

TWENTY-SECOND ANNUAL SUMMARY OF CHEMICAL LABORATORY REPORTS

SOUTH AFRICAN SUGAR FACTORIES. SEASON 1946-47

By H. H. DODDS and J. L. DU TOIT.

The crop under review is the second of what will be at least three consecutive crops to suffer severely from the drought cycle extending from November 1944 to December 1946.

The only months during that period with satisfactory rains were February and March 1945 and March and April 1946.

The weather conditions are given in some detail in an appended report.

The sugarcane milled during the 1946/47 season was 3,990,017 tons, the lowest since the drought-stricken season of 1941/42 when it was 3,921,436 tons.

The sucrose content of cane, 14.21 per cent., was again very high, being second only to that of the previous season, when it was 14.28. The ratio of cane to sugar, 8.36, was also better than for any other season, except 1945/46, when it was 8.29.

Thus the output of sugar for the 1946/47 season was 474,769 tons, 78,300 tons less than for the preceding season, and 139,390 tons less than in 1944/45, and except for the abnormal year of 1941/42, the lowest since 1936/37.

As in the previous year the season began late, no factory beginning earlier than June, and ceased early, only two factories operating later than 19th December.

Consequently during what we call the "optimum" period, from July to November inclusive, the record proportion of 85.64 per cent. of the crop was crushed, and the difference in ratio of cane to sugar between the average for the crop as a whole and that for the optimum period lower than ever before.

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.
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
1945					
Optimum period ..	73.75	8.06	14.66	16.03	86.33
Balance of crop ..	26.25	9.01	13.21	15.88	85.95
1946					
Optimum period ..	85.64	8.27	14.33	16.20	85.88
Balance of crop ..	14.36	8.96	13.49	16.27	85.74

Quality of Cane.

As usual the sucrose content of cane, 14.28 per cent. for the season, reached its peak in September, when the average for the month was 14.87 per cent., a figure only surpassed in this country in September of the previous year.

The purity of mixed juice for the season, 85.86, was the lowest since the equally drought-stricken season of 1941/42. It started off as high as 86.38 for June, but by the end of the season had fallen to 85.54 for December. This is the first season that the peak of purity of mixed juice was attained as early as June. It usually occurs in September or October, and is recorded only once each in June, July and August over the past twenty years.

The reducing sugar ratio was also abnormal in the lowest monthly average for the season, 2.99, occurring in June for the first time instead of in August or later, as in previous seasons. It reached its maximum average of 3.43 in November, the average for the season being 3.30, which is about normal for this country.

The fibre content of cane, 16.21 per cent. for the season, is the highest since 1927. It was at its lowest, 16.09, in August and its highest, 16.33, in September and November.

Varieties of Cane.

The proportion of Uba continued to diminish, being only 1.91 per cent. of the crop for the season; Co.281 has slightly diminished to 63.25 per cent., the lowest since 1942, while Co.301 shows a further increase to 28.16 per cent.

Co.290 continued to diminish to 2.65 per cent., while P.O.J. and Co.331 remain nearly constant at 3.37 and 0.65 per cent. of the total respectively.

The changes over recent years are as follows:—

Variety.	1946-47.	1945-46.	1944-45.	1943-44.	1942-43.	1941-42
Uba...	1.91	2.83	4.25	6.50	11.09	16.57
Co.281 ...	63.25	67.77	66.49	64.40	52.41	42.44
Co.290 ...	2.65	4.36	7.23	11.23	19.08	26.51
Co.301 ...	28.16	21.09	18.07	14.06	10.60	5.89
Co.331 ...	0.65	0.60	0.13	0.05	—	—
P.O.J. ...	3.37	3.34	3.83	3.76	6.82	8.59

"P.O.J." implies P.O.J.2725 with a small but variable content of P.O.J.2878.

For comparison in composition of the different varieties we quote the findings of the Technical Services of the Sugar Industry Central Board, who maintain analytical records at 13 representative factories, which contributed last season 60.6 per cent. of the total output of sugar.

Following is a brief summary of their results for the season —

Variety.	Per cent. total cane.	Sucrose per cent. cane.	Purity of crusher juice.	Java Ratio.
Uba	1.06	13.47	85.79	76.95
Co.281	66.34	14.50	88.92	76.73
Co.290	3.07	13.73	86.75	78.86
Co.301	27.43	14.34	87.99	76.77
Co.331	0.66	13.66	87.75	76.52
P.O.J.	1.44	15.39	88.47	80.17
Totals and averages	100.00	14.18	87.77	76.83

General Quality of Cane.

As usual the peak month of sucrose for all varieties was September, with the exception of Co.331, which was at its highest in August, notwithstanding the reputation for late ripening this variety has in normal seasons. Contrary to the average results of mixed juice purity for the whole industry during the 1946/47 season, when as stated it was highest as early as June, the average crusher juice purity of all varieties at the thirteen factories serviced by the Central Board did not reach its peak until October, when it was 88.02.

The peak for the individual varieties was in July for Co.281, 89.25, and Co.331, 88.25; in August for P.O.J. varieties, 88.67; in October for Uba, 86.76, and in November for Co.290, 87.05, and Co.301, 88.58

The older varieties were no doubt somewhat handicapped in sucrose content of cane by the relatively large proportions of each variety being milled early in the season in the case of Uba, Co.281 and Co.290, or being milled late in the season in the case of Co.290 and P.O.J. Co.301 no doubt benefited by relatively large proportions being milled in September.

The following table gives the percentage varieties crushed during the different periods —

Variety.	PERIOD ENDING.					
	June 29, 1946.	July 27, 1946.	Aug. 31, 1946.	Sept. 28, 1946.	Nov. 2, 1946.	Nov. 30, 1946.
Uba... ..	2.86	2.33	2.32	1.47	1.25	1.66
Co.281	69.41	66.77	64.68	62.29	61.07	57.30
Co.290	4.52	2.80	2.13	1.86	2.52	2.51
Co.301	22.48	25.65	27.59	30.78	30.25	31.59
Co.331	0.15	0.35	0.38	0.76	1.39	0.76
P.O.J.	0.58	2.09	2.90	2.83	3.52	6.18

General Factory Performance.

