

## APPENDIX—SUGARCANE STATISTICS 1945-46

The "Special Census of Sugarcane Plantations (European Planters only)" issued annually by the Union, Government Office of Census and Statistics is of added interest this year. For the first time separate returns are given for the different varieties now in cultivation.

During the year under review, European planters produced 4,898,380 tons of cane out of a total of 5,351,945 tons. Both these figures are the highest ever attained in South Africa, but the area harvested 168,435 acres, was also considerably more than it was the previous year, when it amounted to only 156,982 acres. The average yield of cane per acre for European planters was 29.08, which was surpassed in 1943 and 1939, when the yields were respectively 30.87 and 30.22

### Rainfall.

This decrease in yield as compared with the more favourable years must be attributed to the fact that the rainfall was not only deficient but unfavourably distributed. This was particularly the case with the South Coast, where only 80.5 per cent. of normal rain was recorded. The North Coast also suffered badly and had 83.4 per cent. of the average rainfall. Zululand was in a somewhat more favourable position and the deficiency only amounted to 4.4 per cent. Another important factor affecting the yields of sugarcane is, of course, the acute deficiency of fertilizers.

### Yield of Sugar made per Acre.

The sucrose per cent. cane was somewhat higher than the preceding two years, and with factories recording an overall recovery of 83.14 the yield of sugar manufactured per acre was still very good, and compared favourably with the majority of cane sugar producing countries of the world.

Our average results for recent years are as follows:—

Year.	Tons of cane per acre.	Tons of sugar recovered (96% Pol.) per acre.	Rain-fall.	Sucrose per cent. cane.	Overall re-covery.
1932 ...	19.29	2.05	48.20	13.48	75.73
1933 ...	20.24	2.24	31.12	13.88	76.63
1934 ...	20.84	2.00	44.60	11.88	77.59
1935 ...	20.10	2.24	46.12	13.65	78.40
1936 ...	21.27	2.35	50.10	13.30	79.64
1937 ...	23.75	2.77	39.48	13.92	80.41
1938 ...	27.35	3.16	40.38	13.64	81.31
1939 ...	30.22	3.46	47.63	13.41	81.98
1940 ...	27.55	3.05	43.37	13.19	80.86
1941 ...	22.36	2.67	26.18	14.00	81.66
1942 ...	25.49	2.93	49.41	13.40	82.48
1943 ...	30.87	3.53	53.31	13.14	83.52
1944 ...	29.08	3.44	36.45	13.67	83.14

### Non-European Contribution to Production.

The yield of cane and sugar per acre as recorded above refers strictly to European planters only and no details of other planters are available. From the total cane milled and the quantity produced by Europeans, however, it is clear that the non-European planters produced 453,565 tons of cane, or 8.47 per cent. of the total crop. If it is assumed that the yield of cane per acre is the same as for European planters (it is probably less), then the area reaped by non-Europeans is 15,597 acres and the total for the industry becomes 184,032 acres.

### Areas.

The total area of the 707 returns is 777,054 acres, of which 340,316 acres are under sugarcane and 88,265 acres are still available as suitable virgin land. During the year ending 30th April, 1945, a total of 4,088 acres of virgin land was planted. Most of this virgin land brought under cane was in the Eshowe and Lower Umfolozi districts. Eshowe accounted for 1,084 acres or 26.5 per cent. of the total new land planted this year, and the area and percentage for Lower Umfolozi was 940 acres or 23.0 per cent. Thus these two districts together planted just about as much cane on virgin land as the rest of the industry.

The total area under plant cane on the 30th April, 1945, was 84,618 acres, having receded from 96,286 acres on the same day in 1944 and 110,180 in 1943.

In 1944/45 a total of 57,988 acres of old cane lands of an average age of 7.28 years were ploughed out, of which 20,659 or 35.6 per cent. was planted again the same season (short fallows). Although the area ploughed out was slightly smaller than the previous year the area under short fallows increased by more than 1,600 acres. At Umzinto 55.1 per cent. of the cane lands ploughed out were replanted the same year, and the percentage at Eshowe was 48.5. Inanda had the best record, only 14.8 per cent. being replanted the same season.

### Varieties.

Where separate returns of individual varieties are now given, it becomes possible to judge their relative merits in different localities.

