

SUMMARY OF AGRICULTURAL DATA: SUGARCANE CROP 1965/66

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Introduction

The Summary of Agricultural Data for 1965/66 is, like that of last year, based on a survey by the Sugar Industry Central Board. In fact the questionnaire used and the method of collecting the data were practically identical for the two years. The method of processing the data will however differ somewhat from that used last year and experience has helped to assess the reliability of some of the replies received. As a result of this experience future questionnaires are likely to be modified.

Total areas and yields

Last year's summary quoted the following estimates:

<i>Area under cane 1st May, 1965</i>	<i>Acres to be cut 65/66</i>
833,328	376,075

At the time of the survey the extent and effect of the drought could not have been foreseen and no estimate of expected yield was quoted.

Total production is determined by both yield per acre and area harvested and a drought such as was experienced will restrict both.

The Sugar Industry Central Board Survey of Cane Production 1964/65 to 1968/69 CB 46/20, i.e. the survey on which the present report is based shows:

<i>Area under cane 1st May, 1965</i>	<i>Acres harvested 65/66</i>	<i>Total tons</i>	<i>Tons cane per acre harvested</i>
807,949	293,465	9,267,188	31.58

Whereas it was estimated in 1965 that 45.1 per cent of the area under cane was to be harvested that season, this year's survey shows that only 36.3 per cent of the area was actually harvested. This exceptionally low figure is the result of two factors working in the same direction. The one, expansion, which

inflates the area under cane, has already been referred to last year and the other is of course the drought, which because of poor growth, prevented many fields from being harvested last year.

Expansion of the acreage under cane will have the effect of reducing the proportion of acres harvested in an industry where annual harvesting is the exception rather than the rule.

It is suggested that to obviate this, the figure for the proportion of acres harvested should be the acreage harvested expressed as a percentage of the total cane acreage for the previous year.

Further, as a measure of productivity per acre, it is suggested that the total tonnage produced in a season be related to the total acreage under cane, thus combining the proportion of the area harvested and the yield per acre harvested into a single figure. To allow for the effect of the expansion of acreage, tons cane per acre under cane at the beginning of the previous season is used.

In Table I areas, yields and per cent harvested are expressed in the conventional manner together with the two other figures suggested above. Discrepancies between the figures now used and those reported last year are due to actual results replacing estimates for 1965 and further to later and more up-to-date estimates now being given. The results before 1966 should reveal the actual situation while estimates are used for the later years.

The per cent area harvested given in column C seems more realistic than that depicted in column A, while yield in T.C.A. in column D gives a clear picture of the severity of drought effects on the 1965/66 crop it also indicates the anticipated increase in real productivity.

TABLE I

	Total area under cane—1st May	Area harvested		A	B	C*	D*
				% Area harvested	Yield T.C.A. area harvested	% Area harvested	Yield T.C.A. area under cane
1963	616,900	63/64	299,084	48.5	36.6	—	—
1964	718,043	64/65	326,387	45.5	35.9	52.9	19.0
1965	807,949	65/66	293,465	36.3	31.6	40.9	12.9
†1966	835,938	66/67	466,728	55.8	35.3	57.8	20.4
†1967	840,094	67/68	475,231	56.6	36.9	56.9	21.0
†1968	840,369	68/69	484,729	57.7	36.8	57.7	21.2

