

# WEATHER REPORT FOR THE YEAR

## 1st JUNE, 1967 — 31st MAY, 1968

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### General Scope of Report

This report records the weather experienced along the South African sugar-belt during the year ending 31st May, 1968, and compares it with data accumulated in the past. As in previous years, the report will deal primarily with the rainfall recorded by 54 measuring stations scattered throughout the cane-growing areas from Port Shepstone in the south to Pongola in the north. Other climatic data quoted, such as evaporation rates and soil and air temperatures, refer specifically to Mount Edgecombe where these readings were taken. These figures will, however, reflect broadly the conditions prevailing in the rest of the area.

Rainfall during the year under review will be discussed in some detail. In addition, the rainfall experienced during the year June, 1966, to May, 1967, will be referred to, since the crop being harvested this season will have been influenced by the weather during both years.

### Tabulated Data

Table I gives the annual rainfall recorded at each of the 54 measuring stations for the past 5 years.

Table II indicates the mean monthly rainfall during the past year for each of the magisterial districts covered by this survey, as well as for each of the 3 main sub-divisions.

In Table III can be seen the calculated mean rainfall for the past 44 years, as well as the monthly percentage distribution. Also given are the actual mean monthly rainfall figures for all recording stations, plus the corresponding evaporation figures for the Experiment Station. The evaporation figures are recorded from an open water surface in a square "Symons" tank.

Table IV gives the rainfall distribution for 2 years according to growing periods for the magisterial districts and for the main sub-divisions.

Table V gives the monthly rainfall for the 54 centres for the past 4 years, and also the rainfall deficiency, if any, per month.

Table VI is a list of the maximum, minimum, and mean screen temperatures as recorded at the Experiment Station during the past year, plus the comparative mean figures over the past 40 years.

Table VII lists the mean monthly earth temperatures at Mount Edgecombe over the past year, as well as the figures for the past 33 years for comparison.

**Note.**—Due to rounding off of decimal points, the sum of monthly averages does not in all cases exactly equal the annual average.

