

APPENDIX

SUGARCANE STATISTICS—1942/43 CROP.

The annual "Special Census of Sugarcane Plantations (European Planters only)" issued by the Union Government Office of Census and Statistics was, as last year, received too late to be included in the "Annual Summary" presented to the Annual Conference of the South African Sugar Technologists' Association in April, 1944.

The census refers to the crop position at the end of April, 1943, and therefore to the 1942-43 cane crop.

The size of this crop was, of course, largely determined by the rainfall for 1942, which amounted to 45.41 inches at this Experiment Station, which is 22.9 per cent. greater than the average, and to 49.41 inches, the average of 44 recording stations distributed over the sugar belt, or 18.9 per cent. over the 14-year average. This adequate rainfall was very favourably distributed over the seasons of the year, except that it was somewhat excessive in quantity over the last six weeks of the year.

Such favourable rainfall went far to repair, more than seemed possible at one time, the injury done to the crop in its early stages during the record drought-stricken year of 1941. Every district shared in the good rains of 1942.

The area of cane harvested, 167,330 acres, showed a considerable increase over that for 1941, and was not far short of the average area harvested annually over the preceding ten years. The area harvested represents 49.4 per cent. of the total area under cane, so that sugarcane in this country continues to be predominantly a two-year crop, with no tendency yet evidenced to increase in extent.

However, the area under plant cane continues to increase slightly and was over 110,000 acres at the end of the 1942-43 planting season, so that a considerable increase in the area harvested is to be expected in 1944 and following seasons.

65,950 acres of old cane lands were ploughed out during 1942-43, of which 27,535 acres were planted the same season, so that the unfortunate tendency of the previous two seasons continues to diminish the proportion of land placed under long fallow. This tendency, if continued, will undoubtedly impair the productivity of the soil, especially during the present scarcity of commercial fertilizers.

The proportion of the total 1942-43 crop contributed by various districts is as follows:—

District.	Per cent. of total.	Remarks.
Port Shepstone	2.0	Highest since 1933.
Umzinto	13.7	Reduction of previous season continued.
Durban	4.5	About average of recent years.
South Coast	20.2	Slight general reduction.
Inanda	18.2	Highest since 1935.
Tugela	26.3	About the average.
North Coast	44.4	About the average.
Natal (excluding Zululand)	64.6	Average of preceding 10 years = 65.9.
Mtunzini	10.7	Marked drop from last season.
Eshowe	5.7	About average of recent years.
Lower Umfolozi	15.4	Lowest since 1935.
Hlabisa	3.6	Slightly less than last year.
Zululand	35.4	Average of preceding 10 years = 34.1.

The Lower Tugela division again leads in cane production with 1,120,740 tons, Inanda taking second place with 774,840 tons, Lower Umfolozi third with 655,366 tons, and Umzinto fourth with 582,516 tons.

The total quantity of cane harvested according to these records during the 1942-43 season was 4,265,678 tons, which, although considerably higher than for 1941, was not yet quite up to the standard of the 1939 and 1940 seasons, no doubt for reasons already discussed. Each district shared in this partial recovery.

The same may be said of the yields of cane per acre, those in the Umzinto and Lower Umfolozi areas showing a somewhat lower recovery than elsewhere.

The yield of cane per acre for the South Coast as a whole was 21.48 tons, compared with 21.42 tons for the preceding ten years; for the North Coast it was 27.31 tons, compared with 24.52 for the preceding ten years; and for Zululand 26.09, compared with 21.40 tons for the preceding ten years.

The yield of cane per acre for the whole crop was 25.49 tons, and although this is lower than for the three successive seasons 1938, 1939 and 1940, it is well above that for any year preceding 1938, and of course much higher than for the disastrous season of 1941.

For the fourth successive season the Inanda district gains the highest yield per acre of cane, 32.94 tons, followed by Hlabisa with 29.84 tons.

