EIGHTY-SECOND ANNUAL REVIEW OF THE MILLING SEASON IN SOUTHERN AFRICA (2006-2007)

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Abstract

Performance, throughput and other relevant aspects of the sugar industries in southern Africa are presented and discussed. Data from sugar mills in South Africa, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe are included. The 2006-2007 season was not as good as the 2005-2006 season in terms of cane quality and cane supply, and in fact was the worst season in the past ten years with regard to many quality and performance parameters. South African mill performances generally dropped slightly, with poor time efficiencies partly as a result of erratic cane supply. The cane crop in South Africa was 20.278 million tons, and 2.256 million tons of sugar was made at a relatively poor cane to sugar ratio of 8.99.

Keywords: annual review, cane quality, cane supply, mill performance

Introduction

This paper reviews the 2006-2007 milling season in southern Africa, including data from mills in South Africa, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe that are full (South African) or affiliate (non-South African) members of the Sugar Milling Research Institute (SMRI)[1,2]. Note that in this review all Swaziland data for 2006-2007 refer to Ubombo mill only, and Mozambique data to Maragra mill only. Detailed information on factory performance for 2006-2007 and recent seasons, details of cane varieties crushed and a summary of cane transport used in South Africa are presented in Tables A to H in the Appendix. The 2006-2007 milling season was in many respects the worst season in South Africa for the past 10 years, and some of the reasons for this will be explored.

Cane crop

Cane varieties

The varietal distribution for southern African mills for the 2006-2007 season is shown in Appendix Table F. The most significant changes in South Africa since the 2005-2006 season were a continued reduction in N14 and N19 in the northern irrigated areas in favour of N25

[1]South African sugar factories: AK = Amatikulu, DL = Darnall, ES = Eston, FX = Felixton, GH = Gledhow, KM = Komati, ML = Malelane, MS = Maidstone, NB = Noodsberg, PG = Pongola, SZ = Sezela, UC = UCL Co. Ltd., UF = Umfolozi, UK = Umzimkulu
Malawi sugar factories: DW = Dwangwa, NH = Nchalo
Mozambique sugar factory: MA = Maragra
Swaziland sugar factory: UB = Ubombo
Tanzania sugar factories: MW = Msolwa (Kilombero), RU = Ruembe (Kilombero)
Zambia sugar factory: NK = Nakambala
Zimbabwe sugar factories: HV = Hippo Valley, TR = Triangle

[2]Note that, although Xinavane and Mafambisse (Mozambique) and Mumias (Kenya) are Affiliate Members of the SMRI, full season data for the 2006-2007 season were not yet available at the time of compilation of this review.

and N32, and reductions in N12 and N16 in the Midlands in favour of N31. Numerous changes in varietal percentages were recorded at the affiliated mills, with NCo376 and N14 increasing at some mills and decreasing at others, and with N19 and N25 increasing markedly at several mills.

Burning

The overall percentage of cane burnt in South Africa remained much the same as in the previous two seasons at around 89% (Table F), with little change at most mills, except for an increase in percentage burnt at PG and DL and a decrease at GH.

Cane quality

Trends in the cane quality indicators of Estimated Recoverable Crystal (ERC) % cane, Ash % cane and Mixed Juice sucrose purity are shown for the past ten seasons in Figure 1a-c. Cane quality in terms of ERC dropped considerably from 2005-2006 to 2006-2007 to the lowest value since 1997-1998, while the ash level was the highest in the past 10 seasons. This high ash level contributed to poor mill performances, as will be discussed later. The mixed juice purity continued the declining trend of the past five seasons, although not to as great an extent as previously.

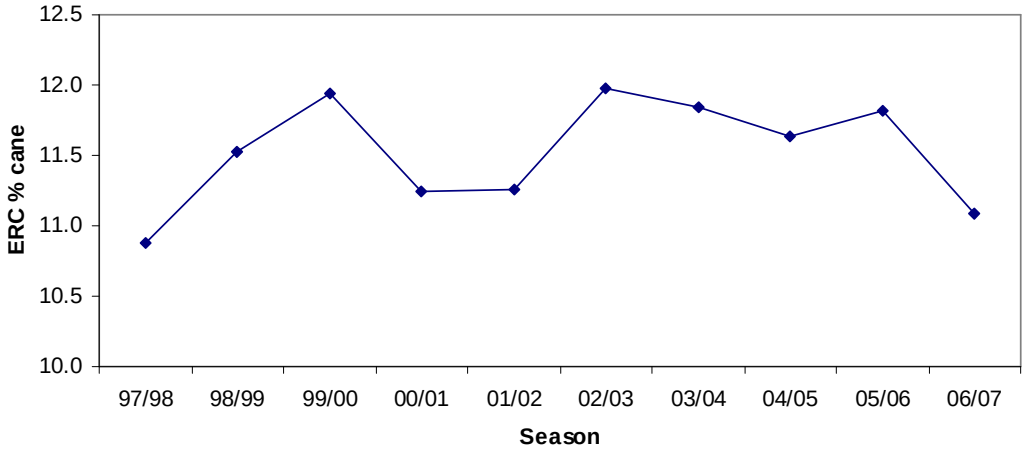

Figure 1a. Estimated Recoverable Crystal (ERC) % cane in South Africa

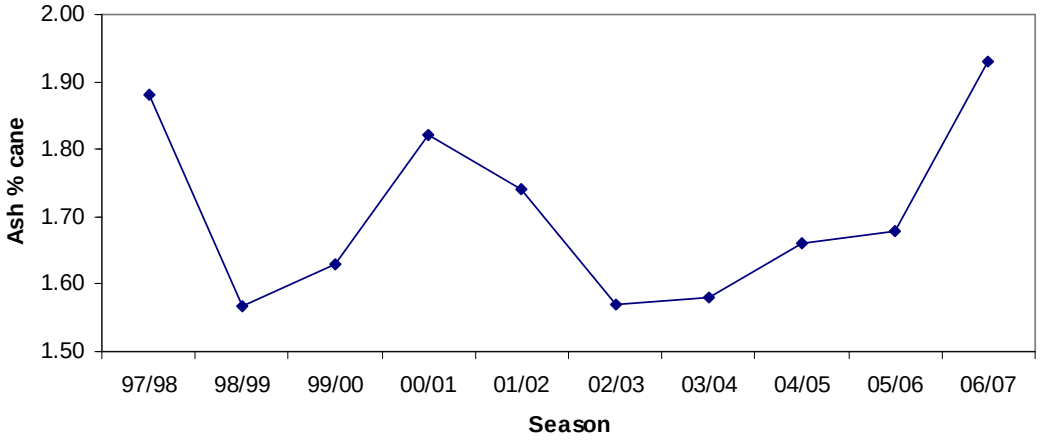

Figure 1b. Ash % cane in South Africa

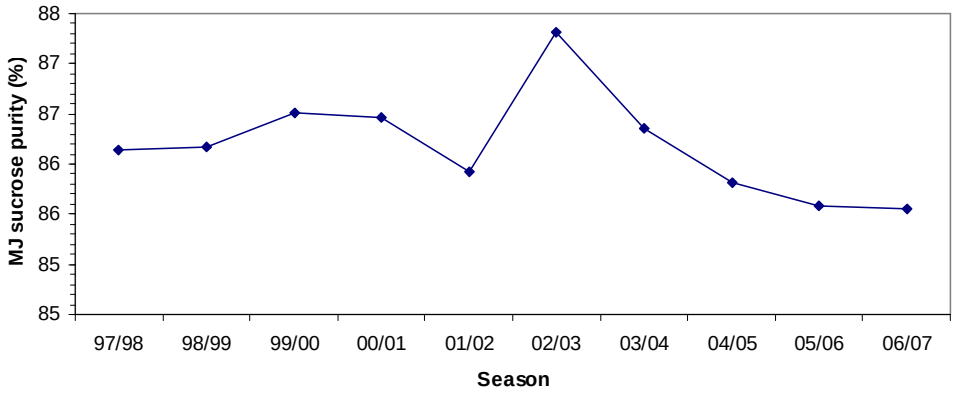

Figure 1c. Mixed juice sucrose purity in South Africa

The monthly values of Recoverable Value (RV) % cane for the past two seasons (Figure 2) show that cane quality during the 2006-2007 season was poorer by a considerable margin for every month from April onwards, hence the lower season average of 11.68% compared to 12.49% for 2005-2006. Comparison of individual mill values over the past two seasons (Figure 3) shows that RV% cane dropped at all South African mills, with Malelane and Komati showing the smallest decreases off a low base over the past three seasons.

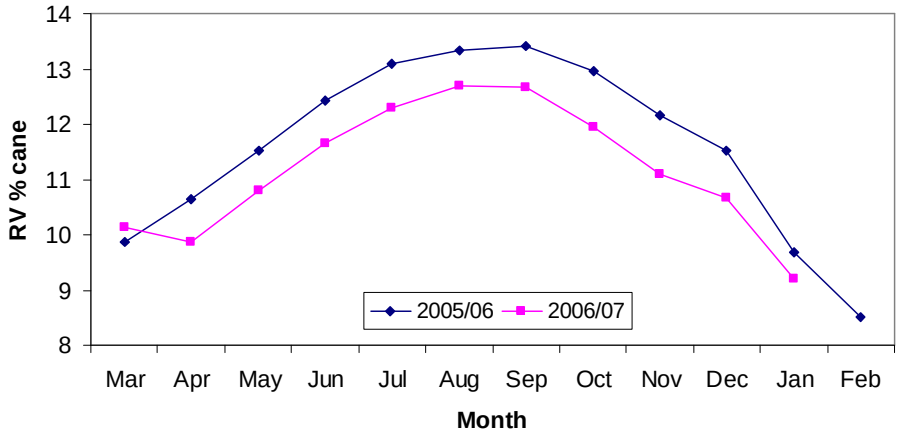

Figure 2. Monthly Recoverable Value (RV) % cane in South Africa for the 2005-2006 and 2006-2007 seasons

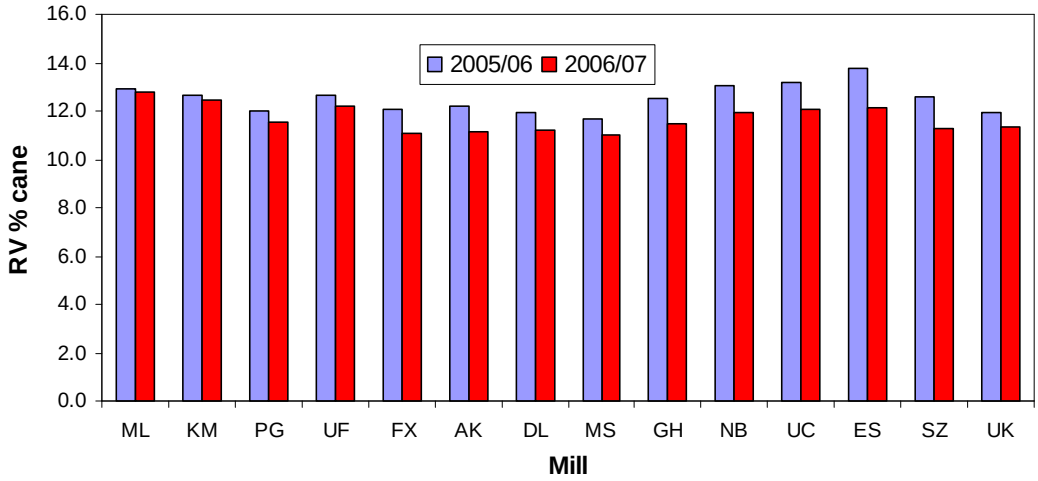

Figure 3. Recoverable Value (RV) % cane for South African mills for the 2005-2006 and 2006-2007 seasons

Cane quality in terms of ERC % cane remained steady at most of the affiliated mills for 2006-2007, with the exception of Tanzanian mills, where a slight decline was recorded (Figure 4).

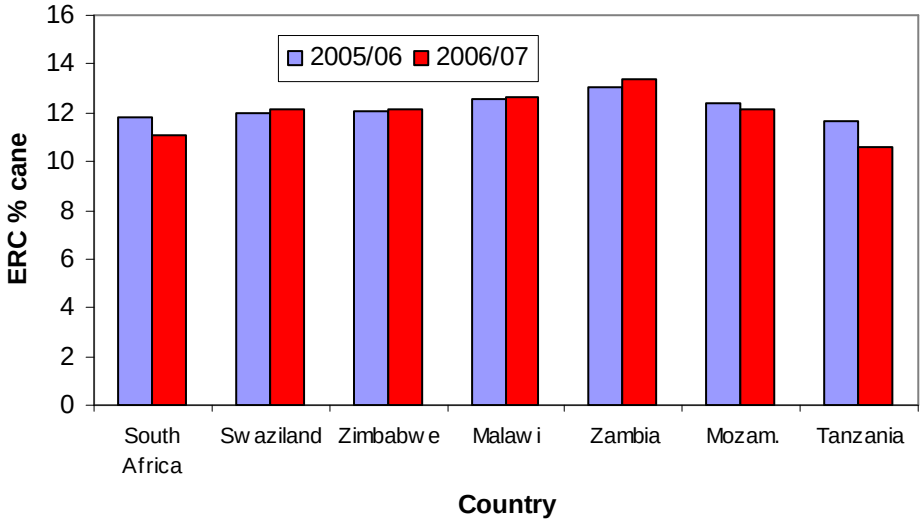

Figure 4. Estimated Recoverable Crystal (ERC) % cane in southern Africa for the 2005-2006 and 2006-2007 seasons

Cane tonnage

The South African cane growing region experienced dry conditions through much of 2005 and into early 2006, but good rains fell throughout 2006, other than in June and July (Figure 5). However, the rains were accompanied by much cloudy weather, which promoted cane growth rather than sucrose accumulation. There were also harvest delays resulting from wet weather and labour constraints, particularly at the beginning of the season, which resulted in additional carry-over cane. The crop size was further reduced by the effects of the stalk borer *Eldana saccharina* Walker (Lepidoptera: Pyralidae), an outbreak of *Fulmekiola serrata* Kobus (Thysanoptera: Thripidae) (sugarcane thrips) in certain areas and frosts in the Midlands. Consequently, crop size was reduced from 21.052 million tons in 2005-2006 to 20.278 million tons in 2006-2007 (Figure 6). The South African average crush rate in 2006-2007 increased marginally over the 2005-2006 value, from 301.88 to 303.63 tons cane per hour.

