# ANNUAL WEATHER REPORT FOR 1952

By B. E. BEATER.

The first annual report of the new weather service was introduced last year. As was pointed out then, in order to have these monthly rainfall returns on as representative a basis as possible, it was decided to allocate one recording station to approximately 2 per cent. of the total cane crop produced, and to divide the area into magisterial districts, as is done in the Government Special Census of Sugar Cane Plantations. It was, however, considered necessary to include rainfall returns from certain areas such as Hluhluwe and Mkuzi, which though not justifiable at present on a production basis, are individual areas which are of interest to the industry. The result of this allocation of recording stations is that we have in all 54 centres which send in detailed rainfall statements every month, to be summarised here and distributed. It is believed that these monthly reports, which are truly representative of the whole industry, have been constructive, and the writer takes this opportunity of expressing appreciation for the co-operation and assistance of the 54 observers concerned.

As was done last year, the rainfall data from the original 44 recording stations which have reported to the Experiment Station over the past 24 years, are once again embodied in the report. The 44 centres reporting in the past were not selected on a production basis, but despite this limitation it is proposed to continue publishing their annual returns until such time as a reasonably accurate average ratio between the rainfall of the new and old stations can be obtained, and the data from the old stations can be used for judging the rainfall at the new centres.

This annual summary introduces for the first time the internationally accepted millimeter scale for rainfall and the centigrade scale for temperatures, both of which are now official usage in the Union. For purposes of converting rainfall there are 25.4 mm to the inch, or multiply mm by 0.03937.

**Summarised Monthly Returns from 54 Centres of the Sugar Industry.**

The total rainfall for the calendar year 1952 for the 54 centres is presented below:

| Magisterial District. | Locality. | Recorder. | Total Rainfall from January 1st. | | | |
|---|---|---|---|---|---|---|
| | | | 1951 mm | 1952 mm | 1951 ins. | 1952 ins. |
| Port Shepstone ... ... | Mehlomnyama ... ... | J. B. Kippen ... ... | 871.0 | 766.8 | *34.29* | *30.19* |
| Umzinto ... ... | Hibberdene ... ... | G. W. Hammond ... ... | 690.9 | 870.0 | *27.20* | *34.25* |
| | Umtwalumi ... ... | B. D. Archibald ... ... | 685.8 | 811.5 | *27.00* | *31.95* |
| | Sezela ... ... ... | Mill ... ... ... ... | 953.5 | 1126.2 | *37.54* | *44.34* |
| | Experanza ... ... ... | Mill ... ... ... ... | 826.3 | 1056.9 | *32.53* | *41.61* |
| | Renishaw ... ... ... | Mill ... ... ... ... | 835.7 | 1070.6 | *32.90* | *42.15* |
| | Dumisa ... ... ... | A. W. Barker ... ... | 750.1 | 774.2 | *29.53* | *30.48* |
| Durban ... ... ... | Illovo ... ... ... | Mill ... ... ... ... | 762.0 | 780.5 | *30.00* | *30.73* |
| Camperdown ... ... | Umbumbulu ... ... | E. S. Gurney ... ... | 713.0 | 758.2 | *28.07* | *29.85* |
| | Thornville ... ... ... | E. O. Mapstone ... ... | 843.5 | 832.4 | *33.21* | *32.77* |
| Inanda ... ... ... | Mount Edgecombe—Milkwood Kraal ... ... | ... | 1870.5 | 772.2 | *34.27* | *30.40* |
| | ,, ,, Exp. Station ... ... | ... | 871.5 | 858.8 | *34.31* | *33.81* |
| | ,, ,, Beach ... ... | ... | 864.6 | 792.7 | *34.04* | *31.21* |
| | La Mercy ... ... ... | Gersigny Bros. ... ... | 900.2 | 825.5 | *35.44* | *32.50* |
| | Canelands ... ... ... | E. L. Armstrong ... ... | 802.4 | 707.1 | *31.59* | *27.84* |
| | Tongaat ... ... ... | Frosterly ... ... ... | 833.6 | 765.3 | *32.82* | *30.13* |
| | Tongaat ... ... ... | Inyaninga ... ... ... | 819.7 | 696.2 | *32.27* | *27.41* |
| | Inanda ... ... ... | G. R. Groom ... ... | 1020.3 | 877.1 | *40.17* | *34.53* |
| | Tongaat ... ... ... | Mawine ... ... ... | 954.0 | 856.0 | *37.56* | *33.70* |
| Lower Tugela ... ... | Maidstone ... ... ... | Mill ... ... ... ... | 825.5 | 700.8 | *32.50* | *27.59* |
| | Sinembe ... ... ... | H. E. Heenan ... ... | 904.5 | 805.9 | *35.61* | *31.73* |
| | Upper Tongaat ... ... | C. E. Goble ... ... | 1026.9 | 1083.6 | *40.43* | *42.66* |
| | Frasers Estate ... ... | Manager ... ... ... | 856.5 | 808.7 | *33.72* | *31.84* |
| | Chaka's Kraal ... ... | Exp. Farm ... ... | 784.9 | 672.6 | *30.90* | *26.48* |
| | Chaka's Kraal ... ... | W. S. Campbell ... ... | 1008.6 | 834.1 | *39.71* | *32.84* |
| | Groutville ... ... ... | Cranbrook ... ... ... | 862.8 | 799.3 | *33.97* | *31.47* |
| | Kearsney ... ... ... | H. Balcomb and Sons ... | 928.4 | 888.0 | *36.55* | *34.96* |
| | Doornkop ... ... ... | Mill ... ... ... ... | 927.6 | 836.2 | *36.52* | *32.92* |
| | Doornkop ... ... ... | Sprinz ... ... ... | 1084.3 | 1056.6 | *42.69* | *41.60* |
| | Gledhow ... ... ... | Mill ... ... ... ... | 937.3 | 785.1 | *36.90* | *30.91* |
| | Darnall ... ... ... | Mill ... ... ... ... | 876.0 | 782.8 | *34.49* | *30.82* |
| | Tugela Mouth ... ... | Dhlogweni ... ... ... | 935.0 | 788.9 | *36.81* | *31.06* |

