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INDIAN CENTRAL ARECANUT COMMITTEE

FOURTEENTH ANNUAL REPORT

1962-63.

Office:
CALICUT, KERALA STATE

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CHAPTER 1

Introduction

This is the Fourteenth Annual Report of the Indian Central Arecanut Committee covering the period from 1st April 1962 to 31st March 1963.

General

Shri A. D. Pandit succeeded Shri G. R. Kamat as President, Indian Central Arecanut Committee, with effect from the 7th May, 1962. Shri C. M. John continued to hold the Office of the Vice President under the Committee upto 31st March, 1963. Shri O. D. Garg of the Indian Council of Agricultural Research took over charge of the post of Secretary of the Committee on the forenoon of 7th December 1962 from Shri K. Shamanna, Co-operative Marketing Officer who was officiating in the post with effect from the 7th May, 1962 consequent to the reversion of Shri B. S. Varadarajan to his permanent department in the Government of Mysore.

Meetings

The fourteenth Annual General Body meeting of the Indian Central Arecanut Committee was held at Madras on 31st January, 1963 under the chairmanship of Shri A. D. Pandit, President of the Committee.

Meetings of the Marketing, Economics and Publicity Sub-Committee; the Technological Research Sub-Committee; the Agricultural Research and Development Sub-Committee; the Appointment Sub-Committee and the Finance and Executive Sub-Committee were also held at Madras from 28th January, 1963 to 30th January 1963. Besides these three other meetings of the Finance and Executive Sub-committee, one meeting of the Marketing, Economics and Publicity Sub-committee and one meeting of the Technical Programme Sub-committee were held during the year at different places. A conference of state statisticians was held at Bangalore in May 1962.

Finance

Under its normal activities the Committee had an opening balance of Rs. 1,21,209/- on 1st April 1962. During the year miscellaneous revenues amounted to Rs. 43,793/- and recoveries from different sources, against advances and deposits alreday paid to Rs. 1,83,035/- In addition a grant of Rs. 5,00,000/- was received from the Govt. of India. The total receipt during

1962–63 thus aggregated to Rs. 8,48,037/- as against Rs. 7,89,505/- during 1961-62,

The expenditure during 1962-63 amounted to 7,41,851/- against Rs. 6,68,295/- during 1961-62 leaving a closing balance of Rs. 1,86,186/- The closing balance for 1961-62 was Rs, 1,21. 210/- only.

Under "Committed Schemes" the opening balance was Rs. 80,817/- During the year the miscellaneous receipts under this head amounted to Rs. 30,660/- and grants from the Govt. of India to Rs. 3.5 lakhs. Thus the total receipts aggregated to Rs. 4,61,477/- The total expenditure during 1962-63 was Rs. 3,21,615/- resulting in a closing balance of Rs. 1,39,862/-

Under the Third Five Year Plan schemes grants from the Govt. of India during the year 1962-63 amounted to Rs. 2,16,000/- and miscellaneous revenue to Rs. 70/. An expenditure of Rs. 2,16,000/- was incurred against the total receipts of Rs. 2,16,070/- leaving a closing balance of Rs. 70/- at the end of the year.

Audit

The accounts of the Committee for the year 1962-63 were audited by the Accountant-General, Kerala. The audit report together with the audited accounts are annexed to this report as Appendices I A and I B.

Contributory Provident Fund Account

The Committee continued to maintain a Provident Fund account for the benefit of its employees and there were 85 subscribers on the rolls on 31—3—1963.

Building Programme

The Indian Central Arecanut Committee had taken up a building programme for its Research Stations. Out of this programme the construction of Office-cum-Laboratory buildings and staff quarters has been completed by the Central Public Works Department at the under mentioned Research Stations and the buildings have been taken over by the Committee.

Name of the Research Station	Total estimated cost of construction works
Regional Arecanut Research Station, Palode, Trivandum, S. Kerala	Rs. 1,33,772—0

Regional Arecanut Research Station, Kannara, Trichur, N. Kerala	Rs. 1,06,417—00
Regional Arecanut Research Station, Hirehally, Mysore	Rs. 1,45,986—00
Regional Arecanut Research Station. Kahikuchi, Assam	Rs. 1,18,150—00
Regional Arecanut Research Station, Mohitnagar, West Bengal	Rs. 1,15,114—00

The construction of Office-cum-Laboratory, staff quarters and Guest House for the Central Arecanut Research Station, Vittal at an estimated cost of Rs. 3,35,672/- was in progess during the year under report.

Scheme under the Third Five Year Plan

The Govt. of India have alloted a sum of Rs. 15/-lakhs under the third Five Year Plan for under taking research on Arecanut. Against this allotment schemes worth Rs. 11.99 lakhs had been sanctioned up to 31—3—1962. No new schemes were sanctioned during the year under report. The progress made during the year under the schemes already sanctioned is indicated below:

1. Scheme for investigations on the New Yellow leaf disease of areca palm in Mysore State.

This scheme has been sanctioned by the Govt. of India at a cost of Rs. 61,757/- for a period of 4 years and 8 months from 4—8—1961 to 31—3—1966. The following work was done under this scheme during the year under report:

Samples of root, stem and leaf from diseased and healthy areca palms in Sagar Taluk of Mysore State were examined for their histopathological characteristics. The fungus and bacterial culture previously selected from the soil around diseased and healthy areca palms in the affected areca were sub-cultured and were being identified. The visit of the Officer-in-charge of the Scheme to a number of areca gardens in Sagar, Siddapur and Sirsi Taluks revealed that 5 to 20% of the gardens in Sagar and Siddapur areas were affected by 'new yellow leaf disease'. The affected areca palms under observation in this region were treated with scheduled doses of fertilizers and mico-nutrients.

2. Scheme to provide for fundamental research on Botany, Chemistry and Entomology of Arecanut and establishment of Statistical unit at the Central Arecanut Research Station, Vittal.

The scheme has been sanctioned at a total cost of Rs. 2,00,000 to the Govt. of India. No progrees could be made under this scheme during the

year due to non-appointment of staff which could not be completed earlier due to administrative difficulties.

3. **Scheme to provide further facilities in the existing Regional Arecanut Research Stations**

The Govt. of India have sanctioned the scheme at a cost of Rs. 1,27,000/- It mainly provides for construction of further quarters for the staff at the Regional Arecanut Research Stations, Kannara, and Palode. Preliminary estimates for the construction works under this scheme were asked for from the Central Public Works Department as early as in June 1962. Final estimates were available from the Central Public Works Department in March 1963 only and therefore no progress on the construction work could be made during the year.

4. **Scheme for conducting a sample survey for correct estimation of arca under and production of arecanut in the States of Kerala, Mysore, Assam, West Bengal, Madras, Maharashtra, Andhra Pradesh, Orissa.**

The Govt. of India have sanctioned a sum of Rs. 6,00,214/- towards the share of the expenditure of the Indian Central Arecanut Committe on the extension of the above scheme for a period of 3 years from 1st April 1961. During the year under report the progress of the above scheme in the several States was as follows:

Kerala: Out of the 131 villages selected for the fourth round of the survey, enumeration of palms for area estimation was completed in 99 villages and the harvesting experiments were started in all the villages.

