

GENERAL REPORT ON WEATHER CONDITIONS FOR THE YEAR 1944

RAINFALL.

1944 must be recorded as one of the "lean" years in the sugar industry as far as quantity and distribution of rainfall is concerned.

The total for the year at this station is 30.32 ins. and the average for 44 recording stations in the sugar-growing belt, 36.45 ins.

Not only is the total 18.6 per cent. below the calculated 57-year average at this station of 37.36 ins., which is thus reduced to 37.24 ins. for the 58-year period, but the distribution was unfavourable for the sugarcane crop.

The year began with a rainfall for January of no more than 1.29 ins., or only about 30 per cent. of the average of this most important growing month. The rainfall for January was only lower during the 57 previous years on record here or at Natal Estates' factory in 1926 when it was 1.09 ins.

The position however was retrieved in February and March when adequate rains came to complete growth of the crop. Thereafter there were no abnormally heavy rains to delay the ripening of the cane nor any severe drought conditions until towards the end of August. There were heavy rains again about the middle of September, but these unfortunately were the last adequate rains for the year, both October and November having rainfalls considerably below the average, and December a total of only 1.23 ins., or only 27 per cent. of the

average, and the lowest ever recorded at Mount Edgecombe for December. Thus conditions were most unfavourable for planting and early growth of young cane.

The number of rain days was 105; which is well below the average for this station of 117, and the lowest on record here except for 1937 when it was 101. The average rainfall per rain day was 0.289 ins., which is also considerably below the average for this station of 0.318 ins.

The aggregate for the year was below the average throughout, finishing up with only 81.4 per cent. of normal.

The highest fall for any single day was 2.27 ins. on 14th March, the only other day with a rainfall of 2 ins. or over being on 4th March, with 2.20 ins.

The only other days with a rainfall of over 1 in. were 27th March, 1.50 ins.; 17th September, 1.64 ins.; 18th September, 1.76 ins.; 19th September, 1.32 ins., and 24th October, 1.03 ins.

The heaviest rainfall during the year in one continuous spell of rainy weather was 5.33 ins. during the six days ending 21st September. November had 17 rain days, but with a total rainfall of no more than 2.77 ins.

March had the highest rainfall, and July the lowest, in 1944.

Following is the Experiment Station rainfall by months compared with the average of the past 19 years.

	1944					Mean 1926-1944 inclusive.					
	Total for month in inches.	Aggregate from 1st January.	Percentage of Average aggregate.	No. of rain days.	Average rainfall per rain day in inches.	Total for month in inches.	Aggregate from 1st January.	No. of rain days.	Average rainfall per day.	Percentage of wet days.	Average rainfall per rain day.
January ...	1.29	1.29	31.2	9	0.143	3.72	3.72	14	0.120	45	0.266
February ...	4.37	5.66	66.3	12	0.364	4.59	8.31	12	0.164	42	0.382
March ...	6.73	12.39	92.5	9	0.748	5.00	13.31	12	0.161	39	0.416
April ...	1.63	14.02	87.1	6	0.272	2.40	15.71	8	0.080	27	0.300
May ...	0.90	14.92	82.5	5	0.180	2.58	18.29	6	0.083	19	0.430
June ...	1.55	16.47	84.8	8	0.194	2.12	20.41	4	0.071	13	0.530
July ...	0.38	16.85	81.9	2	0.190	1.55	21.96	5	0.050	16	0.310
August ...	0.62	17.47	80.2	4	0.155	1.36	23.32	6	0.044	19	0.227
September ...	5.39	22.86	93.4	9	0.599	2.11	25.43	8	0.070	27	0.264
October ...	3.46	26.32	92.4	11	0.315	3.25	28.68	14	0.105	45	0.232
November ...	2.77	29.09	89.1	17	0.163	4.28	32.96	14	0.143	47	0.306
December ...	1.23	30.32	81.6	13	0.095	4.25	37.21	15	0.137	48	0.283
Total ...		30.32		105	0.289	Mean	37.21	117	0.102	32	0.318

DISTRICT RAINFALL RETURNS.

All but five of the 44 recording stations in the sugar growing district showed a deficiency of rainfall for 1944 below the average of the past 16 years, the five exceptions being at various points between Stanger and Empangeni.

The average deficiency of rainfall was much more marked over the 21 stations south of the Tongaat River than the 23 stations north of that line.