The P.O.J. varieties gave the highest average yield, 32.66 tons of cane per acre, but only 5,083 acres were harvested, the greater part of which is from the Lower Umfolozi 2,972 acres and in the Hlabisa district 743 acres. It is interesting to note that in the Lower Umfolozi Co. 281 outyielded the P.O.J. varieties, giving an average of 32.81 tons of cane per acre over 18,048 acres, as compared with 30.25 tons of cane per acre from P.O.J. At Hlabisa, however, P.O.J. cane gave by far the best returns, 45.44 tons

per acre. The P.O.J. varieties are now only grown on the more productive areas and as such are favoured compared with the other varieties.

Co.331, referred to as "Other varieties" in the returns, gave the excellent yield of 32.25 tons per acre; but only 229 acres were harvested and it is hardly justifiable to draw conclusions from such small areas.

On an average Co.301 yielded 31.23 tons of cane per acre and Co.281 29.57 tons per acre. This superiority of Co.301 over Co.281 is almost entirely due to its better performance south of the Tugela. In Natal (south of the Tugela) Co.301 averaged 32.53 tons per acre over 22,697 acres, and Co.281 over 67,318 acres 29.56 tons per acre. In Zululand the yields were 25.84 tons per acre in the case of Co.301 and 29.60 for Co.281. Although, therefore, the yields of Co.281 in Zululand and Natal are practically identical, a better return was obtained from Co.301 in Natal. In fact, Co.301 outyielded Co.281 in every district south of the Tugela except the Port Shepstone area. In Zululand better averages were obtained from Co.301 than from Co.281 only in the Hlabisa district. In the comparison between Co.281 and Co.301 the latter is favoured somewhat because a greater proportion of plant cane and first ratoons were harvested.

The area under Uba is still decreasing and this variety averaged 19.94 tons per acre. This figure is low, partly as a result of old ratoons constituting the large bulk of the returns. Nearly 50 per cent. of the Uba cut was ratoons older than fourth ratoons. A fairer comparison than the average yield of all cane would therefore be to compare plant cane and individual ratoons with the other varieties as given in one of the tables, but even so Uba remains inferior to the other varieties.

Of varieties other than Uba, Co.290 gave the lowest yield, 23.71 tons per acre. This, as in the case of Uba, can partly be attributed to the small proportion of plant and first ratoons harvested. It is sometimes considered that one of the disadvantages of Co.290 is the fact that it ratoons poorly, but that cannot be concluded from these returns; in fact, the opposite seems to be the case. In the following table the yield of the different ratoons are given compared with 100 as the plant cane crop:—

Variety.	Plant cane.	1st ratoon.	2nd ratoon.	3rd ratoon.	4th ratoon.	Other ratoons.
Uba	100 0	84.5	75.4	70.4	69.3	66.6
Co.281	100 0	93.4	82.3	75.0	71.8	77.8
Co.290	100.0	93.3	86.7	80.2	84.1	84.2
Co.301	100.0	95.0	76.4	75.2	65.2	55.0
P.O.J.	100.0	82.0	84.0	70.7	83.9	65.9

