

# TWENTY-FIRST ANNUAL SUMMARY OF CHEMICAL LABORATORY REPORTS

FROM SOUTH AFRICAN SUGAR FACTORIES. SEASON 1945-46

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In our previous annual summary we were able to report a record crop for this country of 614,158 short tons of sugar, thanks to the abundant rainfall of 1943, and the dry sucrose-promoting conditions of the second quarter of 1944. These two factors combined to give the highest crop of cane recorded in this country and a relatively high sucrose content.

The crop now under review is the first to suffer severely in sugarcane yields from the drought of unprecedented length and severity for Natal, lasting from November, 1944, to the end of 1945. Details of this drought are given in the appended weather report.

The sugarcane harvested during the 1945/46 season was only 4,607,055 tons, the lowest for any season since the previous drought-stricken year of 1941. There was some compensating advantage due to the drought, which promoted the record high sucrose content of 14.28 per cent., which, together with a record low ratio of cane to sugar for this country of 8.29, resulted in a sugar output of 553,074 tons, or only 61,084 tons less than for the preceding season.

Although several factories began crushing cane as early as the 1st or 2nd May, the proportion of the crop harvested before July and after November, beyond the limits of what we term the "optimum" period, was no more than about the average, and the ratio of cane to sugar did not suffer quite so much as usual on that account.

It was a relatively short crop and most of the factories had closed down by the end of November, and only one continued for a few days into January.

## 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	85.16
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

		Per cent. total Cane.	Ratio Cane/Sugar.	Sucrose per cent.	Fibre per cent.	Purity Mixed Juice.
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	13.02	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	13.80	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 ...	63.60	8.67	13.52	15.19	87.16
	Balance of crop ...	36.34	9.59	12.47	15.38	85.51
<b>Mean, 1928/1943—</b>						
	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
1945	Optimum period ..	73.75	8.06	14.06	16.03	86.33
	Balance of crop ..	26.25	9.01	13.21	15.88	85.95

## Cane Varieties.

The proportions of the different varieties continued the same trend as in recent years; thus there was a marked further fall in the proportion of Uba to 2.83 per cent. of the total, also in Co.290 to 4.36 per cent., and a slighter fall in P.O.J.2725 and 2878 combined to 3.34 per cent. Co.281 maintained its long lead over all other varieties with a slight increase to 67.77 per cent., Co.301 showed a marked increase to 21.09 per cent., and Co.331 increased to 0.60 per cent.

The record of cane varieties for the season issued by the Central Board Technical Service, as usual, represents 13 well distributed factories, which during

the past season contributed 61.5 per cent. of the total crop.

A brief summary of these figures is as under :—

Variety.	Per cent. total cane.	Per cent. total sucrose.	Sucrose per cent. cane.	Purity of crusher juice.	Java Ratio.
Uba ... ..	1.93	1.84	13.71	86.49	77.20
Co.281 ... ..	71.42	71.59	14.54	89.07	77.15
Co.290 ... ..	4.82	4.58	13.86	87.31	79.19
Co.301 ... ..	19.75	19.87	14.53	88.61	77.16
Co.331 ... ..	0.53	0.51	13.46	88.09	76.62
P.O.J. ... ..	1.55	1.61	15.25	88.69	80.54
Totals and Averages ...	100.00	100.00	14.37	88.18	77.30

The peak month of sucrose content for all varieties was September. The peak month of purity for Co.281, Co.290 and P.O.J. was August; for Co.331 September; and for Uba and Co.301 October. Nevertheless, the peak month for purity of all varieties combined was as early as July, by a small margin. Co.290 was handicapped in sucrose content by the large proportion harvested in May and June, and P.O.J. by the large proportion harvested as late as January.

#### General Quality of Cane.

The average sucrose content of the total crop of cane for the season was the record one for this country of 14.28 per cent, and during the peak month of the season for sucrose content, September, it was as high as 15.08 per cent. The previous absolute maximum for any season was 14.00 per cent. in the drought-stricken year of 1941. The purity of juice was not so low as is generally associated with a particularly dry season, but was 86.23 for the season in the mixed juice, which is about the average of recent years. The peak month for this figure was as early as July for the first time, when it was 86.57.

In our past records, this peak has occurred also once in August, seven times in September (including six out of the seven past years), nine times in October (all prior to 1941), and twice in November (1933 and 1934). It is evident from this that the new varieties now in cultivation develop their maximum juice purity earlier than Uba.

The reducing sugar ratio for the season was also about the average, 3.38, but the lowest monthly average for this value occurred as late as November, for the first time since 1934. Out of the 19 seasons on monthly record, October has been the lowest month for reducing sugar ratio on 10 occasions.

The average fibre content of cane, 15.99 per cent., was the highest for any season since 1927. It gradually rose from 15.76 per cent. in June to 16.15 in November, but was practically constant over September, October and November.

#### General Factory Performance.

With the closing down of one of the three smaller factories having incomplete chemical control of the

manufacturing process and not included in our individual factory returns, the total number of factories operating during the past season was reduced from 22 to 21, and the proportion of the output represented in detail in our report was thereby increased to 99.0 per cent.

Having regard to the circumstances of the season, factory efficiency has shown a further small increase. Thus the average extraction has increased to 93.28, and the reduced extraction to 94.96, while no factory has had an extraction of less than 91 for the past season of high fibre and high sucrose content of cane.

The average boiling house recovery for the season is 89.29, which is not so high as it was in 1943, when, however, the juice purity was appreciably higher.

The average overall recovery, 83.30, is also not quite so high as in 1943, when it was 83.52, but the reduced overall recovery, that is to say, adjusted to an assumed standard of 12.5 per cent. fibre content of cane and 85 purity of mixed juice, is 83.72, a further new record for this country. This figure, the reduced overall recovery, has progressively increased during each of the past eight seasons, from 81.16 in 1938; in 1935 it was only 78.76.

As last year, no factory had a boiling house recovery lower than 87, or an overall recovery of less than 80.

The ratio of cane to sugar of 8.29, corresponding to a yield of sugar per cent. cane of 12.06, is by far the best recorded in this country, the previous absolute minimum being 8.62 in 1941. The ratio, based on an assumed sugar polarization of 96°, was 8.08.

The average moisture content of bagasse, 50.19 per cent., is slightly lower than for the preceding season and considerably better than for any previous year in our records, but still leaves much room for further improvement.

Similarly, the average purity of final molasses for the season was 41.98, which was only lower in 1943 with a very much lower content of original sucrose in the cane and higher juice purities.

In reduced extraction, 94.96 for the season, we are now inferior only to Hawaii and Queensland, of those countries of which we have recent records, but we do not compare quite so favourably yet in boiling house recovery.

Our ratio of cane to sugar also bears comparison with that of most countries, but is not outstanding like that of Queensland, with their high overall recovery and very high sucrose content of cane.

