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COCONUT RESEARCH SCHEME.

ANNUAL REPORT OF THE BOARD OF MANAGEMENT FOR THE YEAR 1945.

(In terms of Section 8 (2) of the Coconut Research Ordinance (Cap. 303)).

Board of Management.

On January 1, 1945, the Board of Management consisted of the following members:—

Chairman: The Acting Director of Agriculture (Mr. L. J. de S. Seneviratne, C.C.S.).

Deputy Financial Secretary: (Mr. C. E. Jones, C.C.S.).

The Chairman of the Low-Country Products Association of Ceylon (Mr. S. Pararajasingham, J.P.).

Members of the State Council nominated by His Excellency the Governor.	Mr. Dudley S. Senanayake, B.A. Mr. S. Dharmaratnam, M.S.C.
Representatives of the Low-Country Products Association.	Sir Wilfred de Soysa. Mr. Stanley Dias
Representatives of the Planters' Association of Ceylon.	Mr. W. P. H. Dias, J.P. Mr. O. B. M. Cheyne.
Representating the Small-holders nominated by His Excellency the Governor.	Mr. Graham Panditteseker a, J.P., U.M. Mr. C. A. M. de Silva

Col. C. J. Dane Lanktree, C.B.E., E.D., C.C.S., Acting Deputy Financial Secretary, was deputed by the Acting Financial Secretary (Mr. C. E. Jones) to be an *ex-officio* member of the Board from February 8. The appointment was confirmed by the Financial Secretary on June 1.

Mr. S. F. H. Perera was elected Chairman of the Low-Country Products Association in March and succeeded Mr. S. Pararajasingham, J.P., as an *ex-officio* member of the Board.

Mr. Vernon Rajapakse was nominated by the Low-Country Products Association with effect from June 21 in place of Sir Wilfred de Soysa upon the expiry of the latter's term of office.

Mr. A. Pearson was nominated by the Planters' Association of Ceylon with effect from June 8 in place of Mr. O. B. M. Cheyne upon the expiry of the latter's term of office.

Mr. S. Dharmaratnam, M.S.C., ceased to be a member of the Board of Management on September 25 in accordance with clause 8, First Schedule, of the Coconut Research Ordinance (Cap. 303). The vacancy had not been filled by the end of the year.

Eight meetings of the Board of Management were held during the year, on January 22, March 23, April 30, June 27, August 25, September 24, October 22, and December 7.

Committees.

Buildings Sub-Committee.—Personnel: Mr. Graham Panditteseker a, J.P., U.M. (Chairman), Mr. O. B. M. Cheyne, and Mr. W. P. H. Dias, J.P. At the 75th meeting of the Board of Management held on August 25, 1945, Mr. A. Pearson was elected to fill the vacancy on the Committee, consequent on the retirement of Mr. O. B. M. Cheyne. Three meetings, on January 31, May 25, and September 13, were held by the Committee during the year.

Sub-Committee for Staff-Matters.—Personnel: The Deputy Financial Secretary, Mr. C. A. M. de Silva, Mr. Vernon Rajapakse and Director of Research (Convener). The Committee was appointed at the 76th Board Meeting held on September 24. No meetings were held during the year.

Estates Sub-Committee.—Personnel: Mr. S. F. H. Perera, Mr. A. Pearson, Mr. C. A. M. de Silva, Director of Research, Geneticist, Soil Chemist, Visiting Agent and the Secretary (Convener). The Committee was appointed at the 78th meeting of the Board held on December 7. No meetings were held during the year.

2. **Staff.—**

Director of Research and Technological Chemist: Dr. R. Child, B.Sc., Ph.D. (Lond.), F.R.I.C.

Geneticist: Mr. W. V. D. Pieris, M.A. (Cantab), B.Sc. (Lond.), Dip. Agric. (Cantab.).

Soil Chemist: Dr. M. L. M. Salgado, B.Sc. (Lond.), Ph.D. (Cantab.), Dip. Agric (Cantab.).

Secretary-Accountant: Mr. S. C. Kahawita, B.Com. (Lond.).

Research Assistant to Technological Chemist: Mr. W. R. N. Nathanael, B.Sc. (Lond.).

Superintendent of Estates: Mr. P. J. Nonis.

Mechanic: Mr. R. Werapermall.

The Director of Research accompanied the Hon. Minister for Labour, Industry and Commerce by air to London on May 4 to assist in the negotiations for an increased price of copra, in connection with which he had prepared a statement on local costs of production (see last year's Report A. V.). Dr. R. Child remained on leave in England for the rest of the year, and Mr. W. V. D. Pieris, Geneticist, was appointed by the Board to act as Director of Research during his absence.

Mr. M. G. Fonseka, Field Assistant to the Soil Chemist, and Mr. T. B. Weerakoon, Director's Clerk, left the service of the Scheme in September. Mr. Y. Elikawela, Technical Assistant to the Soil Chemist, resigned his appointment at the end of the year. Mr. T. H. S. Perera, Nursery Attendant to the Geneticist, left the service of the scheme in November.

The following new appointments were made during the year:—

Mr. F. B. Perera, Field Attendant, Soil Chemist's Department, January 1.
Mr. H. W. Fernando, Nursery Attendant, Geneticist's Department, March 1.
Mr. A. B. A. Jayamaha, Field Assistant, Soil Chemist's Department, May 1.
Mr. F. H. B. Felix Silva, Temporary Clerk, June 1.
Mr. D. V. Liyanage, Technical Assistant, Geneticist's Department, August 1.
Mr. W. K. D. Rasiah, Temporary Book-keeper, September 25.
Mr. G. Rajapakse, Field Assistant, Soil Chemist's Department, December 3.
Mr. D. P. Jayamanne, Nursery Attendant, Geneticist's Department, December 15.

3. **Memorandum on the Future of the Scheme.—**

The printed copies of the Memorandum were widely circulated to bodies and persons interested. At its 76th meeting held on September 24, the Board of Management considered reports and comments from the Low-country Products Association, the Planters' Association of Ceylon, the Chilaw Planters' Association and others. A Supplement to the Memorandum, containing such amendments as were thought necessary to the original, was prepared for publication. It was decided to submit this with the original to the Hon. Minister for Agriculture and Lands.

4. **Summarised Departmental Reports.—**

It is now possible to mention one war-time activity which took up a good deal of the time of the Research Assistant to the Technological Chemist and the Technical Assistant to the Soil Chemist, namely Meteorological observations, an account of which is given in Section 7 of this report.

An appointment was made in August (see section 2 above) of a Technical Assistant to the Geneticist's Department, for the first time since the previous Assistant left in January, 1942.