| Magisterial District. | Locality. | Recorder. | Total Rainfall from January 1st. 1951 mm | 1952 mm | 1951 ins. | 1952 ins. |
|---|---|---|---|---|---|---|
| Mtunzini ... ... | Mandini ... ... ... | A. Adams ... ... ... | 799.8 | 714.5 | *31.49* | *28.13* |
| | Amatikulu ... ... ... | Mill ... ... ... ... | 788.4 | 813.1 | *31.04* | *32.01* |
| | Inyoni ... ... ... | L. P. Johnson ... ... | 879.1 | 796.3 | *34.61* | *31.35* |
| | Mtunzini ... ... ... | G. V. W. Roberts ... ... | 1147.1 | 1035.1 | *45.16* | *40.75* |
| | Blackburn ... ... ... | H. C. Boast ... ... | 845.3 | 819.7 | *33.28* | *32.27* |
| Eshowe ... ... ... | Entumeni ... ... ... | Mill ... ... ... ... | 795.3 | 790.7 | *31.31* | *31.13* |
| | Eshowe ... ... ... | H. W. Brockwell ... ... | 783.6 | 794.5 | *30.85* | *31.28* |
| | Nkwaleni ... ... ... | G. M. Robinson ... ... | 683.8 | 514.6 | *26.92* | *20.26* |
| Lower Umfolozi... ... | Felixton ... ... ... | Mill ... ... ... ... | 1027.4 | 808.5 | *40.45* | *31.83* |
| | Empangeni West ... ... | W. H. Simpson ... ... | 818.6 | 626.1 | *32.23* | *24.65* |
| | Empangeni ... ... | Mill ... ... ... ... | 935.5 | 787.1 | *36.83* | *30.99* |
| | Logoza ... ... ... | C. F. M. Hibberd ... ... | 851.2 | 770.4 | *33.51* | *30.33* |
| | Ukulu Properties ... ... | Manager ... ... ... | 793.8 | 666.8 | *31.25* | *26.25* |
| | Mposa ... ... ... | Mrs. F. W. M. H. Springorum | 805.2 | 782.3 | *31.70* | *30.80* |
| | Kwambonambi ... ... | L. C. M. Rattray ... ... | 1007.9 | 829.8 | *39.68* | *32.67* |
| | Eteza ... ... ... | Haworth Bros. ... ... | 812.8 | 770.4 | *32.00* | *30.33* |
| Hlabisa ... ... ... | Mtubatuba ... ... | Mill ... ... ... ... | 579.9 | 582.9 | *22.83* | *22.95* |
| | U.L.O.A. ... ... ... | Manager ... ... ... | 933.4 | 1078.0 | *36.75* | *42.44* |
| | Nyalazi River ... ... | E. A. M. Erlandson ... | 683.8 | 761.0 | *26.92* | *29.96* |
| | Hluhluwe ... ... ... | A. Kramer ... ... ... | 448.1 | 665.2 | *17.64* | *26.19* |
| Ubombo ... ... ... | Mkuzi ... ... ... | J. P. Brash... ... ... | 573.5 | 522.0 | *22.58* | *20.55* |
| Piet Retief ... ... | Pongola ... ... ... | Superintendent ... ... | 623.6 | 532.6 | *24.55* | *20.97* |
| | | MEAN ... | 841.5 | 801.9 | *33.13* | *31.57* |

