

WEATHER REPORT FOR THE YEAR 1st JUNE, 1960, TO 31st MAY, 1961

By J. L. DU TOIT

General

This report will deal mainly with the rainfall returns from 54 centres within the sugar belt for the period June 1960 to May 1961; but the rainfall data for the twelve months prior to June 1960 will also be referred to, as climatic conditions during this period will also have a bearing on the mainly two year old cane crop to be harvested during the 1961 season. The other meteorological data to be discussed such as temperatures, evaporation, etc. refer to the Experiment Station, Mount Edgecombe, but the data from this station, which is fairly centrally situated will reasonably reflect conditions in the Industry.

Rainfall from Fifty-four 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 1 gives the annual rainfall for the past five years for each of the 54 recording stations.

Table 2 gives the rainfall by magisterial districts, and also for the three main divisions for each month of the year from June 1960 to May 1961.

Table 3 gives the calculated mean rainfall for the past 37 years and the monthly percentage distribution. The actual rainfall for the year now under review is also given as are the evaporation data from the Experiment Station, Mount Edgecombe.

Table 4 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 5 gives the monthly rainfall for 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 1
Rainfall for 54 Centres

	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	Rainfall for year 1st June 1960 to 31st May 1961
Port Shepstone					
Mehlomnyama	51.80	50.41	46.46	39.17	48.21
Umzinto					
Hibberdene	52.13	50.10	46.05	35.87	54.56
Mtwalume	37.41	42.86	47.64	30.26	41.32
Sezela Mill	49.30	54.31	38.10	36.16	45.84
Esperanza Mill	47.73	55.50	40.72	35.38	46.60
Renishaw Mill	56.41	58.00	36.73	35.26	48.06
Dumisa	42.75	44.11	47.71	30.43	46.82
Durban, Camperdown, etc.					
Ilovo Mill	51.52	49.46	31.82	30.84	43.18
Umbumbulu	41.51	41.2	42.61	28.39	42.46
Thornville	40.08	38.39	36.57	26.30	43.06
Inanda					
Mount Edgecombe—					
Milkwood Kraal	41.28	49.65	28.93	26.08	35.64
Experiment Stn.	45.86	51.11	28.22	27.81	38.91
La Lucia	46.26	53.62	29.18	30.01	42.34
La Mercy	41.92	49.81	28.06	28.42	46.52
Canelands	37.69	46.28	29.48	26.29	50.51
Tonga—					
Frosterly	47.36	48.23	32.81	31.91	46.09
Inyaninga	41.14	46.65	31.94	32.95	43.86
Inanda	48.47	52.14	46.06	38.53	48.62
Tonga—					
Mwawine	53.46	52.46	31.61	37.59	48.10
Lower Tugela					
Maidstone Mill	52.45	46.70	32.84	34.36	45.10
Sinembe	46.22	50.17	35.57	30.08	44.37
Upper Tongaat	53.71	58.04	42.42	37.55	49.46
Fraser's Estate	51.15	52.13	30.48	36.55	45.38
Chaka's Kraal					
Experimental Farm	47.26	55.83	32.31	34.42	42.79
Chaka's Kraal	53.63	56.76	38.21	33.30	42.01
Groutville	37.71	48.29	34.51	32.61	38.60
Kearsney	52.13	62.85	41.22	40.83	41.81
Doornkop Mill	39.53	44.97	34.47	32.74	38.89
Doornkop, Sprinz	52.82	61.04	48.88	41.95	52.48
Gledhow Mill	49.02	56.24	32.33	34.61	42.44
Darnall Mill	46.08	56.37	33.49	39.05	47.75
Tugela Mouth	58.25	66.27	36.44	45.40	54.04
Mtunzini					
Mandeni	51.82	62.53	31.05	37.63	41.94
Amatikulu Mill	46.39	60.63	28.47	40.03	48.29
Inyoni	48.50	50.07	31.44	39.02	50.90
Mtunzini	75.88	59.95	38.70	54.70	66.73
Blackburn	48.19	51.44	33.18	40.40	54.59
Eshowe					
Entumeni Mill	47.34	42.58	30.17	37.59	46.57
Eshowe	48.51	53.92	35.96	40.56	50.12
Nkwaleni	31.84	39.47	20.14	29.66	37.30
Lower Umfolozi					
Felixton Mill	70.63	63.97	37.43	57.81	68.67
Empangeni West	50.10	46.32	26.00	36.25	48.31
Empangeni Mill	63.40	45.92	28.14	40.15	61.50
Logoza	67.21	51.25	27.07	42.67	60.93
Ukulu Properties	56.42	47.30	24.37	36.65	57.45
Mposa	56.75	47.96	24.71	37.13	54.91
Kwambonambi	66.56	51.92	28.42	36.67	54.49
Eteza	59.30	45.78	27.30	37.08	43.12
Hlabisa					
Mtubatuba Mill	53.19	48.00	25.43	32.67	36.24
U.L.O.A.	59.51	60.57	33.26	49.91	47.76
Nyalazi River	40.70	50.86	24.87	36.53	31.66
Hluhluwe	30.42	42.09	21.23	31.28	32.27
Ubombo					
Mkuzi	23.87	32.21	20.18	24.47	39.01
Piet Retief					
Pongola	28.65	28.26	27.07	25.89	28.67
Mean	48.88	50.43	33.34	35.66	46.43

