METEOROLOGICAL NOTES

RAINFALL AND CROP FIGURES

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THE North-east Monsoon rainfall at Bandirippuwa during 1950 totalled 24·31 inches which is far below the 15-year average of 31·30 inches at this station for the months October to December.

The rainfall during October was good, totalling 15·80 inches, which fell on 23 rain days. There were six days during the month registering heavy falls of over an inch.

The November and December rains, however were very much below the average accounting for the deficit in the total rainfall during the last quarter of 1950. The registered totals for these months were 5·68 ins. and 2·83 ins. respectively.

The following is a summary of the rainfall figures for the fourth quarter, recorded at six coconut-growing districts, including Lunuwila for comparison :—

Station	October 1950 (inches)	November 1950 (inches)	December 1950 (inches)	Total 4th Quarter (inches)	Total 1950 (inches)	Average 30 yrs. (inches)	Offset from average (inches)
Negombo ...	10·23	4·64	7·34	22·21	58·54	77·34	—18·80
Madampe ...	8·82	3·33	3·38	15·53	32·76	63·77	—31·01
Chilaw ...	6·53	4·54	3·57	14·64	34·89	55·58	—20·69
Puttalam ...	4·87	6·26	6·01	17·14	33·54	45·24	—11·70
Kurunegala ...	10·13	9·53	2·28	21·94	60·78	84·99	—24·21
Lunuwila ...	15·80	5·68	2·83	24·31	67·66	—	— 8·91
Average for Lunuwila (15 years) ...	12·36	13·84	5·10	31·30	—	76·57	—

It will be seen from the above table, that the rainfall totals during 1950 have been definitely low. All stations having registered significant deficits. Negombo recorded a total of only 58·54 inches for the year which is 18·80 inches below the average. Madampe, Chilaw, Puttalam and Kurunegala also showed large deficits of 31·01 inches, 20·69 inches, 11·70 inches and 24·21 inches respectively. The North-east Monsoon rains in general were fair though below average. For Chilaw and Puttalam they were higher in comparison with the previous year, with fairly even distribution.

The 6th crop at Bandirippuwa was above the average and amounted to over 11 per cent. of the year's total. The crops for the year have been as follows :—

Pick	Crop	Crop per bearing palm	Crop per acre	Per cent. of 1950 crop	Off-set from 16-year average
January-February	1st ...	6 ...	397 ...	9·1 ...	—2·8%
March-April	2nd ...	10 ...	660 ...	15·1 ...	—4·5%
May-June	3rd ...	16 ...	1,019 ...	23·2 ...	—0·1%
July-August	4th ...	16 ...	1,037 ...	23·6 ...	+2·8%
September-October	5th ...	12 ...	781 ...	17·8 ...	+4·3%
November-December	6th ...	8 ...	489 ...	11·2 ...	+0·3%
Total ...	1950	68	4,383	100·0	+9·6%

In general the crops this year (with the exception of the drought-stricken areas) have shown a general increase over the previous year. The nut equivalent of the exports for 1950 also confirms this increase.

It is usually reckoned that a drought affects coconut yields for about two years, with a maximum effect about thirteen months after the conclusion of the drought. From this point of view it is hardly necessary to emphasise the importance of *every* estate keeping its own rainfall records. The correlation of rainfall and crops should be both interesting and informative even to the small estate owner, as the intensity of rainfall does vary for short distances of even a mile or less.

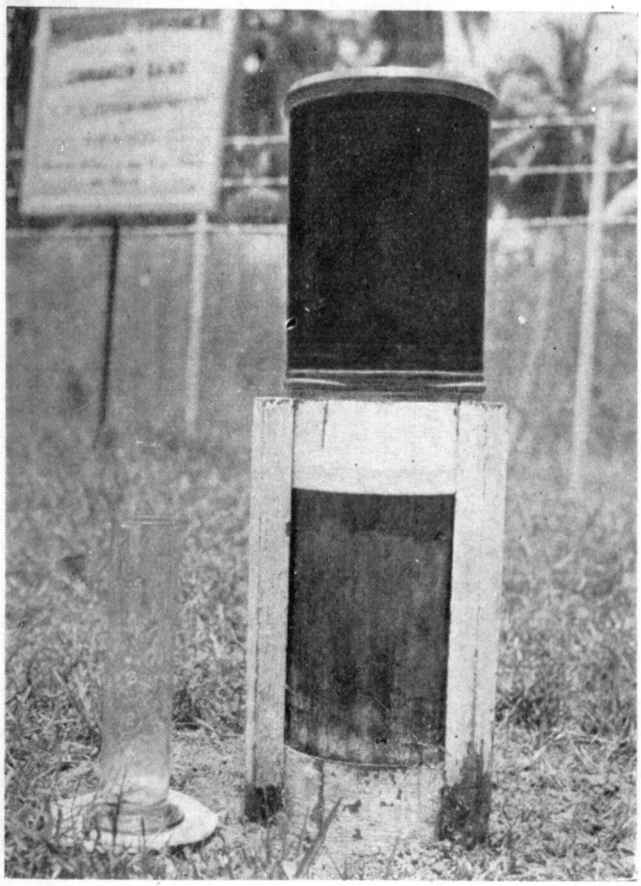
It is well-established that the amount of water transpired by a crop is a notable fraction of the total annual rainfall. Crop yield is more often limited by the water available than by lack of the other essentials of growth, namely light, heat and plant food. From these considerations it is evident that where the rainfall is poor the necessity to husband and conserve the water supply becomes imperative and essential for the service of the crop.