TABLE I  
Rainfall for 54 Centres

|                                  | Rainfall<br>for year<br>1st June<br>1963 to<br>31st May<br>1964 | Rainfall<br>for year<br>1st June<br>1964 to<br>31st May<br>1965 | Rainfall<br>for year<br>1st June<br>1965 to<br>31st May<br>1966 | Rainfall<br>for year<br>1st June<br>1966 to<br>31st May<br>1967 | Rainfall<br>for year<br>1st June<br>1967 to<br>31st May<br>1968 |
|----------------------------------|---|---|---|---|---|
| <b>Port Shepstone:</b>           |   |   |   |   |   |
| Mehlomnyama . . . . .            | 43.89   | 33.32   | 36.03   | 35.41   | 28.53   |
| <b>Umzinto:</b>                  |   |   |   |   |   |
| Hibberdene . . . . .             | 37.43   | 51.11   | 42.19   | 35.57   | 27.79   |
| Mtwalume . . . . .               | 37.17   | 45.91   | 39.32   | 29.29   | 25.02   |
| Sezela Mill . . . . .            | 42.62   | 52.44   | 48.75   | 35.60   | 28.88   |
| Esperanza . . . . .              | 42.10   | 41.02   | 45.67   | 33.68   | 28.23   |
| Renishaw Mill . . . . .          | 40.88   | 40.87   | 45.20   | 33.36   | 35.92   |
| Dumisa . . . . .                 | 35.97   | 42.20   | 48.95   | 35.91   | 26.44   |
| <b>Durban, Camperdown, etc.:</b> |   |   |   |   |   |
| Illovo Mill . . . . .            | 40.15   | 43.06   | 42.86   | 34.80   | 41.11   |
| Umbumbulu . . . . .              | 32.21   | 29.51   | 44.40   | 36.67   | 30.48   |
| Thornville . . . . .             | 35.41   | 24.53   | 33.75   | 37.98   | 25.21   |
| <b>Inanda:</b>                   |   |   |   |   |   |
| Mount Edgecombe—                 |   |   |   |   |   |
| Effingham . . . . .              | 37.92   | 26.78   | 35.02   | 31.66   | 27.52   |
| Experiment Station . . . . .     | 35.00   | 23.50   | 35.20   | 30.88   | 32.28   |
| Burnside . . . . .               | 33.49   | 26.12   | 36.08   | 31.81   | 34.80   |
| La Mercy . . . . .               | 34.85   | 29.08   | 35.20   | 35.75   | 36.78   |
| Canelands . . . . .              | 42.26   | 24.73   | 48.14   | 34.33   | 28.55   |
| Tongaat—                         |   |   |   |   |   |
| Froster's . . . . .              | 36.99   | 26.28   | 32.29   | 35.93   | 27.35   |
| Inyaninga . . . . .              | 36.62   | 22.50   | 32.88   | 34.71   | 29.84   |
| Inanda . . . . .                 | 43.47   | 32.34   | 41.06   | 44.25   | 30.36   |
| Tongaat—                         |   |   |   |   |   |
| Mwawine . . . . .                | 37.50   | 30.47   | 38.30   | 38.61   | 27.90   |
| <b>Lower Tugela:</b>             |   |   |   |   |   |
| Maidstone Mill . . . . .         | 33.38   | 25.74   | 31.74   | 34.42   | 28.30   |
| Sinembe . . . . .                | 32.21   | 26.90   | 37.77   | 40.26   | 32.57   |
| Upper Tongaat . . . . .          | 38.85   | 31.02   | 37.92   | 42.02   | 30.03   |
| Frasers Estate . . . . .         | 33.78   | 27.70   | 37.62   | 42.43   | 31.84   |
| Chaka's Kraal Experimental       |   |   |   |   |   |
| Farm . . . . .                   | 34.88   | 26.82   | 38.76   | 43.74   | 29.66   |
| Chaka's Kraal . . . . .          | 35.15   | 26.69   | 41.14   | 43.72   | 36.21   |
| Grootville . . . . .             | 31.55   | 23.46   | 35.22   | 40.17   | 25.17   |
| Keatsney . . . . .               | 39.63   | 28.77   | 44.85   | 48.13   | 34.25   |
| Doornkop Mill . . . . .          | 33.25   | 22.71   | 33.21   | 45.47   | 29.59   |
| Doornkop Sprinz . . . . .        | 38.78   | 25.54   | 46.08   | 52.29   | 35.79   |
| Gledhow Mill . . . . .           | 35.14   | 24.99   | 37.50   | 37.38   | 28.87   |
| Darnall Mill . . . . .           | 40.97   | 26.33   | 43.30   | 43.16   | 33.71   |
| Tugela Mouth . . . . .           | 41.37   | 37.16   | 50.21   | 45.96   | 42.62   |
| <b>Mtunzini:</b>                 |   |   |   |   |   |
| Mandini . . . . .                | 42.98   | 24.87   | 45.32   | 44.22   | 35.21   |
| Amatikulu Mill . . . . .         | 43.67   | 24.50   | 37.29   | 38.50   | 28.95   |
| Inyoni . . . . .                 | 41.54   | 24.52   | 43.70   | 43.38   | 32.55   |
| Mtunzini . . . . .               | 54.33   | 37.16   | 48.75   | 63.73   | 40.61   |
| Blackburn . . . . .              | 46.30   | 27.34   | 38.66   | 44.78   | 30.47   |
| <b>Eshowe:</b>                   |   |   |   |   |   |
| Entumeni Mill . . . . .          | 38.39   | 25.07   | 37.21   | 43.86   | 29.95   |
| Eshowe . . . . .                 | 54.56   | 29.10   | 45.72   | 46.56   | 36.40   |
| Nkwatani . . . . .               | 35.04   | 15.69   | 26.48   | 32.68   | 17.07   |
| <b>Lower Umfolozi:</b>           |   |   |   |   |   |
| Felixton Mill . . . . .          | 57.21   | 41.19   | 57.41   | 57.60   | 37.53   |
| Empangeni West . . . . .         | 52.45   | 24.66   | 31.92   | 37.94   | 24.61   |
| Empangeni Mill . . . . .         | 53.33   | 30.90   | 42.45   | 44.26   | 34.54   |
| Kulu Halt . . . . .              | 54.67   | 26.55   | 38.97   | 41.61   | 29.71   |
| Ukulu Properties . . . . .       | 47.87   | 27.55   | 33.19   | 37.20   | 28.03   |
| Mposa . . . . .                  | 53.71   | 25.94   | 37.95   | 32.97   | 30.61   |
| Kwambonambi . . . . .            | 56.60   | 31.24   | 47.68   | 38.17   | 28.50   |
| Eteza . . . . .                  | 47.70   | 27.69   | 43.88   | 33.61   | 26.19   |
| <b>Hlabisa:</b>                  |   |   |   |   |   |
| Mtubatuba Mill . . . . .         | 40.89   | 22.06   | 29.47   | 27.43   | 23.20   |
| U.L.O.A. . . . .                 | 54.76   | 31.09   | 43.50   | 31.81   | 32.54   |
| Nyalazi River . . . . .          | 41.18   | 21.04   | 36.36   | 34.97   | 24.92   |
| Hluhluwe . . . . .               | 43.85   | 14.49   | 28.03   | 25.23   | 22.25   |
| <b>Uhombo:</b>                   |   |   |   |   |   |
| Mkuzi . . . . .                  | 32.05   | 17.48   | 19.54   | 32.39   | 16.66   |
| <b>Piet Retief:</b>              |   |   |   |   |   |
| Pongola . . . . .                | 21.59   | 16.95   | 25.21   | 28.21   | 22.46   |
| Mean: . . . . .                  | 40.92   | 29.02   | 39.17   | 38.65   | 30.08   |

