

WEATHER REPORT FOR THE YEAR 1st JUNE, 1956, TO 31st MAY, 1957

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General

This report again follows the same procedure as in recent years and will deal mainly with the rainfall returns from 54 centres within the sugar belt for the period 1st June, 1956, to 31st May, 1957, but the rainfall for the twelve months prior to June, 1956, will also be referred to as it will have a distinct bearing on this year's crop, which remains predominantly a two-year-old crop. The other meteorological data discussed, such as atmospheric temperatures, evaporation from an open tank, hours of sunshine, etc., will refer to the Experiment Station, Mount Edgecombe, only, but will largely reflect weather condition in the cane area. Soil temperatures at 2-ft. depth are also available from Port Shepstone and Entumeni.

Rainfall Returns from Fifty-four Centres

The centres from which rainfall data are recorded here are well scattered but representative of the whole sugar belt. The industry is divided into the normal geographic divisions, i.e. South Coast, North Coast and Zululand, and further subdivided into magisterial districts which facilitate a possible correlation between rainfall and cane yield data.

Table I gives the rainfall for the past five years for each of the fifty-four recording centres.

Table II give the rainfall by magisterial districts and also for the three main divisions for each month of the year from June, 1956, to May, 1957.

Table III gives the calculated mean rainfall for the past thirty-three 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 subdivisions of the industry.

Table V gives the monthly rainfall for the fifty-four 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 1952 to 31st May 1953	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
Port Shepstone					
Mehlomnyama	40.02	41.61	54.59	46.05	51.80
Umzinto					
Hibberdene	35.92	38.76	48.11	51.47	52.13
Umtwalume	34.11	35.66	41.66	38.36	37.41
Sezela Mill	37.08	40.91	50.35	41.08	49.30
Esperanza Mill	33.82	40.80	49.72	42.03	47.73
Renishaw Mill	30.66	39.22	54.79	41.26	56.41
Dumisa	28.95	35.16	37.63	39.98	42.75
Durban, Camperdown, etc.					
Illovo Mill	28.12	31.80	43.80	36.57	51.52
Umbumbulu	30.50	31.61	38.72	39.74	41.51
Thornville	25.89	36.07	36.11	29.03	40.08
Inanda					
Mount Edgecombe—					
Milkwood Kraal	39.41	37.24	39.04	29.92	41.28
Experiment Station	40.15	33.10	42.83	31.11	45.86
La Lucia	41.40	32.55	46.34	35.02	46.26
La Mercy	42.55	35.90	49.04	35.14	41.92
Canelands	34.86	31.12	41.42	29.26	37.69
Tongaat—					
Frosterly	41.64	35.43	47.28	33.96	47.36
Inyaninga	40.98	33.77	49.04	32.89	41.14
Inanda	45.09	43.59	47.21	37.91	48.47
Tongaat—					
Mwawine	44.85	37.53	49.45	39.21	53.46
Lower Tugela					
Maidstone Mill	39.13	37.65	48.20	37.99	52.45
Sinembe	35.27	37.47	47.29	38.37	46.22
Upper Tongaat	46.57	43.18	52.35	44.51	53.71
Fraser's Estate	38.74	35.15	51.68	38.51	51.15
Chaka's Kraal Exp. Farm	41.96	38.37	40.50	36.80	47.26
Chaka's Kraal	36.96	42.66	51.92	39.84	53.63
Grootville	32.72	34.55	45.28	29.09	37.71
Kersney	34.04	46.39	57.46	39.89	52.13
Doornkop Mill	31.19	40.10	41.84	33.09	39.53
Doornkop, Sprinz	43.57	52.21	55.13	47.37	52.82
Gledhow Mill	35.31	35.64	55.22	34.55	49.02
Darnall Mill	36.65	35.92	53.18	39.40	46.08
Tugela Mouth	30.38	42.61	59.11	45.70	58.25
Mtunzini					
Mandeni	28.50	39.74	53.03	38.50	51.82
Amatikulu Mill	33.44	41.14	48.08	41.91	46.39
Inyoni	34.02	36.34	47.01	39.34	48.50
Mtunzini	34.63	58.56	58.65	53.24	75.88
Blackburn	37.22	43.23	52.97	42.15	48.19
Eshowe					
Entumeni Mill	31.56	42.82	50.08	41.63	47.34
Eshowe	36.22	46.18	55.79	52.04	48.51
Nkwaleni	22.53	26.93	38.91	27.59	31.84
Lower Umfolozi					
Felixton Mill	28.07	59.82	63.82	60.90	70.63
Empangeni West	26.88	40.04	43.49	37.48	50.10
Empangeni Mill	29.16	54.00	54.69	47.82	63.40
Logoza	26.17	49.47	51.77	41.48	67.21
Ukulu Properties	24.34	44.39	45.99	39.05	56.42
Mposa	26.09	45.89	44.14	39.72	56.75
Kwambonambi	29.11	48.10	44.47	43.26	66.56
Eteza	34.59	37.84	45.38	38.49	59.30
Hlabisa					
Mtubatuba Mill	25.09	37.92	33.36	29.15	53.19
U.L.O.A.	43.05	45.30	46.43	38.07	59.51
Nyalazi River	31.61	29.45	44.43	28.35	40.70
Hluhluwe	24.29	21.85	36.00	22.28	30.42
Ubonbo—Mkuzi	21.24	22.36	26.63	23.87	23.87
Piet Retief—Pongola	23.34	25.19	30.76	28.64	28.65
Mean	33.88	39.08	47.24	38.33	48.88