TABLE 2
Rainfall in Inches by Districts for Months of June, 1960, to May, 1961 inclusive

District	No. of Centres	1960								1961				Total June 1960 to May 1961
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
Port Shepstone ..	1	0.37	0.13	0.88	2.85	4.28	5.11	6.49	2.51	2.48	10.52	11.34	1.25	48.21
Umzinto	6	0.32	0.75	0.69	3.05	3.28	5.21	7.22	4.32	2.71	8.24	9.69	1.75	47.23
Durban, Pinetown, etc.	3	0.14	0.25	0.39	2.46	3.86	5.06	8.90	4.75	2.07	5.79	8.19	1.03	42.89
Mean: S. Coast ..	10	0.27	0.53	0.62	2.85	3.55	5.15	7.65	4.27	2.50	7.73	9.40	1.48	46.00
Inanda	9	0.53	0.64	0.67	2.03	3.28	6.05	7.21	6.31	2.54	4.08	10.33	0.94	44.61
Lower Tugela ..	13	0.44	0.51	1.34	2.05	3.76	6.87	8.05	5.35	2.90	4.46	8.63	0.64	45.00
Mean: N. Coast ..	22	0.48	0.57	1.07	2.04	3.56	6.54	7.72	5.74	2.76	4.30	9.32	0.76	44.85
Mean: S. of Tugela	32	0.42	0.56	0.93	2.30	3.56	6.10	7.69	5.28	2.67	5.37	9.35	0.99	45.21
Mtunzini	5	0.75	0.44	0.28	2.65	3.22	7.00	12.65	4.06	4.78	3.27	10.07	0.70	49.92
Eshowe	3	0.30	0.38	1.25	2.08	3.26	7.76	12.14	5.55	3.57	2.24	5.72	0.41	44.66
Lower Umfolozi	8	0.54	1.19	0.91	2.30	2.08	11.76	14.59	3.94	7.00	3.04	7.64	1.19	56.18
Hlabisa	4	0.28	0.75	0.32	2.26	2.29	8.00	9.81	3.27	3.83	2.00	3.25	0.92	36.98
Ubombo	1	Nil	0.55	Nil	2.02	1.33	5.64	8.37	4.13	4.77	6.86	3.29	2.05	39.01
Piet Retief	1	0.02	Nil	0.89	2.07	2.50	5.30	7.70	2.30	3.79	1.45	1.29	1.36	28.67
Mean: Zululand and Piet Retief	22	0.46	0.75	1.24	2.32	2.52	8.89	12.35	4.00	5.20	2.90	6.65	0.97	48.25
General Mean ..	54	0.43	0.63	1.06	2.30	3.14	7.24	9.59	4.76	3.70	4.36	8.24	0.98	46.43