#### Average Returns from Different Localities.

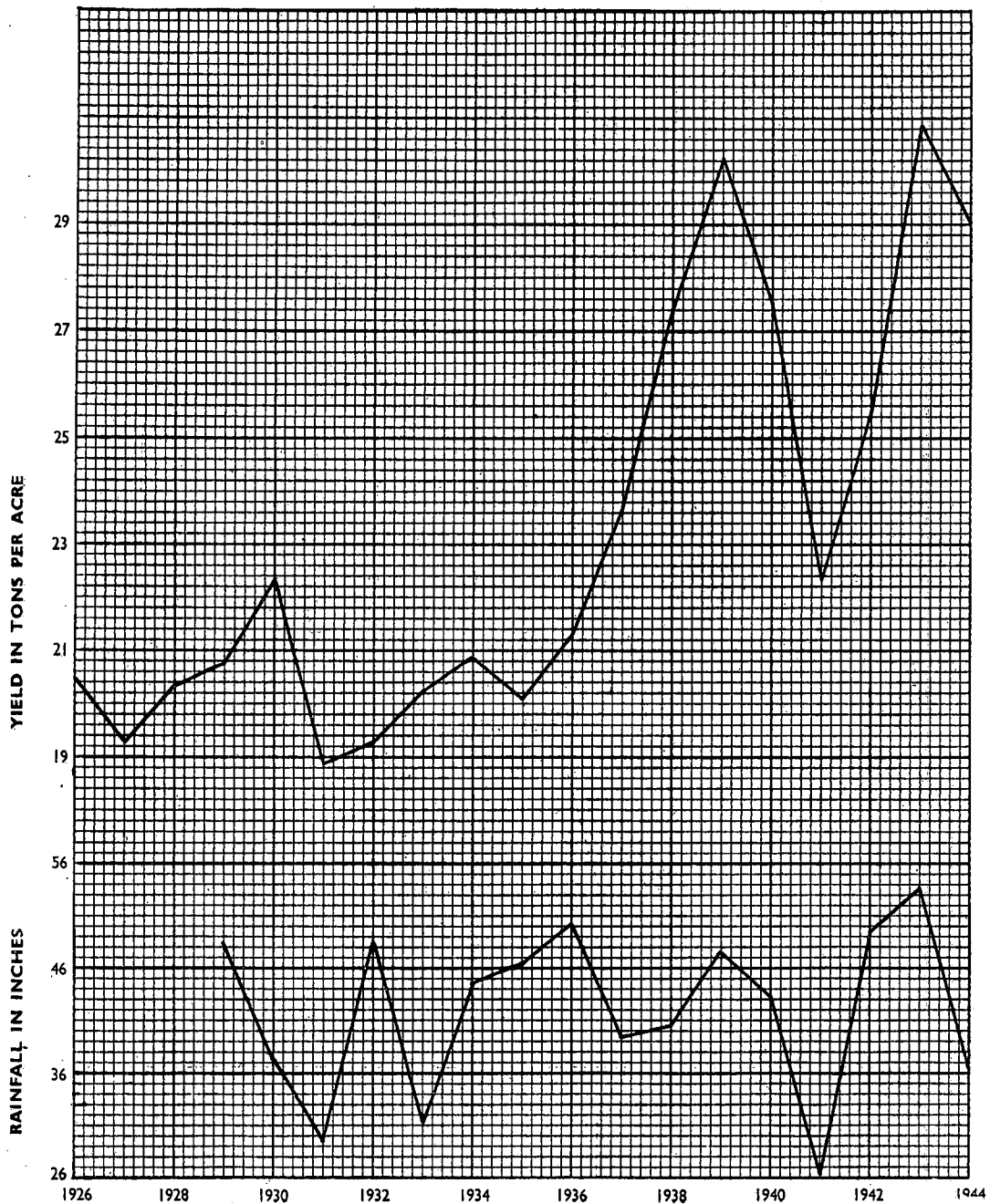
Zululand has produced a higher percentage of the total crop (36.6 per cent.) than during the preceding two years. Nearly all the Zululand districts share in this increase, and it is due to the more favourable weather conditions in that area during the period under review. Lower Tugela still leads with 26.7 per cent. of the total crop as an individual area, and is followed by Inanda, 16.8 per cent., and Lower Umfolozi, 15.7 per cent.

The Inanda district again had the best yield of cane per acre, 37.51 tons, and is followed by Lower Umfolozi with 31.47 tons per acre. Co.301 averaged 42.14 tons of cane per acre in the Inanda district.

The average tons of cane per acre was 24.07 for the South Coast, 32.14 for the North Coast, or 29.08 for Natal excluding Zululand. The latter average is exactly the same as for Zululand and is therefore also the average of the whole industry. The sucrose per cent. cane was highest for the South Coast, averaging 14.38 per cent., to be followed by the North Coast with 13.65 per cent. and then Zululand with 13.25 per cent. The average for the industry was 13.67 per cent. The following table reflects the production of sugarcane and sugar per acre.

Area.	Sucrose per cent. cane.	Tons cane per acre.	Per cent. normal rainfall.	Tons sucrose per acre harvested
South Coast...	14.38	24.07	80.5	3.46
			(Mean of 9 stations)	
North Coast...	13.65	32.14	83.4	4.39
			(Mean of 21 stations)	
Zululand ...	13.25	29.08	95.6	3.85
			(Mean of 14 stations)	
Total ...	13.67	29.08	86.8	3.98
			(Mean of 44 stations)	

AVERAGE ANNUAL RAINFALL IN INCHES AND YIELD OF CANE IN TONS PER ACRE FOR NATAL AND ZULULAND



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

COMPILED FROM UNION DEPARTMENT OF CENSUS RETURNS.