A. *Technological Chemist's Department.*—

During the absence on leave of the Director, correspondence of this Department devolved on the Research Assistant, Mr. W. R. N. Nathanael. Laboratory work was confined mainly to two lines of work, (i) a study of the sugars in coconut water at different stages of maturity of the nut, and in different varieties of coconut and (ii) chemical study of the lignin fraction of coconut shells.

(i) *Sugars in Coconut Water.*—(*a*) After some preliminary experiments on random samples, analyses were carried out on coconut water at all stages of development from the first formation of a liquid-containing cavity in the small immature fruit to complete maturity.

The coconut palm produces new flowering branches at approximately monthly intervals. From the emergence of the inflorescence to complete maturity of the fruit occupies twelve or thirteen months. At any one time therefore, the palm is carrying twelve or more bunches of fruit at successive stages of development.

The method of investigation was to strip from a palm all the fruit. The volume of water in each nut was measured and on each sample of water were determined:—Total solids, sulphated ash, reducing sugars before and after inversion (by Lane and Eynon's method). This was done for two individual tall plams, one dwarf palm of Malayan origin, and one king coconut palm.

The data are too voluminous to report here and will be published elsewhere. A summary of the data for one tall palm, giving the averages bunch by bunch, is however given.

No. of bunch.	No. of nuts on bunch.	Volume of water average per nut cc.	Mean Concentrations: Total solids gm./100cc.	Sulphated ash gm/100cc.	Reducing sugars calc. as invert sugar gm./100cc.	Non-reducing sugars cal. as sucrose gm./100cc.	Total sugars gm./100cc.	Total sugars as %of total organic solids (*i.e.*, total solids less ash).
I	9	9	—	—	1·05	0	1·05	—
II	5	43	3·23	1·21	1·81	0	1·81	89·6
III	3	167	3·91	0·78	3·08	0	3·08	98·4
IV	6	328	4·79	0·66	3·98	0	3·98	96·4
V	5	428	5·20	0·49	4·68	0	4·68	99·4
VI	2	388	5·46	0·67	4·83	0.17	5·00	(100)
VII	4	376	5·76	0·67	4·25	0.68	4·93	96·9
VIII	5	317	5·35	0·64	3·16	0.71	3·87	82·2
IX	5	284	4·69	1·01	2·21	0.99	3·20	87·0
X	8	244	4·44	0·66	1·50	0.95	2·45	64·8
XI	10	231	4·41	0·57	1·01	0.96	1·97	51·3
XII	7	261	4·53	0·70	1·06	1.12	2·18	56·9

At first only reducing sugars are present and they increase from about 1.0 gm./100 cc. in the youngest fruit to a maximum of nearly 5.0 gm./100 cc. in the fifth or sixth month. Thereafter non-reducing sugars appear but the concentration of total sugars rapidly falls until in the ripe nut it is about 2.0 gm./100 cc.

At the "kurumba" stage, *i.e.*, that at which the nut water is commonly drunk as a beverage, the concentration of sugars is near or at its maximum; they consist almost entirely of easily assimilable invert sugar (see below); and the concentration of non-sugar substances in the water—such as potash salts—is at a minimum.

(*b*) *Water from Coconut Varieties.*—The nuts from a dwarf palm showed a similar cycle of changes, but non-reducing sugars made their appearance at an earlier stage.

The nuts from a Rath Thembili (King Coconut palm) again showed a similar cycle, but the sugar concentrations at the maximum were somewhat higher. At the drinking stage this palm (No. 2605 on Bandirippuwa Estate) gave "Kurumbas" containing an average of 588 cc. of water, with a concentration of reducing sugars of 5.0 gm/100 cc.; they therefore contained over an ounce of sugars per fruit.

(*c*) *Nature of the Sugars.*—Polarimetric readings are consistent with the reducing sugars being dextrose (glucose) and laevulose (fructose) and the non-reducing sugar sucrose. Moreover, treatment of coconut water from young nuts with phenylhydrazine gives good yields of glucosazone without difficulty. There seems little reason to doubt that the sugars present are dextrose, laevulose and sucrose, (cf. E. M. Caray, *Philippine Agriculturist and Forester*, 1915, **4**, 109).

(ii) *Composition of Coconut Apples.*—When the ripe coconut commences to germinate the embryo develops in two directions—the plumule or shoot grows towards the soft eye, and the other end develops a spongy growth inside the fruit cavity, known as the haustorium or familiarly as the " Coconut Apple ". The biochemistry of this is of considerable interest but has been little studied.

As a preliminary to a more extended study, and also as a corollary to the germination experiment reported in 1940 and 1941 (Sessional Papers XVI—1941, pages 4 & 6, XI—1942, pages 4 & 5) three lots of coconut apples were examined (*a*) small, from nuts three and a half months in nursery. (*b*) medium size, from nuts five months in nursery, (*c*) large, from nuts six months in nursery.

The following is a brief tabular summary of the weighted mean figures for the three classes:—

Class and approximate time in nursery.	Average weight of apple. gms.	Moisture. per cent.	Alcoholic extract. per cent.	Residue. per cent.	Reducing sugars as invert sugar. per cent.	Non-reducing sugars as sucrose. per cent.	Total sugars per cent.	Total sugars As per cent. of extract.
Small 3½ months	13·2	82·2	10·9	7·4	2·49	5·37	7·86	72·1
Medium 5 months	60·6	85·3	10·9	4·7	3·21	4·34	7·55	74·0
Large 6 months	144·8	86·8	9·6	4·1	3·23	3·35	6·58	68·5

The apple consists of " loosely connected thin-walled cells with large interspaces between them. Through it run long branching strands which form a vascular system conveying food from the apple to the young plant " (H. C. Sampson—" The Coconut Palm ", 1923, page 79). The present figures illustrate strikingly how spongy a structure the apple has, only four to five per cent. of its weight being structural or cell-wall constituents. The scale of translocation of material *via* the apple can be judged by re-calculating the above figures from percentages to grams per nut.

	Cell wall substance gms. per apple.	Non-reducing sugars gms. per apple.	Reducing sugars gms. per apple.	Other extractives gms. per apple.	Moisture gms. per apple.	Total gms.
Small	1·0	0·7	0·3	0·4	10·8	13·2
Medium	2·8	2·6	1·9	1·6	51·7	60·6
Large	5·9	4·8	4·7	3·7	125·7	144·8

(iii) *Coconut Shells* (*a*) *Tar.*—The 1928 gms. of tar oils, B.Pt., 130-230°C distilled from shell tar and referred to in last year's report, was separated by treatment with caustic soda into phenolic and non-phenolic fractions. These are being further examined.