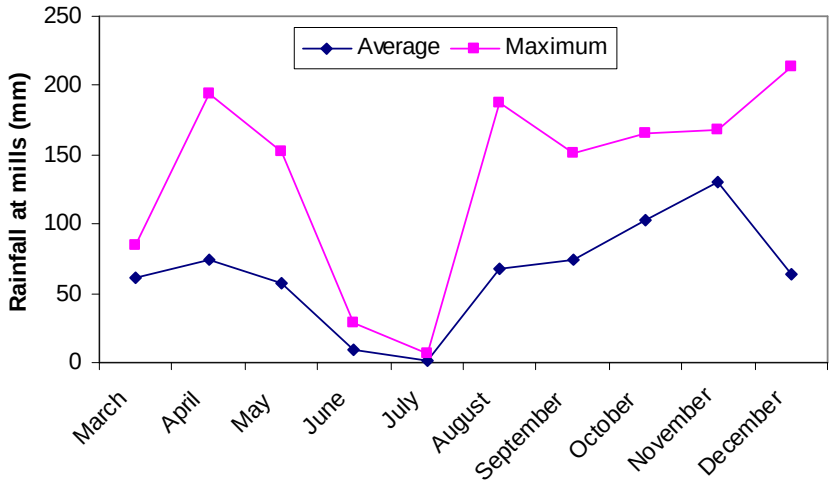

Figure 5. Maximum and average monthly rainfall at South African mills in the 2006-2007 season

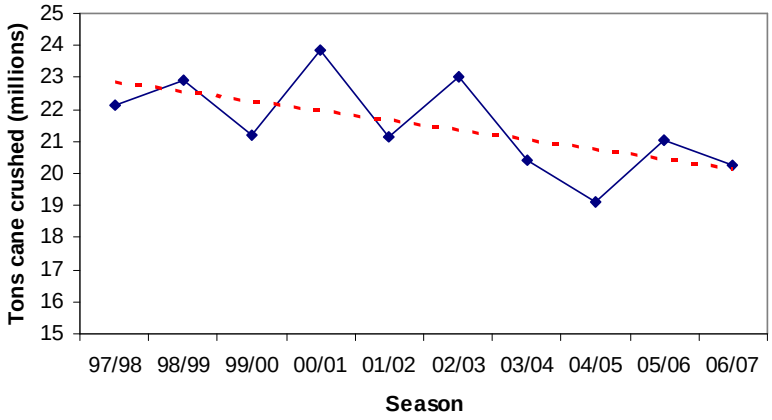

Figure 6. Cane tonnages in South Africa with linear trend-line

Factory performance

Length of milling season

The 2006-2007 season in South Africa ran from 8 March 2006 (UCL Co. Ltd.) until 21 January 2007 (Sezela). The overall length of the season was long at 261 days, with Sezela having the longest season of 292 days and Gledhow the shortest of 239 days. The length of milling season in other southern African countries were 264 days in Tanzania, 263 days in Zimbabwe, 244 days in Swaziland (UB), 240 days in Zambia (NK), 233 days in Malawi and 162 days in Mozambique (MA).

Time efficiencies

The time efficiencies for South Africa in the 2006-2007 season were very poor compared to recent seasons, with the Overall Time Efficiency (OTE) dropping from 82.90% in 2005-2006 to only 76.47% in 2006-2007. Figure 7 shows the trends in percentage stops for the past five years for South Africa, and it is evident that most of the drop in OTE was due to the large increase in No-cane and Other stops. The changes in No-cane stops at individual mills between 2005-2006 and 2006-2007 are shown in Figure 8. The South Coast was particularly badly affected; with Umzimkulu recording in excess of 18% No-cane stops.

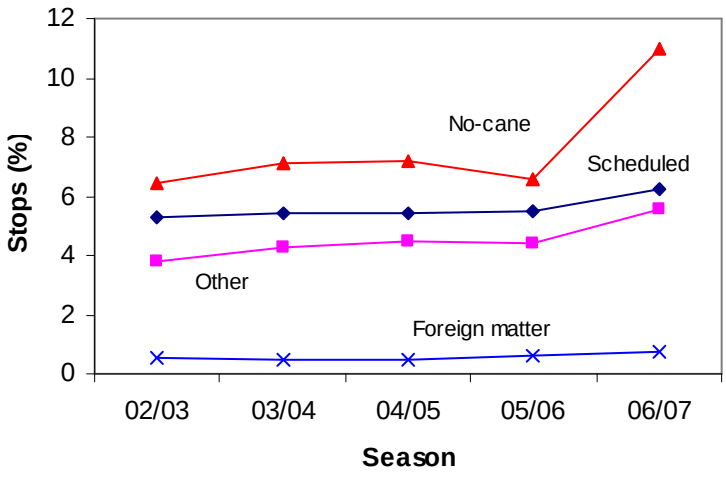

Figure 7. Percentage stops in South Africa from the 2002-2003 season to the 2006-2007 season

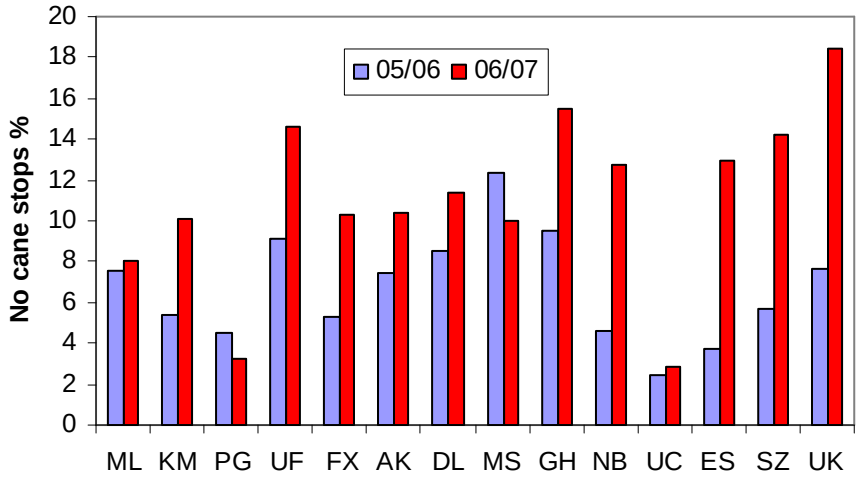

Figure 8. No-cane stops at South African mills for the 2005-2006 and 2006-2007 seasons

Scheduled stops and Other stops (due to factory breakdowns, boiler trips, full back-ends, and so on) also increased, to some extent due to the poor cane quality (high ash content, for example). As a result, the industry average Lost Time % Available value showed a considerable increase above the good trend that was maintained in the industry since the 2001-2002 season, from around 5% to 6.76% in 2006-2007.

Overall time efficiencies for Swaziland (UB), Malawi, Zambia, Tanzania and Mozambique were better than the South African industrial average, whilst Zimbabwe was still struggling with the combined effects of no-cane and other stops (Appendix Table A2).

Extraction and clarification

Extraction in the South African industry dropped slightly from the all-time high value of 98.03% in 2005-2006 to a value of 97.84% in 2006-2007. The Corrected Reduced Extraction (CRE) for the industry dropped only slightly, indicating that the higher fibre % cane in 2006-2007 was not the sole reason for the drop in extraction. The low time efficiencies due to numerous no-cane stops had a negative effect on extraction, while UCL Co. Ltd. ran their first full season with the new Bosch chainless diffuser (Schroder *et al.*, 2007) and some teething problems were experienced that caused a slight drop in extraction. In the 2006-2007 season, six factories (ML, KM, FX, AK, MS and UK) routed clarifier mud back to the diffusers throughout the entire season, while Eston operated with partial recycling.

In the other southern African countries, pol-based extraction ranged from a very poor 92.26% at Ruembe in Tanzania (which was, however, an improvement of 0.70 units over the 2005-2006 value) to a reasonable value of 97.54% at Triangle in Zimbabwe. However, both Tanzanian mills crushed cane with a high fibre content (>17%) and a low pol content (<13%), and had CRE values exceeding their extraction values.

Boiling house performance

As may be expected from the poorer cane quality and lower time efficiencies, Boiling House Recovery (BHR) in 2006-2007 in South Africa dropped from 2005-2006, with a season average of 87.51%, the lowest value in the last ten years (Figure 9). As shown in Figure 9, the decrease in BHR was mirrored by a lower Corrected Reduced BHR (CRB); which, however, was not the lowest in the past 10 seasons. This was again a result of numerous stops in the second half of the season, and some highly deteriorated cane 'contaminating' the rest of the juice, as the mixed juice purities did not change much from 2005 to 2006 (Figure 1c).

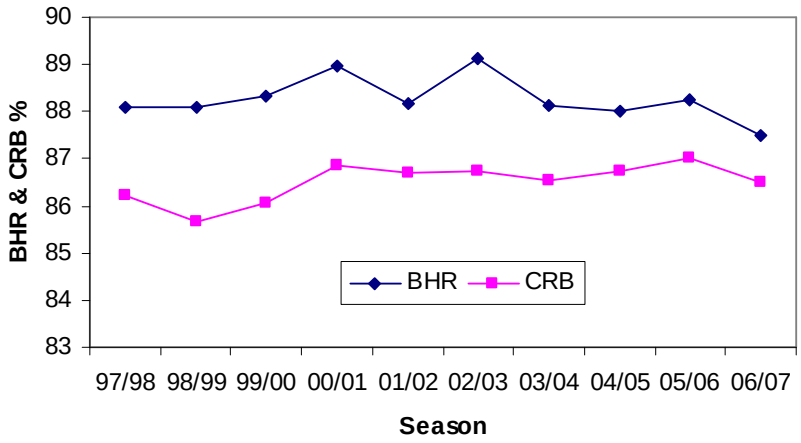

Figure 9. Boiling House Recovery (BHR) and Corrected Reduced BHR (CRB) in South Africa since 1997-98 season

As could be expected from the poor time efficiencies, the Undetermined Loss % sucrose in cane rose from the previous year's good value to exactly 2.00% (Figure 10). The values at the individual mills showed great variations, with some mills lowering their Undetermined Losses from 2005-2006 to 2006-2007, while their neighbours showed substantial increases (Figure 11). In fact, some of the mills with the highest no-cane stops in 2006-2007 showed only small increases or, in some cases, decreases in Undetermined Losses; a commendable effort.

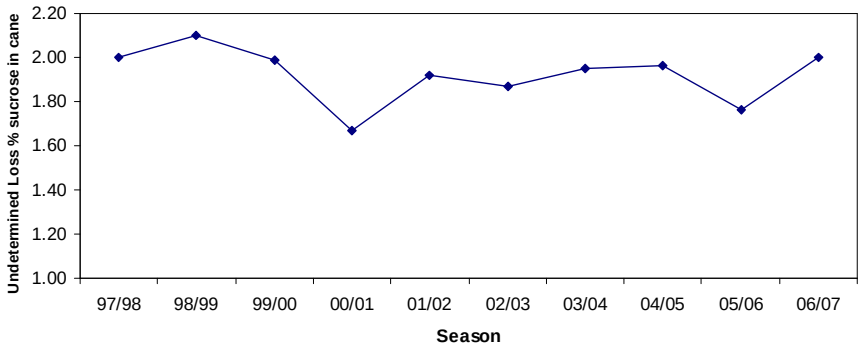

Figure 10. Undetermined loss in South Africa

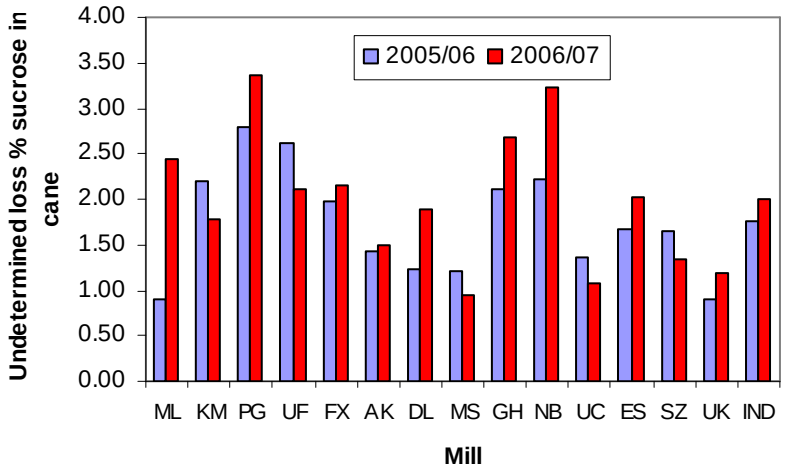

Figure 11. Undetermined loss % sucrose in cane at South African mills for 2005-2006 and 2006-2007

Despite the similar mixed juice purities in 2005-2006 and 2006-2007, the sucrose:non-sucrose ratio dropped due to immature and deteriorated cane. Consequently, higher losses to molasses were experienced in 2006-2007 compared to 2005-2006 (10.03% and 9.60% of sucrose in cane, respectively), mostly as a result of an increase in molasses gravity purity (sucrose/Brix) from 36.7% to 37.43%. However, the drop in sucrose and non-sucrose throughputs (Figure 12) meant that the molasses tonnage produced dropped slightly, from 4.23% at 85 Brix on cane in 2005-2006 to 4.08% in 2006-2007.