DISTRICT.	YIELD OF CANE IN TONS.										
	1934.	1935.	1936.	1937.	1938.	1939.	1940.	1941.	1942.	1943.	1944.
PORT SHEPSTONE.. . . . .	67,974	59,259	56,685	75,028	74,856	89,585	81,811	43,704	84,444	97,113	79,993
UMZINTO .. . . . .	611,231	553,401	564,427	692,159	663,609	744,981	733,332	457,518	582,516	682,713	728,879
DURBAN AND PINETOWN .. . . . .	185,118	137,805	146,676	124,109	188,183	213,958	193,938	167,970	191,737	195,923	165,164
<b>Total South of Umgeni River</b> .. . . . .	864,323	750,465	767,788	891,296	926,648	1,048,524	1,009,081	669,192	858,697	975,749	974,036
Ratio to 1926 (= 100).. . . . .	193.9	168.3	172.2	199.9	207.9	235.2	226.3	150.1	192.6	218.9	218.5
INANDA .. . . . .	618,853	672,954	629,945	615,227	683,261	807,094	816,215	627,454	774,840	812,986	823,041
LOWER TUGELA .. . . . .	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	1,331,681	1,310,186
<b>Total for North Coast between Umgeni and Tugela Rivers</b> .. . . . .	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	2,144,667	2,133,227
Ratio to 1926 (= 100).. . . . .	197.0	206.1	219.1	211.7	218.0	252.7	255.5	187.1	228.9	259.0	257.6
<b>Total for Natal South of the Tugela (excluding Zululand)</b> .. . . . .	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	3,120,416	3,107,263
Ratio to 1926 (= 100).. . . . .	195.9	192.9	202.7	207.6	214.5	246.6	245.3	174.1	216.2	244.9	243.9
MTUNZINI .. . . . .	414,821	403,121	413,802	435,154	462,271	525,787	507,644	426,608	457,698	533,560	556,524
ESHOWE .. . . . .	130,104	128,191	120,935	151,020	193,847	243,829	240,962	217,695	243,392	264,198	293,602
LOWER UMFOLOZI .. . . . .	489,547	496,591	616,326	713,675	703,527	777,371	765,381	601,315	655,366	758,217	769,436
HLABISA .. . . . .	63,866	50,529	74,276	136,249	1470,94	155,775	158,176	138,416	154,945	168,982	171,555
<b>Total North of the Tugela (Zululand)</b> .. . . . .	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	1,724,957	1,791,117
Ratio to 1926 (= 100).. . . . .	120.9	118.7	134.8	158.0	165.1	187.4	184.0	152.3	166.3	189.8	197.1
<b>GRAND TOTAL FOR NATAL (including Zululand)</b> .. . . . .	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	4,845,373	4,898,380
Ratio to 1926 (= 100).. . . . .	164.7	162.0	174.5	187.0	193.9	221.9	219.8	165.0	195.4	222.0	224.4

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

COMPILED FROM UNION DEPARTMENT OF CENSUS RETURNS.

DISTRICT.	PER CENT. OF TOTAL TONNAGE.												
	1932.	1933.	1934.	1935.	1936.	1937.	1938.	1939.	1940.	1941.	1942.	1943.	1944.
PORT SHEPSTONE .. .. .	2.6	2.0	1.9	1.7	1.5	1.8	1.8	1.8	1.7	1.2	2.0	2.0	1.6
UMZINTO .. .. .	20.2	18.3	17.0	15.6	14.8	17.0	15.7	15.4	15.3	12.7	13.7	14.1	14.9
DURBAN AND PINETOWN .. .. .	5.0	4.2	5.1	3.9	3.9	3.0	4.4	4.4	4.0	4.7	4.5	4.0	3.4
<b>Total South of Umgeni River</b> .. .. .	27.9	24.5	24.0	21.2	20.2	21.8	21.9	21.6	21.0	18.6	20.1	20.1	19.9
INANDA .. .. .	14.4	15.4	17.2	19.0	16.5	15.1	16.2	16.7	17.0	17.4	18.2	16.8	16.8
LOWER TUGELA .. .. .	23.9	25.3	28.2	29.2	31.1	27.9	26.5	26.5	27.1	25.6	26.3	27.5	26.7
<b>Total for North Coast between Umgeni and Tugela Rivers</b> ..	38.3	40.8	45.4	48.3	47.6	43.0	42.7	43.2	44.1	43.0	44.4	44.3	43.5
<b>Total for Natal South of the Tugela (excluding Zululand)</b> .. ..	66.2	65.2	69.4	69.5	67.8	64.8	64.6	64.8	65.1	61.6	64.6	64.4	63.4
MTUNZINI .. .. .	11.4	10.8	11.6	11.4	10.9	10.7	10.9	10.9	10.6	11.8	10.7	11.0	11.4
ESHOWE .. .. .	3.4	3.7	3.6	3.6	3.2	3.7	4.6	5.0	5.0	6.0	5.7	5.5	6.0
LOWER UMFOLOZI .. .. .	16.7	17.8	13.6	14.1	16.2	17.5	16.6	16.0	16.0	16.7	15.4	15.6	15.7
HLABISA .. .. .	2.4	2.5	1.8	1.4	1.9	3.3	3.3	3.2	3.3	3.8	3.6	3.5	3.5
<b>Total North of the Tugela (Zululand)</b> .. .. .	33.8	34.8	30.6	30.5	32.2	35.2	35.4	35.1	34.9	38.4	35.4	35.6	36.6
<b>GRAND TOTAL FOR NATAL (including Zululand)</b> .. .. .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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

COMPILED FROM UNION DEPARTMENT OF CENSUS RETURNS.