(*b*) *Alkaline Oxidation.*—Oxidation of coconut shell in fine powder by means of nitrobenzene and caustic soda under pressure at 170°C gave a yield of mixed aldehydes of 3.8 per cent. estimated as *m*-nitrobenzo-hydrazide and calculated as vanillin. The mixed aldehydes contained vanillin and probably syringaldehyde.

Dinitrobenzene and sodium arsenate were tried as oxidising agents under similar conditions without success. Further experiments are projected.

(iv) *Miscellaneous.*—Samples examined in the course of advisory work included expeller poonac and soap. These presented no points of interest.

B. *Department of Genetics.*—

(i) *Bandirippuwa and Ratmalagara Estates*—

(*a*) *Yield Recording* at Bandirippuwa Estate was maintained on lines described in previous reports.

Dwarf Palms.—Reference was made in last year's Report, page 4, to the variability in the yield of dwarf palms. Individual records have been kept on fifteen dwarf palms since 1942 (cf. Report for 1942, Sessional Paper V—1944, page 4, para B.I. a.) and the average number of nuts per palm for a pick has ranged from as low as 1.9 to as high as 32.8. In 1945, when crops were good, the ratio of the highest to the lowest crop was approximately 11:2, whereas with tall palms on Bandirippuwa Estate the ratio averages roughly 5: 2.

Besides this variation between picks there is also a big variation from year to year. In general there is a tendency for spells of good bearing and low bearing to alternate. Further details will be given in later reports of this and from the dwarf palm area at Ratmalagara Estate.

(*b*) *Latin Square Experiment* (*Ratmalagara*).—This experimental block completed its sixth year at the end of 1945, and by this time 215 palms out of the total of 576 had come into flower. The distribution of flowering and of spathes produced among the six classes under comparison are as follows:—

A.—Selected seedlings derived from high-yielding palms.
B.—Unselected seedlings derived from high-yielding palms.
C.—Selected seedlings derived from low-yielding palms.
D.—Unselected seedlings derived from low-yielding palms.
E.—Selected seedlings derived from nuts of estate heaps.
F.—Unselected seedlings derived from nuts of estate heaps.

Distribution of Flowering, Emergence and Opening of Spathes.

	Selected Seedlings.				Unselected Seedlings.			
	A	C	E	Total.	B	D	E	Total.
No. of palms in flower	42	43	37	122	19	39	35	93
No. of spathes emergent	381	399	370	1,150	115	265	286	666
No. of spathes open	290	308	296	894	78	186	204	468

It should be noted (as was pointed out in previous reports) that " unselected seedlings " are not " rejected seedlings ", but plants taken wholesale from the nursery. If selection had been carried out on them about 50 per cent. would have fallen into the " selected " class.

A few palms were in bearing in 1945, the number of nuts harvested being as follows:

From A 29, C 25, E 14 nuts, total 69 from selected seedlings; no nuts from unselected seedlings.

Catch crops: *Pineapples.*—Reference was made in last year's report to the growing of pineapples as an inter-crop in this 12-acre clearing. In 1945 there were harvested pineapples aggregating 21,489 lb., (over 9½ tons) which were sold locally at an average of 06 cents per lb. This represents a gross income of Rs. 103.77 per acre. Further particulars will be given in later reports as successive crops are harvested. Meanwhile there is no doubt of the value of pines as a paying catch crop in new clearings, provided that adequate attention is paid to cultivation and manuring.

(ii) *Nurseries and Issue of Planting Material.*—The nurseries at Bandirippuwa and Ratmalagara Estates were fully stocked with seed nuts during the year. Demand for planting material was rather heavy and 16,429 selected seedlings and 30,400 selected seed nuts were distributed. These supplies would have been sufficient to plant at least 575 acres. During the 10-year period 1936-1945 the Coconut Research Scheme has issued 390,007 seed nuts and 122,640 seedlings.

(iii) *Co-operative Activities* (*a*) *Seed Production.*—No expansion in this line of work was possible owing to the difficulties of travelling and other exigencies.

(*b*) *Experimental Plantation No. 1.*—A fairly detailed account of the progress of this plantation from its beginning in November, 1934, to the end of 1943, was given in the Annual Report for 1943 (Sessional Paper IV.—1945, pp. 7-8), and

a supplementary note for 1944 was given in last year's report. These accounts showed that in 1940 (the sixth year after transplantation) 20 palms were in bearing out of 292, and gave an average per palm of 9.5 nuts; and that the yield increased steadily up to 1944 when all but one palm were in bearing and gave an average of 53.0 nuts per palm.

The plantation has suffered from very uneven rainfall in 1943 and 1944. In 1945, particularly during the inter-monsoon period, leaf droop was observed and immature nut fall was heavy. In an effort to minimize the effects of drought, husk burying in trenches along the rows of the palms was completed in the whole block by the end of the year.

The drought effects were also shown by a set-back in the yield, the average per palm falling back to 40.7. The following table gives the yield figures from 1940-1945 inclusive:—

Period after transplantation.	Year.	No. of palms in bearing.	Per cent. of total No. (292).	No. of nuts.	Average per palm.	Average per acre.
6th year	1940	20	6·8	191	9·5	36
7th year	1941	159	54·4	2,440	15·3	460
8th year	1942	247	84·6	11,320	45·8	2136
9th year	1943	288	98·6	14,880	51·7	2807
10th year	1944	291	99·7	15,410	53·0	2908
11th year	1945	291	99·7	11,835	40·7	2233

In the frequency distributions of palms in relation to their yields, only 35 palms or 12 per cent. of the bearing palms yielded over 60 nuts and only 3 palms produced more than 90 nuts in 1945, whereas during 1943 121 palms or 42 per cent. of the bearing palms yielded over 60 nuts and 12 palms over 90 nuts.

C. *Soil Chemist's Department.*—

1. *Field Experiments.*—(i) *NPK Experiment—Bandirippuwa Estate.*

The sixth biennial application of manure was carried out in November, 1945.

(*a*) The yield data for 1945, the tenth year of the experiment, are as follows:—

	Lb. copra per acre.	Calculated as percentage.
N_0	1609	100
N_1	1673	104·0
N_2	1628	101·2
P_0	1658	100
P_1	1616	97·5
P_2	1635	98·6
K_0	1386	100
K_1	1715*	123·7
K_2	1808*	130·4

* Significant at P·01 : Significant difference 112 lb. per acre.
NK Interaction is barely significant.

(*b*) *The Nitrogen Response.*—In the report for 1944 the progressive increase in yield due to potash manuring for the 9-year period was recorded.