This season the average extraction gradually increased from 92.81 in May to 93.50 in October, the last representative month of the season. Only three factories operated at all in December.

This is the first occasion on which November has recorded the highest extraction. The peak month for extraction has been once in June, three times in July, once in August, nine times in September, four times in October, and once in November over the past nineteen years of monthly records.

The boiling house recovery, on the contrary, had its peak as early as July, while the juice purity was at its maximum. The boiling house recovery peak has occurred once in July, three times in August, three times in September, four times in October, five times in November, and three times in December. With one exception, in 1944, the maximum boiling house recovery has never been later than September since Uba cane formed less than 23 per cent. of the crop.

The overall recovery follows the boiling house recovery by having its peak in July. This peak has been twice in July, four times in August, five times in September, five times in October, and three times in November. As in the case of the boiling house recovery, it has only occurred once later than September in the past five seasons.

The optimum average ratio of cane to sugar per month was as low as 7.87 in September. This month has been the best for this ratio in the past five successive seasons. Previous to that, it sometimes occurred in October, but usually in September or August.

We have this season introduced tentatively, for comparison between factories in this country, a calculation known as "Boiling House Recovery (E.S.G.)." It is recommended by the International Society of Sugarcane Technologists for comparisons between factories producing widely different kinds of sugar, and instead of being based on the sucrose in the sugar produced is based on the quantity of Equivalent Standard Granulated (of 100° purity) corresponding to the sugar produced.

Another calculation introduced, arising out of the former, is "Boiling House Performance," which is calculated by dividing the Boiling House Recovery (E.S.G.) by the "Basic Boiling House Recovery" and multiplying by 100. The Basic Boiling House Recovery is the percentage of sucrose in the mixed juice which would be obtained, according to the s.j.m. formula, if the molasses had a gravity purity of  $28.57 = \left( \frac{4}{1.4} \times 100 \right)$ . This is suggested in place of the unsatisfactory "Recovery Efficiency."

#### Individual Factory Performances.

Two factories this season record average sucrose contents of cane for the season of over 15 per cent., No. 3 with 15.21 per cent. and No. 21 with 15.10 per cent. Only one factory, drawing cane mainly from

alluvial flats, did not quite reach the 14 per cent. mark.

No. 3 factory had also the highest average purity of mixed juice, 89.74, and the highest brix and purity of crusher juice. The lowest average reducing sugar ratio, 2.18, was recorded by factory No. 21.

Factory No. 2 had the lowest average fibre content of cane, 15.12 per cent., and No. 14 the highest, 17.13.

The highest extraction for the season was gained by mill No. 20 with 94.99, followed by No. 1 with 94.78; two others were also over 94. No. 20 gained also the lowest milling loss, 4.35, extraction ratio, 0.31, and primary juice loss, 25.82.

Factory No. 21, as last year, gained the highest boiling house recovery, 92.29, and the highest overall recovery, 86.33. No. 20 also had an overall recovery of over 86.

No. 21 had the best ratio of cane to sugar, 7.63, closely followed by No. 3 with 7.66.

No. 17 mill gained the lowest average moisture content of bagasse, 44.26 per cent.

The lowest purity of final molasses, 38.00, is once again recorded by No. 16, No. 3 showing the lowest weight of final molasses per cent. cane.

Six mills increased their extraction over that of the previous season, No. 2 by as much as 2.48 units, and No. 8 by 1.79.

Ten factories increased boiling house recovery, Nos. 2, 3, 4 and 18 by 0.5 or more.

No. 2 factory thus increased its overall recovery by as much as 3.30, No. 8 by 1.96, and No. 4 by 1.40 over the previous season; eight other factories showed somewhat smaller gains in this respect.

No. 1 factory crushed 548,184 tons of cane at an average rate of 139.29 tons per hour in a single train of mills, milling 22.676 tons of fibre and making 16.762 tons of sugar, containing 16.643 tons of sucrose, per hour. The total output of sugar was 65,964 tons of an average polarization of 99.29.

No. 5 factory crushed 526,617 tons of cane at an average rate of 137.14 tons per hour to make 64,695 tons of sugar.

No. 12 factory crushed 457,745 tons of cane at an average rate of 119.00 tons per hour to make 53,186 tons of sugar.

#### Empire and World Production of Sugar.

Since it is now possible to get complete authoritative estimates of world sugar production once more, it is of interest to compare South African production with that of other countries. In the following table

is shown the output of sugar from the British Empire according to Willett and Gray's estimates for 1945/1946:—

	Long tons.	Per cent. of total.
British India ... ..	4,000,000*	49.2
	1,440,000†	17.7
Australia... ..	640,000	7.9
Great Britain... ..	570,000‡	7.0
South Africa ... ..	493,816	6.1
British West Indies ... ..	428,220	5.3
British Guiana ... ..	170,000	2.1
Mauritius ... ..	132,000	1.6
Ireland ... ..	93,000‡	1.1
Fiji ... ..	80,000	1.0
Canada ... ..	78,000‡	1.0
<b>Total British Empire ...</b>	<b>8,125,036</b>	

\* Gur. † White sugar. ‡ As refined sugar (beet).

The estimated production of sugar in Cuba is 4,221,000 tons, and in Brazil 1,250,000 tons.

As an illustration of the destructiveness of modern war, Java, Formosa and the Philippines, each of which produced over a million tons annually before the war, are now estimated to produce 400,000 tons, 450,000 tons and 175,000 tons respectively.

Many of the beet sugar-producing countries of Europe show similar decreases.

The total estimated world production of cane sugar is 18,740,867 tons, of which South Africa's proportion is 2.6 per cent., or 2.0 per cent. of total world production of cane and beet sugar combined, estimated at 24,652,867 tons. The latter represents a fall of 6,000,000 tons from pre-war years.

It is estimated that it takes an annual crop of 170,000,000 tons of sugarcane to produce this sugar; and in view of the diminution in annual world production of wheat to 168,000,000 tons, sugarcane is now the second greatest single world crop, potatoes (217,000,000 tons) taking the first place. Sugarbeet

comes seventh with 75,000,000 tons of raw product (Whitaker).

Thus sugarcane and sugarbeet combined show that the primary material of sugar production is the largest of all agricultural crops.

#### 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
1945/46 ... ..	4,607,055	31.99	553,074	8.29

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Experiment Station,  
South African Sugar Association,  
Mount Edgecombe.  
April, 1946.

