

TWENTIETH ANNUAL SUMMARY OF CHEMICAL LABORATORY REPORTS

FROM SOUTH AFRICAN SUGAR FACTORIES. SEASON 1944-45

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A RECORD CROP.

The season recently closed has surpassed all records in this country for production of sugarcane and sugar. The crop harvested was 5,351,945 tons of 2,000 lbs. of sugarcane which produced 614,158 tons of 2,000 lbs. (557,160 metric tons) of sugar, the first time production of sugar in any season in this country has topped the 600,000 short ton, or 550,000 metric ton, mark.

This result was mainly due to two factors, one the large yield of cane promoted by the high rainfall of 1943, when the average fall over 44 recording stations in the cane-growing area was 53.31 ins., the highest since representative records were first compiled in 1929, and 28.3 per cent. in excess of the 41.55 ins. average rainfall of the 14 preceding years. The other factor was the very dry conditions that prevailed during the months April to August inclusive of 1944 (when the total rainfall was 5 ins., or only 50 per cent. of the average) which promoted the high average sucrose content of cane for the crop of 13.67 per cent., one of the highest recorded in this country. This formed a welcome contrast from the conditions of the preceding season of 1943/44 when the average sucrose content of cane was 13.14 per cent., one of the lowest on record in this country.

The average ratio of cane to sugar, 8.71 (corresponding to a yield of 11.48 per cent. of actual sugar, or 11.80 per cent. on a basis of 96° pol.) for the 1944/45 season is the lowest on record in this country except for the record drought year of 1941.

The average ratio of cane to sugar shown in the tables below of results from factories supplying manufacturing data may be observed to be slightly better than the above, viz. 8.67, on actual sugar, or 8.44 on a calculated basis of 96° pol. This is because of the figures from three small factories, making less than 10,000 tons of sugar in all, that do not report results for this summary, having incomplete data. Our tabulated figures, however, represent the remaining 98.4 per cent. of the total output of sugar made by the 19 factories figuring in our returns. Another slight discrepancy occurs between our figures for output of sugar for the factories reporting to us and the figures recorded by the Crop Disposal Committee of the Sugar Association, due to a certain factory disposing of a small quantity of its recovered sugar in the form of a commercial syrup.

As usual in recent seasons the crop began very early, 500,000 tons of cane being harvested before the end of May, so that over one-third of the crop was milled before or after the optimum manufacturing period of July to November inclusive. However, the sucrose content of cane and purity of juice were higher in May, June, December and January than the averages for those months, so that the losses resulting from the prolongation of the season at each end were not so severe as they might have been. Two factories began as early as the 24th and 27th of April, and another closed down as early as 14th November. One factory began as late as 20th July and continued until 3rd March.

CANE VARIETIES.

Similar changes to those recorded in recent seasons may be noted in the relative proportions of cane varieties forming the crop. Co.281 has increased to 66.49 per cent. and Co.301 to 18.07 per cent., while Uba has diminished to 4.25 per cent. and Co.290 to 7.23 per cent., while P.O.J. canes remain nearly constant at 3.83 per cent. This season Co.331 forms an appreciable proportion, 0.13 per cent., representing 6,958 tons of this variety.

Following are the analyses and proportions of the cane varieties as recorded by the Sugar Industry Central Board, representing 13 factories, or 62.87 per cent. of the total cane crop.

Variety.	Per cent. total cane.	Per cent. total sucrose.	Sucrose Per cent.	Purity of Crusher juice.	Java Ratio
Uba	3.13	2.91	12.63	86.57	76.86
Co.281	70.66	70.94	13.86	89.09	76.84
Co.290	7.33	7.18	13.47	87.90	78.86
Co.301	16.90	16.96	13.71	88.65	76.87
Co.331	0.10	0.99	13.00	88.39	76.76
P.O.J.	1.88	1.92	14.74	88.46	80.63
Totals and Averages ...	100.00	100.00	13.65	88.31	77.05

The arithmetical averages of the sucrose content of cane are shown above and not the weighted averages recorded by the Central Board. The reason for this is that varieties such as P.O.J. canes, having relatively high sucrose, are apt to be grown mainly in localities producing canes of a low general sucrose average, so that weighted averages based on total tonnages are apt to be lower and thus tend to give less accurate comparisons of sucrose contents of different varieties than arithmetical averages under such conditions. The purities of crusher juice and Java Ratios are also arithmetical averages as given by the Central Board. The varietal proportions of that portion of the crop represented in the above table vary somewhat from those for the crop as a whole, but they are well distributed over the sugar-growing area and there is no reason to suppose that the comparative sucrose contents and purities of the different varieties are not representative of the whole crop; the total sucrose content of the Central Board cane certainly corresponds very closely with that for the whole industry.

It is of interest to note that the average sucrose content of Co.331 is not so very far behind that of the other new varieties, notwithstanding its very late ripening property. The proportion milled ranged from nil to 0.32 per cent. of the total cane and its average sucrose content has varied from 10.28 to 14.47 per cent. at different factories. The average sucrose content of Co.331 was at its best during the months of August to November, when it was 13.75 per cent., compared with 14.06 for the whole crop over the same period, but the small quantities of this variety milled does not allow us to draw any general conclusions yet.

GENERAL QUALITY OF CANE CROP.

The average sucrose content of cane for the season, 13.67 per cent., is high as already noted, and has only been surpassed in recent years during the record dry season of 1941. The peak of sucrose content was as usual in September, when it was 14.45 per cent. The purity of mixed juice, 86.19, is well above the average of past years, and is higher than might have been expected in a dry season. The monthly peak of purity for the season of 86.79 was also in September as in recent years, and not in October as it nearly always was during the Uba period. The reducing sugar ratio of mixed juice was somewhat above the average of past years during the three months of the season ending November, a period when it is generally at its lowest.

The fibre content of cane for the season, 15.83 per cent., is unusually high and the highest since 1935, probably due to the dry weather and the increasing proportion of Co.281 cane. It was fairly constant during the first three months of the season, then steadily rose from 15.53 per cent. in July to the peak of 16.69 per cent. in January.

It is probable that the high proportion of three-year-old cane milled at many factories affected the average fibre content and general quality of the cane supply, and consequently the factory efficiencies.

GENERAL FACTORY PERFORMANCE.

Although the actual overall recovery (sucrose in sugar per cent. sucrose in cane) for the past season, 83.14, is not quite so high as for the preceding season when it was 83.52, the reduced overall recovery shows a further increase to the new high level for this country of 83.58. This difference between the trend of actual and reduced recovery is due to the increased fibre content of cane.

Both the actual and reduced extraction show new high levels of 93.13 and 94.78 respectively, but the actual and the reduced boiling house recovery, 89.27 and 88.18 respectively, are not quite as high as for last season, though above those of all previous seasons.

The ratio of cane to sugar has already been commented upon.

The purity of final molasses, consonant with the slight decrease in boiling house recovery, is higher than for the 1943/44 season, but better than for any previous season on record.

The moisture content of bagasse shows a further slight fall from previous seasons to 50.23 per cent., but there is still much room for improvement at many mills in this important matter, as also in the purity of final molasses. In reduced extraction our average crop result now bears comparison with those of other countries of which we have records, but our recoveries are still well behind those of the leading countries in these matters.

It has, however, been demonstrated that in terms of sugar per acre, South Africa is now inferior only to Hawaii and Java (pre-war).

The efficiency peaks of the past season have shown somewhat abnormal results. The extraction reached its monthly maximum in July, when it was 93.45, the highest on record for any period in this country. This was followed, however, by a progressive fall for the remainder of the season excepting for a temporary rise to 93.39 for September.