The increments of yield due to Nitrogen manuring expressed as lbs. copra per acre are summarised below:—

Year.	Since First Manuring.	$N_1 - N_0$	$N_2 - N_0$	Significant difference.
1937	II	86	212*	115
1938	III	121†	100†	93
1939	IV	80	4	81
1940	V	114	132	139
1941	VI	126†	80	104
1942	VII	159†	84	143
1943	VIII	113	19	141
1944	IX	76	5	146
1945	X	64	19	112

* Significant at P ·01 † Significant at P ·05

N_1—N_0 is the response at the lower level of Nitrogen (0.5 lb. Nitrogen per palm); N_2—N_0 response at the higher level (1 lb. Nitrogen per palm).

Since 1934, when the experiment was first laid down, cattle were never allowed within the experimental block. Manures were applied biennially, and simultaneously with manuring the land was ploughed; and subsequently if pasture and weed growth was thick it was disc-harrowed twice or thrice at the beginning of the dry season.

The data indicate a highly significant response, equivalent to 212 lb. copra per acre, to the higher level of nitrogen application in the second year after the first manuring, which declined in the third year; subsequently there has been no significant response at the higher level, but even a depression of yield.

Even at the lower level, no significant responses have been observed since 1942 (the seventh year after the first manuring). It appears probable that under the system of grassland management adopted there is an accumulation of nitrogen such that further applications in the form of artificials are excessive and cause a depressing effect on yields.

(ii) *Co-operative Experiments.—(a) Southern Province (Ahangama) & Western Province (Siyane Korale).*

The following Table summarises the results of the sixth year of these two manurial experiments:—

Southern Province.

Treatments.	Nuts per acre.	Lb. copra per acre.	Per cent.	Copra out-turn.
O	939	441	100	1,192
NK	1,578	828	188	1,067
NPK	2,438	1,287	292	1,061
NPK-O	1499	846	192	131

Western Province.

Treatments.	Nuts per acre.	Lb. copra per acre.	Per cent.	Copra out-turn.
O	847	289	100	1,641
NK	942	346	119	1,525
NPK	1,966	806	278	1,365
NPK-O	1119	517	178	266

In the report for 1944 it was mentioned that chemical analyses of soil samples had shown a considerable accumulation of available phosphoric acid in the NPK plots of the above two experiments. It was therefore, decided to study the effect of omitting Phosphoric acid from the NPK plots and adding this constituent to the NK plots. This was carried out during the application of manure in the Western Province experiment in November, 1945.

Influence of Manuring on Female Flowers and Setting of Nuts.—In the previous year's report data showing the influence of manuring on the development and setting of female flowers for 2 picks were recorded.

The following are the data for 6 picks of the Western Province experiment:—

Totals of 12 plots of 18 palms each.

Treatment.	Pick I. Nuts.	Pick I. Female flowers.	Pick I. Per cent. set.	Pick II. Nuts.	Pick II. Female flowers.	Pick II. Per cent. set.	Pick III. Nuts.	Pick III. Female flowers.	Pick III. Per cent. set.
O	277	433	64·0	419	802	52·3	520	872	59·6
NK	261	388	67·3	306	640	61·9	566	784	72·2
NPK	921	1,715	53·7	1,155	2,266	51·0	1,468	2,259	65·0

Treatment.	Pick IV. Nuts.	Pick IV. Female flowers.	Pick IV. Per cent. set.	Pick V. Nuts.	Pick V. Female flowers.	Pick V. Per cent. set.	Pick VI. Nuts.	Pick VI. Female flowers.	Pick VI. Per cent. set.
O	1,086	1,868	58·1	825	1,868	44·2	593	1,356	43·7
NK	1,234	1,809	68·2	934	1,850	50·5	746	1,654	45·1
NPK	2,411	3,832	62·9	1,605	4,251	37·8	1,072	3,488	30·7

(*b*) *Manurial Experiments on young Palms—Nattandiya.*—One leaf count for the year was carried out in July, 1945. The mean number of leaves developed per palm for the period March, 1944 to July, 1945, is recorded below:—

	O	NK	NPK	Mean
O	10·99	11·14	11·19	10·81
Cover	9·93	9·35	10·48	9·92
Mean	10·01	10·25	10·83	10·37

None of the manurial treatments nor the "Cover" *vs.* "No Cover" treatment is significant.

The annual application of manure was carried out in May, 1945.

(iii) *NPK Cultivation Experiment (Ratnapura).*—Two years' yield recording was completed in June, 1945. The second biennial application of manure and the ploughing *vs.* no ploughing treatment was carried out in June.

It is yet too early to report any conclusive results from this experiment.

(iv) *Cover Crop Experiment (Bandirippuwa).*—Application of manure was done in June, the manure being broadcast on the cover and disc-harrowed. The main yields for the treatments expressed as lb. copra per acre statistically analysed and corrected by the method of co-variance are recorded below:—

Treatment.	2nd Year 1938–39.	3rd Year 1939–40.	4th Year 1940–41.	5th Year 1941–42.	6th Year 1942–43.	7th Year 1943–44.	8th Year 1944–45.
No Cover NPK	1,406	1,185	1,369	1,406	1,974	1,674	2,038
Cover K	1,207	624	1,266	1,185	1,875	1,417	1,936
Cover NK	1,200	782	1,340	1,164	1,894	1,453	1,943
Cover PK	1,193	631	1,218	1,072	1,813	1,442	2,008
Cover NP	1,233	738	1,127	1,145	1,618	1,303	1,602
Cover NPK	1,241	829	1,365	1,270	2,030	1,556	2,091
Standard error	106·1	81·5	91·4	174·3	173·6	182·4	255·9
Significant Difference P·05	126·2	96·9	109·0	207·0	206·3	216·9	304

(v) *Laboratory Investigations.*

(*a*) *Dry milled coir fibre dust.*—A sample of dry milled coir fibre dust from a local mill was examined. In this process the husks are not retted in water, but milled in the dry condition in a special machine. The dust should therefore retain the bulk of the potash.

The sample as received contained 19.7 per cent. fibre and 80.3 per cent. coir dust.

The analytical determinations were carried out on the fibre-free coir dust:—

	Per cent. on fibre-free dust.	Per cent. of original material (neglecting K_2O, &c., in fibre.)
Moisture	43·00	34·52
Total potash (K_2O)	0·74	0·59
Water soluble potash	0·43	0·35
Water soluble potash as percentage of "Total"	58·10	58·10

Ordinary coir dust from husks that have been retted contains about 0.1 per cent. potash, in a form that is not easily available. The whole of the water soluble potash is leached in the process of retting. Dry milled dust is bulky and cost of transport would be heavy if it has to be used as a potash manure at some distance from the mill. It can, however, be used with benefit on estates close to the site.