## FINAL MANUFACTURING RESULTS, NATAL SUGAR FACTORIES, SEASON 1945/46.

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	...	...	...	10.5.45	14.6.45	6.6.45	15.5.45	2.5.45	11.5.45	22.5.45	21.5.45	1.5.45	23.5.45	1.5.45	2.5.45	29.5.45	24.5.45	15.6.45	2.5.45	25.5.45	2.5.45	29.5.45	1.5.45
	To	...	...	...	26.11.45	22.12.45	27.10.45	26.11.45	21.11.45	7.1.46	26.11.45	24.11.45	15.12.45	12.11.45	19.11.45	28.11.45	22.11.45	12.10.45	3.10.45	26.11.45	6.11.45	15.11.45	27.10.45	7.1.46
Tons of 2,000 lbs. Cane crushed	...	...	...	...	548,184	301,072	36,858	246,408	526,617	435,256	165,326	104,097	336,744	255,049	457,745	311,331	130,341	89,165	55,032	142,784	108,094	163,163	136,298	4,549,559
Cane crushed—metric tons	...	...	...	...	497,312	273,132	33,438	223,537	477,746	394,864	149,984	94,437	305,494	231,380	415,266	282,439	118,245	80,890	49,925	129,534	98,063	148,021	123,649	4,127,355
Tons of 2,000 lbs. Sugar bagged and estimated	...	...	...	...	65,964	35,758	4,808	30,277	64,695	51,400	20,793	12,892	39,015	30,360	53,186	37,840	15,620	11,173	6,909	17,231	13,130	20,140	17,866	549,057
Sugar bagged and estimated—metric tons	...	...	...	...	59,842	32,440	4,362	27,467	58,691	46,630	18,863	11,696	35,394	27,543	48,250	34,328	14,170	10,136	6,268	15,632	11,912	18,271	16,208	498,104
Tons Cane per ton of Sugar	...	...	...	...	8.31	8.42	7.66	8.41	8.14	8.47	7.95	8.07	8.64	8.40	8.61	8.23	8.34	7.98	7.96	8.29	8.23	8.10	7.63	8.29
Tons Cane per ton of Sugar calculated as Sugar of 96° Pol.	...	...	...	...	8.03	8.23	7.42	7.86	7.96	8.31	7.95	7.82	8.38	8.10	8.38	8.00	8.08	7.82	7.76	8.04	8.04	7.87	7.37	8.08
Time Crushing per cent. Available Time (no allowance for cane shortage)	...	...	...	...	97.85	90.08	93.09	95.86	92.65	94.65	87.43	94.39	95.13	93.99	93.28	91.76	91.56	97.02	98.80	97.06	98.00	95.32	96.35	94.19
Tons of 2,000 lbs. of Cane per hour Actual Crushing	...	...	...	...	139.29	85.37	14.44	65.00	137.14	95.76	51.90	28.58	75.03	81.62	119.00	76.22	40.62	32.17	25.06	36.22	33.00	41.65	46.49	87.88
Tons of 2,000 lbs. White Sugar made	...	...	...	...	43,364	46	3,056	20,947	—	—	19,236	7,879	20,300	19,947	—	—	8,784	—	12	3,867	—	36	12,882	159,856
Tons of 2,000 lbs. No. 2 Grade Sugar made	...	...	...	...	17,437	9,226	1,400	7,387	8,500	36,100	117	2,144	118	8,882	348	15,426	5,243	9,090	4,131	11,674	12,250	318	4,674	154,465
Tons of 2,000 lbs. Raw Sugar made	...	...	...	...	5,163	26,486	352	1,943	56,195	15,300	—	2,867	18,597	1,581	52,838	22,380	1,581	2,083	2,766	1,690	880	19,786	809	233,257
Sucrose per cent. Cane	...	...	...	...	14.00	13.94	15.21	14.41	14.27	14.21	14.49	14.58	14.05	14.46	14.24	14.34	14.54	14.40	14.76	14.23	14.74	14.12	15.10	14.28
Fibre per cent. Cane	...	...	...	...	16.28	15.12	15.41	15.73	15.21	16.80	16.29	15.20	16.12	15.78	16.04	17.13	16.18	15.32	15.57	15.31	15.93	16.25	16.26	15.99
Java Ratio	...	...	...	...	76.91	79.54	76.12	77.54	78.09	76.28	77.53	79.08	77.21	77.41	76.61	76.44	75.73	79.20	78.05	78.04	77.99	77.33	77.36	77.36
Milling Loss	...	...	...	...	4.50	6.02	5.78	6.38	5.71	5.86	5.30	6.58	5.63	7.28	7.66	5.78	5.99	6.00	6.69	7.43	7.70	4.35	6.00	6.01
Extraction Ratio	...	...	...	...	0.32	0.43	0.38	0.44	0.40	0.41	0.37	0.45	0.40	0.50	0.54	0.40	0.41	0.42	0.45	0.51	0.52	0.31	0.40	0.42
Primary Juice Loss	...	...	...	...	26.84	36.71	32.11	37.39	34.00	34.32	30.67	38.27	33.67	42.48	45.23	33.33	34.50	35.32	38.28	42.93	43.96	25.82	33.27	35.32
Imbibition per cent. Cane	...	...	...	...	39.16	35.02	37.20	34.40	27.99	33.11	39.76	34.98	32.66	40.76	39.64	36.78	29.29	32.81	33.47	37.95	28.33	28.96	37.20	34.96
Extraction (Sucrose in Mixed Juice % Sucrose in Cane)	...	...	...	...	94.78	93.46	94.15	93.02	93.90	93.07	94.03	93.14	93.53	92.04	91.36	93.11	93.34	93.61	92.94	92.12	91.67	94.59	93.54	93.28
Sucrose per cent. Bagasse	...	...	...	...	2.08	2.68	2.95	2.94	2.66	2.72	2.52	3.26	2.58	3.37	3.30	2.60	2.83	2.89	3.44	3.41	3.56	2.11	2.90	2.77
Moisture per cent. Bagasse	...	...	...	...	50.95	51.79	45.07	50.25	49.93	50.04	49.08	46.39	50.56	49.37	52.60	51.68	49.23	47.85	44.26	49.92	49.22	48.63	47.55	50.19
Sucrose per cent. Cane lost in manufacture	...	...	...	...	2.05	2.74	2.27	2.21	2.25	2.65	2.42	2.30	2.58	2.60	2.78	2.34	2.66	2.12	2.39	2.48	2.80	1.95	2.07	2.42
Overall Recovery (Sucrose in Sugar % Sucrose in Cane)	...	...	...	...	85.36	83.68	85.09	84.72	84.46	81.32	83.33	84.21	81.65	82.01	80.46	83.68	81.70	85.29	83.82	82.80	81.03	86.18	86.33	83.30
Recovery on Mixed Juice (Sucrose in Sugar % Sucrose in Mixed Juice)	...	...	...	...	90.06	89.54	90.37	91.08	89.95	87.38	88.62	90.41	87.30	89.10	88.06	89.87	87.53	91.11	90.19	89.88	88.39	90.72	92.29	89.29
Boiling House Recovery (E.S.G.)	...	...	...	...	89.86	89.13	90.15	90.89	89.50	86.92	88.48	90.27	87.06	88.98	87.71	89.56	87.31	90.60	89.85	89.62	87.98	90.38	92.14	88.99
Boiling House Performance	...	...	...	...	96.39	95.73	94.48	96.77	95.48	93.04	94.61	96.44	93.61	94.62	93.99	95.62	92.75	97.06	95.35	94.76	94.11	96.29	96.94	95.07
Sucrose in Bagasse per cent. Sucrose in Cane (A)	...	...	...	...	5.22	6.54	5.85	6.98	6.10	6.93	5.97	6.86	6.47	7.96	8.64	6.89	6.66	6.39	7.06	7.88	8.33	5.01	6.46	6.72
Sucrose in Filter Cake per cent. Sucrose in Cane (B)	...	...	...	...	0.67	0.16	—	0.12	0.20	0.31	1.57	0.30	0.14	—	0.24	0.20	0.17	0.21	0.96	0.89	—	0.14	0.03	0.35
Sucrose in Molasses per cent. Sucrose in Cane (C)	...	...	...	...	7.18	8.06	5.88	7.23	—	9.17	8.81	7.03	—	—	9.83	8.73	—	6.90	—	7.06	—	—	5.92	—
Undetermined Sucrose per cent. Sucrose in Cane (D)	...	...	...	...	1.57	1.56	3.18	0.95	9.25	2.27	0.32	1.60	11.74	10.03	0.83	0.50	11.47	1.21	8.16	1.37	10.64	8.67	1.26	9.63
Sucrose lost in Boiling House per cent. Sucrose in Cane (B)+(C)+(D)	...	...	...	...	9.42	9.78	9.06	8.30	9.45	11.75	10.70	8.93	11.88	10.03	10.90	9.43	11.64	8.32	9.12	9.32	10.64	8.81	7.21	9.98
Sucrose in total Losses per cent. Sucrose in Cane (A)+(B)+(C)+(D)	...	...	...	...	14.64	16.32	14.91	15.28	15.54	18.68	16.67	15.79	18.35	17.99	19.54	16.32	18.30	14.71	16.18	17.20	18.97	13.82	13.67	16.70
<b>FIRST EXPRESSED JUICE.</b>																								
Brix	...	...	...	...	20.81	20.01	21.57	20.99	20.80	21.28	21.08	20.60	20.69	20.86	21.07	21.11	21.42	20.67	20.95	20.72	21.53	20.66	21.30	20.90
Purity (apparent)	...	...	...	...	87.45	87.56	92.60	88.20	87.84	87.53	83.66	89.48	88.00	89.56	88.24	88.90	89.60	87.95	90.30	80.25	87.80	88.70	91.64	88.36
<b>LAST EXPRESSED JUICE.</b>																								
Brix	...	...	...	...	2.18	2.48	3.40	4.68	2.21	4.00	2.50	4.47	2.47	2.72	3.85	2.61	5.04	3.98	5.31	3.14	3.58	1.93	2.11	3.11
Purity (apparent)	...	...	...	...	74.87	71.80	77.45	79.30	75.22	76.20	75.60	80.22	71.40	78.32	76.97	78.40	79.40	72.32	79.50	81.78	78.50	74.60	70.66	75.94
Purity drop from First Expressed Juice	...	...	...	...	12.58	15.76	15.15	8.90	12.62	11.33	13.06	9.26	16.60	11.24	11.27	10.50	10.20	15.63	10.80	7.47	9.30	14.10	20.98	12.42
<b>MIXED JUICE.</b>																								
Brix	...	...	...	...	14.92	15.11	14.91	15.41	16.26	15.89	15.00	15.11	15.85	14.33	14.82	15.67	16.38	15.57	15.22	14.43	16.74	16.21	15.32	15.44
Purity (Clerget)	...	...	...	...	85.52	85.31	89.74	86.80	86.46	85.87	86.06	86.20*	85.10	87.03	85.69	86.33	87.20*	85.73	87.40*	88.07	86.00	86.70*	88.99	86.23
Reducing Sugar Ratio	...	...	...	...	3.31	3.34	3.20	3.04	—	3.31	2.97	—	3.38	2.90	4.32	3.91	2.66	3.23	—	2.95	4.00	3.46	2.18	3.38
Purity drop from First Expressed Juice	...	...	...	...	1.93	2.25	2.86	1.40	1.38	1.66	2.60	3.28	2.90	2.53	2.55	2.57	2.40	2.22	2.90	1.18	1.80	2.00	2.65	1.13