**COMMENTS ON RAINFALL**

Mean rainfall for the South African sugar-belt was 30.08 inches during the year ending 31st May, 1968. This was well below the 44-year average of 38.06 inches of rain. Even during an "average" year, our cane-fields would benefit from increased rainfall. Thus a shortfall of 8 inches or 21% is a serious matter. As a result of this shortage, very dry conditions prevailed at the beginning of June, 1968.

**Monthly Details**

May, 1967, the month immediately preceding the period under review, had 0.48 inches of rain which was only one fourth of the average rainfall for that month. In June, 1967, 0.53 inches of rain fell. The July rainfall of 1.62 inches was not enough to make up the deficit. During August, there was only 0.35 inches of rain throughout the cane-belt. The drought continued into September when there was a disappointing 0.99 inches of rain. It was only towards the end of October that good soaking rains brought to an end one of the driest winter and spring periods on record. Very little rain had fallen between the end of April and the middle of October, and the cane crop was extremely dry. Very satisfactory continuous rains which started in the second half of October built up to a climax on 27th of the month when some areas received more than 2½ inches in penetrating showers within a 24-hour period. Parched soils soaked up the moisture and there was little run-off loss. The mean rainfall for October was slightly above the past average for the month.

The delayed spring growth started in earnest following the initial rains. A heavy fall of 5.24 inches of rain was recorded during November. Distribution was fairly good and the cane crop responded immediately. Rainfall for December was 1.90 inches, which is less than half the 44-year average, and repre-

sented the lowest precipitation for the month since 1936. Fortunately, soil moisture reserves had been built up to satisfactory levels during the previous two months, and low mid-summer precipitation was not therefore as serious as it might have been.

The calendar year 1968 started with a rainfall of 5.59 inches in January, and peak growth of cane was resumed. Water supplies, however, were still short in the extreme South Coast and in Northern Zululand. Rainfall in February was moderately good, ranging from 1½ inches in some areas on the South Coast to more than 8 inches in parts of Zululand. Thus much of the cane grew very well at the beginning of March except in some South Coast centres where two months of dry weather had slowed growth.

March rainfall at 4.25 inches was reasonably good, although less than the average recorded previously for this month. Most of the rain occurred early in the month however, and by the beginning of April dry conditions were affecting growth. During April only 1.34 inches of rain fell in the cane-belt. By the end of that month drought was being experienced in many areas. Adverse effects on the cane occurred with unusual suddenness, particularly on crops growing on shallow soils with low moisture reserves. The drought continued into May when 0.53 inches of rain were recorded for the entire month. This is barely one quarter of the average rainfall for this month recorded during the past 44 years. The period under review thus ends with drought conditions prevailing throughout the industry — a natural phenomenon which might conceivably be more effective in limiting sugar production than the current legislative quota restrictions. On the other hand, the situation could change drastically if there were to be good soaking showers during June and July which would make it possible for cane to take full advantage of the flush of spring growth.