Mysore: Out of 200 villages selected for the fourth round area enumeration was completed in all the villages and harvesting experiments were in progress.

Assam: Area enumeration was completed in 117 villages out of 220 selected for this purpose and harvesting experiments for estimation of yield were completed in 13 out of 108 villages selected.

West Bengal: Field work of the first round of the survey was started in September, 1962. The scheme could not be started earlier by the State Government.

Madras: Area enumeration was completed in 38 villages out of 100 villages selected. Harvesting experiments in all the remaining villages was in progress.

Maharashtra: Area enumeration and harvesting experiments of the fourth round of the survey was in progress in all the villages selected.

Andhra: Area enumeration in 43 villages and harvesting experiments in 50 villages were conducted out of the 62 selected arecanut villages.

Orissa: Area enumeration was completed in 89 villages out of 200 villages selected and harvesting experiments were conducted in 3 villages out of 65 villages selected for second round survey.

5. Scheme for the establishment of a Regional Arecanut Research Station at Sakhigopal, Orissa at a cost of Rs. 2,10,000/-

This scheme which was to be implementad under the 3rd five year plan has since been dropped as per the decisions of the Govt. of India since soil analysis had revealed that the existing site was unsuitable for the establishment of the Research Station.

CHAPTER 2

Area, Production, Imports and prices

The system of official estimation and reporting on area and production of arecanut continued to vary from State to State. Information on official estimates of area and production for the year was not available from most of the States. Whether information was furnished by the States was also not on uniform pattern and, therefore, the estimates are not comparable at All India level. The latest available estimates of area under arecanut and production worked out in terms of cured nuts in the various States are presented in Table 2 given below:

TABLE 2

Area and Production of arecanut in different States

State	Area (Hectares)	Production in terms of cured nuts (Tonnes)
1. Kerala	56.740	46,230
2. Mysore	32,427	29,500
3. Assam	21,968	14,324
4. West Bengal	2,198	2,460
5. Maharashtra	2,045	2,836
6. Madras	1,724	1,555
7. Andhra Pradesh	139	150
8. Orissa	51	..
Total	117,292	97,055

The sample surveys under the combined scheme sponsored by this Committee and the Indian Central Coconut Comittee for the correct estimation of area under and production of the two crops continued to be in progress in the States of Kerala, Mysore, Assam, Maharashtra, Madras, Andhra Pradesh and Orissa. The scheme was implemented in the State of West Bengal also during the year. Fifth round of the survey was in progress in Assam and fourth round was undertaken in Kerala, Mysore, Maharashtra, Madras and Andhra Pradesh. In Orissa the second round and in West Bengal the first round were in progress during the year. Comprehensive reports on the results of these surveys (1959-62) are being finalised by the State and

correct estimates of area and production will be available from these reports during 1963-64. On the basis of the data available so far the figures of area and production for the country as a whole are 1,17,865 hectares and 1,11,984 tonnes against the official estimates of 1,17,292 hectares and 97,055 tonnes respectively. It will be observed that whereas the figures of area are more or less the same there is wide variation in the production estimates. This difference is mainly because of Mysore in which State the production figures on the basis of surveys has been estimated at 45,225 tonnes against the official figure of 29,500 tonnes. The State Director of Statistics has been requested to check up the survey estimates once again.

Imports: The Government of India continued the restrictive policy for import of betelnuts. Licences were issued for import of betelnuts by every established importer for an equal value of Rs. 500/- irrespective of the quantum of his past imports of this item, during the year under report (April, 1962 — March, 1963).

89,777 quintals of betelnuts valued at Rs. 34,60,799 were imported into India during the year under report as against 1,00,408 quintals valued at Rs. 45,32,009 during the previous year. The standard rate of duty levied on imported betelnuts was Rs. 2.07 per kilogram, and the preferential rate of duty for the article which was the produce or manufacture of a British Colony was Rs. 3 per kilogram during the year under report.

The trend of Imports since 1947-58 can be seen in the following Table.

TABLE 2 (a)

Imports of arecanut into India

Year (April–March)	Quantity in thousands of quintals	Valuc in lakhs of Rupees
1947-48	420.66	284.79
1948-49	396.97	245.00
1949-50	399.12	239.89
1950-51	451.19	342.60
1951-52	506.00	557.35
1952-53	372.66	345.03
1953-54	364.46	304.82
1954-55	296.46	216.61
1955-56	424.47	435.98

1956-57	407.17	544.66
1957-58	308.38	297.66
1958-59	183.63	83.57
1959-60	141.75	71.86
1960-61	111.70	64.63
1961-62	100.41	45.32
1962-63	89.78	34.61

Exports 1099 quintals of betelnuts valued at Rs. 8,62,405 were exported from India during the year as against 1229 quintals valued at Rs. 8,60,811/- exported during the previous year. The trend of export is given below:

TABLE 2 (b)

Export of arecanut from India

Year (April–March)	Quantity in quintals	Value in Rupees
1947-48	5201	7,98,241
1948-49	3090	5,75,903
1949-50	1494	4,67,887
1950-51	2364	5,97,809
1951-52	1696	7,19,583
1952-53	2108	7,47,912
1953-54	2034	8,04,557
1954-55	1263	5,34,813
1955-56	1343	5,85,710
1956-57	1650	7,52,373
1957-58	1990	9,90,318
1958-59	2005	13,39,615
1959-60	2078	12,68,615
1960-61	1513	9,73,010
1961-62	1229	8,60,811
1962-63	1099	8,62,405

Prices:

i) Indian markets The prices showed slight improvement due to better demand in Trichur, Bangalore, Shimoga and Silchar markets while they declined in Alleppey, Mangalore and Bombay markets.

The yearly average price of imported nuts in Calcutta market which stood at Rs. 667/- per quintal during last year came down to Rs. 600/- per quintal during the current year, while the price of 'indigenous nuts' improved slightly from Rs. 531/- to Rs. 549/- per quintal during the year under report.

ii) *Foreign markets* The prices declined slightly in Colombo market while they stood steady in Singapore market. The yearly average prices of 'supari' in Dacca and Narayanganj markets which were at Rs. 518/- and Rs. 501/- per quintal respectively during the previous year went up to as high as Rs. 830/- and Rs. 817/- per quintal respectively during the year uuder report (1962–63).

Prices of arecanuts in important internal and foreign markets, statistics of arrivals and disposals of stocks and quantities of imports and exports continued to be collected, compiled and published in the quarterly 'Arecanut Journal' as in the previous year. Existing arrangements for broadcasting prices of arecanut through All India Radio Stations in Trivandrum, Bombay, Vijayawada, Tiruchirapally and Bangalore were also continued. Important daily newspapers of South India continued to feature the weekly fluctuating trends of prices, arrivals, disposals etc. of arecanut.

CHAPTER 3

Development

The development programmes for arecanut are taken up by the State Governments with financial assistance from the Government of India. The Indian Central Arecanut Committee reviews the progress of these schemes periodically and scrutinises the annual technical programmes every year.