*Area under cane for previous year

†Estimates

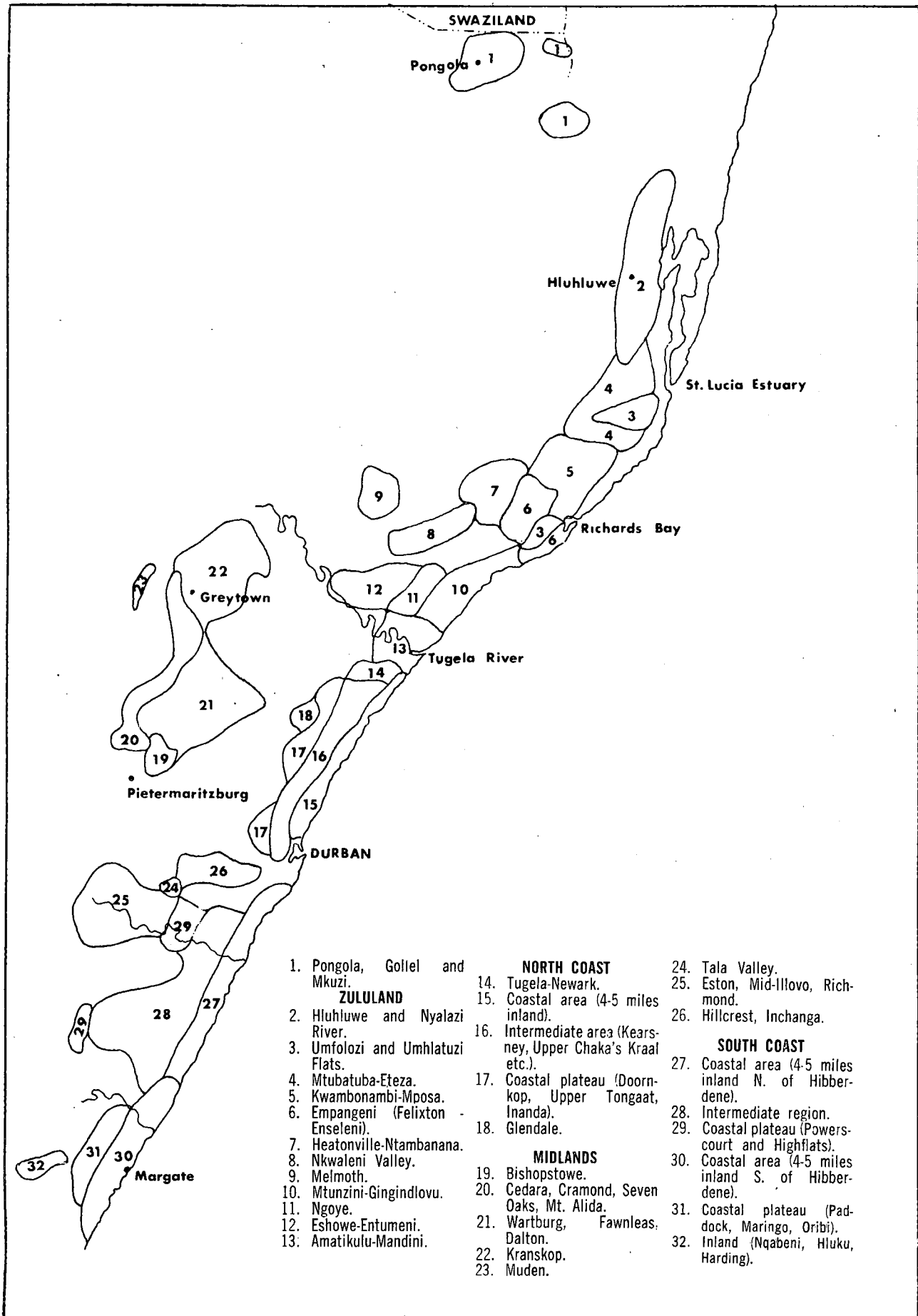


FIGURE 1: Regional Cane Areas

Rainfall and yield

In Table II the yield in tons cane per acre of cane harvested as well as the yield in T.C.A. with reference to area under cane the year before harvest are given and these yields are compared with the annual rainfall as compiled by the Experiment Station from 54 centres scattered throughout the sugar belt.

TABLE II

Season	Yield in tons cane per acre		Rainfall for the year ending 31st May	
	On area harvested	On area under cane	Rainfall	Year
1959/60	32.4	15.4	33.34	1959
1960/61	33.8	14.1	35.66	1960
1961/62	39.4	14.9	46.43	1961
1962/63	37.8	16.9	34.10	1962
1963/64	36.6	18.0	38.32	1963
1964/65	35.9	19.0	40.92	1964
1965/66*	31.6	12.9	29.02	1965
1966/67†	35.2	20.4	39.17	1966

*Yield figures subject to future slight adjustments.

†Yield figures based on estimates.

