WEATHER REPORT FOR THE YEAR 1st JUNE 1962, TO 31st MAY, 1963

By J. L. DU TOIT

Comments on Rainfall

Although the rainfall for the year ending 31st May, 1963 was 38.32 inches or practically equal to our mean annual rainfall of 38.36 inches, most of the crop now being harvested experienced an extremely severe drought from December 1961 to July 1962 when only 17.90 inches of rain fell in 8 months compared with a mean fall for the same months of 26.49 inches. The crop however benefitted greatly from the excellent rains during November 1962 and January and March of this year. Good rains during these important growing months improved the crop prospects very greatly indeed.

The industry experienced the driest month on record during June 1962 when an average of only 0.04 inches fell on the 54 recording stations and 34 stations reported no rain at all. This record dry month followed a period of deficient rainfall which started the previous December and dry patches of cane were quite common on shallow unirrigated fields. The drought position became progressively worse with only 0.32 inches in July and a very dry early August. The industry was in one of the worst ever droughts and brown patches of dying cane were extremely common. Most welcome rains fell towards the end of August to bring the average for the month to 2.97 inches. The rainfall during September, 0.80 inches, compared with our mean 2.56 inches for the month was again most disappointingly low, and October had a rainfall of 3.87 inches or only very slightly above the mean and certainly by no means enough for the badly drought stricken crop to recover completely.

Fortunately, good well-distributed rains fell virtually throughout the Sugar Industry during the month of November and the average recorded over the cane-belt amounted to 6.83 inches for the month. By the end of the month most of the crop was reported to have largely recovered from the severe drought. December was however dry with only 3.30 inches of rain and there were indications that the crop was once again affected. Excellent rains fell during January when 7.01 inches were recorded and a dry February with only 3.07 inches of rain was once again followed by a wet March with 7.45 inches of rainfall. From November to March we therefore had a pattern of wet and dry months following one another and although no severe droughts developed there were many periods of deficient rainfall that restricted cane growth and during which the crop would have benefitted greatly from irrigation. The rainfall for April 2.44 inches was about 0.5 inches below our mean.

May was however extremely dry with only 0.20 inches of rain and 18 recording centres reported no rain at all for the month. The result was that at the end of May brown patches of cane could be seen in the cane fields.

