SEVENTY-SEVENTH ANNUAL REVIEW OF THE MILLING SEASON IN SOUTHERN AFRICA (2001-2002)

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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, Swaziland, Zimbabwe and Malawi are included. The cane crop and factory performance are discussed, with RV trends particularly mentioned. There was a significant improvement in RV % cane in the Midlands, while elsewhere trends were mixed. The season started very well but climatic conditions resulted in a smaller crop than forecast. Lost time % available has improved steadily to an average of 5,35%.

Keywords: review, sugarcane, varieties, milling season

Cane crop

Cane varieties
The varietal distribution in Southern Africa for the 2001-2002 season (Table G) shows few significant changes from the previous season. At Malelane, there has been an increase in the percentage of N25 at the expense on N14. At Darnall, the percentage of NCo376 has apparently increased, but this is due to poor variety reporting, with the percentage of 'unknown and other' varieties increasing from 16,6 to 34,2%. Maidstone is the only mill where the percentage of 'unknown and other' varieties has decreased in the last season, from 21,1% to 13,6%, although the percentage 'mixed' varieties has increased from 5,7% to 12,0%. As discussed in the review of the 1999-2000 season (Lionnet, 2000), the varietal distribution can be helpful in estimating the colour, ash and sucrose loads entering a factory, but the high percentages of mixed and unknown varieties being reported (70% in the case of Sezela) do not permit this to be done. Improved reporting of varieties delivered would assist sugar technologists in assessing some of the cane variety factors influencing sugar quality and ease of processing. For example, although the percentage of N21 crushed is small (0,8% for the South African industry), it has been reported to be a difficult variety to prepare, as it does not cut cleanly and leads to chokes in the preparation line.

Burning
The percentage of cane burnt in South Africa increased to 90,0% in the season under review. This is a reversal of the previous trend towards green cane harvesting, and arises from increased burning at Darnall, Maidstone and Sezela. This is surprising as these mills are situated on the coast with significant tourist and residential land use patterns, which are sensitive to cane burning.

Cane quality
The usual cane quality parameters for the last ten seasons for South Africa are shown in Figure 1. The most noticeable change is the drop in mixed juice sucrose purity to the lowest value for the last five seasons. This is a disturbing trend, which will be discussed later. The monthly values of RV % Cane are shown in Figure 2 for the last two seasons. It is interesting to note that this parameter started off higher in the 2001-2002 season as a result of a wet start to the 2000-2001 season, but dropped off after August, with extensive rainfall during the rest of the season. The trends in season average RV % Cane for individual mills for the last two seasons (Figure 3) show large changes at

most mills, some improving and some worsening, with eight mills showing a change in excess of 1 percent in RV. The introduction of the RV cane payment system was expected to produce an improvement in cane quality, and this might be the case in some mills, but not at others. The range was broader in 2001-2002 (10,49-13,16) than for 2000-2001 (11,14-12,74), perhaps suggesting that there has been a positive response by some growers or areas.

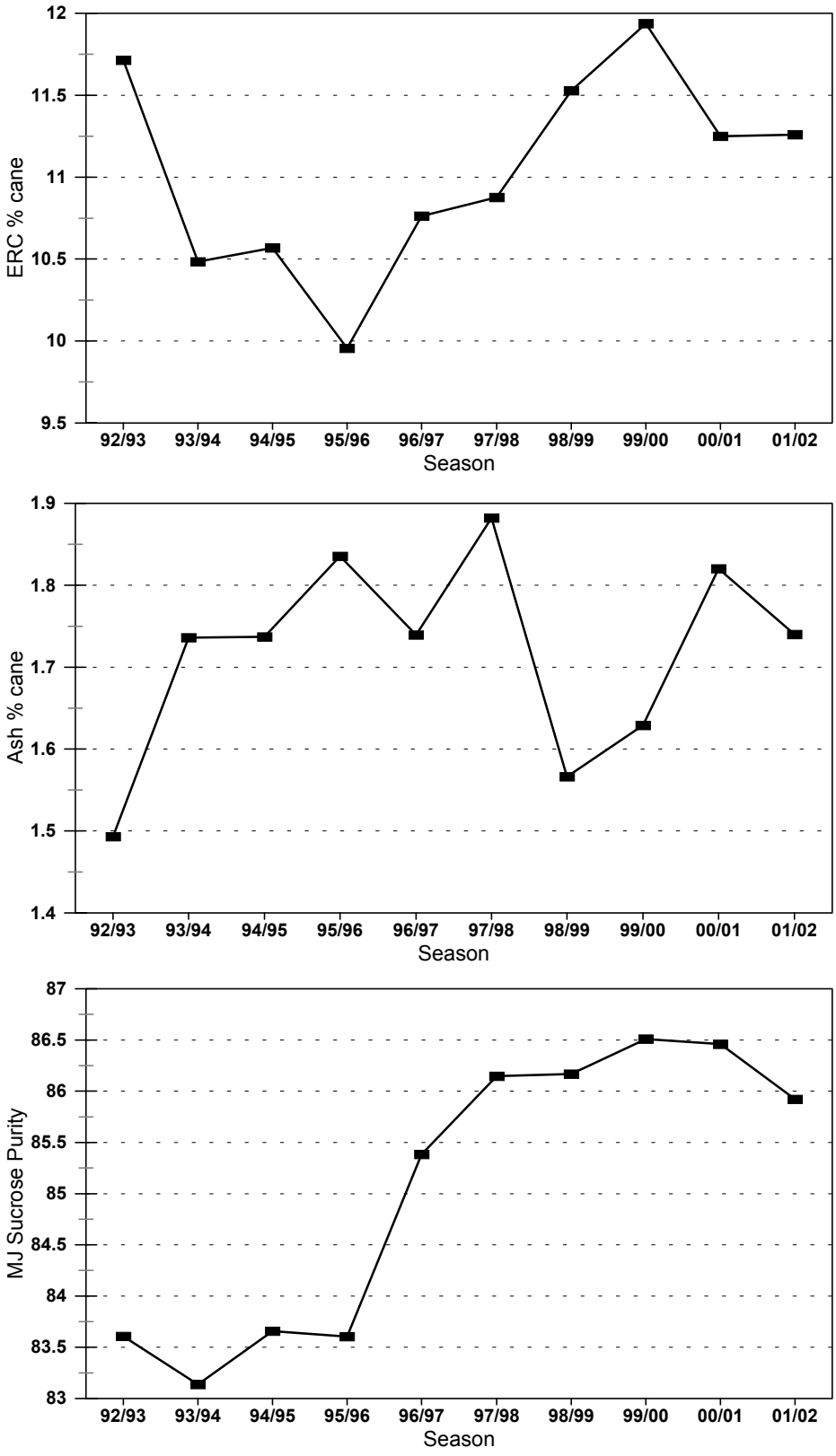


Figure 1. Cane quality trends in South Africa.

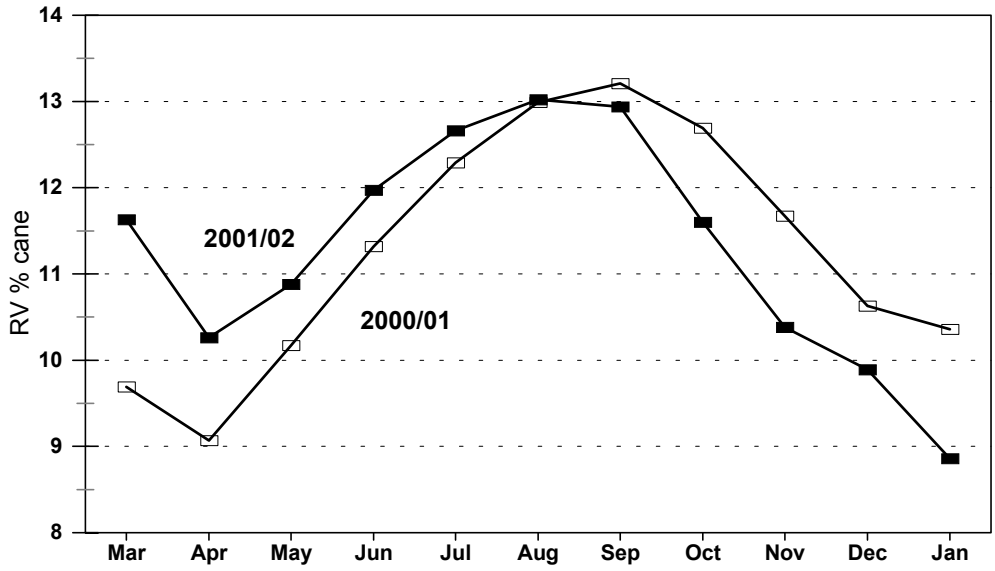


Figure 2. Monthly RV % cane in South Africa for the 2000-2001 and 2001-2002 seasons.

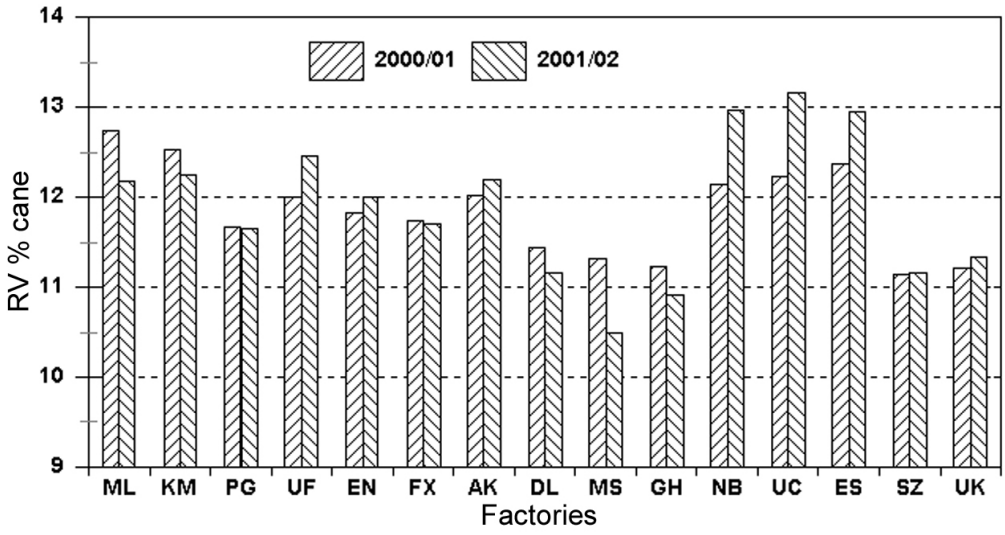


Figure 3. RV % cane for South African mills for the 2000-2001 and 2001-2002 seasons.

The effect of cane quality on overall mill performance can be visualised by plotting cane to sugar ratio for a factory against RV % cane for that factory. These values for the previous two seasons are shown in Figure 4, from which it can be seen that RV % cane is a good predictor of cane to sugar ratio. This is not unexpected, as the RV calculation, which is based on ERC % cane, takes into account the relative quantity of sugar produced from cane, based on factors calculated from the previous three seasons' data (Murray, 2000). However, the closeness of individual factory data to the industrial data represented by the regression lines, and the closeness of the two seasons' data, indicates that the mills are performing consistently, given their respective cane qualities. The Value Recovery (VR) factor can be used to compare overall factory performance, taking into account cane quality, and individual mill values are shown in Figure 5. From this, it is clear that Maidstone and Umzimkulu mills have performed well in the past season, and that the industry as a whole achieved a VR over 100% (100,14%).

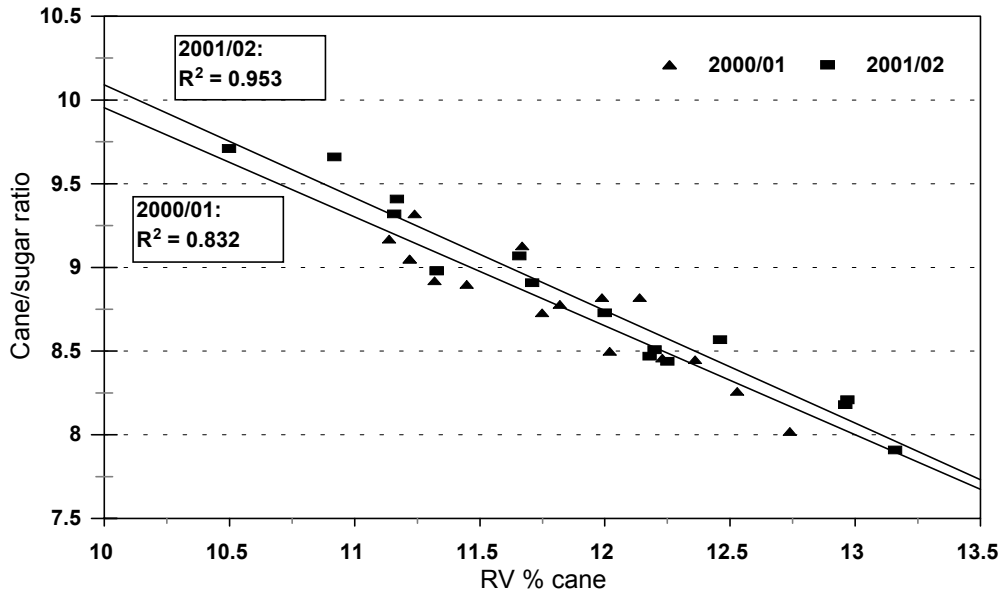


Figure 4. The relationship between cane to sugar ratio and RV % cane in South Africa.

