

WEATHER REPORT FOR THE YEAR 1st JUNE, 1959, TO 31st MAY, 1960

By J. L. DU TOIT

General

In this report the same procedure will be followed as in recent years. The climatic conditions during the year 1st June, 1959 to the 31st May, 1960 will be discussed in some detail but conditions during the previous twelve months will also have an effect on the crop to be cut in 1960-61 and these will, therefore, also be referred to.

Meteorological data other than rainfall data which are collected from 54 recording stations, are from the Experiment Station, Mount Edgecombe. This station is, however, fairly centrally situated and the records may, therefore, be considered fairly representative of the weather conditions prevailing in the Industry as a whole.

Rainfall Returns from 54 Centres

The centres from which rainfall data are obtained are well scattered and 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 sub-divided into magisterial districts.

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 1959 to May 1960.

Table III gives the calculated mean rainfall for the past 36 years and the monthly percentage distribution. The actual rainfall for the year now under review 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 4 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 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	Rainfall for year 1st June 1958 to 31st May 1959	Rainfall for year 1st June 1959 to 31st May 1960
Port Shepstone					
Mehlomnyama	46.05	51.80	50.41	46.46	39.17
Umzinto					
Hibberdene	51.47	52.13	50.10	46.05	53.87
Umtwalume	38.36	37.41	42.86	47.64	30.26
Sezela Mill	41.08	49.30	54.31	38.10	36.16
Esperanza Mill	43.03	47.73	55.50	40.72	35.38
Renishaw Mill	41.26	56.41	58.00	36.73	35.26
Dumisa	39.98	42.75	44.11	47.71	30.43
Durban, Camperdown, etc.					
Ilovo Mill	36.57	51.52	49.46	31.82	30.84
Umbumbulu	39.74	41.51	41.52	42.61	28.39
Thornville	29.03	40.08	38.39	36.57	26.30
Inanda					
Mount Edgecombe—					
Milkwood Kraal	29.92	41.28	49.65	28.93	26.08
Experiment Station	31.11	45.86	51.11	28.22	27.81
La Lucia	35.02	46.26	53.62	29.18	30.01
La Mercy	35.14	41.92	49.81	28.06	28.42
Canelands	29.26	37.69	46.28	29.48	26.29
Tongaat—					
Prosterly	33.96	47.36	48.23	32.81	31.91
Inyanninga	32.89	41.14	46.65	31.84	32.95
Inanda	37.91	48.47	52.14	46.06	38.53
Tongaat—					
Nwawine	39.21	53.46	52.46	31.61	37.59
Lower Tugela					
Maidstone Mill	37.99	52.45	46.70	32.84	34.36
Sinembe	38.37	46.22	50.17	35.57	30.08
Upper Tongaat	44.51	53.71	58.04	42.42	37.55
Fraser's Estate	38.51	51.15	52.13	30.48	30.55
Chaka's Kraal Exp. Farm	36.80	47.26	55.83	32.31	34.42
Chaka's Kraal	39.84	53.63	56.76	39.21	35.30
Groutville	29.09	37.71	48.29	34.51	32.61
Kearsney	39.89	52.13	62.85	41.22	40.83
Doornkop Mill	33.09	39.53	44.97	34.47	32.74
Doornkop, Sprinz	47.37	52.82	61.04	48.88	41.95
Gledhow Mill	34.55	49.02	56.24	32.33	34.61
Darnall Mill	30.40	46.03	56.37	33.49	39.05
Tugela Mouth	45.70	58.25	66.27	36.44	45.40
Mtunzini					
Mandeni	38.50	51.82	62.53	31.05	37.63
Amatikulu Mill	41.91	46.39	50.63	28.47	40.03
Inyoni	39.34	48.50	50.07	31.44	39.02
Mtunzini	53.24	75.88	59.95	38.70	54.70
Blackburn	42.15	48.19	51.44	33.18	40.40
Eshowe					
Entumeni Mill	41.63	47.34	42.58	30.17	37.59
Eshowe	52.04	48.51	53.92	35.96	40.56
Nkwaleni	27.59	31.84	39.47	20.14	29.66
Lower Umfolozi					
Felixton Mill	60.90	70.63	63.97	37.43	58.81
Empangeni West	37.48	50.10	46.32	26.00	36.25
Empangeni Mill	47.82	63.40	45.92	28.14	40.15
Logoza	41.48	67.21	51.25	27.07	42.67
Ukulu Properties	39.05	56.42	47.30	24.37	36.65
Mposa	39.72	56-75	47.96	24.71	37.13
Kwambonambi	43.26	66.56	51.92	29.42	36.67
Eteza	38.49	59.30	45.78	27.30	37.08
Hlabisa					
Mtubatuba Mill	29.15	53.19	48.00	25.43	32.67
U.L.O.A.	38.07	59.51	60.57	33.26	49.01
Nyalazi River	28.35	40.70	50.86	24.87	36.53
Hluhluwe	22.28	30.42	42.09	21.23	31.28
Umbombo—Mkuzi	23.87	23.87	32.21	20.18	24.47
Piet Retief—Pongola	28.64	28.65	28.26	27.07	25.89
Mean	38.33	48.88	50.43	33.34	35.66