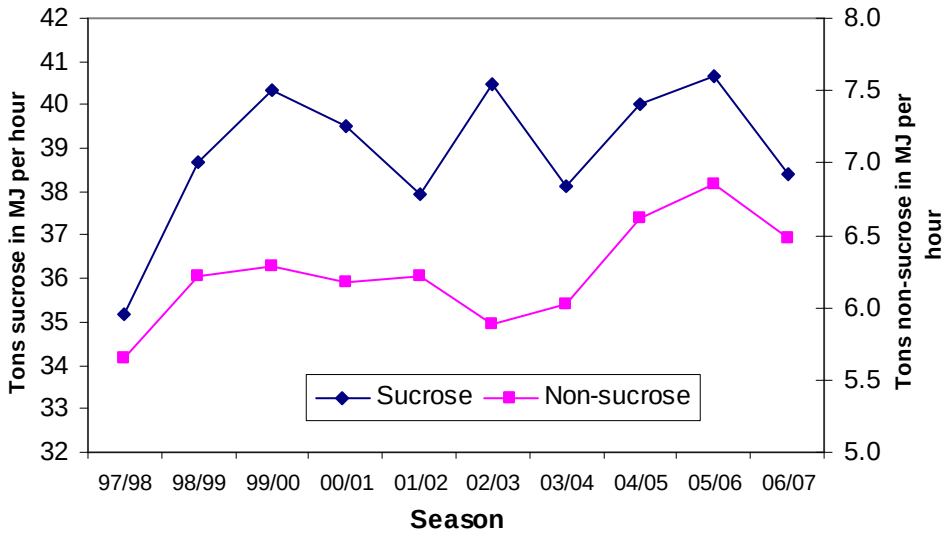

Figure 12. Sucrose and non-sucrose loadings in South Africa

Pol-based BHR values achieved by the affiliate mills ranged from 86.47% at Hippo Valley to 91.56% at Nakambala and 91.57% at Dwangwa. These values and the pol losses to molasses, and undetermined losses as a percentage of pol in cane, are shown for the affiliated mills in Figure 13. Once again, Table A2 shows that the mills in Zimbabwe and Zambia, and Ruembe in Tanzania, all had low pol and Brix factors, well outside the acceptable ranges for the South African industry, and the overall recovery figures must be viewed with caution in these cases.

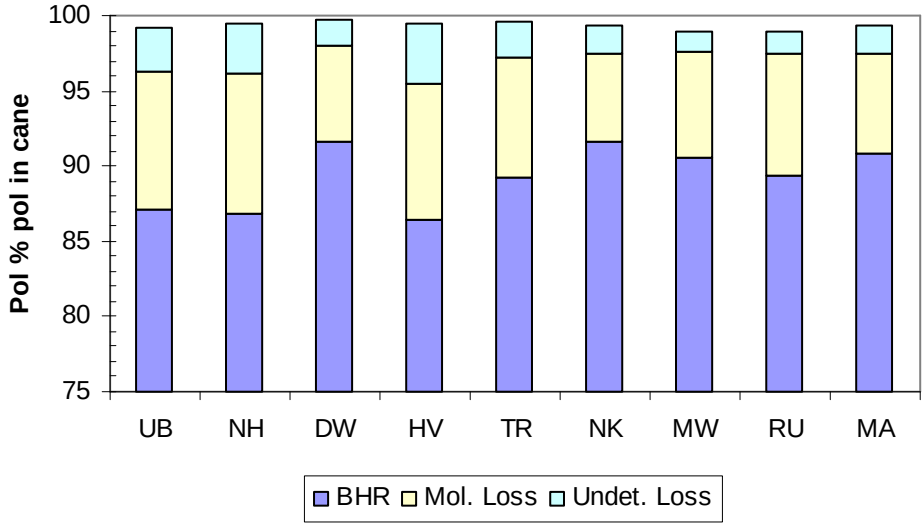

Figure 13. Pol-based Boiling House Recovery and sources of pol loss in southern African mills for 2006-2007

Overall recovery parameters

Considering the overall factors in South Africa (Figure 14), the Overall Recovery (OR) in 2006-2007 was well down on that of 2005-2006, as could be expected from the results presented so far. The Value Recovery (VR), which gives a financial measure of performance relative to the RV of the cane processed, dropped substantially from its all-time high in 2005-2006. It must be borne in mind that these factors do not necessarily follow each other, as OR considers only sucrose recovery into sugar, ignoring molasses, and VR takes the quality of the cane into account, while OR does not. In addition, VR includes values for the sugar and molasses prices, which vary independent of the mills' performances, so VR cannot be considered a measure of real technical performance. Nevertheless, the parallel drop of these parameters from 2005 to 2006 is clearly a cause for concern.

The affiliated mills returned a range of pol-based overall recoveries from 82.46% at Ruembe (an improvement of 3% over the 2005-2006 value) to 88.76% at Dwangwa and 88.54% at Maragra.

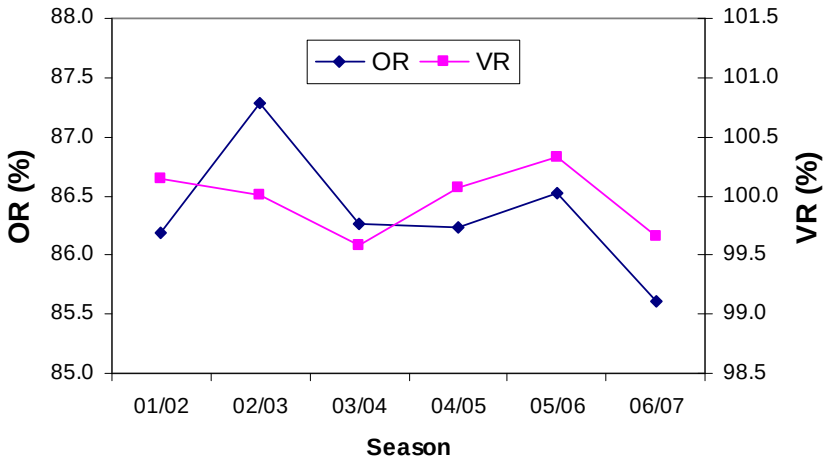

Figure 14. Overall Recovery (OR) and Value Recovery (VR) in South Africa from 2001-2002 to 2005-2006

Cane to sugar ratio

The cane to sugar ratios of the South African industry and the affiliated mills are shown in Figure 15 (with Swaziland being represented by Ubombo only, and Mozambique by Maragra only). The result of the problems experienced in South Africa in 2006-2007 can be seen by the increase in cane to sugar ratio to well above those of the neighbouring countries. The Tanzanian mills' results show the effects of the low pol, high fibre cane that was processed in 2006-2007. Dwangwa in Malawi once again had an excellent season, with a cane to sugar ratio of 7.34.

Sugar quality

The trends in the Very High Pol (VHP) sugar quality with respect to colour are shown in Figure 16. After the best quality in 10 years in 2005-2006, the trend reversed and South Africa produced the highest colour in the past 10 years in 2006-2007. The affinated (or crystal) colours also increased, showing that there was a real increase in the colour in the factories, and that centrifugal washing would not have been able to control the sugar colour without incurring even greater losses. This inherent high colour is largely the result of poor cane quality and erratic factory operation due to numerous stops.

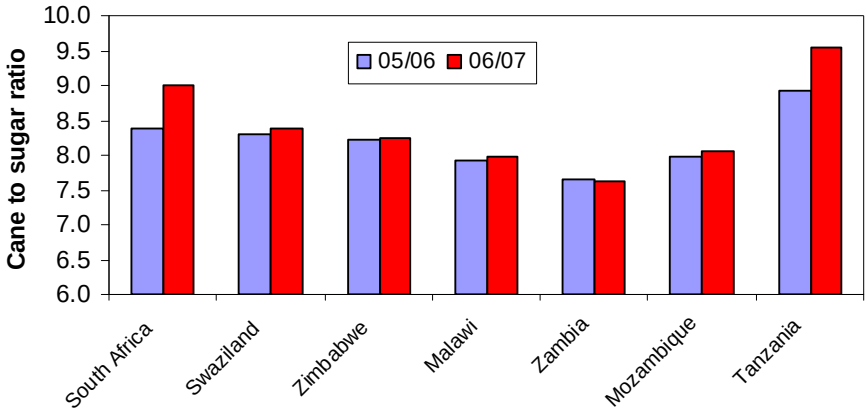

Figure 15. Cane to sugar ratio in southern Africa for 2005-2006 and 2006-2007

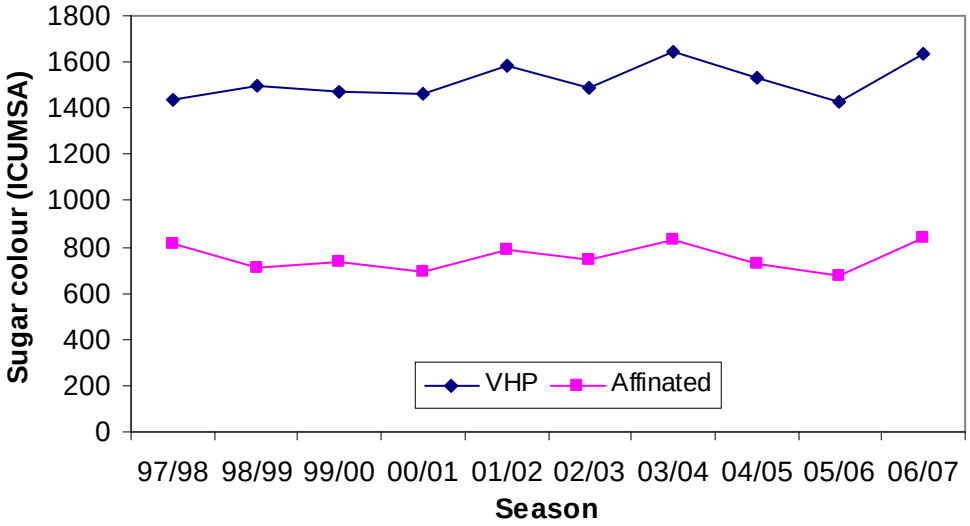

Figure 16. Very High Pol (VHP) and affinated sugar colours in South Africa

Conclusions

In contrast to the good season of 2005-2006, the 2006-2007 was characterised by a smaller crop, extensive rain, many no-cane stops, poorer cane quality and consequently poor recoveries and poor sugar quality. In many respects it was the worst season in the last 10 years, and all efforts should be made to address rateable cane supply and the burn-harvest to crush delays, even under difficult wet weather conditions. The mills in neighbouring countries again experienced mixed cane quality, and consequently mixed factory performances, although there were some improvements at the poorest performing mills.

Acknowledgements

This Annual Review is made possible by the valuable contributions of the following people and organisations, and their assistance is gratefully acknowledged: South African Sugar Millers' Association Ltd., SA Sugar Association Cane Testing Service, South African Sugarcane Research Institute, SA Sugar Terminals, SMRI member and affiliate member mill laboratories, and SMRI laboratories and staff. The staff at the various mills and mill groups are thanked for sharing their experiences.

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Appendix: Data Tables

Table A1: Cane crushed and sugar made, cane composition and time accounts, performances and losses – South African mills (Season 2006-2007)

Table A2: Cane crushed and sugar made, cane composition and time accounts, performances and losses – Swaziland, Malawi, Zimbabwe, Tanzania and Mozambique factories (Season 2006-2007)

Table B1: Analysis of bagasse, juices, filter cake, syrup and final molasses – South African Mills (Season 2006-2007)

Table B2: Analysis of bagasse, juices, filter cake, syrup and final molasses – Swaziland, Malawi, Zimbabwe, Tanzania and Mozambique factories (Season 2006-2007)

Table C1: Massecuites, exhaustions, clarifying agents and additional fuels – South African mills (Season 2006-2007)

Table C2: Massecuites, exhaustions, clarifying agents and additional fuels – Swaziland, Malawi, Zimbabwe, Tanzania and Mozambique factories (Season 2006-2007)

Table D: Comparative manufacturing data of recent years (South African mills)

Table E: Average manufacturing results by monthly periods for South African mills (Season 2006-2007)

Table F: Cane varieties and rainfall (Season 2006-2007)

Table G: Transport summary – South African factories (Season 2006-2007)

Table H: Comparative data of reporting South African mills from 1925 onwards

TABLE A1
CANE CRUSHED AND SUGAR MADE,CANE COMPOSITION,THROUGHPUTS AND TIME ACCOUNTS,PERFORMANCES AND LOSSES
SOUTH AFRICAN FACTORIES (SEASON 2006 - 2007)