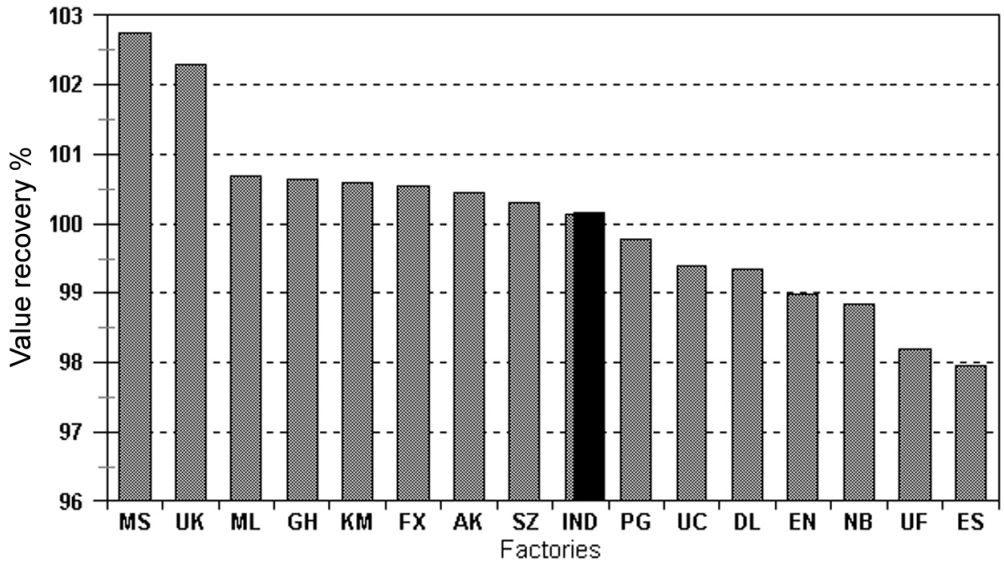
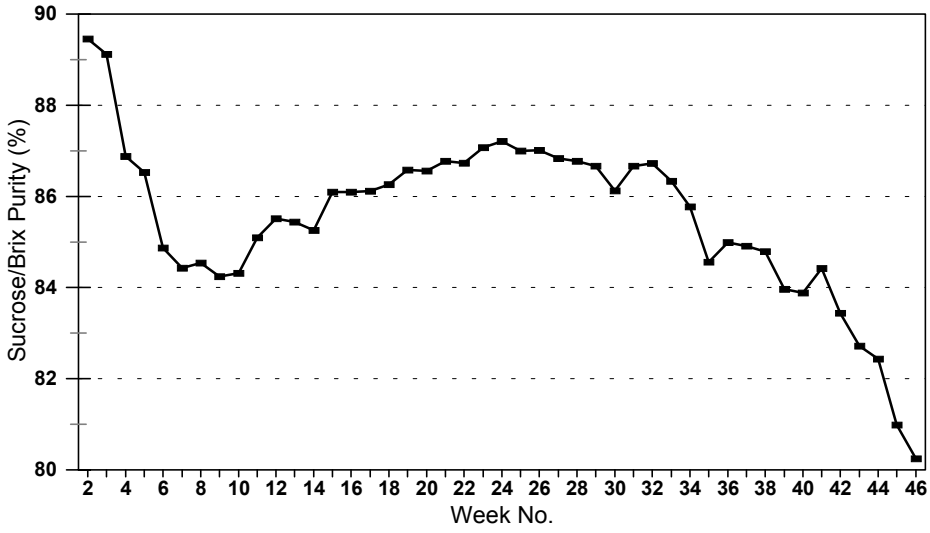
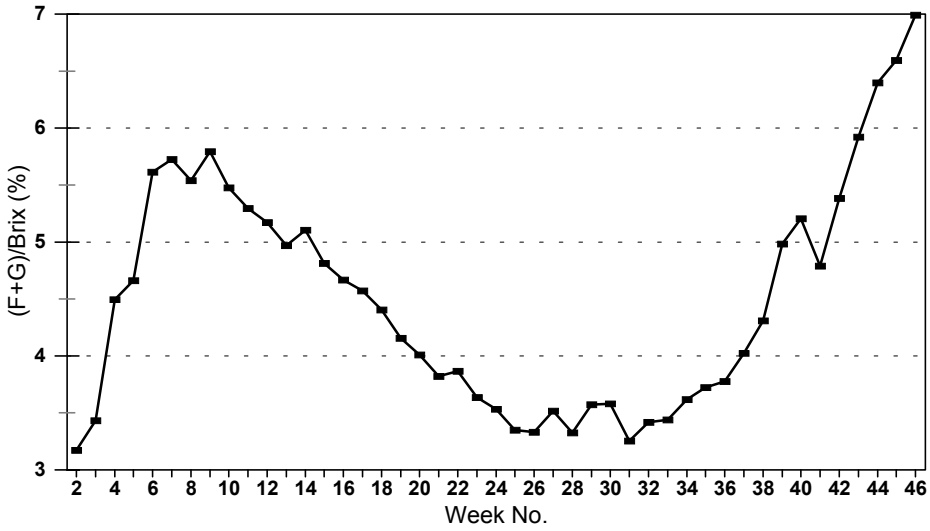


Figure 5. Value Recovery for South African mills for the 2001-2002 season.

The weekly trends in mixed juice quality are shown in Figure 6. The trends are similar to those seen in the 2000-2001 season, with some early season rain causing a drop in purity and a rise in reducing sugars, but not as severe as in the previous season. The purities in the first two or three weeks were also high as significant quantities of mature carry-over cane were crushed. However, the purities dropped off substantially towards the end of the season, with a sharp increase in reducing sugars, most likely as a result of harvesting immature cane when cane supplies were running low and with extensive rainfall (shown in Figure 7). The ash levels in mixed juice remained consistently high throughout the entire season.





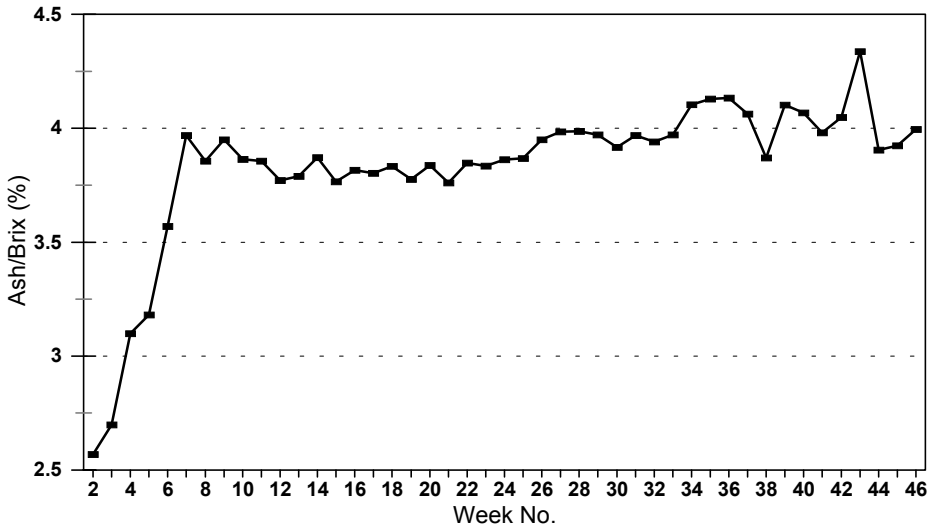


Figure 6. Weekly trends in mixed juice quality in South Africa for the 2001-2002 season.

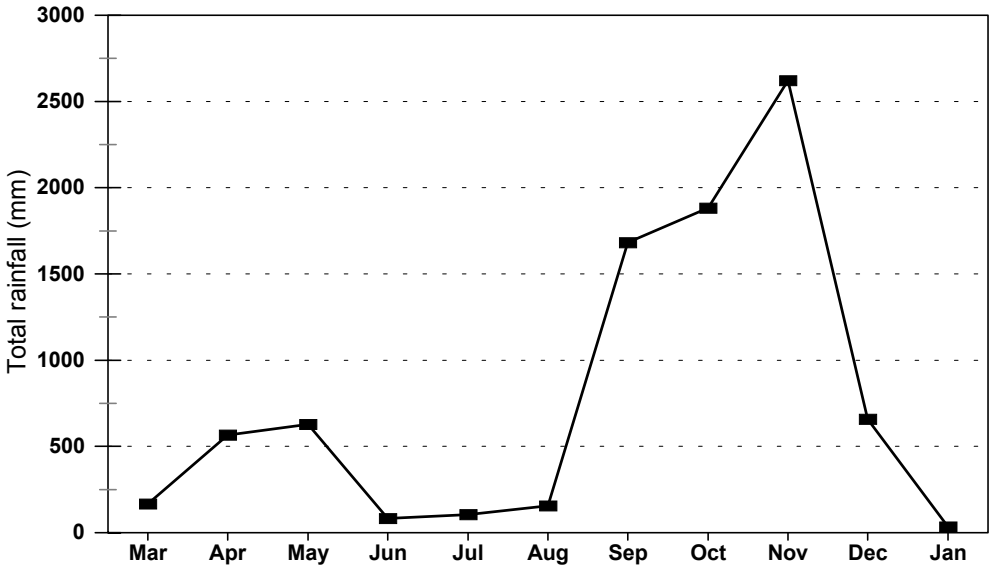


Figure 7. Rainfall in South Africa, calculated as the sum of the rainfalls recorded at all mills crushing for a particular month.

Cane tonnage

The tonnages of cane processed over the last 10 seasons in South Africa are shown in Figure 8, while the tons cane per hour (TCH) for the same period are shown in Figure 9. The tonnage processed in the 2001-2002 season (21,156 million tons) was significantly less than that processed in the previous season, and the data for TCH shows that the recent trend of increasing TCH has been reversed. By comparing monthly throughputs for the industry for the last two seasons (Figure 10), it is evident that there was a continual dropping-off in throughput from June 2001 onwards. This trend is mirrored in the monthly trends in percentage of stops for no cane (Figure 11), which shows alarmingly high values in the second half of the season. The reason for this is the over-estimation of the crop size at the beginning of the season, and many mills had to decrease throughputs or ran out of cane in the second half of the season as there was insufficient cane available to supply the mills' capacities. This also resulted in immature cane being crushed in some mills, which is reflected in the poor mixed juice purities and cane RVs.

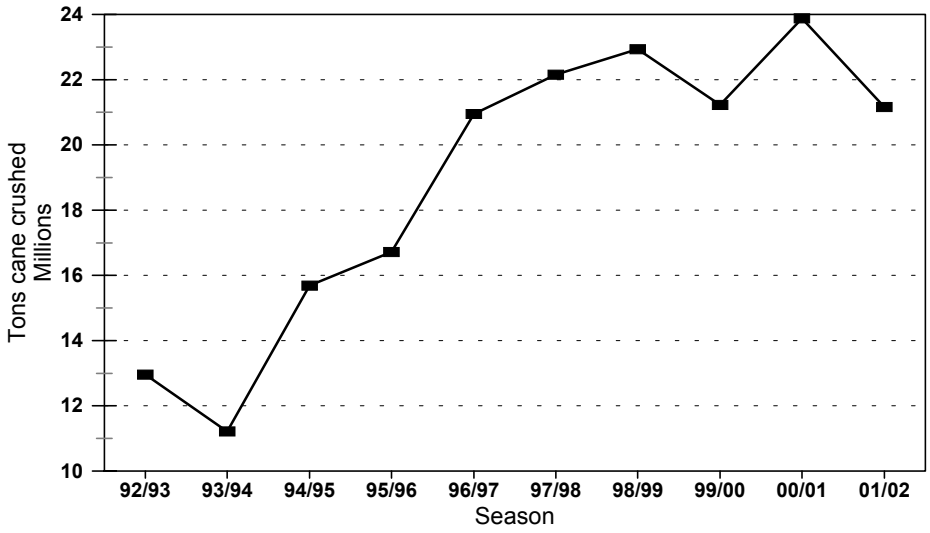


Figure 8. Cane tonnages in South Africa. (Drought years were 1992-1993 to 1995-1996.)

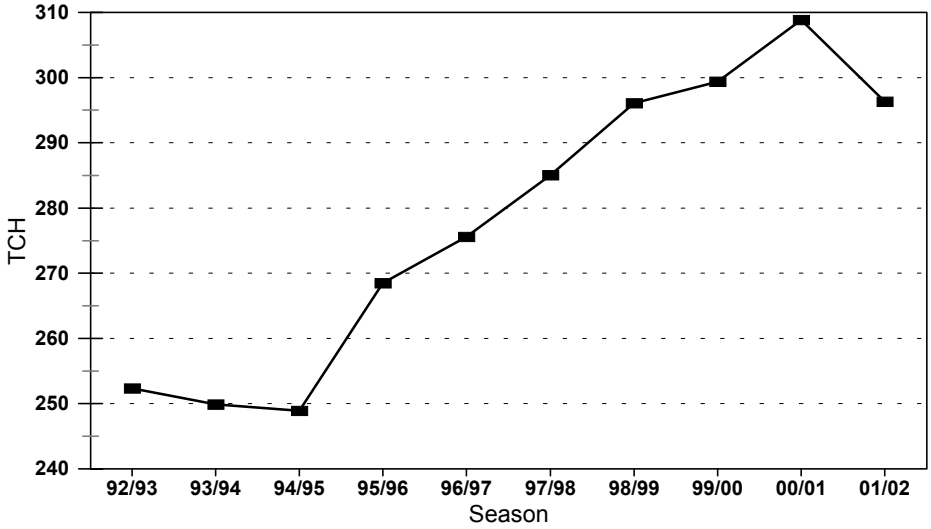


Figure 9. Average tons cane per hour (TCH) crushed in South Africa.

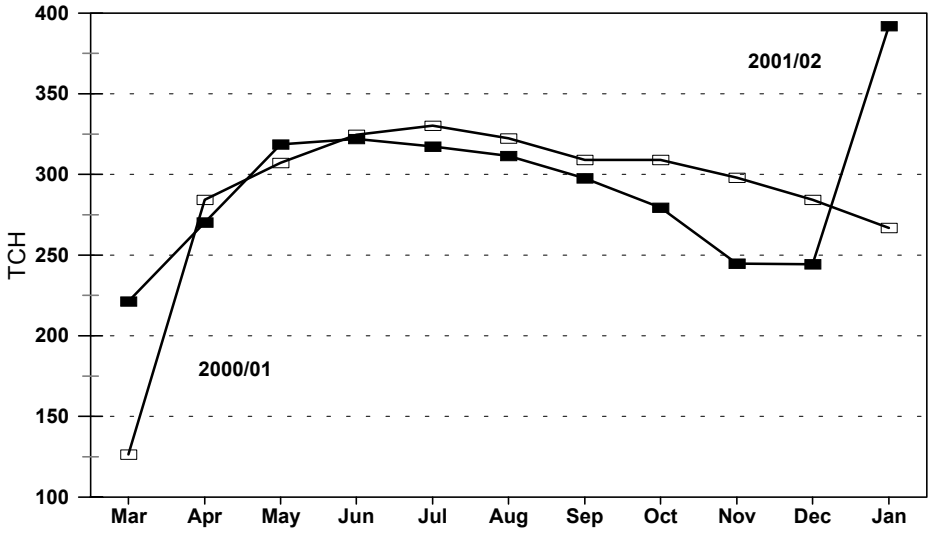


Figure 10. Monthly values of TCH in South Africa for the 2000-2001 and 2001-2002 seasons.

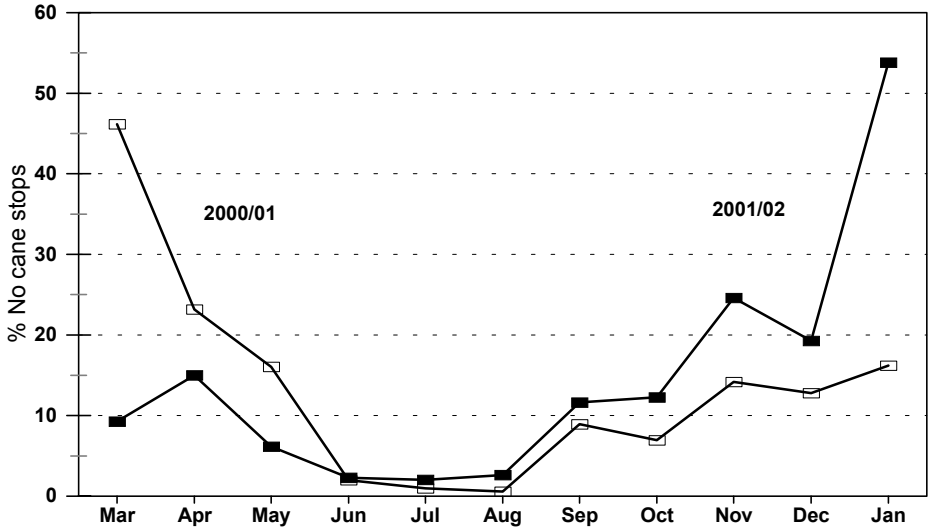


Figure 11. Monthly values of no-cane stops in South Africa for the 2000-2001 and 2001-2002 seasons.