TABLE 1

Rainfall for 54 Centres

	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	Rainfall for year 1st June 1961 to 31st May 1962	Rainfall for year 1st June 1962 to 31st May 1963
Port Shepstone					
Mehlomnyama	46.46	39.17	48.21	36.25	46.13
Umzinto					
Hibberdene	46.05	35.87	54.56	34.40	42.95
Mtwalume	47.64	30.26	41.32	25.76	36.52
Sezela Mill	38.10	36.16	45.84	32.06	39.66
Esperanza Mill	40.72	35.38	46.60	35.97	46.48
Renishaw Mill	36.73	35.26	48.06	37.79	42.50
Dumisa	47.71	30.43	46.82	31.42	39.85
Durban, Camperdown, etc.					
Illovo Mill	31.82	30.84	43.18	39.64	46.80
Umbumbulu	42.61	28.39	42.46	29.40	36.93
Thornville	36.57	26.30	43.06	26.64	27.23
Inanda					
Mount Edgecombe—					
Milkwood Kraal	28.93	26.08	35.64	27.75	34.17
Experiment Station	28.22	27.81	38.91	30.83	36.46
La Lucia	29.18	30.01	42.23	33.88	38.52
La Mercy	28.06	28.42	46.52	28.12	37.51
Canelands	29.48	26.29	50.51	31.74	47.89
Tongaat—					
Frosterly	32.81	31.91	46.09	31.02	44.17
Inyaninga	31.84	32.95	43.86	31.97	41.06
Inanda	46.06	38.53	48.62	32.42	42.90
Tongaat—					
Mwawine	31.61	37.59	48.10	31.33	36.10
Lower Tugela					
Maidstone Mill	32.84	34.36	45.10	28.41	38.04
Sinembe	35.57	30.08	44.37	33.19	40.18
Upper Tongaat	42.42	37.55	49.46	35.63	42.33
Frasers Estate	30.48	36.55	45.38	30.83	39.11
Chaka's Kraal Experimental Farm	32.31	34.42	42.79	32.51	40.68
Chaka's Kraal	39.21	33.30	42.01	29.98	43.14
Groutville	34.51	32.61	38.60	26.33	34.10
Kearsney	41.22	40.83	41.81	37.04	41.42
Doornkop Mill	34.47	32.74	38.89	28.79	33.71
Doorkop Sprinz	48.88	41.95	52.48	40.05	43.83
Gledhow Mill	32.33	34.61	42.44	34.36	38.41
Darnall Mill	33.49	39.05	47.75	36.50	46.49
Tugela Mouth	36.44	45.40	54.04	43.49	43.22
Mtunzini					
Mandeni	31.05	37.63	41.94	35.49	40.24
Amatikulu Mill	28.47	40.03	38.29	32.98	35.61
Inyoni	31.44	39.02	50.90	31.54	37.39
Mtunzini	38.70	54.70	66.73	49.76	43.26
Blackburn	33.18	40.40	54.49	36.73	37.72
Eshowe					
Entumeni Mill	30.17	37.59	46.57	36.99	43.51
Eshowe	35.96	40.56	50.12	39.19	51.32
Nkwaleni	20.14	29.66	37.30	20.54	30.26
Lower Umfolozi					
Felixton Mill	37.43	57.81	68.67	49.98	44.52
Empangeni West	26.00	36.25	48.31	31.70	32.48
Empangeni Mill	28.14	40.15	61.50	36.72	38.60
Logoza	27.07	42.67	60.93	39.56	38.21
Ukulu Properties	24.37	36.65	57.45	29.68	31.32
Mposa	24.71	37.13	54.91	39.19	33.05
Kwambonambi	29.42	36.67	54.49	47.11	36.88
Eteza	27.30	37.08	43.12	44.84	33.76
Hlabisa					
Mtubatuba Mill	25.43	32.67	36.24	39.50	30.86
U.L.O.A.	33.26	49.91	47.76	55.90	39.37
Nyalazi River	24.87	36.53	31.66	33.83	30.62
Hluhluwe	21.23	31.28	32.27	23.18	24.47
Ubombo					
Mkuzi	20.18	24.47	39.01	23.36	22.27
Piet Retief					
Pongola	27.07	25.89	28.67	18.24	24.92
Mean	33.34	35.66	46.43	34.10	38.32

Summarising the rainfall over the past two years, it can be stated that following the excellent rains of June 1961, the crop never went through a severe winter drought that year and the cane only started suffering from lack of rainfall towards the end of August. Conditions from September to Novemner 1961 were however quite favourable and the crop experienced its first severe setback during December 1961. This was however the beginning of one of the driest periods ever experienced in the industry — a dry spell which continued until the end of August and which had a drastic effect on the cane crop. Fortunately the excellent rains of November, January and March, despite drier spells in between, did much to retrieve the position. Severe signs of drought however started to reappear at the end of May 1963.

Temperatures

The mean screen temperature for the year under review was 69.2°F at the Experiment Station, Mount Edgecombe, or 0.5°F above our 35 years' mean. The mean screen temperature for the months June to December 1962 were all above their respective means, but the temperatures during 1963 were with the exception of those for February all below their respective monthly mean values. The mean screen temperature for February, our hottest month, was eaxctly equal to the mean of the month, 74.6°F.

Evaporation

Evaporation from an open water surface totalled 55.02 inches compared with our 27 years' mean of 46.97 inches. This exceptionally high rate of evaporation aggravated the drought position for the year under review. There were two months during the year in which rainfall was in excess of evaporation and these were November and March. During September, December, February and May the monthly evaporation was more than 3 inches in excess of the rainfall and the accumulated rainfall deficiency for the year, i.e. the accumulated monthly total evaporation in excess of the monthly rainfall amounted to no less than 22.07 inches. This exceedingly high deficiency was well in excess of the high rainfall deficiency of 19.87 inches the year before.

Hours of Sunshine

The hours of sunshine for the year were 104.0 per cent of the 35 years' mean. As was to be expected the hours of sunshine during the wet months of November, January and March were low and so was the October total. The hours of sunshine for other months were however high.