	Average rainfall 1944 in inches.	Average for years 1929/44 inclusive in inches.	1944 rainfall as per cent. of average.
South Coast: mean of 9 stations south of Umgeni River	34.03	42.26	80.5
North Coast: mean of 21 stations between Umgeni and Tugela Rivers	33.91	40.67	83.4
Zululand: mean of 14 stations north of the Tugela River...	41.81	43.75	95.6
Total average	36.45	41.98	86.8

The deficiency of rainfall was most marked at the southern extremity of the sugar belt, Port Shepstone having 72.6 per cent. of the average total and Umzumbi only 66.9 per cent. The Durban-Mount Edgecombe-La Mercy section also recorded considerable deficiency, but north of this the deficiency was relatively slight.

Four stations had a rainfall of less than 30 ins., Umzumbi with 26.93 ins., Effingham 29.80 ins., Milkwood Kraal 27.35 ins. and Blackburn 29.73 ins.

Four stations had a rainfall of over 47 ins., all in or near the high rainfall zone (50 to 75 ins.) extending from Eshowe to the coast at Mtunzini. These stations are Mtunzini with 53.71 ins., which this year records the highest rainfall instead of Eshowe, which is more usual, Eshowe 50.17 ins., Felixton 48.62 ins. and Gingindhlovu. Mtunzini had a rainfall 103.7 per cent. of the average for this station, an excess that was only surpassed at Empangeni (Morris Bros.) where it was 105.4 per cent. of the average.

The district with the lowest average rainfalls in the sugar-growing belt continues to be that narrow section of the coast at Mount Edgecombe, where the 30-40 ins. rainfall zone comes

down from the interior through Effingham, Phoenix and Milkwood Kraal estates of Natal Estates, Ltd., and the Experiment Station and Blackburn to the sea.

TEMPERATURES.

As is usual with years of deficient rainfall, the mean temperature for 1944 was above the average of previous years, being 69.5°, or 0.9° above the 17-year average at this station of 68.6°.

The screen temperatures by months in degrees Fahrenheit are as follow:—

	1944.				1928-1944 inclusive.			
	Maxi-mum.	Mini-mum.	Mean.	Daily range.	Maxi-mum.	Mini-mum.	Mean.	Daily range.
Jan.	85.4	70.1	77.8	15.3	81.4	67.1	74.2	14.3
Feb.	80.4	66.8	73.6	13.6	81.7	67.2	74.4	14.5
March	80.0	66.2	73.1	13.8	80.3	65.5	72.9	14.8
April	78.6	61.7	70.2	16.9	78.3	61.9	70.1	16.4
May	75.5	55.2	65.3	20.3	75.9	56.8	66.4	19.1
June	70.9	51.7	61.3	19.2	72.6	52.8	62.7	19.8
July	73.8	53.0	63.4	20.8	71.6	52.0	61.8	19.6
August	76.0	56.6	66.3	19.4	72.8	53.9	63.4	18.9
Sept.	75.1	59.1	67.1	16.0	74.1	56.8	65.4	17.3
Oct.	78.8	63.0	70.9	15.8	76.3	60.7	68.5	15.6
Nov.	79.1	63.9	71.5	15.2	77.9	63.2	70.6	14.7
Dec.	82.3	65.3	73.8	17.0	80.3	65.6	73.0	14.7
Means	78.0	61.1	69.5	16.9	77.0	60.3	68.6	16.7

It can thus be seen that the months of January, March, April, and July to December inclusive were above the average temperature for those months, and the remaining months of February, May and June were below the average.

As also in 1943, January was the warmest month, not February as usual, and June was the coolest month, not July as usual. Subject to these exceptions, the rise and fall of temperatures followed its usual seasonal course.

January with a mean temperature of 77.8° was 3.8° above the average for the month and the warmest month ever recorded at this station, the previous absolute maximum being 77.0° for February, 1931. This was due to both the mean maximum temperature, 85.4°, and the mean minimum, 70.1°, being the highest ever recorded at this station since the standard Stevenson screen came into use in 1928.

The months of July, August and October also recorded absolute maximum mean temperatures for those months, while that for September had been exceeded on two previous occasions.

The mean temperature for the four months ending October was thus 66.9°, or as much as 2.1° above the average.