DISTRICT.	TONS CANE PER ACRE.												
	1932.	1933.	1934.	1935.	1936.	1937.	1938.	1939.	1940.	1941.	1942.	1943.	1944.
PORT SHEPSTONE.. . . . .	19.57	20.47	16.34	14.78	13.51	21.53	29.33	26.52	18.15	13.73	23.08	31.32	22.95
UMZINTO .. . . . .	22.24	21.68	20.69	18.20	18.22	22.41	23.50	25.94	23.02	16.47	20.20	24.68	24.18
DURBAN AND PINETOWN .. . . . .	21.75	23.00	23.34	20.27	19.77	20.42	27.65	31.76	24.74	20.28	25.63	24.01	24.16
<b>Total South of Umgeni River</b> .. . . . .	21.87	21.79	20.76	18.21	18.02	22.04	24.65	27.00	22.83	17.05	21.48	25.07	24.07
Ratio to 1926 (= 100) .. . . . .	118.60	118.17	112.58	98.75	97.72	119.52	133.68	146.42	123.81	92.46	116.49	135.95	130.53
INANDA .. . . . .	20.14	22.80	25.90	26.76	25.95	26.19	31.27	36.57	33.24	28.20	32.94	40.45	37.51
LOWER TUGELA .. . . . .	18.36	19.45	21.62	20.83	22.61	22.90	25.19	29.51	27.35	21.30	24.42	31.10	29.49
<b>Total for North Coast between Umgeni and Tugela Rivers</b> .. . . . .	18.99	20.59	23.07	22.83	23.67	23.96	27.19	31.89	29.35	23.64	27.31	34.09	32.14
Ratio to 1926 (= 100) .. . . . .	102.00	110.64	123.97	122.68	127.19	128.75	146.10	171.36	157.71	127.03	146.75	183.18	172.70
<b>Total for Natal South of the Tugela (excluding Zululand)</b> .. . . . .	20.11	21.03	22.21	21.19	21.65	23.27	26.27	30.07	26.87	21.18	25.18	30.64	29.08
Ratio to 1926 (= 100) .. . . . .	108.40	113.37	119.73	114.23	116.71	125.44	141.62	162.10	144.85	114.18	135.74	165.18	156.77
MTUNZINI .. . . . .	17.55	18.40	19.56	18.75	18.85	20.97	24.67	27.86	27.06	22.67	24.96	30.71	27.19
ESHOWE .. . . . .	16.69	17.47	17.95	17.64	17.26	20.69	28.03	29.89	26.62	23.53	25.11	27.46	27.27
LOWER UMFOLOZI .. . . . .	18.63	19.84	17.93	18.28	23.04	28.81	34.40	33.25	31.00	26.10	26.51	33.45	31.47
HLABISA .. . . . .	16.17	17.31	14.79	12.72	18.60	25.36	30.91	28.81	29.60	26.31	29.84	30.79	29.00
<b>Total North of the Tugela (Zululand)</b> .. . . . .	17.86	18.91	18.28	18.00	20.52	24.68	29.62	30.51	28.91	24.55	26.09	31.28	29.08
Ratio to 1926 (= 100) .. . . . .	74.95	79.35	76.71	75.54	86.11	103.57	124.30	128.03	121.32	103.02	109.48	131.26	122.03
<b>GRAND TOTAL FOR NATAL (including Zululand)</b> .. . . . .	19.29	20.24	20.84	20.10	21.27	23.75	27.37	30.22	27.55	22.36	25.49	30.87	29.08
Ratio to 1926 (= 100) .. . . . .	94.40	99.02	101.96	98.34	104.06	116.19	133.90	147.85	134.78	109.38	124.71	151.03	142.27
Rainfall of all Districts (inches) <i>(Average from 44 centres).</i>	48.20	31.12	44.60	46.12	50.10	39.48	40.38	47.63	43.37	26.18	49.41	53.31	36.45

75

# AREA OF CANE HARVESTED AND YIELDS BY DISTRICTS (EUROPEAN PLANTERS ONLY) 1944—45.

COMPILED FROM UNION DEPARTMENT OF CENSUS RETURNS.