Cane to sugar ratio

The trends in cane to sugar ratio in South Africa are shown in Figure 12. Values of ERC % cane (pol based) and cane to sugar ratio for South Africa, Swaziland, Zimbabwe and Malawi are shown in Figure 13. It is clear that South Africa's neighbours enjoy significantly better cane quality, and this is reflected in the cane to sugar ratios.

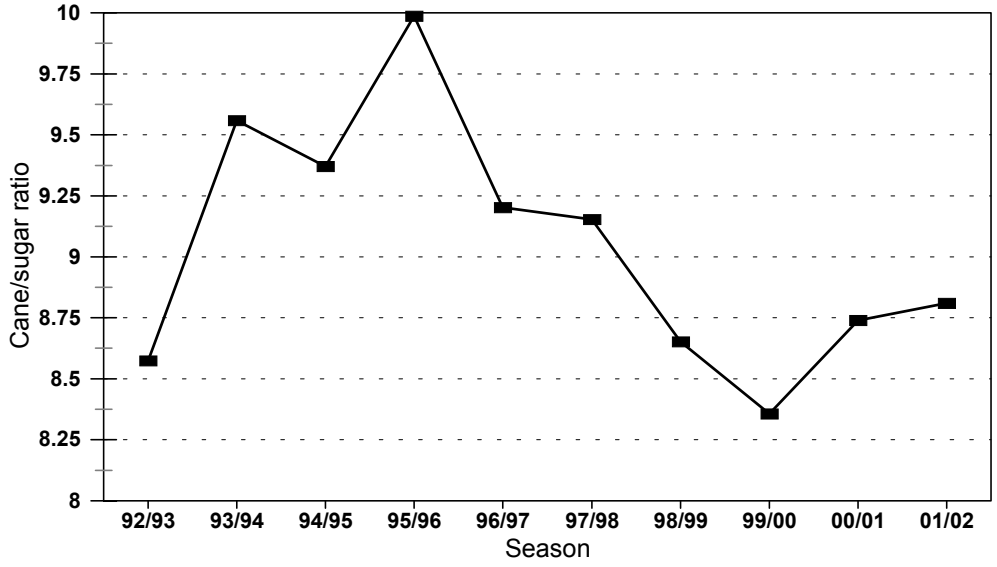


Figure 12. Cane to sugar ratio in South Africa for recent seasons.

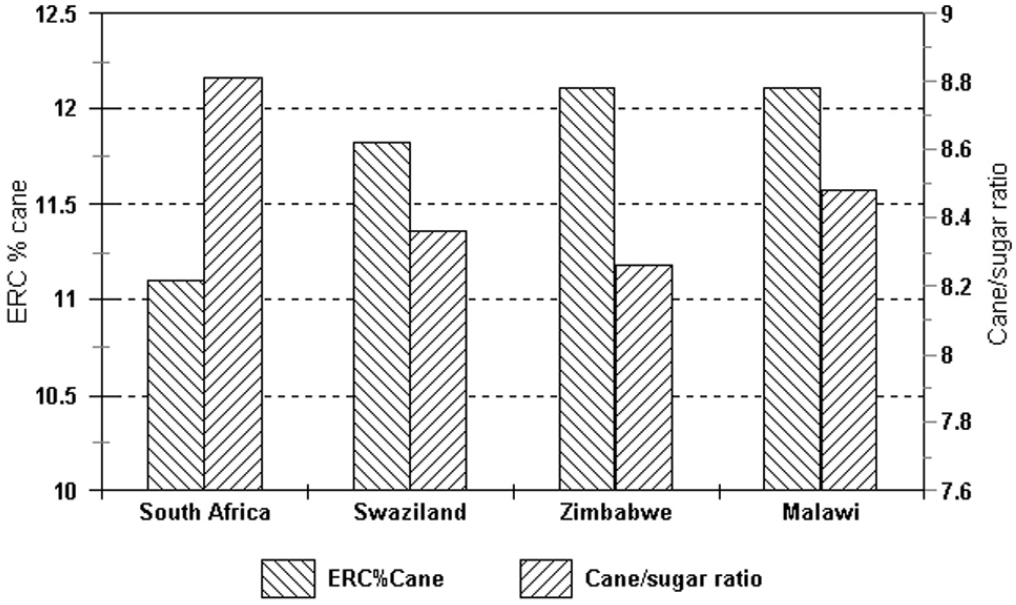


Figure 13. ERC % cane (pol based) and cane to sugar ratio in Southern Africa for the 2001-2002 season.

Factory performance

Length of the season

The South African season started on 7 March 2001 at Noodsberg and ended on 1 February 2002 at Sezela. The longest season was 308 days at Sezela while the shortest was 208 days at Felixton. The weighted average season length for the industry was 251 days, with many mills closing in late November or early December as a result of smaller crops.

Time efficiencies

The time accounts for this season and the previous one in South Africa are shown in Table 1.

Table 1. Time account in South Africa.

	2000/2001	2001/2002
Overall time efficiency (%)	79,47	80,46
Scheduled stops (%)	5,44	5,34
Other stops (%)	5,48	4,55
No cane stops (%)	9,20	9,23
Foreign matter stops (%)	0,41	0,41
Total rainfall[1] (mm)	10681	8776

[1] Total rainfall is calculated as the sum of the monthly rainfalls recorded at each South African mill for each month the mill was crushing, and then summed across all mills.

It is interesting to note that these parameters are very similar for the two seasons, despite the smaller crop in 2001-2002. In particular, the percentages of no cane stops were the same although there was less rain this season. This once again points to the reduced throughput as a result of overestimation of the crop. In this season, most of the rain fell towards the end, so no cane stops were at the normal levels at the beginning of the season (Figure 11), as contrasted with 2000-2001 when significant rain fell at the beginning. A comparison of length of milling season and overall time efficiencies for Southern African mills is shown in Figure 14.

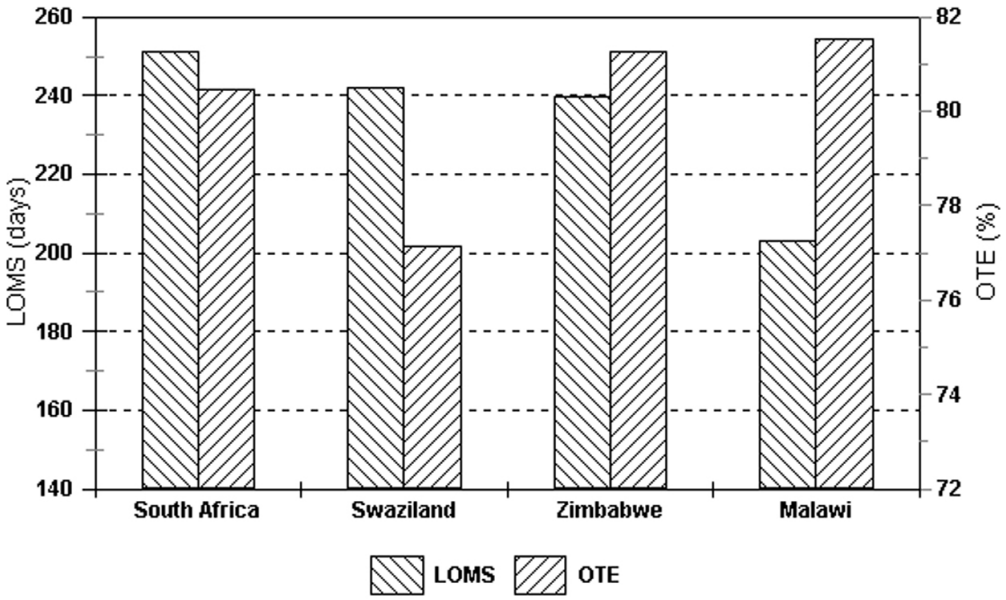


Figure 14. Average length of milling season (LOMS) and overall time efficiency (OTE) in Southern Africa for the 2001-2002 season.

A pleasing trend has been the improvement in the lost time % available (LTA) over recent years. The averages for the South African industry for the last five years are shown in Figure 15, demonstrating the steady decrease. Values of LTA for individual mills for the last four seasons are shown in Figure 16, in which it can be seen that concerted efforts at some mills to improve LTA (PG, UF, MS, UK) have shown good results, while other mills (AK, SZ) have managed to maintain consistently low LTAs.

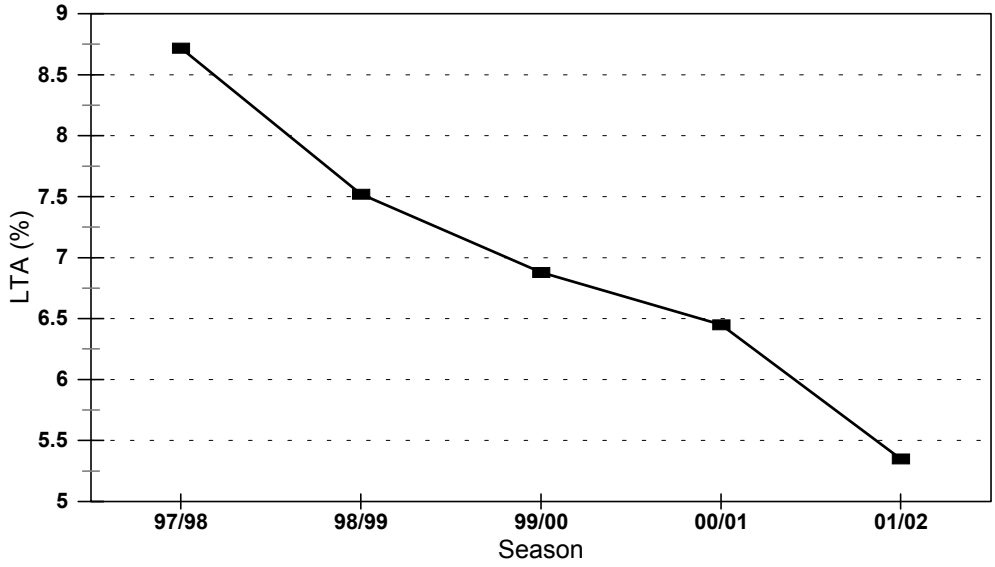


Figure 15. Lost time percent available (LTA) in South Africa in recent seasons.

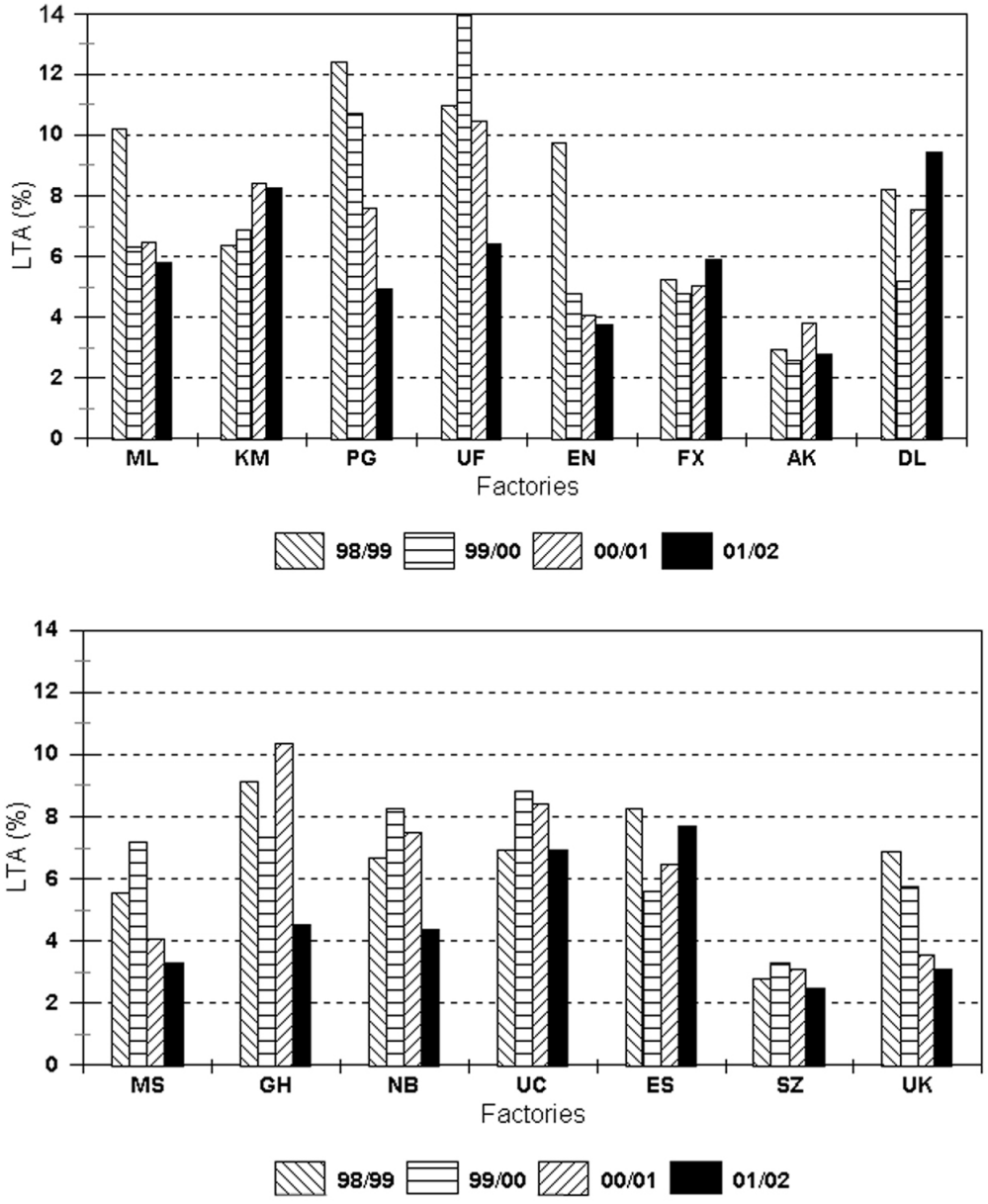


Figure 16. LTA for South African mills in recent seasons.

