WEATHER REPORT FOR THE YEAR 1st JUNE, 1957, TO 31st MAY, 1958

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General

Although this report deals more specifically with the weather conditions during twelve months for the period June 1957 to May 1958, reference will be made in less detail to the twelve months prior to June 1957, as climatic conditions during this period will also have a bearing on the sugarcane crop now to be harvested, which remains on the whole a predominantly two year crop.

Rainfall data are drawn from 54 scattered rainfall-recording centres and other meteorological data discussed, such as temperatures, evaporation from an open tank, etc. are recorded at the Experiment Station, Mount Edgecombe, but will in general reflect weather conditions in the entire cane belt.

Rainfall Returns from Fifty-four Centres

The 54 rainfall-recording centres were so selected as to be as representative of the entire sugar industry as possible. Data are further divided into the normal geographic divisions i.e., South Coast, North Coast and Zululand and for most purposes the Pongola area which is largely in the Transvaal as Piet Retief is included in Zululand. Magisterial districts form a further useful basis of sub-division, for cane yields are elsewhere recorded by magisterial districts as well as by three main geographic sub-groups.

Table I gives the annual rainfall for the past five years for each of the 54 recording centres.

Table II gives the rainfall by magisterial districts and also for the three main divisions for each month of the year from June 1957 to May 1958.

Table III gives the calculated mean rainfall for the past 34 years and the monthly percentage distribution. The actual rainfall for the year now under consideration is also given, as are the evaporation data taken at the Experiment Station, Mount Edgecombe.

Table IV gives the rainfall distribution according to growing periods for the past two years for all magisterial districts and the three main sub-divisions of the industry.

Table V gives the monthly rainfall for the 54 centres for the past four years, the evaporation from an open water tank at the Experiment Station for the same period and the amount by which evaporation exceeded rainfall each month.