DISTRICTS.	UBA.		Co.281.		Co.290.		Co.301.		P.O.J.2725 and 2878.		OTHER VARIETIES.	
	Acres.	Tons/ acre.	Acres.	Tons/ acre.	Acres.	Tons/ acre.	Acres.	Tons/ acre.	Acres.	Tons/ acre.	Acres.	Tons/ acre.
PORT SHEPSTONE ... ..	20	34.10	3,095	23.42	163	14.70	182	21.08	25	24.08	—	—
UMZINTO ... ..	2,365	19.82	20,397	25.27	4,174	19.47	3,020	26.39	170	28.89	18	37.56
DURBAN AND PINETOWN ... ..	84	19.69	4,675	24.26	732	21.68	1,327	25.41	51	30.93	2	30.00
<b>Total South of Umgeni River ...</b>	2,469	19.94	28,167	24.90	5,069	19.64	4,529	25.89	210	28.47	20	36.85
INANDA ... ..	1,512	20.30	13,202	38.81	2,165	31.44	4,825	42.14	165	31.74	74	44.61
LOWER TUGELA ... ..	1,819	18.71	25,949	29.90	3,057	24.34	13,343	31.30	215	32.20	47	24.55
<b>Total for North Coast between Umgeni and Tugela Rivers...</b>	3,331	19.43	39,151	32.91	5,222	27.28	18,168	34.18	380	32.00	121	36.82
<b>Total for Natal South of the Tugela (excluding Zululand) ... ..</b>	5,800	19.65	67,318	29.56	10,291	23.52	22,697	32.53	590	30.74	141	36.82
MTUNZINI ... ..	328	24.13	17,008	27.64	748	25.82	2,152	24.24	229	30.45	—	—
ESHOWE ... ..	230	21.82	7,210	28.14	1,580	23.28	1,127	26.46	549	31.50	72	25.32
LOWER UMFOLOZI ... ..	289	21.02	18,048	32.81	1,052	24.13	2,074	26.80	2,972	30.25	16	23.19
HLABISA ... ..	40	8.65	4,797	26.63	204	27.44	130	31.70	743	45.44	—	—
<b>Total North of the Tugela (Zululand) ... ..</b>	887	21.82	47,063	29.60	3,584	24.29	5,483	25.84	4,493	32.92	88	24.93
<b>TOTAL FOR NATAL (including Zululand) ... ..</b>	6,687	19.94	114,381	29.57	13,875	23.72	28,180	31.23	5,083	32.67	229	32.25

**AREA OF CANE HARVESTED AND YIELDS FOR DIFFERENT VARIETIES AND RATOONS.  
(EUROPEAN PLANTERS ONLY) 1944—45.**

**COMPILED FROM UNION DEPARTMENT OF CENSUS RETURNS.**

VARIETY.	PLANT CANE		FIRST RATOON		SECOND RATOON		THIRD RATOON		FOURTH RATOON		OTHER RATOONS		TOTAL	
	Acres.	Tons/ acre.	Acres.	Tons/ acre.	Acres.	Tons/ acre.	Acres.	Tons/ acre.	Acres.	Tons/ acre.	Acres.	Tons/ acre.	Acres.	Tons/ acre.
Uba ... ..	168	28.57	144	24.14	481	21.53	1,102	20.10	1,702	19.81	3,090	19.03	6,687	19.94
Co.281 ... ..	34,577	33.25	30,423	31.05	24,518	27.38	18,448	24.93	4,600	23.89	1,815	25.88	114,381	29.57
Co.290 ... ..	899	27.76	1,447	25.91	3,175	24.06	4,374	22.25	2,497	23.34	1,483	23.37	13,875	23.71
Co.301 ... ..	13,446	33.72	8,016	32.05	4,042	25.77	2,232	25.37	168	21.98	276	18.46	28,180	31.23
P.O.J.2725 and 2878 .	412	41.67	457	34.17	693	34.99	1,340	29.46	1,292	34.94	889	27.46	5,083	32.66
Other Varieties ... ..	112	38.66	63	34.48	13	19.23	41	15.44	—	—	—	—	229	32.25
<b>Total</b> ... ..	<b>49,614</b>	<b>33.35</b>	<b>40,550</b>	<b>31.08</b>	<b>32,922</b>	<b>26.93</b>	<b>27,537</b>	<b>24.55</b>	<b>10,259</b>	<b>24.44</b>	<b>7,553</b>	<b>22.51</b>	<b>168,435</b>	<b>29.08</b>