**CLARIFIED JUICE.**

Brix ...	12.53	14.52	15.93	16.19	15.88	17.32	14.65	16.47	14.68	13.76	15.32	15.02	16.35	15.97	—	14.65	15.94	15.17	15.01	15.10
Purity (apparent) ...	90.50	87.19	92.06	87.60	87.36	86.32	87.71	88.45	87.00	87.71	87.18	86.90	87.60	86.83	—	88.66	86.60	87.50	89.99	87.77
Reducing Sugar Ratio ...	1.97	2.53	2.89	—	—	2.98	2.49	—	2.96	—	3.90	3.47	2.52	2.88	—	—	3.30	—	1.62	2.84
pH ...	7.05	7.30	—	7.10	7.70	7.73	—	—	7.00	7.24	7.40	7.50	—	7.49	—	—	—	7.88	7.34	7.38

**FILTER CAKE.**

Per cent. Sucrose ...	0.79	0.44	—	0.37	0.66	0.90	3.72	0.88	0.44	0.27	0.72	0.54	0.49	0.62	4.94	3.22	0.78	0.39	0.17	0.85
Weight per cent. Cane ...	12.00	5.00	—	4.57	4.28	4.86	6.12	5.05	4.27	—	4.79	5.17	5.02	5.00	2.88	4.00	—	5.19	2.66	5.64

**SYRUP.**

Brix ...	54.98	53.87	57.61	53.36	50.68	48.62	56.95	53.00	52.87	53.71	56.52	55.43	56.64	51.24	49.00	49.10	54.64	50.97	58.93	53.40
Purity (apparent) ...	90.61	86.39	91.85	87.70	87.52	85.99	87.58	88.77	87.00	88.13	87.45	87.00	87.00	87.03	—	90.07	86.50	87.90	89.81	87.82
Reducing Sugar Ratio ...	1.96	—	2.37	2.77	—	3.15	2.32	—	2.85	—	3.78	2.95	2.61	2.96	—	—	3.10	—	1.52	2.78
pH ...	7.13	7.10	—	6.92	—	7.15	—	—	6.80	7.10	7.20	7.10	—	7.32	—	—	—	7.52	6.96	7.10
Purity drop from First Expressed Juice ...	-3.16	1.17	0.75	0.50	0.32	1.54	1.08	0.71	1.00	1.43	0.79	1.90	2.60	0.92	—	0.82	1.30	0.80	1.83	0.52
Purity increase from Mixed Juice ...	5.09	1.08	2.11	0.90	1.06	0.12	1.52	2.57	1.90	1.10	1.76	0.67	-0.20	1.30	—	2.00	0.50	1.20	0.82	1.61