(*b*) *Available Phosphoric Acid Studies.*—In continuation of the work recorded in previous reports work on the available phosphoric acid of soil samples of the manurial experiments was continued.

In the third biennial sampling of the soils of the plots of the Ahangama Experiment to which three applications of 2 lb. of Saphos phosphate had been made, the available phosphoric acid had risen to 310 p.p.m. compared to 150 p.p.m. 2 years previously.

In the manurial plus cultivation experiment at Ratmalagara the plots to which one application of 3 lb. Saphos phosphate had been made, showed an accumulation of 106 p.p.m. of phosphoric acid compared to 40 p.p.m. before the first application of this constituent 2 years previously.

The P_0 plots of the NPK experiment at Bandirippuwa estate to which no phosphoric acid had been applied since 1935 showed in 1945 an available phosphoric acid content of 17 p.p.m.

5. (i) **Publications.—**

Report and Accounts of the Coconut Research Scheme for 1943. Ceylon Government Sessional Paper IV., 1945. May 14, 1945.

Memorandum of the Board of Management on the Future of the Coconut Research Scheme. Pp. iv. + 21, with five tables.

W. V. D. Pieris: "Regeneration of Coconut Plantations". Coconut Research Scheme Bulletin No. 5. Pp. 20. May, 1945 (also Sinhalese and Tamil versions).

W. V. D. Pieris: "The Plantain and Banana as Food Crops on Coconut Soils", *Times of Ceylon*, August 6, 1945. (Reprinted; also a Sinhalese version).

M. L. M. Salgado: "Notes on the Manuring of Coconut Palms". Coconut Research Scheme Leaflet No. 12. Pp. 9.

M. L. M. Salgado: "Recent Studies on the Manuring of Coconuts in Ceylon". (Paper read before the Ceylon Association of Science. Submitted for publication in the *Tropical Agriculturist*, Ceylon).

R. Child: "Stability of Wijs' Solution in the Tropics", *Industrial and Engineering Chemistry, Analytical Edition*, 1945, **17**, 530.

(ii) *Library.*—On December 31, 1945, the Library contained 630 books and 1,054 bound volumes of periodicals (including 124 loaned by the Director of Research). Good progress was made in filling gaps caused by losses of Journals in transit, but binding complete volumes had fallen somewhat into arrears, owing to shortage of material. The usual general acknowledgement is made here to Government Departments and Research Organizations overseas which continue to send exchange publications.

Visitors are welcome to use the Library for reference on week-days between 9 A.M. and 12 NOON and 2 to 4 P.M. (Saturday 9 A.M. to 12 NOON; not on Sundays and Public holidays).

6. **Meetings.—**

The Director of Research attended the Annual Meeting of the Low-Country Products' Association on March 23, and of the Chilaw Planters' Association on March 24.

The Soil Chemist read a paper entitled "Recent Studies on the Manuring of Coconuts in Ceylon" before Section B of the Ceylon Association of Science on May 18, 1945.

The Acting Director of Research attended a meeting of the Low-Country Products Association on August 1 to discuss the Memorandum on the Future of the Scheme. He maintained close touch with them and other Associations on the Memorandum and attended meetings where possible.

THE ESTATES.

7. **Bandirippuwa Estate.—**

Owing to labour shortage, especially of skilled pickers, only four crops were collected during 1945:

	Nuts from estate blocks.	Nuts from research blocks.	Total.
April ..	112,454	32,108	144,562
June ..	105,464	27,922	133,386
September ..	116,306	30,469	146,775
November ..	55,901	19,067	74,968

In addition 22,411 fallen nuts collected from the Estate area early in January, 1946, were taken into the 1945 crop returns.

In order to maintain as far as possible the comparison with equivalent crops of previous years, the April crop was divided arbitrarily into two—Crop I, 67,054 (based on the 1931-1942 first crop average) and Crop II, 77,508. The 22,411 fallen nuts referred to were taken as crop VI. The comparative figures are then as follows:—

Crop No.	1940.	1941.	1942.	1943.	1944.	1945.	Average 1931–1944.
1 ..	78,668 ..	56,190 ..	41,622 ..	85,010 ..	61,700 ..	67,054 ..	67,954
2 ..	131,131 ..	125,842 ..	99,426 ..	124,024 ..	113,369 ..	77,508 ..	110,921
3 ..	100,682 ..	158,627 ..	159,575 ..	168,904 ..	132,069 ..	133,386 ..	132,314
4 ..	88,210 ..	123,534 ..	138,156 ..	128,278 ..	145,007 ..	146,775 ..	117,043
5 ..	72,009 ..	87,094 ..	80,318 ..	100,712 ..	84,211 ..	74,968 ..	77,705
6 ..	47,816 ..	55,070 ..	64,113 ..	50,365 ..	92,891 ..	22,411 ..	63,968
	518,516	606,357	583,210	657,293	629,247	522,102	569,905

The revenue from Bandirippuwa estate actually accruing in 1945 was:—

Revenue from Estate Management.

	Rs. c.	Rs. c.
Crops 1944 ..	3,646 1	
		3,646 1
Crops 1–3, 1945—		
Sale of copra ..	8,915 73	
Sale of nuts ..	12,289 9	
Sale of shells ..	84 0	
Sundries ..	68 26	
		21,357 8
Sale of food crops ..	26 48	
Seednuts to Nursery account 16,011 at 7½ cents each and 2,964 at 9 cents each ..	1,467 58	
		1,494 6
		26,497 15

Revenue from Research Management.

	Rs. c.	Rs. c.
Crops 1944 ..	2,908 99	
		2,908 99
Crops 1–3, 1945—		
Sale of copra from experiments ..	3,255 48	
Sale of nuts ..	663 97	
		3,919 45
		6,828 44

Total gross revenue in 1945 was thus Rs. 33,325.59 which may be summarized as follows:—

	Rs. c.	Average price.
Sale of 44 tons 10 cwt. 40 lb. copra realising ..	13,887 54	Rs. 77·91 per candy
Sale of 301,136 nuts realising ..	17,791 73	Rs. 59·08 per 1,000 nuts
Sale of 42,000 shells realising ..	84 0	Rs. 2·0 per 1,000 shells
Sale of seednuts to nursery ..	1,467 58	
Sale of food crops ..	26 48	
Sundries	68 26	
	33,325 59	

Expenditure for the year totalled Rs. 11,583.35 for the estate area, Rs. 2,839.11 for the research area. Estate receipts, therefore, exceeded expenditure by Rs. 13,419.74 and research receipts exceeded expenditure by Rs. 3,989.33.