This is the first occasion that July has been the peak month for extraction since 1930. During the 18 years over which we have monthly records, September has been the peak month ten times, October four times, July twice and June and August once each.

The average boiling house recovery steadily increased to 89.62 for August, then showed an unusual fall in September to 89.31, after which it increased again to the maximum of 89.88 in November.

Over the 18 years on record, November has been the peak month for boiling house recovery five times, October four, and August, September and December three each.

The overall recovery increased to 83.56 for July, then diminished to 83.41 in September, after which it increased to a peak of 83.65 in November.

September and October have each been the peak months for overall recovery five times, August four, November three and July once.

The ratio of cane to sugar followed more normal lines, following the sucrose contents of the cane, and reached a minimum of 8.18 in September. September has been the best month for this ratio eleven times, October five and August twice.

INDIVIDUAL FACTORY RECORDS.

In general quality of cane, and in certain aspects of factory performance such as moisture content of bagasse and purity of final molasses there is still a wide range between different factories; but in certain essential criteria such as extraction, boiling house recovery and overall recovery there is much less difference than was apparent a few years ago.

Thus no factory has now an extraction of less than 90, or a boiling house recovery of under 87, or an overall recovery less than 80, all factories being within three units of the general averages.

As regards quality of cane supply, factory No. 21 was the only one to receive cane of 15.00 per cent. sucrose. Six other factories have sucrose contents per cent. cane of over 14 per cent., most of them drawing much or all of their cane from lands at a considerable altitude above sea level. The greater ranges of temperature that this implies evidently promote a relatively high development of sucrose, whatever their effect on cane yields may be.

No. 3 factory had the highest purity of mixed juice, 89.53; No. 21 was the only other factory with a juice purity of over 89, and showed the lowest reducing sugar ratio in mixed juice, 2.63.

On the other hand, factories drawing cane supplies mainly from alluvial flats near to sea level record the lowest sucrose contents of cane and purities of mixed juice.

Factory No. 19 had the highest fibre content of cane, 16.58 per cent., closely followed by No. 14 with 16.54 per cent., and No. 3 the lowest, 14.62 per cent.

The highest extraction for the season is gained by factory No. 20 with 95.07 (with the relatively low imbibition of 28.25), followed by No. 1 with 94.86, No. 21 with 94.81 and No. 3 with 94.80.

No. 20 has also the lowest milling loss, 4.15, the lowest extraction ratio, 0.30, and the lowest primary juice loss, 25.11, and was the only factory to gain a bagasse of less than 2 per cent. sucrose.

Factory No. 21 gained the highest boiling house recovery, 92.67, and the highest overall recovery, 87.86, followed by No. 16 with 92.15 boiling house recovery and No. 20 with 86.85 overall recovery and No. 16 with 86.64 overall recovery.

The best ratio of cane to sugar is also gained by No. 21 with 7.53 net, or 7.28 calculated on a basis of 96° pol. sugar.

The lowest moisture content of bagasse is again recorded by mill No. 3 with 44.29 per cent., closely followed by No. 17 with 44.52 per cent.

The lowest purity of final molasses is again shown by factory No. 16 with 38.27.

Six mills, Nos. 6, 11, 14, 18, 20 and 21 increased their extraction from that of the previous season by 0.4 or more, No. 18 by over one unit.

Four factories, Nos. 3, 9, 15 and 21 improved their boiling house recovery, No. 3 by as much as 2.28 and No. 9 by 1.64.

Five factories, Nos. 3, 9, 15, 18 and 21 showed considerable improvement in overall recovery, No. 3 by 2.14 and No. 9 by 1.70 due mainly to improved boiling house recovery; No. 18 by 0.51 due to improved extraction, and No. 21 by 1.25 and No. 15 by 0.44 due both to improved extraction and to improved boiling house recovery.

No. 5 factory crushed 587,859 tons of cane at an average rate of 134.34 tons per hour to make 69,599 tons of sugar, believed to be the largest quantity of cane crushed and the highest output of sugar for one season ever recorded in any British dominion or colonial factory.

No. 1 factory crushed 585,892 tons of cane at an average rate of 143.74 tons per hour, milling 22,725 tons of fibre per hour on a single mill tandem to make per hour 16.99 tons of sugar containing 16.87 tons of sucrose. The total output of sugar was 69,266 tons of an average polarization of 99.32, corresponding to 68,795 tons of sucrose, believed to be the highest output of sucrose for one season ever recorded in any factory in the British Empire.

No. 12 factory crushed 558,057 tons of cane at an average rate of 115.06 tons per hour to make 60,671 tons of sugar.

One group of three factories owned by a single company crushed 1,320,390 tons of cane to make 144,561 tons of sugar, one of the biggest outputs of sugar on record, if not the biggest, for a single season for any cane sugar company within the British Commonwealth.

SUGAR PRODUCTION IN SOUTH AFRICA IN RECENT YEARS.

As last year, output of cane and sugar of South Africa since 1929 is tabulated. Production figures are in tons of 2,000 lbs. according to South African usage.

Season.	Cane crushed.	Inches of rainfall.	Sugar produced.	Ratio Cane/Sugar.
1929/30	3,005,663	48.30	298,635	10.06
1930/31	3,803,883	37.20	393,205	9.67
1931/32	3,130,783	39.39	325,899	9.61
1932/33	3,489,960	48.20	358,905	9.72
1933/34	3,673,375	31.12	391,173	9.39
1934/35	3,874,215	44.60	358,738	10.80
1935/36	3,867,536	46.12	417,289	9.27
1936/37	4,180,973	50.10	446,409	9.37
1937/38	4,489,022	39.48	507,219	8.85
1938/39	4,658,962	40.38	522,732	8.91
1939/40	5,346,006	47.63	595,556	8.98
1940/41	5,309,227	43.37	572,880	9.72
1941/42	3,921,436	26.18	452,119	8.67
1942/43	4,704,430	49.41	524,975	8.96
1943/44	5,278,914	53.31	585,392	9.02
1944/45	5,351,945	36.45	614,158	8.71

OVERSEAS RESULTS.

War conditions still do not permit estimates of world production of sugar to be made.

We are again enabled, however, to publish manufacturing results from Mauritius, Puerto Rico, Louisiana, British Guiana, Hawaii and Queensland, for which we are greatly indebted to the Sugar Industry Reserve Fund of Mauritius, the Sugar Producers' Association of Puerto Rico, the "Sugar Journal" of Louisiana, the Sugar Producers' Association of British Guiana, the Experiment Station of the Hawaiian Sugar Planters' Association, and the Bureau of Sugar Experiment Stations of the Queensland Department of Agriculture.

It is evident that the sugar industries of some of these countries have not been able, because of severe shortages of labour, fertilizer, agricultural and manufacturing machinery, marine railway and motor transport, etc., to maintain during war conditions their high standard of production and efficiency.

In these respects this country has hitherto been very fortunate in that such difficulties have not been so acute here as to prevent continued progress in the sugar industry.

SUGGESTED MODIFICATIONS OF THE FORM OF THIS SUMMARY.

The first of these annual summaries of manufacturing results was compiled by one of us and published in the Proceedings of the Fourth Annual Congress of the S.A. Sugar Association in 1926, a year before the first Annual Congress of the Sugar Technologists' Association.

It was then done in a very small way and represented only 11 out of 25 factories in operation, or 60 per cent. of the total crop. Since then it has steadily expanded and for the past 15 years has represented over 94 per cent. of the total crop, and over 98 per cent. since 1939.