The absolute maximum screen temperature for 1944 was 102.5° on October 5th, a record that was only exceeded at this station on December 30th, 1941, when it was 113.5°, and on January 15th, 1932, when it was 104°. Other abnormally high shade temperatures in 1944 were 99° on December 11th, 98° on August 30th, and December 18th, and 97° on December 10th.

The absolute screen minimum for 1944 was 46° on June 10th, and the lowest grass thermometer reading 37° on September 1st.

Experiment Station,
South African Sugar Association,
Mount Edgecombe.
March, 1944.

The average daily range of screen temperatures was 16.9°, or only slightly above the mean of past years; one might have expected it to be somewhat higher in view of the deficient rainfall, but it was only in the abnormally low rainfall month of December that the daily range of temperature was unusually high.

The earth temperatures for January and February were very high, the average for January of 81.9° at one foot below the surface being an absolute maximum for this station, but the averages for the year were not particularly high. They indicated that only in the months from June to September inclusive would the soil here have been too cool to irrigate for adequate increased growth of sugarcane.

ATMOSPHERIC CONDITIONS.

The mean true barometric pressure for the year at 300 feet elevation was 29.74 ins., or slightly below the annual mean of 29.77 ins. at this station.

The highest monthly mean was 29.89 ins. for July and the lowest 29.61 ins. for December. The absolute maximum was 30.24 ins. on 15th May, and the absolute minimum 29.16 ins. on 11th December. The latter preceded a high hot wind, force 8 and temperature 99°, from the north-west.

The mean humidity for the year was 70.3 per cent. of saturation at 8.30 a.m. and 62.0 per cent. at 1 p.m., the lowest since 1941 and among the lowest ever recorded here. The evaporation from a free water surface was 47.14 ins., or 16.82 ins. more than the rainfall.

The total hours of sunshine were 2,364.2, or 53.9 per cent. of total hours of daylight, the highest for some years.

The sunniest month was May with 240.8 hours of sunshine, or 75.9 per cent. of total hours of daylight, and the cloudiest November with a percentage of only 40.3 sunshine in total daylight hours.

The latter part of the year was very windy, the direction usually alternating between north-east and south-west.

SUMMARY AND CONCLUSIONS.

The year 1944 was one of deficient rainfall, especially in January, and in the latter half of the year when the rainfall was only 78.6 per cent. of the average at this experiment station.

The general rainfall over the sugarcane-growing area was also generally deficient, especially in the southern half of the Tongaat river. North of that line the deficiency was very slight.

Not only were the number of rain days much below the average but the average rainfall per rain day was also low.

Temperatures were about normal for the first half of the year but considerably above normal for the latter half. The winter season was the warmest on record at this station.