SYMBOLS OF FACTORIES	ML *	KM-A *	KM-B *	KM-AVE	PG *	UF *	FX-A *	FX-B *	FX-AVE	AK *	DL	MS-A *	MS-B *	MS-AVE
TONS SUGAR MADE AND ESTIMATED	181511	-	-	252885	145684	129463	-	-	227227	168660	133477	-	-	145653
Refined % total sugar	67.12	-	-	-	84.16	-	-	-	-	-	-	-	-	-
Moisture all sugar	0.03	-	-	0.09	0.02	0.12	-	-	0.10	0.11	0.10	-	-	0.07
Pol all sugar	99.77	-	-	99.33	99.84	99.26	-	-	99.43	99.43	99.24	-	-	99.41
Tons cane crushed total	1526933			2102157	1379012	1113986			2139239	1560433	1224859			1346956
Tons cane crushed per tandem		1113475	988682				1105241	1033998				538304	808652	
Season started on	25-Apr-06	-	-	23-Apr-06	15-Mar-06	20-Apr-06	-	-	19-Apr-06	20-Apr-06	21-Apr-06	-	-	24-Apr-06
Season completed on	24-Dec-06	-	-	28-Dec-06	24-Dec-06	21-Dec-06	-	-	22-Dec-06	22-Dec-06	23-Dec-06	-	-	21-Dec-06
Length of season (days)	243	-	-	249	284	245	-	-	247	246	246	-	-	241
TIME ACCOUNT														
Overall time efficiency %	85.67	77.33	73.89	75.61	85.49	76.36	74.43	70.65	72.50	76.14	70.76	66.35	75.81	71.07
Scheduled stops% gross available time	0.65	6.02	2.80	4.41	4.53	1.72	9.76	8.87	9.30	7.49	6.66	16.07	15.81	15.94
Lack of cane % gross " " "	8.04	7.83	12.43	10.12	3.26	14.65	11.07	9.61	10.32	10.44	11.37	13.90	6.13	10.02
Other stops % gross " " "	5.12	8.27	9.20	8.74	4.88	6.54	4.30	10.58	7.51	4.97	9.74	3.34	2.14	2.74
Foreign matter % gross" " "	0.52	0.55	1.68	1.12	1.84	0.72	0.44	0.29	0.37	0.96	1.47	0.34	0.11	0.23
Lost time % available crush.time	5.64	9.67	11.08	10.36	5.40	7.89	5.46	13.03	9.39	6.13	12.10	4.79	2.74	3.71
Force majeure stops (hours)	2.8	0.9	1.1	1.0	17.8	2.4	26.5	28.0	27.3	0.0	60.5	0.0	0.0	0.0
THROUGHPUTS PER CRUSHING HOUR														
Tons cane	306.31	241.40	226.15	467.96	233.16	247.79	266.82	251.37	518.24	344.82	293.06	140.58	185.54	329.03
Tons fibre	41.92	33.62	31.45	65.13	31.37	35.01	41.90	39.25	81.16	53.96	42.93	21.76	29.41	51.67
Tons brix in mixed juice(adj.)	48.95	38.02	35.68	73.77	34.14	37.43	39.16	36.18	75.35	49.31	41.13	20.19	26.36	46.95
Tons sucrose in mixed juice(adj.)	42.05	32.46	30.50	63.01	29.03	32.35	32.96	30.48	63.45	41.90	35.28	17.22	22.32	39.87
Tons non-suc. in mixed juice(adj.)	6.90	5.56	5.19	10.75	5.11	5.08	6.20	5.70	11.90	7.40	5.85	2.97	4.04	7.08
Tons of sugar produced	36.41	-	-	56.29	24.63	28.80	-	-	55.05	37.27	31.94	-	-	35.58
COMPOSITION OF CANE CRUSHED														
Sucrose % cane	14.06	13.77	13.76	13.76	12.77	13.40	12.58	12.36	12.48	12.41	12.41	12.42	12.21	12.29
Pol % cane	13.97	13.68	13.67	13.68	12.67	13.36	12.54	12.32	12.43	12.37	12.35	12.37	12.16	12.24
Fibre % cane	13.68	13.89	13.95	13.92	13.62	14.91	15.75	15.57	15.66	15.65	15.79	15.62	15.76	15.70
Brix % cane	16.65	16.35	16.33	16.34	15.24	15.70	15.29	15.04	15.17	14.82	14.74	14.77	14.65	14.69
Ash % cane	1.64	0.99	0.99	0.99	1.90	2.23	2.14	2.08	2.11	1.60	2.29	-	-	-
ERC % cane	12.14	11.85	11.85	11.85	10.93	11.62	10.58	10.40	10.49	10.58	10.62	10.62	10.37	10.47
ERC % sucrose in cane	86.35	86.07	86.11	86.09	85.65	86.72	84.12	84.07	84.10	85.25	85.56	85.53	84.90	85.15
RV % cane	12.78	12.48	12.48	12.48	11.53	12.20	11.21	11.01	11.11	11.17	11.19	11.20	10.95	11.05
Merc % cane	12.28	11.95	11.95	11.95	11.08	11.69	10.57	10.39	10.48	10.63	10.72	10.65	10.39	10.49
EXTRACTION														
Extraction (sucrose based)	97.60	97.66	98.01	97.82	97.53	97.44	98.18	98.08	98.13	97.89	96.97	98.61	98.53	98.56
Corrected reduced extraction	97.09	97.26	97.66	97.45	97.12	97.12	98.25	98.15	98.20	97.97	96.90	98.65	98.62	98.63
Imbibition % fibre	371	299	308	303	313	392	364	366	365	371	298	386	386	386
Diffusion Rate Index	-	-	-	-	6	8	-	-	-	-	-	-	-	-
Preparation index	93	93	93	93	-	-	91	90	90	92	90	92	92	92
Pol factor	99.00	100.98	99.89	100.46	98.97	100.06	98.67	97.00	97.86	100.14	99.68	100.11	99.63	99.83
Brix factor	100.77	102.75	101.64	102.22	100.91	101.49	102.04	100.51	101.30	101.54	101.19	100.59	100.76	100.69
RECOVERIES														
Boiling house recovery (sucrose)	86.40	-	-	88.74	84.71	88.37	-	-	86.26	88.44	89.84	-	-	88.72
C. R. B.	84.92	-	-	87.64	84.02	86.65	-	-	86.85	88.03	88.44	-	-	88.55
Overall recovery (sucrose)	84.33	-	-	86.81	82.61	86.10	-	-	84.65	86.57	87.12	-	-	87.45
Ton cane per ton sugar	8.41	-	-	8.31	9.47	8.60	-	-	9.41	9.25	9.18	-	-	9.25
Ton cane per ton 96^0 pol sugar	8.09	-	-	8.03	9.10	8.32	-	-	9.09	8.93	8.88	-	-	8.93
Value Recovery %	98.31	-	-	100.20	97.28	98.75	-	-	100.14	100.99	100.83	-	-	102.34
Crystal Recovery Efficiency (XRE)	99.19	-	-	101.94	97.91	100.54	-	-	102.83	103.13	102.75	-	-	104.50
BALANCES														
Sucrose lost % sucrose in cane														
- lost in bagasse	2.40	-	-	2.18	2.47	2.56	-	-	1.87	2.11	3.03	-	-	1.44
- lost in filter cake	-	-	-	-	0.22	0.50	-	-	-	-	0.27	-	-	-
- lost in final molasses	10.83	-	-	9.23	11.33	8.73	-	-	11.32	9.83	7.69	-	-	10.18
- undetermined losses	2.43	-	-	1.79	3.36	2.11	-	-	2.16	1.49	1.89	-	-	0.94
Non sucrose ratio	1.09	-	-	0.98	1.08	1.00	-	-	1.02	0.99	0.99	-	-	1.14
Fructose ratio FM/MJ	0.99	-	-	0.89	0.91	0.87	-	-	0.87	0.84	0.81	-	-	0.97
Glucose ratio FM/MJ	0.88	-	-	0.60	0.78	0.61	-	-	0.62	0.68	0.66	-	-	0.81

TABLE A1 (continued)
CANE CRUSHED AND SUGAR MADE,CANE COMPOSITION,THROUGHPUTS AND TIME ACCOUNTS,PERFORMANCES AND LOSSES
SOUTH AFRICAN FACTORIES (SEASON 2006 - 2007)

SYMBOLS OF FACTORIES	GH-A *	GH-B	GH-AVE	NB	UC *	ES *	SZ-A *	SZ-B *	SZ-AVE	UK *	INDUSTRY
TONS SUGAR MADE AND ESTIMATED	-	-	128708	157568	83740	145656	-	-	225907	128362	2254501
Refined % total sugar	-	-	100.00	100.00	-	-	-	-	-	-	23.54
Moisture all sugar	-	-	0.02	0.02	0.06	0.09	-	-	0.10	0.09	0.08
Pol all sugar	-	-	99.93	99.93	99.59	99.43	-	-	99.38	99.49	99.52
Tons cane crushed total			1196391	1449050	722445	1267501			2088587	1161057	20278606
Tons cane crushed per tandem	384679	811712					969164	1119423			
Season started on	-	-	26-Apr-06	15-Mar-06	08-Mar-06	16-Mar-06	-	-	04-Apr-06	05-Apr-06	08-Mar-06
Season completed on	-	-	21-Dec-06	23-Dec-06	19-Dec-06	17-Dec-06	-	-	21-Jan-07	20-Jan-07	21-Jan-07
Length of season (days)	-	-	239	283	286	276	-	-	292	290	261
TIME ACCOUNT											
Overall time efficiency %	69.81	78.67	74.31	74.04	76.73	81.17	70.96	80.21	75.59	73.56	76.47
Scheduled stops% gross available time	3.75	4.90	4.34	4.79	8.67	3.07	8.54	8.50	8.52	6.99	6.21
Lack of cane % gross " " "	20.88	10.34	15.52	12.74	2.85	12.96	18.72	9.72	14.22	18.43	11.01
Other stops % gross " " "	5.32	5.57	5.45	6.68	11.63	2.23	1.44	1.16	1.30	0.75	5.54
Foreign matter % gross" " "	0.24	0.51	0.38	1.75	0.11	0.57	0.35	0.41	0.38	0.28	0.77
Lost time % available crush.time	7.08	6.62	6.83	8.27	13.16	2.68	1.98	1.42	1.69	1.00	6.76
Force majeure stops (hours)	66.6	59	62.6	0	0	7.0	0	1.5	0.7	1	183.8
THROUGHPUTS PER CRUSHING HOUR											
Tons cane	100.39	181.83	288.43	289.97	136.91	236.29	194.94	198.70	393.87	237.72	303.63
Tons fibre	15.37	26.96	43.21	38.38	19.18	33.66	30.53	31.42	62.00	36.08	44.51
Tons brix in mixed juice(adj.)	14.57	26.17	41.63	42.72	20.15	35.55	28.25	28.71	56.99	34.37	44.87
Tons sucrose in mixed juice(adj.)	12.47	22.48	35.71	36.99	17.54	30.78	24.13	24.46	48.60	29.43	38.39
Tons non-suc. in mixed juice(adj.)	2.11	3.69	5.92	5.73	2.62	4.77	4.13	4.25	8.39	4.95	6.48
Tons of sugar produced	-	-	31.03	31.53	15.87	27.15	-	-	42.60	26.28	33.76
COMPOSITION OF CANE CRUSHED											
Sucrose % cane	12.69	12.68	12.69	13.10	13.17	13.31	12.57	12.49	12.53	12.57	12.92
Pol % cane	12.63	12.64	12.63	13.02	13.12	13.23	12.46	12.38	12.42	12.47	12.85
Fibre % cane	15.63	15.86	15.79	14.35	14.15	14.50	15.81	15.97	15.90	15.18	14.95
Brix % cane	15.01	14.98	14.99	15.38	15.38	15.56	14.93	14.86	14.90	14.91	15.34
Ash % cane	3.28	3.15	3.19	1.78	1.46	2.63	-	-	-	1.92	1.93
ERC % cane	10.90	10.90	10.90	11.35	11.47	11.57	10.76	10.67	10.71	10.78	11.09
ERC % sucrose in cane	85.90	85.96	85.94	86.63	87.04	86.91	85.59	85.44	85.51	85.74	85.80
RV % cane	11.48	11.47	11.48	11.92	12.04	12.15	11.34	11.25	11.29	11.35	11.68
Merc % cane	11.00	11.00	11.00	11.49	11.61	11.71	10.84	10.76	10.80	10.84	11.18
EXTRACTION											
Extraction (sucrose based)	97.85	97.47	97.59	97.40	97.21	97.85	98.45	98.53	98.50	98.49	97.84
Corrected reduced extraction	97.86	97.41	97.55	96.90	96.84	97.60	98.50	98.60	98.56	98.48	97.71
Imbibition % fibre	355	357	356	265	302	452	486	473	479	493	372
Diffusion Rate Index	-	-	-	8	7	7	11	10	11	8	8
Preparation index	93	93	93	-	93	-	-	-	-	-	92
Pol factor	99.65	99.42	99.49	99.32	97.85	99.47	99.29	99.70	99.51	99.17	99.37
Brix factor	100.28	100.16	100.20	100.66	100.11	100.15	100.60	100.97	100.80	100.84	101.01
RECOVERIES											
Boiling house recovery (sucrose)	-	-	86.83	85.18	90.13	87.72	-	-	87.11	88.86	87.51
C. R. B.	-	-	86.18	83.32	87.17	85.18	-	-	86.09	87.90	86.51
Overall recovery (sucrose)	-	-	84.74	82.97	87.62	85.83	-	-	85.80	87.52	85.61
Ton cane per ton sugar	-	-	9.30	9.20	8.63	8.70	-	-	9.25	9.05	8.99
Ton cane per ton 96^0 pol sugar	-	-	8.93	8.83	8.32	8.40	-	-	8.93	8.73	8.68
Value Recovery %	-	-	99.32	96.60	100.16	98.58	-	-	100.15	101.67	99.65
Crystal Recovery Efficiency (XRE)	-	-	100.67	97.41	101.45	99.51	-	-	101.53	103.56	101.21
BALANCES											
Sucrose lost % sucrose in cane											
- lost in bagasse	-	-	2.41	2.60	2.79	2.15	-	-	1.50	1.51	2.16
- lost in filter cake	-	-	0.26	1.22	0.05	0.15	-	-	0.17	-	0.19
- lost in final molasses	-	-	9.91	9.98	8.46	9.84	-	-	11.18	9.80	10.03
- undetermined losses	-	-	2.68	3.23	1.08	2.03	-	-	1.34	1.18	2.00
Non sucrose ratio	-	-	1.02	1.01	0.95	1.05	-	-	1.08	1.06	1.04
Fructose ratio FM/MJ	-	-	0.83	0.90	0.80	0.92	-	-	0.90	0.93	0.91
Glucose ratio FM/MJ	-	-	0.60	0.77	0.51	0.67	-	-	0.67	0.73	0.71

*** Cane diffuser**

TABLE A2

CANE CRUSHED AND SUGAR MADE,CANE COMPOSITION,THROUGHPUTS AND TIME ACCOUNTS,PERFORMANCES AND LOSSES
SWAZILAND, MALAWI , ZIMBABWE ,ZAMBIA ,TANZANIA AND MOZAMBIQUE FACTORIES
(SEASON 2006 - 2007)