TABLE II

Rainfall in Inches by Districts for the Months of June, 1956, to May, 1957, inclusive

District	No. of Centres	[199557]												Total June 1956 to May 1957
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan	Feb.	March	April	May	
Port Shepstone	1	1.98	0.48	2.60	2.38	10.30	5.06	10.21	2.65	3.91	5.21	5.93	1.09	51.80
Umzinto	6	2.17	0.19	2.57	2.82	4.59	4.99	10.58	2.56	3.95	6.22	6.40	0.60	47.64
Durban, Pinetown etc.	3	0.56	0.17	2.35	2.20	2.77	4.82	9.55	5.07	4.52	5.45	4.93	1.96	44.35
Mean: South Coast ...	10	1.67	0.21	2.51	2.59	4.61	4.95	10.23	3.33	4.12	5.89	5.91	1.06	47.08
Inanda	9	0.59	0.15	2.57	3.14	1.64	3.65	11.34	3.17	5.46	4.35	8.32	0.45	44.83
Lower Tugela	13	0.62	0.26	2.36	3.82	2.49	3.97	12.69	3.39	6.78	4.73	7.42	0.68	49.21
Mean North Coast ...	22	0.61	0.23	2.44	3.54	2.14	3.83	12.14	3.30	6.24	4.58	7.79	0.59	47.43
Mean: South of Tugela	32	0.94	0.22	2.46	3.24	2.91	4.18	11.54	3.31	5.58	4.98	7.20	0.74	47.30
Mtunzini	5	1.57	1.01	2.05	2.64	2.81	4.97	16.91	4.08	6.37	4.16	6.75	0.87	54.19
Eshowe	3	0.80	0.09	0.89	2.24	3.54	5.64	12.41	3.04	5.18	4.23	4.16	0.32	42.54
Lower Umfolozi	8	2.65	0.25	1.79	3.04	5.16	5.61	18.50	5.71	6.47	4.79	6.39	0.95	61.31
Hlabisa	4	1.34	0.18	1.60	2.24	3.64	3.20	12.34	6.19	6.73	3.08	4.81	0.64	45.99
Ubombo	1	0.52	0.31	0.08	1.81	2.95	2.30	4.10	2.52	5.89	1.96	1.39	0.04	23.87
Piet Retief	1	0.28	0.26	0.04	1.73	2.52	3.01	6.45	3.03	7.39	1.85	2.07	0.02	28.65
Mean: Zululand and Piet Retief ...	22	1.71	0.39	1.53	2.58	3.91	4.76	14.99	4.79	6.33	4.00	5.46	0.70	51.15
General Mean	54	1.25	0.28	2.09	2.98	3.32	4.42	12.95	3.91	5.89	4.58	6.49	0.72	48.88