TABLE I

Rainfall for Fifty-four Centres

Magisterial District	Rainfall for year 1st June 1953 to 31st May 1954	Rainfall for year 1st June 1954 to 31st May 1955	Rainfall for year 1st June 1955 to 31st May 1956	Rainfall for year 1st June 1956 to 31st May 1957	Rainfall for year 1st June 1957 to 31st May 1958
Port Shepstone					
Mehlomnyama	41.61	54.59	46.05	51.80	50.41
Umzinto					
Hibberdene	38.76	48.11	51.47	52.13	50.10
Umtwalume	35.66	41.66	38.36	37.41	42.86
Sezela Mill	40.91	50.35	41.08	49.30	54.31
Esperanza Mill	40 80	49.72	43.03	47.73	55.50
Renishaw Mill	39 22	54.79	41.26	56.41	58.00
Dumisa	35.16	37.63	39.98	42.75	44.11
Durban, Camperdown, etc.					
Illovo Mill	31.80	43.80	36.57	51.52	49.46
Umbumbulu	31.61	38.72	39.74	41.51	41.52
Thornville	36.07	36.11	29.03	40.08	38.39
Inanda					
Mount Edgecombe—					
Milkwood Kraal	37.24	39.04	29.92	41.28	49.65
Experiment Station	33.10	42.83	31.11	45.86	51.11
La Lucia	32.55	46.34	35.02	46.26	53.62
La Mercy	35.90	49.04	35.14	41.92	49.81
Canelands	31.12	41.42	29.26	37.69	46.28
Tongaat—					
Frosterly	35.43	47.28	33.96	47.36	48.23
Inyaninga	33.77	49.04	32.89	41.14	46.65
Inanda	43.59	47.21	37.91	48.47	52.14
Tongaat—					
Mwawine	37.53	49.45	39.21	53.46	52.46
Lower Tugela					
Maidstone Mill	37.65	48 20	37.99	52.45	46.70
Sinembe	37.47	47.29	38.37	46.22	50.17
Upper Tongaat	43.18	52.35	44.51	53.71	58.04
Fraser's Estate	35.15	51.68	38.51	51.15	52.13
Chaka's Kraal Exp. Farm	38.37	49.50	36.80	47.26	55.83
Chaka's Kraal	42.66	51.92	39.84	53.63	56.76
Groutville	34 55	45.28	29.09	37.71	48.29
Kearsney	46 39	57.46	39.89	52.13	62.85
Doornkop Mill	40 10	41.84	33 09	39.53	44.97
Doornkop, Sprinz	52.21	55.13	47.37	52 82	61.04
Gledhow Mill	35.64	55.22	34.55	49.02	56.24
Darnall Mill	35.92	53.18	39.40	46.08	56.37
Tugela Mouth	42.61	59.11	45.70	58.25	66.27
Mtunzini					
Mandeni	39.74	53.03	38.50	51.82	62.53
Amatikulu Mill	41.14	48.08	41.91	46.39	50.63
Inyoni	36.34	47.01	39.34	48.50	50.07
Mtunzini	58.56	58.65	53.24	75.88	59.95
Blackburn	43.23	52.97	42.15	48.19	51.44
Eshowe					
Entumeni Mill	42.82	50.08	41.63	47.34	42.58
Eshowe	46.18	55.79	52.04	48.51	53.92
Nkwaleni	26.93	38.91	27.59	31.84	39.47
Lower Umfolozi					
Felixton Mill	59.82	63.82	60.90	70.63	63.97
Empangeni West	40.04	43.49	37.48	50.10	46.32
Empangeni Mill	54.00	54.69	47.82	63.40	45.92
Logoza	49.47	51.77	41.48	67.21	51.25
Ukulu Properties	44.39	45.99	39.05	56.42	47.30
Mposa	45.89	44.14	39.72	56–75	47.96
Kwambonambi	48.10	44.47	43.26	66.56	51.92
Eteza	37.84	45.38	38.49	59.30	45.78
Hlabisa					
Mtubatuba Mill	37.92	33.36	29.15	53.19	48.00
U.L.O.A.	45.30	46.43	38.07	59.51	60.57
Nyalazi River	29.45	44.43	28.35	40.70	50.86
Hluhluwe	21.85	36.00	22.28	30.42	42.09
Ubombo—Mkuzi	22.36	26.63	23.87	23.87	32.21
Piet Retief—Pongola	25.19	30.76	28.64	28.65	28.26
Mean	**39.08**	**47.24**	**38.33**	**48.88**	**50.43**

TABLE II

Rainfall in Inches by Districts for the Months of June, 1957, to May, 1958, inclusive