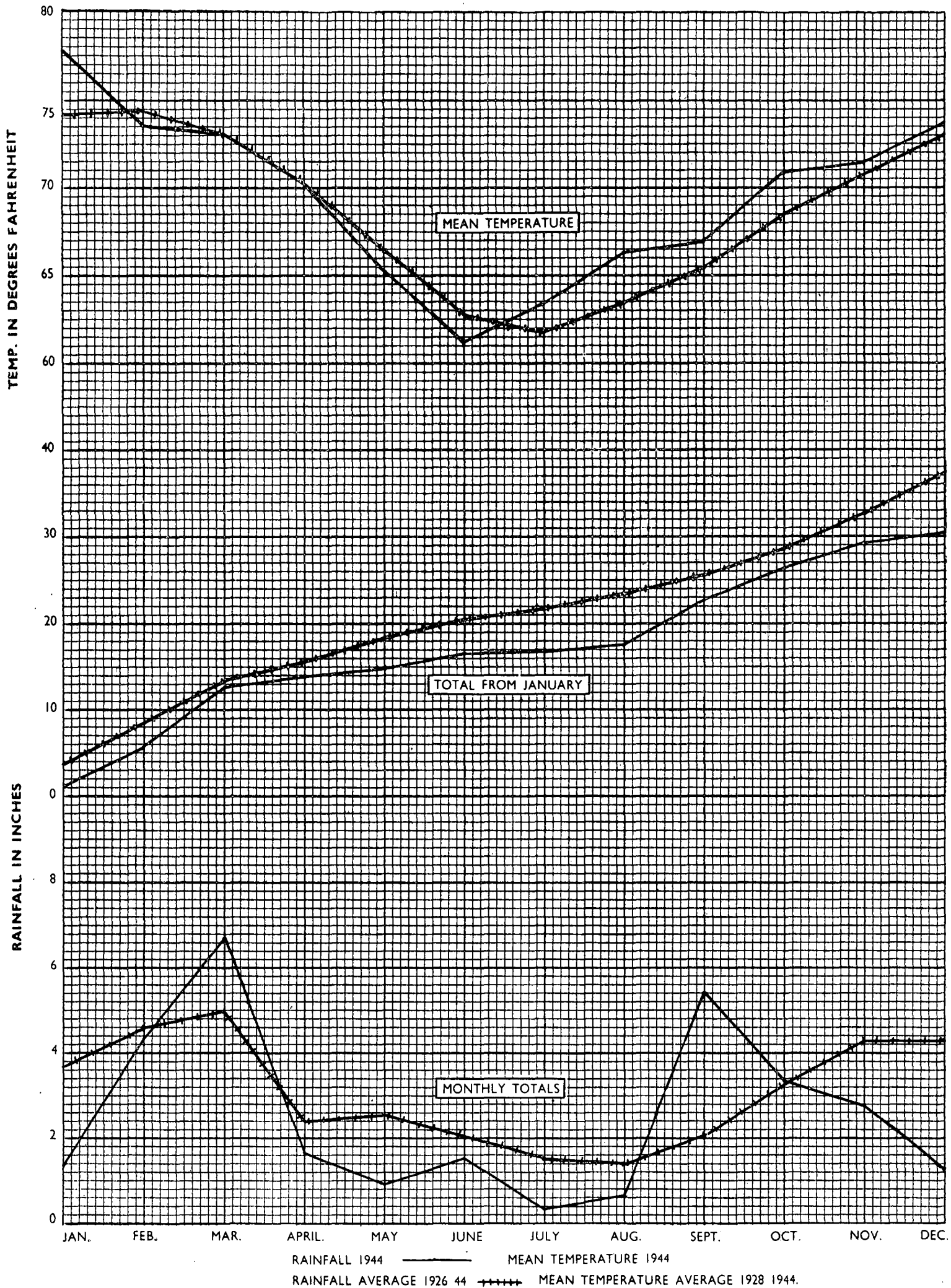
The year was unusually sunny and windy and the average humidity low.

It was a good season for the sugarcane harvest, the dry winter and spring promoting a satisfactory and well-maintained sucrose content of cane, leading to a record output of sugar, but the conditions for planting and early growth of cane were unfavourable, so that the outlook for the 1945 crop is at present unpromising.

ANNUAL RAINFALL 1929-1944.