The percentage of the total crop covered in our returns has continued to increase slightly, and for the season under review was 99.2 per cent. The

number of factories remains at 21, of which 19 supply us with reports.

The average extraction, sucrose expressed in juice per cent. of sucrose in cane, was 93.07 for the season. This is the first halt in the successive annual increases in extraction beginning in 1935, except for the 1940 season.

As last year, no mill recorded an extraction less than 91, notwithstanding an even higher fibre content and only slightly lower sucrose content of cane than last season.

The reduced extraction, 94.88 for the season, also shows the first check in the progressive annual increase in this value since 1938.

The reduced extraction is appreciably lower only than those of Hawaii and Queensland, of the countries with which we have been able to make comparisons.

The average boiling house recovery, 89.12, is also somewhat lower than in recent seasons, though the reduced boiling house recovery, 88.34, is higher than for any previous season except 1943, thus showing that the lower purity of mixed juice is no doubt largely responsible for the lower boiling house recovery.

The average overall recovery, 82.94, integrating as it does the extraction and boiling house recovery, is consequently also lower than for the past few seasons.

The reduced overall recovery, 83.82, however, continues its steady annual increase since 1929, when it was 75.93, except for temporary setbacks in 1935 and 1938.

As in the preceding season, no factory had a lower boiling house recovery than 87, and only one factory had an overall recovery below 80.

The ratio of cane to sugar of 8.36, corresponding to a yield of sugar recovered per cent. of cane of 11.96, is only slightly higher than for last season, and considerably better than for all seasons previous to 1945.

Calculated on a basis of 96° polarization of sugar the ratio is 8.14; actually the average polarization of all sugars was 98.70.

This yield is better than that of any other country in our records except Queensland, where there is a high overall recovery associated with a very high sucrose content of cane.

The average moisture content of bagasse for the season shows no improvement over recent years and is still 50 per cent.

The average purity of final molasses for the season is the best on record for this country, 41.75, but is by no means outstanding by international standards.

Owing to the weights of final molasses being still unavailable from five factories, we cannot yet calculate a representative average loss of sucrose in final molasses, which therefore has to be included in the final average columns under undetermined losses.

The extraction reached its peak during the month of August, which is earlier than usual.

The boiling house recovery was at its highest even earlier, in July, no doubt because of the decline in purity of juice in following months.

The overall recovery also attained its peak in July. As pointed out last season, with the replacement of Uba mainly by Co. varieties, the recovery peaks tend to occur much earlier in the season.

The ratio of cane to sugar, following the sucrose content of cane, reached a minimum of 7.99 during September.

Individual Factory Performances.

Three factories recorded sucrose contents of cane for the season of over 15 per cent., No. 3 with 15.28 per cent., closely followed by No. 21 with 15.27, then No. 17 with 15.13 per cent.

Three factories, each drawing at least a proportion of their cane from alluvial flats, recorded less than 14 per cent. sucrose in cane.

The highest purity of mixed juice was also recorded by factory No. 3 with 88.30, followed by No. 21 with 88.19.

No. 3, situated at a considerable altitude and distance from the coast, recorded also the highest purity and brix of crusher juice.

Factory No. 20 had the lowest recorded average reducing sugar ratio in mixed juice, 2.76.

Factory No. 2 had, as usual, the lowest average fibre content of cane for the season, 14.53 per cent., no other factory having a fibre content of less than 15. Two factories in Zululand, located where the drought was severe, had average fibre contents of cane of over 17 per cent.

Mill No. 20, as last year, gained the highest extraction for the season, 94.88, followed by No. 1 with 94.73. No. 20 gained also the lowest milling loss, 4.49, and the lowest extraction ratio, 31.16.

Factory No. 14 gained the highest boiling house recovery, 91.65, and the highest boiling house recovery (E.S.G.), 91.18, in which the result is based on the quantity of Equivalent Standard Granulated (of 100° purity) corresponding to the sugar produced, instead of the sucrose in the sugar produced.

The best boiling house performance, one of the calculated terms introduced by Deerr and also recommended by the International Society of Sugarcane Technologists, and used by us in place of the unsatis-

factory "recovery efficiency," is also gained by No. 14, with 97.05. Other factories with over 96 are No. 16, 96.91; No. 1, 96.86; and No. 20, 96.25.

The highest overall recovery is gained by No. 20 with 86.17, followed by No. 1 with 85.86 and No. 21 with 85.71.

In view of the fact that No. 20 has gained such consistently excellent results over recent years, it is to be regretted that it will not operate again.

No. 21 again had the lowest ratio of cane to sugar, 7.60, followed by No. 3 with 7.86 and No. 17 with 7.90. These are the three factories with sucrose contents of cane of over 15 per cent. No. 14 also gained a ratio of less than 8, with a sucrose content of cane of 14.60 per cent.

No. 17 mill again had the lowest moisture content of bagasse, 45.56 per cent., followed by No. 3 with 46.08 and No. 9 with 46.43. The lowest sucrose contents of bagasse were gained by No. 1 with 2.15 per cent. and No. 20 with 2.16.

The lowest average purity (Clerget) of final molasses for the season was again shown by No. 16 with 38.77, while No. 3 again recorded the lowest weight of final molasses per cent. of cane, 2.52 calculated to 85° brix.

The loss of sucrose in filter cake fell to a new level and was only 0.28 per cent. of sucrose in cane for the whole season. The weight of filter cake per cent. cane was higher than in recent years, 5.91, but the sucrose content of the cake, 0.96 per cent., was the lowest on record.