The following table gives the rainfall for 1952 by months at the Experiment Station compared with the average for the past 27 years.

| | 1952 | | | | | Mean 1926-1952 Inclusive. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total for month in mm (*ins.*) | Aggregate from 1st January (*ins.*) | % of average aggregate 27 years. | No. of rain days. | Average rainfall per rain days (*ins.*) | Total for month in mm (*ins.*) | Aggregate from 1st January (*ins.*) | No. of rain days. | Average rainfall per day mm (*ins.*) | % of wet days. | Average rainfall per rain day (*ins.*) |
| January ... ... | 180.1 | 180.1 | 179.9 | 15 | 12.0 | 100.1 | 100.1 | 14 | 3.2 | 0.43 | 7.1 |
| | *7.09* | *7.09* | | | *0.473* | *3.94* | *3.94* | | *0.126* | | *0.281* |
| February ... ... | 61.7 | 241.8 | 112.5 | 12 | 5.2 | 114.8 | 214.9 | 12 | 4.1 | 0.40 | 9.6 |
| | *2.43* | *9.52* | | | *0.203* | *4.52* | *8.46* | | *0.160* | | *0.377* |
| March ... ... ... | 61.5 | 303.3 | 89.0 | 9 | 6.8 | 126.0 | 340.9 | 12 | 4.1 | 0.37 | 10.5 |
| | *2.42* | *11.94* | | | *0.269* | *4.96* | *13.42* | | *0.160* | | *0.413* |
| April ... ... ... | 127.8 | 431.0 | 105.7 | 8 | 16.0 | 66.8 | 407.7 | 8 | 2.2 | 0.27 | 8.4 |
| | *5.03* | *16.97* | | | *0.629* | *2.63* | *16.05* | | *0.088* | | *0.329* |
| May ... ... ... | 57.9 | 489.0 | 105.9 | 7 | 8.3 | 54.1 | 461.8 | 5 | 1.8 | 0.16 | 10.8 |
| | *2.28* | *19.25* | | | *0.326* | *2.13* | *18.18* | | *0.069* | | *0.426* |
| June ... ... ... | 11.4 | 500.4 | 99.1 | 2 | 5.7 | 42.9 | 504.7 | 4 | 1.4 | 0.14 | 10.7 |
| | *0.45* | *19.70* | | | *0.225* | *1.69* | *19.87* | | *0.056* | | *0.423* |
| July ... ... ... | 30.2 | 530.6 | 99.1 | 7 | 4.3 | 30.5 | 535.2 | 4 | 1.0 | 0.13 | 7.6 |
| | *1.19* | *20.89* | | | *0.170* | *1.20* | *21.07* | | *0.039* | | *0.300* |
| August ... ... ... | 32.0 | 562.6 | 98.7 | 4 | 8.0 | 34.8 | 570.0 | 5 | 1.1 | 0.17 | 7.0 |
| | *1.26* | *22.15* | | | *0.315* | *1.37* | *22.44* | | *0.044* | | *0.274* |
| September ... ... | 23.4 | 586.0 | 94.8 | 8 | 2.9 | 48.3 | 618.2 | 8 | 1.6 | 0.26 | 6.0 |
| | *0.92* | *23.07* | | | *0.115* | *1.90* | *24.34* | | *0.063* | | *0.238* |
| October ... ... | 48.0 | 634.0 | 90.7 | 12 | 4.0 | 81.0 | 699.3 | 14 | 2.6 | 0.44 | 5.8 |
| | *1.89* | *24.96* | | | *0.158* | *3.19* | *27.53* | | *0.103* | | *0.228* |
| November ... ... | 79.5 | 713.5 | 89.0 | 14 | 5.7 | 102.1 | 801.4 | 14 | 3.4 | 0.79 | 7.3 |
| | *3.13* | *28.09* | | | *0.224* | *4.02* | *31.55* | | *0.134* | | *0.287* |
| December ... ... | 150.4 | 863.9 | 94.5 | 18 | 8.4 | 112.8 | 914.1 | 15 | 3.6 | 0.46 | 7.5 |
| | *5.92* | *34.01* | | | *0.329* | *4.44* | *35.99* | | *0.143* | | *0.296* |
| TOTAL ... ... | 863.9 | 863.9 | 94.5 | 116 | 7.4 | MEAN | 914.1 | 115 | 2.5 | 0.34 | 8.2 |
| | *34.01* | *34.01* | | | *0.293* | | *35.99* | | *0.099* | | *0.323* |

Below are summarised the total mean rainfalls received during the growing season, October to March and the so-called ripening season, April to September, for the past two years:

Rainfall in inches are shown in Italic Figures.

| | | | October to March. | | April to September. | |
|---|---|---|---|---|---|---|
| | | | mm | ins. | mm | ins. |
| 1. | South Coast ... ... ... ... ... | 1951 | 606.3 | *23.87* | 183.9 | *7.24* |
| | | 1952 | 614.1 | *24.18* | 270.7 | *10.66* |
| 2. | North Coast ... ... ... ... ... | 1951 | 596.7 | *23.49* | 307.3 | *12.10* |
| | | 1952 | 584.0 | *22.99* | 232.7 | *9.16* |
| | Mean of 1 and 2 ... ... ... ... ... | 1951 | 599.4 | *23.60* | 259.0 | *10.20* |
| | | 1952 | 593.5 | *23.37* | 244.6 | *9.63* |
| 3. | Zululand including Piet Retief ... ... ... | 1951 | 474.3 | *18.67* | 328.8 | *12.94* |
| | | 1952 | 497.6 | *19.59* | 247.8 | *9.76* |
| 4. | General Mean for 1, 2 and 3 ... ... ... | 1951 | 548.9 | *21.61* | 293.9 | *11.57* |
| | | 1952 | 554.7 | *21.84* | 247.6 | *9.75* |
| | Total of Means ... ... ... ... ... | 1951 | 2825.6 | *111.24* | 1372.9 | *54.05* |
| | | 1952 | 2843.9 | *111.96* | 1243.4 | *48.95* |

From these figures it will be observed that there has been a close similarity in the summer distribution of mean total rainfall over the past two years while a rather drier winter occurred throughout the whole industry during 1952.

## Annual Rainfall from Original 44 Centres.

Records from the 44 centres, which go back 24 years, are again presented:

| Station. | Recorder. | Average 1929-50. mm (*ins.*) | 1951 mm (*ins.*) | 1952 mm (*ins.*) | Average 1929-52. mm (*ins.*) |
|---|---|---|---|---|---|
| Port Shepstone ... ... | Lightkeeper, S.A.R. ... ... ... ... | 1069.1 | 892.8 | 899.9 | 1054.6 |
| | | *42.09* | *35.15* | *35.43* | *41.52* |
| Umzumbi ... ... | A. H. G. Blamey ... ... ... ... ... | 1006.3 | 859.5 | 978.7 | 999.0 |
| | | *39.62* | *33.84* | *38.53* | *39.33* |
| *Esperanza... ... ... | Reynolds Bros. ... ... ... ... ... | 1038.6 | 826.3 | 1056.9 | 1030.5 |
| | | *40.89* | *32.53* | *41.61* | *40.57* |
| *Renishaw ... ... ... | Crookes Bros., Ltd. ... ... ... ... | 982.2 | 835.7 | 1070.6 | 979.7 |
| | | *38.67* | *32.90* | *42.15* | *38.57* |
| Park Rynie ... ... | Ellingham Estates ... ... ... ... | 1090.9 | 895.6 | 1099.1 | 1083.3 |
| | | *42.95* | *35.26* | *43.27* | *42.65* |
| *Illovo ... ... ... | Illovo Sugar Estate Ltd. ... ... ... | 959.1 | 762.0 | 780.5 | 943.6 |
| | | *37.76* | *30.00* | *30.73* | *37.15* |
| Umbogintwini ... ... | African Explosives & Industries Ltd. ... ... | 1042.2 | 861.1 | 983.2 | 1032.3 |
| | | *41.03* | *33.90* | *38.71* | *40.64* |