Conclusions

The Industry went through an extremely dry period from December 1961 up to near the end of August 1962. Excessively high rates of evaporation were also experienced which further desiccated the soil, but excellent rains during the important growing months of November 1962 as well as January and March 1963 did much to retrieve the position. However, the crop was decidedly dry again at the end of May.

Screen temperatures were above the mean values from June to December 1962, but with the possible exception of February, conditions from January to May were mild.

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

TABLE 2

Rainfall in Inches by Districts for Months of June, 1962, to May, 1963 inclusive

District	No. of Centres	1962 June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1963 Jan.	Feb.	Mar.	Apr.	May	Total June 1962 to May 1963
Port Shepstone	1	0.02	0.00	3.40	1.07	6.93	2.89	2.35	6.57	1.33	21.06	0.51	0.00	46.13
Umzinto	6	0.14	0.02	2.71	0.62	4.94	5.59	2.98	11.49	2.04	9.39	0.54	0.88	41.34
Durban Pinetown, etc.	3	0.00	0.00	2.52	0.50	3.48	6.02	2.78	10.47	1.96	7.59	1.33	0.32	36.97
Mean: S. Coast	**10**	**0.09**	**0.01**	**2.72**	**0.63**	**4.70**	**5.45**	**2.86**	**10.69**	**1.95**	**10.02**	**0.77**	**0.62**	**40.51**
Inanda	9	0.02	0)23	4.03	0.53	2.93	10.34	2.56	7.32	2.80	6.87	2.05	0.17	39.85
Lower Tugela	13	0.02	0.32	3.13	0.92	3.93	6.77	3.93	7.80	3.50	7.33	2.67	0.02	40.34
Mean: N. Coast	**22**	**0.02**	**0.30**	**3.50**	**0.76**	**3.53**	**8.23**	**3.37**	**7.60**	**3.21**	**7.14**	**2.42**	**0.08**	**40.16**
Mean: S. of Tugela	**32**	**0.04**	**0.21**	**3.26**	**0.72**	**3.89**	**7.36**	**3.21**	**8.57**	**2.81**	**8.04**	**1.90**	**0.25**	**40.26**
Mtunzini	5	0.12	0.51	2.57	1.35	4.52	6.35	3.88	4.90	2.87	8.45	3.23	0.10	38.85
Eshowe	3	0.00	0.17	2.59	0.39	4.95	6.04	5.05	6.28	4.63	8.18	3.43	0.00	41.71
Lower Umfolozi	8	0.05	0.73	2.49	1.31	3.66	5.85	2.78	5.31	3.68	6.14	4.02	0.09	36.11
Hlabisa	4	0.00	0.50	3.13	0.29	3.53	6.92	2.86	3.35	3.33	4.88	2.27	0.26	31.32
Ubombo	1	0.00	0.00	1.91	0.22	2.25	3.65	1.40	3.20	1.79	6.71	1.14	0.00	22.27
Piet Retief	1	0.00	0.00	0.94	0.55	2.34	5.29	5.78	2.18	2.97	2.77	1.84	0.26	24.92
Mean: Zululand and Piet Retief	**22**	**0.05**	**0.49**	**2.54**	**0.93**	**3.88**	**6.06**	**3.43**	**4.75**	**3.44**	**6.59**	**3.21**	**0.11**	**35.48**
General Mean	**54**	**0.04**	**0.32**	**2.97**	**0.80**	**3.89**	**6.83**	**3.30**	**7.01**	**3.07**	**7.45**	**2.44**	**0.20**	**38.32**