**TABLE II**

**Rainfall in Inches by Districts for Months of June, 1967, to May, 1968, Inclusive**

| District                             | No. of centres | 1967 |      |      |       |      |      |      | 1968 |      |      |      |      | Total June 1967-May 1968 |
|--------------------------------------|----------------|------|------|------|-------|------|------|------|------|------|------|------|------|--------------------------|
|                                      |                | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May  |                          |
| Port Shepstone .. ..                 | 1              | 1.90 | 2.00 | 0.35 | 0.85  | 3.62 | 5.01 | 3.13 | 2.37 | 2.14 | 4.91 | 2.16 | 0.09 | 28.53                    |
| Umzinto .. ..                        | 6              | 1.06 | 1.49 | 0.15 | 1.22  | 3.43 | 5.52 | 2.68 | 3.87 | 1.83 | 4.84 | 2.16 | 0.46 | 28.71                    |
| Durban, Pinetown, etc.               | 3              | 0.46 | 0.79 | 0.08 | 0.78  | 3.72 | 6.14 | 3.08 | 6.12 | 2.71 | 5.97 | 2.20 | 0.24 | 32.27                    |
| Mean: South Coast ..                 | 10             | 0.96 | 1.33 | 0.15 | 1.05  | 3.53 | 5.66 | 2.84 | 4.40 | 2.12 | 5.19 | 2.17 | 0.36 | 29.76                    |
| Inanda .. ..                         | 9              | 0.41 | 0.91 | 0.08 | 0.56  | 4.11 | 6.51 | 2.06 | 8.15 | 2.59 | 3.27 | 1.06 | 0.89 | 30.60                    |
| Lower Tugela .. ..                   | 13             | 0.54 | 1.15 | 0.19 | 0.90  | 4.58 | 5.83 | 1.62 | 7.92 | 3.26 | 4.02 | 1.44 | 0.74 | 32.20                    |
| Mean: North Coast ..                 | 22             | 0.49 | 1.05 | 0.14 | 0.76  | 4.39 | 6.11 | 1.80 | 8.01 | 2.99 | 3.72 | 1.28 | 0.80 | 31.54                    |
| Mean: South of Tugela                | 32             | 0.64 | 1.14 | 0.14 | 0.85  | 4.12 | 5.97 | 2.13 | 6.88 | 2.72 | 4.18 | 1.56 | 0.66 | 30.99                    |
| Mtunzini .. ..                       | 5              | 0.60 | 2.69 | 0.55 | 0.74  | 4.20 | 5.26 | 1.73 | 6.07 | 4.33 | 5.18 | 1.79 | 0.40 | 33.56                    |
| Eshowe .. ..                         | 3              | 0.53 | 1.48 | 0.34 | 1.55  | 4.14 | 5.47 | 2.63 | 4.46 | 7.77 | 6.87 | 0.79 | 0.37 | 36.40                    |
| Lower Umfolozi .. ..                 | 8              | 0.30 | 2.99 | 1.11 | 0.95  | 3.62 | 3.92 | 1.44 | 3.28 | 6.74 | 4.46 | 0.72 | 0.44 | 29.97                    |
| Hlabisa .. ..                        | 4              | 0.31 | 2.61 | 0.45 | 2.62  | 3.51 | 3.04 | 1.16 | 2.20 | 5.25 | 3.09 | 1.04 | 0.34 | 25.64                    |
| Ubombo .. ..                         | 1              | 0.00 | 0.16 | 0.00 | 1.13  | 1.77 | 3.07 | 1.00 | 3.00 | 1.72 | 3.30 | 1.51 | 0.00 | 16.66                    |
| Piet Retief .. ..                    | 1              | 0.00 | 0.16 | 0.00 | 0.72  | 3.37 | 5.99 | 1.36 | 2.47 | 4.74 | 3.29 | 0.34 | 0.02 | 22.46                    |
| Mean: Zululand and Piet Retief .. .. | 22             | 0.36 | 2.33 | 0.66 | 1.20  | 3.63 | 4.18 | 1.57 | 3.70 | 5.42 | 4.36 | 1.01 | 0.33 | 28.75                    |
| GENERAL MEAN .. ..                   | 54             | 0.53 | 1.62 | 0.35 | 0.99  | 3.92 | 5.24 | 1.90 | 5.59 | 3.82 | 4.25 | 1.34 | 0.53 | 30.08                    |