No. 21 again had the lowest sucrose per cent. filter cake, only 0.21 per cent., corresponding to a loss of only 0.08 sucrose in filter cake per cent. of sucrose in cane.

Three mills increased their extraction over that of the previous season, Nos. 5, 15 and 21, No. 21 by as much as 0.87.

Eight factories increased their boiling house recovery, Nos. 1, 6, 8, 10, 14, 15, 19 and 20, No. 14 by as much as 1.78.

Six factories increased their overall recovery, Nos. 1, 8, 10, 14, 15 and 19, No. 14 by 1.16 and No. 15 by 0.95.

No. 1 factory crushed 459,267 tons of cane at an average rate of 133.51 tons per hour in a single train of mills, thus milling 21.11 tons of fibre and making 16.14 tons of sugar, containing 16.04 tons of sucrose, per hour. The total output of sugar was 55,562 tons of an average polarization of 99.38.

No. 5 factory crushed 437,513 tons of cane at an average rate of 133.42 tons per hour (containing 20.66 tons of fibre) to make 53,810 tons of sugar, making 16.41 tons of sugar, containing 16.09 tons of sucrose, per hour.

No. 12 factory crushed 375,435 tons of cane at an average rate of 111.48 tons per hour to make 42,968 tons of sugar.

No. 6 factory crushed 340,291 tons of cane at an average rate of 92.33 tons per hour to make 39,075 tons of sugar.

No. 2 factory crushed 300,125 tons of cane at an average rate of 84.88 tons per hour to make 34,196 tons of sugar.

World Production of Sugar.

According to Willett and Gray, the total estimated world production of sugar for 1946/47 is 27,992,210 long tons, of which 18,630,210 tons, or 66.6 per cent. of the total, is cane sugar. South Africa's proportion is 2.27 per cent. of the cane sugar, or 1.51 per cent. of total world sugar.

The world total has increased by 5,000,000 tons since the preceding season, which was the lowest for many years.

Countries of outstanding production are Cuba, 5,225,000 tons, India 4,800,000 tons, Brazil 1,320,000 tons; and among beet sugar producing countries Russia 2,400,000 tons, Germany 1,400,000 tons, and U.S.A. 1,330,000 tons (not including 390,000 tons of cane sugar from Louisiana and Florida).

Estimated production in the British Commonwealth was as follows:—

	Long tons.	Per cent. of total.
India	3,800,000*	50.1
	1,000,000†	13.2
Britain	550,000‡	7.3
Australia	545,000	7.2
British West Indies	480,210	6.3
South Africa	423,900§	5.6
Mauritius	335,000	4.4
British Guiana	170,000	2.2
Fiji	115,000	1.5
Canada	85,000‡	1.1
Ireland	80,000‡	1.1
Total	7,584,110	

* Gur.

† As refined beet sugar.

‡ White sugar.

§ Actual production, not estimated.

The war-torn countries of Java and the Philippines, and the European beet-sugar producing

countries of Europe, with minor exceptions, have increased their output of sugar over last season. Tai-wan, formerly known as Formosa, and one of the largest sugar producers in the world, has not yet begun to restore production of sugar, mainly, according to a personal communication received by one of us, because much of the sugarcane lands were put under rice by the Japanese during the latter years of the war.

Sugar Production in S.A. in Recent Years.

The usual table of production of cane and sugar in recent years is appended and brought up to date. 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	8.33
1946/47	3,990,017	32.02	474,769	8.36

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CLARIFIED JUICE.

Brix ...	12.01	14.85	15.96	15.97	16.16	15.71	15.01	16.10	14.58	14.46	15.04	14.72	16.54	16.21	—	15.84	16.31	15.48	15.40	15.01
Purity (apparent) ...	91.10	86.10	91.14	87.20	87.26	86.25	86.54	88.00	86.30	86.72	86.80	87.70	87.20	86.47	—	88.25	86.00	87.90	89.11	87.50
Reducing Sugar Ratio ...	1.92	2.66	3.00	—	—	3.11	2.68	—	3.58	—	3.36	2.63	2.75	2.82	—	—	3.30	—	2.23	2.80
pH ...	7.22	7.42	—	7.06	—	7.65	—	—	7.10	7.27	7.30	7.40	—	7.43	7.40	—	—	7.69	7.28	7.33

FILTER CAKE.

Per cent. Sucrose ...	0.51	0.45	—	0.37	0.62	0.56	0.47	0.93	0.31	0.26	1.07	0.54	0.46	0.56	4.60	3.83	1.03	0.51	0.21	0.72
Weight per cent. Cane ...	11.21	6.45	—	4.33	4.69	5.60	5.00	5.04	4.28	—	5.61	5.70	5.36	5.00	2.55	4.50	5.00	5.54	5.67	5.91

SYRUP.

Brix ...	56.77	53.08	59.80	54.78	50.93	45.41	57.64	53.00	52.91	54.76	57.41	54.51	53.51	51.40	49.50	49.35	52.01	50.23	58.12	53.39
Purity (apparent) ...	91.20	85.00	90.40	87.20	87.19	85.71	86.55	88.60	86.30	87.23	87.11	87.80	87.00	86.29	—	88.26	86.30	88.20	88.81	87.44
Reducing Sugar Ratio ...	1.85	2.59	2.43	2.93	—	3.21	2.59	—	3.41	—	3.31	2.62	2.83	2.87	—	—	3.30	—	2.14	2.77
pH ...	7.24	7.08	—	6.90	—	7.01	—	—	6.90	7.10	7.00	7.10	—	7.23	—	—	—	7.39	7.03	7.07
Purity drop from First Expressed Juice ...	-3.23	2.30	1.34	0.90	0.41	1.64	1.28	0.30	1.40	1.70	0.96	1.60	2.00	1.63	—	0.90	1.60	0.50	1.73	0.75
Purity increase from Mixed Juice ...	5.39	-0.27	2.10	0.90	1.34	0.46	1.99	2.70	1.40	1.37	2.03	0.94	0.50	1.17	—	0.66	0.60	1.20	0.62	1.60

FIRST MASSECUITE.