TABLE II

Rainfall in Inches by Districts for the Months of June, 1959, to May, 1960, inclusive

District	No. of Centres	1 9 5 9											Total June 1959 to May 1957	
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan	Feb.	March	April		May
Port Shepstone	1	Nil	1.14	3.51	2.04	4.79	2.48	3.96	4.60	4.54	6.09	4.20	1.82	39.17
Umzinto	6	0.02	2.20	3.05	1.58	4.26	2.95	3.04	2.33	3.95	4.46	4.63	1.43	33.90
Durban, Pinetown, etc.	3	Nil	1.21	2.04	1.50	2.64	3.57	3.22	2.53	3.75	4.81	2.85	0.39	28.51
Mean: South Coast ...	10	0.01	1.80	2.79	1.60	3.83	3.09	3.18	2.62	3.95	4.73	4.05	1.16	32.81
Inanda	9	0.08	0.70	1.74	2.95	4.15	2.38	3.84	2.84	3.78	4.21	3.64	0.77	31.08
Lower Tugela	13	0.09	0.20	2.29	2.77	5.17	3.31	3.88	2.03	4.94	5.94	4.91	0.88	36.41
Mean: North Coast ...	22	0.08	0.41	2.06	2.84	4.75	2.93	3.86	2.36	4.47	5.23	4.39	0.84	34.22
Mean: South of Tugela	32	0.06	0.84	2.29	2.45	4.46	2.98	3.65	2.44	4.31	5.07	4.29	0.94	33.78
Mtunzini	5	0.13	0.39	3.71	3.10	5.34	3.36	5.21	1.35	7.40	4.24	5.29	2.84	42.36
Eshowe	3	Nil	0.03	1.30	3.02	4.73	3.26	5.29	1.56	5.37	4.12	6.20	1.06	35.94
Lower Umfolozi	8	0.10	0.49	3.08	3.10	4.53	2.79	4.67	1.49	6.86	3.67	7.20	2.59	40.57
Hlabisa	4	0.04	0.65	1.32	2.84	5.25	3.16	3.21	2.13	4.21	5.13	7.83	1.83	37.60
Ubombo	1	Nil	0.03	1.91	1.20	3.56	2.56	2.46	2.50	4.00	4.25	3.00	Nil	25.47
Piet Retief	1	0.02	Nil	1.49	1.69	2.66	4.13	4.21	0.77	6.40	2.91	2.55	0.06	26.89
Mean: Zululand and Piet Retief ...	22	0.08	0.39	2.44	2.89	4.74	3.10	4.49	1.60	6.15	4.12	6.34	2.07	38.41
General Mean	54	0.07	0.66	2.35	2.63	4.58	3.03	3.99	2.10	5.05	4.68	5.12	1.40	35.66