The trend in improving undetermined loss has continued, as can be seen from Figure 17, coming down from the high figures during the drought years of 1992 to 1995. Although the 2001-2002 loss for the industry was well above the 2000-2001 record low as a result of many stops towards the end of the season, it is still below the 2,0% benchmark and continues the commendable long-term downwards trend. Some individual mills have shown a significant improvement in recent years, with KM, PG and NB having lower values for 2001-2002 than for 2000-2001 and FX and UK remaining the same, despite cane supply problems. Other mills were affected worse, with UF, EN, DL and ES showing increased losses, although these increases were still less than 1%.

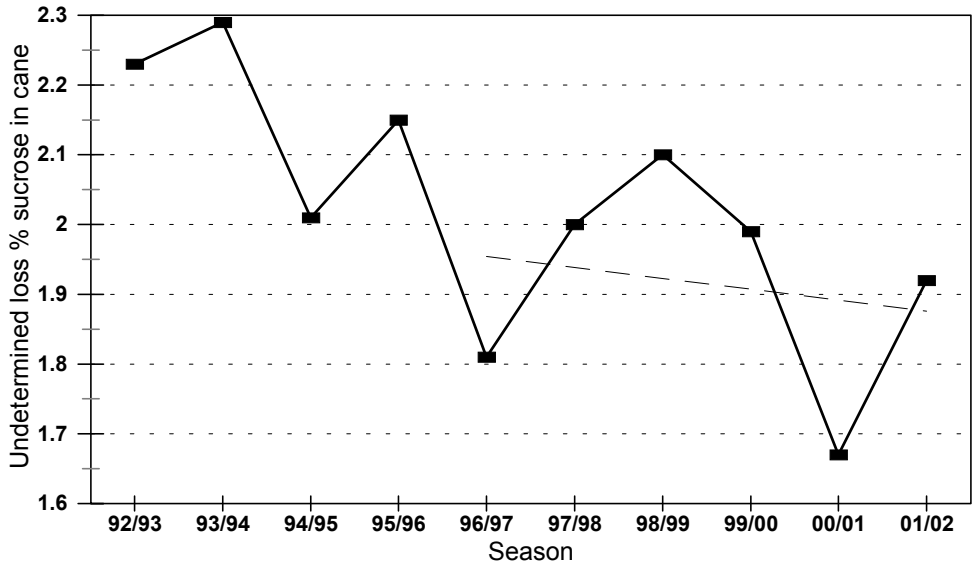


Figure 17. Undetermined loss in South Africa. Trend excludes drought years.

Clarification

In the 2001-2002 season, seven mills (ML, KM, FX, AK, MS, ES and UK) routed clarifier muds back to the diffusers for the entire season. SZ undertook limited trials with mud return but experienced some extraction problems during these trials, while PG returned mud in the first part of the season until high ash in cane levels caused problems. Several mills made modifications to their clarifiers that were reported to have improved clear juice quality in the season under review.

Evaporation

Many mills experienced evaporator problems during the 2001-2002 season, with entrainment separators giving particular trouble. Significant carryover was noted, which led to steam-side fouling in several vessels and an associated drop in heat transfer coefficients. Vapour-side corrosion was also noted as a point of concern, and in at least one Southern African mill was directly the cause of the collapse of entrainment separators.

Boiling House performance

Most factories managed to achieve good boiling house recoveries for the season, with the target purity difference (TPD) values (molasses based) remaining under 5 units (Figure 18). However TPD values rose sharply in November and December, as a result of extensive rain and also an early end to the season, with all Tongaat-Hulett factories boiling-off in November, and most Illovo factories in December.

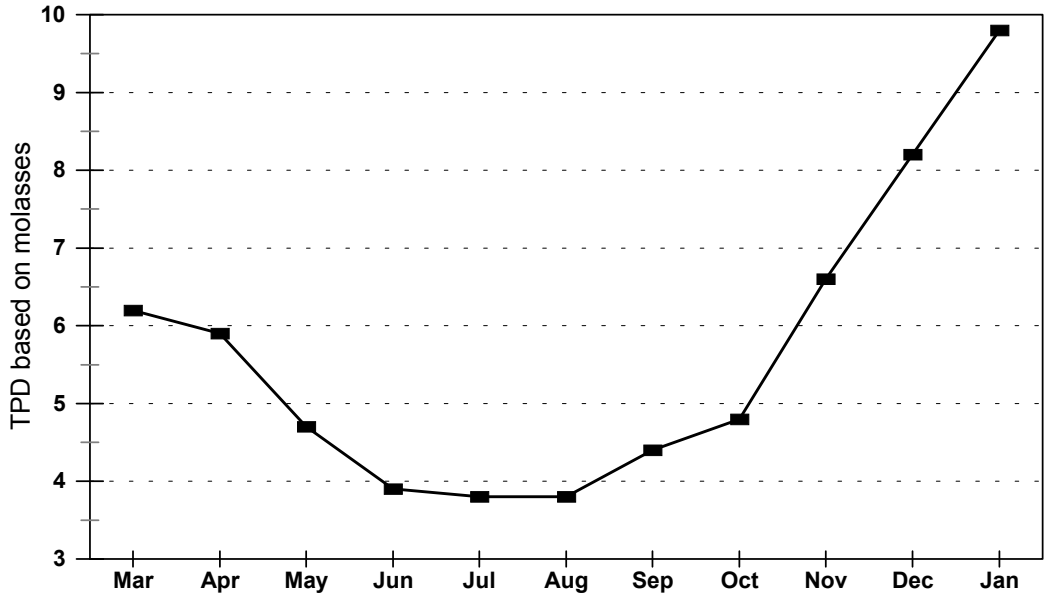


Figure 18. Monthly values of TPD (molasses based) in South Africa for the 2001-2002 season.

A noteworthy change in equipment was that the FCB continuous pan from SZ was installed at ES to boil C-massecuites, freeing batch pans to boil A- seed. This was reported to improve the boiling house performance and very high pol (VHP) sugar quality.

Molasses factor, the ratio of sucrose in molasses to non- sucrose in mixed juice, shows signs of dropping below the long-term trend (Figure 19). This is an encouraging sign of improvement, but there is still some way to go to match the values of 10 years ago or more. The two regions with the highest molasses factors (Northern irrigated and Midlands) in particular show steady drops over the last three seasons.

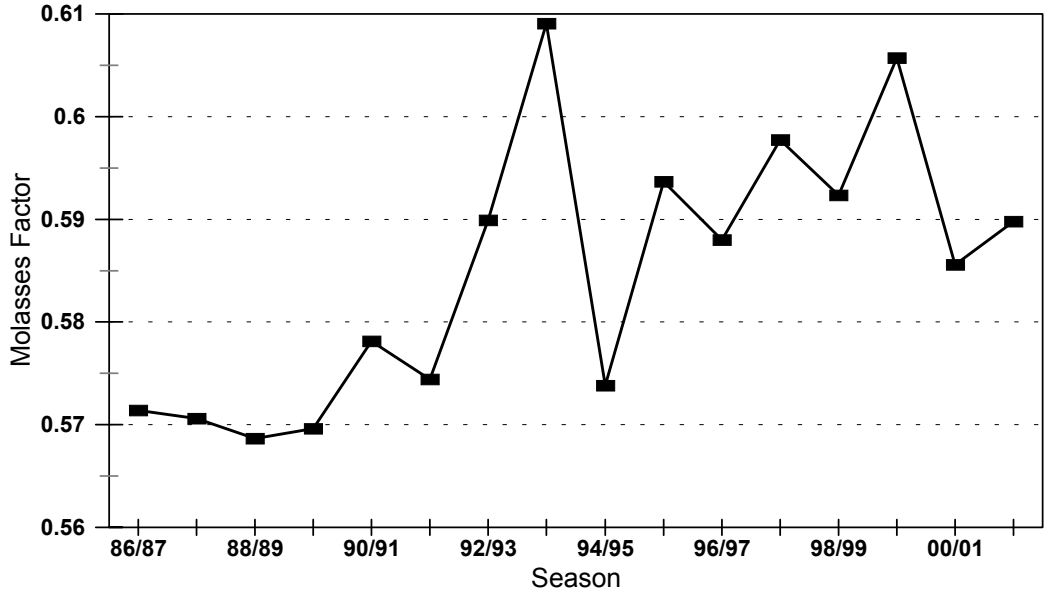


Figure 19. Molasses factor in South Africa.

Sugar quality

The trends in the quality of VHP sugar quality with respect to colour are shown in Figure 20, from which it can be seen that cane quality and processing problems caused a significant increase in colour compared to the previous five seasons, also reflected in the affinated sugar colours. This is a trend which should now be the target of special attention as part of the industry's drive to improve sugar quality. It is noteworthy that the step change in VHP colour after the four drought years (1992/3 to 1995/6) is not evident in the affinated colour. This is likely to be due to higher colour limits on VHP, which may be achieved by reduced washing in the A-centrifugals, although the crystal colour is still as low as it was previously.

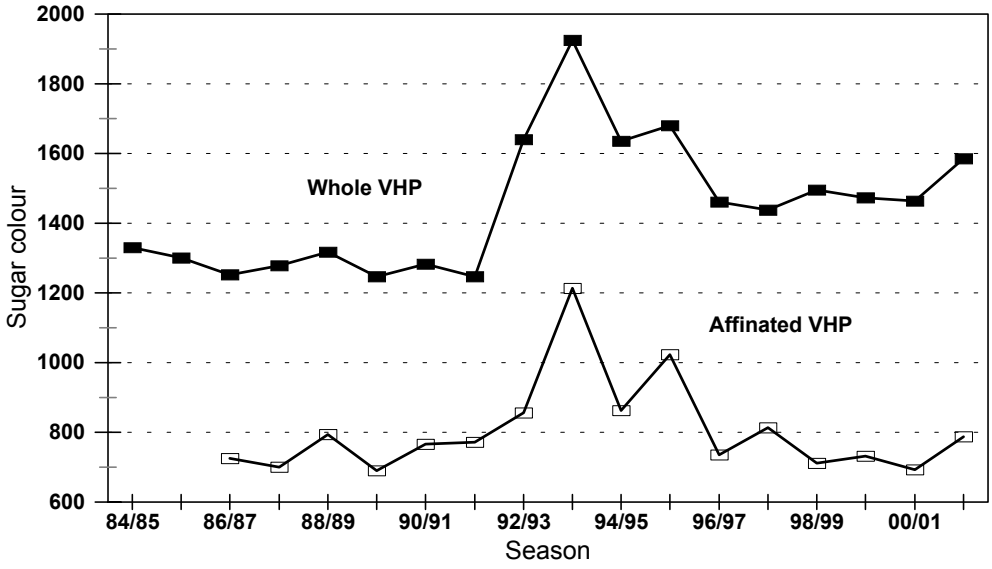


Figure 20. VHP and affinated sugar colours in South Africa.

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Table B1: Cane crushed and sugar made, cane composition, throughputs and time accounts, performances and losses
South African mills (season 2001 - 2002)

SYMBOLS OF FACTORIES	ML *	KM-A *	KM-B *	KM-AVE	PG *	UF *	EN **	FX-A *	FX-B *	FX-AVE	AK *	DL	MS-A *	MS-B *	MS-AVE
TONS SUGAR MADE & ESTIMATED	207997	-	-	225863	149548	136698	46484	-	-	226674	190991	128664	-	-	169864
Refined % total sugar	-	-	-	-	74.43	58.14	-	-	-	-	-	-	-	-	-
Moisture all sugar	0.10	-	-	0.12	0.12	0.04	0.09	-	-	0.10	0.19	0.11	-	-	0.12
Pol all sugar	99.30	-	-	99.36	99.69	99.71	99.30	-	-	99.44	99.34	99.35	-	-	99.40
Tons cane crushed total	1761160			1907090	1355654	1172173	405585			2018564	1624590	1211236			1648747
Tons cane crushed per tandem		968102	938988					981450	1037114				705303	943444	
Season started on	02-Apr-01	-	-	28-Mar-01	20-Mar-01	07-Apr-01	02-Apr-01	-	-	18-Apr-01	04-Apr-01	04-Apr-01	-	-	18-Apr-01
Season completed on	22-Dec-01	-	-	09-Dec-01	23-Dec-01	08-Dec-01	30-Nov-01	-	-	12-Nov-01	11-Nov-01	21-Nov-01	-	-	26-Nov-01
Length of season (days)	264	-	-	256	278	245	242	-	-	208	221	231	-	-	222
TIME ACCOUNT															
Overall time efficiency %	85.01	76.68	73.47	75.08	81.71	81.33	78.19	80.22	79.29	79.76	83.45	71.48	78.19	82.56	80.39
Scheduled stops% gross avail.time	0.37	3.51	3.67	3.59	4.01	3.81	7.88	7.40	7.77	7.58	7.85	8.54	4.33	4.24	4.28
Lack of cane % gross " "	9.24	13.63	13.65	13.64	8.76	8.77	10.28	7.30	7.66	7.48	6.22	12.10	14.49	10.19	12.33
Other stops % gross " "	5.26	5.45	8.07	6.76	4.26	5.59	3.07	4.97	5.05	5.01	2.41	7.44	2.74	2.72	2.73
Foreign matter % gross" "	0.13	0.74	1.14	0.94	1.26	0.50	0.58	0.11	0.23	0.17	0.07	0.44	0.26	0.29	0.28
Lost time % available crush.time	5.82	6.63	9.90	8.26	4.96	6.43	3.78	5.84	5.98	5.91	2.81	9.43	3.38	3.19	3.28
Force majeure stops (hours)	71.00	0.00	1.00	0.50	4.00	0.00	3.30	0.00	0.00	0.00	1.10	4.25	0.00	0.00	0.00
THROUGHPUTS PER CRUSHING HOUR															
Tons cane	325.39	206.43	209.21	415.57	249.15	257.24	89.22	245.58	265.05	510.43	366.49	305.47	171.26	214.52	387.20
Tons fibre	49.84	27.63	28.15	55.77	34.98	35.44	12.49	37.73	40.33	78.03	55.87	44.27	26.64	33.73	60.60
Tons brix in mixed juice	49.31	31.83	32.32	64.13	36.28	39.29	13.13	37.25	40.53	77.74	56.25	43.38	24.27	30.13	54.59
Tons sucrose in mixed juice	42.71	27.33	27.84	55.18	31.21	34.24	11.41	31.49	34.21	65.70	48.27	36.87	20.20	24.91	45.11
Tons non-suc. in mixed juice	6.60	4.49	4.48	8.97	5.07	5.04	1.72	5.75	6.32	12.07	7.98	6.52	4.08	5.22	9.33
Tons of sugar produced	38.43	-	-	49.22	27.48	30.00	10.23	-	-	57.32	43.08	32.45	-	-	39.89
COMPOSITION OF CANE CRUSHED															
Sucrose % cane	13.41	13.44	13.53	13.49	12.87	13.64	13.18	13.08	13.19	13.13	13.49	12.50	11.97	11.80	11.87
Pol % cane	13.27	13.30	13.37	13.33	12.71	13.51	13.06	12.96	13.08	13.02	13.39	12.31	11.86	11.69	11.77
Fibre % cane	15.32	13.39	13.46	13.42	14.04	14.31	14.89	15.36	15.22	15.29	15.24	15.78	15.55	15.72	15.65
Brix % cane	15.75	15.88	15.93	15.91	15.19	15.86	15.39	15.85	16.02	15.94	15.96	15.04	14.58	14.51	14.54
Ash % cane	2.16	2.43	2.44	2.43	1.79	1.82	1.67	1.88	1.85	1.86	1.08	1.73	1.17	1.18	1.18
ERC % cane	11.61	11.62	11.72	11.67	11.10	11.90	11.45	11.04	11.12	11.08	11.61	10.59	10.04	9.81	9.91
ERC % sucrose in cane	86.55	86.45	86.62	86.53	86.29	87.29	86.88	84.45	84.31	84.38	86.08	84.71	83.89	83.18	83.48
RV % cane	12.18	12.21	12.30	12.25	11.66	12.46	12.00	11.67	11.75	11.71	12.20	11.17	10.62	10.40	10.50
EXTRACTION															
Extraction (sucrose based)	97.85	98.49	98.37	98.43	97.35	97.62	97.04	98.06	97.89	97.97	97.62	96.58	98.50	98.42	98.45
Corrected reduced extraction	97.78	98.17	98.03	98.10	97.04	97.20	96.68	98.03	97.82	97.93	97.52	96.44	98.58	98.54	98.55
Imbibition % fibre	365	383	354	369	311	407	334	359	360	359	349	328	390	460	430
Preparation index	93	93	93	93	91	-	90	92	92	92	92	91	90	90	90
Pol factor	99.29	99.76	99.13	99.45	99.75	100.00	98.89	98.70	98.72	98.71	99.72	99.78	99.81	99.99	99.91
Brix factor	100.95	101.41	100.51	100.96	101.13	101.44	99.85	101.94	102.40	102.18	101.14	100.92	100.48	101.21	100.90
RECOVERIES															
Boiling house recovery (suc.)	89.34	-	-	88.64	87.79	87.36	88.98	-	-	86.79	88.67	87.44	-	-	87.61
C. R. B.	87.10	-	-	87.32	86.38	85.44	85.83	-	-	86.74	87.28	86.20	-	-	88.71
Overall recovery (sucrose)	87.42	-	-	87.25	85.46	85.27	86.35	-	-	85.03	86.56	84.45	-	-	86.26
Ton cane per ton sugar	8.47	-	-	8.44	9.07	8.57	8.73	-	-	8.91	8.51	9.41	-	-	9.71
Ton cane per ton 96 pol sugar	8.19	-	-	8.16	8.73	8.26	8.44	-	-	8.60	8.22	9.10	-	-	9.37
Value Recovery %	100.69	-	-	100.58	99.77	98.20	98.99	-	-	100.55	100.44	99.34	-	-	102.74
BALANCES															
Suc. lost % suc.in cane															
- lost in bagasse (a)	2.15	-	-	1.57	2.65	2.38	2.96	-	-	2.03	2.38	3.42	-	-	1.55
- lost in filter cake (b)	-	-	-	-	0.13	0.29	0.25	-	-	-	-	0.80	-	-	-
- lost in final molasses (c)	8.93	-	-	9.32	9.65	8.56	7.73	-	-	11.21	9.52	9.50	-	-	10.42
- undetermined losses (d)	1.50	-	-	1.86	2.10	3.49	2.71	-	-	1.73	1.53	1.83	-	-	1.77
Non sucrose ratio	1.05	-	-	1.02	1.05	1.03	1.01	-	-	1.05	1.07	1.05	-	-	0.95
Fructose ratio FM/MJ	0.93	-	-	0.92	0.88	0.87	0.84	-	-	0.95	0.97	0.95	-	-	0.87
Glucose ratio FM/MJ	0.79	-	-	0.61	0.70	0.68	0.70	-	-	0.69	0.74	0.84	-	-	0.71