Brix ...	90.70	93.92	91.93	93.61	91.68	91.73	91.50	91.90	94.27	94.07	93.51	93.80	93.81	92.22	92.30	92.93	92.18	90.90	91.81	92.60
Purity (apparent) ...	90.79	81.63	84.98	86.40	84.42	82.40	86.28	84.90	82.40	84.62	80.52	80.70	85.30	85.96	80.10	80.06	84.80	88.80	84.36	84.25
Purity of Run-off ...	76.30	57.80	63.90	64.70	67.31	61.50	66.87	65.70	61.00	63.93	57.51	60.20	64.80	65.83	60.10	61.76	65.60	72.00	66.12	64.57
Cubic feet per ton of Sugar (all Massecuites) ...	55.88	52.21	47.06	50.05	—	49.11	—	62.00	54.60	51.97	44.87	50.02	—	49.17	—	54.00	53.33	—	50.31	51.54

SECOND MASSECUITE.

Brix ...	94.90	96.67	92.41	97.78	93.52	95.46	93.16	95.10	97.25	95.41	96.17	95.90	96.65	96.58	94.60	94.87	94.94	94.60	95.28	95.49
Purity (apparent) ...	78.35	68.00	72.33	67.30	75.49	71.60	79.67	73.20	69.30	71.11	64.96	70.80	72.10	68.28	69.60	70.06	70.10	75.30	71.33	71.72
Purity of Run-off ...	54.30	46.00	50.30	44.00	56.53	49.40	58.42	48.40	44.10	45.75	42.63	49.60	48.20	45.56	48.60	49.35	48.20	51.10	48.44	49.15

THIRD MASSECUITE.

Brix ...	98.80	99.28	—	97.63	96.37	97.09	93.23	97.80	98.26	96.34	—	97.10	98.13	97.61	96.10	—	97.52	98.60	97.32	97.46
Purity (apparent) ...	66.51	61.00	—	56.10	63.14	63.30	70.15	59.30	57.80	63.39	—	61.30	61.10	57.11	59.66	—	57.20	60.30	62.73	62.02
Purity of Run-off ...	43.78	41.90	—	39.70	43.00	43.00	49.23	39.33	40.70	40.61	—	42.80	40.90	39.67	39.25	—	40.80	41.00	39.21	42.07

JELLY.

Brix ...	—	—	—	—	—	94.08	90.29	—	96.88	95.28	94.41	90.60	—	—	—	91.45	—	—	92.07	93.67
Purity (apparent) ...	—	—	—	—	—	49.70	49.44	—	44.10	49.34	43.63	44.20	—	—	—	50.04	—	—	43.14	46.44

FINAL MOLASSES.

Brix ...	86.62	92.96	80.03	83.40	89.54	91.15	88.06	91.00	91.36	90.06	88.89	86.30	93.50	88.90	87.05	84.56	87.89	90.20	86.46	88.84
Purity (Clerget) ...	44.31	41.90	43.87	40.30	43.00†	42.70	44.90	39.33†	40.80	40.61†	41.56	40.74	41.20	38.77	39.25†	40.95†	39.20	41.00†	39.21	41.75
Weight per cent. Cane at 85.0° Brix ...	2.65	3.60	2.52	3.11	—	3.31	3.62	3.98	—	—	3.93	2.85	—	3.09	3.32	3.27	3.20	—	3.11	3.27

POLARIZATION OF SUGARS.

White Sugar ...	99.90	99.55	99.80	99.85	—	—	—	99.80	99.68	99.80	—	—	99.80	—	99.10	99.73	—	—	99.80	99.82
No. 2 Grade Sugar ...	98.17	98.10	98.34	97.99	98.17	97.65	98.00	98.35	98.62	98.92	98.67	98.39	98.31	98.05	98.57	98.86	98.26	98.70	98.65	98.17
Raw Sugar ...	—	98.07	—	97.99	98.08	97.26	—	98.50	98.45	—	98.46	98.21	98.07	98.50	98.56	98.20	—	98.70	—	98.27
Average of all Sugars ...	99.38	98.09	99.45	99.29	98.09	97.61	—	99.68	99.00	99.53	98.46	98.26	99.21	98.12	98.57	99.27	98.26	98.70	99.45	98.70
SO ₂ in parts per million ...	—	73.00	—	—	—	—	—	—	—	38.00	71.00	76.00	—	69.00	—	—	—	82.00	29.00	63.00

VARIETIES CRUSHED.

Uba per cent. ...	4.16	0.84	0.00	1.11	2.00	0.46	0.22	0.24	0.22	2.80	1.41	0.42	8.23	1.02	0.19	1.33	3.37	6.53	1.44	1.91
Co.281 per cent. ...	53.21	54.49	98.53	45.03	52.91	86.19	60.09	49.86	74.82	66.56	57.95	75.29	71.56	53.53	95.66	61.93	41.72	70.95	81.78	63.25
Co.290 per cent. ...	1.10	2.86	0.12	2.92	1.90	2.20	2.73	1.60	4.32	3.93	3.83	1.06	4.61	2.00	1.79	4.09	1.38	0.58	5.09	2.65
Co.301 per cent. ...	40.54	9.83	0.30	49.20	42.21	7.54	35.79	48.04	13.80	25.74	36.07	21.25	14.10	43.36	2.10	31.52	53.06	20.81	11.14	28.16
Co.331 per cent. ...	0.69	0.17	1.05	0.26	0.85	0.33	0.17	0.26	0.67	0.88	0.72	1.96	0.63	0.09	0.00	1.11	0.47	1.06	0.46	0.65
P.O.J.2725 per cent. ...	0.20	31.81	0.00	1.48	0.13	3.28	1.00	0.00	6.17	0.09	0.02	0.02	0.87	0.00	0.26	0.00	0.00	0.07	0.09	3.37

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.