TABLE 3
Rainfall and Evaporation Data

Month	Mean Percentage Rainfall Distribution 1924-1959	Computed Mean Rainfall for 54 Centres 1924-1960	Actual Rainfall for 54 Centres June, 1960, to May, 1961	Evaporation at Experiment Station	
				Mean 1936-1960	June, 1960, to May, 1961
June	3.69	1.42	0.43	2.35	2.38
July	2.75	1.06	0.63	2.53	2.65
August	3.61	1.39	1.06	2.90	2.27
September	6.70	2.58	2.30	3.60	3.51
October	9.15	3.52	3.14	4.15	4.07
November	11.20	4.31	7.24	4.74	5.08
December	12.55	4.83	9.59	5.30	4.85
January	11.20	4.31	4.76	5.62	5.68
February	12.50	4.81	3.70	4.73	4.85
March	13.64	5.25	4.36	4.46	4.8x
April	7.64	2.94	8.24	3.35	3.70
May	5.38	2.07	0.98	2.79	2.94
	100.00	38.49	46.43	46.52	47.49

TABLE 4
Rainfall in Inches by Districts for the Two-year Period June, 1959 to May, 1961 inclusive

	No. of Centres	1959 Winter Growth June to August	1959 Early Growth Sept. and October	1959-1960 Optimum Growth Nov. to March	1960 Late Growth April and May	1960 Winter Growth June to August	1960 Early Growth Sept. and October	1960-1961 Optimum Growth Nov. to March	1961 Late Growth April and May	Total for Two Years June, 1959 to May, 1960
Port Shepstone	1	4.65	6.83	21.67	6.02	1.38	7.13	27.11	12.59	87.38
Umzinto	6	5.39	5.84	16.73	6.06	1.76	6.33	27.70	11.44	81.25
Durban, Pinetown etc. .. .	3	3.26	4.14	17.88	3.24	0.78	6.32	26.57	9.22	71.40
Mean: South Coast .. .	10	4.60	5.43	17.57	5.21	1.42	6.40	27.30	10.88	78.81
Inanda	9	2.52	7.10	17.05	4.41	1.84	5.31	26.19	11.27	75.69
Lower Tugela	13	2.58	7.94	20.10	5.79	2.29	5.81	27.63	9.27	81.41
Mean: North Coast .. .	22	2.56	7.59	18.85	5.23	2.12	5.60	27.05	10.08	79.08
Mean: South of Tugela .. .	32	3.20	6.91	18.45	5.23	1.90	5.86	27.11	10.34	79.00
Mtunzini	6	4.23	8.44	21.56	8.13	1.47	5.87	31.81	10.77	92.28
Eshowe	3	1.33	7.75	19.60	7.26	1.93	5.34	31.26	6.13	80.60
Lower Umfolozi	8	3.67	7.63	19.48	9.79	2.64	4.38	40.33	8.83	96.75
Hlabisa	4	2.01	8.09	17.84	9.66	1.35	4.55	26.91	4.17	34.58
Ubombo	1	1.94	4.76	15.77	3.00	0.55	3.35	29.77	5.34	64.48
Piet Retief	1	1.51	4.35	18.42	2.61	0.91	4.57	20.54	2.65	45.56
Mean: Zululand and Piet Retief .. .	22	2.91	7.63	19.46	8.41	2.45	4.84	33.34	7.62	86.66
General Average .. .	54	3.08	7.21	18.87	6.52	2.12	5.44	29.65	9.22	82.11
Computed Mean for 38 years		3.87	6.10	23.51	5.01	3.87	6.10	23.51	5.01	76.98