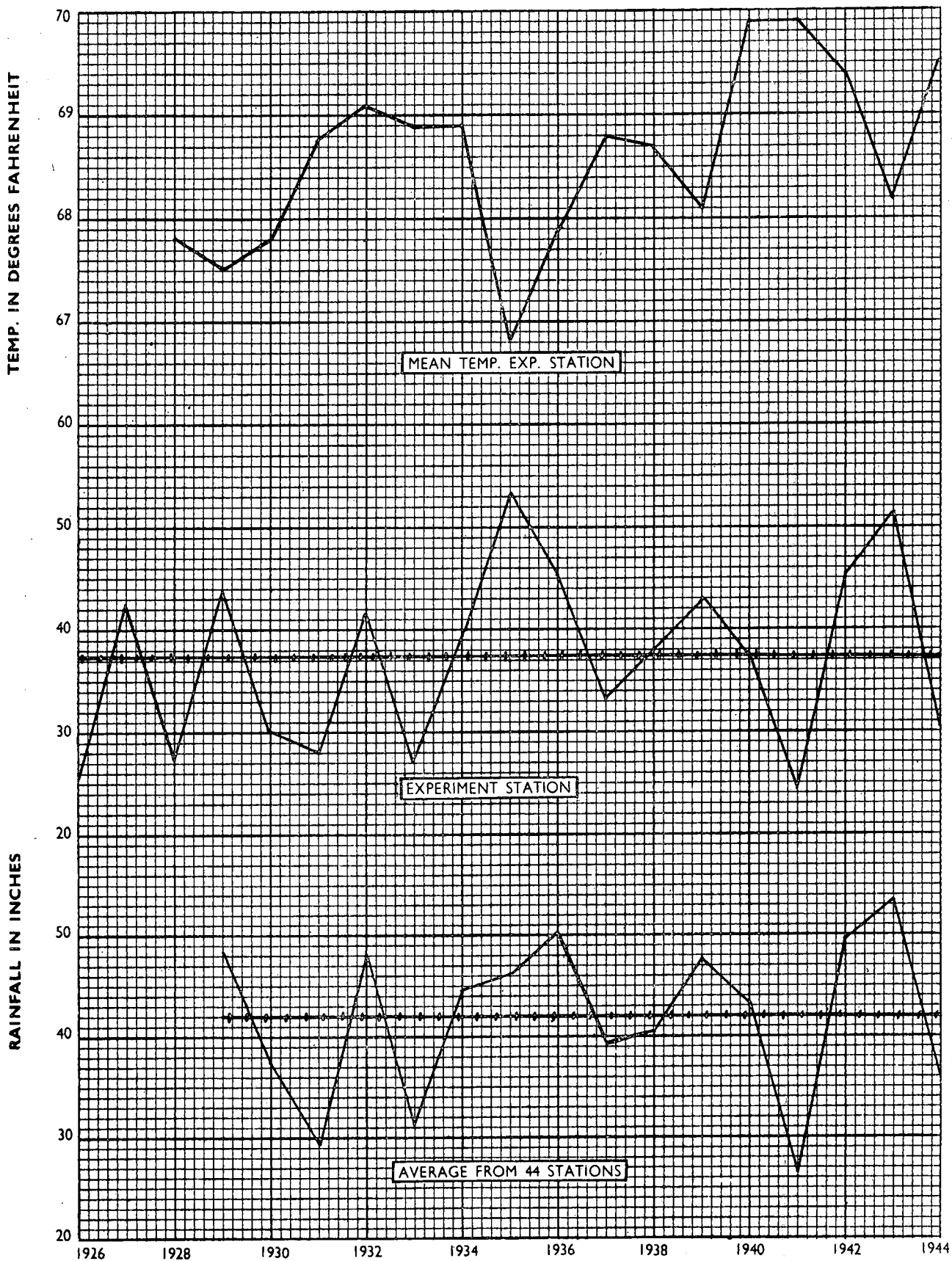
Station.	Recorder.	1929.	1930.	1931.	1932.	1933.	1934.	1935.	1936.	1937.	1938.	1939.	1940.	1941.	1942.	1943.	1944.	Average
Port Shepstone	Lightkeeper, S.A.R. & H.	61.89	42.82	51.06	49.71	40.58	38.55	42.01	49.63	38.25	42.52	44.08	27.66	23.12	54.16	51.65	31.24	43.06
Umzumbi	Mrs. M. G. Lomas	56.28	34.95	40.31	42.04	36.35	37.50	43.66	51.24	40.63	42.82	42.86	27.74	23.78	51.98	44.86	26.93	40.25
Esperanza	Hawksworth & Sons, Ltd.	57.47	42.10	36.13	38.36	32.81	46.13	43.70	44.74	36.14	41.41	47.31	30.48	19.49	44.29	63.64	39.09	41.46
Renishaw.	Crookes Bros., Ltd.	58.24	37.22	31.86	41.56	34.43	42.17	42.69	46.10	44.40	36.13	46.90	31.83	25.16	43.33	46.74	35.26	40.25
Park Rynie	V. J. S. Crookes	58.84	39.25	38.94	44.14	37.71	46.53	47.89	52.85	46.10	43.22	56.25	34.46	27.40	47.14	51.25	40.16	44.51
Illovo	Illovo Sugar Estates, Ltd.	49.22	38.12	31.54	36.89	26.94	41.00	39.03	51.65	30.79	43.09	42.22	30.10	26.17	56.12	43.40	30.49	38.55
Umbogintwini	African Explosives & Industries, Ltd.	47.88	42.10	32.42	39.67	36.43	45.59	52.87	53.09	34.78	41.94	48.53	31.26	28.18	51.89	49.16	37.75	42.10
Durban (Berea)	Natal Herbarium	46.87	38.93	31.51	44.74	31.61	42.28	58.08	46.71	36.09	41.23	47.26	38.35	30.06	51.12	52.97	31.30	41.82
Durban (Point)	S.A. Railways & Harbours	59.97	38.92	43.68	49.45	34.42	47.45	60.93	56.85	45.84	41.89	62.57	40.99	34.95	58.91	61.86	34.04	48.30
Effingham	Natal Estates, Ltd.	33.52	26.17	21.33	30.56	19.63	30.57	46.86	42.28	28.25	32.40	35.33	26.75	22.15	42.90	43.83	29.80	32.02
Westbrook	Natal Estates, Ltd.	46.97	33.01	27.03	45.62	31.18	38.49	55.06	52.14	33.56	41.68	45.75	40.05	29.09	52.43	60.15	37.04	41.83
Milkwood Kraal	Natal Estates, Ltd.	35.60	26.90	23.17	33.05	22.15	31.96	43.07	36.45	23.49	34.98	36.24	34.97	23.02	45.03	48.46	27.35	32.87
Mount Edgecombe	Natal Estates, Ltd.	48.30	34.52	32.98	40.19	30.94	40.03	57.41	49.60	36.55	43.13	46.06	40.23	28.34	51.66	55.40	32.66	41.75
Mount Edgecombe	S.A.S.A. Experiment Station	43.83	30.03	28.01	41.36	27.14	39.42	53.25	45.36	33.21	37.97	42.87	37.31	24.35	45.41	51.32	30.32	38.20