The column in Table II where yield per total area under cane is given, indicates very clearly the severity of the 1964/65 drought but it also appears to show a phenomenal increase in sugarcane productivity since 1960. It should be pointed out that the very low yields during 1960 and 1961 expressed as T.C.A. based on total areas under cane, were largely the result of restriction. The cane was there but it was not cut. It was not cut until 1962/63 and it then inflated the T.C.A.

The two important features of production viz. increased productivity and the effects of the 1964/65 drought are much better revealed where we are dealing with yields based on total areas than where these yields are based on areas harvested. The reasons are of course that where productivity or rate of growth increases, the tendency is to cut cane at a younger age and the yield per acre harvested does not show the corresponding increase and furthermore during a drought only higher yielding fields will be cut and this on the basis of yield per acre harvested tends to underestimate the severity of the drought. Thus yields on area harvested show that the 1965/66 crop dropped only some 12 per cent compared with the previous crop but yields based on total area indicate a drop of no less than 32 per cent.

Group production

According to the Sugar Industry Central Board Survey of Cane Production CB 46/20 European growers occupied 578,799 acres out of a total of 835,938 under cane on the 1st May, 1966. The area under cane for the miller-cum-planters was 152,504 acres while Indian and Bantu growers had respectively 73,963 and 30,672 acres under cane. European growers had the best yield of cane per acre harvested for the season 1965/66 and averaged 33.2 compared with only 16.6 tons cane per acre for Bantu growers. There is evidence to show that the miller-cum-planters as a group harvests a greater proportion of land under cane while the average age of cane at cutting is apparently highest in the case of Bantu growers.

Table III summarises cane production statistics for the various groups of the industry for the 1965/66 season.

Although the Bantu growers had 3.7 per cent of the area under cane on the 1st May, 1966, they were only responsible for 1.6 per cent of the 1965/66 production. Extremely poor yields, particularly on the basis of total area under cane, severely lowers the total cane production by this group and the same applies to a somewhat lesser extent to the Indian cane growers. As a group, the miller-cum-planters had the highest yield per total area under cane.

Regional production

It is customary to divide the sugar industry into three or four main regions. In recent years the Midlands has been added to the South Coast, North Coast and Zululand. The Pongola area has often been separated because conditions there differ so much from the rest of the industry. To a certain extent this is understandable; but the Nkweleni Valley and the Tala Valley have probably more in common with Pongola than with their respective areas Zululand and Midlands. It has therefore been decided to divide up the industry into as many regional areas as can be justified on a basis of rainfall, temperatures, altitude etc. which tend to make one area differ from the other. In this manner the industry has been divided into 32 different cane regions, from which greater groups such as South Coast, North Coast or high, medium and low altitude etc. can be built up if so desired.

TABLE III

	Area under cane 1st May, 1966 as per cent of total	Yield T.C.A. area harvested 1965/66	Yield T.C.A. area under cane 1st May, 1964	Per cent production
European growers ..	69.2	33.2	13.5	70.7
Miller-cum-planter ..	18.2	32.5	14.2	22.2
Indian growers	8.8	21.7	8.2	5.6
Bantu growers	3.7	16.6	5.8	1.6
Industry	100.0	31.6	12.9	100.0

In Figure 1 a map of these areas is given. The extent of a particular region on the map gives no indication of the importance of the area or the total cane production. It only indicates approximately the boundaries of the area where cane can be grown in that region. Thus No. 2, Hluhluwe, covers a large area. Not much cane is at present grown in this area but the fact is that a little cane is grown in most of the area roughly indicated here. There are of course further differences within a region e.g. differences in soils. An attempt was made to evaluate some of these factors but there are complications. Thus the soil on an estate or farm is often so variable that it has to be omitted from a general soil group and one is left with so few units which can be used, that these finer comparisons are not justified and may be misleading.

In Table IV particulars are given for these regional cane areas and the following symbols are used.

Altitude: 1 Low altitude (coastal)
2 Intermediate
3 Plateau
4 Midlands

Rainfall: 1 Below 30 inches per annum
2 30-40 inches per annum
3 Above 40 inches per annum

Yields

The yield data for Midlands and some South Coast areas have been omitted. The reason is that these areas are largely in the development stage and the area harvested is relatively small compared with the area under cane. Under these circumstances yield data cannot be very reliable as they are based on very small areas and yield per acre based on total area under cane may be misleading. These considerations hold also for other areas which are still in the development stage.