The following are the general lines of dovelopment recommeded for the States:

1) Establishment of new nurseries besides continuing those established during the Second Plan.
2) Laying out demonstration plots.
3) Loans for irrigation.
4) Supply of fertilizers and manures on credit.
5) Sudsidy for sprayers and chemicals for plant protection.
6) Publicity and propaganda.

The targets for additional production to be achieved by the States for the Third Plan and the financial outlay sanctioned by the Government of India for each State are follows:—

State	Target of Additional Production	Financial outlay allotted by the Govt. of India
Kerala	2514 m. Tonnes	Rs. 15.08 lakhs
Mysore	2500 ,,	,, 11.00 ,,
Assam	3732 ,,	,, 5.00 ,,
West Bengal	242 ,,	,, 4.25 ,,
Madras	358 ,,	,, 4.00 ,,
Andhra Pradesh	8 ,,	,, 0.95 ,,
Orissa	30 ,,	,, 1.57 ,,
Maharashtra	154 ,,	@
Tripura	Nil	,, 1.06 ,,
Andamans	Nil	,, 0.94 ,,
Total	9,538 ,,	,, 43.85 ,,

@ Arecanut development is included in the integrated scheme for development of Fruit, Nut & Spices and no separate allotment has been made for arecanut.

Production level in 1960–61	:	96,031 m. Tonnes.
Anticipated production in 1965–66	:	1,05,569 ,,

On the basis of the overall target of one lakh tons of arecanut fixed for the Third Plan, year-wise and measure-wise targets were allotted for the States of Kerala, Mysore, Assam, West Bengal, Maharashtra, Madras, Orissa, and Andhra Pradesh, where arecanut is grown. The Progress made by these States in 1961-62 in achieving the targets alloted to them and their programmes for 1962-63 in this direction were considered by the Committee at its meeting held in January, 1963. While reviewing the progress, it was observed that in the States of Mysore, Assam and Orissa, the Third Plan programme for arecanut development had not been taken up but that only the schemes started in the Second Plan were being continued. The Committee, however, decided that the Assam Government need not be pressed too much for execution of the scheme in view of the special emergency conditions prevailing in that State.

A review of the progress of the arecanut development schemes in each of the States in 1962-63 is given below:

i. Kerala

As against the target of 88,000 st. maunds (3,284 metric tonnes) originally alloted to this State for increasing production, the State Government accepted a target of 67,352 st. maunds (2,514 metric tonnes) only. The following schemes were in operation during the year:—

1) State-owned nurseries and certified nurseries.
2) Fertilizer distribution.
3) Publicity.
4) Control of pests and diseases.

The following schemes which were also included in the programme were not however started during the year:—

1) Demonstation for package treatments.
2) Provision of long term loans for extension of area.
3) Elite gardens,
4) Irrigation loans.

The achievements on the whole were below the targets and the State Government was requested to start the schemes which had not been taken up and enhance the number of physical units under the existing schemes.

ii Mysore

The arecanut development programme for the Third plan was awaiting the sanction of the State Government till the close of the year. The nurseries started during the Second plan, were, however, continued during the year under report. Under the normal agricultural development programmes of the State, loans and subsidies were offered to arecanut growers for irrigation, plant protection and application of fertilizers and manures. The achievements towards increasing production were, however, below the target. The State Government were requested to expedite sanction of the Third Plan programme.

iii. Assam.

Here also, no new scheme for development of arecanut was taken up even though the maximum target for increasing the production, namely one lakh st. maunds (3,732 m. tonnes) was assigned to the State. Since this will affect the achievement of the overall target for arecanut production for the Third Plan, the matter was taken up with the State Government at the level of the Government of India. The State Oovernment, however, did not start the Third Five Year Plan development programme till the end of the year, except that the 12 main nurseries and five sub-nurseries established during the Second Plan were continued and quality areca seedlings were distributed from these nurseries for increasing the area under arecanut.

iv. West Bengal.

Under the arecanut development programme of the State, the following measures were provided:

1) Extension of irrigation.
2) Fertilizer, green manuring etc.
3) Plant protection.
4) Raising and distribution of seedlings.

The progress of the schemes up to the end of the third quarter of the year 1962-63 was not very satisfactory and the matter was therefore taken up with the State Government at the leval of the Government of India. The states annual Plan for 1963-64 in respect of the arecanut development was revised to make up the deficiency.

v. Maharashtra

The integrated Horticultural Development Scheme of the State, which included provision for arecanut development also, was started only

on 1-12-1962 and the progress of the scheme by the close of the year was not appreciable. For the year under report, the State Government accepted a target of 4125 st. maunds (154 m. tonnes) as against 11,000 std. maunds (411 m. tonnes) originally assigned to them.

vi. Madras

The following four schemes were in operation during the year:-

1) Raising and distribution of quality seedlings.
2) Subsidised distribution of sprayers and chemicals.
3) Issue of loans for application of fertilizers.
4) Scheme for conducting Simple Manurial Trials and study of control measures for pests and diseases of arecanut.

The progress of the schemes up to the first half of the year was not according to the target and the State Government were requested to take necessary steps to accelerate the progress. They have since assured the committee that necessary readjustments would be effected in the targets for the remaining years to offset the deficiency in the past.

vii. Orissa

The arecanut development programme for the Third Plan was not taken up in the State till the end of the year 1962-63. The nurseries established during the Second Plan were, however, continued. The State Government were requested to expedite the implementation of the development programme of the Third Plan, so that the target fixed for the Plan might not be upset. Ultimately the State Government agreed to start the Scheme with effect from 1963-64.

viii. Andhra Pradesh

The following items were included in the Comprehensive Arecanut Developmeni Scheme of the State:

1) Scheme for the encouragement of the cultivation of arecanut in Andhra.
2) Scheme for the introduction of arecanut in Telengana.
3) Scheme for the development of arecanut cultivation.
4) Publicity.

The State Government decided to close down the schemes with effect from 31-3-1963, as they felt that the soil and climatic conditions of the State were not favourable for the crop. They were however requested not to do this as it would effect the all India target for arecanut production.

The matter was subsequently taken up with the State Government at the level of the Government of India. No decision had however been taken before the close of the year.

ix. Andamans

Under the arecannt development scheme of this Administration, 1,30,000 arecanut seedlings were proposed to be distributed during the year and loans to the tune of Rs. 10,000 were to be granted to cultivators. However only 2200 seedlings were distributed and an amount Rs. 1500/- was granted as loan. Here also the deficit is proposed to be made good in the year 1963-64 and the State Plan has accordingly been revised.

x. Tripura

An arecanut nursery has been proposed to be established under the arecanut development Scheme for the Third Plan. Being a new area for arecanut crop, Tripura had to depend on other arecannt growing states for its requirments of seed arecanuts for raising the nursery. In 1962-63, 50,000 seed nuts were procured from Assam and sown in the nursery. Out of the seed nuts sown in the previous year 15,000 seedlings were obtained and they would be distributed in 1963-64.