Cornubia	Natal Estates, Ltd.	46.22	33.45	27.85	42.53	29.98	40.25	59.21	52.27	40.37	44.84	51.66	42.80	30.66	53.17	59.51	35.15	43.12
Burnside	Natal Estates, Ltd.	46.01	31.78	27.01	38.79	27.55	39.61	53.26	47.48	34.01	39.76	48.67	44.91	29.54	50.68	56.39	33.71	40.57
Blackburn	Natal Estates, Ltd.	48.97	34.09	23.78	37.52	24.94	33.94	48.78	43.67	34.70	35.45	49.84	36.99	22.68	43.48	51.96	29.73	37.53
Beach	Natal Estates, Ltd.	56.49	39.25	30.15	51.64	31.53	43.18	59.09	49.19	38.62	44.24	54.88	40.81	28.76	48.74	49.53	33.07	43.70
Saccharine	Natal Estates, Ltd.	48.73	32.82	29.76	38.37	29.22	42.38	51.95	55.98	32.07	38.91	42.05	38.41	23.73	46.57	51.70	34.14	39.67
Ottawa	Natal Estates, Ltd.	40.38	29.21	24.49	34.72	28.72	39.08	47.55	44.66	47.32	37.83	41.95	39.18	22.16	52.57	55.35	32.65	38.61
La Mercy	Gersigny Bros.	53.37	36.40	29.26	56.65	31.16	37.64	56.27	45.65	35.17	45.36	49.41	42.63	25.26	53.89	50.86	32.34	42.58
Tongaat	Tongaat Sugar Co., Ltd.	50.55	34.26	29.88	48.79	26.59	38.44	47.54	50.87	35.61	40.85	44.67	40.87	22.72	55.67	53.08	31.37	40.74
Sinembe	H. C. Heenan	49.78	37.02	30.36	52.71	38.64	49.99	41.84	56.80	35.17	42.07	45.80	43.53	25.25	51.64	50.42	34.15	42.82
Umhali	G. P. Ladlau	50.38	40.07	20.09	49.85	35.13	41.20	53.61	56.57	40.29	56.88	58.14	39.72	29.49	54.74	52.60	37.16	45.31
Chaka's Kraal	Waldene Sugar Estate	42.78	33.06	22.52	43.09	30.14	35.09	43.38	46.74	32.87	38.40	42.27	30.81	21.78	47.42	44.33	31.01	36.61
Tinley Manor	Sir J. L. Hulett & Sons, Ltd.	51.36	33.22	30.97	47.44	35.44	41.20	50.97	56.83	38.38	46.35	48.93	41.16	24.37	47.73	47.78	32.49	42.16
Riet Valley	H. E. Essery	50.07	35.65	25.38	54.64	37.98	47.70	44.33	65.99	35.28	41.96	51.39	45.90	27.37	54.75	61.35	39.17	44.93
Kearsney	Sir J. L. Hulett & Sons, Ltd.	49.20	43.36	26.31	55.49	37.45	53.57	38.42	64.34	39.73	44.30	47.46	50.80	31.91	40.74	58.02	37.05	45.45
Darnall	Mrs. Mann	40.75	37.36	23.03	44.14	25.45	49.91	44.04	56.32	40.68	45.56	44.65	48.48	25.49	48.19	54.84	43.26	42.01
Darnall	Sir J. L. Hulett & Sons, Ltd.	42.38	40.63	24.31	52.27	29.22	48.24	40.23	52.09	39.75	43.74	43.30	47.10	25.27	46.02	52.45	38.59	41.63
Mandini	St. Andrews Estate	42.05	40.41	24.40	50.98	27.41	55.34	45.88	51.25	35.34	40.86	38.34	41.01	26.70	48.91	56.67	41.28	41.68