District	No. of Centres	1957 June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1958 Jan	Feb.	March	April	May	Total June 1957 to May 1958
Port Shepstone	1	0.30	0.39	0.92	6164	6.51	4.31	1.92	8.48	8.58	5.54	6.72	0.10	50.41
Umzinto	6	0.12	0.12	0.98	5.49	7.15	4.15	1.71	7.48	9.01	5.27	9.21	0.14	50.83
Durban, Pinetown etc.	3	0.00	0.29	1.18	5.18	3.50	4.23	3.67	5.60	9.25	3.94	6.17	0.12	43.13
Mean: South Coast ...	**10**	**0.10**	**0.20**	**1.03**	**5.51**	**5.99**	**4.19**	**2.32**	**7.01**	**9.04**	**4.90**	**8.05**	**0.13**	**48.47**
Inanda	9	0.09	0.72	0.96	5.14	4.76	5.02	3.80	9.02	8.70	3.95	7.21	0.64	50.01
Lower Tugela	13	0.29	0.96	1.04	8.47	5.35	5.02	5.60	10.29	7.35	2.97	7.01	0.71	55.06
Mean: North Coast ...	**22**	**0.21**	**0.86**	**1.01**	**7.11**	**5.11**	**5.02**	**4.86**	**9.77**	**7.90**	**3.37**	**7.09**	**0.68**	**52.99**
Mean: South of Tugela	**32**	**0.17**	**0.65**	**1.01**	**6.61**	**5.38**	**4.76**	**4.07**	**8.91**	**8.26**	**3.85**	**7.39**	**0.51**	**51.57**
Mtunzini	5	0.64	1.74	1.18	8.09	6.21	4.51	7.09	9.69	6.98	1.76	6.40	0.64	54.93
Eshowe	3	0.23	2.17	0.85	8.83	6.28	2.60	4.35	6.98	5.37	2.26	5.04	0.37	45.33
Lower Umfolozi... ...	8	0.65	2.61	1.54	7.92	7.29	2.46	3.39	11.05	5.65	1.11	5.80	0.59	50.06
Hlabisa	4	0.38	2.45	1.26	7.73	9.40	1.86	4.30	12.27	5.84	0.83	3.66	0.42	50.40
Ubombo	1	0.31	3.27	0.49	8.10	5.72	1.70	0.90	5.64	4.74	0.01	1.27	0.06	32.21
Piet Retief...	1	0.19	2.47	0.57	5.60	9.50	0.71	0.94	2.57	2.75	0.55	2.38	0.03	28.26
Mean Zululand and Piet Retief ...	**22**	**0.51**	**2.35**	**1.22**	**7.95**	**7.32**	**2.72**	**4.30**	**9.77**	**5.77**	**1.29**	**5.08**	**0.49**	**48.77**
General Mean	**54**	**0.31**	**1.34**	**1.10**	**7.15**	**6.17**	**3.93**	**4.17**	**9.26**	**7.25**	**2.80**	**6.45**	**0.50**	**50.43**

TABLE III

Rainfall and Evaporation Data

Month	Mean Percentage Rainfall Distribution 1924–1957	Computed Mean Rainfall for 54 Centres 1924–1957	Actual Rainfall for 54 Centres June, 1956, to May, 1958	Evaporation at Experiment Station Mean 1936–1957	Evaporation at Experiment Station June, 1956, to May, 1958
June	3.96	1.51	0.31	2.36	2.39
July	2.89	1.10	1.34	2.54	2.07
August	3.67	1.40	1.10	2.92	3.00
September	6.66	2.54	7.15	3.62	3.08
October...	9.26	3.53	6.17	4.10	4.44
November	11.12	4.24	3.93	4.74	4.43
December	12.43	4.74	4.17	5.32	5.27
January	11.04	4.21	9.26	5.68	4.89
February	12.57	4.79	7.25	4.76	4.36
March	14.17	5.40	2.80	4.40	4.83
April	6.93	2.64	6.45	3.33	3.50
May	5.30	2.02	0.50	2.83	2.46
	100.00	38.12	50.43	46.60	44.72

TABLE IV

Rainfall in Inches by Districts for the Two-year Period June, 1956, to May, 1958, inclusive