Besides the above schemes sponsored by the State Governments, the Central and Regional Arecanut Research Station did extension work in the areas in their vicinity, by distribution of quality seedlings and advising the growers on prophylatic treatment againt pests and diseases and also on remedial measures to be undertaken against disease-affected palms. The achievements for the year under report in regard te distribution of seedlings were as foilows:-

Name of Station	*No. of seedling distributed*
1. Central Arecanut Research Station, Vittal.	43,206
2. Regional Arecanut Research Station, Palode.	15,692
3. Regional Arecanut Research Station, Peechi.	59,995
4. Regional Arecanut Research Station, Hirehalli.	37,392
5. Regional Arecanut Research Station, Mohitnagar.	11,565
6. Regional Arecanut Research Station. Kahikuchi.	3,083
	1,70,933

The certified nursery scheme implemented by the Committee from 1957-58 was closed on 31—3—1961. During the year under report, however, claims for bonus were being received from the nurserymen in respect of the nurseries raised in 1960-61. The expenditure incurred by the Committee under this head during the year was Rs. 84,330/-

CHAPTER 4.

Agricultnral Research.

Research on botanical, agronomic and pathological aspects of the arecanut palm with the object of increasing production and preventing crop losses was continued at the Central Arecanut Research Station, Vittal and the five Regional Arecanut Research Stations under the Committee and under grant-in-aid schemes sponsored by the States. The progress made at these Research Stations and under the various other research schemes during the year is given below:-

1. Research Stations under the Committee.

i) *Central Arecanut Research Station, Vittal.*

Six exotic and three indigenous types were introduced during the year. Studies on blossom biology were continued. Suplementing natural pollination by spraying the inflorescences with pollen held in suspension in 0.5% sucrose solution recorded sizable increase in fruit-set in preliminary trials. Studies on the effect of growth regulators on fruit-set and development were continued. Nursery experiments for standardising nursery practices were continued. An area of 0.39 hectares (0.87 acres) was planted with poly-embryonic stock, stock intended for detailed study of root system at different ages and stock derived from nuts of different stages of maturity for further observations in the field as carry-over from nursery studies. One and a half hectares were got ready for planting out an experiment to determine the effect of growing banana for different durations in arecanut gardens. Trials on method of improving the adhesive property of different trade copper oxychlorides for combating the fruit-rot ('Koleroga' or 'Mahali') disease by adding adhesives were initiated. An experiment to determine the relative efficacy of four trade oxychlorides *vis-a-vis* Bordeaux mixture was continued and trials were also initiated to determlne the efficacy of Nickel chloride, and eradicant fungicide, in the control of 'Koleroga' and 'Mahali'.

The details of expenditure incurred and receipts realised at the station during the year are as follows:—

	Expenditure incurred		
	Non recurring Rs.	Recurring Rs.	Total Rs.
1. From inception upto 31—3—1962	8,30,735	4,58,671	12,89,406
2. During the year 1962—63	22,092	1,25,535	1,47,627
Total	8,52,827	5,84,206	14,37,033

	Receipts realised Rs.
1. From inception upto 31—3—1962	42,737
2. During the year 1962—63	10,545
Total	53,282

ii) Regional Arecanut Research Station, Palode (Kerata State)

Three exotic and nine indigenous types were collected. Studies on floral biology were continued. Transmission trials with sap collected from yellow leaf affected plants, and of the soil-microflora from healthy and diseased gardens were continued. Study of *Ganoderma lucidum,* the fungus causing 'Anabe' disease of the palm were carried out *in vitro.* Some fungii and bacteria were found to be antagonistic to *G. lucidum* and further detailed observations on this aspect were taken up. Studies on tissue culture were initiated. Nursery experiments to determine the optimum nursery practices were in progress. An area of 1.54 hectares (4.69 acres) of bulk garden was planted.

The details of expenditure incurred and receipts realised at the station are given below:—

	Expenditure incurred		
	Non Recurring Rs.	Recurring Rs.	Total Rs.
1. From inception upto 31-3-1962	1,56,582	1,19,989	2,76,571
2. During the year 1962 63	—	55,159	55,159
Total ...	1,56,582	1,75,148	3,31,730

	Receipts realised Rs.
1. From inception upto 31-3-1962	7,864
2. During the year 1962-63	4,145
Total ,,	12,009

iii) Regional Arecanut Research Station, Peechi (Kerala State)

Eight indigenous and three exotic types were introduced. Studies on floral biology were continued. Ten nursery experiments were in progress. An experiment to determine the optimum intervals of irrigation and depth of planting, extending over an area of 0.89 hectares (2.27 acres) was started. Trials were laid out for determining the relative merits of some of the copper oxychlorides available in the market *vis-a-vis* 1% bordeaux mixture for combating koleroga.

The details of expenditure incurred and receipts realised at the station are given below:

	Expenditure incurred		
	Non-Recurring Rs.	Recurring Rs.	Total Rs.
1. From inception upto 31—3—1962	1,25,771	1,27,432	2,53,203
2. During the year 1962-63	...	53,455	53,455
Total	1,25,771	1,80,887	3,06,658

	Receipts realised Rs.
1. From inception upto 31—3—1962	20,737
2. During the year 1962-63	13,078
Total	33,815

iv) Regional Arecanut Research Station, Hirehalli (Mysore State).

Three exotic types were introduced during the year. Studies on floral biology were continued. Nursery experiments initiated during the previous years were continued for confirmation. A trial extending over an area of 2.03 hectares (5.02 acres) for determining the optimum manurial requirements of the crop and a bulk garden 1.21 hectares (3.01 acres) in extent for trials on intercultural operations and growing of green manure crops were planted. Spraying with 5% solution of Zinc Phosphide was

found to be very effective in the control of squirrel attack on tender arecanuts.

The details of expenditure incurred and receipts realised at the station are given below:

	Expenditure incurred		
	Non-Recurring Rs.	Recurring Rs.	Total Rs.
1. From inception upto 31-3-1962	1,78,437	1,46,834	3,25,271
2. During the year 1962-63	...	63,093	63,093
Total	1,78,437	2,09,927	3,88,364

	Receipts realised Rs.
1. From inception upto 31-3-1962	11,884
2. During the year 1962-63	7,643
Total	19,527

v) Regional Arecanut Research Station, Mohitnagar (West Bengal).

Three exotic and one indigenous types were introduced during the year. Studies on floral biology were continued. Nursery experiments to determine optimum nursery practices were in progeess. A bulk garden 0.59 hectare (1.47 acres) in extent for superimposing trials on interculturul operation and inter and associate crops and four out of five replications of the experiment to determine the optimum depth of planting and intervals of irrigation were planted.

The details of expenditure incurred and receipts realised at the station are given below:

	Expenditure incurred		
	Non-recurring Rs.	Recurring Rs.	Total Rs.
1. From inception upto 31-3-1962	1,33,615	1,20,211	2,53,826
2. During the year 1962-63	...	38,595	38,595
Total	1,33,615	1,58,806	2,92,421

	Receipts realised Rs.
1. From inception upto 31-3-1962	5,515
2. During the year 1962-63	2,161
	7,676

vi) *Regional Arecunut Research Station, Kahikuchi. (Assam Station):*

Studies on floral biology were initiated. Three exotic and two indigenous types were introduced during the year. Nursery experiments were in progress. A mixed garden of arecanut and coconut extending over an area of 0.18 hectare (0.45acre) was planted out.

