4	12,34	93,7
L.S.D. P = 0,05	0,77	-	0,58	-	N.S.	-	1,02	-	0,60	-	0,81	-	-	-
P = 0,01	1,05	-	0,79	-	N.S.	-	1,39	-	0,81	-	1,08	-	-	-
Interaction	-	-	-	-	***	-	-	-	-	-	N.S.	-	-	-
Trial mean	11,73	100,0	12,50	100,0	12,12	100,0	14,31	100,0	14,10	100,0	14,21	100,0	13,17	100,0
S.E. plot ±	0,64	-	0,48	-	0,56	-	0,85	-	0,49	-	0,98	-	-	-
S.E. means ±	0,26	-	0,20	-	0,28	-	0,35	-	0,20	-	0,28	-	-	-
C.V.%	5,43	-	3,84	-	4,62	-	5,91	-	3,50	-	6,90	-	-	-

2170/1 (a) and (b) PRE - RELEASE VARIETY TRIAL

ERC YIELD (t/ha) PLANT AND FIRST RATOON CROPS

VARIETY	(a) P		(b) P		MEANS (a)&(b)		(a) 1R		(b) 1R		MEANS(a)&(b)1R		MEANS(a)&(b)P-1R	
	yield t/ha	% of NCo376	yield t/ha	% of NCo376	yield t/ha	% of NCo376	yield t/ha	% of NCo376	yield t/ha	% of NCo376	yield t/ha	% of NCo376	yield t/ha	% of NCo376
N14	27,29	111,9	19,94	99,8	23,61	106,4	24,39	101,2	25,33	102,0	24,86	101,6	24,24	103,9
NCo376	24,38	100,0	19,97	100,0	22,18	100,0	24,11	100,0	24,84	100,0	24,47	100,0	23,33	100,0
ZN78-912	24,18	99,2	17,97	90,0	21,07	95,0	21,12	87,6	24,05	96,8	22,58	92,3	21,83	93,6
ZN78-1610	21,54	88,4	18,76	93,9	20,15	90,8	20,65	85,6	21,97	88,4	21,31	87,1	20,73	88,9
ZN78-1635	21,82	89,5	19,78	99,0	20,80	93,8	20,98	87,0	20,05	80,7	20,51	83,8	20,66	88,6
ZN78-1910	24,08	98,8	18,63	93,3	21,35	96,3	23,89	99,1	21,19	85,3	22,54	92,1	21,95	94,1
L.S.D. P = 0,05	N.S.	-	N.S.	-	N.S.	-	2,30	-	1,97	-	2,07	-	-	-
P = 0,01	N.S.	-	N.S.	-	N.S.	-	3,13	-	2,68	-	2,77	-	-	-
Interaction	-	-	-	-	N.S.	-	-	-	-	-	N.S.	-	-	-
Trial mean	23,88	97,9	19,17	96,0	21,53	97,1	22,52	93,4	22,91	92,2	22,71	92,8	22,12	94,8
S.E. plot ±	3,44	-	1,70	-	2,71	-	1,91	-	1,63	-	2,51	-	-	-
S.E. means ±	1,40	-	0,70	-	1,36	-	0,78	-	0,67	-	0,73	-	-	-
C.V.%	14,39	-	8,88	-	12,59	-	8,47	-	7,13	-	11,06	-	-	-

2170/1 (a) and (b) PRE - RELEASE VARIETY TRIAL

FIBRE % CANE PLANT AND FIRST RATOON CROPS

VARIETY	P			1R			MEANS (a)&(b) P-1R
	(a)	(b)	MEANS (a)&(b)	(a)	(b)	MEANS (a)&(b)	
N14	11,65	13,95	12,80	13,9	13,2	13,1	13,0
NC0376	12,33	13,72	13,06	14,8	14,5	14,7	13,9
ZN78-912	9,53	10,42	9,98	10,8	11,0	10,9	10,4
ZN78-1610	11,20	13,38	12,29	13,6	12,6	13,1	12,7
ZN78-1635	10,73	13,00	11,87	14,9	13,4	14,2	13,0
ZN78-1910	11,88	12,52	12,20	14,1	13,6	13,9	13,1
MEANS	11,22	12,83	12,03	13,7	13,0	13,3	12,7

STALK POPULATION

VARIETY	P			1R			MEANS (a)&(b)P-1R
	(a)	(b)	MEANS	(a)	(b)	MEANS	
N14	96,3	96,7	96,5	109,6	113,3	111,5	104,0
NC0376	130,4	124,3	127,4	139,5	138,6	139,1	133,3
ZN78-912	91,9	74,0	83,0	95,5	80,3	87,9	85,5
ZN78-1610	95,9	89,3	92,6	103,2	101,6	102,4	97,5
ZN78-1635	99,9	78,8	89,4	108,2	95,2	101,7	95,6
ZN78-1910	118,3	96,0	107,2	117,9	100,4	109,2	108,2
MEANS	105,5	93,2	99,3	112,3	104,9	108,6	104,0

LODGING AND FLOWERING

VARIETY	LODGING %				FLOWERING %			
	P		1R		P		1R	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
N14	73	3	52	38	2	0	30	0
NC0376	98	7	83	38	1	0	2	0
ZN78-912	100	93	93	100	0	0	0	0
ZN78-1610	99	90	82	97	0	0	13	0
ZN78-1635	99	98	100	100	0	0	0	0
ZN78-1910	100	68	87	80	3	21	30	48
MEANS	95	60	83	76	1	4	13	8

2170/1 (a) and (b) PRE - RELEASE VARIETY TRIAL

DISEASE RECORDS

VARIETY	SMUT WHIPS/HA (RATING)					LEAF SCALD % STOOL INFECTION				
	P		1R		SST* RATING	P		1R		LSIT** RATING
	(a)	(b)	(a)	(b)		(a)	(b)	(a)	(b)	
N14	0(0)	77(1)	46(1)	108(2)	6	0	0,06	0	0	4
NCo376	340(4)	77(1)	910(5)	525(4)	9	0	0	0	0	4
ZN78-912	0(0)	0(0)	0(0)	46(1)	5	0	0	0	0	5
ZN78-1610	0(0)	0(0)	0(0)	0(0)	5	0	0	0	0	1
ZN78-1635	0(0)	0(0)	0(0)	0(0)	0	0	0,12	0	0	5
ZN78-1910	0(0)	0(0)	0(0)	0(0)	6	0	0	0	0	1

* Maximum rating from Smut Susceptibility Trials

** Maximum rating from Leaf Scald Inoculation Trials

SUMMARY OF PERFORMANCE OF VARIETIES IN Z.S.A.E.S. TRIALS

Variety and month of harvest	No. of crops	% of NCo376		
		Cane yield t/ha	ERC % cane	ERC yield t/ha
<u>N14</u>				
May/June	4	106,2	100,2	106,1
Aug/Sept	3	112,5	99,9	111,9
Oct/Nov	3	111,9	101,7	113,9
<u>ZN78-912</u>				
June	5	98,5	94,2	94,3
Aug/Sept	8	93,7	107,4	100,1
<u>ZN78-1610</u>				
June	5	93,7	93,8	87,7
Aug/Sept	8	94,7	97,8	91,9
<u>ZN78-1635</u>				
June	5	92,1	98,3	89,5
Aug/Sept	8	91,9	99,3	85,6
<u>ZN78-1910</u>				
June	5	101,8	89,9	91,6
Aug/Sept	8	101,0	98,1	97,1