Singularly enough, the yield of Uba cane was lowest in the Hlabisa area, only 12.28 tons per acre, and highest in Inanda, 21.96 tons. The yield per acre for all other varieties combined was 34.89 tons for Inanda and 30.46 tons for Hlabisa.

The proportion of new varieties by districts ranges from 98.2 per cent. in Port Shepstone and Eshowe to 88.2 per cent. in Umzinto.

Uba cane now exists mainly as fourth and older ratoons, as the following returns show.

Total area under cane on 30th April, 1943:—

	Acres.	Per cent. of Uba.
Plant cane	110,180	0.3
First ratoons	75,986	0.9
Second ratoons	69,538	2.8
Third ratoons	46,086	8.6
Fourth ratoons	20,129	27.1
Other ratoons	16,821	50.9
Total crop	335,724	4.8

A similar tendency is shown in the records of the 1942-43 crop harvested:—

	AREA HARVESTED.		YIELD.		TONS PER ACRE.		
	Acres.	Per cent. Uba.	Tons of cane.	Per cent. Uba.	Uba.	Non-Uba.	All varieties.
Plant cane	44,048	0.5	1,417,059	0.3	23.1	31.8	31.7
First ratoons	32,913	0.9	889,028	0.8	24.3	27.0	27.0
Second ratoons	40,640	6.1	972,044	5.2	20.2	24.2	23.9
Third ratoons	27,215	19.9	572,138	16.8	17.7	21.8	21.0
Fourth ratoons	10,923	53.9	222,377	45.0	17.0	24.3	20.4
Other ratoons	10,991	71.5	193,032	64.6	15.9	21.8	17.6
Total	167,330	13.3	4,265,678	9.0	17.3	26.8	25.5

There are still nearly 84,000 acres of suitable virgin land on European sugar plantations not yet put under sugarcane, as well as 316,808 acres, or 40.7 per cent. of the total area of the farms considered unsuitable for sugarcane, or otherwise permanently occupied.

Readers are reminded once more that these statistics refer only to European planters, there being no corresponding statistics available for plantations occupied by non-Europeans. The latter usually produce about 8 per cent. of the total crop and have been hitherto much slower to discard Uba than the European planter. Hence the proportion of Uba in the total area milled is somewhat higher than in the above quoted records.

YIELDS OF CANE HARVESTED BY DISTRICTS (EUROPEAN PLANTERS ONLY).

COMPILED FROM UNION DEPARTMENT OF CENSUS RETURNS.