It has also expanded very greatly in scope, and the compilers have used every opportunity of doing this, keeping in mind as a guide the excellent and most comprehensive manufacturing and crop summaries published by the sugar industries of Hawaii and Java.

For the necessary manufacturing data, however, we are of course dependent on the goodwill and keenness of the factory managements and their staffs, which we much appreciate.

The following new items are proposed for next season:—

Purity of crusher juice; Filter cake per cent. cane; Final molasses per cent. cane (these are already included in the annual but not in the monthly summaries); Bagasse per cent. cane; Lime consumed in lbs. per ton of cane; Sulphur consumed in lbs. per ton of cane, and Phosphoric acid consumed in lbs. per ton of cane.

The item most urgently desired is a more representative return of the weight of final molasses per cent. cane. This is

Experiment Station,
South African Sugar Association,
Mount Edgecombe.
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still not forthcoming from as many as seven out of the nineteen factories, which renders it impossible to prepare an accurate sucrose balance showing loss of sucrose in molasses distinct from undetermined losses.

It is proposed to discard for the present at least the item "sulphur dioxide in raw sugars."

The item "Recovery efficiency (sucrose in sugar per cent. of available sucrose in mixed juice)" in our opinion should be calculated on a different basis, such as clarified juice or syrup instead of mixed juice. The present mode of clarification results in the majority of factories gaining an efficiency of over 100 per cent. and a general average of over 101.

ACKNOWLEDGMENTS.

The writers express their thanks to all those who have co-operated with them to make this report possible, including the staffs of the contributing factories and those of the Sugar Association, including the Central Board.

Comparison of results from cane harvested during the July—November period, compared with those of earlier and later months of the harvesting season.

		Per cent. total Cane.	Ratio Cane/Sugar.	Sucrose per cent.	Fibre per cent.	Purity Mixed Juice.
1928	Optimum period	75.74	9.20	14.07	15.75	85.07
	Balance of crop	24.26	10.17	12.97	16.31	84.31
1929	Optimum period	73.06	9.74	13.28	15.44	86.34
	Balance of crop	26.94	11.04	12.29	15.82	84.35
1930	Optimum period	70.95	9.20	14.08	15.60	86.27
	Balance of crop	29.05	10.07	13.09	15.91	85.10
1931	Optimum period	77.86	9.29	14.13	15.57	85.33
	Balance of crop	22.14	10.20	12.75	16.23	84.32
1932	Optimum period	81.10	9.32	13.79	15.44	85.01
	Balance of crop	18.90	10.82	12.28	16.25	84.76
1933	Optimum period	73.97	8.93	14.17	15.68	85.51
	Balance of crop	26.03	10.27	13.03	15.74	83.47
1934	Optimum period	81.35	10.54	11.95	15.12	84.09
	Balance of crop	18.65	11.16	11.52	15.57	83.83
1935	Optimum period	78.80	9.03	13.83	15.81	86.62
	Balance of crop	21.20	9.78	13.06	15.94	85.74
1936	Optimum period	75.71	9.02	13.62	14.85	85.73
	Balance of crop	24.29	10.27	12.27	15.46	84.12
1937	Optimum period	71.73	8.46	14.32	15.02	86.22
	Balance of crop	28.27	9.81	12.67	15.51	83.66
1938	Optimum period	73.90	8.57	14.04	14.37	86.84
	Balance of crop	26.10	9.95	12.50	14.77	84.43
1939	Optimum period	66.56	8.55	13.89	14.65	87.10
	Balance of crop	33.44	9.85	12.46	15.11	85.06
1940	Optimum period	66.83	8.86	13.63	15.54	86.02
	Balance of crop	33.17	10.07	12.27	15.63	83.85
1941	Optimum period	76.55	8.42	14.28	15.69	85.91
	Balance of crop	23.45	9.35	13.09	15.56	84.89
1942	Optimum period	74.83	8.62	13.78	15.23	86.44
	Balance of crop	25.17	9.99	12.27	15.26	84.53
1943	Optimum period	63.66	8.67	13.52	15.19	87.16
	Balance of crop	36.34	9.59	12.47	15.38	85.51
Mean, 1928/1943—	Optimum period	73.91	9.03	13.77	15.31	85.88
	Balance of crop	26.09	10.15	12.56	15.65	84.50
1944	Optimum period	66.57	8.43	14.00	15.78	86.58
	Balance of crop	33.43	9.20	13.01	15.93	85.41

FINAL MANUFACTURING RESULTS, NATAL SUGAR FACTORIES, SEASON 1944/45.