Rain Gauges and Rainfall Measurement

The following notes on the equipment necessary for measuring rainfall and their correct use are given to induce all estate owners to keep their own records and make them conscious of the importance of rain as it affects their crops and estate cultural operations.

Rain gauges were in use in Korea as early as the XVth Century and quotations from early Korean writings show that the earliest ones dated from 1442 A.D. The earliest records of rainfall observations were those of Perrault in Paris (1668), and Townley in Lancashire (1667), but actual details of the instrument used by these two observers are lacking. The first authentic rain-gauge was made by Mr. Hooke, of Gresham College in 1695. The rain was collected by means of a funnel (probably of glass) into a flask, when it was weighed into pounds, ounces and grains troy, and then converted into inches of rain. It was in 1722 that this laborious method of weighing and translating weights into linear measurements was overcome by the introduction of a cylindrical measure, graduated in inches and tenths.

Rain gauges of various types and sizes, round and square and with and without taps, were then made and used in various parts of the world and it was left to Mr. G. J. Symons in 1891 to sum up the advantages and disadvantages of various designs in order to arrive at a pattern which



STANDARD RAIN GAUGE

would be satisfactory and secure the necessary uniformity between all the returns. Now practically all over the world rain gauges are of two sizes, 5 inches (12·5 cm) or 8 inches (20 cm) respectively. Though the British Meteorological office adopts the 8-inch gauge, it has now been proved that the smaller size gives practically the same results as the larger one.

A simple type of rain gauge, used on some estates, is one consisting of a glass bottle fitted with a close-fitting but not air-tight funnel, specially designed to prevent water entering the bottle except through the funnel and also to minimise the loss of water by evaporation.

For more accurate recordings, the standard rain gauge, as used by the Department of Meteorology, is recommended. This is a copper cylinder in two sections. The top half is a screened funnel in which the rain is collected; the bottom half contains a can or bottle for receiving the rain water. This receiver is thus protected so that water cannot enter it except through the funnel.

A rain gauge must be placed in the open, and away from trees, walls and buildings. The gauge must be fixed firmly so that it cannot be blown over; the top of the funnel should be 18 inches above the ground and quite level. In no case should the gauge be put on the roof of a house or building where there may be irregular wind disturbance or eddies which would upset the accuracy of the recordings.

To estimate the rainfall, the water which collects in the receiver is measured each day at the same time using a specially graduated glass cylinder. These glasses are stamped " for 5-inch gauge " or " for 8-inch gauge " as the case may be, corresponding to the diameter of the funnel. The accuracy of readings depends on the exactness of the diameter of the funnel, and if its rim is bent, the results will not be correct.

ESTATE RAIN GAUGE

The rain that has collected in the can below the funnel is measured, by pouring the contents carefully, and without spilling, into the glass measure which should be placed on a table, or other horizontal surface, for steadiness, or held quite vertically. The eye must be brought to the level of the water in the glass, so as to make sure that the free water surface is read and not the line at

which the water surface touches the glass, and which (owing to surface tension) may be 0·01 inch higher up. The glass measure is graduated in tenths and hundredths, and holds 0·50 inch (or half an inch) of rain. One division equals one-hundredths of an inch and should be read as 0·01, 25 divisions as 0·25 and 50 as 0·50; if more still remains in the can, it must be measured separately, and the amounts added together. For instance, twice full up to the 50 and once to the 6, would be 0·50 + 0·50 + ·06 = 1·06 inches. The amount should always be written down before the water is thrown away, and checked by remeasurement if necessary.

Care must be taken that the measuring glass is properly emptied each time after taking an observation: any water left in is liable to be included a second time in the next measurement. It is important too, that the time of measurement should be the same each day, 8.00 a.m. being usual. The rainfall measured on a particular morning, should be entered in the register against the day previous to the recording.

Rainfall is perhaps the most important factor in the production of coconuts because of the relationship between the previous year's rains and present crops and because the best times to carry out field operations, such as manuring and cultivation, can be deduced from the readings. If coconut growers instal this simple equipment and keep regular records, they will find it both interesting and worthwhile.