TABLE III

Rainfall and Evaporation Data

Month	Mean Percentage Rainfall Distribution 1924-1959	Computed Mean Rainfall for 54 Centres 1924-1959	Actual Rainfall for 54 Centres June, 1959, to May, 1960	Evaporation at Experiment Station	
				Mean 1936-1959	June, 1959, to May, 1960
June	3.82	1.45	0.07	2.35	2.34
July	2.82	1.07	0.66	2.52	2.51
August	3.69	1.40	2.35	2.93	3.33
September	6.83	2.59	2.63	3.61	4.06
October	9.33	3.54	4.58	4.16	4.74
November	11.15	4.23	3.03	4.73	4.62
December	12.39	4.70	3.99	5.31	5.40
January	10.94	4.15	2.10	5.63	5.46
February	12.55	4.76	5.05	4.72	4.87
March	13.87	5.26	4.68	4.43	5.21
April	7.02	2.66	5.12	3.35	3.35
May	5.59	2.12	1.40	2.80	2.74
	100.00	37.93	35.66	46.54	48.63

TABLE IV
Rainfall in Inches by Districts for the Two-year Period June, 1959, to May, 1960, inclusive

	No. of Centres	1958 Winter Growth June-August	1958 Early Growth Sept.-October	1958-1959 Optimum Growth Nov.-March	1959 Late Growth April-May	1959 Winter Growth June-August	1959 Early Growth Sept.-October	1959-1960 Optimum Growth Nov.-March	19/0 Late Growth April-May	Total for Two Years June, 1958, to May, 1960
Port Shepstone ...	1	1.42	11.31	20.89	12.84	4.65	6.83	21.67	6.02	85.73
Umzinto	6	1.01	8.31	20.36	13.14	5.39	5.84	16.73	6.06	76.84
Durban, Pinetown, etc.	3	0.95	5.24	19.64	11.18	3.25	4.14	17.88	3.24	65.52
Mean: South Coast ...	10	1.03	7.69	20.20	12.52	4.60	5.43	17.57	5.21	74.25
Inanda	9	1.08	6.84	17.57	6.32	2.52	7.10	17.05	4.41	62.89
Lower Tugela	13	1.11	6.85	20.42	8.10	2.58	7.94	20.10	5.79	72.89
Mean: North Coast ...	22	1.10	6.85	19.26	7.37	2.56	7.59	18.85	5.23	68.81
Mean: South of Tugela	32	1.08	7.11	19.55	8.98	3.20	6.91	18.45	5.23	70.51
Mtunzini	5	2.08	8.55	16.14	5.82	4.23	8.44	21.56	8.13	74.95
Eshowe	3	0.72	4.68	18.53	4.84	1.33	7.75	19.60	7.26	64.71
Lower Umfolozi ...	8	3.61	6.81	12.93	4.71	3.67	7.63	19.48	9.79	68.63
Hlabisa	4	3.37	7.41	12.02	3.51	2.01	8.09	17.84	9.66	65.81
Ubombo	1	0.96	4.09	11.63	3.50	1.94	4.76	15.77	3.00	45.65
Piet Retief	1	1.38	5.15	17.36	3.18	1.51	4.35	18.42	2.61	53.96
Mean: Zululand and Piet Retief ...	22	2.58	6.82	14.40	4.64	2.91	7.63	19.46	8.41	66.85
General Average ...	54	1.69	6.99	17.45	7.21	3.08	7.21	18.87	6.52	69.02
Computed Mean for 34 years	54	3.92	6.13	23.10	4.78	3.92	6.13	23.10	4.78	75.86