The highest yields were obtained, as was to be expected in the Pongola and the Umfolozi-Umhlatuzi regions. Here high fertility and good moisture conditions (irrigation at Pongola and a higher water table on the flats) combined to ensure that a relatively young crop yielded some 45 tons cane per acre harvested or nearly 32 tons cane per acre under cane cultivation. In these two areas plant cane formed the lowest percentage of total cane harvested. Here plant cane forms only 16 to 17 per cent of the total cane harvested which seems to indicate an average of some 5 ratoons. The average for the whole industry is 26.6 per cent plant cane, indicating about 3 ratoons. Expansion may affect these deductions to a limited extent.

The yields of cane per acre, and more so where based on total areas, have been severely depressed, as already pointed out, by the 1964/65 drought. The fact that the average yields in T.C.A. from the South Coast compare very favourably with those of the other main regions is due to a number of factors.

There has in recent years been a general improvement in yields in the existing cane belt of the South Coast and new and relatively productive areas have been brought under cane but it should also be mentioned that the drought was not as severe on the South Coast as on the North Coast and parts of Zululand.

Irrigation

Apart from Tala Valley and Muden (Muden data not available as yet) very little irrigation is practised in the Midlands. Appreciable areas are however under supplementary irrigation at Illovo on the South Coast as well as at Glendale and the coastal area of the North Coast. Pongola and Nkweleni can be considered 100 per cent under total irrigation and about half the area in the Hluhluwe-Nyalazi sector is also under total irrigation. In the industry as a whole 12.6 per cent of the area is now under either supplementary or total irrigation.

Fertilizer

Table IV indicates that the European growers and miller-cum-planter groups use 527 lbs. of fertilizer per acre under cane or a total of 187,000 tons, which agrees very well indeed with a figure of 189,000 tons supplied by the fertilizer trade for the whole industry. An interesting comparison is the very large difference in fertilizer usage at Pongola and Nkweleni Valley. These two areas have a lot in common but at Pongola the yield was 31.6 T.C.A. on a total area under cane basis whereas at Nkweleni it was only 16.0 T.C.A.

During the 1965/66 season Zululand produced 37.3 per cent of the crop given in Table IV, North and South Coast respectively 31.9 and 19.4 per cent while the Midlands and the Pongola-Mkuze area produced 4.0 and 7.4 per cent.

Age of cane

The age of cane at cutting is a most important factor in the economics of cane production. Table IV indicates that the average age of the crop at harvest was 18.3 months varying from an average of 13.2 months at Pongola to 22.3 months for the South Coast inland area. There does, however, appear to be a tendency to underestimate the age of the crop at cutting and the age given here is generally appreciably less than the age calculated from area under cane and area harvested.

Theoretically the age in months of a crop at harvest can be calculated as follows:

$$\frac{\text{Area under cane} \times 12}{\text{Area harvested}}$$

If a reduction of 10 per cent is allowed, to account for fallow periods (and this may well be a somewhat high figure), we get the following:

TABLE IV

Region	Altitude	Rainfall	% acres irrigated	T.C.A. area harvested	Age Months	% harvested acres under cane 1st May 64	T.C.A. acres under cane 1st May 64	Fertiliser (lb./acres under cane 65/66)	Plant acres as % of Total acres harvested	Acres under cane May 1965 (,000)	Tons Cane (,000)
1 Pongola	1	1	100	44.8	13.2	71	31.8	1072	17	19.6	561
1b Gollel, Mkuze	1	1	100	33.7	14.1	62	20.7	410	23	3.4	58
1 Pongola—Mkuze			100	43.5	13.3	69.7	30.3	973	19	23.0	620
2 Hluhluwe, Nyalazi River	1	1—2	42	24.7	16.3	43	10.6	458	28	11.4	102
3 Umfolozi and Umhlatuzi Flats	1	3	4	47.2	14.5	67	31.5	616	16	20.0	625
4 Mtubatuba, Eteza	1	2—3	9	32.8	17.6	49	16.0	391	27	22.5	315
5 Kwambonambi, Mposa	1	3	10	27.2	16.7	45	12.3	578	37	13.9	162
6 Empangeni, Felixton, Enseleni	1	2—3	10	34.2	17.3	43	14.7	383	27	36.1	543
7 Heatonville, Ntambanana	1	1—2	15	20.0	19.8	29	5.8	286	21	19.3	93
8 Nkwaleni Valley	1	1	95	37.1	16.5	43	16.0	393	28	12.3	169
10 Mtunzini, Gingindhlovu	1	3	8	32.1	17.8	54	17.4	610	27	39.6	660
13 Amatikulu, Mandini	1	2—3	7	21.5	20.7	45	9.7	401	24	15.9	148
11 Ngoye	2	3	2	23.9	19.6	40	9.5	308	28	8.7	72
12 Eshowe, Entumeni	3	2—3	3	31.3	21.4	37	11.6	526	34	22.8	246
9 Melmoth	3	2—3	0	—	—	—	—	1166	—	5.9	—
Zululand			14.1	32.5	17.7	46.3	15.1	482	26	228.4	3,137
14 Tugela, Newark	1—2	2—3	6	22.1	19.5	33	7.3	346	38	2.5	18
15 Coastal (4-5 miles inland)	1	3	20	30.9	17.7	45	14.1	409	29	104.8	1,463
18 Glendale	1—2	2	47	32.3	18.9	33	10.5	481	39	3.7	36
16 Intermediate area, Kearsney, Upper Chaka's Kraal	2	2—3	3	28.4	20.0	43	12.1	449	25	50.6	593
17 Coastal Plateau, Doornkop, Upper Tongaat, Inanda	3	3	0	34.2	20.0	46	15.6	546	23	23.8	365
North Coast			13.3	30.6	19.1	43.0	13.6	445	27	202.9	2,688
19 Bishopstowe	4	2—3	1					571		6.3	
20 Cedara, Cramond, Seven Oaks, Mt. Alida	4	2—3	0					817		10.2	
21 Wartburg, Fawnleas, Dalton	4	3	0					631		40.6	
22 Kranskop	4	3	0					684		11.3	
23 Muden											
24 Tala Valley	4	2—3	53					562		4.5	
25 Eston, Mid-Illovo, Richmond	4	3	0					541		24.1	
26 Hillcrest, Inchanga	3—4	2—3	0					810		5.6	
Midlands			2.5	32.2	22.2	15.0		638	38	106.8	334
27 Coastal North of Hibberdene	1	3		31.4	20.9	44	13.7	369	28	12.9†	171†
30 " South of Hibberdene	1	3		30.5	19.6	45	13.7	637	26	26.9†	294†
28 Intermediate Region	2	3		40.5	20.0	41	16.4	572	23	13.3†	185†
29 Coastal Plateau Powerscourt, Highflats	3	3						657		3.5†	27†
31 Coastal Plateau Paddock, Maringo, Oribi	2—3	3	2					811		13.8	109
32 Inland Nquabeni, Hluku, Harding	3	2—3	0					523		3.6	4
South Coast			3.7	35.3	21.2	44.2	15.6	558	30	127.2	1,636
Total Industry			12.6	32.9	18.3	42.1	13.9	527	26.6	688.3 (709.5)*	8,415 (8,604)*

Note: Under the main regions and Total Industry a certain amount of unclassified cane, mainly from the South Coast, is included.

*Figures in brackets are the Central Board totals.
†Omissions from these regions amount to 53,000 acres, 847,000 tons.

<i>Per cent area harvested</i>	<i>Age at harvest in months</i>
100	10.8
90	12.0
80	13.5
70	15.4
60	18.0
50	21.6
40	27.0
30	36.0

With expansion, little of the increased acreage under cane at the beginning of the harvesting season would be cut during that year and for that reason it was decided to express the acres harvested as a percentage acres under cane at the beginning of the previous season in Table IV. In this table the industrial average area harvested as a percentage of area under cane is 42.1 and consequently the calculated age of the crop at harvest was 25.6 months. These figures, as indeed all data in Tables IV and V, apply only to European growers and miller-cum-planters. The indicated age of crop for Indian and Bantu growers will be appreciably higher.