Cost of production of nuts on the estate area (including copra curing, transport expenses, and depreciation on copra kiln) was Rs. 28.07 per 1,000 nuts.

Sundry Debtors and Creditors Account.

Of the income actually accruing in 1945 and included in the above statement, Rs. 3,646.01 (estate) and Rs. 2,908.99 (research) from 1944 crops, had been credited to the Estate Working Account for 1944 through Sundry Debtors Account. The Estate Working Account for 1945 does not, therefore, include these sums.

The following amounts have been credited to the Estate Working Account on account of 4th and 5th crops lying unsold at the end of the year:—

	Rs.	c.
1945 4th and 5th crops Estates	6,098	6
1945 4th and 5th crops Research	2,267	67
	8,365	73

The Bandirippuwa Estate Working Account for 1945 thus shows a balance carried forward to Revenue of Rs. 21,513.94.

Meteorological Observations at Bandirippuwa Estate.—The usual records were kept and daily telegrams and monthly abstracts sent to the Colombo Observatory, in reports from which the Station is referred to as LUNUWILA. Rainfall in 1945 totalled 72.13 inches falling on 127 rainy days; wet days (0.04 inches or more) numbered 99. The corresponding figures for 1944 were 91.47 inches falling on 191 rainy days (144 wet days).

The first part of the year was marked by severe drought; between December 23, 1944, and March 24, 1945, only 0.50 inches of rain fell. Rainfall to the end of September only totalled 27.94 inches. Unusually heavy rain fell in October (26.83 inches).

War-time Emergency Meteorological Readings.—Weather readings extra to the routine observations twice daily were commenced in 1942:—

(*a*) Current Weather Observations at the request of the Observatory for the purpose of supplying meteorological information to the Indo-Ceylon Air Service from January 1, 1942.

(*b*) Extra observations for Service requirements from May 1, 1942.

Times of observations and addressing of telegrams was modified from time to time, but by September, 1942, the following was the usual daily programme:—

0600 h ..	Service readings telegraphed.
0830 h ..	Aviation readings telegraphed.
0900 h ..	Routine observations telegraphed to observatory.
1200 h ..	Service readings telegraphed
1500 h ..	Service readings telegraphed.
1630 h ..	Routine observations, not telegraphed.
1800 h ..	Service readings telegraphed.

All times Ceylon Advanced Time, which was from September 1, 1942 until October 15, 1945, one hour in advance of Standard Time. With small modifications this daily programme was maintained without a break until the Service readings were discontinued on November 1, 1945.

The bulk of the observations were taken by the Technical Assistants, Mr. W. R. N. Nathanael (who was in general charge for the whole period) and Mr. E. Chinnarasa (until he left the Scheme's service in February, 1943). Assistance was also given by Dr. R. Child, Mr. P. J. Nonis, Mr. W. Nanayakkara, Mr. Y. Elikawela, Mr. W. D. Frederick and Mr. D. V. Liyanage.

It is a matter of satisfaction that the station maintained this emergency service without missing a single observation during the period of three and a half years.

8. *Ratmalagara Estate.*—As at Bandirippuwa Estate, there was difficulty with labour, especially pickers. Only five, instead of the usual six, crops were taken. For comparative purposes the crop taken in October is reckoned as combining the usual 4th and 5th crops.

Crop No.	1938.	1939.	1940.	1941.	1942.	1943.	1944.	1945.	Average 1938–44.
1	30,896*	23,752	22,302	29,153	21,716	25,504	33,163	36,706	26,641
2	28,130	26,413	16,391	38,285	26,478	37,197	52,912	47,987	32,258
3	37,413	30,160	28,233	49,339	39,218	55,008	64,634	61,248	43,429
4	44,180	34,278	25,704	60,232	44,584	56,378	58,152	74,366	46,215
5	34,573	32,515	37,000	45,606	39,205	48,978	52,719		41,514
6	20,945	23,865	20,800	29,682	22,985	36,230	29,066	28,473	26,221
	196,137	170,983	150,430	252,297	194,161	259,295	290,646	248,780	216,278

* Harvested by previous owner.

The revenue actually accruing during the year was:—

Revenue from Estate Management.			*Revenue from Research Management.*		
Crops 1944 nuts ..	1,196 0		Crops 1944 nuts ..	260 0	
		1,196 0			260 0
Crops 1–4, 1945—	Rs. c.	Rs. c.	*Crops* 1–4, 1945—	Rs. c.	Rs. c.
Sale of copra ..	4,269 88		Sale of copra ..	1,450 36	
Sale of nuts ..	7,189 94		Sale of nuts ..	1,309 73	
Sundries ..	262 0		Refund on account of citrus nursery and rubber seed garden ..	298 11	
		11,721 82			3,058 20
Sale of foodcrops ..	933 15		Sale of pineapples ..	1,245 26	
		933 15			1,245 26
		13,850 97			4,563 46

Total gross revenue in 1945 was thus Rs. 18,414.43 which may be summarized as follows:—

	Rs. c.	Average price.
Sale of 17 tons 3 cwt. 24 lb. copra realising ..	5,720 24	Rs. 80·52 per candy
Sale of 163,863 nuts realising ..	9,955 67	Rs. 60·75 per 1,000 nuts
Sale of 21,489 lb. of pineapples realising ..	1,245 26	Rs. 00·06 cents per lb.
Sale of food crops	933 15	
Refund on citrus nursery and rubber seed garden	298 11	
Sundries	262 0	
	18,414 43	

Expenditure for the year totalled Rs. 10,414.66 for the Estate area, Rs. 2,131.31 for the Research area, and Rs. 283.63 on growing food crops.

Cost of production of nuts on Estate area was Rs. 50.91 per 1,000 nuts.

SUNDRY DEBTORS AND CREDITORS ACCOUNT.

Of the income actually accruing in 1945 and included in the above statement, Rs. 1,196 (Estate) and Rs. 260 (Research) from 1944 crops, had been credited to the Estate Working Account for 1944 through Sundry Debtors Account. The Estate Working Account for 1945 does not, therefore, include these sums.

The following amounts have been credited to the Estate Working Account on account of 5th crop lying unsold at the end of the year:—

	Rs. c.
1945 5th crop Estate	1796 64
1945 5th crop Research	426 66
	2,223 30

The Ratmalagara Estate Working Account for 1945 thus shows a balance carried forward to Revenue of Rs. 6,352.13.