Amatikulu	Sir J. L. Hulett & Sons, Ltd.	42.23	40.80	21.09	47.16	29.86	47.66	43.41	47.86	35.38	37.24	47.53	50.40	27.80	48.87	55.37	39.08	41.36
Gingindhlovu	P. C. Lilburn	42.42	47.72	24.60	53.85	33.08	50.91	53.16	52.68	39.62	40.10	54.12	53.75	30.35	56.40	62.73	47.02	46.41
Mtunzini	R. D. Shaw	42.57	48.99	32.92	61.97	40.03	59.28	53.02	55.62	43.57	44.23	65.11	62.16	39.08	60.31	66.31	53.71	51.81
Eshowe	District Forest Officer	49.97	44.26	30.36	65.05	47.31	71.85	46.18	66.61	47.56	46.40	52.55	70.67	36.57	47.44	68.80	50.17	52.61
Felixton	Sir J. L. Hulett & Sons, Ltd.	59.39	44.57	38.03	69.08	31.43	58.72	50.16	58.71	51.96	38.62	54.99	61.15	30.08	53.45	52.48	48.62	50.10
Empangeni West	W. H. Simpson	51.61	36.82	20.56	48.32	22.92	41.08	36.40	36.62	39.10	32.93	47.01	41.24	24.50	40.74	48.47	38.05	37.90
Empangeni	Morris Bros.	46.05	33.56	30.35	49.58	27.72	45.60	37.28	47.54	45.31	35.99	52.02	53.46	26.79	48.11	54.13	44.67	42.39
Empangeni	Zululand Sugar Millers & Planters.	48.95	33.80	31.98	55.34	29.55	48.72	38.18	49.48	47.87	33.49	51.79	53.11	24.54	45.06	50.05	39.56	42.59
Kulu Halt	S. B. Forrest	51.94	37.44	25.96	66.55	30.15	48.26	35.03	48.39	56.80	36.95	52.91	57.61	23.97	52.28	55.73	43.02	45.19
Mposa	W. Springorum	45.80	37.83	24.29	59.33	25.43	46.45	29.59	46.81	51.80	33.08	47.63	51.62	20.58	43.56	44.64	34.04	40.16
Kwambonambi	S. Larsen	55.97	42.99	28.14	64.34	29.35	64.21	34.27	41.64	49.37	33.42	42.91	53.82	20.81	47.01	50.75	36.50	43.47
Eteza	Haworth Bros.	41.27	36.86	31.27	59.48	29.85	44.05	25.73	42.21	49.95	35.98	41.26	61.81	22.04	41.15	54.36	33.55	40.68
Riverview	Umfolozi Co-op. Sugar Planters, Ltd.	34.65	38.45	22.38	51.29	25.05	37.36	21.44	35.98	39.45	36.33	39.93	54.95	16.45	38.92	50.42	36.11	36.20
		48.30	37.20	29.39	48.20	31.12	44.60	46.12	50.10	39.48	40.38	47.63	43.37	26.18	49.41	53.31	36.45	41.98

RAINFALL AND TEMPERATURE BY MONTHS.



RAINFALL 1944 ——— MEAN TEMPERATURE 1944
 RAINFALL AVERAGE 1926 44 - - - - - MEAN TEMPERATURE AVERAGE 1928 1944.

ANNUAL RAINFALL AND MEAN TEMPERATURE.



RAINFALL AND MEAN TEMPERATURE

RAINFALL AVERAGE 1926/1944 and 1929/1944