TABLE III

Rainfall and Evaporation Data

Month	Mean Percentage Rainfall Distribution 1924-1956	Computed Mean Rainfall for 54 Centres 1924-1956	Actual Rainfall for 54 Centres June, 1956, to May, 1957	Evaporation at Experiment Station	
				Mean 1936-1956	June, 1956, to May, 1957
1954 June	4.09	1.55	1.25	2.35	2.19
July	2.87	1.09	0.28	2.56	2.30
August	3.72	1.41	2.09	2.92	3.03
September	6.33	2.40	2.98	3.64	3.71
October	9.11	3.45	3.32	4.07	3.68
November	11.22	4.25	4.42	4.75	4.24
December	12.56	4.76	12.95	5.33	4.39
1956 January	11.14	4.22	3.91	5.68	5.82
February	12.54	4.75	5.89	4.75	5.08
March	14.30	5.42	4.58	4.41	4.15
April	6.68	2.53	6.49	3.35	2.89
May	5.44	2.06	0.72	2.84	2.74
	100.00	37.89	48.88	46.65	44.22

TABLE IV

Rainfall in Inches by Districts for the Two-year Period June, 1955, to May, 1957, inclusive

	No. of Centres	1955 Winter Growth June-August	1955 Early Growth Sept.-October	1955-1956 Optimum Growth Nov.-March	1956 Late Growth April-May	1956 Winter Growth June-August	1956 Early Growth Sept.-October	1956-1957 Optimum Growth Nov.-March	1957 Late Growth April-May	Total for Two Years June, 1955, to May, 1957
Port Shepstone	1	1.47	8.60	30.73	5.26	5.06	12.68	27.04	7.02	97.86
Umzinto	6	1.70	8.32	27.97	4.21	4.93	7.41	28.30	7.00	89.84
Durban, Pinetown etc.	3	1.16	5.41	25.49	3.07	3.08	4.97	29.41	6.89	79.48
Mean: South Coast ...	10	1.52	7.47	27.50	3.97	4.39	7.20	28.52	6.97	87.54
Inanda	9	1.03	6.97	22.46	3.40	3.31	4.79	27.97	8.77	78.70
Lower Tugela	13	1.23	7.25	27.09	3.24	3.24	6.31	31.56	8.10	88.02
Mean: North Coast ...	22	1.15	7.14	25.20	3.31	3.28	5.68	30.09	8.38	84.23
Mean: South of Tugela	32	1.26	7.25	25.92	3.52	3.62	6.15	29.59	7.94	85.25
Mtunzini	5	1.28	8.15	30.74	2.42	4.63	5.45	36.49	7.62	96.78
Eshowe	3	0.95	8.45	29.89	1.13	1.78	5.78	30.51	4.48	82.96
Lower Umfolozi	8	2.66	7.10	30.54	3.23	4.69	8.20	41.08	7.34	104.84
Hlabisa	4	1.45	4.84	19.31	3.86	3.12	5.88	31.54	5.45	75.45
Ubombo	1	0.19	3.81	18.22	2.65	0.91	4.76	16.77	1.43	48.74
Piet Retief	1	—	4.61	22.43	1.60	0.58	4.25	21.73	2.09	57.29
Mean: Zululand and Piet Retief ...	22	1.66	6.85	27.56	2.77	3.63	6.49	34.87	6.16	89.99
General Average ...	54	1.43	7.09	26.59	3.21	3.62	6.30	31.75	7.21	87.21
Computed Mean for 33 Years	54	4.05	5.85	23.40	4.59	4.05	5.85	23.40	4.59	75.78