	No. of Centres	1956 Winter Growth June–August	1956 Early Growth Sept.–October	1956–1957 Optimum Growth Nov.–March	1957 Late Growth April–May	1957 Winter Growth June–August	1957 Early Growth Sept.–October	1957–1958 Optimum Growth Nov.–March	1958 Late Growth April–May	Total for Two Years June, 1956, to May, 1958
Port Shepstone	1	5.06	12.68	27.04	7.02	1.61	13.15	28.83	6.82	102.21
Umzinto	6	4.93	7.41	28.30	7.00	1.22	12.64	27.61	9.34	98.45
Durban, Pinetown etc.	3	3.08	4.97	29.41	6.89	1.47	8.68	26.68	6.29	87.47
Mean: South Coast ...	**10**	**4.39**	**7.21**	**28.51**	**6.97**	**1.33**	**11.50**	**27.45**	**8.17**	**95.53**
Inanda	9	3.31	4.79	27.97	8.77	1.76	9.90	30.49	7.84	94.83
Lower Tugela	13	3.24	6.31	31.56	8.10	2.29	13.82	31.23	7.72	104.27
Mean: North Coast ...	**22**	**3.28**	**5.68**	**30.09**	**8.38**	**2.07**	**12.21**	**30.93**	**7.77**	**100.41**
Mean: South of Tugela	**32**	**3.63**	**6.16**	**29.60**	**7.94**	**1.84**	**11.99**	**29.84**	**7.90**	**98.90**
Mtunzini	5	4.63	5.45	36.49	7.62	3.57	14.30	30.02	7.04	109.12
Eshowe	3	1.78	5.78	30.51	4.48	3.24	15.11	21.22	5.41	87.53
Lower Umfolozi... ...	8	4.69	8.20	41.08	7.34	4.81	15.20	23.65	6.39	111.36
Hlabisa	4	3.12	5.88	31.54	5.45	4.09	17.12	25.04	4.08	96.32
Ubombo	1	0.91	4.76	16.77	1.43	4.07	13.82	12.99	1.33	56.08
Piet Retief...	1	0.58	4.25	21.73	2.09	3.23	15.10	7.52	2.41	56.91
Mean: Zululand and Piet Retief ...	**22**	**3.64**	**6.49**	**34.88**	**6.16**	**4.08**	**15.27**	**23.80**	**5.57**	**99.89**
General Average ...	**54**	**3.63**	**6.30**	**31.75**	**7.22**	**2.75**	**13.33**	**27.38**	**6.95**	**99.31**
Computed Mean for 34 Years	54	4.01	6.07	23.38	4.66	4.01	6.07	23.38	4.66	76.24

TABLE V

Rainfall and Evaporation in Inches for the Past Four Years

Month	1954 - 1955			1955 - 1956			1956 - 1957			1957 - 1958		
	Evaporation	Rainfall	Rainfall Deficiency	Evaporation	Rainfall	Rainfall Deficiency	Evaporation	Rainfall	Rainfall Deficiency	Evaporation	Rainfall	Rainfall Deficiency
June	2.44	1.08	1.36	2.30	0.74	1.56	2.19	1.25	0.94	2.39	0.31	2.08
July	3.22	0.46	2.76	2.65	0.12	2.53	2.30	0.28	2.02	2.07	1.34	0.73
August ...	3.31	1.02	2.29	3.32	0.58	2.74	3.03	2.09	0.94	3.00	1.10	1.90
September ...	3.80	4.86	0.00	4.16	2.96	1.20	3.71	2.98	0.73	3.08	7.15	0.00
October ...	3.86	10.96	0.00	3.56	4.13	0.00	3.68	3.32	0.36	4.44	6.17	0.00
November ...	4.04	3.59	0.45	4.18	5.36	0.00	4.24	4.42	0.00	4.43	3.93	0.50
December ...	5.98	1.91	4.07	4.89	3.59	1.30	4.39	12.95	0.00	5.27	4.17	1.10
January ...	5.03	7.94	0.00	7.19	0.59	6.60	5.82	3.91	1.91	4.89	9.26	0.00
February ...	4.30	3.23	1.07	5.12	9.79	0.00	5.08	5.89	0.00	4.36	7.25	0.00
March	4.59	8.13	0.00	4.15	7.26	0.00	4.15	4.58	0.00	4.83	2.80	2.03
April	3.41	2.91	0.50	3.45	2.11	1.34	2.89	6.40	0.00	3.50	6.45	0.00
May	2.72	1.15	1.57	3.06	1.10	1.96	2.74	0.72	2.02	2.46	0.50	1.96
Total	**46.70**	**47.24**	**14.07**	**48.03**	**38.33**	**19.23**	**44.22**	**48.79**	**8.92**	**44.72**	**50.43**	**10.30**