DISTRICT.	YIELD OF CANE IN TONS.										
	1932.	1933.	1934.	1935.	1936.	1937.	1938.	1939.	1940.	1941.	1942.
PORT SHEPSTONE..	81,823	64,018	67,974	59,259	56,685	75,028	74,856	89,585	81,811	43,704	84,444
UMZINTO	638,701	598,308	611,231	553,401	564,427	692,159	663,609	744,981	733,332	457,518	582,516
DURBAN AND PINETOWN	159,020	138,096	185,118	137,805	146,676	124,109	188,183	213,958	193,938	167,970	191,737
Total South of Umgeni River	879,544	800,422	864,323	750,465	767,788	891,296	926,648	1,048,524	1,009,081	669,192	858,697
Ratio to 1926 (= 100)	197.3	179.54	193.9	168.3	172.2	199.9	207.9	235.2	226.3	150.1	192.6
INANDA	455,816	504,540	618,853	672,954	629,945	615,227	683,261	807,094	816,215	627,454	774,840
LOWER TUGELA	754,022	829,067	1,012,784	1,033,633	1,184,839	1,138,342	1,122,528	1,285,888	1,299,769	921,709	1,120,740
Total for North Coast between Umgeni and Tugela Rivers	1,209,838	1,333,607	1,631,637	1,706,587	1,814,784	1,753,569	1,805,789	2,092,982	2,115,984	1,549,163	1,895,580
Ratio to 1926 (= 100)	146.1	161.00	197.0	206.1	219.1	211.7	218.0	252.7	255.5	187.1	228.9
Total for Natal South of the Tugela (excluding Zululand)	2,089,382	2,134,029	2,495,960	2,457,052	2,582,572	2,644,865	2,732,437	3,141,506	3,125,065	2,218,355	2,754,277
Ratio to 1926 (= 100)	164.0	167.51	195.9	192.9	202.7	207.6	214.5	246.6	245.3	174.1	216.2
MTUNZINI	360,130	353,287	414,821	403,121	413,802	435,154	462,271	525,787	507,644	426,608	457,698
ESHOWE	105,836	120,099	130,104	128,191	120,935	151,020	193,847	243,829	240,962	217,695	243,392
LOWER UMFOLOZI	525,498	582,636	489,547	496,591	616,326	713,675	703,527	777,371	765,381	601,315	655,366
HLABISA	74,379	80,552	63,866	50,529	74,276	136,249	140,794	155,775	158,176	138,416	154,945
Total North of the Tugela (Zululand) .	1,065,813	1,136,574	1,098,338	1,078,432	1,225,339	1,436,098	1,500,439	1,702,762	1,672,163	1,384,034	1,511,401
Ratio to 1926 (= 100)	117.3	125.08	120.9	118.7	134.8	158.0	165.1	187.4	184.0	152.3	166.3
GRAND TOTAL FOR NATAL (including Zululand)	3,155,195	3,270,603	3,594,298	3,535,484	3,807,911	4,080,963	4,232,876	4,844,268	4,797,228	3,602,389	4,265,678
Ratio to 1926 (= 100)	144.6	149.85	164.7	162.0	174.5	187.0	193.9	221.9	219.8	165.0	195.4

YIELDS OF CANE HARVESTED BY DISTRICTS (EUROPEAN PLANTERS ONLY).

COMPILED FROM UNION DEPARTMENT OF CENSUS RETURNS.

DISTRICT.	TONS CANE PER ACRE.												
	1930.	1931.	1932.	1933.	1934.	1935.	1936.	1937.	1938.	1939.	1940.	1941.	1942.
PORT SHEPSTONE	18.60	18.80	19.57	20.47	16.34	14.78	13.51	21.53	29.33	26.52	18.15	13.73	23.08
UMZINTO	22.30	20.80	22.24	21.68	20.69	18.20	18.22	22.41	23.50	25.94	23.02	16.47	20.20
DURBAN AND PINETOWN	26.77	22.90	21.75	23.00	23.34	20.27	19.77	20.42	27.65	31.76	24.74	20.28	25.63
Total South of Umgeni River	22.76	21.00	21.87	21.79	20.76	18.21	18.02	22.04	24.65	27.00	22.83	17.05	21.48
Ratio to 1926 (= 100)	123.40	114.10	118.60	118.17	112.58	98.75	97.72	119.52	133.68	146.42	123.81	92.46	116.49
INANDA	22.01	19.20	20.14	22.80	25.90	26.76	25.95	26.19	31.27	36.57	33.24	28.20	32.94
LOWER TUGELA	22.12	18.20	18.36	19.45	21.62	20.83	22.61	22.90	25.19	29.51	27.35	21.30	24.42
Total for North Coast between Umgeni and Tugela Rivers	22.08	18.60	18.99	20.59	23.07	22.83	23.67	23.96	27.19	31.89	29.35	23.64	27.31
Ratio to 1926 (= 100)	118.10	100.00	102.00	110.64	123.97	122.68	127.19	128.75	146.10	171.36	157.71	127.03	146.75
Total for Natal South of the Tugela (excluding Zululand)	22.31	19.40	20.11	21.03	22.21	21.19	21.65	23.27	26.27	30.07	26.87	21.18	25.18
Ratio to 1926 (= 100)	120.30	104.60	108.40	113.37	119.73	114.23	116.71	125.44	141.62	162.10	144.85	114.18	135.74
MTUNZINI	22.53	18.10	17.55	18.40	19.56	18.75	18.85	20.97	24.67	27.86	27.06	22.67	24.96
ESHOWE	20.22	18.90	16.69	17.47	17.95	17.64	17.26	20.69	28.03	29.89	26.62	23.53	25.11
LOWER UMFOLOZI	23.83	18.00	18.63	19.84	17.93	18.28	23.04	28.81	34.40	33.25	31.00	26.10	26.51
HLABISA	19.55	14.60	16.17	17.31	14.79	12.72	18.60	25.36	30.91	28.81	29.60	26.31	29.84
Total North of the Tugela (Zululand)	22.50	17.90	17.86	18.91	18.28	18.00	20.52	24.68	29.62	30.51	28.91	24.55	26.09
Ratio to 1926 (= 100)	94.40	75.20	74.95	79.35	76.71	75.54	86.11	103.57	124.30	128.03	121.32	103.02	109.48
GRAND TOTAL FOR NATAL (including Zululand)	22.39	18.90	19.29	20.24	20.84	20.10	21.27	23.75	27.37	30.22	27.55	22.36	25.49
Ratio to 1926 (= 100)	109.50	92.60	94.40	99.02	101.96	98.34	104.06	116.19	133.90	147.85	134.78	109.38	124.71
Rainfall of all Districts (inches) (Average from 44 centres)	37.20	29.39	48.20	31.12	44.60	46.12	50.10	39.48	40.38	47.63	43.37	26.18	49.41