Our calculated age for the 1965/66 crop was therefore 25.6 months and that of the previous crop 20.0 months compared with 18.3 months (Table IV) and 18.0 months (last year's report) which are the averages compiled from direct replies from these planters groups. The calculated values seem more realistic and although the comparison 20.0 and 18.0 for the 1964/65 season is not very bad, the 1965/66 comparison 25.6 and 18.3 is decidedly poor. In view of the severe drought experienced it would seem logical to expect the 1965/66 crop to be appreciably older than the 1964/65 crop.

Considering all these facts, it would seem reasonable to accept 20 months as the approximate average age of cane in the industry under present conditions.

The variety position

Although the questionnaire did ask for details of the varieties N:Co.339, N:Co.292 and N:Co.334, it was found that so little of these varieties are now grown in the industry, that these data have been omitted.

Table V reflects the percentage of areas under plant cane and total cane for the more popular varieties. This table also gives the percentage area under plant cane, ratoons and fallow for all varieties.

N:Co.310 is now mostly grown in the northern areas of the sugar industry and in the northern areas only. With the exception of the Kwambonambi-

Mposa and Felixton-Enseleni areas it remains the predominant variety from Pongola down to the Nkwaleni Valley. In the Pongola, Mkuze-Gollel area there is no evidence that N:Co.310 is being replaced by other varieties and the proportion of area under plant cane is at least as high as that under total cane. This is however not the case in most other areas, where there are definite indications of N:Co.310 being replaced by N:Co.376 and other varieties. Other areas with a fairly high proportion of N:Co.310 are: the Tugela-Newark area, Glendale, Kearsney-Upper Tongaat and the coastal area south of Hibberdene. The latter area is unexpectedly high in N:Co.310 and it is also surprising that quite such a high proportion of this variety is grown in the Heatonville-Ntambanana area.

If N:Co.310 is the variety of the north then N:Co.376 is pre-eminently the variety of the southern areas. Excluding the Midlands, there is not one area south of the Nkwaleni Valley where N:Co.376 occupies less than 60 per cent of the area under plant cane and in some of the South Coast regions from 85 to 90 per cent of the plant cane is N:Co.376. The average percentages of plant cane under N:Co.376 is 41.4 for Zululand, 64.5 for the North Coast and 81.9 for the South Coast. This variety is also quite popular in the following Midlands areas: Hillcrest, Inchanga, Tala Valley, Eston-Mid-Illovo-Richmond and Bishopstowe.

The popularity of N:Co.382 is still on the increase and in the Kwambonambi-Mposa area it now constitutes nearly half the total area under plant cane. It is far more popular in the north of Zululand than in the south of Zululand. It is quite extensively grown in the Midlands area north of Pietermaritzburg and also in the coastal area of the South Coast north of Hibberdene. This variety does well on poor sands but it is somewhat difficult to explain its pattern of distribution.

N:Co.293 is a high altitude cane and it is mostly found in these areas of the South and North Coasts as well as Zululand, and it is very popular in the whole of the Midlands where it forms 39 per cent of the area under cane.

With the exception of a few areas in the Midlands Co.331 has virtually disappeared as a commercial variety in the industry.

N.50/211 is largely confined to the North Coast and some of the Zululand areas. It has not become popular on the South Coast and only negligible areas are planted in the Midlands.