TABLE V
Rainfall and Evaporation in Inches for the Past Four Years

Month	1956 - 1957			1957 - 1958			1958 - 1959			1959 - 1960		
	Evapora-tion	Rainfall	Rainfall Deficiency	Evapora-tion	Rainfall	Rainfall Deficiency	Evapora-tion	Rainfall	Rainfall Deficiency	Evapora-tion	Rainfall	Rainfall Deficiency
June	2.19	1.25	0.94	2.39	0.31	2.08	2.22	0.78	1.45	2.34	0.07	2.27
July	2.30	0.28	2.02	2.07	1.34	0.73	2.11	0.55	1.56	2.51	0.66	1.85
August	3.03	2.09	0.94	3.00	1.10	1.90	2.65	0.37	2.28	3.33	2.35	0.98
September ...	3.71	2.98	0.73	3.08	7.15	0.00	2.92	4.28	0.00	4.06	2.63	1.43
October	3.68	3.32	0.36	4.44	6.17	0.00	4.95	2.71	2.24	4.74	4.58	0.16
Novemberr...	4.24	4.42	0.00	4.43	3.93	0.50	4.59	4.95	0.00	4.62	3.03	1.59
December ...	4.39	12.95	0.00	5.27	4.17	1.10	5.03	3.90	1.03	5.40	3.99	1.41
January	5.82	3.91	1.91	4.89	9.26	0.00	5.13	4.15	0.98	5.46	2.10	3.36
February ...	5.08	5.89	0.00	4.36	7.25	0.00	4.15	3.29	0.86	4.87	5.05	0.00
March	4.15	4.58	0.00	4.83	2.80	2.03	4.62	1.15	3.47	5.21	4.58	0.53
April	2.89	6.49	0.00	3.50	6.45	0.00	3.68	1.01	2.67	3.35	5.12	0.00
May	2.74	0.72	2.02	2.46	0.50	1.96	2.42	6.20	0.00	2.74	1.40	1.34
Total	44.22	48.88	8.92	44.72	50.43	10.30	44.47	33.34	16.54	48.63	35.66	14.92

Comments on Rainfall

The rainfall for the year ending 31st May, 1960 was 35.66 inches, which was somewhat below our mean annual rainfall of 37.93 inches. The Industry has, therefore, gone through two successive years of rainfall below normal and although these adverse conditions were by no means extreme they had a depressing effect on crop yields.

The lowest rainfall during any month of the year was recorded during June 1959 when on the average only 0.07 inches fell in the sugar belt and with the exception of Dumisa no rain was recorded at all on the South Coast. July was quite warm with the temperature 2.2°F above normal but again the rainfall was deficient with an average fall of only 0.66 inches and particularly in Zululand the drought position became quite serious. Conditions deteriorated during August and cane started to die in Zululand when during the last few days of August excellent rains fell throughout the Industry and an average of 2.35 inches was recorded. The rainfall for September was about normal amounting to 2.63 inches but during October the rainfall was well above normal at 4.58 inches and the crop was making good progress. Cold cloudy conditions and a relatively low rainfall of 3.03 inches during November, however, somewhat retarded growth. Similarly the rainfall during December, 3.99 inches, was below normal.

This was followed by an exceptionally dry January with only 2.10 inches of rain. Zululand had only 1.65 inches of rain and was the worst affected by this drought. Fortunately, however, this area had the best rains in February when the whole Industry recorded the above average total of 5.05 inches. March had a somewhat lower rainfall with 4.68 inches but excellent rains totalling 5.12 inches fell during April with the result that the crop was not so badly affected by the rather low rainfall of 1.40 inches during May.

Summarising the rainfall over the past two years, the following conditions prevailed. The crop was adversely affected by a rather severe winter drought from June to August 1958. From mid-September to the end of 1958, however, the crop made good growth. A severe summer to autumn drought, however, set in with the new year which was not ended until the middle of May when devastating floods occurred on the South Coast. The floods were

in turn again followed by a dry winter spell but normal spring rains improved the crop which again suffered a set-back with the January drought of 1960. Good rains from February to April were followed by a rather dry May but the condition of the crop at the end of May was still fair.