The details of expenditure incurred and receipts realised at the station are given below:-

	Expenditure incurred		
	Non-Recurring Rs.	Recurring Rs.	Total Rs.
1. From inception upto 31-3-1962	1,28,611	81,215	2,09,826
2. During the year 1962-63	..	50,454	50,454
Total	1,28,611	1,31,669	2,60,280

	Receipts realised Rs.
1. From inception upto 31—3—1962	392
2. During the year 1962—63.	1,129
	1,521

II. Grant-in-aid schemes

i) *Regional Arecanut Research Station, Tirthuhalli (Mysore State)*

Studies on floral biology, fruit setting and shedding were initiated during the year. Data on the residual effect of the treatments in the trials on effect of liming, effect of applying organic and inorganic manures in combination, and effect of applying fertilizers to supply N. P. K., collected during the year, indicated that application of fertilizers with lime every year gave significantly higher yield than application of bulk manure once in three years and lime every year. The other two experiments did not give any significant results.

ii) *Regional Arecanut Research Station, Sakhigopal. (Orissa State)*

The arecanut garden planted earlier was maintained in a satisfactory condition. It was decided that the station should be closed with effect from 31-7-1963, as the site of the station was not suitable for growing arecanuts,

iii) Scheme for investigation on Band disease of arecanut palm in Maharashtra State.

Periodic analysis of leaves collected from healthy and diseased palms indicated no appreciable difference between healthy and diseased palms as regards potash and calcium content. As regards N and $P_2 O_5$ however the values were comparatively larger in the diseased plants. Trials with spraying Parathion, an insecticide and on manuring with lime were taken up during the year. At Srivardhan palms manured with 1.0% lime and sprayed with 1.0% Bordeaux mixture showed slight improvement in condition.

iv) Scheme for investigations on 'Anabe roga' of arecanut palms in Mysore State

Survey for estimating the extent of incidence of the disease was continued. The incidence was found to range from 0.2 to 4.9% in Arkalgud, Tarikere, Shimoga, Bhadravathi and Kadur taluks. Trials were initiated with eight fungicides to determine the effect on the spread of the disease. Demonstration meetings on control measures were continued to be held.

v) Simple Manurial Trials in Arecanut Gardens

The above scheme was taken up in 1958-59 in the States of Kerala, Mysore, West Bengal and Assam, with a view to assess the manurial requirments suited to different soil and climatic conditions. Further treatment data were collected for the second year and the data already collected during the previous years were processed and statistically analysed. The data hitherto analysed showed positive responses of the crop to fertilizers in most of the units while pre-treatment data analysis established homogenity of plots within the selected gardens in so far as the yield is concerned.

vi) Pilot scheme for study of cost of cultivation of arecanut.

After completion of the work, the scheme terminated on 30-6-1962. The final report of the scheme has been prepared by the Institute of Agricultural Research Statistics (I. C. A. R.), New Delhi. The report has been printed, but the distribution of the printed copies was held up pending action on certain comments on the report received subsequently from the Directorate of Economics and Statistics which are proposed to be discussed by a sub-committee consisting of the Statistical Adviser to the Govt. of India, Indian Council of Agricultural Research and the Economic & Statistical Adviser, Director of Economics and Statistics.

CHAPTER 5

Marketing

1. Co-operative marketing of arecanuts:

The Committee continued to bestow attention on the development of marketing with special emphasis on co-operative marketing of arecanuts. Financial assistance to Co-operative marketing societies which were not able to function economically with their own resources was continued in collaboration with the concerned State Governments. As aginst 23 arecak nut co-operative marketing societies, including a State Federation of primary arecanut co-operative marketing societies, in Mysore State, functioning at the begining of the year, 29 societies were functioning at the close of the year under report. Six societies, two each in the States of Kerala and West Bengal and one each in the States of Maharashtra and Assam started functioning during the year.

The number of Societies functioning Statewise and receiving financial assistance from the Committee and the State Governments during the year on a grant-in-aid basis is indicated below:

Name of State	No. of Societies functioning during the year	No. of Societies that received financial assistance during the year
1. Kerala	11	8
2. Mysore	9 (including a State Federation)	2
3. Maharashtra	5	3
4. Madras	1	1
5. West Bengal	2	—
6. Assam	1	—
Total	29	14

Owing to emergency and other conditions in Assam during the year under report, the scheme sanctioned by the Committee for developing the activities of four co-operative marketing societies could not be implemented by the State Government. A scheme for financial assistance for intensive development of the activities of two co-operative marketing societies at Palai and Ponkunnam in Kottayam District in Kerala State was sanctioned but was pending implementation at the end of the year.

The year under report recorded alround progress in the working of the co-operative marketing societies in regard to membership, share capital, quantity of arecanuts handled, and quantities of manures, fungicides, pesticides and domestic requirements distributed. Though there was a slight decline in the amount of loans issued by the Societies to their members, there was improvement in the recovery of arrears during the year. As in previous years, Mysore State continued to occupy a predominant position in co-operative marketing during the year and handled about 30 percent of the total marketable surplus in the State. Necessary amendments to the byelaws of the Mysore State Arecanut Co-operative Marketing Federation Ltd., Shimoga, as suggested by the Indian Central Arecanut Committee and National Co-operative Development Corporation, New Delhi, for expanding its activities and throwing its membership open to the primary arecanut co-operative marketing societies functioning in the neighbouring States of Madras, Kerala and Maharashtra were pending approval of the Registrar of Co-operative Societies, Mysore State. It is encouraging to note that with the continued financial assistance from the Committee and the State Government, the arecanut co-operative marketing societies in Kerala recorded improved activities during the year as is evidenced from the fact that their membership and share capital which were 7189 and Rs. 2.38 lakhs during the previous year went up to 8280 and Rs. 3.30 lakhs respectively during the year under report. There was also a rise in the amount of loans issued and recovered, from Rs. 13.64 lakhs and 13.00 lakhs respectively during the previous year to Rs. 23.74 lakhs and Rs. 23.78 lakhs respectively during the year. A similar rise was also noticed in the quantity of arecanuts sold by the Societies during the year from 3328 quintals (1961-62) to 7218 quintals (1962-63).

A comparative statement showing the progress in the working of the Societies during 1961–62 and 1962–63 is given below:

			1961–62	1962–63
1.	No. of Societies		23	29
2.	Membership		22,642	26,748
3.	Share capital	Rs.	11,21,153	14,94,039
4.	Loans issued	Rs.	1,80,03,122	1,67,68,310
5.	Loans recovered	Rs.	1,75,91,806	1,81,97,728
6.	Arecanut sold		77,797 (Qtls.)	92,666 (Qtls.)
7.	Sale proceeds	Rs.	4,05,38,728	4,82,84,420

8.	Other activities such as distribution of manures, pesticides, fungicides, domestic requirements etc.	Rs.	17,02,254	23,67,709
9.	Net profit	Rs.	3,86,151	3,88,574

2. Regulated Markets:

The regulated markets for arecanuts established under the Agricultural produce Markets Act, continued to function effectively in the Chief arecanut growing states of Mysore and Kerala. The Indian Central Arecanut Committee once again reiterated the immediate necessity for bringing about a unified legislation for establishment of regulated markets in the erstwhile Travancore-Cochin portion of the Kerala State. It is understood that the Bill prepared by the Government of Kerala was pending approval of the State Legislature at the close of the year. With the establishment of a regulated market at Gubbi in Mysore State during the year, the entire arecanut growing regions in Mysore State have been covered by regulated markets. The question of establishing similar controlled markets in Sriwardhan and Murud was taken up with the Government of Maharashtra and it was understood that the proposal for establishment of the first market committee at Murud was sent to the Commissioner, Bombay Divition for notification at the close of the year.

