

COCONUT RESEARCH SCHEME

PROGRAMME OF EXPERIMENTS FOR 1942

THE following research programme for the year 1942 has been adopted by the Board of the Coconut Research Scheme :—

A.—GENETICIST'S DEPARTMENT.

I.—*Bandirippuwa Estate.*—

(a) *Yield Records.*—These will be continued on Geneticist's Blocks A. & B. and on the selected seed palms.

Objects.—(i.) To ascertain the relation between climate, particularly rainfall, and the physiological activities of palms of high, low and average yielding capacity.

(ii.) To isolate high yielders for provision of planting material.

(b) *Dwarf Palms.*—Detailed records on 12 dwarf palms will be continued.

Object.—To study on a small scale the development, the earliness of maturity, period of economic production and yield of the green dwarf palm.

(c) *Nurseries.*—A uniformity trial with seedlings in the nursery ; observations will be continued.

Object.—To obtain data on the natural variation of seedling growth, which will enable experiments—such as manurial trials on seedlings—to be planned with greater accuracy.

II.—*Co-operative Experiments.*—

(a) *Yield Records.*—Record on 28 estates, containing approximately 2,000 palms will be continued.

Object.—To extend the selection of high yielders on private estates for the purpose of supplying good planting material.

(b) *Experimental Plantations : I.—Plantation I.*—Recording work on this will be continued.

II.—Recording on this secondary plantation has been discontinued on the Board's instructions.

Object of I.—To study the nature of segregation of characters in relation to yield of proved high yielding palms.

III.—On the Matale plantation occasional records will be continued.

Object.—To study the performance of selected seedlings planted on a fairly large scale under private management in the Matale district.

III.—*Ratmalagara Estate.*—

(a) *Field Experiment I.*—Records on this experiment will be continued during 1942.

Object.—To compare the performance of selected and unselected seedlings from proved high yielders, proved low yielders, and nuts picked at random from estate heaps.

(b) *Dwarf Palm*.—Observations will be made on the area of dwarf palms planted up in 1940, which has been continued in 1941 to 10 acres (about 900 palms).

Object.—As in I. (b) on a field scale.

(c) *Field Experiment 2*.—Commencement of the experiment included in the programme for 1941 (A. III. b), has again been postponed, for reference to the Board in view of the Scheme's financial position. The expense of clearing an area for this experiment and of its upkeep would be considerable and the adequate control of the experiment would entail the appointment of another Field Assistant.

B.—SOIL CHEMIST'S DEPARTMENT.

I.—*Field Experiments*.—

(a) *Bandirippuwa Estate*.—(i.) *NPK Manurial Experiment*.—Yield recording on this experiment will be continued in 1942, the eighth year of the experiment.

Object.—To determine the response of mature coconut palms to the three manurial constituents, Nitrogen, Phosphoric Acid and Potash, at the levels nil, single and double doses of each combined in all possible ways.

(ii.) *Cover Crop Experiment*.—Records to be continued during 1942.

Object.—To determine the effect on mature coconuts of growing a cover crop and treating it in different ways, with and without fertilizers.

(b) *Ratmalagara Estate*: (i.) *Combined Manurial and Cultivation Experiment*.—Records will be continued in 1942.

Object.—As in I. (a) (i.).

(c) *Manurial Experiments on other Estates*.—

(i.) *Veyangoda*.

Object.—As in I. (a) (i.) with simpler manurial treatments but the addition of husk burying treatments.

(ii.) *Southern Province*.

Object.—As in c (i.). Yield recordings on these two experiments will be continued in 1942.

(iii.) *Fodder Grass Experiment*.

Records on fodder grass harvested and on the yields of the coconuts will be continued.

Object.—The object of this experiment is to study the effect on mature palms of growing fodder grass beneath them, and of various fertilizer treatments continued with the fodder cultivation.

(iv.) *Manurial Experiment on Underplanted Seedlings*.

Observations on this experiment at Letchimey estate, Nattandiya, will be continued in 1942.

Object.—To determine the effect of manurial treatments and cover crops on underplanted seedlings with regard to growth, early bearing, &c.