* Hypothetical formulæ recommended by the International Society of Sugarcane Technologists.

Average Manufacturing Results by periods for Natal Sugar Factories Reporting to the Experiment Station, Season 1946/47.

	Period ending	JUNE 29, 1946.	JULY 27, 1946.	AUG. 31, 1946.	SEPT. 28, 1946.	NOV. 2, 1946.	NOV. 30, 1946.	SEASON 1946-47.
Tons of 2,000 lbs. Cane crushed	This period To date	436,283	676,626 1,113,014	833,553 1,946,563	639,062 2,585,621	760,884 3,346,510	409,805 3,821,017	3,952,317
Tons of 2,000 lbs. Sugar bagged and estimated	This period To date	49,265	80,769 130,033	103,772 233,807	79,954 313,760	90,388 404,146	46,752 458,478	472,540
Tons Cane per ton Sugar	This period To date	8.86	8.38 8.56	8.03 8.33	7.99 8.24	8.42 8.28	8.77 8.33	8.36
Tons Cane per ton of Sugar, calculated as sugar of 96° Pol.	This period To date	8.62	8.15 8.33	7.82 8.11	7.78 8.02	8.20 8.06	8.55 8.11	8.14
Sucrose per cent. Cane	This period To date	13.56	14.08 13.87	14.69 14.22	14.87 14.38	14.14 14.33	13.63 14.24	14.21
Fibre per cent. Cane	This period To date	16.27	16.12 16.17	16.09 16.14	16.33 16.18	16.25 16.20	16.33 16.21	16.21
Java Ratio	This period To date	77.31	77.37 77.34	77.48 77.41	77.12 77.34	76.65 77.18	75.95 77.03	77.03
Sucrose per cent. Bagasse	This period To date	2.73	2.78 2.75	2.86 2.80	2.87 2.82	2.76 2.80	2.68 2.79	2.79
Moisture per cent. Bagasse	This period To date	50.73	50.37 50.50	50.07 50.31	50.05 50.25	50.29 50.26	50.96 50.26	50.32
Imbibition per cent. Cane	This period To date	36.20	35.40 35.71	35.77 35.74	35.75 35.74	35.13 35.60	35.37 35.45	35.25
Extraction	This period To date	92.84	93.11 93.00	93.22 93.09	93.18 93.12	93.11 93.11	92.93 93.09	93.07
Recovery on Mixed Juice	This period To date	88.55	89.86 89.36	89.67 89.50	88.97 89.36	88.93 89.26	88.74 89.23	89.12
Overall Recovery	This period To date	82.21	83.67 83.10	83.59 83.32	82.90 83.21	82.80 83.11	82.47 83.06	82.94
Purity of Mixed Juice	This period To date	86.38	86.33 86.35	85.93 86.18	85.74 86.06	85.82 86.00	85.54 85.94	85.86
Reducing Sugar Ratio	This period To date	2.99	3.09 3.07	3.41 3.23	3.38 3.26	3.19 3.24	3.43 3.26	3.30
Purity of Syrup	This period To date	88.00	87.84 87.90	87.47 87.71	87.30 87.60	87.51 87.58	87.32 87.54	87.44
Sucrose in Filter Cake (A)	This period To date	0.72	0.89 0.91	0.88 0.90	0.94 0.91	0.78 0.76	0.98 0.96	0.96
Purity of Final Molasses	This period To date	42.13	41.39 41.68	41.09 41.43	41.64 41.50	42.33 41.69	42.38 41.81	41.75
Average Polarization of Sugar	This period To date	98.72	98.67 98.69	98.61 98.65	98.57 98.63	98.58 98.62	98.52 98.60	98.70
SO ₂ in Sugar p.p.m.	This period To date	66.00	64.00 65.00	62.00 63.00	66.00 64.00	66.00 64.00	64.00 62.00	63.00

(A) Arithmetic averages.

COMPARATIVE RESULTS FOR RECENT YEARS.