TABLE V

Percentage areas under Plant Cane, Total Cane, Ratoons and Fallow

Region	N:Co.310		N:Co.376		N:Co.382		N:Co.293		Co.331		N.50/211		Plant % Total area	Ratoon % Total area	Fallow % Total area
	Plant	Total	Plant	Total	Plant	Total	Plant	Total	Plant	Total	Plant	Total			
1 Pongola	90.2	89.2	7.0	8.5	0.5	0.1	0.1	1.0	0	0	0.9	0.7	28.0	70.2	1.8
1b Mkuze, Gollel	97.8	97.4	2.2	2.5	0	0	0	0	0	0	0	0	38.1	50.9	11.0
2 Hluhluwe, Nyalazi River ..	34.8	53.3	20.7	15.7	42.3	25.0	0	0	0	3.7	0	0.3	43.1	49.2	7.6
3 Umfolozi, Umhlatuzi Flats ..	57.0	70.2	12.1	10.6	26.3	11.6	0	0	0.5	1.8	1.3	1.1	22.3	75.9	1.8
4 Mtubatuba, Eteza	45.6	48.3	8.5	13.5	36.8	24.6	0.9	0.9	0.2	2.9	4.2	3.9	43.8	52.7	3.5
5 Kwambonambi, Mposa	10.5	15.7	25.3	26.8	47.7	33.9	0	0	2.0	4.2	10.6	11.5	30.8	62.6	6.6
6 Empangeni (Felixton, Enseleni)	30.7	48.0	39.8	31.0	15.4	8.1	0	0.1	0.1	0.5	8.0	7.0	25.6	71.9	2.5
7 Heatonville, Ntambanana ..	74.6	82.3	15.0	11.0	1.4	0.8	0	0.1	0	0	4.7	3.4	48.5	47.3	4.2
8 Nkwaleni Valley	50.4	68.3	32.2	20.9	1.9	0.7	1.2	0.9	0.1	0.3	11.1	6.6	29.5	67.8	2.7
10 Mtunzini, Gingindhlovu ..	5.3	19.1	70.0	59.0	9.6	7.9	0	0.2	0.3	1.2	11.1	10.7	24.9	72.3	2.7
13 Amatikulu, Mandini	6.6	23.9	75.0	57.7	2.1	1.9	0	0.1	0.1	0.8	5.4	8.8	30.4	61.4	8.2
11 Ngoye	7.5	31.0	72.1	51.0	8.5	5.5	2.5	1.8	0.3	0.7	8.0	8.0	39.4	56.2	4.4
12 Eshowe, Entumeni	0.6	3.3	65.4	47.4	7.6	4.4	17.0	28.8	0	1.8	7.9	9.9	36.2	60.4	3.4
9 Melmoth	2.2	2.1	74.7	74.4	4.7	4.8	9.2	9.3	0.7	0.8	6.6	6.8	98.7	1.3	0
Zululand	28.7	39.5	41.4	34.4	16.5	10.6	2.6	3.1	0.3	1.5	6.6	6.9	34.5	61.7	3.8
14 Tugela, Newark	21.1	39.5	65.9	45.8	0	0.3	0	0.5	1.8	4.4	10.5	8.1	40.2	56.3	3.5
15 Coastal Area (4-5 miles inland)	5.7	18.1	61.7	50.3	12.3	10.9	0.4	0.6	2.0	3.4	13.6	10.0	24.1	74.6	1.2
18 Glendale	20.2	20.7	63.0	63.1	5.3	3.8	1.9	1.7	2.3	3.4	6.5	5.8	54.2	45.9	0
16 Intermediate area (Kearsney, Upper Chaka's Kraal etc.) ..	12.1	22.0	63.1	51.1	4.0	2.1	1.8	3.2	1.4	5.3	14.0	9.1	25.2	72.0	2.8
17 Coastal Plateau (Doornkop, Upper Tongaat, Inanda) ..	0.3	7.0	74.2	54.7	8.7	5.1	10.0	18.7	0.5	2.7	3.9	7.1	29.9	67.8	2.3
North Coast	6.7	17.1	64.6	51.5	9.7	8.2	2.6	4.3	1.6	3.6	11.2	9.2	25.9	72.5	1.6
19 Bishopstowe	1.3	1.6	41.5	39.2	18.3	15.7	31.6	30.1	4.8	11.5	0.6	0.5	78.2	21.0	0.8
20 Cedara, Cramond, Seven Oaks, Mt Alida	1.5	1.6	19.8	19.9	17.5	16.6	44.8	44.3	14.6	15.7	0.1	0.1	91.2	8.8	0
21 Wartburg, Fawnleas, Dalton ..	0.2	0.2	5.8	7.0	34.3	27.1	38.7	37.5	19.8	26.3	1.0	0.9	68.9	29.7	1.3
22 Kranskop	1.5	1.5	16.7	16.7	25.8	25.7	43.8	43.8	10.5	10.8	1.6	1.6	98.5	1.5	0
23 Muden															
24 Tala Valley	3.7	3.7	49.4	51.8	10.6	9.7	35.8	34.1	0.2	0.2	0.3	0.5	84.4	13.2	2.4
25 Eston, Mid-Illovo, Richmond ..	0.1	0.2	45.3	40.7	9.8	8.7	41.6	42.7	1.3	5.2	0.8	0.6	76.3	21.9	1.8
26 Hillcrest, Inchanga	0.1	3.5	63.0	59.7	3.3	3.3	30.9	30.1	1.5	1.3	1.4	1.8	69.3	29.6	1.2
Midlands	0.7	0.9	25.6	24.5	21.7	18.7	39.3	38.9	10.7	15.0	0.9	0.8	77.4	21.5	1.1
27 Coastal area (4-5 miles inland, North of Hibberdene)	0.8	11.9	73.4	62.1	22.3	11.5	0.1	0.1	0.1	4.6	2.8	2.0	31.0	63.0	6.0
30 Coastal area (4-5 miles inland, South of Hibberdene)	9.4	23.2	85.4	66.3	2.0	2.0	0.2	1.8	0.4	2.3	2.2	1.9	43.4	52.1	3.5
28 Intermediate region	3.0	2.7	88.4	77.2	4.5	2.9	3.4	9.2	0	1.6	2.9	3.0	45.7	47.9	6.3
29 Coastal Plateau (Powerscourt, Highflats)	0.5	3.6	75.7	65.8	1.1	2.1	19.1	23.7	0.6	0.9	3.0	2.8	68.1	28.8	3.1
31 Coastal Plateau (Paddock, Maringo, Oribi)	1.1	2.4	90.5	85.8	2.1	1.5	5.0	6.7	0.3	0.9	0.9	0.9	66.9	32.3	0.7
32 Inland (Nquabeni, Hluku, Harding)	1.2	2.1	52.1	50.3	0.4	0.4	44.3	43.1	1.8	3.5	0	0.3	91.0	8.2	0.8
South Coast	4.1	12.1	81.9	70.2	4.4	3.6	6.9	6.6	0.4	2.3	1.9	1.9	49.4	46.8	3.8
Total Industry	13.8	25.2	45.6	41.1	14.8	10.0	14.9	9.7	4.0	4.4	4.5	5.6	41.0	56.3	2.7