II.—*Laboratory Investigation in connection with Field Experiments*.—

(i.) Soil analyses will be done as exigencies permit on samples from the N. P. K. and cover crop experiments. Emphasis was laid in 1941 on phosphoric acid. Potash will be particularly studied in 1942.

Objects.—To study the effect on soil composition of nature of fertilizer treatment and cover crop treatment.

- (ii.) Analyses of husks and coconut water samples from the plots of the NPK experiment for potash will be continued, with the addition of fronds and bunch stalks.

Object.—To study quantitatively the potash uptake of the palm.

III.—*Other Investigations.*—

- (a) *Potash Salts from Husk Ash.*—Experiments, which on a laboratory scale have been successful, will be continued on a larger scale.
- (b) *Nutfall.*—Preliminary investigations carried on by the Department of Agriculture on this subject have been referred to the Scheme for continuation and expansion. It is hardly possible at present to set this out in a research programme in a formal manner, as the early work must be observational.

C.—TECHNOLOGICAL CHEMIST'S DEPARTMENT.

I.—*Laboratory Investigation in collaboration with other Departments.*—

- (a) *Germination Experiment No. 2.*—In the first experiment in 1941 the germination of the coconut was studied up to 30 weeks and interesting results obtained, particularly with reference to the distribution of moisture, total dry matter, nitrogen and potash.

It is proposed in 1942 to carry out a further experiment to study the change over a longer period, with special reference to phosphoric acid and the organic constituents (oil, sugar and cellulose). This will best be commenced late in the year.

Object.—As stated. The first experiment has already supplemented our information on the transplantation and the manurial requirements of young plants, especially with regard to potash, and incidentally (as foreshadowed last year) has yielded particulars of the composition of the apple (at all stages) not previously available.

II.—*Copra Investigations.*—

- * (a) *White Copra.*—Survey of white copra from different types of kiln on the lines already followed for No. 1, No. 2 and No. 3 copra, including examination of samples from available sources including co-operative societies, and study of keeping qualities.

Object.—As in the previous case, to ascertain what is to be regarded as an acceptable standard of white copra ; and also to assess the efficiency of the various types of hot air driers in use.

If the Board decides to erect a Walahanduwa drier on Ratmalagara estate, work on this will be included under the present head. The patent hot-air kiln at Bandirippuwa estate will obviously be useful.

- (b) *Individual Variation between Palms.*—Routine analyses by a rapid approximate method will be continued on 100 nuts per pick during 1942.

Object.—To ascertain whether there is a significant difference in oil content between nuts from individual palms and thus whether there is any possibility of attempting breeding for high oil content.

- * (c) *Attempted Preparation of other Types of Copra* including whole copra (*kotta-pol*) and "crystallized" copra.

Object.—To follow up suggestion made for preparing copra in new marketable forms.

* Indicates new lines of work on those which have developed from previous work in modified directions.

III.—*Toddy Products.*—

(a) *Arrack.*—Continuation of co-operative experiments with the Excise Department and the Government Analyst on arrack distillation.

Object.—To obtain information on the secondary constituents of arrack, particularly those responsible for its aroma; and the control of these constituents by varying distillation conditions. The ultimate object is to improve the standard of arrack. Up to September, 1941, seven experimental distillations have been carried out at one of the distilleries, and much useful information has already been obtained.

(b) *Dwarf Palms.*—Tapping of dwarf palms will be continued.

Object.—To ascertain the average toddy yield of dwarf palms, its composition and therefore whether dwarf palms are likely to be of economic interest for toddy and its products.

IV.—*Other Products.*—

(a) *Coconut Shell Tar.*—Further results have been obtained in 1941 on the composition of shell tar and further work is projected in 1942.

(b) *Utilization of Charcoal.*—Possibility of wider use of charcoal as fuel by briquetting is suggested for study in 1942.

D.—*All Departments* have a certain amount of laboratory work in connection with inquiries.

Bandirippuwa Estate,
Lunuwila, September 23, 1941.

REGINALD CHILD,
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