SYMBOLS OF FACTORIES	UB-A *	UB-B	UB-AVE	NH *	DW *	HV-A *	HV-B *	HV-AVE	TR-A *	TR-B	TR-AVE	NK-A	NK-B	NK-AVE	MW *	RU *	MA *
TONS SUGAR MADE AND ESTIMATED	-	-	219866	176636	111824	-	-	207075	-	-	239964	-	-	246468	45056	58626	67232
Refined % total sugar	-	-	44.62	35.95	31.17	-	-	10.99	-	-	25.57	-	-	9.17	-	-	-
Moisture % all sugar	-	-	0.18	0.07	0.06	-	-	0.12	-	-	-	-	-	0.08	0.14	0.09	0.18
Pol % all sugar	-	-	99.29	99.47	99.29	-	-	99.24	-	-	98.99	-	-	99.38	98.93	99.43	99.16
Tons cane crushed total			1843570	1477985	820979			1705385			1976380			1876514	409571	579351	542178
Tons cane crushed per tandem	1078202	765368				885090	820295		1404343	572037		656969	1219545				
Season started on	-	-	27-Apr-2006	18-Apr-2006	27-Apr-2006	-	-	21-Apr-2006	-	-	3-Apr-2006	-	-	14-Apr-2006	19-Jun-2006	23-Jun-2006	12-May-2006
Season completed on	-	-	27-Dec-2006	10-Dec-2006	13-Dec-2006	-	-	4-Jan-2007	-	-	26-Dec-2006	-	-	10-Dec-2006	8-Mar-2007	16-Mar-2007	21-Oct-2006
Number of crushing days	-	-	244	236	230	-	-	258	-	-	267	-	-	240	262	266	162
TIME ACCOUNT																	
Overall time efficiency %	87.89	83.54	85.72	86.01	84.77	85.94	83.08	84.52	85.23	50.01	68.66	82.91	85.06	83.97	65.89	74.15	83.91
Scheduled stops% gross available time	3.62	4.53	4.07	3.51	4.54	3.01	2.96	2.99	3.18	6.28	4.64	3.23	3.98	3.60	2.16	4.91	3.25
Lack of cane % gross " " "	4.71	8.99	6.84	5.18	5.30	4.23	5.62	4.92	3.81	29.86	16.07	5.76	4.38	5.08	27.74	16.05	11.27
Other stops % gross " " "	1.14	1.29	1.21	5.23	5.13	6.79	8.28	7.53	7.68	13.63	10.48	7.98	5.56	6.79	3.10	4.59	1.35
Foreign matter % gross " " "	2.65	1.65	2.15	0.06	0.26	0.03	0.06	0.04	0.11	0.21	0.16	0.12	1.02	0.56	1.11	0.30	0.22
Lost time % available crush.time	1.28	1.52	1.39	5.74	5.71	7.32	9.06	8.18	8.26	21.41	13.24	8.78	6.14	7.49	4.50	5.83	1.58
Force majeure stops (hours)	37.6	45.1	41.3	10.1	51.1	0.0	0.0	0.0	0.7	0.0	0.4	3.4	4.2	3.8	101.6	117.6	0.0
THROUGHPUTS PER CRUSHING HOUR																	
Tons cane	212.10	159.38	372.99	303.76	177.68	168.66	164.83	333.60	258.79	202.10	478.72	137.55	258.43	395.25	100.13	126.29	165.97
Tons fibre	24.80	19.74	44.69	39.44	27.14	25.32	24.87	50.20	35.82	26.86	65.49	18.93	35.65	54.48	16.68	20.93	20.38
Tons brix in mixed juice	33.13	25.74	59.08	48.26	29.74	27.20	26.50	53.72	40.47	32.23	75.30	21.76	41.35	62.99	13.99	16.47	25.72
Tons pol in mixed juice	28.60	21.93	50.72	41.56	26.24	23.49	22.99	46.49	34.66	27.64	64.50	19.45	37.00	56.35	12.03	14.22	22.47
Tons non-pol. in mixed juice	4.53	3.81	8.36	6.70	3.50	3.71	3.51	7.23	5.82	4.60	10.80	2.31	4.34	6.64	1.95	2.25	3.25
Tons of sugar produced	-	-	44.48	36.30	24.20	-	-	40.51	-	-	58.12	-	-	51.91	11.01	12.78	20.58
COMPOSITION OF CANE CRUSHED																	
Pol % cane	13.99	14.14	14.05	14.12	15.24	14.47	14.49	14.48	13.68	14.13	13.81	15.11	15.08	15.09	12.90	12.20	13.89
Fibre % cane	13.50	13.44	13.48	13.49	15.35	15.39	15.46	15.43	14.23	13.81	14.11	14.60	14.59	14.59	17.51	17.42	13.05
Brix % cane	16.52	16.91	16.68	16.59	17.63	17.09	17.04	17.06	16.45	16.84	16.56	17.31	17.20	17.24	15.46	14.54	16.10
Ash % cane	-	-	-	1.57	-	-	-	-	0.96	0.96	0.96	-	-	-	-	7.42	1.38
ERC % cane	12.10	12.12	12.11	12.27	13.37	12.49	12.54	12.52	11.66	12.14	11.80	13.35	13.37	13.36	10.94	10.38	12.18
ERC % pol in cane	86.49	85.73	86.17	86.87	87.72	86.34	86.57	86.45	85.22	85.91	85.43	88.38	88.66	88.56	84.83	85.06	87.71
EXTRACTION																	
Extraction (pol based)	96.41	97.29	96.78	96.88	96.93	96.23	96.27	96.25	97.88	96.75	97.54	93.61	94.96	94.49	93.19	92.26	97.47
Corrected reduced extraction	94.91	96.35	95.53	96.00	96.57	95.85	95.91	95.88	97.51	95.93	97.06	92.04	93.75	93.15	93.84	93.19	96.58
Imbibition % fibre	278	299	287	299	316	290	295	292	248	245	247	302	273	283	269	285	265
Diffusion Rate Index	16	11	14	8	7	-	-	-	-	-	-	-	-	-	-	-	-
Preparation index	-	-	-	-	-	92	92	92	91	91	91	-	-	-	77	77	90
Pol factor	99.68	100.30	99.94	98.85	99.97	95.86	95.13	95.51	95.66	96.47	95.90	98.11	97.97	98.02	99.10	96.37	99.58
Brix factor	100.67	101.88	101.18	100.27	101.00	98.21	97.15	97.70	97.70	98.56	97.95	99.30	98.69	98.90	100.79	98.06	100.39
RECOVERIES																	
Boiling house recovery (pol)	-	-	87.07	86.88	91.57	-	-	86.47	-	-	89.21	-	-	91.56	90.57	89.38	90.83
Overall recovery (pol)	-	-	84.27	84.17	88.76	-	-	83.23	-	-	87.01	-	-	86.51	84.40	82.46	88.54
Ton cane per ton sugar	-	-	8.38	8.37	7.34	-	-	8.24	-	-	8.24	-	-	7.61	9.09	9.88	8.06
Ton cane per ton 96^{o} pol sugar	-	-	8.11	8.08	7.10	-	-	7.97	-	-	7.99	-	-	7.35	8.82	9.54	7.81
BALANCES																	
Pol lost % pol in cane																	
- lost in bagasse	-	-	3.22	3.12	3.07	-	-	3.75	-	-	2.46	-	-	5.51	6.81	7.74	2.53
- lost in filter cake	-	-	0.33	0.15	0.05	-	-	0.07	-	-	0.17	-	-	0.27	0.40	0.30	0.48
- lost in final molasses	-	-	9.24	9.26	6.42	-	-	9.07	-	-	8.05	-	-	5.95	7.07	8.08	6.65
- undetermined losses	-	-	2.94	3.30	1.70	-	-	3.88	-	-	2.32	-	-	1.76	1.32	1.42	1.80
Non pol ratio	-	-	1.04	0.95	0.98	-	-	1.03	-	-	1.00	-	-	1.06	0.94	1.06	0.91

*** Cane diffuser**

TABLE B1
ANALYSIS OF BAGASSE,JUICES,FILTER CAKE,SYRUP AND FINAL MOLASSES
SOUTH AFRICAN FACTORIES (SEASON 2006 - 2007)

SYMBOLS OF FACTORIES	ML *	KM-A *	KM-B *	KM-AVE	PG *	UF *	FX-A *	FX-B *	FX-AVE	AK *	DL	MS-A *	MS-B *	MS-AVE
FINAL BAGASSE														
Pol % bagasse	1.11	1.17	1.00	1.09	1.13	1.18	0.67	0.70	0.68	0.83	1.19	0.52	0.54	0.53
Moisture % bagasse	52.79	47.22	47.30	47.26	49.71	49.45	52.11	52.19	52.15	49.09	51.38	51.88	51.10	51.41
Fibre % bagasse	45.02	50.59	50.71	50.65	48.16	48.51	46.08	45.92	46.00	49.26	46.38	46.90	47.58	47.31
Ash % bagasse	3.09	-	-	1.09	3.64	5.57	-	-	-	3.75	-	-	-	-
LCV in kJ per kg bagasse ##	6699	-	-	8213	7239	6943	-	-	-	7363	-	-	-	-
MIXED JUICE														
Mixed juice(adj.) % cane	120.51	114.06	115.41	114.70	114.18	126.31	123.35	123.41	123.38	126.55	112.12	126.77	128.09	127.56
Brix % mixed juice(adj.)	13.26	13.81	13.67	13.74	12.82	11.96	11.90	11.66	11.78	11.30	12.52	11.33	11.09	11.19
Sucrose purity (MJ adj.)	85.90	85.39	85.46	85.42	85.05	86.43	84.17	84.26	84.21	84.98	85.77	85.27	84.68	84.92
Apparent purity(MJ adj.)	85.28	84.79	84.92	84.85	84.41	86.18	83.89	83.93	83.91	84.66	85.34	84.91	84.32	84.56
Purity difference(MJ adj. - DAC)	-0.12	-0.31	-0.31	-0.31	-0.41	-0.14	-0.93	-0.95	-0.94	0.05	0.29	0.76	0.37	0.53
(Glucose + fructose) % sucrose(MJ unadj)	5.26	-	-	5.45	5.96	4.39	-	-	4.95	4.77	5.24	-	-	4.82
Suspended solids % MJ(unadj.)	0.11	0.10	0.10	0.10	0.15	0.62	0.17	0.17	0.17	0.26	1.02	0.12	0.13	0.13
Pol/sucrose ratio (mj unadj.)	0.9928	0.9931	0.9937	0.9933	0.9925	0.9971	0.9967	0.9961	0.9964	0.9962	0.9950	0.9958	0.9958	0.9958
CLARIFIED JUICE														
Brix % clarified juice	13.18	-	-	13.46	12.60	11.61	-	-	11.47	11.38	11.98	-	-	10.71
Apparent purity	84.86	-	-	84.60	84.24	85.41	-	-	83.51	83.67	84.62	-	-	81.44
Purity difference(CJ - MJ)	-0.42	-	-	-0.25	-0.17	-0.77	-	-	-0.40	-0.99	-0.72	-	-	-3.12
Average pH	7.09	-	-	7.00	7.06	7.10	-	-	7.35	7.04	7.10	-	-	7.13
CLARIFIER MUD														
Tons clarifier mud	55838	60728	23477	84205	198	-	61599	89226	150825	93028	-	2194	76060	78254
Pol % clarifier mud	11.04	11.69	11.76	11.71	11.10	-	8.78	8.90	8.85	9.34	-	8.98	9.31	9.30
Brix % clarifier mud	13.37	14.13	14.27	14.17	13.11	-	10.93	11.06	11.00	11.24	-	10.98	11.31	11.31
Insoluble solids % clarifier mud	3.79	2.89	2.89	2.89	13.11	-	3.13	3.13	3.13	5.67	-	2.92	2.89	2.89
FILTER CAKE														
Pol % filter cake	-	-	-	-	1.92	1.40	-	-	-	-	0.83	-	-	-
Moisture % filter cake	-	-	-	-	74.60	70.00	-	-	-	-	-	-	-	-
Filter cake % cane	-	-	-	-	1.48	4.78	-	-	-	-	4.00	-	-	-
Filter wash index	-	-	-	-	101.77	103.00	-	-	-	-	104.48	-	-	-
Purity difference(CJ - filtrate)	-	-	-	-	0.55	2.86	-	-	-	-	0.91	-	-	-
SYRUP														
Brix % syrup	69.59	-	-	66.00	66.65	64.44	-	-	64.48	66.07	64.38	-	-	69.00
Apparent purity	85.08	-	-	84.30	84.85	84.76	-	-	83.49	84.27	84.47	-	-	83.20
Purity difference(Syrup - MJ)	-0.20	-	-	-0.55	0.44	-1.42	-	-	-0.42	-0.39	-0.87	-	-	-1.36
Average pH	5.96	-	-	5.93	6.10	6.20	-	-	6.04	6.07	6.10	-	-	5.97
FINAL MOLASSES														
Refractometer brix	85.00	-	-	83.22	84.22	82.83	-	-	85.74	87.61	87.55	-	-	89.04
Pol/refractometer brix purity	36.18	-	-	31.90	36.11	34.31	-	-	36.07	35.06	30.48	-	-	32.32
Sucrose/refractometer brix purity	38.60	-	-	36.69	38.20	37.16	-	-	38.07	36.99	33.35	-	-	34.32
Conductivity ash %	13.41	-	-	16.30	13.66	15.23	-	-	15.33	15.48	17.48	-	-	16.87
(Glucose + fructose)/ash ratio	1.12	-	-	0.83	1.03	0.76	-	-	0.72	0.80	0.81	-	-	0.79
Fructose %	7.98	-	-	8.02	7.61	6.93	-	-	6.56	7.11	8.10	-	-	7.59
Glucose %	7.07	-	-	5.56	6.40	4.58	-	-	4.45	5.21	6.10	-	-	5.80
TPD based on molasses (made)	9.31	-	-	2.63	7.10	3.46	-	-	4.41	4.40	0.23	-	-	1.10
TPD based on mixed juice	9.53	-	-	4.02	8.29	4.70	-	-	5.51	5.51	2.03	-	-	1.79
Final molasses @ 85^{0} brix % cane	4.64	-	-	4.07	4.46	3.70	-	-	4.37	3.88	3.37	-	-	4.29
Pol/sucrose ratio	0.9374	-	-	0.8695	0.9452	0.9233	-	-	0.9475	0.9481	0.9140	-	-	0.9417

*** Cane diffuser**

Net Calorific Value(LCV) = 18260 - 31.14 Bx % bagasse - 207.63 moisture % bagasse - 182.6 ash % bagasse

TABLE B1 (continued)
ANALYSIS OF BAGASSE,JUICES,FILTER CAKE,SYRUP AND FINAL MOLASSES
SOUTH AFRICAN FACTORIES (SEASON 2006 - 2007)