Temperatures

The mean screen temperature at the Experiment Station for the year ending 31st May, 1960 was 68.7°F or 0.1° below normal. The winter months, June to August, were warm particularly July which had a mean temperature 2.2°F above normal. March also had a mean temperature above normal and October was normal. The temperature for all other months was low however, and April had a mean screen temperature of 68.0°F or 2.3° below normal.

Evaporation

The evaporation from an open water surface totalled 48.63 inches or 2.09 inches above normal. There were only two months, February and April, with rainfalls above evaporation and these were probably the only two months when cane would not have benefited from irrigation. The accumulated rainfall deficiency for the year, i.e. the monthly totals of evaporation in excess of rainfall amounted to 14.92 inches.

Hours of Sunshine

The hours of sunshine for the year now under review were 101.0 per cent of normal. The hours of sunshine for the period March to June were also slightly above normal. Hours of sunshine for this period were found to correlate with sucrose per cent cane and consequently a sucrose per cent cane slightly above normal can be expected this year.

Summary and Conclusions

The Industry has now gone through its second successive year with a rainfall somewhat below average. The winter drought and a January drought have been partly off-set by fairly good rainfall conditions in the spring and from February to April and the crop is in fair condition.

Slightly lower cane per acre yields than in recent years is anticipated but it is hoped that the sucrose per cent cane may be somewhat better.

TABLE VI

The following are the Screen Temperatures by Months in Degrees Fahrenheit at the Experiment Station for the year June, 1959, to May, 1960, compared with the Means for the Period 1928 to 1959

Month	THIS PERIOD					AVERAGE 1928 TO 1959 INCLUSIVE			
	Maximum	Minimum	Mean	Plus or Minus Average	Daily Range	Maximum	Minimum	Mean	Range
June	74.1	53.8	64.0	+1.2	20.3	72.9	52.6	62.8	20.3
July	73.6	55.0	64.4	+2.2	18.6	72.5	51.9	62.2	20.6
August	74.5	53.8	64.2	+0.6	20.7	73.2	53.9	63.6	19.3
September	73.9	56.5	65.3	-0.5	17.4	74.3	57.2	65.8	17.1
October	74.3	62.4	68.4	0.0	11.9	75.8	60.9	68.4	14.9
November	75.7	63.3	69.6	-1.0	12.4	77.7	63.4	70.6	14.3
December	78.8	65.8	72.3	-0.6	13.0	80.0	65.7	72.9	14.3
January	80.1	66.4	73.2	-0.9	13.7	81.0	67.2	74.1	13.8
February	80.1	67.5	73.8	-0.9	12.6	81.6	67.7	74.7	13.9
March	81.5	67.6	74.7	+1.5	13.9	80.3	66.0	73.2	14.3
April	75.2	60.8	68.0	-2.3	14.4	78.3	62.2	70.2	16.1
May	75.0	56.8	66.0	-0.5	18.2	75.9	57.1	66.5	18.8
Means	77.2	60.8	68.7	-0.1	16.4	77.0	60.5	68.8	16.5

TABLE VII

The following Table gives the Mean Monthly Earth Temperatures

Month	Experiment Station 1935-59			Experiment Station June 1959 to May 1960		
	1 foot	2 feet	4 feet	1 foot	2 feet	4 feet
June	64.1	66.7	69.5	63.5	64.2	68.5
July	62.7	64.7	66.9	63.3	64.2	66.6
August	64.5	65.7	66.7	64.6	65.3	66.4
September	67.6	68.2	68.2	66.4	66.9	67.5
October	70.7	70.9	70.2	70.9	70.5	69.4
November	73.5	73.3	72.7	73.6	72.0	72.0
December	76.4	76.2	74.6	76.1	75.7	74.1
January	78.7	78.9	76.7	77.5	77.4	75.7
February	79.5	79.6	78.1	78.1	77.9	76.6
March	78.1	78.9	78.2	77.9	77.9	76.8
April	74.9	76.3	76.3	72.1	73.4	74.9
May	69.4	71.7	73.6	67.5	68.9	71.6
Mean	71.7	72.6	72.7	71.0	71.2	71.7