*** Cane diffuser** **** Bagasse diffuser**

Table B1: Cane crushed and sugar made, cane composition, throughputs and time accounts,

SYMBOLS OF FACTORIES	GH-A *	GH-B	GH-AVE	NB	UC *	ES *	SZ-A *	SZ-B *	SZ-AVE	UK *	INDUSTRY
TONS SUGAR MADE & ESTIMATED	-	-	119126	190756	94190	153380	-	-	234637	127891	2402763
Refined % total sugar	-	-	97.37	100.00	-	-	-	-	-	-	-
Moisture all sugar	-	-	0.03	0.00	0.09	0.10	-	-	0.10	0.07	0.10
Pol all sugar	-	-	99.92	99.93	99.45	99.42	-	-	99.34	99.42	99.48
Tons cane crushed total			1150711	1565601	744868	1255166			2187376	1148041	21156562
Tons cane crushed per tandem	378878	771833					1045273	1142103			
Season started on	-	-	18-Apr-01	07-Mar-01	09-Mar-01	14-Mar-01	-	-	30-Mar-01	18-Apr-01	07-Mar-01
Season completed on	-	-	09-Dec-01	23-Nov-01	13-Dec-01	07-Dec-01	-	-	01-Feb-02	21-Dec-01	01-Feb-02
Length of season (days)	-	-	235	261	279	268	-	-	308	247	251
TIME ACCOUNT											
Overall time efficiency %	70.45	83.99	77.22	82.68	83.79	83.98	77.29	85.08	81.21	79.93	80.46
Scheduled stops% gross avail.time	3.77	4.87	4.32	5.62	6.90	3.61	5.79	5.51	5.65	7.23	5.34
Lack of cane % gross " "	21.91	7.11	14.51	7.57	2.99	5.36	14.66	6.84	10.72	9.71	9.23
Other stops % gross " "	3.41	3.87	3.64	3.76	6.24	7.00	2.02	2.11	2.06	2.54	4.55
Foreign matter % gross" "	0.46	0.17	0.31	0.37	0.07	0.05	0.25	0.46	0.35	0.58	0.41
Lost time % available crush.time	4.62	4.40	4.50	4.35	6.93	7.69	2.54	2.42	2.48	3.08	5.35
Force majeure stops (hours)	0.00	0.00	0.00	0.00	63.25	44.00	0.00	0.00	0.00	0.00	187.40
THROUGHPUTS PER CRUSHING HOU											
Tons cane	96.32	164.51	266.83	303.78	133.94	233.57	215.70	211.60	427.07	242.46	296.25
Tons fibre	14.44	24.62	39.95	39.19	19.12	34.54	34.53	33.68	68.17	36.87	43.61
Tons brix in mixed juice	13.95	22.94	37.68	46.96	20.83	36.39	31.00	30.48	61.45	35.00	44.18
Tons sucrose in mixed juice	11.77	19.44	31.21	41.64	18.54	32.01	26.30	25.83	52.13	77.96	37.96
Tons non-suc. in mixed juice	2.18	3.50	5.80	5.32	2.29	4.38	4.70	4.64	9.35	5.02	6.22
Tons of sugar produced	-	-	27.62	37.01	16.94	28.54	-	-	45.81	54.02	33.65
COMPOSITION OF CANE CRUSHED											
Sucrose % cane	12.45	12.10	12.22	14.07	14.23	14.09	12.45	12.46	12.46	12.61	13.11
Pol % cane	12.34	11.99	12.11	13.95	14.15	14.00	12.35	12.35	12.35	12.52	12.99
Fibre % cane	15.23	15.86	15.65	13.93	14.38	14.79	16.16	16.07	16.11	15.21	14.97
Brix % cane	14.97	14.52	14.67	16.12	16.20	16.21	14.87	14.91	14.89	15.03	15.51
Ash % cane	1.43	1.45	1.44	1.76	1.16	2.04	-	-	-	1.76	1.74
ERC % cane	10.57	10.26	10.36	12.43	12.62	12.40	10.60	10.60	10.60	10.77	11.28
ERC % sucrose in cane	84.89	84.80	84.83	88.33	88.69	88.00	85.15	85.06	85.11	85.43	86.05
RV % cane	11.15	10.81	10.92	12.97	13.16	12.96	11.16	11.17	11.16	11.33	11.80
EXTRACTION											
Extraction (sucrose based)	98.12	97.67	97.82	97.43	97.27	97.23	97.94	97.94	97.94	98.09	97.74
Corrected reduced extraction	98.10	97.70	97.83	96.70	96.83	96.93	98.07	98.06	98.06	98.09	97.59
Imbibition % fibre	358	361	360	305	320	378	383	403	393	465	369
Preparation index	90	90	90	91	92	90	90	89	89	92	91
Pol factor	99.65	99.37	99.46	99.36	100.23	100.03	99.66	99.74	99.70	99.28	99.55
Brix factor	100.77	100.26	100.43	100.84	101.63	101.60	100.70	101.07	100.89	101.01	101.12
RECOVERIES											
Boiling house recovery (suc.)	-	-	86.57	88.83	90.84	88.65	-	-	87.34	89.56	88.18
C. R. B.	-	-	86.73	85.13	86.14	84.89	-	-	86.19	88.12	86.69
Overall recovery (sucrose)	-	-	84.68	86.54	88.37	86.20	-	-	85.54	87.86	86.19
Ton cane per ton sugar	-	-	9.66	8.21	7.91	8.18	-	-	9.32	8.98	8.81
Ton cane per ton 96 pol sugar	-	-	9.28	7.88	7.63	7.90	-	-	9.01	8.67	8.50
Value Recovery %	-	-	100.64	98.84	99.39	97.96	-	-	100.30	102.28	100.14
BALANCES											
Suc. lost % suc.in cane											
- lost in bagasse (a)	-	-	2.18	2.57	2.73	2.77	-	-	2.06	1.91	2.26
- lost in filter cake (b)	-	-	0.27	1.03	0.09	-	-	-	0.08	-	0.18
- lost in final molasses (c)	-	-	10.49	7.78	7.18	8.65	-	-	10.60	9.14	9.45
- undetermined losses (d)	-	-	2.38	2.07	1.63	2.38	-	-	1.71	1.09	1.92
Non sucrose ratio	-	-	1.01	1.02	0.99	1.03	-	-	1.01	0.99	1.02
Fructose ratio FM/MJ	-	-	0.89	0.85	0.83	0.90	-	-	0.88	0.93	0.90
Glucose ratio FM/MJ	-	-	0.67	0.62	0.51	0.63	-	-	0.72	0.73	0.70

*** Cane diffuser** ** Bagasse diffuser

Table B 2: Cane crushed and sugar made, cane composition, throughputs and time accounts, performances and losses Swaziland, Malawi and Zimbabwe mills (season 2001 - 2002)

SYMBOLS OF FACTORIES	MH-A *	MH-B	MH-AVE	UB-A *	UB-B	UB-AVE	SM	NH *	DW *	HV-A *	HV-B *	HV-AVE	TR-A *	TR-B	TR-AVE
TONS SUGAR MADE & ESTIMATED	-	-	156010	-	-	178766	166161	135256	80228	-	-	248608	-	-	263764
Refined % total sugar	-	-	53.60	-	-	46.32	0.00	39.47	47.21	-	-	10.13	-	-	20.54
Moisture all sugar	-	-	0.13	-	-	0.12	0.16	0.13	0.05	-	-	0.21	-	-	0.24
Pol all sugar	-	-	99.36	-	-	99.50	98.99	99.17	99.55	-	-	98.97	-	-	98.94
Tons cane crushed total			1225997			1582619	1371359	1208133	609140			2038049			2193735
Tons cane crushed per tandem	598807	627190		907057	675562					1008161	1029888		1496448	697287	
Season started on	-	-	18-Apr-01	-	-	03-Apr-01	09-Apr-01	25-Apr-01	07-May-01	-	-	11-Apr-01	-	-	27-Mar-01
Season completed on	-	-	16-Dec-01	-	-	24-Dec-01	11-Nov-01	30-Nov-01	25-Oct-01	-	-	24-Nov-01	-	-	03-Dec-01
Number of crushing days	-	-	242	-	-	265	216	219	171	-	-	227	-	-	251
TIME ACCOUNT															
Overall time efficiency %	80.57	81.45	81.01	78.83	71.82	75.28	75.84	79.15	86.20	87.19	86.89	87.04	86.63	65.01	75.88
Scheduled stops% gross avail.time	3.78	3.96	3.87	3.28	3.44	3.36	9.25	4.33	5.78	2.51	2.42	2.46	4.48	5.96	5.21
Lack of cane % gross " "	8.54	7.85	8.20	9.52	19.63	14.64	3.29	9.19	1.63	1.61	1.88	1.75	1.39	15.81	8.56
Other stops % gross " "	6.82	6.68	6.75	7.33	4.59	5.94	11.10	7.17	5.85	8.69	8.81	8.75	7.46	13.05	10.24
Foreign mat. % gross " "	0.28	0.07	0.18	1.05	0.51	0.78	0.51	0.16	0.54	0.00	0.00	0.00	0.04	0.18	0.11
Lost time % available crush.time	7.81	7.58	7.69	8.50	6.01	7.32	12.77	8.31	6.36	9.06	9.20	9.13	7.93	16.71	11.89
Force majeure stops (hours)	0.00	0.00	0.00	32.17	36.00	34.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
THROUGHPUTS / CRUSHING HOUR															
Tons cane	130.22	138.17	268.34	190.88	152.13	344.32	361.47	295.19	172.18	212.47	217.55	430.01	292.78	183.94	492.86
Tons fibre	18.86	21.17	40.02	23.82	19.28	43.26	42.46	42.89	27.23	30.42	31.07	61.49	40.40	23.54	66.43
Tons brix in mixed juice	20.45	21.88	42.32	28.80	23.86	52.83	55.90	44.96	28.52	33.58	35.38	68.96	46.38	27.53	76.70
Tons pol in mixed juice	18.01	19.20	37.20	24.38	20.07	44.59	47.82	38.28	25.24	28.91	30.48	59.39	40.04	23.65	66.12
Tons non-pol. in mixed juice	2.44	2.68	5.12	4.43	3.79	8.24	8.08	6.68	3.27	4.67	4.90	9.57	6.34	3.88	10.59
Tons of sugar produced	-	-	34.15	-	-	38.89	43.80	33.05	22.68	-	-	52.45	-	-	59.26
COMPOSITION OF CANE CRUSHED															
Pol % cane	14.28	14.25	14.27	13.18	13.48	13.31	13.65	13.48	14.91	13.89	14.29	14.09	14.08	13.54	13.91
Fibre % cane	15.29	15.50	15.40	13.32	13.08	13.22	12.85	14.76	15.81	14.61	14.58	14.59	13.80	12.80	13.48
Brix % cane	16.48	16.47	16.47	15.86	16.25	16.03	16.20	16.08	16.96	16.41	16.86	16.63	16.49	16.24	16.41
Ash % cane	-	-	-	1.47	1.11	1.32	1.57	-	-	-	-	-	-	-	-
ERC % cane	12.54	12.49	12.51	11.23	11.48	11.34	11.77	11.55	13.22	11.99	12.36	12.18	12.25	11.58	12.04
ERC % pol in cane	87.77	87.61	87.69	85.23	85.18	85.21	86.23	85.63	88.66	86.34	86.48	86.41	87.00	85.56	86.55
EXTRACTION															
Extraction (pol based)	96.80	97.53	97.17	96.89	97.89	97.32	96.94	96.17	98.32	97.96	98.02	97.99	97.14	94.97	96.47
Corrected reduced extraction	96.37	97.36	96.89	96.00	97.29	96.56	95.72	95.79	98.22	97.67	97.70	97.69	96.56	93.56	95.67
Imbibition % fibre	328	400	366	306	344	322	391	331	274	262	294	278	368	269	338
Preparation index	92	92	92	93	94	93	91	91	89	91	91	91	91	91	91
Pol factor	100.72	100.56	100.64	-	-	-	99.14	99.49	102.30	98.33	101.17	99.76	-	-	0.00
Brix factor	102.80	102.87	102.84	-	-	-	100.09	100.38	103.26	99.11	101.85	100.49	-	-	0.00
RECOVERIES															
Boiling house recovery (pol)	-	-	91.20	-	-	86.78	90.67	85.62	89.44	-	-	87.41	-	-	88.67
Overall recovery (pol)	-	-	88.62	-	-	84.46	87.90	82.34	87.93	-	-	85.66	-	-	85.54
Ton cane per ton sugar	-	-	7.86	-	-	8.85	8.25	8.93	7.59	-	-	8.20	-	-	8.32
Ton cane per ton 96 pol sugar	-	-	7.59	-	-	8.54	8.00	8.65	7.32	-	-	7.95	-	-	8.07
BALANCES															
Pol lost % pol in cane															
- lost in bagasse (a)	-	-	2.83	-	-	2.68	3.06	3.83	1.68	-	-	2.01	-	-	3.53
- lost in filter cake (b)	-	-	0.19	-	-	0.18	0.35	0.15	0.17	-	-	0.05	-	-	0.17
- lost in final molasses (c)	-	-	7.17	-	-	10.14	7.22	9.96	8.08	-	-	8.64	-	-	8.13
- undetermined losses (d)	-	-	1.18	-	-	2.55	1.48	3.72	2.14	-	-	3.65	-	-	2.63
Non pol ratio	-	-	1.07	-	-	0.99	0.98	0.86	1.05	-	-	0.98	-	-	0.98