| Durban (Berea) ... ... | Botanic Gardens ... ... ... ... ... | 1026.9 | 980.2 | 916.7 | 1020.3 |
| | | *40.43* | *38.59* | *36.09* | *40.17* |
| Durban (Point) ... ... | S.A.R. & H. ... ... ... ... ... | 1172.2 | 1166.4 | 935.7 | 1162.3 |
| | | *46.15* | *45.92* | *36.84* | *45.76* |
| Effingham... ... ... | Natal Estates Ltd. ... ... ... ... | 828.3 | 920.5 | 916.2 | 835.7 |
| | | *32.61* | *36.24* | *36.07* | *32.90* |
| Westbrook ... ... | Natal Estates Ltd. ... ... ... ... | 1027.9 | 1077.0 | 959.4 | 1027.2 |
| | | *40.47* | *42.40* | *57.77* | *40.44* |
| *Milkwood Kraal ... ... | Natal Estates Ltd. ... ... ... ... | 834.4 | 870.5 | 781.8 | 833.6 |
| | | *32.85* | *34.27* | *30.78* | *32.82* |
| Mount Edgecombe ... | Natal Estates Ltd. Mill ... ... ... ... | 1016.8 | 884.2 | 837.2 | 1003.8 |
| | | *40.03* | *34.81* | *32.96* | *39.52* |
| *Mount Edgecombe ... | S.A.S.A. Experiment Station ... ... ... | 932.4 | 873.0 | 863.9 | 927.1 |
| | | *36.71* | *34.37* | *34.01* | *36.50* |
| Cornubia ... ... ... | Natal Estates Ltd. ... ... ... ... | 1050.0 | 971.6 | 941.3 | 1042.2 |
| | | *41.34* | *38.25* | *37.06* | *41.03* |
| Burnside ... ... ... | Natal Estates Ltd. ... ... ... ... | 997.0 | 940.6 | 947.4 | 992.6 |
| | | *39.25* | *37.03* | *37.30* | *39.08* |
| Blackburn ... ... | Natal Estates Ltd.... ... ... ... ... | 914.4 | 900.7 | 790.0 | 908.6 |
| | | *36.00* | *35.46* | *41.10* | *35.77* |
| *Beach ... ... ... | Natal Estates Ltd. ... ... ... ... | 1061.0 | 864.6 | 792.7 | 1041.4 |
| | | *41.77* | *34.04* | *31.21* | *41.00* |
| Saccharine ... ... | Natal Estates Ltd. ... ... ... ... | 968.8 | 819.7 | 903.2 | 959.9 |
| | | *38.14* | *32.27* | *35.56* | *37.79* |
| Ottowa ... ... ... | Natal Estates Ltd. ... ... ... ... | 944.9 | 801.4 | 847.1 | 934.7 |
| | | *37.20* | *31.55* | *33.35* | *36.80* |
| *La Mercy ... ... ... | Gersigny Bros. ... ... ... ... ... | 1025.1 | 900.2 | 825.5 | 1011.7 |
| | | *40.36* | *35.44* | *32.50* | *39.83* |
| *Tongaat ... ... ... | Tongaat Sugar Co. Ltd. ... ... ... ... | 978.4 | 827.5 | 700.8 | 960.6 |
| | | *38.52* | *32.58* | *27.59* | *37.82* |
| *Sinembe ... ... ... | H. C. Heenan ... ... ... ... ... | 1045.0 | 904.5 | 805.9 | 1029.2 |
| | | *41.14* | *35.61* | *31.73* | *40.52* |
| Umhlali ... ... ... | G. P. Ladlau ... ... ... ... ... | 1090.2 | 930.9 | 911.1 | 1075.9 |
| | | *42.92* | *36.65* | *35.87* | *42.36* |
| Chaka's Kraal ... ... | Waldene Sugar Estate ... ... ... ... | 909.1 | 780.8 | 694.4 | 894.8 |
| | | *35.79* | *30.74* | *27.34* | *35.23* |