TABLE 5
Rainfall and Evaporation in Inches for the Past Four Years

Month	1957 - 1958			1958 - 1959			1959 - 1960			1960 - 1961		
	Evaporation	Rainfall	Rainfall Deficiency	Evaporation	Rainfall	Rainfall Deficiency	Evaporation	Rainfall	Rainfall Deficiency	Evaporation	Rainfall	Rainfall Deficiency
June	2.39	0.31	2.08	2.22	0.78	1.45	2.34	0.07	2.27	2.38	0.43	1.95
July	2.07	1.34	0.73	2.11	0.55	1.56	2.51	0.66	1.85	2.65	0.63	2.02
August	3.00	1.10	1.90	2.65	0.37	2.28	3.33	2.35	0.98	2.27	1.06	1.21
September .. .	3.08	7.15	0.00	2.92	4.28	0.00	4.06	2.63	1.43	3.51	2.30	1.21
October	4.44	6.17	0.00	4.95	2.71	2.24	4.74	4.58	0.16	4.07	3.14	0.93
November .. .	4.43	3.39	0.50	4.59	4.95	0.00	4.62	3.03	1.59	5.08	7.24	0.00
December .. .	5.27	4.17	1.10	5.03	3.90	1.03	5.40	3.99	1.41	4.85	9.59	0.00
January	4.89	9.26	0.00	5.13	4.10	0.98	5.46	2.10	3.36	5.68	4.76	0.92
February .. .	4.36	7.25	0.00	4.15	3.29	0.86	4.87	5.05	0.00	5.48	3.70	1.78
March	4.83	2.80	2.03	4.62	1.15	3.47	5.21	4.68	0.53	4.88	4.36	0.52
April	3.50	6.45	0.00	3.68	1.01	2.67	3.35	5.12	0.00	3.70	8.24	0.00
May	2.46	0.50	1.96	2.42	6.20	0.00	2.74	1.40	1.34	2.94	0.98	1.96
Total	44.72	50.43	10.30	44.47	33.34	16.54	48.63	35.66	14.92	47.49	46.43	12.50

TABLE 6

The following are the Screen Temperatures by Months in Degrees Fahrenheit at the Experiment Station for the Year June, 1960 to May, 1961, compared with the Means for the Period 1928 to 1960

Month	THIS PERIOD					AVERAGE 1928 TO 1960 INCLUSIVE			
	Maximum	Minimum	Mean	Plus or Minus Average	Daily Range	Maximum	Minimum	Mean	Daily Range
June	73.0	52.2	62.6	-0.2	20.8	72.9	52.6	62.8	20.3
July	72.0	50.4	61.2	-1.0	21.6	72.4	51.9	62.2	20.5
August	74.5	57.0	65.8	+2.1	17.0	73.3	54.0	63.7	19.3
September	73.6	57.9	65.5	-0.2	15.7	74.2	57.2	65.7	17.0
October	77.0	62.6	69.8	+1.4	14.4	75.8	60.9	68.4	14.9
November	77.9	64.8	71.4	+0.8	13.1	77.7	63.4	70.6	14.3
December	79.5	67.3	73.4	+0.5	12.2	79.9	65.8	72.9	14.1
January	83.3	69.1	76.3	+2.2	14.2	81.0	67.2	74.1	13.8
February	82.9	68.4	75.7	+1.1	14.5	81.5	67.7	74.6	13.8
March	82.0	68.9	75.6	+2.4	13.1	80.3	66.1	73.2	14.2
April	77.9	64.2	71.1	+0.9	13.7	78.2	62.2	70.2	16.0
May	74.5	58.3	66.4	-0.1	16.2	75.9	57.1	66.5	18.8
Mean	77.3	61.8	69.6	+0.9	15.5	76.9	60.5	68.7	16.4