Discussion

Mr. Gunn: Mention is made of cane varieties grown in different areas—does the experiment station agree always that a certain variety should be growing in a particular area?

Mr. du Toit: In general the variety distribution is not very different to what we would recommend. Thus N:Co.293 would be recommended for the high altitude areas and not for the coastal areas and Table V proves that this advice is followed in practice. One would, however, think that N:Co.376 could be grown more in the North and there is a risk in depending on one variety to the extent of 80 and 90 per cent as is sometimes done.

Dr. Cleasby: Has there been any change in the distribution of phosphate, nitrogen and potash?

Mr. du Toit: There has been a remarkable change in the ratio of nitrogen, phosphate and potash used in recent years. From 1960 to 1963 the ratio of N:P:K: was of the order of 3.8:1:3.6 but in 1965 the

ratio of phosphate rose appreciably to about 2.9:1:2.6. This was the result of expansion and a very large planting programme. During 1966 the ratio changed dramatically to 4.8:1:4.0. The planting programme had eased and apparently phosphate dressings were cut as an economy measure.

Dr. Matic: The main reasons for choosing varieties is yield per acre and disease and pest resistance. Are likely processing characteristics of a cane also taken into account?

Mr. du Toit: Some consideration is now being given to this. Starch is determined on varieties about to be released and it can be arranged for the Sugar Milling Research Institute to test these varieties for their manufacturing properties. The cane breeder has, however, to take into consideration a large number of factors and yield, disease resistance and ratooning properties are of prime importance in deciding which varieties are to be released.