*** Cane diffuser**

Table C1. Analysis of bagasse, juices, filter cake, syrup and final molasses South African mills (season 2001 - 2002)

SYMBOLS OF FACTORIES	ML *	KM-A *	KM-B *	KM-AVE	PG *	UF *	EN **	FX-A *	FX-B *	FX-AVE	AK *	DL	MS-A *	MS-B *	MS-AVE
FINAL BAGASSE															
Pol % bagasse	0.85	0.79	0.84	0.82	1.18	1.11	1.28	0.75	0.83	0.79	1.02	1.34	0.54	0.54	0.54
Moisture % bagasse	53.08	46.14	46.93	46.53	49.12	50.90	51.62	52.63	52.65	52.64	49.86	51.97	52.22	52.78	52.55
Fibre % bagasse	45.17	52.07	51.22	51.64	48.70	47.08	46.15	45.35	45.18	45.26	48.20	45.39	46.56	45.86	46.15
Ash % bagasse	4.38	-	-	2.66	6.39	4.66	2.96	-	-	4.18	2.21	-	-	-	2.28
LCV in kJ per kg bagasse ##	6376	-	-	8070	6791	6766	6944	-	-	6496	7464	-	-	-	6913
MIXED JUICE															
Mixed juice % cane	122.10	125.71	121.50	123.63	114.87	126.81	116.48	121.35	121.21	121.28	122.11	115.68	127.22	138.05	133.42
Brix % mixed juice	12.41	12.26	12.71	12.48	12.68	12.04	12.63	12.50	12.62	12.56	12.57	12.28	11.14	10.17	10.57
Sucrose purity	86.62	85.89	86.15	86.02	86.03	87.16	86.91	84.55	84.40	84.48	85.81	84.98	83.21	82.67	82.90
Apparent purity	85.66	84.94	85.13	85.04	84.96	86.34	86.09	83.79	83.74	83.76	85.15	83.70	82.44	81.91	82.14
Purity difference (MJ - DAC)	-0.02	-0.20	0.05	-0.07	0.12	-0.06	0.43	-0.69	-0.97	-0.83	0.06	0.90	0.53	0.35	0.43
(Glucose + fructose) % sucrose	4.90	-	-	5.04	5.38	4.15	5	-	-	5.14	4.70	5.89	-	-	5.89
Suspended solids % mixed juice	0.10	0.07	0.07	0.07	0.18	0.42	0.77	0.09	0.09	0.09	0.37	1.12	0.15	0.16	0.16
Pol/sucrose ratio	0.9889	0.9890	0.9882	0.9886	0.9876	0.9906	0.9906	0.9909	0.9921	0.9915	0.9923	0.9849	0.9907	0.9909	0.9908
CLARIFIED JUICE															
Brix % clarified juice	12.52	-	-	12.22	11.87	11.75	12.55	-	-	12.23	12.40	12.04	-	-	10.89
Apparent purity	85.02	-	-	85.10	84.91	85.95	85.44	-	-	83.44	83.96	83.19	-	-	80.68
Purity difference (CJ - MJ)	-0.64	-	-	0.06	-0.05	-0.39	-0.65	-	-	-0.32	-1.19	-0.51	-	-	-1.46
Average pH	6.8	-	-	7.0	7.2	7.3	7.00	-	-	7.0	7.1	7.00	-	-	7.0
FILTER CAKE															
Pol % filter cake	-	-	-	-	1.73	1.26	0.89	-	-	-	-	2.49	-	-	-
Moisture % filter cake	-	-	-	-	74.77	70.00	66.46	-	-	-	-	70.32	-	-	-
Filter cake % cane	-	-	-	-	1.00	3.19	3.67	-	-	-	-	4.00	-	-	-
Filter wash index	99.1	-	-	102.1	106.8	102.5	100.68	-	-	102.7	101.4	101.97	-	-	97.0
Purity difference (CJ - filtrate)	-	-	-	-	3.32	2.07	0.73	-	-	-	-	1.34	-	-	-
SYRUP															
Brix % syrup	63.63	-	-	65.02	65.21	61.29	60.96	-	-	65.90	65.89	61.40	-	-	66.18
Apparent purity	84.71	-	-	84.79	85.01	85.94	85.69	-	-	84.08	84.55	83.59	-	-	81.91
Purity difference (Syrup - MJ)	-0.95	-	-	-0.25	0.05	-0.40	-0.40	-	-	0.32	-0.60	-0.11	-	-	-0.23
Average pH	6.0	-	-	6.4	6.4	6.3	6.40	-	-	6.0	6.2	6.30	-	-	6.2
FINAL MOLASSES															
Refractometer brix	84.60	-	-	84.60	88.16	84.36	83.75	-	-	85.83	91.77	88.05	-	-	84.50
Pol/refractometer brix purity	33.83	-	-	31.86	34.02	34.55	32.14	-	-	34.48	33.10	32.10	-	-	32.65
Sucrose/refractometer brix purity	36.90	-	-	36.95	37.07	36.93	35.18	-	-	37.81	36.02	35.17	-	-	35.54
Conductivity ash %	15.04	-	-	16.51	15.58	15.11	13.44	-	-	15.07	15.90	14.96	-	-	14.64
(Glucose + fructose)/ash ratio	0.99	-	-	0.78	0.90	0.76	1.07	-	-	0.84	0.90	1.12	-	-	0.95
Fructose %	7.93	-	-	7.73	7.90	6.63	8.37	-	-	7.49	8.49	9.29	-	-	7.97
Glucose %	7.00	-	-	5.23	6.12	4.88	6.02	-	-	5.22	5.85	7.40	-	-	5.96
TPD based on molasses (made)	5.9	-	-	3.2	5.0	5.0	4.29	-	-	5.0	2.8	3.34	-	-	3.5
TPD based on mixed juice	6.2	-	-	4.3	6.6	6.2	5.87	-	-	5.9	3.9	4.24	-	-	4.2
Final molasses at 85 brix % cane	3.82	-	-	4.00	3.94	3.72	3.41	-	-	4.58	4.20	3.97	-	-	4.10
Pol/sucrose ratio	0.9167	-	-	0.8621	0.9175	0.9356	0.91	-	-	0.9120	0.9190	0.91	-	-	0.9187

*** Cane diffuser**

**** Bagasse diffuser**

LCV = 18309 - 31,14 Bx % bagasse - 207,63 moisture % bagasse - 196,05 ash % bagasse

Table C1. Analysis of bagasse, juices, filter cake, syrup and final molasses South African mills (season 2001 - 2002) - Continued

SYMBOLS OF FACTORIES	GH-A *	GH-B	GH-AVE	NB	UC *	ES *	SZ-A *	SZ-B *	SZ-AVE	UK *	INDUSTRY
FINAL BAGASSE											
Pol % bagasse	0.77	0.94	0.88	1.29	1.14	1.24	0.81	0.81	0.81	0.75	0.95
Moisture % bagasse	49.02	48.09	48.40	51.69	56.19	51.12	47.66	48.27	47.98	50.92	50.81
Fibre % bagasse	49.39	49.98	49.78	45.95	41.90	46.89	50.78	50.13	50.44	47.24	47.27
Ash % bagasse	-	-	2.72	3.69	2.92	5.21	-	-	3.68	3.96	3.50
LCV in kJ per kg bagasse ##	-	-	7671	6781	6012	6614	-	-	7578	6905	6989
MIXED JUICE											
Mixed juice % cane	123.26	124.13	123.84	111.22	111.60	124.67	129.73	132.43	131.14	138.87	123.28
Brix % mixed juice	11.75	11.23	11.40	13.90	13.93	12.50	11.08	10.88	10.97	10.39	12.10
Sucrose purity	84.36	84.74	84.61	88.67	89.02	87.97	84.83	84.76	84.79	85.66	85.92
Apparent purity	83.56	84.00	83.85	87.91	88.49	87.37	84.11	83.99	84.05	85.06	85.11
Purity difference (MJ - DAC)	0.21	0.66	0.51	0.08	-0.07	-0.37	0.20	0.02	0.11	0.31	0.04
(Glucose + fructose) % sucrose	-	-	5.70	3.93	3.46	3.68	-	-	5.33	4.58	5.01
Suspended solids % mixed juice	0.19	0.72	0.55	0.92	0.10	0.21	0.12	0.12	0.12	0.22	0.30
Pol/sucrose ratio	0.9905	0.9913	0.9910	0.9915	0.9940	0.9932	0.9916	0.9910	0.9913	0.9930	0.9906
CLARIFIED JUICE											
Brix % clarified juice	-	-	11.14	14.07	14.50	12.72	-	-	10.65	9.83	12.00
Apparent purity	-	-	83.51	88.27	87.74	86.98	-	-	83.95	84.31	85.20
Purity difference (CJ - MJ)	-	-	-0.34	0.36	-0.75	-0.39	-	-	-0.10	-0.75	-0.48
Average pH	-	-	7.1	7.1	6.9	7.1	-	-	7.1	6.9	7.0
FILTER CAKE											
Pol % filter cake	-	-	0.98	2.22	1.76	-	-	-	1.11	-	1.79
Moisture % filter cake	-	-	71.38	75.00	73.16	-	-	-	71.25	-	72.26
Filter cake % cane	-	-	3.32	6.54	0.76	-	-	-	0.90	-	1.32
Filter wash index	-	-	102.4	98.8	96.1	98.2	-	-	103.0	105.7	100.8
Purity difference (CJ - filtrate)	-	-	0.46	1.22	3.98	-	-	-	1.98	-	15.46
SYRUP											
Brix % syrup	-	-	63.39	69.01	65.44	58.89	-	-	63.12	65.13	64.30
Apparent purity	-	-	83.10	87.84	88.19	87.01	-	-	84.37	85.38	84.83
Purity difference (Syrup - MJ)	-	-	-0.75	-0.07	-0.30	-0.36	-	-	0.32	0.32	-0.28
Average pH	-	-	6.0	6.3	6.2	6.0	-	-	6.2	6.2	6.2
FINAL MOLASSES											
Refractometer brix	-	-	81.23	81.18	82.14	80.58	-	-	81.45	82.06	84.44
Pol/refractometer brix purity	-	-	34.38	35.25	35.91	36.73	-	-	36.21	34.43	34.11
Sucrose/refractometer brix purity	-	-	36.84	38.15	38.58	39.35	-	-	38.16	36.54	37.08
Conductivity ash %	-	-	13.78	12.10	12.64	11.59	-	-	12.51	13.17	14.30
(Glucose + fructose)/ash ratio	-	-	0.91	0.94	0.80	0.90	-	-	0.99	0.96	0.91
Fructose %	-	-	7.34	6.94	6.58	6.47	-	-	7.15	7.40	7.58
Glucose %	-	-	5.16	4.39	3.56	3.98	-	-	5.19	5.28	5.47
TPD based on molasses (made)	-	-	4.6	6.0	5.5	7.0	-	-	5.9	4.1	4.7
TPD based on mixed juice	-	-	6.1	7.6	7.6	8.2	-	-	7.4	5.0	5.8
Final molasses at 85 brix % cane	-	-	4.09	3.38	3.12	3.65	-	-	4.07	3.71	3.93
Pol/sucrose ratio	-	-	0.9333	0.9241	0.9309	0.9335	-	-	0.9489	0.9422	0.9199

*** Cane diffuser**
**** Bagasse diffuser**
LCV = 18309 - 31,14 Bx % bagass

Table C2. Analysis of bagasse, juices, filter cake, syrup and final molasses Swaziland, Malawi and Zimbabwe mills (season 2001 - 2002)