TABLE V

Rainfall and Evaporation in Inches for the Past Four Years

Month	1953 - 1954			1954 - 1955			1955 - 1956			1956 - 1957		
	Evaporation	Rainfall	Rainfall Deficiency	Evaporation	Rainfall	Rainfall Deficiency	Evaporation	Rainfall	Rainfall Deficiency	Evaporation	Rainfall	Rainfall Deficiency
June	2.59	0.23	2.36	2.44	1.08	1.36	2.30	0.74	1.56	2.19	1.25	0.94
July	2.99	0.39	2.60	3.22	0.46	2.76	2.65	0.12	2.53	2.30	0.28	2.02
August	2.68	1.90	0.78	3.31	1.02	2.29	3.32	0.58	2.74	3.03	2.09	0.94
September	3.38	3.23	0.15	3.80	4.86	0.00	4.16	2.96	1.20	3.71	2.98	0.73
October	3.63	3.29	0.34	3.86	10.96	0.00	3.56	4.13	0.00	3.68	3.32	0.36
November	4.50	5.20	0.00	4.04	3.59	0.45	4.18	5.36	0.00	4.24	4.42	0.00
December	5.90	5.11	0.79	5.98	1.91	4.07	4.89	3.59	1.30	4.39	12.95	0.00
January	5.12	3.66	1.46	5.03	7.94	0.00	7.19	0.59	6.60	5.82	3.91	1.91
February	4.57	6.20	0.00	4.30	3.23	1.07	5.12	9.79	0.00	5.08	5.89	0.00
March	4.75	3.83	0.92	4.59	8.13	0.00	4.15	7.26	0.00	4.15	4.58	0.00
April	3.06	2.70	0.36	3.41	2.91	0.50	3.45	2.11	1.34	2.89	6.49	0.00
May	3.24	3.34	0.00	2.72	1.15	1.57	3.06	1.10	1.96	2.74	0.72	2.02
Total	46.41	39.08	9.76	46.70	47.24	14.07	48.03	38.33	19.23	44.22	48.88	8.92

Comments on Rainfall

As far as rainfall is concerned the sugar industry has had an excellent year. The average rainfall for the 54 centres reporting regularly to us was 48.88 inches for the year ending 31st May, 1957, compared with the 33 years' computed mean of 37.89 inches. In addition the rainfall distribution, although by no means perfect, was abnormally favourable and gave a lower rainfall deficiency than has been recorded over the past five years.

During June, 1956, with a rainfall of 1.25 inches, the cane belt started getting dry and abundant flowering was reported particularly from Zululand. The rainfall during July was 0.28 inches and although the crop, as a whole, stood up well to adverse conditions, brown patches could be observed and in isolated cases cane was actually dying in small patches. The 2.09 inches of rain in August helped to retrieve the position and the crop was in a better condition to benefit from the possible hotter spring weather to follow. The rainfall during September was again above normal, 2.98 inches, but unfortunately the month was cold and windy and the crop showed little response to the rain. The rainfall in October was about normal and averaged 3.32 inches, but the mean temperature was only 66.8°F compared with a normal of 68.3°F for the month. The crop definitely needed more heat. Lack of heat during November further retarded cane growth with a rainfall slightly above normal at 4.42 inches for the month. During December flood conditions were experienced in many parts of the industry. At Mtunzini 23.58 inches of rain were recorded and at Umfolozi the river flooded hundreds of acres of cane land. The average rainfall for the 54 recording stations, for the month, was 12.95 inches, the highest for the month since 1924. Although December was on the whole a favourable month, lack of heat again prevented the crop from benefiting to the full extent from the abundant rainfall. Excellent growing conditions set in with the hotter January when the rainfall was slightly below normal at 3.91 inches and the mean temperature, 76.1°F, was well above normal. Excellent growing conditions continued during February with temperatures and rainfall well above normal. An average of 5.89 inches of rain were recorded during February. March was another very good month with 4.58 inches of rain and temperatures slightly above normal, and so was April, when the industry had 6.49 inches of rain, a total exceeded only once for the month since 1924. Although May was dry with only 0.72 inches of rain, the cane continued to benefit from the good March rains.

Summarising the rainfall over the past two years, it can be stated that the winter months of 1955 were exceptionally dry. Reasonably good rains were experienced from September to December but temperatures were exceptionally low and lack of heat rather

than lack of moisture limited cane growth. January 1956 was a most exceptionally dry and desiccating month which caused a severe setback to the crop. From February to March 1956 rainfall was adequate and flooding was experienced. The crop responded very well and progress was continued during April. May, however, had a low rainfall and this trend continued until July when drought conditions became fairly severe. Normal to good rains from August to November ensued but lack of heat prevented maximum growth and these rather cold conditions persisted during December when flood conditions developed. From January to April excellent conditions for cane growth developed with good rains and high temperatures. The rainfall during May was, however, low.

Temperatures

The mean screen temperature at the Experiment Station for the year ending 31st May, 1957, was 68.8°F or 0.1°F above the 1928-56 average of 68.7°F. The winter temperatures from June to August were above normal, but like the year before, the temperatures from September to December were exceptionally low for spring and early summer. January and February were very hot with screen mean temperatures averaging 2.0 and 2.4°F respectively above normal. March and April were close to normal but May was cold again.