FACTORY NUMBER	1	2	3	4	5	6	8	9	10	11	12	14	15	16	17	18	19	20	21	SEASON	
Crushing period	From 15.5.44 20.7.44 15.5.44 9.5.44 2.5.44 23.5.44 24.5.44 24.5.44 8.5.44 10.5.44 1.5.44 24.4.44 17.5.44 17.5.44 10.6.44 3.5.44 12.5.44 27.4.44 15.5.44 24.4.44																				
	To 13.12.44 3.3.45 7.12.44 23.12.44 19.12.44 22.1.45 23.12.44 20.12.44 17.1.45 4.1.45 22.1.45 1.2.45 4.1.45 7.12.44 14.11.44 31.1.45 20.12.44 14.12.44 2.1.45 3.3.45																				
Tons of 2,000 lbs. Cane crushed	585,892	311,064	51,260	287,172	587,859	432,670	170,902	106,111	361,572	329,107	558,057	400,761	184,890	104,688	74,685	185,940	129,114	188,286	205,002	5,255,032	
Cane crushed—metric tons	531,521	282,197	46,503	260,522	533,305	392,518	155,042	96,264	328,018	298,566	506,269	363,570	167,732	94,973	67,754	168,685	117,132	170,813	185,978	4,767,360	
Tons of 2,000 lbs. Sugar bagged and estimated	69,266	32,737	6,283	32,862	69,599	48,903	20,514	12,869	38,302	38,416	60,671	45,589	22,067	12,490	9,233	21,346	14,485	22,949	27,219	605,800	
Sugar bagged and estimated—metric tons	62,838	29,699	5,700	29,812	63,140	44,365	18,610	11,675	34,748	34,851	55,041	41,358	20,019	11,331	8,376	19,365	13,141	20,819	24,693	549,581	
Tons Cane per ton of Sugar	8.46	9.50	8.16	8.74	8.45	8.85	8.33	8.24	9.44	8.57	9.20	8.80	8.38	8.38	8.09	8.71	8.91	8.20	7.53	8.67	
Tons Cane per ton of Sugar calculated as Sugar of 96° Pol.	8.18	9.30	7.91	8.45	8.29	8.67	8.33	7.99	9.31	8.27	8.95	8.56	8.32	8.20	7.88	8.47	8.69	8.01	7.28	8.44	
Time Crushing per cent. Available Time (no allowance for cane shortage)	95.10	86.05	84.42	93.32	92.10	91.52	88.44	90.14	91.41	85.65	88.99	86.77	92.37	87.28	96.65	95.28	90.60	93.18	96.94	90.96	
Tons of 2,000 lbs. of Cane per hour Actual Crushing	143.74	80.43	15.03	67.11	134.34	96.14	57.12	27.90	75.85	86.12	115.06	79.10	43.72	30.01	24.57	37.48	31.60	42.34	45.81	86.72	
Tons of 2,000 lbs. White Sugar made	45,127	25	3,247	21,553	—	—	—	7,934	27,400	20,503	—	1,141	10,905	—	14	1,325	—	—	15,418	154,682	
Tons of 2,000 lbs. No. 2 Grade Sugar made	16,768	8,350	1,587	7,200	8,500	36,000	—	1,989	115	10,207	1,271	12,761	4,857	9,407	2,772	13,503	12,312	253	6,209	154,061	
Tons of 2,000 lbs. Raw Sugar made	7,371	24,362	1,449	4,109	61,099	12,903	20,514	10,787	7,616	59,400	31,687	6,305	3,083	6,447	6,518	2,173	22,696	5,592	297,057		
Sucrose per cent. Cane	13.80	12.83	14.34	13.64	13.73	13.53	14.16	14.10	12.93	14.11	13.26	13.43	14.28	13.51	14.65	13.74	13.65	13.84	15.00	13.67	
Fibre per cent. Cane	15.81	15.54	14.62	15.32	15.39	16.27	15.77	15.31	16.11	15.61	16.05	16.54	15.73	15.75	15.42	15.19	16.58	16.41	15.80	15.83	
Java Ratio	76.90	80.13	76.17	77.59	78.03	77.80	77.45	77.65	76.74	77.86	75.71	76.83	76.32	77.62	77.68	78.30	76.88	76.80	78.33	77.38	
Milling Loss	4.48	7.30	5.11	6.91	5.59	5.72	9.69	6.43	5.20	7.20	6.82	5.32	6.02	5.13	7.17	6.96	6.92	4.15	4.93	6.01	
Extraction Ratio	0.33	0.58	0.36	0.51	0.41	0.42	0.49	0.46	0.40	0.51	0.51	0.40	0.42	0.38	0.49	0.51	0.51	0.30	0.33	0.44	
Primary Juice Loss	27.37	49.02	30.37	42.89	34.42	35.35	41.45	38.56	33.69	42.98	43.20	33.05	35.52	32.04	41.41	42.99	42.31	25.11	27.66	36.61	
Imbibition per cent. Cane	36.86	37.34	34.44	30.26	27.08	31.76	40.19	33.84	32.62	38.75	37.03	35.16	26.23	33.51	29.02	37.04	27.61	28.25	37.61	33.70	
Extraction (Sucrose in Mixed Juice % Sucrose in Cane)	94.86	90.98	94.80	92.24	93.74	93.13	92.24	93.03	93.53	92.04	91.74	93.45	93.37	94.01	92.45	92.30	91.59	95.07	94.81	93.13	
Sucrose per cent. Bagasse	2.06	3.34	2.67	3.16	2.61	2.62	3.06	3.18	2.40	3.31	2.97	2.43	2.94	2.48	3.65	3.11	3.28	1.99	2.44	2.73	
Moisture per cent. Bagasse	51.26	50.88	44.29	50.32	49.92	50.77	51.98	46.48	50.45	49.69	52.53	51.12	47.50	47.93	44.52	51.49	48.30	49.41	46.81	50.23	
Sucrose per cent. Cane lost in manufacture	2.05	2.52	2.21	2.27	2.14	2.46	2.64	2.10	2.41	2.51	2.54	2.21	2.46	1.81	2.47	2.41	2.61	1.82	1.82	2.30	
Overall Recovery (Sucrose in Sugar % Sucrose in Cane)	85.11	80.38	84.64	83.32	84.41	81.82	81.37	85.13	81.37	82.22	80.83	83.56	82.74	86.64	83.15	82.43	80.90	86.85	87.86	83.14	
Recovery on Mixed Juice (Sucrose in Sugar % Sucrose in Mixed Juice)	89.72	88.35	89.28	90.32	90.05	87.86	88.22	91.51	87.00	89.33	88.11	89.42	88.62	92.15	89.94	89.30	88.32	91.35	92.67	89.27	
Available Sucrose % Sucrose in Mixed Juice	86.27	88.17	90.47	89.61	88.22	87.69	85.92	90.65	85.75	89.70	87.13	88.16	90.08	90.07	89.86	88.77	88.22	89.71	91.83	88.17	
Recovery Efficiency (Sucrose in Sugar % Available Sucrose in Mixed Juice)	104.00	100.20	98.68	100.79	102.07	100.19	102.68	100.95	101.46	99.59	101.12	101.43	98.38	102.31	100.09	100.60	100.11	101.83	100.91	101.25	
Sucrose in Bagasse per cent. Sucrose in Cane (A)	5.14	9.02	5.20	7.76	6.26	6.87	7.76	6.97	6.47	7.96	8.26	6.55	6.63	5.99	7.55	7.70	8.41	4.93	5.19	6.87	
Sucrose in Filter Cake per cent. Sucrose in Cane (B)	0.67	0.33	—	0.17	0.22	0.30	1.75	0.50	0.13	—	0.25	0.23	0.21	0.15	1.02	0.76	—	0.14	0.02	0.37	
Sucrose in Molasses per cent. Sucrose in Cane (C)	7.27	8.15	5.88	7.34	—	9.68	8.18	6.37	—	—	9.95	8.09	—	6.45	—	8.75	—	—	5.92	—	
Undetermined Sucrose per cent. Sucrose in Cane (D)	1.81	2.12	4.28	1.41	9.11	1.33	0.94	1.03	12.03	9.82	0.71	1.57	10.42	0.77	8.28	0.36	10.69	8.08	1.01	9.62	
Sucrose lost in Boiling House per cent. Sucrose in Cane (B)+(C)+(D)	9.75	10.60	10.16	8.92	9.33	11.31	10.87	7.90	12.16	9.82	10.91	9.89	10.63	7.37	9.30	9.87	10.69	8.22	6.95	9.99	
Sucrose in total Losses per cent. Sucrose in Cane (A)+(B)+(C)+(D)	14.89	19.62	15.36	16.68	15.59	18.18	18.63	14.87	18.63	17.78	19.17	16.44	17.26	13.36	16.85	17.57	19.10	13.15	12.14	16.86	
FIRST EXPRESSED JUICE.																					
Brix	20.89	18.42	20.28	19.62	20.02	19.77	20.68	20.07	19.48	20.17	19.91	19.84	20.67	19.70	20.95	19.97	20.04	20.27	20.94	19.97	
Purity (apparent)	87.97	86.75	92.79	88.20	87.90	87.98	88.40	90.50	86.50	89.86	87.93	88.10	90.50	88.32	90.00	87.89	88.60	88.90	91.47	88.35	
LAST EXPRESSED JUICE.																					
Brix	2.09	4.77	2.78	5.04	2.44	4.01	2.70	4.50	2.62	2.54	3.67	2.86	4.16	3.31	6.70	2.91	4.20	1.95	1.66	3.20	
Purity (apparent)	75.30	75.89	78.77	79.10	76.60	76.30	75.19	78.90	70.70	76.29	76.20	75.30	79.40	68.14	80.00	80.49	78.80	74.90	68.06	75.75	
Purity drop from First Expressed Juice	12.67	10.86	14.02	9.10	11.30	11.68	13.21	11.60	15.80	13.57	11.78	12.80	11.10	20.18	10.00	7.40	9.80	14.00	23.41	12.60	
MIXED JUICE.																					
Brix	14.85	13.51	14.26	14.97	15.85	15.19	14.57	14.56	14.82	14.21	14.19	14.84	16.14	14.60	15.70	14.21	15.65	16.04	15.09	14.88	
Purity (Clerget)	86.00	84.75	89.53	86.90	86.30	86.22	85.93	87.50	83.50	87.23	85.56	85.48	88.00*	86.19	87.30*	86.67	86.20	87.20*	89.13	86.19	
Reducing Sugar Ratio	3.13	3.58	3.41	3.00	—	3.32	3.15	—	3.78	2.97	4.22	4.49	—	3.26	—	3.09	3.90	3.13	2.63	3.49	
Purity drop from First Expressed Juice	1.97	2.00	3.26	1.30	1.60	1.76	2.47	3.00	3.00	2.63	2.42	2.62	2.50	2.13	2.70	1.22	2.40	1.70	2.34	2.16	

CLARIFIED JUICE.