**FIRST MASSECUITE.**

Brix ...	90.85	92.66	92.24	92.85	91.16	91.44	91.47	91.30	94.18	93.06	93.05	92.90	93.49	92.03	91.60	92.18	90.65	91.60	91.52	92.14
Purity (apparent) ...	90.63	83.54	84.79	86.80	86.27	82.70	87.32	85.10	81.80	86.30	82.20	80.20	85.70	86.70	82.10	78.70	87.40	87.90	86.32	84.94
Purity of Run-off ...	75.24	62.03	64.00	66.50	68.34	69.26	67.70	60.20	66.74	58.91	60.20	65.70	65.80	64.00	57.67	71.50	72.00	68.28	65.56	65.56
Cubic feet per ton of Sugar (all Masseccutes) ...	54.01	51.41	45.75	50.26	—	50.60	—	52.14	49.38	50.11	44.71	53.28	—	48.42	—	49.47	50.90	—	48.66	50.32

**SECOND MASSECUITE.**

Brix ...	94.56	95.38	93.16	97.46	93.18	95.52	93.51	94.10	97.09	94.80	97.29	94.70	96.42	96.50	94.70	94.31	94.29	95.00	95.04	95.24
Purity (apparent) ...	77.38	73.41	70.60	68.20	78.25	72.30	80.45	74.70	68.60	72.11	66.95	71.30	72.90	68.62	70.20	68.94	75.60	75.40	73.69	72.94
Purity of Run-off ...	54.47	49.03	50.40	45.20	58.82	50.20	59.99	51.00	44.20	47.30	43.94	49.50	47.20	43.98	49.09	48.68	53.60	51.30	50.18	50.31

**THIRD MASSECUITE.**

Brix ...	98.50	98.32	—	97.52	94.71	97.43	93.95	97.40	—	96.28	—	95.90	98.41	97.78	96.00	—	96.94	98.80	98.20	97.00
Purity (apparent) ...	66.57	62.13	—	56.60	66.77	64.30	70.92	61.00	—	61.91	—	62.00	59.90	57.46	59.82	—	62.00	60.70	63.02	63.46
Purity of Run-off ...	43.05	41.10	—	38.60	45.25	44.50	49.07	39.10	—	39.82	—	43.90	39.20	37.20	39.06	—	43.60	40.80	39.34	42.51

**JELLY.**

Brix ...	—	—	—	—	94.30	93.95	90.91	—	96.34	94.87	92.57	90.50	—	—	—	90.43	—	—	92.17	93.33
Purity (apparent) ...	—	—	—	—	46.02	50.30	48.85	—	45.20	46.92	44.46	46.10	—	—	—	51.36	—	—	43.09	46.73

**FINAL MOLASSES.**

Brix ...	86.75	91.47	80.84	82.78	89.36	89.94	89.13	91.00	89.70	90.76	88.03	86.45	92.76	88.86	90.86	82.90	86.52	89.80	86.94	88.40
Purity (Clerget) ...	43.56	41.10	45.21	40.10	41.88*	43.80	44.78	39.10*	42.80	39.82*	42.80	42.14	39.00*	38.00	39.06*	41.67*	43.60*	40.80*	39.31*	41.98
Weight per cent. Cane at 85.0° Brix ...	2.71	3.13	2.33	3.06	—	3.50	3.46	3.22	—	—	3.85	3.60	—	3.07	—	2.87	—	—	2.68	3.24

**POLARIZATION OF SUGARS.**

White Sugar ...	99.90	—	99.76	99.85	—	—	—	99.80	99.55	99.85	—	—	99.80	—	99.80	99.84	—	—	99.81	99.81
No. 2 Grade Sugar ...	98.19	98.19	98.24	98.15	98.42	97.80	97.46	98.50	98.69	99.17	98.52	98.96	98.32	98.02	98.57	98.74	98.81	98.60	98.64	98.32
Raw Sugar ...	97.91	98.19	98.18	98.15	98.07	97.95	—	97.70	98.66	98.90	98.63	98.45	98.09	97.92	98.57	98.74	97.95	98.60	98.03	98.34
Average of all Sugars ...	99.29	98.19	99.20	99.33	98.11	97.85	—	99.14	99.13	99.60	98.62	98.75	99.13	98.01	98.58	98.99	98.29	98.60	99.43	98.73
SO <sub>2</sub> in parts per million ...	—	68.00	—	65.62	—	62.00	—	—	—	40.97	55.00	69.00	—	92.00	—	—	—	67.00	28.68	59.98

**VARIETIES CRUSHED.**

Uba per cent. ...	4.90	0.62	0.00	1.88	3.72	0.65	0.79	0.34	1.32	5.79	2.16	0.40	8.96	3.02	0.37	2.57	6.91	8.40	1.02	2.83
Co.281 per cent. ...	59.80	54.28	96.80	54.80	56.22	87.78	66.82	65.26	70.99	65.05	72.76	77.92	74.98	52.01	94.41	65.73	53.96	78.86	78.82	67.77
Co.290 per cent. ...	4.50	3.02	1.21	3.55	3.27	2.93	5.26	3.92	8.69	6.69	3.34	2.37	5.59	3.27	3.69	7.56	2.13	1.01	12.33	4.36
Co.301 per cent. ...	29.20	6.41	0.85	37.86	36.34	4.50	26.66	29.75	13.30	21.55	20.90	17.22	9.86	41.54	1.37	24.09	36.70	11.01	6.53	21.09
Co.331 per cent. ...	1.20	0.02	0.91	1.08	0.42	0.22	0.02	0.73	0.75	0.76	0.66	1.36	0.31	0.16	0.00	0.05	0.30	0.57	0.23	0.60
P.O.J.2725 per cent. ...	0.40	35.65	0.23	0.83	0.03	3.92	0.45	0.00	4.95	0.16	0.18	0.73	0.30	0.00	0.16	0.00	0.00	0.15	1.07	3.34

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

**Average Manufacturing Results by periods for Natal Sugar Factories Reporting to the Experiment Station, Season 1945/46.**