SYMBOLS OF FACTORIES	GH-A *	GH-B	GH-AVE	NB	UC *	ES *	SZ-A *	SZ-B *	SZ-AVE	UK *	INDUSTRY
FINAL BAGASSE											
Pol % bagasse	0.86	1.07	1.00	1.25	1.20	1.00	0.64	0.60	0.62	0.62	0.92
Moisture % bagasse	50.07	48.60	49.09	48.88	52.17	48.58	47.04	46.68	46.85	48.92	49.76
Fibre % bagasse	48.36	49.45	49.08	48.74	45.68	49.62	51.52	51.95	51.75	49.59	48.38
Ash % bagasse	-	-	2.83	4.33	3.13	6.82	-	-	3.44	4.07	2.71
LCV in kJ per kg bagasse ##	-	-	7525	7276	6821	6902	-	-	7890	7343	7377
MIXED JUICE											
Mixed juice(adj.) % cane	122.74	122.90	122.85	107.89	111.64	135.79	145.64	144.41	144.98	144.48	124.29
Brix % mixed juice(adj.)	11.83	11.71	11.75	13.65	13.18	11.08	9.95	10.00	9.98	10.01	11.89
Sucrose purity (MJ adj.)	85.55	85.89	85.78	86.59	87.01	86.58	85.39	85.19	85.29	85.61	85.55
Apparent purity(MJ adj.)	85.13	85.55	85.42	86.06	86.64	86.07	84.66	84.42	84.53	84.93	85.06
Purity difference(MJ adj. - DAC)	0.47	0.59	0.55	0.26	-0.65	0.44	0.08	0.07	0.08	-0.08	-0.07
(Glucose + fructose) % sucrose(MJ unadj)	-	-	4.99	4.82	4.23	4.44	-	-	5.06	4.52	4.98
Suspended solids % MJ(unadj.)	0.25	0.85	0.66	1.04	0.13	0.23	0.10	0.11	0.11	0.18	0.31
Pol/sucrose ratio (mj unadj.)	0.9952	0.9961	0.9958	0.9939	0.9957	0.9940	0.9914	0.9909	0.9911	0.9921	0.9942
CLARIFIED JUICE											
Brix % clarified juice	-	-	11.59	14.17	13.57	11.00	-	-	9.47	9.54	11.79
Apparent purity	-	-	84.94	87.01	86.02	85.63	-	-	83.85	83.78	85.01
Purity difference(CJ - MJ)	-	-	-0.48	0.95	-0.62	-0.44	-	-	-0.68	-1.15	-0.63
Average pH	-	-	7.15	7.14	7.00	7.15	-	-	6.80	6.87	7.07
CLARIFIER MUD											
Tons clarifier mud	-	-	-	-	-	10465	-	-	-	100013	572826
Pol % clarifier mud	-	-	-	-	-	9.13	-	-	-	5.46	9.04
Brix % clarifier mud	-	-	-	-	-	10.97	-	-	-	6.59	11.01
Insoluble solids % clarifier mud	-	-	-	-	-	7.19	-	-	-	3.26	3.64
FILTER CAKE											
Pol % filter cake	-	-	0.94	2.50	1.47	2.15	-	-	1.75	-	1.68
Moisture % filter cake	-	-	70.00	70.29	72.68	72.95	-	-	68.50	-	70.51
Filter cake % cane	-	-	3.46	6.41	0.49	0.93	-	-	1.20	-	1.47
Filter wash index	-	-	101.37	96.36	97.16	100.72	-	-	105.38	-	100.84
Purity difference(CJ - filtrate)	-	-	0.92	0.50	4.61	-	-	-	1.46	-	1.45
SYRUP											
Brix % syrup	-	-	65.44	70.28	67.61	64.45	-	-	61.52	64.72	65.73
Apparent purity	-	-	85.03	86.67	86.58	85.86	-	-	84.03	83.90	84.57
Purity difference(Syrup - MJ)	-	-	-0.39	0.61	-0.06	-0.21	-	-	-0.50	-1.03	-0.49
Average pH	-	-	6.24	6.04	6.40	6.15	-	-	5.90	5.96	6.08
FINAL MOLASSES											
Refractometer brix	-	-	83.16	81.38	84.07	83.46	-	-	83.43	86.36	84.72
Pol/refractometer brix purity	-	-	35.06	36.50	35.18	35.97	-	-	35.97	34.08	34.77
Sucrose/refractometer brix purity	-	-	37.55	39.57	38.50	38.80	-	-	38.47	36.26	37.43
Conductivity ash %	-	-	14.68	12.45	13.14	12.63	-	-	13.82	14.63	14.68
(Glucose + fructose)/ash ratio	-	-	0.76	1.03	0.81	0.92	-	-	0.83	0.85	0.86
Fructose %	-	-	6.72	7.50	6.92	7.12	-	-	6.89	7.29	7.31
Glucose %	-	-	4.39	5.28	3.67	4.47	-	-	4.53	5.13	5.25
TPD based on molasses (made)	-	-	4.46	7.94	5.62	6.59	-	-	5.39	3.80	4.82
TPD based on mixed juice	-	-	6.51	8.90	7.87	7.93	-	-	6.80	4.53	5.99
Final molasses @ 85^0 brix % cane	-	-	3.94	3.89	3.41	3.97	-	-	4.28	3.99	4.08
Pol/sucrose ratio	-	-	0.9339	0.9223	0.9140	0.9271	-	-	0.9349	0.9399	0.9288

*** Cane diffuser**

Net Calorific Value(LCV) = 18260 - 31,14 Bx % bagasse - 207,63 moisture % bagasse - 182,6 ash % bagasse

TABLE B2

ANALYSIS OF BAGASSE,JUICES,FILTER CAKE,SYRUP AND FINAL MOLASSES

SWAZILAND, MALAWI , ZIMBABWE ,ZAMBIA ,TANZANIA AND MOZAMBIQUE FACTORIES

(SEASON 2006 - 2007)

SYMBOLS OF FACTORIES	UB-A *	UB-B	UB-AVE	NH *	DW *	HV-A *	HV-B *	HV-AVE	TR-A *	TR-B	TR-AVE	NK-A	NK-B	NK-AVE	MW	RU	MA
FINAL BAGASSE																	
Pol % bagasse	2.03	1.48	1.79	1.62	1.53	1.73	1.70	1.72	0.99	1.61	1.17	3.09	2.58	2.77	2.45	2.66	1.39
Moisture % bagasse	49.09	49.27	49.17	49.67	47.21	49.22	49.56	49.38	50.17	50.30	50.21	51.12	49.07	49.81	49.30	49.05	49.09
Fibre % bagasse	47.27	47.77	47.49	47.76	49.89	47.74	47.43	47.59	47.07	46.57	46.93	44.10	46.86	45.86	46.54	46.71	48.51
Ash % bagasse	-	-	4.00	-	-	-	-	-	-	-	-	-	-	-	-	-	2.61
LCV in kJ per kg bagasse ##	-	-	7247	-	-	-	-	-	-	-	-	-	-	-	-	-	7547
MIXED JUICE																	
Mixed juice % cane	107.74	111.15	109.16	111.59	117.69	112.05	112.63	112.33	104.99	104.00	104.70	110.40	108.19	108.96	109.02	111.76	107.17
Brix % mixed juice	14.50	14.53	14.51	14.24	14.22	14.39	14.28	14.34	14.90	15.34	15.02	14.33	14.79	14.63	12.81	11.67	14.46
Apparent purity	86.32	85.21	85.85	86.12	88.23	86.35	86.74	86.53	85.63	85.74	85.66	89.39	89.50	89.46	86.02	86.34	87.38
Purity difference(MJ - DAC)	0.82	0.27	0.59	-0.26	0.90	-0.44	-0.09	-0.27	0.68	0.00	0.48	1.06	1.18	1.14	1.17	0.97	0.42
Suspended solids % mixed juice	1.67	0.95	1.37	0.45	0.07	0.34	0.33	0.34	0.38	0.51	0.41	0.76	0.74	0.74	0.79	0.76	0.72
CLARIFIED JUICE																	
Brix % clarified juice	-	-	14.87	14.13	13.47	-	-	15.14	-	-	14.29	-	-	14.50	12.72	12.19	14.12
Apparent purity	-	-	85.62	86.98	88.76	-	-	86.33	-	-	85.44	-	-	88.71	86.69	87.89	86.99
Purity difference(CJ - MJ)	-	-	-0.23	0.86	0.53	-	-	-0.20	-	-	-0.22	-	-	-0.75	0.67	1.55	-0.39
Average pH	-	-	7.1	7.0	6.7	-	-	7.0	-	-	7.2	-	-	7.0	7.0	7.0	7.0
CLARIFIER MUD																	
Tons clarifier mud	-	-	-	-	-	45192	45360	90552	1499	-	1499	-	-	-	-	-	-
Pol % clarifier mud	-	-	-	-	-	13.83	13.90	13.86	9.54	-	9.54	-	-	-	-	-	-
Brix % clarifier mud	-	-	-	-	-	16.67	16.78	16.73	11.74	-	11.74	-	-	-	-	-	-
Insoluble solids % clarifier mud	-	-	-	-	-	4.97	4.98	4.98	4.94	-	4.94	-	-	-	-	-	-
FILTER CAKE																	
Pol % filter cake	-	-	1.71	0.92	0.76	-	-	3.69	-	-	0.95	-	-	1.09	1.11	0.77	1.73
Moisture % filter cake	-	-	-	-	74.24	-	-	69.69	-	-	-	-	-	77.22	65.54	-	69.78
Filter cake % cane	-	-	2.74	2.34	1.00	-	-	0.29	-	-	2.40	-	-	3.70	4.63	4.80	3.84
Filter wash index	-	-	97.6	100.8	105.6	-	-	94.7	-	-	105.1	-	-	100.9	100.7	95.7	102.4
Purity difference(CJ - filtrate)	-	-	1.24	2.74	1.28	-	-	-	-	-	1.25	-	-	1.31	1.75	2.22	1.09
SYRUP																	
Brix % syrup	-	-	66.21	65.26	66.67	-	-	56.35	-	-	66.07	-	-	67.90	64.61	63.60	63.38
Apparent purity	-	-	85.36	87.27	88.90	-	-	86.64	-	-	85.32	-	-	88.98	86.68	86.73	87.07
Purity difference(Syrup - MJ)	-	-	-0.49	1.15	0.67	-	-	0.11	-	-	-0.34	-	-	-0.48	0.66	0.39	-0.31
Average pH	-	-	5.9	6.4	6.4	-	-	6.4	-	-	6.3	-	-	6.2	6.8	6.5	6.1
FINAL MOLASSES																	
Refractometer brix	-	-	83.67	85.75	84.69	-	-	84.54	-	-	86.92	-	-	88.52	83.55	85.26	80.90
Pol/refractometer brix purity	-	-	36.50	39.00	34.61	-	-	37.86	-	-	34.22	-	-	34.46	34.48	34.90	35.11
Purity difference(true-target)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reducing sugars % #	-	-	20.53	-	-	-	-	14.88	-	-	-	-	-	-	-	-	-
Sulphated ash %	-	-	13.04	-	-	-	-	13.07	-	-	-	-	-	-	-	-	-
Reducing sugars/ash ratio	-	-	1.57	-	-	-	-	1.14	-	-	-	-	-	-	-	-	-
Final molasses at 85° brix % cane	-	-	4.19	3.94	3.32	-	-	4.08	-	-	3.82	-	-	3.06	3.11	3.32	3.10

TABLE C1
MASSECUITES,EXHAUSTIONS,CLARIFYING AGENTS AND ADDITIONAL FUELS.
SOUTH AFRICAN FACTORIES (SEASON 2006-2007)