| Station. | Recorder. | Average 1929-50. mm (*ins.*) | 1951 mm (*ins.*) | 1952 mm (*ins.*) | Average 1929-52. mm (*ins.*) |
|---|---|---|---|---|---|
| Tinley Manor ... ... | Sir J. L. Hulett & Sons ... ... ... ... | 1017.5 | 907.3 | 675.1 | 998.5 |
| | | *40.06* | *35.72* | *26.58* | *39.31* |
| Riet Valley ... ... | H. E. Essery ... ... ... ... ... | 1101.9 | 933.2 | 914.1 | 1086.9 |
| | | *43.38* | *36.74* | *35.99* | *42.79* |
| Kearsney ... ... ... | Sir J. L. Hulett & Sons ... ... ... ... | 1113.3 | 945.6 | 841.8 | 1095.0 |
| | | *43.83* | *37.23* | *33.14* | *43.11* |
| Darnall ... ... ... | Mrs. Mann ... ... ... ... ... ... | 1036.6 | 962.7 | 833.4 | 1025.1 |
| | | *40.81* | *37.90* | *32.81* | *40.36* |
| *Darnall ... ... ... | Sir J. L. Hulett & Sons ... ... ... ... | 1009.4 | 876.0 | 782.8 | 994.4 |
| | | *39.74* | *34.49* | *30.82* | *39.15* |
| Mandini ... ... ... | St. Andrews Estates ... ... ... ... | 1017.0 | 799.8 | 714.5 | 995.2 |
| | | *40.04* | *31.49* | *28.13* | *39.18* |
| *Amatikulu ... ... | Sir J. L. Hulett & Sons ... ... ... ... | 983.0 | 788.4 | 813.1 | 967.7 |
| | | *38.70* | *31.04* | *32.01* | *38.10* |
| Ginginhlovu ... ... | P. C. Lilburn ... ... ... ... ... | 1110.5 | 977.6 | 881.6 | 1095.5 |
| | | *43.72* | *38.49* | *34.71* | *43.13* |
| *Mtunzini ... ... ... | G. V. W. Roberts ... ... ... ... ... | 1270.0 | 1147.1 | 1035.1 | 1255.0 |
| | | *50.00* | *45.16* | *40.75* | *49.41* |
| Eshowe ... ... ... | District Forest Officer ... ... ... ... | 1288.8 | 977.4 | 942.3 | 1261.4 |
| | | *50.74* | *38.48* | *37.10* | *49.66* |
| *Felixton ... ... ... | Sir J. L. Hulett & Sons ... ... ... ... | 1235.5 | 1027.4 | 808.5 | 1208.8 |
| | | *48.64* | *40.45* | *31.83* | *47.59* |
| *Empangeni West... ... | W. H. Simpson ... ... ... ... ... | 919.2 | 818.6 | 626.1 | 903.0 |
| | | *36.19* | *32.23* | *24.65* | *35.55* |
| Empangeni Rail ... ... | F. S. Mann ... ... ... ... ... | 1059.7 | 925.8 | 784.4 | 1042.7 |
| | | *41.72* | *36.45* | *30.88* | *41.05* |
| *Empangeni ... ... | Zululand Sugar Millers and Planters ... ... | 1060.2 | 935.5 | 787.1 | 1043.7 |
| | | *41.74* | *36.83* | *30.99* | *41.09* |
| *Kulu Halt ... ... | C. E. M. Hibberd ... ... ... ... ... | 1105.4 | 851.2 | 770.4 | 1080.8 |
| | | *43.52* | *33.51* | *30.33* | *42.55* |
| *Mposa ... ... ... | W. Springorum ... ... ... ... ... | 984.3 | 805.2 | 782.3 | 968.2 |
| | | *38.75* | *31.70* | *30.80* | *38.12* |
| Kwambonambi ... ... | S. Larsen ... ... ... ... ... ... | 1033.5 | 806.2 | 760.5 | 1012.7 |
| | | *40.69* | *31.74* | *29.94* | *39.87* |
| *Eteza ... ... ... | Haworth Bros. ... ... ... ... ... | 978.7 | 812.8 | 770.4 | 962.9 |
| | | *38.53* | *32.00* | *30.33* | *37.91* |
| *Riverview ... ... | Umfolozi Co-op Sugar Planters Ltd. ... ... | 868.4 | 579.9 | 582.9 | 844.6 |
| | | *34.19* | *22.83* | *22.95* | *33.25* |
| | MEANS... ... | 1027.4 | 891.5 | 848.8 | 1014.2 |
| | | *40.45* | *35.10* | *33.42* | *39.93* |