SYMBOLS OF FACTORIES	MH-A *	MH-B	MH-AVE	UB-A *	UB-B	UB-AVE	SM	NH *	DW *	HV-A *	HV-B *	HV-AVE	TR-A *	TR-B	TR-AVE
FINAL BAGASSE															
Pol % bagasse	1.53	1.06	1.28	1.57	1.11	1.38	1.66	1.66	0.84	0.98	0.98	0.98	1.37	2.27	1.66
Moisture % bagasse	48.85	51.95	50.52	49.26	47.99	48.73	50.38	50.44	45.76	48.48	48.38	48.43	50.84	53.00	51.53
Fibre % bagasse	48.54	46.14	47.25	47.78	49.80	48.63	46.71	46.82	52.92	49.45	49.55	49.50	46.96	42.74	45.61
Bagasse % cane	29.84	33.21	31.56	26.11	25.45	25.83	25.15	31.04	29.88	28.96	28.83	28.89	29.38	29.94	29.56
Ash % bagasse	-	-	-	-	-	3.45	5.92	-	-	-	-	1.88	-	-	-
LCV in kJ per kg bagasse ##	-	-	-	-	-	7435	6599	-	-			7822			-
MIXED JUICE															
Mixed juice % cane	117.69	128.15	123.04	112.06	118.19	114.68	120.82	117.08	113.38	108.50	113.22	110.88	121.39	104.53	116.03
Brix % mixed juice	13.34	12.36	12.82	13.47	13.27	13.38	12.80	13.01	14.61	14.57	14.36	14.46	13.05	14.32	13.41
Apparent purity	88.07	87.75	87.91	84.64	84.11	84.41	85.55	85.14	88.52	86.09	86.15	86.12	86.32	85.92	86.20
Purity difference (MJ - DAC)	-0.42	-0.77	-0.60	0.00	0.00	0.00	0.49	0.56	-0.24	0.74	0.80	0.77	0.00	0.00	0.00
Suspended solids % mixed juice	0.68	0.14	0.39	0.75	0.34	0.57	0.92	0.19	0.00	0.27	0.26	0.26	0.27	0.72	0.40
CLARIFIED JUICE															
Brix % clarified juice	-	-	13.10	-	-	13.28	12.70	12.72	14.07	-	-	15.07	-	-	13.33
Apparent purity	-	-	88.09	-	-	83.28	85.14	86.49	88.67	-	-	86.79	-	-	85.45
Purity difference (CJ - MJ)	-	-	0.18	-	-	-1.13	-0.41	1.35	0.15	-	-	0.67	-	-	-0.75
Average pH	-	-	7.2	-	-	7.2	7.0	7.0	6.7	-	-	7.0	-	-	6.9
FILTER CAKE															
Pol % filter cake	-	-	1.04	-	-	0.93	1.06	2.92	1.25	-	-	1.57	-	-	0.94
Moisture % filter cake	-	-	68.64	-	-	-	73.03	64.81	73.08	-	-	71.84	-	-	-
Filter cake % cane	-	-	2.66	-	-	2.52	4.45	0.72	2.02	-	-	0.42	-	-	2.48
Filter wash index	-	-	97.8	-	-	100.8	100.8	102.3	103.8	-	-	96.0	-	-	100.6
Purity difference (CJ - filtrate)	-	-	1.27	-	-	0.45	1.52	3.98	-	-	-	3.63	-	-	2.06
SYRUP															
Brix % syrup	-	-	66.00	-	-	56.07	66.05	64.12	61.56	-	-	57.53	-	-	65.20
Apparent purity	-	-	88.00	-	-	83.92	86.14	86.69	89.29	-	-	87.15	-	-	85.67
Purity difference (Syrup - MJ)	-	-	0.09	-	-	-0.49	0.59	1.55	0.77	-	-	1.03	-	-	-0.53
Average pH	-	-	6.4	-	-	6.1	6.1	6.2	6.2	-	-	6.1	-	-	6.0
FINAL MOLASSES															
Refractometer brix	-	-	83.60	-	-	83.98	83.82	83.76	87.41	-	-	83.40	-	-	84.69
Pol/refractometer brix purity	-	-	34.14	-	-	36.65	32.12	41.70	38.18	-	-	36.82	-	-	36.07
Purity difference (true-target)	-	-	-	-	-	3.96	-	-	-	-	-	7.84	-	-	-
Reducing sugars % #	-	-	17.33	-	-	16.81	16.19	-	20.10	-	-	15.46	-	-	-
Sulphated ash %	-	-	-	-	-	13.57	14.96	-	-	-	-	13.71	-	-	-
Reducing sugars/ash ratio	-	-	-	-	-	1.24	1.08	-	-	-	-	1.13	-	-	-
Final molasses at 85 brix % cane	-	-	3.53	-	-	4.33	3.61	3.79	3.71	-	-	3.89	-	-	3.69

* Cane diffuser # Reducing sugars determined by Lane & Eynon method.

LCV = 18309 - 31,14 Bx % bagasse - 207,63 moisture % bagasse - 196,05 ash % bagasse

Table D1. Massecuites, exhaustions, clarifying agents and additional fuels. South African mills (season 2001-2002)

SYMBOLS OF FACTORIES	ML	KM	PG	UF	EN	FX	AK	DL	MS	GH	NB	UC	ES	SZ	UK	INDUSTRY
A - MASSECUITE																
m3 per ton brix in mixed juice	1.16	1.09	1.19	1.12	0.94	0.94	0.92	1.05	1.01	1.14	1.29	1.03	1.03	0.97	0.97	1.06
Refractometer brix of massecuite	93.72	93.39	91.81	91.96	92.38	93.16	93.29	92.32	92.55	93.03	93.17	92.16	93.07	93.42	93.11	92.95
Purity of massecuite	85.95	84.09	85.69	85.06	85.58	85.17	84.98	83.48	83.16	85.66	87.45	87.93	86.03	84.08	85.31	85.23
Purity of A - molasses	70.83	64.10	70.30	68.64	66.96	66.59	66.52	66.97	64.77	68.60	70.09	72.84	69.36	64.73	65.28	67.62
Purity drop	15.12	19.99	15.39	16.42	18.62	18.58	18.46	16.51	18.39	17.06	17.36	15.09	16.67	19.35	20.03	17.61
Exhaustion	60.31	66.22	60.47	61.56	65.85	65.30	64.88	59.88	62.77	63.43	66.37	63.19	63.24	65.25	67.62	63.81
Pty of A-massecuite - purity syrup	1.24	-0.70	0.68	-0.88	-0.11	1.09	0.43	-0.11	1.25	2.56	-0.39	-0.26	-0.98	-0.29	-0.07	0.40
Pty of remelt	84.31	82.91	83.42	82.39	82.85	86.56	83.98	85.09	84.01	85.22	83.59	87.08	81.68	82.97	86.07	84.08
B - MASSECUITE																
m3 per ton brix in mixed juice	0.51	0.44	0.47	0.52	0.28	0.38	0.31	0.40	0.28	0.41	0.65	0.33	0.31	0.32	0.34	0.40
Refractometer brix of massecuite	95.48	95.60	94.27	94.44	93.88	95.59	95.32	93.61	94.22	95.18	95.73	94.11	95.17	94.60	94.77	95.00
Purity of massecuite	69.32	64.10	70.77	69.48	68.37	70.09	67.03	68.09	64.88	68.70	71.12	73.00	70.10	65.69	68.10	68.54
Purity of B - molasses	51.07	43.02	49.07	48.57	47.34	48.46	46.88	47.31	45.21	46.19	47.92	49.39	48.42	45.14	44.83	47.33
Purity drop	18.25	21.08	21.70	20.91	21.03	21.63	20.15	20.78	19.67	22.51	23.20	23.61	21.68	20.55	23.27	21.21
Exhaustion	53.81	57.72	60.21	58.52	58.41	59.88	56.59	57.92	55.33	60.89	62.64	63.91	59.96	57.02	61.94	58.75
C - MASSECUITE																
m3 per ton brix in mixed juice	0.27	0.23	0.35	0.22	0.25	0.33	0.24	0.29	0.26	0.31	0.24	0.18	0.20	0.25	0.29	0.26
Refractometer brix of massecuite	97.35	97.81	96.95	97.30	96.65	97.35	97.82	96.23	96.66	97.62	97.82	97.50	97.59	97.15	97.82	97.33
Purity of massecuite	56.42	51.89	52.54	52.84	52.36	56.69	54.74	53.37	52.22	53.50	53.99	56.58	52.58	53.38	55.26	54.03
Purity of C - molasses	33.83	31.86	34.02	34.55	32.14	34.48	33.10	32.10	32.65	34.38	35.25	35.91	36.73	36.21	34.43	34.11
Crystal content	33.24	28.76	27.22	27.19	28.80	33.00	31.64	30.14	28.08	28.44	28.31	31.44	24.44	26.15	31.08	29.42
Exhaustion	60.51	56.66	53.43	52.88	56.91	59.79	59.08	58.69	55.64	54.46	53.61	56.99	47.64	50.42	57.49	55.94
TOTAL VOLUME ALL RAW MASSECUI																
m3 per ton brix in mixed juice	1.95	1.75	2.01	1.85	1.47	1.65	1.47	1.74	1.55	1.86	2.19	1.54	1.54	1.55	1.61	1.73
WHITE SUGAR MASSECUITES																
kg sugar per m3 massecuite	522	-	521	665	-	-	-	-	-	454	562	-	-	-	-	531
Tons limestone per 1000 tons white sugar	-	-	55.45	-	-	-	-	-	-	32.93	-	-	-	-	-	-
Tons coke/1000 tons white sugar	-	-	0.70	-	-	-	-	-	-	2.80	-	-	-	-	-	-
Tons phosphoric acid/1000 tons white sugar	-	-	-	-	-	-	-	-	-	-	0.74	-	-	-	-	-
Tons sulphur/1000 tons white sugar	2.01	-	-	7.40	-	-	-	-	-	0.32	0.05	-	-	-	-	-
Phosphoric acid ppm mixed juice	-	-	-	-	-	-	-	-	-	2.11	-	40.90	39.08	2.79	13.17	4.88
Flocculant ppm mixed juice	4.36	1.42	3.85	7.06	2.43	4.48	2.87	2.18	4.37	4.24	6.11	3.63	10.72	7.78	1.90	4.75
Tons lime per 1000 tons cane	7.34	0.28	-	1.30	-	0.70	0.74	0.58	0.65	-	0.73	0.53	0.53	0.60	0.55	1.11
Enzyme ppm sugar	-	0.01	-	-	0.60	-	-	22.07	2.83	19.88	-	-	7.80	29.38	6.85	6.11
ADDITIONAL FUELS PER 1000 TC																
Tons of coal	22.09	0.95	14.01	11.00	5.98	16.50	1.15	1.82	11.64	7.16	12.87	4.05	4.63	-	0.85	8.02
Tons of wood	-	-	-	-	0.49	-	0.12	0.37	0.02	-	0.01	0.52	0.22	-	-	0.07
Converted into bagasse **	88.38	3.79	56.03	44.01	24.51	66.00	4.75	7.71	46.57	28.63	51.50	16.84	18.78	-	3.38	32.19

**** 1 TON COAL EQUIVALENT TO 4 T**
1 TON FIREWOOD EQUIVALENT T
 # 1 TON SULPHUR DIOXIDE EQUIVA

Table D2. Massecuites, exhaustions, clarifying gents and additional fuels Swaziland, Malawi and Zimbabwe mills (season 2001 - 2002)

SYMBOLS OF FACTORIES	MH	UB	SM	NH	DW	HV	TR
A - MASSECUITE							
m3 per ton brix in mixed juice	1.29	1.17	0.97	1.24	-	1.09	1.19
Refractometer brix of massecuite	92.38	93.38	93.49	92.90	90.56	92.39	92.48
Purity of massecuite	89.23	85.62	85.62	86.32	89.06	87.90	85.04
Purity of A - molasses	74.20	73.11	68.06	73.05	76.18	70.96	69.00
Purity drop	15.03	12.51	17.56	13.27	12.88	16.94	16.04
Exhaustion	65.29	54.34	64.21	57.04	60.71	66.36	60.84
Purity of A-massecuite - pty syrup	1.23	1.70	-0.52	-0.37	-0.23	0.75	-0.63
Purity of remelt	86.27	86.47	86.07	86.44	90.66	86.98	83.26
B - MASSECUITE							
m3 per ton brix in mixed juice	0.47	0.39	0.32	-	0.57	-	0.55
Refractometer brix of massecuite	93.53	94.80	96.87	93.18	92.21	-	94.67
Purity of massecuite	74.75	68.56	68.30	70.76	73.47	-	69.18
Purity of B - molasses	53.98	48.90	46.25	53.92	54.48	-	48.88
Purity drop	20.77	19.66	22.05	16.84	18.99	-	20.30
Exhaustion	60.38	56.12	60.06	51.65	56.78	-	57.40
C - MASSECUITE							
m3 per ton brix in mixed juice	0.26	0.24	0.29	0.23	0.23	-	0.23
Refractometer brix of massecuite	97.65	97.85	98.63	96.92	95.03	-	97.01
Purity of massecuite	56.03	53.42	55.11	56.73	57.52	-	54.07
Purity of C - molasses	34.14	36.65	32.12	41.70	38.18	36.82	36.07
Crystal content	32.46	25.90	33.41	24.98	29.73	-	27.31
Exhaustion	59.33	49.55	61.46	45.44	54.40	-	52.07
TOTAL VOLUME ALL RAW MASSECUITES							
m3 per ton brix in mixed juice	2.02	1.79	1.58	-	-	-	1.97
WHITE SUGAR MASSECUITES							
kg sugar per m3 massecuite	63	466	-	550	521	-	-
Tons phosphoric acid/1000 tons white sugar	-	-	-	0.64	-	-	-
Tons sulphur/1000 tons white sugar	0.25	0.29	-	-	0.18	-	-
Phos. acid ppm mixed juice	-	-	-	-	-	-	-
Flocculant ppm mixed juice	0.8	0.2	1.8	5.2	3.7	1.2	3.7
Tons lime per 1000 tons cane	1.2	0.9	0.7	1.0	0.7	0.4	0.5
Enzyme ppm sugar	-	-	-	-	-	-	-
ADDITIONAL FUELS PER 1000 TC							
Tons of coal	33.02	22.27	11.87	-	-	7.94	-
Tons of wood	-	-	-	1.32	0.20	0.06	-
Converted into bagasse **	132.09	89.09	47.49	1.59	0.24	31.84	-

**** 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 E. Comparative manufacturing data of recent years (South African mills)

	2001/02	2000/01	1999/2000	1998/99	1997/98
Throughput and time efficiency					
Tons cane per hour	296.25	308.86	299.39	296.08	285.04
Tons fibre per hour	43.61	45.43	43.25	42.38	42.65
Overall time efficiency	80.46	79.47	82.76	81.31	76.64
Cane					
Sucrose % cane	13.11	13.08	13.77	13.36	12.62
Fibre % cane	14.97	14.98	14.76	14.66	15.38
Mixed juice					
Sucrose purity	85.92	86.46	86.51	86.17	86.15
(Glucose + Fructose)/ash in M.J.	1.11	1.14	1.15	1.34	1.14
Milling					
Imbibition % fibre	369	348	362	343	334
Extraction (sucrose based)	97.74	97.79	97.93	97.73	97.74
Pol % bagasse	0.95	0.95	0.94	1.00	0.90
Moisture % bagasse	50.81	49.95	50.81	51.00	51.12
Bagasse % cane	31.14	30.56	30.46	30.42	31.78
LCV bagasse kJ/kg	6989	7108	6904	6958	6793
Available kJ in bag./kg brix in M.J.	14594	14689	13493	13967	15073
Recoveries					
Boiling house recovery (sucrose based)	88.18	88.97	88.33	88.08	88.09
Overall recovery (sucrose based)	86.19	86.99	86.50	86.09	86.10
Tons cane per ton sugar	8.81	8.74	8.36	8.65	9.15
Filter cake					
Pol % filter cake	1.79	1.51	1.55	1.44	1.26
Filter cake % cane	1.32	1.29	1.72	2.35	2.44
Final molasses					
Brix % final molasses	84.44	84.26	83.87	83.64	82.91
Sucrose/refractometer brix purity	37.08	37.21	37.70	37.20	37.53
Tons final molasses at 85 brix % cane	3.93	3.70	3.97	3.93	3.72
Average sugar polarisation	99.48	99.47	99.51	99.51	99.50
Sucrose lost % sucrose in cane					
Lost in bagasse	2.26	2.21	2.07	2.27	2.26
Lost in filter cake	0.18	0.15	0.19	0.25	0.24
Lost in final molasses	9.45	8.96	9.25	9.29	9.40
Undetermined losses	1.92	1.67	1.99	2.10	2.00
Lost in boiling house	11.55	10.79	11.43	11.65	11.64
Total losses	13.81	13.00	13.50	13.91	13.90
M^3 massecuite per ton Bx in M.J.					
A - massecuite	1.06	1.07	1.07	1.07	1.08
B - massecuite	0.40	0.38	0.39	0.38	0.39
C - massecuite	0.26	0.26	0.27	0.26	0.25
Total	1.73	1.71	1.74	1.71	1.69
Exhaustion of massecuites					
A - massecuite	63.81	63.56	63.57	62.73	62.58
B - massecuite	58.75	59.90	59.16	59.08	59.23
C - massecuite	55.94	56.53	54.80	56.49	55.42
Brix of syrup	64.30	64.09	64.76	64.99	64.42