Brix ...	13.25	12.71	15.50	15.29	15.47	16.55	14.66	15.50	13.66	13.56	14.58	14.45	16.21	15.00	—	15.05	16.06	14.86	14.85	14.65
Purity (apparent) ...	90.88	85.76	91.61	87.70	87.60	87.01	87.44	89.60	85.60	88.13	87.03	86.30	88.80	87.07	—	87.12	87.20	88.10	89.99	87.74
Reducing Sugar Ratio ...	1.37	3.12	3.09	—	—	2.95	2.67	—	3.28	—	3.80	3.93	—	2.86	—	—	2.60	—	1.96	2.89
pH ...	7.08	7.30	—	7.31	—	7.81	—	—	7.10	7.27	7.40	7.60	—	7.52	7.50	—	—	7.84	—	7.39

FILTER CAKE.

Per cent. Sucrose ...	0.88	0.87	—	0.49	0.70	0.80	4.26	1.45	0.42	0.32	0.72	0.65	0.66	0.41	5.13	5.22	7.50	0.36	0.13	1.17
Weight per cent. Cane ...	10.48	4.91	—	4.77	4.29	5.08	5.80	4.87	4.19	—	4.57	4.80	4.53	5.00	2.91	2.00	—	5.36	2.71	5.22

SYRUP.

Brix ...	53.72	50.00	57.30	54.20	52.02	49.78	55.73	53.00	53.36	54.84	55.05	55.61	53.74	49.96	59.50	42.66	53.79	50.87	59.07	53.19
Purity (apparent) ...	91.21	85.82	91.60	87.80	87.40	86.40	87.58	89.70	85.60	88.65	87.27	86.20	88.50	86.80	—	88.82	86.70	88.40	89.84	87.81
Reducing Sugar Ratio ...	1.48	3.36	2.54	2.78	—	3.03	2.42	—	3.17	—	3.62	—	—	2.93	—	—	2.50	—	1.83	2.73
pH ...	7.01	7.10	—	6.90	—	7.10	—	—	7.00	7.10	7.20	7.30	—	7.33	—	—	—	7.53	—	7.13
Purity drop from First Expressed Juice ...	-3.24	0.93	1.19	0.40	0.50	1.58	0.82	0.80	0.90	1.21	0.71	1.90	2.00	1.52	—	-0.93	1.90	0.50	1.63	0.52
Purity increase from Mixed Juice ...	5.21	1.07	2.07	0.90	1.10	0.18	1.65	2.20	2.10	1.42	1.71	0.72	0.50	0.61	—	2.15	0.50	1.20	0.71	1.63

FIRST MASSECUITE.

Brix ...	90.58	92.94	91.50	93.07	91.66	91.79	91.23	91.20	94.36	92.63	93.03	93.30	93.11	92.20	92.00	89.70	94.00	91.60	91.19	92.23
Purity (apparent) ...	91.17	81.76	84.85	86.40	85.80	83.00	87.36	85.60	81.20	88.48	82.32	78.90	85.80	86.35	83.10	79.24	78.80	88.50	86.84	84.66
Purity of Run-off ...	77.23	59.25	64.70	65.40	68.50	62.20	69.87	68.60	58.60	70.17	58.93	59.50	67.40	66.43	64.88	57.69	58.50	72.60	70.12	65.42
Cubic feet per ton of Sugar (all Masseccutes) ...	56.34	52.38	47.59	52.52	—	51.58	—	54.91	50.14	50.63	44.92	54.36	—	47.19	—	48.32	58.14	—	—	51.53

SECOND MASSECUITE.

Brix ...	94.73	95.08	92.80	97.23	93.17	95.53	93.10	93.80	97.17	94.26	97.15	95.10	96.59	97.18	94.30	91.09	95.94	95.00	95.03	95.14
Purity (apparent) ...	79.61	71.03	71.13	67.60	77.60	72.80	80.85	75.60	67.50	74.72	67.73	69.40	72.40	67.90	70.20	68.80	65.30	75.90	73.62	72.64
Purity of Run-off ...	57.47	46.47	49.70	45.20	59.40	50.40	60.13	52.60	43.50	50.87	44.60	48.30	50.60	43.51	49.18	50.20	44.00	52.60	50.49	50.58

THIRD MASSECUITE.

Brix ...	98.80	97.30	—	97.26	94.22	97.08	92.42	97.40	—	96.01	—	95.90	98.26	98.22	95.20	—	—	98.40	97.72	96.69
Purity (apparent) ...	68.54	59.96	—	57.60	66.10	65.10	71.78	62.30	—	63.43	—	60.50	62.20	56.40	60.20	—	—	61.40	63.79	63.72
Purity of Run-off ...	45.76	39.67	—	40.50	46.10	44.50	51.86	39.55	—	41.31	—	42.70	42.10	38.18	41.08	—	—	41.20	40.12	43.27

JELLY.

Brix ...	—	—	—	—	94.02	94.42	92.20	—	96.64	95.08	93.64	90.20	—	—	—	88.40	95.34	—	92.38	93.49
Purity (apparent) ...	—	—	—	—	47.20	48.90	51.97	—	44.00	47.33	45.43	46.10	—	—	—	51.37	44.40	—	44.41	46.86

FINAL MOLASSES.

Brix ...	86.58	90.35	81.10	82.06	89.70	90.21	88.84	91.00	88.78	90.03	87.94	88.74	93.22	87.95	91.10	83.04	88.14	90.10	86.66	88.36
Purity (Clerget) ...	45.76	39.67	44.90	40.80	42.60	43.50	46.24	39.55*	41.90	41.31*	43.26	41.08	42.10*	38.27	41.08*	42.20*	42.40*	41.20*	40.12*	42.37
Weight per cent. Cane at 85.0° Brix ...	2.58	3.10	2.21	2.89	—	3.54	3.08	2.73	—	—	4.97	3.25	—	2.61	—	3.35	—	—	2.60	3.32

POLARIZATION OF SUGARS.

White ...	99.90	—	99.73	99.85	—	—	—	99.60	99.58	99.84	—	99.55	99.80	—	99.80	99.61	—	—	99.81	99.79
No. 2 Grade Sugar ...	98.24	97.98	98.30	98.32	98.29	98.00	—	98.50	98.65	98.91	98.59	98.66	98.31	98.14	98.62	99.01	98.47	—	98.63	98.37
Raw Sugar ...	98.18	97.98	98.06	98.32	97.83	97.87	96.00	97.50	98.61	98.86	98.62	98.73	98.23	98.02	98.51	97.81	98.15	98.64	98.47	98.14
Average of all Sugars ...	99.32	97.98	98.98	99.32	97.88	97.97	96.00	98.95	99.30	99.40	98.62	98.73	99.02	98.11	98.54	98.68	98.42	98.64	99.27	98.62
SO ₂ in parts per million ...	—	64.00	—	64.56	—	60.00	—	—	—	—	44.04	53.00	70.00	—	88.00	—	—	69.00	24.69	57.82

VARIETIES CRUSHED.