TABLE 3

Rainfall and Evaporation Data

Month	Mean Percentage Rainfall Distribution 1924-1962	Computed Mean Rainfall for 54 Centres 1924-1962	Actual Rainfall for 54 Centres June, 1962, to May, 1963	Evaporation at Experiment Station Mean 1936-1962	Evaporation at Experiment Station June, 1962, to May, 1963
June	3.78	1.45	0.04	2.37	2.95
July	2.71	1.04	0.32	2.55	3.11
August	3.68	1.41	2.97	2.95	3.43
September	6.67	2.56	0.80	3.65	4.33
October	9.20	3.53	3.89	4.20	4.57
November	11.39	4.37	6.83	4.76	4.82
December	12.33	4.73	3.30	5.36	6.39
January	11.39	4.37	7.01	5.63	6.28
February	12.28	4.71	3.07	4.77	6.37
March	13.82	5.30	7.45	4.51	4.88
April	7.56	2.90	2.44	3.40	4.09
May	5.19	1.99	0.20	2.82	3.80
	100.00	38.36	38.32	46.97	55.02

TABLE 4

Rainfall in Inches by Districts for the Two-year Period June, 1961 to May, 1963 inclusive

	No. of Centres	1961 Winter Growth June to August	1961 Early Growth Sept. and October	1961-1962 Optimum Growth Nov. to March	1962 Late Growth April and May	1962 Winter Growth June to August	1962 Early Growth Sept. and October	1962-1963 Optimum Growth Nov. to March	1963 Late Growth April and May	Total for Two Years June, 1961 to May, 1962
Port Shepstone	1	3.62	5.92	24.60	2.11	3.42	8.00	34.20	0.51	82.38
Umzinto	6	3.41	5.11	22.44	1.92	2.87	5.56	31.49	1.42	74.22
Durban, Pinetown, etc.	3	2.50	5.20	21.80	2.39	2.52	3.98	28.82	1.65	68.86
Mean: South Coast	**10**	**3.16**	**5.22**	**22.47**	**2.08**	**2.82**	**5.33**	**30.97**	**1.39**	**73.44**
Inanda	9	5.34	6.32	16.70	2.65	4.28	3.46	29.89	2.22	70.86
Lower Tugela	13	5.08	7.40	18.63	2.51	3.47	4.85	29.33	2.69	73.96
Mean: North Coast	**22**	**5.19**	**6.96**	**17.84**	**2.56**	**3.28**	**4.29**	**29.55**	**2.50**	**72.71**
Mean: South of Tegula	**32**	**4.54**	**6.41**	**19.29**	**2.41**	**3.51**	**4.61**	**29.99**	**2.15**	**72.91**
Mtunzini	5	7.31	8.19	19.00	2.78	3.20	5.87	26.54	3.33	76.13
Eshowe	3	2.81	7.46	19.80	2.15	2.76	5.34	30.18	3.43	73.93
Lower Umfolozi	8	8.11	7.42	19.53	4.80	3.27	4.97	23.76	4.11	75.97
Hlabisa	4	10.90	6.73	17.17	3.30	3.63	3.82	21.34	2.54	69.42
Ubombo	1	3.35	6.22	12.45	1.34	1.91	2.47	16.75	1.14	45.63
Piet Retief	1	2.50	4.85	8.03	2.86	0.94	2.89	19.99	2.10	43.16
Mean: Zululand and Piet Retief	**22**	**7.24**	**7.31**	**18.17**	**3.46**	**3.08**	**4.81**	**24.27**	**3.32**	**71.66**
Mean: General	**54**	**5.64**	**6.78**	**18.84**	**2.84**	**3.33**	**4.69**	**27.66**	**2.64**	**72.42**
Computed Mean for 39 years		**3.92**	**6.12**	**23.38**	**4.95**	**3.92**	**6.12**	**23.38**	**4.95**	**76.74**