Table F. Average manufacturing results by monthly periods for South African mills (season 2001 - 2002)

End of month period		31 MAR 2001	28 APR 2001	2 JUN 2001	30 JUN 2001	28 JUL 2001	1 SEP 2001	29 SEP 2001	3 NOV 2001	1 DEC 2001	29 DEC 2001	2 FEB 2002
Tons of sugar made and estimated	Month	36538	148358	351944	332018	342843	416909	293502	304050	127290	46295	3016
	To-date	36538	184896	536840	868858	1211701	1628610	1922112	2226162	2353452	2399747	2402763
Tons cane crushed	Month	332471	1513890	3327668	2855897	2793916	3321465	2374907	2746786	1351575	500905	37082
	To-date	332471	1846361	5174029	8029926	10823842	14145307	16520214	19267000	20618575	21119480	21156562
Tons cane crushed per hour actual crushing	Month	220.03	270.58	314.08	322.34	316.96	311.18	297.69	279.46	244.78	257.97	391.86
	To-date	220.03	259.83	292.30	302.32	305.97	307.18	305.78	301.73	297.19	296.13	296.25
Sucrose % cane	Month	12.80	11.57	12.15	13.26	13.93	14.32	14.23	12.90	11.57	11.08	10.30
	To-date	12.80	11.79	12.02	12.46	12.84	13.19	13.34	13.28	13.16	13.11	13.11
Fibre % cane	Month	14.87	15.17	14.79	14.06	14.07	14.65	15.27	16.08	16.57	16.63	17.46
	To-date	14.87	15.11	14.90	14.60	14.47	14.51	14.62	14.83	14.94	14.97	14.97
Tons cane per ton sugar	Month	9.10	10.20	9.46	8.60	8.15	7.97	8.09	9.03	10.62	10.82	12.30
	To-date	9.10	9.99	9.64	9.24	8.93	8.69	8.59	8.65	8.76	8.80	8.81
Extraction . . . . . (sucrose based)	Month	97.10	97.43	97.63	97.74	97.83	97.83	97.90	97.81	97.56	97.44	97.54
	To-date	97.10	97.37	97.54	97.61	97.67	97.71	97.74	97.75	97.74	97.74	97.74
Imbibition % fibre	Month	311	353	353	364	371	370	383	377	388	390	418
	To-date	311	345	350	355	359	362	365	367	368	369	369
Pol % bagasse	Month	1.19	0.93	0.93	1.02	1.03	1.02	0.95	0.85	0.83	0.81	0.72
	To-date	1.19	0.98	0.95	0.97	0.99	1.00	0.99	0.97	0.96	0.95	0.95
Moisture % bagasse	Month	52.12	51.68	51.05	50.98	50.86	50.53	50.17	50.24	51.92	51.24	49.01
	To-date	52.12	51.76	51.31	51.20	51.11	50.97	50.86	50.76	50.84	50.81	50.81
Boiling house recovery . . . . (sucrose based)	Month	87.87	86.38	88.69	89.28	89.59	89.13	88.23	87.25	84.12	82.48	81.54
	To-date	87.87	86.67	87.99	88.48	88.79	88.88	88.78	88.56	88.31	88.19	88.18
Overall recovery . . . . . (sucrose based)	Month	85.32	84.16	86.59	87.26	87.64	87.20	86.38	85.34	82.06	80.36	79.53
	To-date	85.32	84.39	85.82	86.36	86.72	86.84	86.77	86.57	86.31	86.19	86.19
Mixed juice sucrose purity . . .	Month	87.22	84.39	85.05	86.08	86.67	86.87	86.76	85.64	84.32	83.60	80.69
	To-date	87.22	84.93	85.01	85.41	85.76	86.04	86.15	86.08	85.98	85.93	85.92
Pol/sucrose ratio in mixed juice	Month	0.9902	0.9846	0.9863	0.9883	0.9917	0.9916	0.9926	0.9958	0.9924	0.9888	0.9910
	To-date	0.9902	0.9857	0.9861	0.9869	0.9883	0.9891	0.9897	0.9905	0.9906	0.9906	0.9906
Sucrose/refractometer brix purity in final molasses	Month	37.25	36.40	35.40	35.56	36.40	37.11	38.21	38.49	39.51	40.31	43.86
	To-date	37.25	36.54	35.81	35.72	35.90	36.19	36.50	36.79	36.98	37.07	37.08
Sucrose lost in final molasses % sucrose in cane	Month	8.60	10.52	9.43	8.60	8.51	8.68	9.31	10.27	12.01	13.36	18.65
	To-date	8.60	10.15	9.68	9.27	9.06	8.96	9.02	9.19	9.35	9.43	9.45
Undetermined lost sucrose % sucrose in cane	Month	2.55	2.50	1.43	1.72	1.54	1.81	2.03	1.98	3.24	3.61	-0.75
	To-date	2.55	2.51	1.81	1.77	1.71	1.73	1.78	1.81	1.89	1.93	1.92
Pol/sucrose ratio FM	Month	0.9364	0.8996	0.8810	0.8756	0.8882	0.9326	0.9435	0.9647	0.9783	0.9576	0.9657
	To-date	0.9364	0.9057	0.8901	0.8850	0.8858	0.8974	0.9047	0.9140	0.9187	0.9198	0.9199

Table G. Cane varieties and rainfall (season 2001 - 2002) 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
ML	-	-	26.2	-	0.7	45.7	-	3.0	0.9	6.7	14.40
KM	-	-	37.80	-	0.30	41.60	-	3.80	0.40	2.40	9.20
PG	-	-	22.40	-	1.00	24.00	-	2.80	3.50	1.10	24.10
UF	-	2.90	3.30	-	13.00	28.40	1.90	3.00	-	0.10	0.10
EN	-	46.00	0.10	16.70	0.30	-	0.10	-	-	-	-
FX	-	3.00	2.30	0.10	4.30	15.30	0.20	0.60	1.00	-	1.10
AK	-	22.20	0.60	1.30	3.60	6.30	1.40	0.10	-	-	0.20
DL	-	21.60	0.90	10.40	3.90	2.90	1.90	-	-	-	-
MS	-	25.50	0.20	14.60	2.00	1.80	0.80	-	-	-	0.10
GH	-	23.20	2.00	5.10	3.80	3.30	0.70	-	-	-	-
NB	0.6	68.00	0.10	23.10	0.10	-	2.00	0.10	-	-	0.10
UC	0.6	60.40	-	34.60	-	0.10	2.80	0.20	-	-	-
ES	-	63.40	0.10	10.60	0.10	-	0.30	0.10	-	-	-
SZ	-	21.20	0.20	3.40	-	-	0.20	-	-	-	-
UK	-	28.40	0.70	3.30	0.10	-	1.90	-	-	-	-
Average SA Mills	0.1	22.2	7.7	6.5	2.2	13.1	0.8	1.0	0.4	0.9	4
MH	-	-	7.5	-	0.2	24.6	-	0.1	1.6	0.2	1.24
UB	-	-	9.0	-	-	12.9	-	18.1	1.7	-	8
SM	-	-	7.2	-	0.2	6.2	-	12.6	-	-	3.5
NH	-	-	56.6	-	-	-	0.2	2.9	-	11.6	-
DW	-	-	19.2	-	1.0	23.3	-	-	-	-	6
HV	-	-	17.9	-	-	-	-	-	-	-	-
TR	-	-	37.6	-	-	-	-	-	-	-	-

* Rainfall during the crushing season

Table G. Cane varieties and rainfall (season 2001 - 2002) percentage by weight, Continued

MILL	N 26	N 27	N 28	N 29	N 30	NCo 310	NCo 376	MIXED VARIETY	UNKNOWN AND OTHER	% BURNT	* RAINFALL mm
ML	-	-	0.1	-	1.7	-	-	0.5	0.1	100.0	363
KM	0.1	-	0.30	-	0.50	-	-	0.20	3.50	100.0	445
PG	2.0	-	1.20	-	0.80	-	-	0.80	16.40	99.7	398
UF	0.1	2.20	-	1.0	-	0.60	27.4	15.60	0.30	98.8	597
EN	-	1.70	0.10	0.5	-	-	13.3	-	21.10	99.5	656
FX	0.3	5.70	0.10	1.1	0.30	-	23.0	2.10	39.30	80.3	417
AK	-	1.00	-	0.7	-	-	15.6	5.70	41.20	94.9	350
DL	-	1.20	-	0.1	-	-	20.2	2.70	34.20	73.8	557
MS	-	0.30	-	0.1	-	-	28.8	12.00	13.60	72.4	583
GH	-	1.40	-	0.7	-	-	23.0	2.20	34.50	81.3	552
NB	0.1	0.10	-	0.1	-	-	0.1	0.20	5.30	100.0	456
UC	0.1	0.10	-	-	-	-	0.3	-	0.80	100.0	667
ES	-	-	-	0.1	-	-	0.1	0.20	24.90	99.2	567
SZ	-	-	-	0.1	-	0.20	4.6	3.60	66.50	100.0	1067
UK	-	0.40	-	0.3	-	-	11.0	1.60	52.20	90.2	1101
Average SA Mills	0.2	1.0	0.1	0.3	0.3	0.1	10.9	3.3	25.1	90.0	
MH	-	-	0.2	-	-	-	64.2	0.2	-	-	562
UB	-	-	-	-	-	-	39.8	10.2	0.4	-	356
SM	-	-	0.1	-	0.3	-	66.5	3.4	-	-	255
NH	-	-	0.4	0.9	0.7	-	-	22.1	4.6	-	116
DW	0.2	-	-	-	-	-	25.3	3.4	21.9	-	9
HV	-	-	-	-	-	-	71.0	-	11.1	-	161
TR	-	-	-	-	-	-	54.5	0.7	7.2	-	162

* Rainfall during the crushing season

Table H. Transport summary South African mills (season 2001 - 2002). Percent of cane transported

MILLS	ML	KM	PG	UF	EN	FX	AK	DL	MS	GH	NB	UC	ES	SZ	UK	AVERAGE
SOUTH AFRICAN RAILWAYS	-	-	-	-	-	21.7	-	-	-	-	-	-	-	-	-	2.1
TRAMS	-	-	-	52.5	-	-	-	-	-	-	-	-	-	-	-	2.9
ARTICULATED TRUCK DRIVEN VEHICLES																
- Interlink	-	-	10.9	42.5	30.4	56.3	53.7	39.5	81.4	56.6	36.7	18.3	64.4	83.4	84.9	45.2
- Tri-Axle	-	-	-	-	-	-	7.8	14.1	-	7.7	0.8	0.1	11.0	-	-	2.5
- Hilo	100.0	100.0	40.4	1.3	-	1.0	0.8	0.5	-	24.9	1.9	2.2	3.5	13.2	1.0	23.4
RIGID CHASSIS VEHICLES																
- Truck	-	-	0.2	-	-	-	-	-	-	-	16.5	39.7	-	3.4	8.6	3.4
- Lorry	-	-	-	-	9.3	-	0.1	1.1	-	-	5.5	13.5	-	0.1	0.2	1.2
TRACTOR DRIVEN VEHICLES																
- Hilo	-	-	12.0	0.4	-	-	11.8	22.8	1.5	5.6	25.4	13.2	20.6	-	-	7.0
- Rig	-	-	-	0.5	60.3	20.9	17.0	19.5	2.7	5.3	13.1	6.2	-	-	0.4	7.3
- Interlink	-	-	36.6	2.9	-	0.1	8.8	2.5	14.3	-	0.1	6.8	0.5	-	5.0	5.0

Table J. Comparative data of reporting S.A. mills from 1925 onwards

SEASON	Percent Cane		Cane / sugar ratio		Extraction	Pol % fibre in Bagasse	Bagasse Percent		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 based***				***Sucrose based***						***Sucrose based***	***(GL+FR)/ 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**
1985	13.13	15.38	8.88	8.57	97.47	2.25	1.04	51.64	52.9	358	84.55	6.28	36.3	87.51	85.30
1986	12.80	15.24	9.08	8.76	97.66	2.03	0.95	51.27	54.3	368	85.44	5.44	36.7	87.70	85.65
1987	12.00	15.23	9.67	9.33	97.63	1.94	0.91	51.24	52.6	357	85.25	5.76	36.8	87.84	85.76
1988	12.61	15.44	9.16	8.83	97.60	2.04	0.96	50.92	53.0	355	85.70	5.43	36.8	88.33	86.21
1989	13.17	15.07	8.72	8.41	97.67	2.11	0.98	51.61	53.5	366	86.40	4.94	36.7	88.74	86.67
1990	12.91	15.14	8.92	8.60	97.75	1.98	0.92	51.62	54.1	368	86.23	5.00	37.0	88.50	86.51
1991	13.04	14.93	8.77	8.42	97.95	1.85	0.87	47.07	54.4	375	86.39	4.80	37.1	88.88	87.06
1992	13.82	15.40	8.57	8.23	97.81	1.79	0.93	51.92	58.1	387	83.61	6.49	37.4	85.92	84.05
1993	12.53	16.23	9.56	9.22	97.75	1.78	0.83	51.52	60.1	380	83.14	5.55	38.2	85.05	83.14
1994	12.54	15.49	9.37	8.99	97.87	1.77	0.83	51.27	55.1	366	83.66	6.14	36.9	86.50	84.66
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	5.01	37.1	88.18	86.19
Average 1995 - 2001	**12.90**	**15.14**	**8.99**	**8.67**	**97.77**	**1.95**	**0.92**	**50.97**	**51.7**	**350**	**85.74**	**5.13**	**37.3**	**87.91**	**85.95**