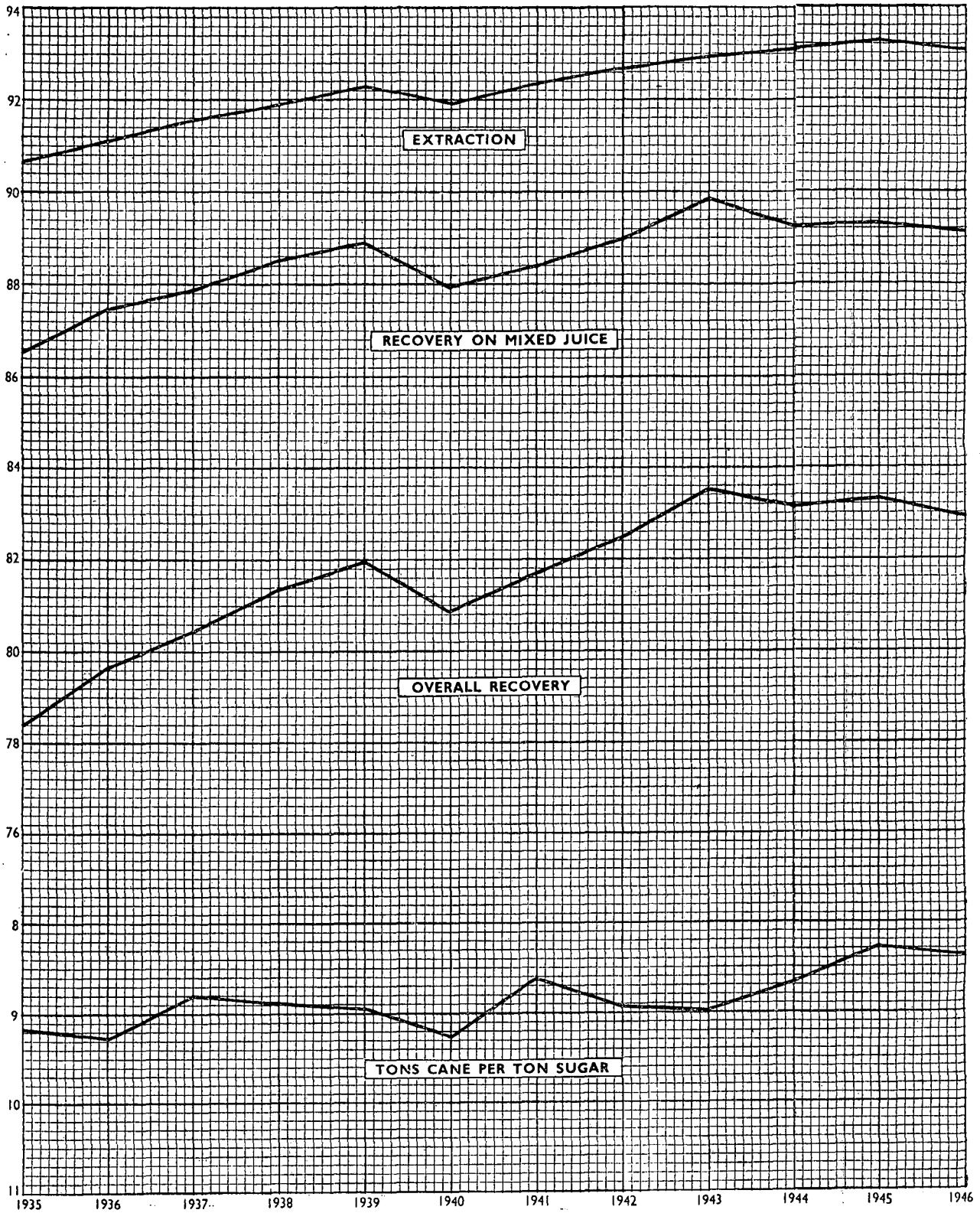
COUNTRY	NATAL											
YEAR	1936.	1937.	1938.	1939.	1940.	1941.	1942.	1943.	1944.	1945.	1946.	
CANE—												
Per cent. Sucrose	13.30	13.92	13.64	13.41	13.19	14.00	13.40	13.14	13.67	14.28	14.21	
Per cent. Fibre	15.01	15.14	14.51	14.80	15.56	15.66	15.24	15.26	15.83	15.99	16.21	
JUICES—												
Purity of First Crusher	88.18	88.15	88.37	88.45	87.44	87.94	88.27	88.70	88.35	88.36	88.22	
Purity of Mixed Juice	85.43	85.60	86.36	86.46	85.34	85.67	85.96	86.56	86.19	86.23	85.86	
Purity of last Roller Juice	76.87	76.81	76.86	77.07	76.15	77.46	76.86	76.44	75.75	75.94	75.14	
Purity of Syrup	87.53	87.70	88.22	88.12	87.11	87.69	87.85	88.12	87.81	87.82	87.44	
Drop in purity Crusher to Mixed Juice.. .. .	2.75	2.55	2.01	1.99	2.10	2.27	2.31	2.14	2.16	2.13	2.36	
Drop in purity Crusher to last Roller	11.31	11.34	11.51	11.38	11.29	10.48	11.41	12.26	12.60	12.42	13.08	
Drop in purity Crusher to Syrup	0.65	0.45	0.15	0.33	0.33	0.25	0.42	0.57	0.52	0.52	0.75	
Increase in purity Mixed Juice to Syrup	2.10	2.10	1.86	1.66	1.77	2.02	1.89	1.57	1.63	1.61	1.60	
Reducing Sugar Ratio of Mixed Juice	3.04	3.23	3.08	3.27	3.81	3.35	3.07	3.18	3.49	3.38	3.30	
JAVA RATIO	77.44	77.43	78.87	78.70	77.94	77.74	77.67	77.78	77.38	77.36	77.03	
BAGASSE—												
Per cent. Sucrose	3.40	3.40	3.30	3.11	3.02	3.03	2.88	2.76	2.73	2.77	2.79	
Per cent. Moisture	52.76	52.01	52.17	51.79	51.60	51.50	51.24	50.80	50.23	50.19	50.32	
EXTRACTION—												
Imbibition % Cane.. .. .	32.40	31.84	31.70	31.28	32.59	34.76	32.82	31.62	33.70	34.96	35.25	
Sucrose in Mixed Juice % Sucrose in Cane	91.08	91.53	91.90	92.24	91.91	92.37	92.69	92.97	93.13	93.28	93.07	
Reduced Extraction (based on 12.5% Fibre)	92.78	93.22	93.18	93.62	93.72	94.13	94.19	94.42	94.78	94.96	94.88	
FILTER CAKE—												
Per cent. Sucrose	3.20	3.37	2.63	2.19	2.03	1.71	1.19	1.11	1.17	1.13	0.96	
Weight % Cane	4.71	4.75	4.74	4.78	5.12	5.63	5.38	5.11	5.22	5.64	5.91	
FINAL MOLASSES—												
Purity	43.89	43.69	43.12	42.67	42.91	43.45	43.24	41.81	42.37	41.98	41.76	
RECOVERY—												
Sucrose % Cane lost in manufacture	2.71	2.73	2.55	2.42	2.52	2.57	2.34	2.16	2.30	2.42	2.42	
Sucrose in Sugar % Sucrose in Cane	79.64	80.41	81.31	81.98	80.86	81.66	82.48	83.52	83.14	83.30	82.94	
Reduced Overall Recovery (12.5% Fibre, 85° pur. Mixed Juice)	80.73	81.33	81.16	81.89	82.07	82.61	82.98	83.51	83.58	83.72	83.82	
Sucrose in Sugar % Sucrose in Mixed Juice	87.44	87.85	88.48	88.88	87.98	88.40	88.98	89.84	89.27	89.29	89.12	
Reduced Boiling House Recovery (based on 85° pur. Mxd. Juice)	87.01	87.25	87.10	87.47	87.57	87.76	88.10	88.45	88.18	88.16	88.34	
YIELD—												
Tons Cane per ton Sugar	9.29	8.80	8.89	8.95	9.26	8.62	8.93	8.98	8.67	8.29	8.36	
Tons Cane per ton Sugar of 96° Pol.	9.06	8.58	8.66	8.73	9.03	8.39	8.69	8.74	8.44	8.08	8.14	
LOSSES—												
Sucrose in Bagasse % Sucrose in Cane (A)	8.92	8.47	8.10	7.76	8.09	7.63	7.31	7.03	6.87	6.72	6.93	
Sucrose in Filter Cake % Sucrose in Cane (B).. .. .	1.14	1.15	0.91	0.78	0.60	0.52	0.41	0.36	0.37	0.35	0.28	
Sucrose in Molasses % Sucrose in Cane (C)	—	—	—	—	—	—	—	—	—	—	—	
Undetermined Sucrose % Sucrose in Cane (D).. .. .	10.30	9.97	9.68	9.48	10.43	10.18	9.80	9.09	9.62	9.63	9.85	
Sucrose lost in Boiling House % Sucrose in Cane (B)+(C)+(D)	11.44	11.12	10.59	10.26	11.03	10.70	10.21	9.45	9.99	9.98	10.13	
Sucrose in Total Losses % Sucrose in Cane (A)+(B)+(C)+(D)	20.36	19.59	18.69	18.02	19.12	18.34	17.52	16.48	16.86	16.70	17.06	
SUGAR—												
Average Polarization of all Sugars	98.43	98.50	98.60	98.36	98.44	98.58	98.65	98.59	98.62	98.73	98.70	