THE PRESIDENT hoped that in future we should have more factory reports to supplement the Annual Summary. Both reports read stressed the difficulty experienced with stand-over cane and comments were made on the extraordinary lack of juice in such cane. He had noticed himself that stand-over cane was often so dry that considerable damage resulted from burning, in fact part of the cane, more particularly the lower ends of the sticks, were completely burned away. These sticks were apparently dryer at the lower ends than towards the tops. A most striking thing happened at one factory. Trucks of cane were burned to get rid of the surplus trash. One morning, however, it was found that one truck load of cane was completely burned out and only ashes were left. That was an indication of the type of cane that had to be handled at some factories.

Mr. DU TOIT asked on what grounds Mr. Booth anticipated a lower boiling house recovery at the beginning of the season. Was it because he knew that they had to handle more three-year-old cane or was there some other reason? Mr. Booth also stated that the majority of factories had a lower extraction than the year before, but according to the Annual Summary the average extraction for all factories was a new record for South Africa.

Mr. BOOTH is reply stated that he based his prediction of lower boiling house recoveries on the poor condition of the cane. He was fortunate in having good pan and settling capacity, otherwise greater difficulties would have been experienced. When canes were received giving a crusher juice purity of only 73 it was certain that trouble would be experienced. Although the Annual Summary results indicated a record high extraction for the year, yet most mills were actually down in extraction. In this Summary weighted averages were given, whereas he was of the opinion that an ordinary arithmetic average would be of greater value to the practical man.

Dr. DODDS said that whether an arithmetic or weighted average should be given depended on the point of view. For average conditions of the crop as a whole the weighted average was obviously correct, but if one wanted to compare different factories or the effects of different localities on the cane, then perhaps an arithmetic average might be preferable. There was, therefore, something to be said for recording both the weighted and the arithmetic averages.

Attention was drawn to the deterioration of Co.281 when left over in the field for three years. That was, however, a very severe test for any variety under our conditions. This variety was sensitive to waterlogged soil conditions, otherwise it was a good

cane on heavy soils, but there must be reasonably free drainage. In Louisiana where the soils were wet most of the time, Co.281 was regarded as a variety only suitable for light, free-draining soils, they had given up all attempts to grow it on heavy soil types. He hoped that this last season and the season to come would finally dispose of all stand-over cane for several years to come.

Mr. GALBRAITH said that the filter cake per cent. cane figure reported for Factory No. 21 in the Annual Summary did not include the bagacillo in the cake. Ever since using the Oliver Filters they had subtracted the bagacillo used from the filter cake and consequently their filter cake per cent. cane was somewhat low and perhaps misleading. From next season, however, this practice will be discontinued and the filter cake including the bagacillo will be reported as a percentage of the cane. The figure reported this year was 2.8, and if it had not been thus corrected it would have been 3.5 per cent.

Mr. RAULT drew attention to the average increase in extraction during November. That was abnormal and he wondered whether it might not have been due to some factories reporting a low extraction having closed down. In their own case the extraction went up but that was definitely due to cleaner cane coming into the factory. He did not think Mr. Buchanan was justified in blaming Co.281 as a variety for the trouble he experienced in the factory. He should rather blame the bad treatment inflicted on this variety of cane by leaving it standing on the fields for three years, a practice which was unusual to any part of the sugar world. Their experience at Natal Estates was that Co.281 was the only variety that could stand such very bad treatment and still show a comparatively fair sucrose. An interesting feature in the figures submitted by Mr. Buchanan was the sudden drop in boiling house recovery experienced in August. This could not be correlated with the purity of the mixed juice; indicating once more that the nature of the non-sugars had as much of an influence on recovery as the actual quantity of non-sugars. Here a drop of only 0.6 in the mixed juice purity gave rise to a fall in boiling house recovery of 3 per cent. when compared with June and July results.

Dr. McMARTIN said that if Co.290 were left for three years before cutting quite a proportion of the sticks would be dead and would never be sent to the mill. Co.281, however, took longer to die and many canes would be sent to the mill which were decaying internally although appearing normal externally. There were indications that Co.331 in this respect behaved in the same manner as Co.290.

Mr. BUCHANAN pointed out that most of the cane grown round Empangeni was Co.281 and further, most of the deteriorated cane coming to the mill was this variety. He was simply stating the facts. It was of course very likely that most of the cane left standing for three years was Co.281, but he asked for an investigation because he felt it was only right if planters received a bonus for sending in cane of very good quality then surely there should be a penalty for poor quality canes.