Weather Records.—Records of rainfall and of hours of bright sunshine (Campbell-Stokes recorder installed in January, 1941) were kept as usual and monthly statements sent to Colombo Observatory. In 1945, rainfall totalled 57.15 inches on 93 rainy days compared with 62.63 inches on 123 rainy days in 1944. Very dry conditions prevailed for most of the first nine months of the year; no measurable rain fell in January and February, only 0.35 inches in August and September, whilst the total to the end of September was only 20.71 inches. Heavy rain fell in October and early November.

Hours of bright sunshine averaged daily 7.7 as compared with 6.9 in 1944 and 6.7 in 1943.

9. **Visiting.—**

Mr. B. Parker, Visiting Agent, inspected the estates on 20/21st November, 1945, and his reports were circulated to the Board of Management.

10. **Finance.—**

The audited statements of accounts for 1945 are appended.

D. RHIND,
Director of Agriculture, and Chairman,
Board of Management, Coconut
Research Scheme.

7th February 1948.

Statement of Receipts and Disbursements for the Year ended December 31, 1945.

RECEIPTS.	Rs.	c.	DISBURSEMENTS.	Rs.	c.
Balance at January 1, 1945	37,855	24	Capital Account:		
A.—Revenue Account:			New clearing	628	74
Annual grant from Government	30,000	0	Laboratory equipment	285	7
Cess collections for 1945	45,695	9	Depreciation reserve	10,222	57
Interest	4,044	82	Estate draught animals	1,800	0
Income from Bandirippuwa estate—			Personal emoluments:		
Estate area	20,405	99	Salaries to senior staff	44,440	0
Research area	5,522	25	Salaries to junior staff	19,528	40
Income from Ratmalagara estate—			Rent allowance	1,102	7
Estate area	12,654	97	War allowance	15,009	76
Research area	4,245	50	Provident fund bonus and interest for 1945	6,638	13
Sale of planting material	11,003	57	Other charges:		
Charges to staff for electricity	746	83	Travelling expenses to staff	7,385	49
Sundry receipts	212	57	Travelling expenses to board members	2,884	17
Sale of publications	34	25	Office: Entertainment allowance	35	0
Rental for telephone	44	28	Stationery	725	6
Advance Account:			Postages	854	8
Repayments of loan by staff	550	48	Cost of audit	933	44
Interest on above loans	9	32	Printing and advertising	1,967	42
Rice, sugar and chillies	2,812	52	Legal expenses	159	0
Kerosene oil	72	28	Incidental expenses	641	58
Bulbs	83	48	Telephone rental	399	28
General stores	167	77	Workmen's Compensation Insurance	83	40
Fertilizer's advance account	39	35	Maintenance of office equipment	328	20
Reserve Account:			Laboratories:		
Staff contributions to provident fund	4,651	88	Upkeep, chemicals, &c.	2,008	16
Scheme's bonus and interest	6,638	13	Scientific books and periodicals	2,291	51
Sundries:			Buildings:		
Suspense account creditors	883	70	Upkeep	6,335	32
Sundry debtors	15,916	68	Insurance	539	44
			Running expenses of electrical plant	2,594	10
			Estates—Bandirippuwa estate:		
			General charges	3,210	73
			Upkeep	1,434	36
			Cultivation and manuring	1,116	84
			Collection	1,650	9
			Ratmalagara estate:		
			General charges	3,252	13
			Upkeep	1,970	27
			Cultivation	1,204	16
			Collection	869	89
			Research:		
			General	529	59
			Genetical work	3,078	82
			Soil chemist's work	5,949	65
			Purchase of planting materials	8,649	17
			Advance Accounts:		
			Rice, sugar and chillies	2,719	1
			Kerosene oil	76	8
			General stores	371	75
			Fertilizers	4,653	1
			Bulbs	198	30
			Investments:		
			Home defence loan	5,000	0
			Ceylon Savings Bank	2,982	66
			Ceylon savings certificates	721	12
			Sundries:		
			Loans to staff	445	0
			Sundry creditors	175	0
			Refund of provident fund contribution	1,237	64
				181,314	66
			Balance at December 31, 1945 No. 1 a/c.. 12,582 85		
			Add shortage .. 2,393 44		
			14,976 29		
			No. 2 account .. 6,000 0		
			Petty cash imprest .. 2,000 0		
			22,976 29		
	204,290	95		204,290	95

S. C. KAHAWITA,
Secretary-Accountant,
Coconut Research Scheme.

Ratmalagara Estate Working Account for the Year ended December 31, 1945.

EXPENDITURE.	Rs. c.	Rs. c.	INCOME.	Rs. c.	Rs. c.
To Estate expenses :			By Sale of products :		
Salaries of superintendent, conductor and watchers ..	2,587 64		(*a*) Estate area :		
General charges ..	2,150 33		Sale of nuts ..	8,950 90	
Upkeep	1,970 27		Sale of copra ..	4,305 56	
Cultivation	367 57		Food crops ..	933 15	
Manuring	2,468 96		Sundries	262 0	
Picking and collection ..	869 89				14,451 61
		10,414 66	(*b*) Research area :		
Research expenses :			Sale of copra ..	1,450 36	
General	371 18		Sale of nuts ..	1,736 39	
Genetical work ..	182 61		Food crops—Pines ..	1,245 26	
Soil chemist's work ..	1,577 52				4,432 1
		2,131 31	Refunds :		
Food crops	283 63		Expenses on citrus nurseries	73 5	
		283 63	Lease rental : Rubber seed garden	225 06	
Balance carried forward to revenue account ..		6,352 13			298 11
		19,181 73			19,181 73

Bandirippuwa Estate Working Account for the Year ended December 31, 1945.

EXPENDITURE.	Rs. c.	Rs. c.	INCOME.	Rs. c.	Rs. c.
To Salaries :			By Estate :		
Superintendent, conductor and watchers including War and and rent allowance and conductor's allowances ..	3,622 68		Sale of nuts	17,466 40	
General charges ..	2,086 47		Sale of copra	9,836 48	
Manuring	1,838 87				27,302 88
Cultivation	513 59		Research :		
Upkeep	1,434 36		Sale of copra ..	7,689 62	
Collecting and picking ..	1,820 53		Sale of nuts ..	765 16	
		11,316 50			8,454 78
Research :			Food crops ..		26 48
General	101 98		Sundries		152 26
Genetical work ..	316 10				
Soil chemist's work ..	2,421 3				
		2,839 11			
Depreciation on copra drier ..		266 85			
Balance carried forward to revenue account ..		21,513 94			
		35,936 40			35,936 40

Nursery Working Account for the Year ended December 31, 1945,

	Rs. c.	Rs. c.		Rs. c.	Rs. c.
To Purchase of seednuts ..		5,280 70	By Sale of planting material :		
Transport of seednuts and seedlings		1,064 44	Seednuts	6,540 15	
Payments to nursery attendants :			Less refunds	1,000 0	
Salaries	1,113 72				5,540 15
War allowances ..	955 52		Seedlings	4,178 57	
Rent allowances ..	68 94		Less refunds	365 0	
Travelling	684 14				3,813 57
		2,822 32	Sundry debtors ..		3,960 0
Repairs to Nursery Hut ..		25 25	Refund of transport expenses ..	284 85	
Advertising		60 0	Less refund	100 0	
Working expenses of nurseries		1,615 34			184 85
Balance carried forward to revenue account ..		2,630 52			
		13,498 57			13,498 57

Revenue Account for the Year ended December 31, 1945.