TABLE III  
Rainfall and Evaporation Data

|                   | Mean Percentage Rainfall Distribution 1924-1968 | Computed Mean Rainfall for 54 Centres 1924-1968 | Actual Rainfall for 54 Centres June, 1967-May, 1968 | Evaporation at Experiment Stn. |                      |
|-------------------|---|---|---|--------------------------------|----------------------|
|                   |   |   |   | Mean 1936-68                   | June, 1967-May, 1968 |
| June .. .. .      | 4.10  | 1.56  | 0.53  | 2.39                           | 2.73                 |
| July .. .. .      | 3.10  | 1.18  | 1.62  | 2.56                           | 3.08                 |
| August .. .. .    | 3.68  | 1.40  | 0.35  | 3.02                           | 3.75                 |
| September .. .. . | 6.44  | 2.45  | 0.99  | 3.71                           | 4.36                 |
| October .. .. .   | 9.48  | 3.61  | 3.92  | 4.29                           | 6.04                 |
| November .. .. .  | 11.35   | 4.32  | 5.24  | 4.84                           | 6.09                 |
| December .. .. .  | 12.01   | 4.57  | 1.90  | 5.57                           | 7.19                 |
| January .. .. .   | 11.95   | 4.55  | 5.59  | 5.76                           | 6.63                 |
| February .. .. .  | 12.01   | 4.57  | 3.82  | 4.93                           | 6.05                 |
| March .. .. .     | 13.27   | 5.05  | 4.25  | 4.68                           | 4.75                 |
| April .. .. .     | 7.59  | 2.89  | 1.34  | 3.55                           | 4.80                 |
| May .. .. .       | 5.02  | 1.91  | 0.53  | 2.88                           | 3.61                 |
|                   | 100.00  | 38.06   | 30.08   | 48.18                          | 59.08                |

### Two-Year Summary

From June to December, 1966, cane growth was hampered by lack of rain. During the first four months of 1967, however, the situation was reversed, for ample rains were experienced. A high rate of growth was achieved during this period and while there was very little rain in May, satisfactory cane growth was maintained during the month. However, the winter and spring of 1967 were accompanied by a severe four-month drought, and it was not until mid-October that the spring rains started to fall. Cane then grew rapidly and continued to do so into

November when further excellent rains occurred. Good growth continued throughout December, despite restricted rain in that month. Rainfall throughout the sugar-belt during the first three months of 1968 was reasonably satisfactory and conditions were ideal for optimum cane growth. April and May were very dry, however, and by the beginning of June a large moisture deficit had developed.

### Temperatures

The mean screen temperature at the Experiment Station for the year 1967-68 was 67.5°F. This was

TABLE IV  
Rainfall in Inches by Districts for the Two Year Period June, 1966, to May, 1968, Inclusive