Period ending	...	...	...	...	JUNE 2, 1945.	JUNE 30, 1945.	JULY 28, 1945.	SEPT. 1, 1945.	SEPT. 29, 1945.	OCT. 27, 1945.	DEC. 1, 1945.	SEASON 1944-46.
Tons of 2,000 lbs. Cane crushed	...	...	...	This period To date	428,976	664,145 1,093,119	703,235 1,796,355	862,965 2,659,322	669,761 3,329,084	600,926 3,938,030	496,062 4,448,258	4,549,559
Tons of 2,000 lbs. Sugar bagged and estimated	...	...	...	This period To date	44,782	75,667 120,448	84,646 205,094	107,842 312,936	85,123 398,060	74,746 473,806	61,320 536,963	549,057
Tons Cane per ton Sugar	...	...	...	This period To date	9.58	8.78 9.08	8.31 8.76	8.00 8.50	7.87 8.36	8.04 8.31	8.09 8.28	8.29
Tons Cane per ton of Sugar, calculated as sugar of 96° Pol.	...	...	...	This period To date	9.31	8.54 8.83	8.09 8.52	7.78 8.27	7.66 8.13	7.83 8.09	7.89 8.06	8.08
Sucrose per cent. Cane	...	...	...	This period To date	12.59	13.50 13.15	14.14 13.53	14.73 13.92	15.08 14.16	14.78 14.25	14.56 14.29	14.28
Fibre per cent. Cane	...	...	...	This period To date	15.81	15.76 15.78	15.85 15.81	15.99 15.87	16.13 15.92	16.14 15.95	16.15 15.97	15.99
Java Ratio	...	...	...	This period To date	77.88	77.87 77.88	77.61 77.77	77.54 77.68	77.34 77.61	76.94 77.51	76.56 77.40	77.36
Sucrose per cent. Bagasse	...	...	...	This period To date	2.59	2.74 2.68	2.74 2.71	2.82 2.74	2.88 2.77	2.81 2.78	2.70 2.77	2.77
Moisture per cent. Bagasse	...	...	...	This period To date	51.35	50.36 50.76	50.02 50.47	49.92 50.29	49.82 50.20	50.34 50.22	50.48 50.24	50.19
Imbibition per cent. Cane	...	...	...	This period To date	34.24	33.95 34.06	34.43 34.21	35.28 34.56	35.71 34.79	35.57 34.90	35.44 34.98	34.96
Extraction	...	...	...	This period To date	92.81	93.05 92.96	93.37 93.13	93.39 93.22	93.39 93.25	93.32 93.26	93.50 93.29	93.28
Recovery on Mixed Juice	...	...	...	This period To date	88.27	89.49 89.04	89.94 89.41	89.65 89.49	89.00 89.39	88.92 89.31	89.38 89.34	89.29
Overall Recovery	...	...	...	This period To date	81.92	83.27 82.77	83.98 83.27	83.72 83.42	83.12 83.36	82.98 83.29	83.57 83.35	83.30
Purity of Mixed Juice	...	...	...	This period To date	85.14	86.49 85.98	86.57 86.22	86.40 86.28	86.21 86.26	86.31 86.27	86.11 86.25	86.23
Reducing Sugar Ratio	...	...	...	This period To date	4.17	3.31 3.63	3.25 3.48	3.41 3.45	3.38 3.45	3.21 3.41	3.15 3.31	3.38
Purity of Syrup	...	...	...	This period To date	86.86	87.97 87.52	88.15 87.77	88.02 87.84	87.91 87.85	87.91 87.81	87.80 87.86	87.82
Sucrose in Filter Cake (A)	...	...	...	This period To date	1.02	0.87 0.89	1.10 1.09	1.20 1.13	1.17 1.18	0.92 1.14	0.99 1.13	1.13
Purity of Final Molasses	...	...	...	This period To date	41.26	40.63 40.91	40.83 40.88	41.63 41.16	42.45 41.47	43.26 41.77	43.16 41.95	41.98
Average Polarization of Sugar	...	...	...	This period To date	98.82	98.70 98.75	98.63 98.70	98.67 98.69	98.64 98.68	98.61 98.67	98.45 98.64	98.73
SO <sub>2</sub> in Sugar p.p.m.	...	...	...	This period To date	56.25	58.62 57.89	63.01 60.09	61.37 60.59	57.98 60.19	57.34 59.51	61.04 59.82	59.98

(A) Arithmetic averages.

**COMPARATIVE RESULTS FOR RECENT YEARS.**

COUNTRY .. .. .		NATAL									
YEAR .. .. .	1935.	1936.	1937.	1938.	1939.	1940.	1941.	1942.	1943.	1944.	1945.
<b>CANE—</b>											
Per cent. Sucrose .. .. .	13.65	13.30	13.92	13.64	13.41	13.19	14.00	13.40	13.14	13.67	14.28
Per cent. Fibre .. .. .	15.92	15.01	15.14	14.51	14.80	15.56	15.66	15.24	15.26	15.83	15.99
<b>JUICES—</b>											
Purity of First Crusher .. .. .	89.35	88.18	88.15	88.37	88.45	87.44	87.94	88.27	88.70	88.35	88.36
Purity of Mixed Juice .. .. .	86.49	85.43	85.60	86.36	86.46	85.34	85.67	85.96	86.56	86.19	86.23
Purity of last Roller Juice .. .. .	78.05	76.87	76.81	76.86	77.07	76.15	77.46	76.86	76.44	75.75	75.94
Purity of Syrup .. .. .	88.28	87.53	87.70	88.22	88.12	87.11	87.69	87.85	88.12	87.81	87.82
Drop in purity Crusher to Mixed Juice.. .. .	2.86	2.75	2.55	2.01	1.99	2.10	2.27	2.31	2.14	2.16	2.13
Drop in purity Crusher to last Roller .. .. .	11.30	11.31	11.34	11.51	11.38	11.29	10.48	11.41	12.26	12.60	12.42
Drop in purity Crusher to Syrup .. .. .	1.07	0.65	0.45	0.15	0.33	0.33	0.25	0.42	0.57	0.52	0.52
Increase in purity Mixed Juice to Syrup .. .. .	1.79	2.10	2.10	1.86	1.66	1.77	2.02	1.89	1.57	1.63	1.61
Reducing Sugar Ratio of Mixed Juice .. .. .	2.65	3.04	3.23	3.08	3.27	3.81	3.35	3.07	3.18	3.49	3.38
<b>JAVA RATIO .. .. .</b>	<b>76.24</b>	<b>77.44</b>	<b>77.43</b>	<b>78.87</b>	<b>78.70</b>	<b>77.94</b>	<b>77.74</b>	<b>77.67</b>	<b>77.78</b>	<b>77.38</b>	<b>77.36</b>
<b>BAGASSE—</b>											
Per cent. Sucrose .. .. .	3.48	3.40	3.40	3.30	3.11	3.02	3.03	2.88	2.76	2.73	2.77
Per cent. Moisture .. .. .	51.93	52.76	52.01	52.17	51.79	51.60	51.50	51.24	50.80	50.23	50.19
<b>EXTRACTION—</b>											
Imbibition % Cane.. .. .	33.04	32.40	31.84	31.70	31.28	32.59	34.76	32.82	31.62	33.70	34.96
Sucrose in Mixed Juice % Sucrose in Cane .. .. .	90.64	91.08	91.53	91.90	92.24	91.91	92.37	92.69	92.97	93.13	93.28
Reduced Extraction (based on 12.5% Fibre) .. .. .	92.94	92.78	93.22	93.18	93.62	93.72	94.13	94.19	94.42	94.78	94.96
Primary Juice loss .. .. .	49.43	50.71	47.47	47.73	44.67	43.93	41.12	40.66	39.19	36.61	35.32
<b>FILTER CAKE—</b>											
Per cent. Sucrose .. .. .	3.69	3.20	3.37	2.63	2.19	2.03	1.71	1.19	1.11	1.17	1.13
Weight % Cane .. .. .	5.01	4.71	4.75	4.74	4.78	5.12	5.63	5.38	5.11	5.22	5.64
<b>FINAL MOLASSES—</b>											
Purity .. .. .	46.00	43.89	43.69	43.12	42.67	42.91	43.45	43.24	41.81	42.37	41.98
<b>RECOVERY—</b>											
Sucrose % Cane lost in manufacture .. .. .	2.94	2.71	2.73	2.55	2.42	2.52	2.57	2.34	2.16	2.30	2.42
Sucrose in Sugar % Sucrose in Cane .. .. .	78.40	79.64	80.41	81.31	81.98	80.86	81.66	82.48	83.52	83.14	83.30
Reduced Overall Recovery (12.5% Fibre, 85° pur. Mixed Juice) .. .. .	78.76	80.73	81.33	81.16	81.89	82.07	82.61	82.98	83.51	83.58	83.72
Sucrose in Sugar % Sucrose in Mixed Juice .. .. .	86.52	87.44	87.85	88.48	88.88	87.98	88.40	88.98	89.84	89.27	89.29
Reduced Boiling House Recovery (based on 85° pur. Mxd. Juice) .. .. .	84.74	87.01	87.25	87.10	87.47	87.57	87.76	88.10	88.45	88.18	88.16
<b>YIELD—</b>											
Tons Cane per ton Sugar .. .. .	9.19	9.29	8.80	8.89	8.95	9.26	8.62	8.93	8.98	8.67	8.29
Tons Cane per ton Sugar of 96° Pol. .. .. .	8.96	9.06	8.58	8.66	8.73	9.03	8.39	8.69	8.74	8.44	8.08
<b>LOSSES—</b>											
Sucrose in Bagasse % Sucrose in Cane (A) .. .. .	9.36	8.92	8.47	8.10	7.76	8.09	7.63	7.31	7.03	6.87	6.72
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	0.35
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	9.63
Sucrose lost in Boiling House % Sucrose in Cane (B) + (C) + (D) .. .. .	12.24	11.44	11.12	10.59	10.26	11.03	10.70	10.21	9.45	9.99	9.98
Sucrose in Total Losses % Sucrose in Cane (A) + (B) + (C) + (D) .. .. .	21.60	20.36	19.59	18.69	18.02	19.12	18.34	17.52	16.48	16.86	16.70
<b>SUGAR—</b>											
Average Polarization of all Sugars .. .. .	98.42	98.43	98.50	98.60	98.36	98.44	98.58	98.65	98.59	98.62	98.73