The 1-foot soil temperature was normal at 71.7°F but 2-foot and 4-foot temperatures were below normal at 71.4 and 71.3°F respectively.

Hours of Sunshine

There appears to be a direct relationship between 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 were below normal and the rainfall above normal so that indications are that we will get a poor sucrose year. For the whole year now under review the sunshine averaged 96.9 per cent of normal.

Summary and Conclusions

The industry again experienced two successive years with rainfalls above normal. The mean rainfall, over the past two years, was 87.21 inches and for the year ending 31st May, 1957, it was 48.88 inches. Although rather dry in July, 1956, the rainfall distribution was on the whole very good.

The winter was relatively warm but lack of heat from September to December retarded cane growth. January and February had mean temperatures well above normal and this heat together with ample

moisture provided excellent conditions for cane growth.

The year as a whole can be regarded as very good for cane growth, but low hours of sunshine and above

normal rainfall from March to May are likely to lower the sucrose content of the crop to be cut this year.

TABLE VI

The following are the Screen Temperatures by Months in Degrees Fahrenheit at the Experiment Station for the year June, 1956, to May, 1957, compared with the Means for the Period 1928 to 1956

Month	THIS PERIOD					AVERAGE 1928 TO 1956 INCLUSIVE			
	Maximum	Minimum	Mean	Plus or Minus Average	Daily Range	Maximum	Minimum	Mean	Range
June	73.2	51.4	63.7	+0.9	21.8	72.9	52.6	62.8	20.3
July	73.9	53.8	63.9	+1.9	20.1	72.4	51.7	62.0	20.7
August	73.0	56.5	64.8	+1.3	16.5	73.2	53.9	63.5	19.3
September ...	72.5	55.8	64.1	-1.6	16.7	74.3	57.1	65.7	17.2
October	73.6	60.1	66.8	-1.5	13.5	75.8	60.8	68.3	15.0
November ...	76.3	63.3	69.8	-0.7	13.0	77.8	63.3	70.5	14.5
December ...	77.6	64.0	70.3	-2.5	13.6	79.9	65.7	72.8	14.2
January	82.4	69.6	76.1	+2.0	12.8	80.9	67.1	74.1	13.8
February ...	83.7	70.2	77.0	+2.4	13.5	81.5	67.6	74.6	13.9
March	79.9	66.7	73.4	+0.2	13.2	80.3	66.0	73.2	14.3
April	77.2	63.3	70.3	+0.1	13.9	78.4	62.1	70.2	16.3
May	75.2	56.5	65.9	-0.6	18.7	75.9	57.0	66.5	18.9
Means	76.5	60.9	68.8	+0.1	15.6	77.0	60.4	68.7	10.5

TABLE VII

The following Table gives the Mean Monthly Earth Temperatures

Month	Experiment Station Means 1934-1956			Experiment Station June, 1956, to May, 1957			Umzimkulu Sugar Co. June, 1956, to May, 1957	Entumeni Wattle Co. June, 1956, to May, 1957
	1 foot	2 feet	4 feet	1 foot	2 feet	4 feet	2 feet	2 feet
June	64.2	67.0	69.6	62.8	64.8	68.0	63.0	63.5
July	62.7	64.8	67.1	62.6	63.9	66.2	62.2	63.5
August	64.6	65.8	66.8	64.9	65.7	66.4	63.2	65.7
September ...	67.8	68.3	68.3	65.8	66.4	67.1	64.8	65.8
October	70.7	70.9	70.4	68.9	68.7	68.4	68.4	67.5
November ...	73.4	73.4	72.8	72.5	71.8	70.5	71.6	70.5
December ...	76.3	76.1	74.6	73.9	73.6	72.1	74.2	71.0
January	78.7	79.0	76.9	80.2	78.8	75.2	79.4	76.1
February ...	79.5	79.6	78.2	81.3	80.2	77.2	80.6	77.4
March	78.1	79.0	78.4	78.3	78.3	77.2	79.0	75.3
April	74.8	76.3	76.8	74.5	75.2	75.7	—	73.4
May	69.4	71.8	73.7	67.8	69.3	72.0	67.4	68.0
Mean	71.7	72.7	72.8	71.7	71.4	71.3	—	69.8