Comments on Rainfall

The crop now to be harvested has gone through a period of exceptionally favourable weather conditions. The rainfall for the year ending 31st May, 1958 was 50.43 inches which is the highest total since 1924-25 when abnormal rainfall in March pushed up the total to well over 50 inches for the year. Not only was the rainfall 12.31 inches above our mean annual rainfall of 38.12 inches, but the crop has had two successive excellent annual rainfalls, because the total for the year ending 31st May, 1957 was also high at 48.88 inches. In addition there were only two months, June and August, with temperatures slightly below normal and the mean screen temperature for the year was 1.0°F above normal. There were dry periods and floods were experienced, but on the whole rainfall distribution, particularly during the more important growing months, was very good. On the whole, climatic factors were such as to make this an excellent year for cane but abundant flowering in 1957 and early indications of a recurrence this year, is likely to reduce the crop somewhat.

The rainfall during June 1957 amounted to only 0.31 inches and followed May with only 0.72 inches of rain, with the result that brown patches of cane started appearing on shallow soils. Flowering was probably the worst yet experienced. July was very dry on the South Coast, but Zululand had good rains and the Industry averaged 1.34 inches. Flowering was reported to be particularly bad on the South Coast and from Gingindhlovu to Empangeni in Zululand. The winter drought was considerably relieved from the 21st August with light showers on a few successive days, but the total rainfall for the month only amounted to 1.10 inches. September had the unusually high total of 7.15 inches of rain which greatly benefited the crop although some areas had excessive falls and the Umfolozi flats were twice flooded. This wet spell continued during October when 6.17 inches of rain was recorded and floods were experienced on the South Coast and the Umfolozi again twice broke its banks. Many areas suffered from excessive wet conditions, but on the whole the crop responded well. Although the rainfall during November was slightly below normal at 3.93 inches, the crop continued to respond excellently to adequate heat and moisture. These conditions largely continued during December with 4.17 inches of rain. Abundant rain, 9.26 inches, and heat made January yet another excellent month for cane growth. These conditions continued during the first half of February but the latter half was rather dry; the total rainfall for the month was 7.25 inches. Although March was, with the possible exception of the South Coast, undoubtedly a dry month with a total of only 2.80 inches of rainfall, the cane crop continued, on the whole to progress favourably as a result of the excellent January and February rains. Exceptionally heavy rains totalling 6.45 inches were once again experienced in April which was followed by a dry but hot May with only 0.50 inches of rain.

Summarising the rainfall over the past two years, it can be stated that a normal winter drought was experienced in 1956 until good rains in August relieved the position. Normal to good rains from August to November ensued but lack of heat prevented maximum growth and these cold conditions persisted during December 1956 when floods were experienced. From January to April 1957 excellent conditions for cane growth developed. May was dry and a normal winter drought developed up to the end of August that year. From September 1957 up to the end of April 1958, with the exception of March, excellent rains were experienced and repeated floods were recorded. All these months as well as May, which was dry, had temperatures above normal and the crop could derive full benefit from the unusually abundant rainfall.

Temperatures

The mean screen temperature at the Experiment Station for the year ending 31st May, 1958 was 69.7°F or 1.0°F above the 1928-57 average of 68.7°F. The temperatures for June and August were below normal but all other months had temperatures above normal. It was rather remarkable that wet months of September and October had mean temperatures of 1.4 and 1.9°F above normal and this helped considerably to ensure early growth. May had a mean temperature of 69.1°F or no less than 2.6°F above normal and this high temperature together with the excellent rains of April allowed good growth to continue until the end of May.

Evaporation

Evaporation from an open water surface totalled 44.72 inches for the year compared with the mean for 1936-57 of 46.60 inches. There were seven months in which evaporation at the Experiment Station exceeded the average rainfall in the industry and the accumulated rainfall deficiency amounted to 10.30 inches, which is lower than normal but higher than the previous year.