TABLE 5

Rainfall and Evaporation in Inches for the Past Four Years

Month	1959 - 1960			1960 - 1961			1961 - 1962			1962 - 1963		
	Evaporation	Rainfall	Rainfall Deficiency	Evaporation	Rainfall	Rainfall Deficiency	Evaporation	Rainfall	Rainfall Deficiency	Evaporation	Rainfall	Rainfall Deficiency
June	2.34	0.07	2.27	2.38	0.43	1.95	2.15	3.76	0.00	2.95	0.04	2.91
July	2.51	0.66	1.85	2.65	0.63	2.02	2.51	1.08	1.43	3.11	0.32	2.79
August	3.33	2.35	0.98	2.27	1.06	1.21	3.60	0.80	2.80	3.43	2.97	0.47
September	4.06	2.63	1.43	3.51	2.30	1.21	4.14	3.18	0.96	4.33	0.80	3.53
October	4.74	4.58	0.16	4.07	3.14	0.93	4.97	3.60	1.37	4.57	3.89	0.69
November	4.62	3.03	1.59	5.08	7.24	0.00	5.13	4.14	0.99	4.82	6.83	0.00
December	5.40	3.99	1.41	4.85	9.59	0.00	6.07	2.72	3.35	6.39	3.30	3.13
January	5.46	2.10	3.36	5.68	4.76	0.92	5.80	4.08	1.72	6.28	7.01	0.00
February	4.87	5.05	0.00	5.48	3.70	1.78	5.07	2.70	2.37	6.37	3.07	3.30
March	5.21	4.68	0.53	4.88	4.36	0.52	5.28	5.20	0.08	4.88	7.45	0.00
April	3.35	5.12	0.00	3.70	8.24	0.00	4.30	1.99	2.31	4.09	2.44	1.65
May	2.74	1.40	1.34	2.94	0.98	1.96	3.34	0.85	2.49	3.80	0.20	3.60
Total	**48.63**	**35.66**	**14.92**	**47.49**	**46.43**	**12.50**	**52.36**	**34.10**	**19.87**	**55.02**	**38.32**	**22.07**

TABLE 6

The following are the Screen Temperatures by Months in Degrees Fahrenheit at the Experiment Station for the Year June, 1962 to May, 1963, compared with the Means for the Period 1928 to 1962

Month	THIS PERIOD					AVERAGE 1928 TO 1962 INCLUSIVE			
	Maximum	Minimum	Mean	Plus or Minus Average	Daily Range	Maximum	Minimum	Mean	Daily Range
June	75.6	54.3	64.9	+2.1	21.3	73.0	52.7	62.8	20.3
July	75.2	53.4	64.3	+2.1	21.8	72.5	52.0	63.2	20.5
August	75.0	55.4	65.2	+1.6	19.6	73.3	54.0	63.6	19.3
September	76.1	59.5	67.8	+2.0	16.6	74.3	57.3	65.8	17.0
October	76.1	63.5	69.8	+1.5	12.6	75.8	60.9	68.3	14.9
November	76.8	64.9	70.8	+0.2	11.9	77.7	63.5	70.6	14.2
December	80.6	67.5	74.0	+1.2	13.1	79.8	65.8	72.8	14.0
January	79.3	67.3	73.3	—0.8	12.0	81.0	67.2	74.1	13.8
February	81.3	68.0	74.6	0.0	13.3	81.6	67.7	74.6	13.9
March	79.0	64.8	71.9	—1.4	14.2	80.4	66.2	73.3	14.2
April	76.8	60.8	68.8	—1.4	16.0	78.2	62.3	70.2	15.9
May	74.8	55.8	65.3	—1.1	19.0	75.8	57.1	66.4	18.7
Mean	**77.2**	**61.3**	**69.2**	**+0.5**	**15.9**	**76.9**	**60.5**	**68.7**	**16.4**

TABLE 7

The following table gives the mean monthly earth temperatures

Month	Experiment Station 1935-62			Experiment Station June 1961 to May 1963		
	1 foot	2 feet	4 feet	1 foot	2 feet	4 feet
June	64.1	66.6	69.5	64.4	66.2	69.1
July	62.7	64.6	66.9	63.5	64.9	67.5
August	64.6	65.7	66.7	65.7	66.6	67.6
September	67.6	68.1	68.2	68.2	68.4	68.5
October	70.7	70.8	70.2	71.8	72.1	70.9
November	73.5	73.3	72.6	73.9	73.8	72.9
December	76.4	76.1	74.5	77.5	77.0	75.0
January	78.6	78.8	76.7	77.5	77.5	76.5
February	79.4	79.4	77.9	79.0	78.6	77.2
March	78.2	78.8	78.1	76.3	76.8	76.8
April	74.7	76.1	76.6	73.2	74.1	74.8
May	69.3	71.5	73.4	68.0	69.6	72.0
Mean	**71.6**	**72.5**	**72.6**	**71.6**	**72.1**	**72.4**