AREA OF CANE HARVESTED AND YIELDS BY DISTRICTS (EUROPEAN PLANTERS ONLY).

COMPILED FROM UNION DEPARTMENT OF CENSUS RETURNS.

DISTRICT.	TONS CANE PER ACRE, 1942/43.		PERCENTAGE (AREA) OF NON-UBA CANES UNDER CULTIVATION. APRIL 30TH.							ACREAGE UNDER CULTIVATION. APRIL 30TH. PLANT CANE.		Total Plant Cane, 1943, per cent. Total Plant Cane, 1942.
	Uba.	Non-Uba.	1937.	1938.	1939.	1940.	1941.	1942.	1943.	1942.	1943.	
PORT SHEPSTONE	15.82	23.90	36.3	48.8	56.4	70.6	86.6	93.5	98.2	2,507	2,103	83.9
UMZINTO	16.31	21.42	40.8	50.3	56.4	59.9	70.3	80.1	88.2	14,720	17,777	120.8
DURBAN AND PINETOWN	19.83	26.58	48.9	67.4	76.5	81.7	85.4	88.5	95.6	4,508	5,612	124.5
Total South of Umgeni River..	16.73	22.73	41.4	53.0	60.0	64.7	74.7	82.8	90.4	21,735	25,492	117.3
Ratio to 1926 (= 100).. .. .	90.73	123.26	—	—	—	—	—	—	—	—	—	—
INANDA	21.96	34.89	36.4	49.4	59.8	69.7	77.7	86.4	90.6	15,256	13,551	88.8
LOWER TUGELA	16.10	26.14	45.5	55.3	64.1	71.0	77.5	85.9	93.5	29,688	32,058	108.0
Total for North Coast between Umgeni and Tugela Rivers..	17.93	29.15	42.5	53.4	62.7	70.6	77.6	86.1	92.5	44,944	45,609	101.5
Ratio to 1926 (= 100).. .. .	96.35	156.64	—	—	—	—	—	—	—	—	—	—
Total for Natal South of the Tugela (excluding Zululand)	17.42	26.89	42.1	53.2	61.7	68.4	76.5	84.9	91.7	66,679	71,101	106.6
Ratio to 1926 (= 100).. .. .	93.91	144.96	—	—	—	—	—	—	—	—	—	—
MTUNZINI	17.14	25.41	50.0	66.6	77.1	83.8	90.9	95.5	97.3	13,274	13,383	100.8
ESHOWE	14.53	25.54	49.6	67.5	79.3	89.0	93.8	96.6	98.2	6,544	6,644	101.5
LOWER UMPHOLOZI	16.55	26.89	61.1	73.1	83.0	89.3	94.0	96.4	97.6	17,371	16,297	93.8
HLABISA	12.28	30.46	52.2	70.2	80.0	90.6	92.5	96.5	97.5	2,834	2,755	97.2
Total North of the Tugela (Zululand)	16.16	26.52	55.1	69.9	80.2	87.5	92.8	96.1	97.6	40,023	39,079	97.6
Ratio to 1926 (= 100).. .. .	67.81	111.29	—	—	—	—	—	—	—	—	—	—
GRAND TOTAL FOR NATAL (including Zululand)	17.28	26.75	46.5	58.8	67.9	74.8	82.1	88.8	93.8	106,702	110,180	103.3
Ratio to 1926 (= 100).. .. .	84.54	130.87	—	—	—	—	—	—	—	—	—	—