TABLE 7

The following table gives the mean monthly earth temperatures

Month	Experiment Station 1935-60			Experiment Station June 1960 to May 1961		
	1 foot	2 feet	4 feet	1 foot	2 feet	4 feet
June	64.0	66.6	69.5	62.4	64.4	68.0
July	62.6	64.6	66.9	60.8	62.4	65.7
August	64.6	65.7	66.7	64.6	65.1	66.0
September	67.6	68.1	68.2	66.9	67.5	67.8
October	70.7	70.9	70.2	70.7	70.3	69.4
November	73.5	73.4	72.7	74.3	74.1	72.7
December	76.4	76.2	74.6	76.6	76.1	74.1
January	78.6	78.9	76.7	79.5	78.6	76.3
February	79.5	79.5	78.0	79.9	79.3	77.4
March	78.1	78.8	78.2	79.2	79.2	78.3
April	74.7	76.2	76.7	74.5	75.4	76.1
May	69.3	71.5	73.5	70.2	71.4	73.6
Mean	71.6	72.2	72.7	71.6	72.0	72.1

Comments on Rainfall

The rainfall for the year ending 31st May, 1961 was 46.43 inches compared with our 37 years' mean of 38.49 inches. The Industry certainly had an excellent year as far as rainfall is concerned and rainfall distribution was also on the whole good with the important growing months from October to April well supplied with rain.

The winter months were, however, as usual deficient in rainfall and June had the lowest rainfall of any month during the year with only 0.43 inches of rain. The rainfall during July was also low at 0.63 inches and the drought position became progressively worse during August when only 1.06 inches were recorded on the average. Areas round Illovo and Mount Edgecombe were particularly dry but fair rains alleviated the position somewhat from Darnall to Inyoni. Fairly good rains, however, fell towards the end of September and the average rainfall for the month was 2.30 inches.

The rainfall during October, 3.14 inches, was only slightly below the mean for that month and the crop was reported to be fairly good. During November and December exceptionally heavy rains were experienced averaging respectively 7.24 and 9.59 inches. Felixton had no less than 19.43 inches of rain during December and part of the Umfolozi flats were under water. The crop benefited from these heavy rains and hot spells of weather with the result that the crop was in excellent condition towards the end of December. With reasonably high rainfall, 4.76 inches, sunny conditions and very high temperatures during January the cane crop made extremely good growth. Satisfactory growing conditions continued during February and March although the rainfall was somewhat below normal at 3.70 and 4.36 inches respectively. The rainfall during April was exceptionally high at 8.24 inches and although May was relatively deficient in rainfall with 0.98 inches the crop was reported in excellent condition at the end of May.

Summarising the rainfall over the past two years, it can be stated that the crop suffered a dry winter spell during 1959 and a further drought set-back during January 1960 after benefiting from reasonably satisfactory spring rains. Good rains from February to April, 1960 were again followed by a winter drought

lasting to near the end of September. Growing conditions from October, 1960 to April, 1961 left however very little to be desired and at the end of May, 1961 the crop was in an excellent condition.

Temperatures

The mean screen temperature at the Experiment Station for the year under review was 69.6°F or 0.9° above the 33 years' mean. The only months with a mean temperature below average were June, July and September, 1960 and May, 1961. The months of August, January and March had mean temperatures of 2.1, 2.2 and 2.4°F respectively above average. Heat and moisture therefore ensured good growing conditions for the greater part of the year.

Evaporation

Evaporation from an open water surface totalled 47.49 inches for the year or 0.93 inches above our 25 years' mean. There were three months, November, December and April when the average rainfall in the Industry exceeded the evaporation at the Experiment Station. The accumulated rainfall deficiency for the year i.e. the monthly totals of evaporation in excess of rainfall amounted to 12.50 inches.

Hours of Sunshine

The hours of sunshine for the year now under review were 101.3 per cent of the 33 years' mean. The hours of sunshine for the period March to June 1961 were 91.9 per cent of the 33 years' mean and it is therefore likely that the sucrose per cent cane this year may be below average.

Summary and Conclusions

With an excellent total rainfall which was fairly well distributed and relatively high temperatures, the crop had most favourable weather conditions and an excellent crop can be expected. It is, however, possible that the sucrose per cent cane may be relatively low.

S.A.S.A Experiment Station,
MOUNT EDGECOMBE.

18th August, 1961.