3. Marketing survey:

In pursuance of the decision taken at the Annual General Meeting of the Committee held in Bombav in 1962 five copies of the printed report on the Marketing of Arecanuts and Betelnuts in India, published by the Directorate of Marketing and Inspection were supplied to all the State Governments and one copy to members of the Committee. inviting their comments on the conclusions and reeommendations contained in the report. The Committee at its Annual Ceneral Meeting held during the year considered the report in the light of the comments offered by the State Governments and made the following recommendations on the conclusions arrived at in the report:-

Recommendation No. 1: The Sub-Committee felt that no change in the existing nomenclature was necesssary.

Recommendation No. 4: The Committee has already recognised the necessity for use of mechanical drier and a boiler-cum-drier had already been devised. The Sub-Committee felt that the economics of mechanical

drying should. however, be worked out in detail in the important centres where the problem of drying was acute, before they were recommended for popular use.

Recommendation No. 5: The Sub-Committee felt that it was desirable to study the keeping quality of Kali and Chogaru liquids available in Kerala and Mysore. Tkey should be stored in the concerned regions and samples thereof should be analysed and studied in the Arecanut Technological Laboratory with a view to improve their keeping quality.

Recommendation No. 9: Shri M. Janardhanan Nair, Director of Agriculture, Kerala stated thnt the Agricaltural Produce Markets Bill for extending the Act to Travancore-Cochin region of Kerala was at its final stage.

As regards Recommendation No. 4 a scheme for Pilot Plant Studies on Boiler-cum-drier is now in operation and economics of drying will be worked out based on the results of these trials.

Regarding Recommendation No. 5 the Research Officers in-charge of Regional Arecanut Research Stations under the Committee have been asked to send samples of Kali from the concerned regions to the Central Food Technological Research Institute, Mysore for analysis. The draft Bill for establishment of regulated markets throughout the State of Kerala has been forwarded to the Government of India for concurrence as reported by the State Government.

4. Prevention of adulteration of arecanut:

With a view to preventing adulteration of arecanuts the Committee has sponsored a scheme for analysis of arecanuts for prescribing minimum purity standards. The work of analysis has to be undertaken at the Central Food Technological Research Institute, Mysore. The scheme was recommended for sanction at the Annual General Meeting held in January 1963 and was pending the Government of India's consideration at the close of the year.

5. Grading of arecanuts:

A scheme for grading of arecanuts on an experimental basis in selected grading centres through arecanut co-operative marketing societies in Mysore, Kerala, Madras and West Bengal States was recommended by the Indian Central Arecanut Committee at its Annual General Meeting held in January, 1963. The scheme was pending consideration of the Government of India at the close of the year.

CHAPTER 6

Technological Research

I. Arecanut Technology Unit:

The Arecanut Technology Unit established at the Central Food Technologicai Research Institute, Mysore was merged with the Institute with effect from 1-7-1962. A review of the work done by the unit during the year under report is given below:-

1. Storage of Ripe Arecanuts:

The preservative steeping of ripe areca fruits was continued over a third year with a view to (i) use inexpensive containers such as bitumen coated mud pots and cement tanks; (ii) use non volatile preservatives; (iii) store the fruits as prepacked units after incorporation of preservatives; and (iv) use gaseous fumigants.

Preservative steeping storage of ripe areca fruits: The preservative steeping storage experiments were extended to inexpensive containers such as bitumen coated mud pots and the fruits have been kept in good condition for over five months with occasional addition of metabisulphite and acid. The medium is clear and the fruits bright with no shrinkage on the skin. In bitumen coated cement tanks, as in mud pots, occasional infection of surface yeast and fungus were noticed which were taken care of by the addition of acid and metabisulphite. Based on these results, a field-cum-demonstration programme is to be undertaken at different growing centres in the coming season under a pilot scheme sanctioned by the Indian Central Arecanut Committee.

Preservation of areca fruits by the use of non-volatile preservatives:

Various non-volatile preservatives at low concentrations were tried for prolonged steeping storage with metabisulphite incorporated fruits. Even at a higher pH of 5-5.5 sorbate, proylene glycol, SOPP, aureomycin, proved beneficial in preserving the fruit in fresh condition for over 3 to 6 months as compared to the control lot fruits continuously steeped in 0.5% metabisulphite at PH 4.0 which showed surface infection of yeast due to loss of sulphurdioxide.

Preservative incorporation and prepackaging: Continuing last years work, infiltration of higher doses of metabisulphite into the husk by short time steeping in 0.5—2.0% metabisulphite solution was repeated with fruits

from Mysore and the results obtained earlier confirmed. Early infection, between 40 to 50 days was noticed with fruits treated in 0.5% metabisulphite. However a repeat treatment at the onset of infection extended the shelf life over 3 to 4 months. Potassium sorbate was also incorporated along with metabisulphite at a fast rate reaching a value of 800 to 1000 ppm in 0.2% sorbate in about 5 days and the fruits thus treated are keeping well in pre-packed condition for over 2 months of shortage.

Prepackaging and steeping: Storage as prepacked fruits however suffer from some loss of colour and shrivelling on long shelf storage especially under dry weather conditions. These defects were obviated when the pre-packed preservatives incorporated fruits were steeped in 200 ppm chlorine water or 0.2% metabisulphite or 0.2% metabisulphite with 0.2% sodium bicarbonate. These have also shown certain advantages over continuous direct steeping of fruits in respect of better retention of colour, turgidity and freedom from occasional infection besides, continued infiltration of acid of the steeping liquid into the nut.

Gaseous sterilization and storage of areca fruits in Packages: (In collaboration with Infestation Control and Pesticides Division of the Central Food Technological Research Institute Mysore) The use of gaseous fumigants on metabisulphite incorporated fruits were further studied with large numbers in pack. For easy application at the village level, ethyl formate, ethyl formate + chloropicrin in 3:1 and 2:1 ratios at a total dosage of 320 mg./l and a contact time of 48 hours were employed. The fruits stored without infection for 60,67 and 120 days respectively. As observed last year, a repeat treatment at the time when infection just started checked the further spreading of infection and prolonged the subsequent siorage to over five months.

Respiration rates: Resperation rates of the whole fruit and the edible nut stored in mixed preservatives were studied. Blanching treatment reduced the respiration of whole fruit markedly, while the nut showed a slightly reduced rate as compared to the fresh nut. Preservative steeping treatment also exhibited a similar effect on respiration.