The following are Abstracts from Reports submitted by various Factories on the Season's Work.

DOORKOP SUGAR FACTORY.

Report by G. Booth.

Season 1943, of 31 weeks duration, marked a phenomenal year of rainfall in the district served by this mill. The precipitation ranged from 63 to 71 inches, 35 of which fell during the harvesting season.

Starting in the third week of May with a 13.5 per cent. sucrose and over 90° purity in first expressed juice and the crops looking well, there was every indication of a bumper season, with new records in milling and manufacture.

The conditions promised a sucrose of well over 15 per cent. and a long run at peak load of production with a low cane to sugar ratio during the optimum months of July, August and September.

Unfortunately, by mid-July the heavy winter rains had upset harvesting and field transport conditions to a serious extent and from that time onward constant interruptions in regular running had to be catered for. Furthermore, these difficulties were aggravated by a field labour shortage.

In consequence of reduced time efficiency and reduced crushing rate, such departmental investigational work as we generally endeavour to undertake had to be abandoned.

Milling returns showed the effects of trying to cater for four varieties of cane with mill settings adjusted to the one variety in major supply. In this respect, one may suggest that it will be distinctly advantageous to milling and steaming when a more thorough knowledge of the suitability of each variety for the district and soil types is available and is utilized in future plantings, so that these cane classes may be narrowed down considerably.

Factory work, except during those periods following shut-downs, presented no great difficulties. The colour of the white sugars produced was at times adversely affected, as was to be expected, and short-period recoveries erratic in consequence.

It is interesting to record that during the intervals of making 98 + pol. sugars there were occasions when the final molasses dropped to 33° and 34° of simple purity, even after only fifty odd hours in the crystallizer. It is probable that with longer time and more intensive treatment in the crystallizer the average purities might have dropped further during white sugar manufacture.

As commented in previous reports, much investigational work awaits in the factory, specially in the boiling and curing stations, not only with a view to a betterment in recovery but to save labour. Presumably we must await the conclusion of the war before the industry tackles the job, as it surely must do.

CHAKAS KRAAL SUGAR FACTORY.

Report by J. F. Pougnet.

We started crushing at Chakas Kraal factory on the 15th of April, 1943, with the Company's sugarcane that had been burnt 26 days before the factory repairs had been completed. During the 26 days that the burnt cane was left standing in the field, we had light showers, which amounted to 1.65 inches of rain on four days. The cane kept fairly well provided it was left standing. The first lot was cut five days before the mill could start crushing and the purity of the crusher juice was only 62°. Then came the daily-cut cane and the purity kept between 81° and 84°, the glucos ratio being over 5.50 on an average. I must state that the recovery during that period was very poor and the factory was overloaded with molasses. The defecation of the juice was good. We, however, used more chemicals during that particular week, in spite of which the second boiling gave us very poor results.