Uba per cent. ...	6.43	0.75	0.00	4.69	5.40	0.67	1.01	3.37	0.80	5.66	4.44	1.43	13.60	2.18	1.19	4.34	10.97	10.93	3.21	4.25
Co.281 per cent. ...	53.44	49.45	92.97	53.41	59.49	84.98	68.61	63.28	73.30	65.39	71.02	77.60	68.60	60.46	90.52	61.37	53.00	71.33	79.08	66.49
Co.290 per cent. ...	10.7	2.04	4.58	6.76	8.01	4.76	11.35	8.13	8.78	11.19	4.11	5.99	9.74	4.99	4.74	12.34	4.03	1.98	10.97	7.23
Co.301 per cent. ...	29.32	5.91	0.89	33.08	26.48	5.20	17.30	25.11	8.66	17.45	20.20	14.19	6.63	32.07	2.61	21.89	31.67	15.12	6.61	18.07
Co.331 per cent. ...	0.11	0.00	0.03	0.26	0.35	0.11	0.09	0.11	0.03	0.16	0.09	0.01	0.14	0.01	0.00	0.06	0.32	0.20	0.01	0.13
P.O.J.2725 per cent. ...	0.53	41.85	1.53	1.80	0.27	4.28	1.64	0.00	8.43	0.15	0.14	0.78	1.29	0.29	0.94	0.00	0.01	0.44	0.12	3.83

FACTORY NUMBER ...	1	2	3	4	5	6	8	9	10	11	12	14	15	16	17	18	19	20	21	SEASON
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* Apparent purity.

60

Average Manufacturing Results by periods for Natal Sugar Factories Reporting to the Experiment Station, Season 1944/45.

Period ending	JUNE 3, 1944.	JULY 1, 1944.	JULY 29, 1944.	SEPT. 2, 1944.	SEPT. 30, 1944.	OCT. 28, 1944.	DEC. 2, 1944.	DEC. 30, 1944.	FEB. 3, 1945.	SEASON 1944/45.
Tons of 2,000 lbs. Cane crushed ... This period To date	490,387	591,659 1,082,048	633,484 1,715,534	840,916 2,556,449	600,445 3,156,895	636,189 3,793,086	779,514 4,580,475	429,434 5,027,909	198,982 5,226,891	5,255,032
Tons of 2,000 lbs. Sugar bagged and estimated ... This period To date	51,849	65,350 117,199	73,460 190,659	100,386 291,041	73,393 364,434	76,359 440,793	90,276 532,034	48,061 582,280	20,917 603,198	605,800
Tons Cane per ton Sugar ... This period To date	9.46	9.05 9.23	8.62 9.00	8.38 8.78	8.18 8.66	8.33 8.61	8.63 8.61	8.94 8.63	9.51 8.67	8.67
Tons Cane per ton of Sugar, calculated as sugar of } 96° Pol. ... } This period To date	9.20	8.80 8.98	8.38 8.75	8.16 8.54	7.96 8.43	8.11 8.38	8.41 8.38	8.71 8.40	9.29 8.44	8.44
Sucrose per cent. Cane ... This period To date	12.76	13.13 12.96	13.70 13.23	14.10 13.52	14.45 13.70	14.19 13.78	13.64 13.76	13.34 13.72	12.67 13.68	13.67
Fibre per cent. Cane ... This period To date	15.59	15.55 15.57	15.53 15.55	15.58 15.56	15.64 15.58	15.94 15.64	16.19 15.73	16.45 15.80	16.69 15.83	15.83
Java Ratio ... This period To date	78.12	77.71 77.90	77.45 77.71	77.34 77.61	78.08 77.69	77.39 77.64	76.66 77.48	76.52 77.40	76.62 77.36	77.38
Sucrose per cent. Bagasse ... This period To date	2.59	2.59 2.59	2.67 2.62	2.85 2.69	2.83 2.72	2.84 2.74	2.70 2.73	2.74 2.73	2.66 2.73	2.73
Moisture per cent. Bagasse ... This period To date	50.78	50.53 50.63	50.32 50.52	50.07 50.37	49.99 50.30	50.16 50.27	50.21 50.24	50.39 50.25	51.13 50.28	50.23
Imbibition per cent. Cane ... This period To date	34.28	33.52 33.87	33.03 33.56	33.19 33.43	32.80 33.31	33.54 33.35	34.11 33.47	34.85 33.58	35.68 33.66	33.70
Extraction ... This period To date	93.08	93.34 93.22	93.45 93.30	93.18 93.27	93.39 93.29	93.11 93.26	93.07 93.22	92.65 93.18	92.30 93.15	93.13
Recovery on Mixed Juice ... This period To date	87.92	88.95 88.49	89.42 88.85	89.62 89.11	89.31 89.15	89.63 89.23	89.88 89.35	89.23 89.36	88.31 89.33	89.27
Overall Recovery ... This period To date	81.84	83.03 82.49	83.56 82.90	83.51 83.11	83.41 83.17	83.45 83.22	83.65 83.29	82.67 83.27	81.51 83.21	83.14
Purity of Mixed Juice ... This period To date	85.01	85.63 85.35	86.42 85.76	86.58 86.04	86.79 86.19	86.74 86.28	86.62 86.34	85.87 86.30	84.55 86.24	86.19
Reducing Sugar Ratio ... This period To date	4.29	3.92 4.09	3.41 3.83	3.17 3.59	3.11 3.51	3.07 3.43	3.17 3.39	3.57 3.40	4.15 3.43	3.49
Purity of Syrup ... This period To date	86.68	87.21 86.97	87.90 87.31	88.05 87.61	88.28 87.74	88.45 87.87	88.36 87.94	87.24 87.93	85.75 87.84	87.81
Sucrose in Filter Cake (A) ... This period To date	1.54	1.76 1.75	1.85 1.79	1.79 1.75	1.77 1.75	1.74 1.74	1.43 1.73	1.57 1.72	1.39 1.72	1.72
Purity of Final Molasses ... This period To date	40.23	41.03 40.79	41.81 41.17	42.43 41.60	43.19 41.98	43.47 42.21	43.09 42.37	42.77 42.42	41.25 42.38	42.37
Average Polarization of Sugar ... This period To date	98.74	98.71 98.72	98.70 98.71	98.61 98.68	98.62 98.67	98.64 98.66	98.56 98.65	98.53 98.64	98.28 98.62	98.62
SO ₂ in Sugar p.p.m. ... This period To date	58.10	55.18 56.82	57.33 56.98	56.74 57.05	59.24 57.42	56.49 57.10	60.70 57.75	55.72 57.29	59.12 57.76	57.82

(A) Arithmetic averages.

COMPARATIVE RESULTS FOR RECENT YEARS.