| District                           | No. of centres | 1966 Winter Growth June-August | 1966 Early Growth Sept. and Oct. | 1966-1967 Optimum Growth Nov.-March | 1967 Late Growth April and May | 1967 Winter Growth June-August | 1967 Early Growth Sept. and Oct. | 1967-1968 Optimum Growth Nov.-March | 1968 Late Growth April and May | Total for two years June, 1966 to May, 1968 |
|------------------------------------|----------------|--------------------------------|----------------------------------|-------------------------------------|--------------------------------|--------------------------------|----------------------------------|-------------------------------------|--------------------------------|---|
| Port Shepstone .. .. .             | 1              | 4.27                           | 3.02                             | 21.27                               | 6.85                           | 4.25                           | 4.47                             | 17.56                               | 2.25                           | 63.94                                       |
| Umzinto .. .. .                    | 6              | 3.55                           | 2.95                             | 22.60                               | 4.81                           | 2.70                           | 4.65                             | 18.74                               | 2.62                           | 62.62                                       |
| Durban, Pinetown, etc. ..          | 3              | 2.82                           | 3.24                             | 26.47                               | 3.95                           | 1.33                           | 4.50                             | 24.02                               | 2.44                           | 68.75                                       |
| Mean: South Coast ..               | 10             | 3.40                           | 3.05                             | 23.62                               | 4.76                           | 2.44                           | 4.58                             | 20.21                               | 2.53                           | 64.59                                       |
| Inanda .. .. .                     | 9              | 2.80                           | 3.74                             | 24.72                               | 4.06                           | 1.40                           | 4.67                             | 17.40                               | 1.95                           | 65.92                                       |
| Lower Tugela .. .. .               | 13             | 3.10                           | 4.68                             | 31.07                               | 4.16                           | 1.88                           | 5.48                             | 22.65                               | 2.18                           | 75.21                                       |
| Mean: North Coast ..               | 22             | 2.98                           | 4.29                             | 28.47                               | 4.12                           | 1.68                           | 5.15                             | 22.63                               | 2.08                           | 71.40                                       |
| Mean: South of Tugela              | 32             | 3.11                           | 3.91                             | 26.95                               | 4.32                           | 1.92                           | 4.97                             | 21.88                               | 2.22                           | 69.28                                       |
| Mtunzini .. .. .                   | 5              | 4.90                           | 5.16                             | 28.47                               | 8.39                           | 3.84                           | 4.94                             | 22.57                               | 2.19                           | 80.48                                       |
| Eshowe .. .. .                     | 3              | 2.40                           | 4.29                             | 29.28                               | 5.05                           | 1.80                           | 4.52                             | 20.82                               | 0.65                           | 68.83                                       |
| Lower Umfolozi .. .. .             | 8              | 4.45                           | 4.19                             | 20.50                               | 11.28                          | 4.40                           | 4.57                             | 19.84                               | 1.16                           | 70.39                                       |
| Hlabisa .. .. .                    | 4              | 2.27                           | 2.93                             | 17.37                               | 7.29                           | 3.37                           | 6.13                             | 14.74                               | 1.38                           | 55.50                                       |
| Ubombo .. .. .                     | 1              | 0.66                           | 0.90                             | 26.29                               | 4.50                           | 0.16                           | 2.90                             | 12.09                               | 1.51                           | 49.01                                       |
| Piet Retief .. .. .                | 1              | 1.02                           | 1.78                             | 22.19                               | 3.72                           | 0.16                           | 4.09                             | 17.85                               | 0.36                           | 51.17                                       |
| Mean: Zululand and Piet Retief ..  | 22             | 3.52                           | 3.94                             | 23.29                               | 8.40                           | 3.35                           | 4.83                             | 19.23                               | 1.34                           | 67.91                                       |
| Mean: General .. .. .              | 54             | 3.29                           | 3.92                             | 25.46                               | 5.98                           | 2.50                           | 4.91                             | 20.80                               | 1.87                           | 68.73                                       |
| Computed Mean for 44 years .. .. . | 54             | 4.14                           | 6.06                             | 23.06                               | 4.80                           | 4.14                           | 6.06                             | 23.06                               | 4.80                           | 76.12                                       |