COMPARATIVE RESULTS FOR RECENT YEARS.

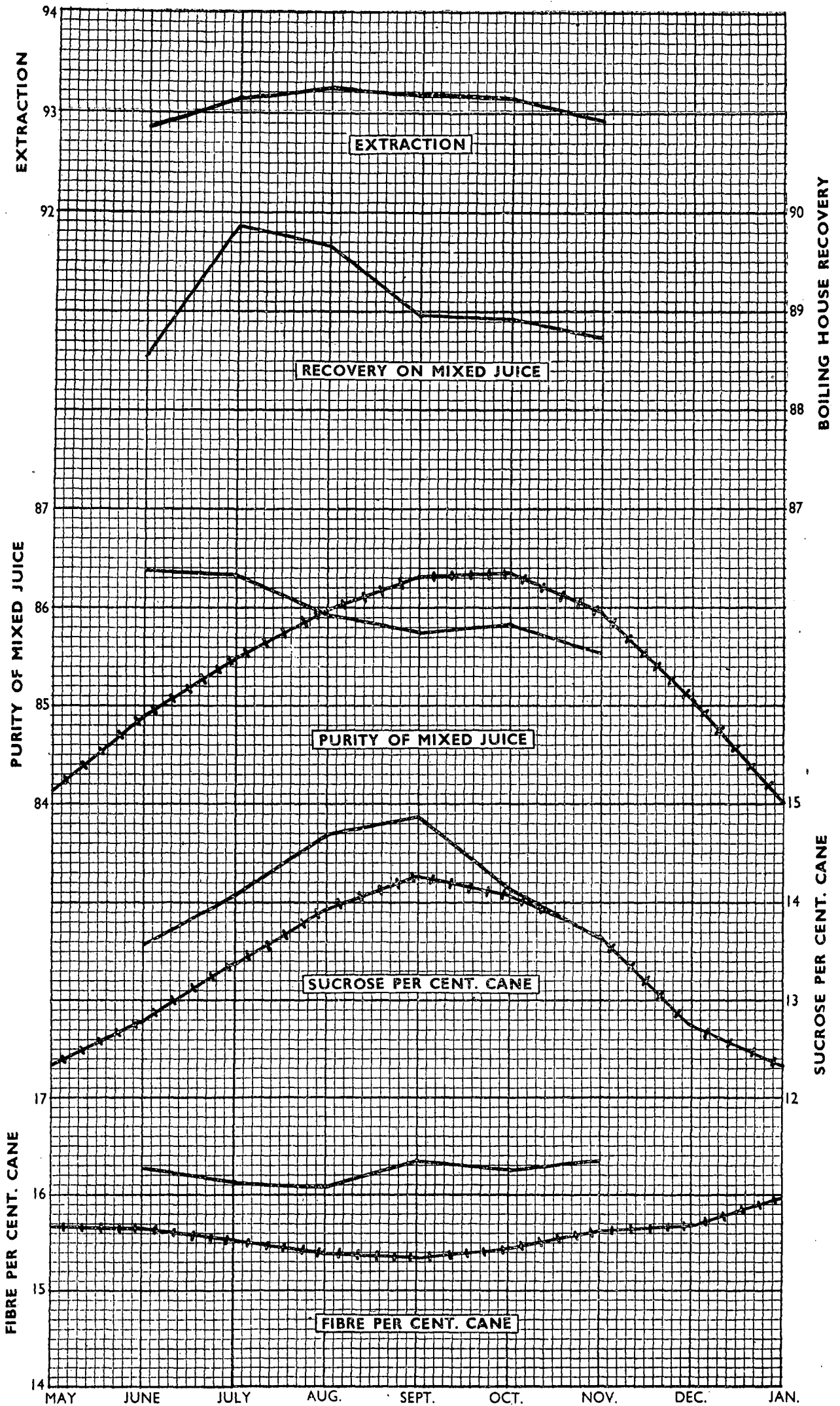
COUNTRY	MAURITIUS.		BRITISH GUIANA.		HAWAII.		QUEENSLAND.		TRINIDAD.		
	YEAR	1944. 1945.	1944. 1945.	1944. 1945.	1944. 1945.	1944. 1945.	1944. 1945.	1944. 1945. 1946.			
CANE—											
Per cent. Sucrose	13.42	13.42	11.83	11.64	12.38	12.54	16.08	15.41	12.68	12.31	12.44
Per cent. Fibre	13.05	13.86	13.94	13.72	14.87	14.61	12.25	12.66	14.92	14.90	14.80
JUICES—											
Purity of First Crusher	88.30	87.20	83.19	82.76	86.24	86.10	90.24	89.53	84.50	83.70	84.37
Purity of Mixed Juice	85.40	84.50	—	—	83.29	83.17	—	—	82.39	81.31	82.29
Purity of last Roller Juice	75.10	73.70	—	—	70.66	71.19	77.61	76.35	74.28	71.65	73.03
Purity of Syrup	85.60	84.70	82.01	81.48	84.30	84.11	89.28	88.60	83.89	83.31	84.56
Drop in purity Crusher to Mixed Juice..	2.90	2.70	—	—	2.95	2.93	—	—	2.11	2.39	2.08
Drop in purity Crusher to last Roller ..	13.20	13.50	—	—	15.58	14.91	12.63	13.18	10.22	12.05	11.34
Drop in purity Crusher to Syrup	2.70	2.50	1.18	1.28	1.94	1.99	0.96	0.93	0.61	0.39	-0.19
Increase in purity Mixed Juice to Syrup ..	0.20	0.20	—	—	1.01	0.94	—	—	1.50	2.00	2.27
Reducing Sugar Ratio of Mixed Juice ..	3.80	4.00	—	—	—	—	—	—	8.42	8.60	8.24
JAVA RATIO	78.96	78.92	79.24	79.03	—	—	82.93	82.35	75.94	76.24	77.40
BAGASSE—											
Per cent. Sucrose	2.80	2.93	3.74	3.52	1.95	2.13	2.79	2.61	2.72	2.47	2.49
Per cent. Moisture	44.80	45.60	46.64	46.53	43.54	43.50	48.97	48.84	48.06	47.92	48.15
EXTRACTION—											
Imbibition % Cane.. .. .	18.50	22.40	18.77	20.28	30.20	30.55	—	—	23.27	23.55	23.97
Sucrose in Mixed Juice % Sucrose in Cane ..	94.70	94.00	90.91	91.49	95.74	95.80	95.48	95.51	93.38	93.84	93.87
Reduced Extraction (based on 12.5% Fibre) ..	94.90	94.60	91.98	92.35	96.52	96.49	95.38	95.56	94.61	94.97	94.96
FILTER CAKE—											
Per cent. Sucrose	7.90	8.00	5.63	5.53	1.22	1.18	3.19	3.49	2.42	1.95	1.99