COUNTRY	NATAL											
	YEAR	1934.	1935.	1936.	1937.	1938.	1939.	1940.	1941.	1942.	1943.	1944.
CANE—												
Per cent. Sucrose	11.88	13.65	13.30	13.92	13.64	13.41	13.19	14.00	13.40	13.14	13.67	
Per cent. Fibre	15.24	15.92	15.01	15.14	14.51	14.80	15.56	15.66	15.24	15.26	15.83	
JUICES—												
Purity of First Crusher	86.03	89.35	88.18	88.15	88.37	88.45	87.44	87.94	88.27	88.70	88.35	
Purity of Mixed Juice	84.02	86.49	85.43	85.60	86.36	86.46	85.34	85.67	85.96	86.56	86.19	
Purity of last Roller Juice	76.71	78.05	76.87	76.81	76.86	77.07	76.15	77.46	76.86	76.44	75.75	
Purity of Syrup	85.53	88.28	87.53	87.70	88.22	88.12	87.11	87.69	87.85	88.12	87.81	
Drop in purity Crusher to Mixed Juice.. .. .	2.01	2.86	2.75	2.55	2.01	1.99	2.10	2.27	2.31	2.14	2.16	
Drop in purity Crusher to last Roller	9.32	11.30	11.31	11.34	11.51	11.38	11.29	10.48	11.41	12.26	12.60	
Drop in purity Crusher to Syrup	0.50	1.07	0.65	0.45	0.15	0.33	0.33	0.25	0.42	0.57	0.52	
Increase in purity Mixed Juice to Syrup	1.51	1.79	2.10	2.10	1.86	1.66	1.77	2.02	1.89	1.57	1.63	
Reducing Sugar Ratio of Mixed Juice	4.21	2.65	3.04	3.23	3.08	3.27	3.81	3.35	3.07	3.18	3.49	
JAVA RATIO	78.66	76.24	77.44	77.43	78.87	78.70	77.94	77.74	77.67	77.78	77.38	
BAGASSE—												
Per cent. Sucrose	3.05	3.48	3.40	3.40	3.30	3.11	3.02	3.03	2.88	2.76	2.73	
Per cent. Moisture	52.11	51.93	52.76	52.01	52.17	51.79	51.60	51.50	51.24	50.80	50.23	
EXTRACTION—												
Imbibition % Cane.. .. .	30.25	33.04	32.40	31.84	31.70	31.28	32.59	34.76	32.82	31.62	33.70	
Sucrose in Mixed Juice % Sucrose in Cane	91.07	90.64	91.08	91.53	91.90	92.24	91.91	92.37	92.69	92.97	93.13	
Reduced Extraction (based on 12.5% Fibre)	92.90	92.94	92.78	93.22	93.18	93.62	93.72	94.13	94.19	94.42	94.78	
Primary Juice loss	49.67	49.43	50.71	47.47	47.73	44.67	43.93	41.12	40.66	39.19	36.61	
FILTER CAKE—												
Per cent. Sucrose	3.65	3.69	3.20	3.37	2.63	2.19	2.03	1.71	1.19	1.11	1.17	
Weight % Cane	5.07	5.01	4.71	4.75	4.74	4.78	5.12	5.63	5.38	5.11	5.22	
FINAL MOLASSES—												
Purity	42.58	46.00	43.89	43.69	43.12	42.67	42.91	43.45	43.24	41.81	42.37	
RECOVERY—												
Sucrose % Cane lost in manufacture	2.52	2.94	2.71	2.73	2.55	2.42	2.52	2.57	2.34	2.16	2.30	
Sucrose in Sugar % Sucrose in Cane	77.59	78.40	79.64	80.41	81.31	81.98	80.86	81.66	82.48	83.52	83.14	
Reduced Overall Recovery (12.5% Fibre, 85° pur. Mixed Juice)	80.14	78.76	80.73	81.33	81.16	81.89	82.07	82.61	82.98	83.51	83.58	
Sucrose in Sugar % Sucrose in Mixed Juice	85.20	86.52	87.44	87.85	88.48	88.88	87.98	88.40	88.98	89.84	89.27	
Reduced Boiling House Recovery (based on 85° pur. Mxd. Juice)	86.27	84.74	87.01	87.25	87.10	87.47	87.57	87.76	88.10	88.45	88.18	
YIELD—												
Tons Cane per ton Sugar	10.67	9.19	9.29	8.80	8.89	8.95	9.26	8.62	8.93	8.98	8.67	
Tons Cane per ton Sugar of 96° Pol.	10.40	8.96	9.06	8.58	8.66	8.73	9.03	8.39	8.69	8.74	8.44	
LOSSES—												
Sucrose in Bagasse % Sucrose in Cane (A)	8.93	9.36	8.92	8.47	8.10	7.76	8.09	7.63	7.31	7.03	6.87	
Sucrose in Filter Cake % Sucrose in Cane (B).. .. .	—	1.37	1.14	1.15	0.91	0.78	0.60	0.52	0.41	0.36	0.37	
Sucrose in Molasses % Sucrose in Cane (C)	—	—	—	—	—	—	—	—	—	—	—	
Undetermined Sucrose % Sucrose in Cane (D).. .. .	—	10.87	10.30	9.97	9.68	9.48	10.43	10.18	9.80	9.09	9.62	
Sucrose lost in Boiling House % Sucrose in Cane (B)+(C)+(D)	13.48	12.24	11.44	11.12	10.59	10.26	11.03	10.70	10.21	9.45	9.99	
Sucrose in Total Losses % Sucrose in Cane (A)+(B)+(C)+(D)	22.41	21.60	20.36	19.59	18.69	18.02	19.12	18.34	17.52	16.48	16.86	
SUGAR—												
Average Polarization of all Sugars	98.45	98.42	98.43	98.50	98.60	98.36	98.44	98.58	98.65	98.59	98.62	

COMPARATIVE RESULTS FOR RECENT YEARS.