EXPENDITURE.	Rs. c.	Rs. c.	INCOME.	Rs. c.
Personal emoluments :			By Government grant for 1945 ..	30,000 0
Salaries of senior staff ..	44,440 0		Cess collections for 1945 ..	51,198 30
Salaries of junior staff ..	14,656 28		Interest	4,770 2
Provident fund contribution and interest ..	6,638 13		Charges to staff for electricity ..	746 83
Rent allowance for 1945 ..	747 29		Sundry receipts	212 57
War allowance for 1945 ..	12,786 47		Sale of publications	34 25
		79,268 17	Balance from—	
Other charges :			Bandirippuwa estate working account ..	21,513 94
To Travelling staff ..	7,385 49		Ratmalagara estate working account ..	6,352 13
Travelling Board members ..	2,884 17		Nursery working account ..	2,630 52
		10,269 66	Excess expenditure over revenue ..	9,881 74
Office :				
To Stationery	725 6			
Postage	893 83			
Printing and advertising ..	1,967 42			
Legal expenses ..	159 0			
Incidental expenses ..	641 93			
Telephone	355 0			
Entertainment allowance ..	35 0			
Workmen's Compensation Insurance	83 40			
Maintenance of office equipment	328 20			
Cost of audit	933 44			
		6,122 28		
Laboratory :				
Upkeep, chemicals, &c. ..	2,089 22			
Scientific books and periodicals	2,291 51			
		4,380 73		
Buildings :				
Upkeep	7,025 74			
Insurance	539 44			
Running expenses of electrical plant	2,776 89			
		10,342 7		
Research :				
To Research I.	356 43			
Research II	3,710 15			
Research III	4,799 64			
		8,866 22		
Depreciation reserve :				
Buildings, accumulators and gas plant		7,091 17		
Passage fund		1,000 0		
		127,340 30		127,340 30

Capital Expenditure Account during 1945.

	Rs. c.		Rs. c.
To New clearing, Ratmalagara Estate ..	628 74	By Balance carried forward to Balance Sheet..	2,713 81
Laboratory equipment	285 7		
Estate animals	1,800 0		
	2,713 81		2,713 81

Balance Sheet as at December 31, 1945.

LIABILITIES.	Rs. c.	Rs. c.
Capital outlay:		
Previously ..	.. 603,392 6	
In 1945 ..	.. 2,713 81	
		606,105 87
Passage fund:		
Previously ..	.. 1,695 11	
In 1945 ..	.. 1,000 0	
		2,695 11
Provident fund:		
At December 31, 1944	.. 45,275 66	
In 1945 ..	.. 11,290 1	
	.. 56,565 67	
Less refunds 1945	.. 1,237 64	
		55,328 3
Depreciation reserve:		
At December 31, 1944	.. 112,250 32	
Less contribution to revenue	.. 10,680 82	
Added in 1945	.. 101,569 50	
	.. 7,358 2	
		108,927 52
Sundry creditors:		
Sundries ..	.. 2,569 6	
Suspense account	.. 883 70	
		3,452 76
Surplus:		
Previously ..	.. 32,770 87	
Less capital expenses	.. 2,713 81	
	30,057 6	
Less excess of expenditure over revenue	.. 9,881 74	
		20,175 32
		796,684 61

ASSETS.	Rs. c.	Rs. c.
Buildings ..	..	203,874 3
Estates:		
Bandirippuwa	..	187,554 68
Ratmalagara ..	..	73,138 0
Animals ..	..	1,800 0
Improvement to estates:		
Previously ..	.. 8,313 39	
In 1945 ..	.. 628 74	
		8,942 13
Buildings:		
Copra kiln B. E.	.. 4,067 26	
Copra kiln R. E.	.. 1,432 91	
		5,500 17
Lab. buildings ..	..	64,297 31
Equipment:		
Previously ..	.. 31,959 68	
In 1945 ..	.. 285 7	
		32,244 75
Gas plant ..	..	3,436 83
Bungalow furniture:		
Previously ..	..	5,398 44
Office furniture	..	2,139 72
Accumulators..	..	17,503 61
Museum ..	..	276 20
Sundry debtors:		
Cess due ..	.. 5,503 21	
R. S. garden ..	.. 46 18	
Citrus nurseries	.. 11 78	
B. E. working account	.. 8,385 97	
R. E. working account	.. 2,223 30	
N. W. account	.. 3,960 0	
Accrued interest	.. 684 25	
Research III ..	.. 312 25	
		21,126 94
Advance account:		
Fertilisers ..	.. 2,386 82	
Rice, &c. ..	.. 441 4	
Transport, &c.	.. 195 95	
Bulbs ..	.. 158 91	
General stores	.. 145 21	
		3,327 93
Investments:		
C. C. 3½ per cent.	.. 59,400 0	
H. D. loan ..	.. 15,000 0	
New loan ..	.. 20,000 0	
		94,400 0
P. F. investments:		
B. C. S. D.	.. 10,000 0	
C. S. certificates	.. 18,811 92	
C. S. B. ..	.. 14,935 66	
Home defence loan	.. 5,000 0	
		48,747 58
Cash current account:		
No. 1 account	.. 12,582 85	
No. 2 account	.. 6,000 0	
Shortage ..	.. 2,393 44	
		20,976 29
In hand ..	..	2,000 0
		796,684 61

S. C. KAHAWITA,
Secretary-Accountant,
Coconut Research Scheme.

The Balance Sheet and accompanying Statements of Account have been audited under my direction. I have obtained all information and explanation that I require and I certify that, in my opinion, the Balance Sheet represents a true and correct position of the finances of the Coconut Research Scheme.

Audit Office,
Colombo, December 13, 1946.

E. ALLEN SMITH,
Auditor-General.