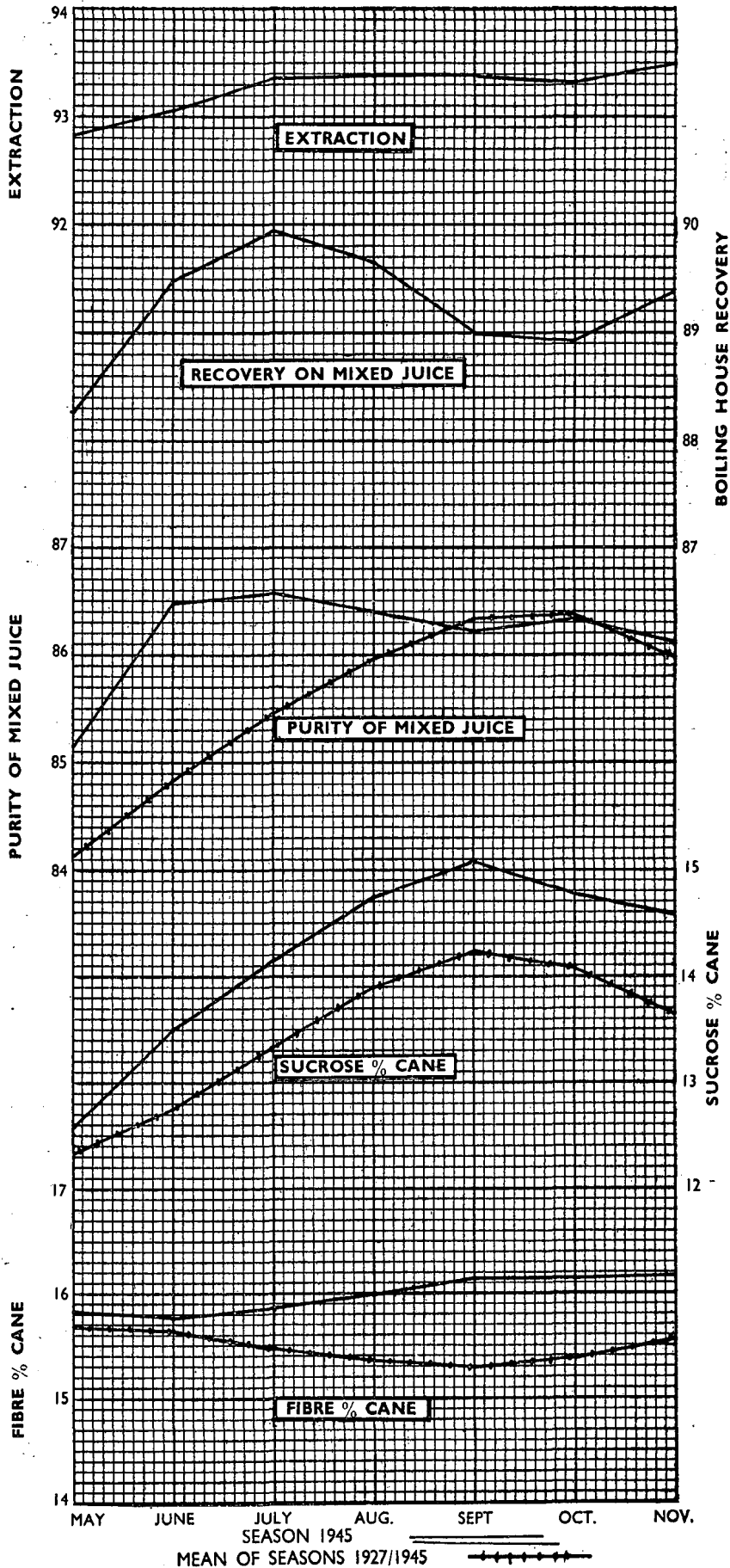
## COMPARATIVE RESULTS FOR RECENT YEARS.