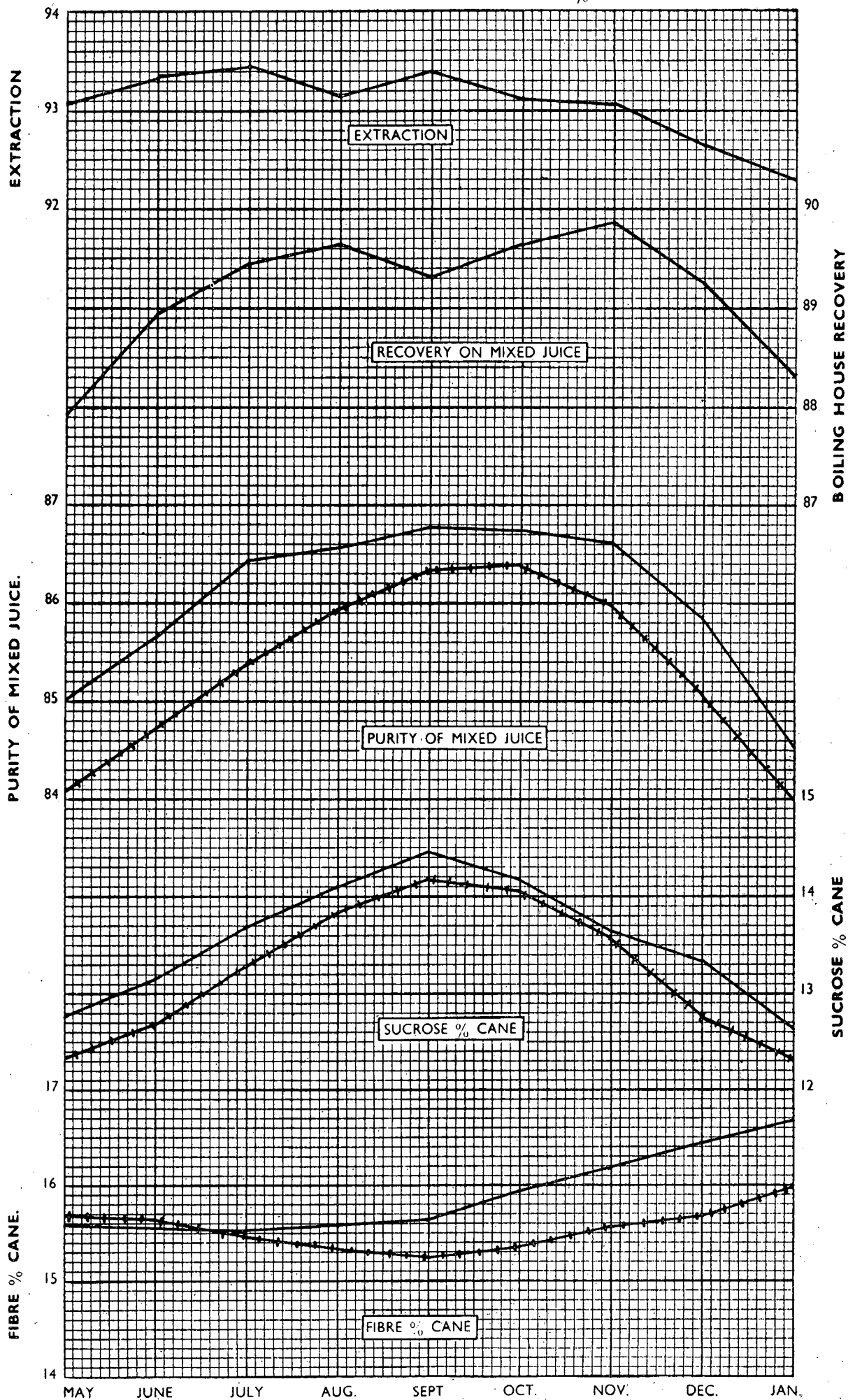
COUNTRY	MAURITIUS.		PUERTO RICO.		LOUISIANA.		BRITISH GUIANA.		HAWAII.		QUEENSLAND.	
YEAR	1942.	1943.	1942.	1943.	1942.	1943.	1942.	1943.*	1942.	1943.	1942.	1943.
CANE—												
Per cent. Sucrose	13.67	13.87	12.73	13.14	10.37	10.20	11.44	11.69	11.90	12.01	15.44	15.71
Per cent. Fibre	12.91	12.92	13.42	13.62	13.99	13.86	13.27	14.01	14.02	14.44	11.76	12.08
JUICES—												
Purity of First Crusher	88.80	88.90	84.82	86.53	79.38	77.81	82.29	82.83	85.40	84.96	89.76	89.82
Purity of Mixed Juice	85.90	86.10	82.21	83.69	—	—	—	—	82.49	82.05	—	—
Purity of last Roller Juice	74.80	75.30	—	—	—	—	—	—	68.39	68.94	77.27	78.12
Purity of Syrup	86.40	86.50	83.59	84.85	—	—	81.06	81.62	83.41	83.06	89.23	89.21
Drop in purity Crusher to Mixed Juice	2.90	2.80	2.61	2.84	—	—	—	—	2.91	2.91	—	—
Drop in purity Crusher to last Roller	14.00	13.60	—	—	—	—	—	—	17.01	16.02	12.49	11.70
Drop in purity Crusher to Syrup	2.40	2.40	1.23	1.68	—	—	1.23	1.21	1.99	1.90	0.53	0.61
Increase in purity Mixed Juice to Syrup	0.50	0.40	1.38	1.16	—	—	—	—	0.92	1.01	—	—
Reducing Sugar Ratio of Mixed Juice	3.60	3.50	—	—	—	—	—	—	—	—	—	—
JAVA RATIO	79.22	79.40	78.92	78.87	77.63	78.17	79.78	79.37	86.86	90.54	83.28	83.01
BAGASSE—												
Per cent. Sucrose	2.69	2.81	2.57	2.62	3.07	3.11	3.39	3.78	1.90	1.91	2.57	2.60
Per cent. Moisture	44.40	44.50	48.41	48.61	49.00	49.09	46.43	46.40	43.64	43.54	49.22	49.35
EXTRACTION—												
Imbibition % Cane	19.88	17.02	24.67	26.42	17.71	17.07	20.02	16.76	36.48	37.74	—	—
Sucrose in Mixed Juice % Sucrose in Cane	95.10	95.00	94.22	94.13	91.14	90.93	92.00	90.68	95.81	95.78	95.88	95.78
Reduced Extraction (based on 12.5% Fibre)	95.30	95.10	94.67	94.68	92.22	91.95	92.53	91.83	96.33	96.43	95.58	95.61
Primary Juice loss	33.06	33.70	37.29	37.23	54.47	56.37	52.29	57.20	25.70	25.00	30.91	30.71
FILTER CAKE—												
Per cent. Sucrose	7.85	8.00	2.74	2.29	4.24	4.14	4.98	5.78	1.17	1.05	2.82	2.57
Weight % Cane	1.71	1.44	2.19	2.62	1.91	1.96	1.87	1.85	5.63	5.62	3.56	3.58
FINAL MOLASSES—												
Purity	39.20	39.20	31.30	30.44	—	—	32.92	—	36.90†	37.65†	46.88	47.22
RECOVERY—												
Sucrose % Cane lost in manufacture	2.06	2.15	1.73	1.64	2.14	2.33	2.37	2.70	1.65	1.70	2.19	2.18
Sucrose in Sugar % Sucrose in Cane	85.00	84.60	86.41	87.48	79.34	77.20	79.24	76.90	86.13	85.85	85.81	86.12
Reduced Overall Recovery (12.5% Fibre, 85° pur. Mixed Juice)	84.43	83.81	88.27	88.63	—	—	—	—	88.12	88.25	—	—
Sucrose in Sugar % Sucrose in Mixed Juice	89.40	89.10	91.71	92.94	87.05	84.90	86.13	84.80	89.89	89.63	89.50	89.92
Reduced Boiling House Recovery (based on 85° pur. Mxd. Juice)	88.60	88.13	93.24	93.61	—	—	—	—	91.48	91.52	—	—
YIELD—												
Tons Cane per ton Sugar	8.49	8.40	8.82	8.45	—	—	10.67	10.77	9.76	9.46	7.45	7.30
Tons Cane per ton Sugar of 96° Pol.	8.26	8.18	8.73	8.35	11.67	12.19	10.59	10.68	9.37	9.31	7.25	7.10
LOSSES—												
Sucrose in Bagasse % Sucrose in Cane (A)	4.90	5.00	5.78	5.87	8.86	9.07	8.00	9.32	4.19	4.22	4.12	4.22
Sucrose in Filter Cake % Sucrose in Cane (B)	0.98	0.83	0.47	0.46	0.78	0.79	0.81	0.92	0.55	0.49	0.65	0.59
Sucrose in Molasses % Sucrose in Cane (C)	—	—	6.91	5.86	9.11	10.46	9.27	—	8.91	9.34	5.64	5.80
Undetermined Sucrose % Sucrose in Cane (D)	9.12	9.57	0.43	0.33	1.91	2.48	2.68	12.86	0.22	0.10	3.78	3.27
Sucrose lost in Boiling House % Sucrose in Cane (B) + (C) + (D)	10.10	10.40	7.81	6.65	11.80	13.73	12.76	13.78	9.68	9.93	10.07	9.66
Sucrose in Total Losses % Sucrose in Cane (A) + (B) + (C) + (D)	15.00	15.40	13.59	12.52	20.66	22.80	20.76	23.10	13.87	14.15	14.19	13.88
SUGAR—												
Average Polarization of all Sugars	98.70	98.60	97.03	97.16	—	—	96.70	96.79	97.56	97.52	98.70	98.77

* Autumn crop only.

† Refractometer sucrose Purity

EXTRACTION, RECOVERY, SUCROSE % CANE.

PURITY OF MIXED JUICE AND FIBRE % CANE BY MONTHS.



SEASON 1944

MEAN OF SEASONS 1927/44



EXTRACTION AND RECOVERY FIGURES 1933/1944