SYMBOLS OF FACTORIES	ML	KM	PG	UF	FX	AK	DL	MS	GH	NB	UC	ES	SZ	UK	INDUSTRY
A - MASSECUITE															
m^3 per ton brix in mixed juice(adj.)	1.10	-	1.29	0.95	1.02	1.02	0.93	1.02	1.11	1.26	1.03	1.07	1.02	1.00	0.95
Refractometer brix of massecuite	92.54	92.47	92.18	92.14	93.18	92.64	93.08	93.15	93.33	92.65	92.01	93.06	93.51	92.93	92.84
Purity of massecuite	86.42	84.38	87.58	84.97	84.63	85.06	85.50	83.08	85.78	87.18	86.55	84.10	84.57	84.03	85.38
Purity of A - molasses	73.62	67.03	74.09	68.95	67.34	67.26	63.76	62.67	67.80	69.89	70.90	67.42	65.67	62.77	68.08
Purity drop	12.80	17.35	13.49	16.02	17.29	17.80	21.74	20.41	17.98	17.29	15.65	16.68	18.90	21.26	17.30
Exhaustion	56.15	62.37	59.45	60.72	62.55	63.92	70.16	65.81	65.10	65.87	62.14	60.88	65.10	67.96	63.48
Pty of A-massecuite - purity syrup	1.34	0.08	2.73	0.21	1.14	0.79	1.03	-0.12	0.75	0.51	-0.03	-1.76	0.54	0.13	0.80
Pty of remelt	87.24	84.04	86.51	83.79	86.34	85.67	83.89	83.63	83.25	84.58	85.56	84.46	83.91	83.64	84.80
B - MASSECUITE															
m^3 per ton brix in mixed juice(adj.)	0.59	-	0.55	0.35	0.35	0.35	0.20	0.32	0.43	0.60	0.35	0.36	0.34	0.45	0.36
Refractometer brix of massecuite	93.77	94.45	94.99	94.92	95.48	94.05	94.10	94.36	95.16	95.27	94.43	94.91	95.76	94.87	94.83
Purity of massecuite	72.82	68.44	74.01	67.86	69.20	67.96	66.28	64.71	68.00	70.42	70.86	68.42	67.22	67.54	69.43
Purity of B - molasses	55.05	44.17	53.85	44.80	46.74	48.92	43.29	44.31	46.34	48.75	46.34	45.49	45.09	45.82	48.27
Purity drop	17.77	24.27	20.16	23.06	22.46	19.04	22.99	20.40	21.66	21.67	24.52	22.93	22.13	21.72	21.16
Exhaustion	54.29	63.52	59.02	61.56	60.94	54.85	61.16	56.61	59.36	60.04	64.49	61.48	59.96	59.36	58.92
C - MASSECUITE															
m^3 per ton brix in mixed juice(adj.)	0.10	-	0.45	0.22	0.30	0.26	0.27	0.33	0.28	0.26	0.17	0.24	0.28	0.32	0.24
Refractometer brix of massecuite	97.05	96.92	96.84	96.63	96.93	96.56	96.93	96.90	97.36	97.23	97.82	97.30	96.75	96.96	96.95
Purity of massecuite	58.54	53.63	55.38	51.28	54.98	54.26	52.21	53.36	52.69	54.83	51.66	53.65	55.55	54.02	54.25
Purity of C - molasses	36.18	31.90	36.11	34.31	36.07	35.06	30.48	32.32	35.06	36.50	35.18	35.97	35.97	34.08	34.77
Crystal content	34.00	30.92	29.21	24.96	28.67	28.54	30.29	30.12	26.43	28.07	24.86	26.86	29.59	29.33	28.95
Exhaustion	59.85	59.49	54.47	50.37	53.79	54.48	59.86	58.26	51.51	52.66	49.20	51.46	55.05	56.00	55.05
TOTAL VOLUME ALL RAW MASSECUITES															
m^3 per ton brix in mixed juice(adj.)	1.78	-	2.29	1.52	1.67	1.63	1.40	1.67	1.82	2.13	1.55	1.67	1.64	1.77	1.55
WHITE SUGAR MASSECUITES															
Kg sugar per m^3 massecuite	179	-	762	-	-	-	-	-	487	1451	-	-	-	-	538
Tons limestone per 1000 tons white sugar	-	-	-	-	-	-	-	-	41.99	-	-	-	-	-	9.41
Tons coke per 1000 tons white sugar	-	-	-	-	-	-	-	-	4.78	-	-	-	-	-	0.94
Tons phosphoric acid per 1000 tons white sugar	-	-	-	-	-	-	-	-	-	1.49	-	-	-	-	0.36
Tons sulphur per 1000 tons white sugar	0.49	-	0.33	-	-	-	-	-	0.31	0.22	-	-	-	-	0.25
Phosphoric acid ppm mixed juice(unadj.)	-	-	-	-	-	-	-	-	-	-	-	80.49	8.18	26.24	9.97
Flocculant ppm mixed juice(unadj.)	4.90	2.25	3.96	6.35	3.75	4.06	1.93	3.22	3.48	7.20	3.90	6.41	3.95	2.77	4.15
Tons lime per 1000 tons cane	1.15	0.09	1.92	0.58	0.63	0.62	0.50	0.61	-	0.77	0.49	0.48	0.54	0.60	0.71
Enzyme ppm sugar	-	-	-	-	-	-	26.54	2.68	8.42	-	-	10.58	55.82	11.48	9.16
ADDITIONAL FUELS PER 1000 TONS CANE															
Tons of coal	32.45	0.66	14.36	5.36	15.28	3.00	1.74	18.43	11.11	19.92	4.79	3.63	-	1.14	9.50
Tons of wood	-	-	-	-	0.02	-	0.28	0.03	-	-	0.21	0.43	0.09	0.04	0.07
Converted into bagasse **	129.80	2.63	57.45	21.44	61.15	12.02	7.30	73.75	44.44	79.67	19.41	15.04	0.11	4.62	38.07

**** 1 TON COAL EQUIVALENT TO 4 TONS OF BAGASSE**
1 TON FIREWOOD EQUIVALENT TO 1,2 TONS OF BAGASSE
 # 1 TON SULPHUR DIOXIDE EQUIVALENT TO 0,5 TONS OF SULPHUR

TABLE C2

MASSECUITES,EXHAUSTIONS,CLARIFYING AGENTS AND ADDITIONAL FUELS

SWAZILAND, MALAWI , ZIMBABWE ,ZAMBIA ,TANZANIA AND MOZAMBIQUE FACTORIES (SEASON 2006 - 2007)

SYMBOLS OF FACTORIES	UB	NH	DW	HV	TR	NK	MW	RU	MA
A - MASSECUITE									
m^3 per ton brix in mixed juice	1.06	1.35	1.26	1.14	-	1.14	1.05	1.35	1.02
Refractometer brix of massecuite	93.55	93.62	91.59	91.27	92.74	92.82	92.32	93.22	92.60
Purity of massecuite	85.20	88.61	87.61	87.26	85.17	89.19	87.06	87.35	87.06
Purity of A - molasses	70.12	75.06	73.63	71.08	68.50	73.61	72.53	72.32	69.95
Purity drop	15.08	13.55	13.98	16.18	16.67	15.58	14.53	15.03	17.11
Exhaustion	59.24	61.31	60.51	64.12	62.14	66.19	60.76	62.16	65.40
Purity of A-massecuite - pty syrup	-0.16	1.34	-1.29	0.62	-0.15	0.21	0.38	0.62	-0.01
Purity of remelt	87.45	86.78	87.01	87.35	82.73	85.88	86.86	85.33	86.59
B - MASSECUITE									
m^3 per ton brix in mixed juice	0.35	0.31	0.62	-	-	0.41	0.39	0.53	0.37
Refractometer brix of massecuite	95.84	93.28	93.34	92.55	94.56	94.62	94.46	94.22	94.02
Purity of massecuite	69.22	72.16	68.67	71.85	68.84	73.35	73.34	73.00	70.18
Purity of B - molasses	48.83	55.83	49.14	53.76	49.24	52.45	50.88	50.71	48.09
Purity drop	20.39	16.33	19.53	18.09	19.60	20.90	22.46	22.29	22.09
Exhaustion	57.57	51.23	55.92	54.45	56.09	59.92	62.35	61.95	60.64
C - MASSECUITE									
m^3 per ton brix in mixed juice	0.25	0.21	0.24	-	-	0.19	0.24	0.28	0.20
Refractometer brix of massecuite	98.18	96.73	95.27	95.18	97.10	96.66	97.03	96.65	96.07
Purity of massecuite	55.21	58.20	53.21	57.95	56.71	55.87	54.50	55.12	52.23
Purity of C - molasses	36.50	39.00	34.61	37.86	34.22	34.46	34.48	34.90	35.11
Crystal content	28.93	30.45	27.10	30.77	33.20	31.58	29.65	30.01	25.35
Exhaustion	53.37	54.09	53.46	55.78	60.29	58.48	56.06	56.34	50.52
TOTAL VOLUME ALL RAW MASSECUITES									
m^3 per ton brix in mixed juice	1.66	1.87	2.12	-	-	1.75	1.68	2.16	1.59
WHITE SUGAR MASSECUITES									
Kg sugar per m^3 massecuite	588	460	484	-	-	660	-	-	-
Tons phosphoric acid/1000 tons white sugar	-	0.82	-	-	-	6.99	-	-	-
Tons sulphur/1000 tons white sugar	0.19	-	0.14	-	-	1.59	-	-	-
Phosphoric acid ppm mixed juice	-	-	-	-	-	-	-	-	0.5
Flocculant ppm mixed juice	0.2	4.3	1.4	2.3	2.7	2.6	4.2	-	3.6
Tons lime per 1000 tons cane	0.6	0.8	0.4	0.7	0.5	0.6	0.7	1.0	0.4
Enzyme ppm sugar	-	-	-	-	-	-	-	-	-
ADDITIONAL FUELS PER 1000 TONS CANE									
Tons of coal	4.95	-	-	10.73	3.66	-	-	-	-
Tons of wood	-	-	2.62	0.10	-	-	1.78	0.70	0.95
Converted into bagasse **	19.78	-	3.14	43.06	14.62	-	2.14	0.83	1.14

**** 1 TON COAL EQUIVALENT TO 4 TONS OF BAGASSE**

1 TON FIREWOOD EQUIVALENT TO 1,2 TONS OF BAGASSE

 # 1 TON SULPHUR DIOXIDE EQUIVALENT TO 0,5 TONS OF SULPHUR

TABLE D
COMPARATIVE MANUFACTURING DATA OF RECENT YEARS
(SOUTH AFRICAN FACTORIES)

	2006/2007	2005/2006	2004/2005	2003/2004	2002/2003
Throughput and time efficiency					
Tons cane per hour	303.63	301.88	301.95	284.40	301.36
Tons fibre per hour	44.51	43.49	44.11	41.35	43.85
Overall time efficiency	76.47	82.90	82.40	82.72	83.97
Cane					
Sucrose % cane	12.92	13.74	13.52	13.70	13.71
Fibre % cane	14.95	14.66	14.84	14.81	14.80
Mixed juice					
Sucrose purity(MJ adj.)	85.55	85.59	85.81	86.36	87.31
(Glucose + Fructose)/ash in M.J.(unadj.)	1.01	1.06	1.03	0.98	0.98
Milling					
Imbibition % fibre	372	380	369	375	366
Extraction (sucrose based)	97.84	98.03	97.98	97.87	97.96
Pol % bagasse	0.92	0.91	0.90	0.96	0.92
Moisture % bagasse	49.76	49.57	49.93	50.34	50.08
Bagasse % cane	30.30	29.67	30.30	30.46	30.31
LCV bagasse kJ/kg	7377	7468	7397	7233	7261
Available kJ in bag./kg brix in M.J.(adj)	15124	14080	14515	14192	14308
Recoveries					
Boiling house recovery (sucrose based)	87.51	88.25	88.00	88.14	89.11
Overall recovery (sucrose based)	85.61	86.52	86.23	86.26	87.29
Tons cane per ton sugar	8.99	8.37	8.53	8.42	8.32
Filter cake					
Pol % filter cake	1.68	1.63	1.56	1.71	1.80
Filter cake % cane	1.47	1.33	1.25	1.40	1.36
Final molasses					
Brix % final molasses	84.72	84.83	83.97	84.79	85.09
Sucrose/refractometer brix purity	37.43	36.70	36.94	37.92	37.24
Final molasses @ 85^0 brix % cane	4.08	4.23	4.16	4.03	3.73
Average sugar polarisation	99.52	99.49	99.48	99.53	99.54
Sucrose lost % sucrose in cane					
Lost in bagasse	2.16	1.97	2.02	2.13	2.04
Lost in filter cake	0.19	0.16	0.14	0.17	0.18
Lost in final molasses	10.03	9.61	9.65	9.48	8.62
Undetermined losses	2.00	1.76	1.96	1.95	1.87
Lost in boiling house	12.22	11.52	11.75	11.61	10.67
Total losses	14.39	13.48	13.77	13.74	12.71
M^3 massecuite per ton Bx in M.J.					
A - massecuite	0.95	0.94	0.92	0.95	0.90
B - massecuite	0.36	0.35	0.33	0.36	0.32
C - massecuite	0.24	0.23	0.23	0.22	0.20
Total	1.55	1.52	1.49	1.53	1.42
Exhaustion of massecuites					
A - massecuite	63.48	64.38	64.40	63.99	64.49
B - massecuite	58.92	59.55	58.63	57.76	60.09
C - massecuite	55.05	56.88	56.46	54.57	56.60
Brix of syrup	65.73	65.85	65.32	65.96	65.79

TABLE E

AVERAGE MANUFACTURING RESULTS BY MONTHLY PERIODS

FOR SOUTH AFRICAN FACTORIES (SEASON 2006 - 2007)

End of month period		1 APR 2006	29 APR 2006	3 JUN 2006	1 JUL 2006	29 JUL 2006	2 SEP 2006	30 SEP 2006	28 OCT 2006	2 DEC 2006	30 DEC 2006	27 JAN 2007
Tons of sugar made and	Month	25021	78305	275364	275262	310088	357046	284534	239884	275655	125984	7358
estimated	To-date	25021	103326	378690	653952	964040	1321086	1605620	1845504	2121159	2247143	2254501
Tons cane crushed	Month	273780	869973	2654584	2465055	2623439	2941091	2351544	2116327	2621521	1274607	86685
	To-date	273780	1143753	3798337	6263392	8886831	11827922	14179466	16295793	18917314	20191921	20278606
Tons cane crushed per hour	Month	189.81	249.30	304.06	319.09	324.61	314.11	310.60	309.05	301.76	283.51	246.48
actual crushing	To-date	189.81	231.90	278.01	292.85	301.56	304.58	305.57	306.01	305.42	303.94	303.63
Sucrose % cane	Month	11.38	11.13	12.04	12.85	13.51	13.93	13.87	13.21	12.38	11.98	10.46
	To-date	11.38	11.19	11.79	12.20	12.59	12.92	13.08	13.10	13.00	12.93	12.92
Fibre % cane	Month	14.81	15.24	14.45	13.88	13.85	14.57	15.07	16.07	16.27	16.05	16.84
	To-date	14.81	15.14	14.66	14.35	14.20	14.29	14.42	14.64	14.86	14.94	14.95
RV % cane	Month	10.12	9.85	10.80	11.64	12.30	12.70	12.66	11.94	11.09	10.66	9.21
	To-date	10.12	9.92	10.53	10.97	11.36	11.69	11.85	11.87	11.76	11.69	11.68
Tons cane per ton sugar	Month	10.94	11.11	9.64	8.96	8.46	8.24	8.26	8.82	9.51	10.12	11.78
	To-date	10.94	11.07	10.03	9.58	9.22	8.95	8.83	8.83	8.92	8.99	8.99
Extraction (sucrose based). . .	Month	96.85	97.66	97.80	97.94	97.98	97.98	97.88	97.78	97.67	97.63	98.43
	To-date	96.85	97.46	97.71	97.80	97.86	97.89	97.89	97.87	97.85	97.83	97.84
Imbibition % fibre	Month	317	402	376	371	372	374	373	359	366	369	562
	To-date	317	382	378	375	375	374	374	372	371	371	372
Pol % bagasse	Month	1.17	0.84	0.89	0.94	0.98	0.96	0.97	0.90	0.87	0.86	0.50
	To-date	1.17	0.92	0.90	0.92	0.93	0.94	0.95	0.94	0.93	0.92	0.92
Moisture % bagasse	Month	51.04	50.13	50.28	49.63	49.52	49.17	49.49	49.49	50.05	50.52	47.97
	To-date	51.04	50.35	50.30	50.04	49.89	49.71	49.67	49.65	49.71	49.76	49.76
Boiling house recovery	Month	82.61	82.39	87.64	88.38	88.84	88.54	88.69	87.26	86.53	84.02	82.95
(sucrose based)	To-date	82.61	82.44	86.16	87.08	87.64	87.88	88.02	87.92	87.74	87.52	87.51
Overall recovery	Month	80.01	80.46	85.71	86.56	87.04	86.74	86.81	85.33	84.51	82.04	81.65
(sucrose based)	To-date	80.01	80.35	84.18	85.17	85.76	86.02	86.16	86.05	85.85	85.63	85.61
Mixed juice sucrose purity . .	Month	83.73	83.13	84.52	85.62	86.23	86.48	86.89	85.82	84.73	84.15	83.18
	To-date	83.73	83.27	84.16	84.76	85.22	85.55	85.79	85.79	85.65	85.56	85.55
Pol/sucrose ratio in mixed juice	Month	0.9844	0.9877	0.9887	0.9902	0.9922	0.9956	1.0002	1.0003	0.9973	0.9923	0.9786
	To-date	0.9844	0.9869	0.9882	0.9890	0.9900	0.9915	0.9931	0.9940	0.9944	0.9943	0.9942
Sucrose/refractometer brix purity	Month	38.28	38.21	34.99	36.26	36.48	37.47	38.28	38.60	38.82	38.55	43.26
in final molasses	To-date	38.28	38.22	36.03	36.12	36.23	36.54	36.82	37.06	37.32	37.40	37.43
Sucrose lost in final molasses	Month	12.16	12.72	9.70	9.34	9.05	9.39	9.19	10.35	11.23	12.33	16.56
% sucrose in cane	To-date	12.16	12.58	10.52	10.03	9.72	9.63	9.55	9.66	9.87	10.01	10.03
Undetermined lost sucrose %	Month	4.27	4.16	2.20	1.90	1.72	1.71	1.69	1.89	1.71	2.98	0.12
sucrose in cane	To-date	4.27	4.18	2.77	2.41	2.19	2.06	2.00	1.98	1.95	2.01	2.00
Pol/sucrose ratio FM	Month	0.9550	0.9245	0.8922	0.8880	0.8940	0.9144	0.9605	0.9706	0.9650	0.9516	0.9603
	To-date	0.9550	0.9316	0.9057	0.8988	0.8974	0.9019	0.9118	0.9200	0.9268	0.9286	0.9288