Market evaluation of stored areca fruits: Two batches of fruits from the large scale trials in the laboratory in different containers for six to eight months were sold in the Mangalore market for independent evaluation by the South Kanara Agriculturists' Co-operative Marketing Society. The fruits

were accepted a good as fresh fruits in the open market, and fetched the same high price as the fresh fruits available then.

Short term storage and transportation of fresh areca fruits: Based on the results obtained in the laboratary, field trials at at estate in Pudupady were undertaken to treat fruits by preservative incorporations and prepacking to avoid fungus spoilage of fruits due to delay in transport or seort term storage of a few months. About 17,000 fruits were treated and packed in polythene lined hessain bags and sent over one month transport to the distant Laccadive Islands in good condition. These fetched 35% more price the fresh fruits. Subsequently the estate people treated a further 88,000 areca fruits and confirmed the above results.

2. Microbiology of fresh and stored arecafruits

Micraflora of fresh areca fruits: Continued examination of a further 40 surface sterlized fruits from 4 regions showed infection of the husk 82% and of the nut 87%. The normal microflora was found to be predominently bacteria. The normal microbial load varied, the maximum being 41 x $10g^6$ on the skin; 61 x 10^2/g in the husk; and 40 x 10^2/g in the edible nut. The surface load was higher, while the load in husk and nut was of the same order from the values reported last year.

Microbiological evaluation of stored areca fruits: The results of microbiological storage at the end of 6 months showed that the microbial load in husk and nut under satisfactory storage conditions was of the same order (15–183 x 10^2/g) as the original fruit, while the control samples stored according to traditional methods had significantly high load (58 x 10^6/g—50 x 10^9/g).

Evaluation of areca fruits stored in mixed preservatives: Evaluation of areca fruits stored in mixed preservatives in the laboratory in bitumen coated mud pots was done. Though the occasional fungus infection—penicillia and aspergilli were noticed on the surface, the fruits were organoleptically as good as the fresh. There was a small increase in the surface load from 3 x 10^2 to 23 x 10^2/g fruits; husk and nut from 13 x 10^2/g to 23 x 10^2/g and 27 x 10^2/g, respectively during this steeping storage.

Microbiological evaluotion of stored scented snpari: Microbiological evaluation of stored scented *supari* samples at various centres showed that

the normal load of a good sample varied from 0—40 x 10^2/g. Even when the sample became organoleptically unsatisfactory the load fell within the above range (15-25 x 10^2/g). When the visual fnngus infection was noticed the load was of the orde: of 300 x 10^2/g.

3. Processing and Drying

Drying of ripe areca fruits - Field trials: Drying of ripe areca fruits was continued under field conditions at growing centres to study the effect of humidity and temperature variations and of freshly harvested fruits on the drying characteristics and quality of the product obtained. At Pudupady during the end of monsoon (August - September), a total of 770 kgs. of dried nuts was produced. The high humidity conditions did not affect the process or the quality of the product and the course and rate of drying closely followed that obtained at the laboratory at Mysore. A portion of the product was evaluated at Mangalore market and obtained maximum price for nuts from that region. The rest of the product was transported to distant Laccadive Islands and was reported to have been well received and sold at high price.

Modification in the design of the drier: (In collaboration with Food Engineering Division of the Central Food Technological Research Institut, Mysore): Modifications were made to the drier based on the earlier studies as follows: The square heat exchanger was replaced with a vertical one with an increased surface area and suitable baffles. This facilitated easy cleaning and improved the heat efficiency. The whole unit has also been realigned and occupies a lesser floor area than the earlier model.

Field trials at Vittal with the modified drier: Further field studies were conducted at the Central Arecanut Research Station, Vittal, to study the working of the drier under local conditions. The drier worked satisfactorily in the trial also. The time taken for drying was increased by 10 hours due to the bigger size and the firm husk of the garden fresh fruits.

Quality and price evaluation of dried whole nuts: The final product analysis and quality evaluation by the scoring method reported last year, has confirmed the earlier findings regarding factors affecting the quality of the product. The surface cracks and splits produced is related to maturity of fruits, season of harvest and the age of the palm.

Grade specifications of arecanut: In collaboration with the Directorate of Marketing and Inspection and Indian Central Arecanut Committee,

a survey of the existing practices in relation to quality characteristics was made in Madras and Kerala areas and grade specifications were drawn up for whole dry arecanuts and 3 varieties of processed green mature nut.

4. Storage of Final Product:

Storage of scented supari: Packaging studies on scented *supari* were continued under field conditions at six selected centres with varying climatic conditions. Commercial consumer packets as control and with an extra lining of polythene, selected from the previous study, as a readily adaptable package were used. The results show that the shelf life were 30 days to 60 days respectively, in case of higher humidity areas and 60 days to 120 days respectively in case of moderately high humid areas, when appearance, crispness, flavour and taste were all evaluated. But in respect of crispness and freedom from fungus infection alone the proper packing extended the shelf life from 30 days to 180 days in higher humidity conditions and 60 to 360 days in moderately high humidity conditions. Correlation between volatile reducing substances and organoleptic acceptability was assessed. The use of an extra cellophane lining along with the polythene gave better flavour retention in the stored product as studied in accelerated storage trials.

5. Chemistry of Arecanut:

Analysis of arecanut: A further 51 samples of fresh and processed arecanuts were analysed for detailed composition in connection with continuing studies on: 1) stored nuts; 2) maturity and composition; 3) composition of cultivars and nuts from different regions; 4) genuine and market samples for drawing up purity and quality grade standards. Physical and chemical characteristics of arecanuts of different maturities grown in five regions in South India over 2–3 years have shown decrease in total water extractives, tannins, nitrogen and mineral matter, while fat, fibre polysaccharides and arecoline have been found to increase on maturation and ripening of the fruit. However calculated on a nut basis all the constituents were found to increase with maturation.

Estimation of alkaloids in arecanut: A study of the Indian pharmacopoeia method of estimation of total alkaloids of arecanut as arecoline showed that particle size, and efficiency of extraction affected the value to a great degree. These conditions were standarised to give maximum values. A distillation procedure for the estimation of arecoline is under study

Carbohydrates of arecanut: The carbohydrates of arecanut have been fractionated into solublc and structural carbohydrates. The free sugars identified by paper chromotography were sucrose, glucose and fructose. The polysaccharide was a complex mixture yielding galactose, mannose, xylose and arabinose upon acid hydrolysis. Separation of the polysaccharide complex is in progress. The variations of these glucose of ractions with maturity have been studied.

Polyphenols of arecanut: Polyphenols of arecanut were shown to be predominantly polymeric leucocyanidins. Changes of the pattern with maturity and ripening have shown that the relative. pattern is essentially the same at all stages except for a decrease in the highly polymerised fraction and an increase in the monomeric fraction. Isolation of the fractions and study of the mirer polyphenols is continuing.

II Scheme for researches on properties of arecanut at the Delhi University.