**TABLE V**  
Rainfall and Evaporation in Inches for the Past 4 Years

|                 | 1964/65      |           |                     | 1965/66      |           |                     | 1966/67      |           |                     | 1967/68      |           |                     |
|-----------------|--------------|-----------|---------------------|--------------|-----------|---------------------|--------------|-----------|---------------------|--------------|-----------|---------------------|
|                 | Evapo-ration | Rain-fall | Rainfall Deficiency | Evapo-ration | Rain-fall | Rainfall Deficiency | Evapo-ration | Rain-fall | Rainfall Deficiency | Evapo-ration | Rain-fall | Rainfall Deficiency |
| June .. .. .    | 2.66         | 1.81      | 0.85                | 2.70         | 4.29      | 0.00                | 2.17         | 1.19      | 0.98                | 2.73         | 0.53      | 2.20                |
| July .. .. .    | 2.56         | 1.30      | 1.26                | 2.18         | 1.38      | 0.80                | 2.77         | 0.39      | 2.38                | 3.08         | 1.62      | 1.46                |
| August .. .. .  | 3.50         | 0.69      | 2.81                | 3.05         | 3.28      | 0.00                | 3.38         | 1.71      | 1.67                | 3.75         | 0.35      | 3.40                |
| September .. .  | 3.58         | 1.73      | 1.85                | 3.59         | 2.78      | 0.81                | 4.29         | 1.85      | 2.44                | 4.36         | 0.99      | 3.37                |
| October .. .. . | 3.61         | 6.71      | 0.00                | 4.84         | 4.64      | 0.20                | 4.87         | 2.07      | 2.80                | 6.04         | 3.92      | 2.12                |
| November .. ..  | 5.54         | 3.09      | 2.45                | 4.40         | 4.04      | 0.36                | 5.66         | 3.62      | 2.04                | 6.09         | 5.24      | 0.85                |
| December .. .   | 6.55         | 3.76      | 2.79                | 6.31         | 3.25      | 3.06                | 6.88         | 3.66      | 3.22                | 7.19         | 1.90      | 5.29                |
| January .. .. . | 6.10         | 2.65      | 3.48                | 6.11         | 6.65      | 0.00                | 6.39         | 6.16      | 0.23                | 6.63         | 5.59      | 1.04                |
| February .. .   | 5.81         | 2.64      | 3.17                | 5.02         | 3.24      | 1.78                | 4.80         | 4.96      | 0.00                | 6.05         | 3.82      | 2.23                |
| March .. .. .   | 6.34         | 1.22      | 5.12                | 6.18         | 0.68      | 5.50                | 5.22         | 7.06      | 0.00                | 4.75         | 4.25      | 0.50                |
| April .. .. .   | 4.22         | 1.32      | 2.90                | 3.95         | 2.13      | 1.82                | 3.58         | 5.51      | 0.00                | 4.80         | 1.34      | 3.46                |
| May .. .. .     | 3.00         | 2.10      | 0.90                | 3.15         | 2.81      | 0.34                | 2.81         | 0.47      | 2.34                | 3.61         | 0.53      | 3.08                |
| TOTAL .. .. .   | 53.47        | 29.02     | 27.55               | 51.48        | 39.17     | 14.67               | 52.82        | 38.65     | 18.10               | 59.08        | 30.08     | 29.00               |

**TABLE VI**

The Following are the Screen Temperatures by Months in Degrees Fahrenheit at the Experiment Station for the Year June, 1967, to May, 1968, Compared with the Mean for the Period 1928 to 1968

|                 | THIS PERIOD |         |      |                       |             | AVERAGE 1928 TO 1968 INCLUSIVE |         |      |             |
|-----------------|-------------|---------|------|-----------------------|-------------|--------------------------------|---------|------|-------------|
|                 | Maximum     | Minimum | Mean | Plus or minus average | Daily range | Maximum                        | Minimum | Mean | Daily range |
| June .. .. .    | 72.5        | 52.2    | 62.4 | 0.0                   | 20.3        | 72.8                           | 52.7    | 62.4 | 20.1        |
| July .. .. .    | 68.7        | 49.1    | 58.9 | -3.2                  | 19.6        | 72.2                           | 51.8    | 62.1 | 20.4        |
| August .. .. .  | 72.7        | 52.5    | 62.6 | -1.0                  | 20.2        | 73.2                           | 53.9    | 63.6 | 19.3        |
| September .. .  | 73.4        | 57.6    | 65.5 | -0.4                  | 15.8        | 74.2                           | 57.5    | 65.9 | 16.7        |
| October .. .. . | 74.3        | 60.6    | 67.4 | -0.8                  | 13.7        | 75.6                           | 60.9    | 68.2 | 14.7        |
| November .. ..  | 77.9        | 64.2    | 71.0 | +0.5                  | 13.7        | 77.5                           | 63.5    | 70.5 | 14.0        |
| December .. .   | 78.8        | 66.0    | 72.4 | -0.4                  | 12.8        | 79.8                           | 65.8    | 72.8 | 14.0        |
| January .. .. . | 80.0        | 68.4    | 74.2 | 0.0                   | 11.6        | 80.9                           | 67.4    | 74.2 | 13.5        |
| February .. .   | 79.2        | 67.0    | 73.1 | -1.4                  | 12.2        | 81.4                           | 67.7    | 74.5 | 13.7        |
| March .. .. .   | 77.3        | 65.3    | 71.4 | -1.9                  | 12.0        | 80.4                           | 66.1    | 73.3 | 14.3        |
| April .. .. .   | 75.2        | 58.5    | 66.9 | -3.1                  | 16.7        | 77.9                           | 62.1    | 70.0 | 15.8        |
| May .. .. .     | 74.0        | 56.1    | 64.8 | -1.5                  | 17.9        | 75.6                           | 57.0    | 66.3 | 18.6        |
| MEAN .. .. .    | 75.3        | 59.8    | 67.5 | -1.2                  | 15.5        | 76.8                           | 60.5    | 68.7 | 16.3        |