When we resumed the crushing with newly burnt cane, we immediately reduced the sulphur burnt from 18 lbs. to 10 lbs. per ton of sugar, and the lime from 72 lbs. to 40 lbs., with good working conditions at the boiling house. We found, however, that the evaporators after the third day of every week could not maintain the same concentration of syrup, due to very heavy coatings of lime salts on the evaporators and even on the

delivery syrup pipes and pumps. We therefore used some phosphoric paste at the tempering tanks and reduced the pH from 7.6 to 7.2. This to a certain extent reduced the heavy incrustation. I wish to state also that I attributed the greater part of the incrustation to shorter time of settling, as the crushing had been increased from an average of 36 tons per hour the previous year, to 38½ tons per hour this season.

The continuous rains during the crushing season did not affect the juices. We experienced no difficulty at the boiling house. We had to boil jellies instead of three masseccutes, due to lack of equipment. We found that the jelly was curing more freely this year than in previous years when the percentage of Uba cane was higher.

I am sorry that I could not have had a 12-hour run without using sulphur; the risk was, however, too great, as daily and at any time we crushed small consignments of Uba cane from the small planters.

During the whole season, the filtration of the scum from the juice was very easy with a very hard, dry cake, and if mechanical arrangements could have been made, I would have been inclined to attempt filtering all the juices instead of using the defecation or settling tanks. This, I am almost sure, would have improved the working of our evaporator. The fact remains that this year we filtered 6.624 tons of sugar per yard of filter cloth, as against 4.731 tons last year.

One of our great handicaps at the boiling house this year was shortage of water due to mechanical trouble, accompanied by high temperatures as experienced during the latter part of the crushing season.

MAIDSTONE SUGAR FACTORY.

Report by D. W. W. Hendry.

The crushing season under review must be a record one for rainfall. As a result, there were stoppages amounting to 280 hours, the greater part being due to planters' inability to cut and remove cane from their fields.

Cane.—The average sucrose per cent. cane for the last sixteen years is 13.71 per cent., and this includes a record low figure of 12.26 per cent. in 1934, when the cane was badly damaged by locusts.

The cane delivered to the mill was of excellent quality, as judged by its milling and the settling qualities of the juice. This materially assisted in the large throughput. The fibre per cent. cane was 14.79, but the sucrose content was exceptionally low, being only 13.09 per cent. cane.

Mills.—138.65 tons of cane were crushed per hour. This is eight tons higher than the previous record. The extraction of 93.76 per cent., attained with 24.71 per cent. maceration water, was only 0.03 per cent. lower than the best figure for this mill.

Juice Section.—With a greater throughput this station was extended. It is expected that three new Bach subsiders will be available for the coming crop.

With a record low chemical consumption per ton of sugar, it is interesting to compare the settling capacity available with that of other parts of the world.

	Maidstone Factory.	Cuba, according Salinas, Sugar, to April, 1940.
Gallons P.T.C.H....	517	768
Square feet defecation area	7.3	19.2
Average depth of subsiders	9ft. 4 ins.	—

The claim is made that the higher initial temperature of the juice prior to sulphuring has been responsible for the throughput, and better working of the quadruple. During the past seven years, we have maintained a primary temperature of 175°F., and we have reason to believe that two other factories in Natal have found this to be to their advantage during the season under review.

Pans and centrifugals.—No difficulty has been experienced at this end of the factory. The results, when compared with previous years and factories that are similarly equipped, may be said to be excellent.

Steps to make this part of the factory suitable for a three-masseccute system are in hand, and the quality of the output should be improved when this takes place.

Sugar.—The amount of 67,266 tons sugar produced was a record for this factory.

The PRESIDENT stressed the importance of the Annual Summary as a document of reference. He always made a detailed study of its contents, and found that he could learn a great deal from it.