*Records also represented in the 54 stations weather service.

## Mean Monthly Rainfall for South Coast, North Coast and Zululand for 1951 and 1952.

| Section. | Jan. mm (*ins.*) | Feb. mm (*ins.*) | Mar. mm (*ins.*) | April. mm (*ins.*) | May. mm (*ins.*) | June. mm (*ins.*) | July. mm (*ins.*) | Aug. mm (*ins.*) | Sept. mm (*ins.*) | Oct. mm (*ins.*) | Nov. mm (*ins.*) | Dec. mm (*ins.*) | Total. mm (*ins.*) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. South Coast 1951 ... | 126.2 | 61.5 | 138.7 | 16.5 | 13.2 | 4.1 | 1.0 | 81.8 | 67.3 | 107.7 | 24.9 | 147.3 | 793.2 |
| | *4.97* | *2.42* | *5.46* | *0.65* | *0.52* | *0.16* | *0.04* | *3.22* | *2.65* | *4.24* | *0.98* | *5.80* | *31.23* |
| 1952 ... | 187.2 | 62.2 | 81.5 | 114.8 | 64.5 | 13.7 | 18.0 | 11.9 | 47.8 | 46.7 | 89.9 | 146.6 | 884.7 |
| | *7.37* | *2.45* | *3.21* | *4.52* | *2.54* | *0.54* | *0.71* | *0.47* | *1.88* | *1.84* | *3.54* | *5.77* | *34.83* |
| 2. North Coast 1951 ... | 101.1 | 56.4 | 132.8 | 41.2 | 12.4 | 27.2 | 3.0 | 151.1 | 72.4 | 92.5 | 29.5 | 184.4 | 899.4 |
| | *3.98* | *2.22* | *5.23* | *1.62* | *0.49* | *1.07* | *0.12* | *5.95* | *2.85* | *3.64* | *1.16* | *7.26* | *35.41* |
| 1952 ... | 135.4 | 64.3 | 91.2 | 67.6 | 74.9 | 9.9 | 20.5 | 30.5 | 20.3 | 47.0 | 110.7 | 135.4 | 818.1 |
| | *5.33* | *2.53* | *3.59* | *2.66* | *2.95* | *0.39* | *1.16* | *1.20* | *0.80* | *1.85* | *4.36* | *5.33* | *32.21* |
| Mean of 1 and 2 1951... | 109.0 | 57.9 | 134.6 | 33.5 | 12.7 | 9.9 | 2.5 | 129.5 | 70.9 | 97.3 | 27.9 | 172.7 | 866.1 |
| | *4.29* | *2.28* | *5.30* | *1.32* | *0.50* | *0.39* | *0.10* | *5.10* | *2.79* | *3.83* | *1.10* | *6.80* | *34.10* |
| 1952... | 151.6 | 63.8 | 88.1 | 82.3 | 71.6 | 11.2 | 26.9 | 24.6 | 29.0 | 47.0 | 104.1 | 138.9 | 838.2 |
| | *5.97* | *2.51* | *3.47* | *3.24* | *2.82* | *0.44* | *1.02* | *0.97* | *1.14* | *1.85* | *4.10* | *5.47* | *33.00* |
| 3. Zululand, including Piet Retief 1951... | 84.6 | 46.5 | 99.1 | 51.6 | 26.7 | 35.1 | 18.8 | 138.7 | 57.9 | 97.0 | 11.7 | 135.4 | 800.9 |
| | *3.33* | *1.83* | *3.90* | *2.03* | *1.05* | *1.38* | *0.74* | *5.46* | *2.28* | *3.82* | *0.46* | *5.33* | *31.53* |
| 1952... | 70.9 | 61.7 | 69.6 | 49.8 | 93.7 | 23.9 | 62.7 | 5.8 | 11.9 | 40.4 | 121.9 | 133.1 | 748.8 |
| | *2.79* | *2.43* | *2.74* | *1.96* | *3.69* | *0.94* | *2.47* | *0.23* | *0.47* | *1.59* | *4.80* | *5.24* | *29.48* |
| General Mean of 1, 2 and 3 ... 1951... | 99.1 | 53.3 | 120.4 | 40.9 | 18.3 | 26.2 | 8.9 | 134.1 | 65.5 | 97.0 | 21.6 | 157.5 | 839.7 |
| | *3.90* | *2.10* | *4.74* | *1.61* | *0.72* | *1.03* | *0.35* | *5.28* | *2.58* | *3.82* | *0.85* | *6.20* | *33.06* |
| 1952... | 118.6 | 63.2 | 80.5 | 69.3 | 80.5 | 16.5 | 41.1 | 17.3 | 22.9 | 44.2 | 111.5 | 136.7 | 803.4 |
| | *4.67* | *2.49* | *3.17* | *2.73* | *3.17* | *0.65* | *1.62* | *0.68* | *0.90* | *1.74* | *4.39* | *5.38* | *31.63* |

Discrepancies arising where the addition of the monthly totals does not equal the totals given for the year is due to the fact that a single centre in a district omitted to send in a monthly return, whereas the annual total will include this.

Italic figures indicate rainfall in inches.

### Comments on Rainfall.

The year 1952 has been another year of very unfavourable weather conditions with its meagre total of 803.4 mm (31.63 ins.) of rainfall. During the five months June to October, only 142.0 mm (5.59 ins.) was recorded, with only 67.1 mm (2.64 ins.) during the very important months of September and October when three or four times this quantity is expected. The very favourable precipitation during the last two months of the year has done much to restore the position, and prospects on the whole are satisfactory. There has been an increase in the total amount of rainfall received in the growing seasons this year over that of last, though this is very slight. On the other hand, there has been quite a falling off of rainfall in the April—September period, principally reflected on the North coast, the South coast actually scoring considerably over 1951. The main area affected by the dry winter period has been Zululand, the means for August and September, for example, being only 5.8 mm (0.23 ins.) and 11.9 mm (0.47 ins.), with nine monthly records showing no rain at all. Mkuzi was the most severely affected centre last year, with only 153.9 mm (6.06 ins.) received during the first ten months of the year. At Pongola 232.2 mm (9.14 ins.) was received over the same period. At Hluhluwe the ten months total was 340.9 mm (13.42 ins.), making the average precipitation for the whole area from Hluhluwe northwards for the ten months January to October inclusive only 242.3 mm (9.54 ins.). Fortunately the output of these areas, which are almost wholly dependent upon irrigation, amounts to only about 5 per cent. of that of the industry.

### Temperatures.

The mean screen temperature for the year at the Experiment Station was 20.6°C. (69.0°F.), which was 0.2°C. (0.3°F.) higher than the average of the past 24 years, and 0.8°C. (1.4°F.) higher than the previous year 1951.