He said it was very difficult to calculate the proportion of decomposed cane received at the mills. According to an estimate which was very approximate, however, they received 99 per cent. good canes in 1943. During 1944 and 1945 this figure dropped to 88 per cent. and 87 per cent. respectively. In one particular consignment it was estimated that only 20 per cent. by volume of the cane was good; 80 per cent. being decomposed.

Burning of cane on the trucks could never be efficient unless there was a lot of dry trash adhering to the cane. Planters who burn in the fields invariably did so in the early morning when there was dew on the cane and the cane was still sent to the mill in an unsatisfactory condition. The best way was to separate the trash and dead sticks in the field and to send only the selected healthy cane to the mill. Farmers who did that, of course, got the best results.

THE PRESIDENT pointed out that dead or very dry decomposed cane could cause a faulty distribution of sucrose between planters in our present method of allocating sucrose. These canes had little or no juice and they were of a low sucrose content, but in determining their sucrose during milling they were likely to benefit from other consignments of normal cane supply. Trash played the same role in causing maldistribution of sucrose between planters and this was always to the detriment of the supplier of good cane. It was therefore hoped that the unfortunate problem of stand-over cane might have stimulated interest in the proposed alternative method of sucrose distribution to be examined by the Central Board during the coming season.

Dr. DODDS, in reply to Mr. Rault, stated that although the season was a short one, several factories having closed down by November, he did not think that the average extraction for that month was increased as a result of the elimination of factories reporting low extractions. On the contrary he noticed several factories still reporting in November had improved their extractions over that of the October period. He therefore thought that this increase in extraction should be attributed to some other cause.

Mr. BOOTH asked Mr. du Toit to explain the meaning and significance of boiling house recovery E.S.G. and boiling house performance.

Mr. DU TOIT in reply said that E.S.G. was partly explained in the Annual Summary. It was an abbreviation used for equivalent standard granulated sugar, which by definition was a sugar of 100 per cent. sucrose and 100 purity. The idea of converting boiling house recovery to boiling house recovery E.S.G. was to bring factories producing a high purity sugar and others producing a low purity sugar on a comparable basis. To get boiling house recovery E.S.G. the boiling house recovery was multiplied by percentage yield of pure sucrose, theoretically obtainable from the commercial sugar produced by applying the S.J.M. formula and using a final molasses purity of 28.57.

Boiling house performance took the place of our old boiling house efficiency or recovery efficiency. The method of calculating this item was given in the Summary. Here again theoretical yield of sucrose in mixed juice was calculated according to the S.J.M. formula and using a molasses purity of 28.57. It might be argued that this low molasses purity was not applicable to South Africa, and in fact that was true, but as this was a constant it did not matter for comparisons and whatever constant purity of molasses was accepted the relative performances of the factories would remain unaltered. It was therefore considered better to use the internationally accepted figure of 28.57 rather than some other arbitrary standard. Our old recovery of efficiency was unsatisfactory because the actual purity of the molasses and mixed juice were used; and in factories where there was an appreciable increase in purity from mixed juice to clarified juice or syrup, the efficiency could be as high as 104. The purity of the clarified juice or syrup might have been used instead of mixed juice, but then the figure would only have been a measure of undetermined losses after clarification, and further, all factories did not have sucrose balances based on clarified juice or syrup. Although the boiling house performance was not a perfect efficiency figure it was thought that it would serve a useful purpose for comparative purposes. It should be remembered further that gravity purities should be used.

Mr. RAULT said that whilst agreeing with Mr. du Toit on the desirability of adopting some standard of comparison for boiling house efficiency, he was not in favour of basing that standard on conditions special to other countries. He thought that a molasses purity of 28.57 was far too low for South Africa. This purity was derived from the Winter formula which took for granted that every part of non-sugars in juice carried away about 0.4 sucrose in molasses. He was not even sure that that was

axiomatic in Java, but in South Africa where the juices were low in reducing sugars and high in ash content he found that every part of non-sugars in the juice would take away about 0.66 sucrose in final molasses, and the purity of the molasses would consequently be about 40.

Mr. BOOTH maintained that fluctuations of about one degree in purity and fibre had no effect on boiling house recovery and extraction and therefore

formulae such as the reduced boiling house recovery and reduced extraction based only on purity and fibre considerations were of little practical value. The millability of cane could not be ignored. There were many factors which determined the manufacturing value of cane and which could not be reduced to comparative figures, let alone mathematical equations.