COUNTRY .. .. .	MAURITIUS.		PUERTO RICO.	LOUISIANA.	BRITISH GUIANA.		HAWAII.		QUEENSLAND.		TRINIDAD.	
	YEAR .. .. .	1943.	1944.	1943.	1943.	1943.*	1944.	1943.	1944.	1943.	1944.	1942.
<b>CANE—</b>												
Per cent. Sucrose .. .. .	13.87	13.42	13.14	10.20	11.69	11.83	12.01	12.38	15.71	16.08	12.76	11.66
Per cent. Fibre .. .. .	12.92	13.05	13.62	13.86	14.01	13.94	14.44	14.87	12.08	12.25	14.09	14.19
<b>JUICES—</b>												
Purity of First Crusher .. .. .	88.90	88.30	86.53	77.81	82.83	83.19	84.96	86.24	89.82	90.24	82.29	82.88
Purity of Mixed Juice .. .. .	86.10	85.40	83.69	—	—	—	82.05	83.29	—	—	79.85	80.58
Purity of last Roller Juice .. .. .	75.30	75.10	—	—	—	—	68.94	70.66	78.12	77.61	71.42	71.26
Purity of Syrup .. .. .	86.50	85.60	84.85	—	81.62	82.01	83.06	84.30	89.21	89.28	81.52	82.44
Drop in purity Crusher to Mixed Juice .. .. .	2.80	2.90	2.84	—	—	—	2.91	2.95	—	—	2.44	2.30
Drop in purity Crusher to last Roller .. .. .	13.60	13.20	—	—	—	—	16.02	15.58	11.70	12.63	10.87	11.62
Drop in purity Crusher to Syrup .. .. .	2.40	2.70	1.68	—	1.21	1.18	1.90	1.94	0.61	0.96	0.77	0.44
Increase in purity Mixed Juice to Syrup .. .. .	0.40	0.20	1.16	—	—	—	1.01	1.01	—	—	1.67	1.86
Reducing Sugar Ratio of Mixed Juice .. .. .	3.50	3.80	—	—	—	—	—	—	—	—	—	—
JAVA RATIO .. .. .	79.40	78.96	78.87	78.17	79.37	79.24	90.54	91.77	83.01	82.93	77.19	77.94
<b>BAGASSE—</b>												
Per cent. Sucrose .. .. .	2.81	2.80	2.62	3.11	3.78	3.74	1.91	1.95	2.60	2.79	3.06	2.64
Per cent. Moisture .. .. .	44.50	44.80	48.61	49.09	46.40	46.64	43.54	43.54	49.35	48.97	47.95	48.26
<b>EXTRACTION—</b>												
Imbibition % Cane .. .. .	17.02	18.50	26.42	17.07	16.76	18.77	37.74	30.20	—	—	22.14	24.65
Sucrose in Mixed Juice % Sucrose in Cane .. .. .	95.00	94.70	94.13	90.93	90.68	90.91	95.78	95.74	95.78	95.48	92.93	93.35
Reduced Extraction (based on 12.5% Fibre) .. .. .	95.10	94.90	94.68	91.95	91.83	91.98	96.43	96.52	95.61	95.38	93.84	94.26
Primary Juice loss .. .. .	33.70	35.31	37.23	56.37	57.20	56.12	25.00	24.39	30.71	32.38	43.11	40.21
<b>FILTER CAKE—</b>												
Per cent. Sucrose .. .. .	8.00	7.90	2.29	4.14	5.78	5.63	1.05	1.22	2.57	3.19	3.10	2.54
Weight % Cane .. .. .	1.44	1.57	2.62	1.96	1.85	1.94	5.62	5.62	3.58	3.58	2.57	2.68
<b>FINAL MOLASSES—</b>												
Purity .. .. .	39.20	39.20	30.44	—	—	—	37.65†	38.08†	47.22	48.04	32.90	31.40
<b>RECOVERY—</b>												
Sucrose % Cane lost in manufacture .. .. .	2.15	2.20	1.64	2.33	2.70	2.60	1.70	1.72	2.18	2.23	2.40	1.95
Sucrose in Sugar % Sucrose in Cane .. .. .	84.60	83.50	87.48	77.20	76.90	78.02	85.85	86.10	86.12	86.11	81.17	83.24
Reduced Overall Recovery (12.5% Fibre, 85° pur. Mixed Juice) .. .. .	83.81	83.32	88.63	—	—	—	88.25	87.97	—	—	85.54	86.79
Sucrose in Sugar % Sucrose in Mixed Juice .. .. .	89.10	88.20	92.94	84.90	84.80	85.82	89.63	89.93	89.92	90.19	87.35	89.17
Reduced Boiling House Recovery (based on 85° pur. Mxd. Juice) .. .. .	88.13	87.80	93.61	—	—	—	91.52	91.14	—	—	91.15	92.07
<b>YIELD—</b>												
Tons Cane per ton Sugar .. .. .	8.40	8.80	8.45	—	10.77	10.48	9.46	9.15	7.30	7.14	9.35	10.00
Tons Cane per ton Sugar of 96° Pol. .. .. .	8.18	8.57	8.35	12.19	10.68	10.40	9.31	9.01	7.10	6.93	9.27	9.88
<b>LOSSES—</b>												
Sucrose in Bagasse % Sucrose in Cane (A) .. .. .	5.00	5.30	5.87	9.07	9.32	9.09	4.22	4.26	4.22	4.52	7.07	6.65
Sucrose in Filter Cake % Sucrose in Cane (B) .. .. .	0.83	0.92	0.46	0.79	0.92	0.92	0.49	0.56	0.59	0.60	0.62	0.58
Sucrose in Molasses % Sucrose in Cane (C) .. .. .	—	—	5.86	10.46	—	—	9.34	8.82	5.80	5.81	—	—
Undetermined Sucrose % Sucrose in Cane (D) .. .. .	9.57	10.28	0.33	2.48	12.86	11.97	0.10	0.26	3.27	2.96	11.14	9.53
Sucrose lost in Boiling House % Sucrose in Cane (B) + (C) + (D) .. .. .	10.40	11.20	6.65	13.73	13.78	12.89	9.93	9.64	9.66	9.37	11.76	10.11
Sucrose in Total Losses % Sucrose in Cane (A) + (B) + (C) + (D) .. .. .	15.40	16.50	12.52	22.80	23.10	21.98	14.15	13.90	13.88	13.89	18.83	16.76
<b>SUGAR—</b>												
Average Polarization of all Sugars .. .. .	98.60	98.60	97.16	—	96.79	96.74	97.52	97.49	98.77	98.87	96.81	97.14

\* Autumn crop only.

† Refractometer sucrose Purity

EXTRACTION, RECOVERY, SUCROSE PER CENT. CANE, PURITY OF MIXED JUICE, AND FIBRE PER CENT. CANE BY MONTHS



EXTRACTION AND RECOVERY FIGURES 1934/1945