The high mean temperature for 1952 resulted from high mean temperatures over the winter months June to August, when the mean was 0.6°C. (1.2°F.) higher than the corresponding mean for 24 years.

There were no frosts reported during the winter, the mean monthly temperature ranging from 23.5°C. (74.2°F.) in February to 17.4°C. (63.3°F.) in July, both months of the normally highest and normally lowest temperatures.

The highest screen maximum temperature recorded at the Experiment Station was 37.2°C. (99°F.), which is the first time in the past seven years that a screen temperature of 37.8°C. (100°F.) has not been reached or exceeded. The lowest screen minimum was 7.2°C. (45°F.). The mean grass temperature was 14.3°C. (57.8°F.), with an absolute minimum of 3.9°C. (39°F.) occurring in both June and July.

The temperatures of the ground at the 4 ft., 2 ft. and 1 foot depths were all slightly higher than the averages over the past 18 years.

### Atmospheric Conditions.

The mean true atmospheric pressure was 29.77 ins. showing little variation from last year and the average.

The average humidity for the year was 77.1 per cent. of saturation at 8 a.m. and 65.8 per cent. at 2 p.m., both slightly above average.

The total evaporation from a free water surface was 1153.2 mm (45.50 ins.), very slightly below the 17 years average of 1183.6 mm (46.6 ins.). Evaporation exceeded rainfall by 289.3 mm (11.39 ins.).

The total hours of sunshine for the year were 2326.2, or 53.1 per cent. of the available hours of daylight. This is only slightly below the average over the past 25 years.

### Conclusion.

Following on the disastrous drought of 1951, the year 1952 has been hardly less disappointing. Nevertheless, steady though insufficient rains over a large part of the 1951-52 growing season and moderately warm temperatures, have left the crops growing and looking well, even though they may not have made the headway they should have. Further good rains over the closing two months of the year will also have contributed to the better harvest anticipated next season.

Experiment Station,
South African Sugar Association
Mount Edgecombe.
February, 1953.

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**Mr. Dymond** said that Dr. Beater's paper formed a most valuable addition to the data available to the Sugar Industry. He said that he had in his possession weekly records of rainfall for Empangeni going back many years. In graph form these weekly figures gave the effects of rainfall on such things as rate of growth, sucrose, etc. Total rainfall figures might not mean very much. It was the distribution of the fall that really mattered. With Dr. Beater's agreement, he would pass on the figures and graphs in his possession and he suggested that these graphs might be incorporated in the annual weather survey next year. He felt that they would be useful in gaining a better picture of rainfall distribution.

**Mr. Barnes** said that rainfall was one of the several meteorological elements that affect cane.

Referring to the table of rainfall at the Experiment Station by months, he suggested the inclusion of the number of days on which the precipitation reached or exceeded the minimum which would benefit the crop. An arbitrary figure would be necessary for the effective daily rainfall. Elsewhere half an inch (say 12 mm) was used, but a lower figure might apply in Natal.

He suggested that the use of only one station to represent the whole Sugar Belt might be stretching the figures rather far. Consideration might be given to establishing two, or perhaps three, more major stations. The effect of dew deposition seemed to be overlooked. Records of maximum and minimum humidity might well be included in the annual report. Rainfall and climate affected factory performance as well as field crop results. He could not emphasise too strongly the importance of meteorology in connection with rainfall data, as a whole.

**Dr. Beater,** in reply, drew Mr. Barnes' attention to the fact that the monthly weather reports of the Experiment Station weather service detailed the number of days rainfall ranged from 0.50—0.99 ins., 1.00—1.99 ins., and 2.00 ins. and over. He agreed that there should be more weather stations, but also pointed out that the Experiment Station was climatically very centrally situated.

**Mr. Pearson** referred to irrigation and rainfall. He suggested that some means be found of adding to the data some details of wind velocity which played an important part, especially in spray irrigation.

**Dr. Beater,** in reply to Mr. Pearson, said that the Experiment Station did possess a wind aenometer at one time and that a paper by himself in the S.A.S.T.A. Proceedings for 1936 gave a fairly detailed analysis of prevailing surface winds.

**Mr. Main** said that as soil temperatures had so great a bearing on productivity he did not think that rainfall alone was a full story. He asked whether records of soil temperature were kept elsewhere than at Mount Edgecombe.

**Dr. Beater** replied that there were four other stations where soil temperature records were kept.

**Mr. Dymond** said that he was sure Dr. Beater appreciated the points that had been raised and that these would presumably be incorporated into the official data if this could be done. He then asked the meeting to accord Dr. Beater a hearty vote of thanks.