**TABLE VII**

The following table gives the Mean Monthly Earth Temperatures

|                 | Experiment Station 1935-1968 |       |       | Experiment Station June, 1967, to May, 1968 |       |       |
|-----------------|------------------------------|-------|-------|---|-------|-------|
|                 | 1 ft.                        | 2 ft. | 4 ft. | 1 ft.                                       | 2 ft. | 4 ft. |
| June .. .. .    | 63.8                         | 66.3  | 69.3  | 63.0  | 65.1  | 68.9  |
| July .. .. .    | 62.4                         | 64.3  | 66.7  | 60.3  | 62.4  | 66.2  |
| August .. .. .  | 64.5                         | 65.5  | 66.5  | 63.7  | 63.9  | 65.2  |
| September .. .  | 67.9                         | 68.1  | 68.0  | 68.2  | 67.6  | 66.7  |
| October .. .. . | 70.7                         | 70.7  | 70.0  | 71.1  | 70.2  | 68.4  |
| November .. ..  | 73.5                         | 73.3  | 72.3  | 72.9  | 71.8  | 70.1  |
| December .. .   | 76.5                         | 76.1  | 74.3  | 77.0  | 75.4  | 72.5  |
| January .. .. . | 78.7                         | 78.6  | 76.4  | 79.7  | 78.2  | 75.0  |
| February .. .   | 79.5                         | 79.3  | 77.7  | 78.8  | 77.9  | N.A.  |
| March .. .. .   | 78.1                         | 78.6  | 77.9  | 76.5  | 76.6  | N.A.  |
| April .. .. .   | 74.6                         | 75.9  | 76.4  | 71.0  | 72.6  | 73.7  |
| May .. .. .     | 69.1                         | 71.1  | 73.1  | 66.8  | 68.1  | 68.9  |
| MEAN .. .. .    | 71.6                         | 72.3  | 72.4  | 70.8  | 70.8  | —     |

1.2°F cooler than the mean for the past 40 years. The temperatures for June, 1967, and January, 1968, were exactly equal to the past average, while November, 1967, was half a degree warmer than the established average figure for that month. In all other months, mean screen temperatures were below average. In most cases, soil temperatures too were lower than those recorded in the past. This was most noticeable during the period February to May, 1968, and it seems that these lower temperatures are most pronounced at depth. It is unfortunate that the four-foot deep soil thermometer was out of action for February and March.

The minimum temperature at grass level at the Experiment Station fell below freezing point on only one occasion. This was on the night 17/18 August, 1967, when 2.5°F of frost were recorded. However, grass minimum temperatures of below 34°F were recorded on five occasions between the 15th June and 25th September, 1967.

#### **Evaporation**

Evaporation from a free water surface was above average for each month of the year and totalled 59.08 inches. This very high figure is 10.90 inches greater than the 33-year mean of 48.18 inches. Rainfall was insufficient in every month to replace evaporation loss, and as a result the rainfall deficiency reached an unusually high figure of 29.00 inches. This is the highest deficiency level recorded for the South African sugar-belt. Peak evaporation occurred in December, 1967, with a loss of 7.19 inches for the month.

#### **Hours of Sunshine**

During the year, Mount Edgecombe had 2,488.1 hours of sunshine, or 4.8% more than the average established over the past 40 years. Particularly sunny months were August, November and December, 1967, and February, 1968. The only months which were less sunny than the past average were March and April, 1968.

#### **Conclusion**

The South African cane-belt has had a very dry year. A severe drought during the winter and early spring of 1967 retarded growth and increased the danger of runaway fires. Copious rains in October, 1967, put an end to this situation, and satisfactory growth was maintained until the end of March, 1968. Crops could have been even larger, however, had there been more rain in December, February and March. Rainfall during April and May, 1968, the last two months of the period under review, was very low. Thus by the end of May, 1968, the cane crop was badly in need of good rains. The shortage of rain has been accentuated by the unusually high rate of evaporation which has persisted for the whole of the past year.

**Note.**—It is intended that the weather report for next year will incorporate additional meteorological data, together with comprehensive records of rainfall for the new cane-growing areas.

S.A.S.A. Experiment Station,  
Mount Edgecombe,  
Natal.

17th June, 1968.