The Council of the Technologists' Association had tried for a long time to get closer collaboration between factory managers and chemists so that they could discuss their particular troubles. The Annual Summary and these short reports from the factories provided such an opportunity. He found, for example, Mr. Hendry's reference to the effect of primary temperatures on incrustations in the triple tubes of the greatest importance. Many in this country had the idea that the preheating temperature in alkaline solution should not be much above 150°F. for fear of destroying reducing sugars. He personally never held that view. He could not be persuaded that the destruction of glucose meant a final loss of sugar. When making cargo sugar he would like to raise his primary temperature to 200°F. were it not for shortage of steam. When he had to switch over to all white sugar production he kept his temperature at 125°F., with the result that incrustation trouble became very serious. This puzzled him a lot, and he had endless trouble until he had talks with colleagues in other factories and was able to get some explanation of the trouble.

Mr. VIGER said Darnall had tried, for many years, at various periods of the season, to increase the temperature of the pre-heated juice from 150°F. to 180°F., so as to decrease the incrustations of the evaporator tubes in the last effect. With these higher temperatures a thinner incrustation was obtained, but unfortunately it was very hard to remove. When sulphur and phosphoric acid paste were kept in the ratio of 4 to 1 and the pH 7.3 to 7.4 the incrustation was soft and easily removed. In Java they had not found that sulphitation at very high temperatures (180°F.) was conducive to a good boiling house recovery.

Although No. 20 had gained the highest boiling house recovery, No. 16 had performed better work in his opinion, as it had a better boiling house efficiency.

Mr. DODDS said that the sugar industry was to be congratulated on the very wholesome tradition of exchanging information and making all manufacturing data available. This was a rather unusual feature for private industry, and he knew of no other except the gold mines in this country, and most other sugar industries, that were willing to give manufacturing details. As far as our own industry was concerned, he would like to see the interchange of information and data extended to the extent that it used to be in Java, and still was done in Hawaii.

Mr. RAULT said that although some might think the factory notes were more in the nature of post-mortem examinations, he

nevertheless thought that much could be gained by knowing the mistakes that had been made.

A few general characteristics of the past season were: a low sucrose per cent. cane, easy working juices, high fibres, and good boiling house recoveries.

At his own particular mill a shortage of working hours enforced a higher crushing rate, which had surprisingly little adverse effect on extraction. In fact, the optimum extraction was recorded at the peak of capacity. Their experience was also that whereas a rise in fibre per cent. cane was of very little importance on extraction or the tons of cane crushed per hour, there seemed to be a closer relation between sucrose content of cane and extraction. Their milling results further indicated that a low extraction in the crusher unit had no lasting influence on the total extraction, which could be raised subsequently by other units. Their crusher was rather worn now and they intended replacing it during the coming season, but he doubted very much whether that would lead to an appreciable overall extraction.

The exact relation between atmospheric conditions and sucrose per cent. cane still remained obscure. Rainfall and its distribution played a part, but that was only one factor and by itself did not give a very good correlation with sucrose content of cane.

He thought that the effects of glucose destruction on the colour of white sugar were rather over-stressed. Their experience in making white sugars by the carbonation process was that although large quantities of glucose were destroyed in clarification, the resultant white sugar was still of very good colour. The purity of the molasses was certainly affected adversely as a result of glucose destruction; but, on the other hand, the large elimination of non-sucrose, including glucose, was responsible for a smaller quantity of molasses and thus had a beneficial effect on recovery. An acid reaction of liquors was not essential for white sugars, and the carbonated juices boiled at pH of 7.3 to 7.4 produced excellent whites.

The PRESIDENT said he could not agree with Mr. Rault on the point that the crusher had no effect on final extraction. His experience was that the crusher was a preparing unit which played a most important part in total extraction.

He thought that, within certain limits, the purity of the juice was of lesser significance in boiling house recovery. What was of most importance was that the cane be cut at its maximum ripeness, when the sucrose would be at its highest availability. It stood to reason that general cleanliness, the elimination of unnecessary piping and machinery generally and a quick throughput all led to higher efficiency.