Weight % Cane	1.57	1.80	1.94	1.89	5.62	5.87	3.58	3.56	2.76	2.71	2.63
FINAL MOLASSES—											
Purity	39.20	39.70	—	—	38.08†	38.90†	48.04	47.98	33.13	33.23	31.59
RECOVERY—											
Sucrose % Cane lost in manufacture	2.20	2.45	2.60	2.57	1.72	1.80	2.23	2.36	2.08	2.05	1.78
Sucrose in Sugar % Sucrose in Cane	83.50	81.70	78.02	77.90	86.10	85.61	86.11	84.69	83.61	83.33	85.67
Reduced Overall Recovery (12.5% Fibre, 85° pur. Mixed Juice)	83.32	82.59	—	—	87.97	87.55	—	—	86.44	86.80	88.15
Sucrose in Sugar % Sucrose in Mixed Juice ..	88.20	86.80	85.82	85.15	89.93	89.37	90.19	88.67	89.54	88.80	91.26
Reduced Boiling House Recovery (based on 85° pur. Mxd. Juice)	87.80	87.30	—	—	91.14	90.73	—	—	91.36	91.40	92.83
YIELD—											
Tons Cane per ton Sugar	8.80	8.98	10.48	10.59	9.15	9.08	7.14	7.58	9.17	9.46	9.09
Tons Cane per ton Sugar of 96° Pol.	8.57	8.75	10.40	10.54	9.01	8.94	6.93	7.36	9.08	9.36	9.01
LOSSES—											
Sucrose in Bagasse % Sucrose in Cane (A) ..	5.30	6.00	9.09	8.51	4.26	4.20	4.52	4.49	6.62	6.16	6.13
Sucrose in Filter Cake % Sucrose in Cane (B) ..	0.92	1.07	0.92	0.90	0.56	0.55	0.60	0.65	0.53	0.43	0.42
Sucrose in Molasses % Sucrose in Cane (c) ..	—	—	—	—	8.82	9.19	5.81	6.59	—	—	—
Undetermined Sucrose % Sucrose in Cane (d) ..	10.28	11.23	11.97	12.69	0.26	0.45	2.96	3.58	9.24	10.08	7.78
Sucrose lost in Boiling House % Sucrose in Cane (B) + (c) + (d)	11.20	12.30	12.89	13.59	9.64	10.19	9.37	10.82	9.77	10.51	8.20
Sucrose in Total Losses % Sucrose in Cane (A) + (B) + (c) + (d)	16.50	18.30	21.98	22.10	13.90	14.39	13.89	15.31	16.39	16.67	14.33
SUGAR—											
Average Polarization of all Sugars	98.60	98.50	96.74	96.44	97.49	97.49	98.87	98.87	96.91	97.02	96.81

† Refractometer sucrose Purity

EXTRACTION AND RECOVERY FIGURES 1935/46



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



SEASON 1946

MEAN OF SEASONS 1927-1946