Hours of Sunshine

Hours of sunshine is one of the factors that has a direct bearing on sucrose per cent cane. There appears to be a direct relationship between the hours of sunshine from March to May or June, and the sucrose content of the subsequent crop and an inverse relationship between rainfall for these months and sucrose content. For this year the hours of sunshine from March to May as well as the rainfall for these months are close to normal. For the whole year now under review the hours of sunshine at the Experiment Station was 96.2 per cent of normal.

TABLE VI

The following are the Screen Temperatures by Months in Degrees Fahrenheit at the Experiment Station for the year June, 1957, to May, 1958, compared with the Means for the Period 1928 to 1957

Month	THIS PERIOD					AVERAGE 1928 TO 1957 INCLUSIVE			
	Maximum	Minimum	Mean	Plus or Minus Average	Daily Range	Maximum	Minimum	Mean	Range
June	72.0	52.0	62.1	−0.7	20.0	72.9	52.6	62.8	20.3
July	73.0	54.0	63.5	+1.4	19.0	72.4	51.8	62.1	20.6
August ...	73.6	53.7	63.3	−0.2	19.9	73.2	53.9	63.5	19.3
September ...	74.5	59.5	67.1	+1.4	15.0	74.3	57.2	65.7	17.1
October ...	79.2	61.2	70.2	+1.9	18.0	75.9	60.8	68.3	15.1
November ...	78.6	64.9	71.8	+1.2	13.7	77.8	63.3	70.6	14.5
December ...	81.1	66.6	73.9	+1.1	14.5	79.9	65.7	72.8	14.2
January ...	81.7	69.6	75.5	+1.4	12.1	81.0	67.1	74.1	13.9
February ...	81.0	68.7	74.8	+0.2	12.3	81.6	67.7	74.6	13.9
March	80.6	66.9	73.8	+0.6	13.7	80.3	66.0	73.2	14.3
April	78.1	63.7	70.9	+0.7	14.4	78.3	62.1	70.2	16.2
May	77.7	60.4	69.1	+2.6	17.3	75.9	57.0	66.5	18.9
Means	**77.6**	**61.8**	**69.7**	**+1.0**	**15.8**	**77.0**	**60.4**	**68.7**	**16.5**

TABLE VII

The following Table gives the Mean Monthly Earth Temperatures

Month	Experiment Station 1934-57			Experiment Station June 1957 to May 1958		
	1 foot	2 feet	4 feet	1 foot	2 feet	4 feet
June	64.1	66.8	69.6	62.8	64.4	68.2
July	62.7	64.7	67.0	62.6	62.8	65.3
August	64.6	65.8	66.8	63.1	64.0	65.5
September	67.8	68.3	68.3	67.3	67.5	67.3
October	70.8	70.9	70.3	71.2	70.7	69.6
November	73.5	73.4	72.8	74.1	73.4	72.0
December	76.4	76.1	74.6	77.4	76.5	74.3
January	78.7	79.0	76.8	79.0	78.3	76.1
February	79.6	79.7	78.2	79.0	78.6	77.0
March	78.2	79.0	78.3	77.9	77.9	77.0
April	74.8	76.3	76.8	75.0	75.2	75.4
May	69.4	71.7	73.6	71.1	72.3	73.4
Mean	**71.7**	**72.6**	**72.8**	**71.7**	**71.8**	**71.8**

Summary and Conclusions

This has been one of the best years ever experienced in the Sugar Industry. Once again we have had two successive years with rainfalls well above average. The mean rainfall over the past two seasons was 99.31 inches and for the year ending 31st May, 1958 it was 50.43 inches.

There was a normal winter drought and several floods occurred but on the whole the rainfall was well distributed.

In spite of the high rainfall, the mean temperature was high at 69.7°F or 1.0°F above normal. Heat and moisture created excellent conditions for cane growth. Temperatures were particularly high during September and October and again during May and this helped to extend the normal growing period of the crop.

It was, therefore, an excellent year for cane growth and record yields of cane per acre may be expected.

Experiment Station
South African Sugar Association
Mount Edgecombe
27th June, 1958.