TABLE F

CANE VARIETIES AND RAINFALL

(SEASON 2006 - 2007)

PERCENTAGE BY WEIGHT

MILL	N 11	N 12	N 14	N 16	N 17	N 19	N 21	N 22	N 23	N 24	N 25	N 26	N 27	N 28	N 29	N 30	N 31	N 32	N 36	NCo 376	MIXED VARIETY	UNKNOWN and OTHER	% BURNT	* RAINFALL
ML	-	-	9.8	-	0.2	34.0	-	1.3	3.4	1.2	37.6	0.1	-	-	-	0.6	-	10.0	0.4	-	1.6	0.1	99.9	277
KM	-	-	23.6	-	0.1	35.8	-	1.3	2.3	0.7	21.3	-	-	0.3	-	0.2	-	10.2	0.7	-	3.2	0.3	99.6	293
PG	-	-	19.5	-	0.6	9.7	-	1.2	10.0	0.2	31.3	8.3	-	0.6	-	0.2	-	1.4	10.6	-	3.4	3.0	92.3	651
UF	-	1.3	1.5	-	5.8	25.9	0.5	2.3	0.3	0.1	0.9	0.2	8.9	-	6.2	-	-	-	0.2	10.0	7.1	28.9	99.1	704
FX	-	3.2	1.5	0.1	3.9	7.0	0.2	0.1	4.2	0.1	6.7	0.4	22.5	0.9	5.2	0.2	0.1	-	1.0	10.5	3.0	28.9	81.5	699
AK	-	22.0	0.4	5.7	3.0	5.7	1.9	0.1	-	-	0.9	0.1	10.9	-	5.0	-	0.7	-	-	6.7	7.4	29.6	92.5	956
DL	-	13.3	0.2	6.4	3.9	4.6	1.9	-	-	-	-	-	16.7	-	3.1	-	1.6	-	-	8.5	0.4	39.3	91.6	734
MS	-	13.6	0.1	10.8	2.6	2.7	1.0	-	-	-	0.2	-	6.3	-	4.4	-	0.4	-	0.2	24.1	5.8	27.7	74.3	885
GH	-	26.2	0.3	4.5	2.8	3.7	1.4	-	-	-	0.3	0.2	10.8	-	3.3	-	1.1	-	-	17.7	6.1	21.6	73.6	949
NB	0.4	64.0	-	17.4	0.2	0.1	1.3	0.1	0.3	-	0.9	0.2	0.6	-	1.2	-	8.2	-	1.7	-	0.5	3.0	97.5	1110
UC	0.3	51.1	-	29.0	-	0.6	2.0	0.1	0.2	-	0.8	0.4	0.1	-	0.3	-	9.9	-	2.3	0.1	-	2.8	99.1	705
ES	-	53.0	-	9.4	0.1	-	0.2	0.1	0.1	-	-	0.2	0.6	0.1	0.5	1.0	6.1	-	0.1	-	0.3	28.4	89.8	507
SZ	-	35.2	0.1	5.7	-	-	0.6	-	-	-	-	-	2.5	-	2.8	-	0.2	-	-	4.2	9.1	39.6	74.2	1025
UK	-	26.9	0.4	2.5	-	-	1.6	-	-	-	-	-	3.1	-	2.7	-	1.5	-	-	8.0	2.0	51.3	92.6	834
Average SA Mills	0.03	20.2	4.9	5.4	1.6	10.2	0.8	0.5	1.7	0.2	8.1	0.7	6.3	0.2	2.5	0.2	1.7	1.9	1.2	6.2	3.8	21.7	89.2	
UB	-	-	3.2	-	-	12.0	-	-	30.3	0.3	18.4	-	-	0.1	-	0.1	-	-	-	27.9	7.8	-	-	607
NH	-	-	31.8	-	-	0.4	-	0.1	4.1	-	22.7	-	-	-	0.6	-	-	15.4	-	-	9.6	15.3	-	135
DW	-	-	2.5	-	-	23.1	-	-	-	-	9.7	0.3	-	-	-	-	-	-	-	25.8	2.0	36.8	-	338
HV	-	-	39.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.1	0.5	40.3	-	249
TR	-	-	63.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27.9	0.7	7.7	-	65
NK	-	-	6.1	-	0.3	35.8	-	1.0	10.9	-	38.2	-	-	-	-	-	-	1.1	-	0.9	4.7	1.1	-	145
MW	-	-	-	-	-	7.5	-	-	-	-	7.8	-	-	-	-	0.7	-	-	-	80.6	3.4	-	-	1574
RU	-	-	-	-	-	7.5	-	-	-	-	7.8	-	-	-	-	0.7	-	-	-	80.3	3.7	-	-	1744
MA	-	-	-	-	-	40.5	-	-	31.6	-	6.6	-	-	6.2	-	-	-	-	-	12.9	-	2.2	-	96

*** Rainfall during the crushing season**

TABLE G

TRANSPORT SUMMARY - SOUTH AFRICAN FACTORIES

(SEASON 2006 - 2007)

PERCENT OF CANE TRANSPORTED

MILLS	ML	KM	PG	UF	FX	AK	DL	MS	GH	NB	UC	ES	SZ	UK	AVERAGE
SOUTH AFRICAN RAILWAYS	-	-	-	-	20.8	-	-	-	-	-	-	-	-	-	2.2
TRAMS	-	-	-	71.7	-	-	-	-	-	-	-	-	-	-	3.9
UNKNOWN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ARTICULATED TRUCK DRIVEN VEHICLES															
- Interlink	-	0.1	13.6	25.5	63.2	67.4	28.9	88.3	55.0	31.5	9.7	46.1	88.7	89.8	44.8
- Tri-Axle	=	-	0.3	-	1.5	-	19.6	0.5	-	5.8	0.6	12.5	-	-	2.6
- Hilo	6.8	-	23.0	0.2	0.2	0.3	7.8	0.0	3.6	6.8	0.5	-	7.5	3.0	4.3
RIGID CHASSIS VEHICLES															
- Truck	81.9	78.0	2.5	-	-	-	0.1	-	23.0	16.2	40.8	21.1	3.8	2.0	20.2
- Lorry	-	-	-	-	-	-	0.1	-	-	1.5	16.9	-	-	0.1	0.7
TRACTOR DRIVEN VEHICLES															
- Hilo	0.2	-	11.6	1.2	1.0	10.5	26.5	0.8	2.1	30.3	2.6	20.3	-	-	7.1
- Rig	2.8	-	2.1	-	13.4	13.9	17.0	1.6	1.6	7.9	8.9	-	-	0.2	5.0
- Interlink	8.3	21.9	47.0	1.4	-	8.0	-	8.8	14.8	-	20.0	-	-	4.9	9.2

TABLE H
COMPARATIVE DATA OF REPORTING S.A. FACTORIES FROM 1925 ONWARDS

PERIOD (SEASON)	Percent Cane		Cane / sugar Ratio		Extraction	Pol % fibre in Bagasse	Percent Bagasse		Imbibition Percent		Mixed Juice		Final Molasses Suc/brix Purity Chem.suc.	Boiling House Recovery	Overall Recovery
	Pol	Fibre	Tel Quel	96° Pol Sugar	Pol based		Pol	Moisture	Cane	Fibre	Purity Pol based	Reducing Sugar/ Pol ratio		Pol based	Pol based
Average 1925 - 1934	**13.19**	**15.78**	**9.86**	**9.64**	**89.83**	**8.86**	**3.88**	**50.57**	**27.6**	**175**	**85.09**	**3.65**	**45.3**	**83.67**	**75.12**
Average 1935 - 1944	**13.53**	**15.30**	**8.96**	**8.73**	**92.05**	**7.05**	**3.11**	**51.60**	**32.6**	**213**	**86.01**	**3.22**	**43.3**	**88.36**	**81.34**
Average 1945 - 1954	**13.79**	**16.06**	**8.60**	**8.36**	**93.04**	**5.95**	**2.69**	**51.32**	**33.8**	**210**	**85.95**	**3.29**	**40.7**	**89.46**	**83.23**
Average 1955 - 1964	**13.53**	**15.49**	**8.75**	**8.49**	**93.43**	**5.73**	**2.51**	**52.78**	**36.3**	**235**	**85.24**	**3.67**	**39.6**	**89.58**	**83.69**
Average 1965 - 1974	**13.16**	**15.22**	**8.95**	**8.68**	**95.00**	**4.35**	**1.91**	**53.15**	**41.7**	**274**	**84.80**	**4.15**	**39.3**	**88.49**	**84.06**
Average 1975 - 1980	**12.80**	**15.61**	**9.09**	**8.77**	**96.20**	**3.26**	**1.45**	**52.50**	**46.28**	**309**	**84.85**	**5.37**	**38.4**	**88.92**	**85.54**
From 1981 onwards data are sucrose based	***Sucrose***				***Sucrose based***						***Sucrose based***	***(F + G) / suc.ratio***	***Sucrose based***	***Sucrose based***	***Sucrose based***
Average 1981 - 1984	**12.44**	**15.88**	**9.44**	**9.12**	**97.12**	**2.36**	**1.09**	**51.74**	**52.60**	**347**	**85.17**	**5.88**	**37.2**	**87.25**	**84.74**
Average 1985 - 1994	**12.86**	**15.36**	**9.07**	**8.74**	**97.72**	**1.95**	**0.92**	**51.01**	**54.8**	**368**	**85.04**	**5.58**	**37.0**	**87.50**	**85.50**
1995	11.73	15.84	9.99	9.64	97.69	1.78	0.83	51.70	54.9	356	83.60	6.09	37.3	85.93	83.94
1996	12.60	15.36	9.20	8.88	97.72	1.92	0.90	51.40	50.4	337	85.38	5.23	37.3	87.82	85.82
1997	12.62	15.38	9.15	8.83	97.74	1.91	0.90	51.12	49.9	334	86.15	4.72	37.5	88.09	86.10
1998	13.36	14.66	8.65	8.35	97.73	2.11	1.00	51.00	49.1	343	86.17	5.31	37.2	88.08	86.09
1999	13.77	14.76	8.36	8.06	97.93	1.97	0.94	50.81	52.3	362	86.51	4.73	37.7	88.33	86.50
2000	13.08	14.98	8.74	8.44	97.79	1.97	0.95	49.95	51.25	348	86.46	4.82	37.2	88.97	86.99
2001	13.11	14.97	8.81	8.5	97.74	2.02	0.95	50.81	54.32	369	85.92	4.94	37.1	88.18	86.19
2002	13.71	14.80	8.32	8.02	97.96	1.93	0.92	50.08	53.26	366	87.31	4.16	37.2	89.11	87.29
2003	13.70	14.81	8.42	8.12	97.87	2.01	0.96	50.34	54.5	375	86.36	4.59	37.9	88.14	86.26
2004	13.52	14.84	8.53	8.23	97.98	1.87	0.90	49.93	53.9	369	85.81	4.92	36.9	88.00	86.23
Average 1995 - 2004	**13.12**	**15.04**	**8.82**	**8.51**	**97.82**	**1.95**	**0.93**	**50.71**	**52.4**	**356**	**85.97**	**4.95**	**37.4**	**88.07**	**86.14**
2005	13.74	14.66	8.37	8.08	98.03	1.87	0.91	49.57	54.8	380	85.59	5.12	36.7	88.25	86.52
2006	12.85	16.84	8.99	8.68	97.84	1.91	0.92	49.76	54.5	372	85.55	4.98	37.4	87.51	85.61
Average 2005 - 2006	**13.30**	**15.75**	**8.68**	**8.38**	**97.94**	**1.89**	**0.92**	**49.67**	**54.7**	**376**	**85.57**	**5.05**	**37.1**	**87.88**	**86.07**