A study of the aqueous extract of mature arecanut kernel was initiated in 1957-58 to determine the nature of the soluble components in the mature nuts. The results obtained indicated that besides some polymeric-leycoanthocyanidins there were at least eight to nine different flavour 3, 4-diols present in the extract. As a result of the researches conducted at the university on 'Kali' or 'Chogaru', it was found that it is a very good dyeing material for cotton, wool and paper, and the polyphenols in 'Kali' have been successfully used in the preparation of wood surface coats and plywood adhesives.

The scheme was closed on 31-3-1963. The final report was under preparation.

To explore the possibilities of commercial utilisation of arecanut husk in the manufacture of paper & hard boards, a Working Group was constituted by the Committe in March, 1962. The Working Group met in March, 1963, and said that arecanut husk can be used successfully in the manufacture of paper if it could be collected at the processing factory at a cost of Rs. 50-75 per ton on dry basis in substantial quantities. It also recommended for the formulation of a scheme for pilot plant trials for utilisation of arecanut husk for production of hard boards. The scheme has since been formulated and is under consideration.

CHAPTER 7

Publicity

Arecanut Journal The publication of the Journal was continued in English, Malayalam and Kannada languages as in previous years. The number of copies distributed during the year are given below:

English	3,175
Malayalam	2,000
Kannada	2,600

An Editorial Board consisting of Shri C. M. John, Vice President, Indian Central Arecanut Committee as Chairman; Shri V. R. Krishnan Ezhuthassan, member of the Committee Secretary, Indian Central Arecanut Committee; Arecanut Specialist; and the Co-operative Marketing Officer of the Committee as members, was constituted for the Journal for the first time.

Leaflets The Committee released 11 leaflets upto 1961-62. The manuscripts of the following five leaflets were finalised during the year.

1. Band disease of areca palm.
2. Anabe roga of areca palm.
3. Bud rot of areca palm.
4. White grub pest of areca palm.
5. Processing of arecanut.

The first two were under print at the close of the year and released subsequently. The printing of the remaining three has been taken up during 1963-64.

Colour Posters Nine colour posters were released upto 1961-62. The following 5 new posters were prepared and finalised in consulation with the Arecanut Specialist during the year under repoit:

1. Control of Arecanut pests.
2. Control of Arecanut diseases.
3. Control of yellow leaf disease of arecanut.
4. Raising of Arecanut nursery.
5. Maintain your arecanut garden.

The question of printing the first three posters was under consideration of the Committee at the close of the year. These posters are now under print and last two have already been printed.

Flip Book The Kannada version of the Flip Book was under print in the Government Press, Bangalore, at the close of the year.

Arecanut Monograph The Editorial Board for the Arecanut Monograph met on the 18th March 1963 at Bangalore under tha Chairmanship of Shri C. M. John, Chief Editor and authorised the Arecanut Specialist and the Agronomist, Central Arecanut Research Station, to go through the chapters critically and to forward the same one by one to Shri C. M. John for final editing.

Exhibitions The Committee participated in the Agricultural and Industrial Exhibition arranged by the Calicut Corporation from 8—[illegible]—962 to 7—5—1962. The Regional Arecanut Research Station, Mohitnagar, participated in the Agricultural Exhibition at Jalpaiguri in July 1962 and the District Agricultural Exhibition at Cooch Behar in November 1962.

Areeanut exhibits were also sent by the Committee in February 1963 to the Indian Industrial and Trade Exhibition, Moscow, due to be held in July 1963.

Farmers Week Celebration These were arranged at the Central Arecanut Research Station, Vittal; Regional Arecanut Research Station, Mohitnagar and the Regional Arecanut Research Station, Kahikuchi, during the first week of April, 1962 third week of April, 1962 and thlrd week of March 1963, respectively. These were largely attended by farmers of the regions concerned.

ANNEXURE

Audit Report on the Accounts of the Indian Central Arecanut Committee for the year 1962–63.

The Indian Central Arecanut Committee has been registered as a Society under the Registration of Societies Act (XXI of 1860).

The main source of income of the Committee is the amount received by it as grant-in-aid from Government of India. The Committee is giving financial aid in the from of grant-in-aid to different organisations and institutions engaged in growing, curing, processing grading, marketing and manufacturing of arecanut and its products. A broad analysis of the receipts and expenditure of the Committee for the last four years is given below:

Receipts	1959-60	1960-61	1961-62	1962-63
	(In lakhs of Rupees)			
Grant from Govt. of India	8.05	18.73	10.06	10.66
Other receipts form Nurseries, Research Station, etc.	0.21	0.69	0.42	0.75
Deposits and recoveries of Advances.	1.70	2.18	2.20	1.83
Total	9.96	21.60	12.68	13.24
Expenditure				
Administration of the Society.	1.06	1.15	1.27	1.27
Measures taken in connection with:—				
i) the work on improvement of cultivation of Arecanut	8.03	16.97	7.00	9.09
ii) the work on development and improvement of arecanut and its products	0.60	0.76	0.59	0.27
iii) improvement in marketing of Arecanut and its products	0.61	0.66	0.69	0.28
Miscellaneous (Payment of Advances recoverable and deposits).	1.95	2.39	1.86	1.88
Total	12.25	21.93	11.41	12.79

Expenditure on measures undertaken for the improvement of cultivation of arecanut during the year amounted to Rs, 9.09 lakhs i. e. about 71% of the total expenditure of the Committee; this was incurred on Research Stations and Nurseries, conducting a sample survey for the correct estimation of area and production of arecannt, investigation and control of diseases, simple manurial trials etc. Out of the total expenditure of Rs. 9.09 lakhs, a sum of Rs. 5.71 lakhs was expended direct by the Committee itself, an amount of Rs. 3.33 lakhs was paid as grants-in-aid to State Governments and Rs. 0.05 lakh to a University.

The proper utilisation of the grants is watched by the Committee by obtaining (i) audit certificates from the Accountants General in respect of the Schemes sponsored by the State Governments and (ii) utilisation certificates in other cases. At the end of August, 1963, Audit and utilisation certificates covering an amount of Rs. 5.05 lakhs were due in 56 cases in respect of grants paid from 1956-57 to 1962-63.

Sd/-
(T. N. Kuriakos)
Accountant General, Kerala.

APPENDIX I (A)

Indian Central Arecanut Committee, Kozhikode.

Receipts and Expenditure Statement for the year 1962–63 (as per bye-law XII (5).
Part I. (a) Normal activities.

Receipts		Expenditure	
Particulars	Amount Rs. nP.	Particulars	Amount Rs. nP.
Opening Balance:	1,21,209.00	a) Administration of the Society.	1,00,136.00
a) Money received from Government of India.	5,00,000.00	b) Measures taken in connection with work on the improvement of the cultivation of arecanut.	4,32,299.00
q) Other moneys received by the Society.	43,793.00	c) Measures taken in connection with work on the development and improvement of arecanut and its products in India	10,596.00
c) Interest received from investment of such moneys as aforesaid.	..	d) Measures taken in connection with improvement in marketing of arecanut and its products.	10,862.00
d) Miscellanous (Advances Recerved and deposits)	1,83,035.00	e) Miscellaneous (Advances Recoverable and Deposit)	1,87,958.00
		Total expenditure.	7,41,851.00
		Closing balance.	1,06,186.00
Grant Total	8,48,037.00	Grant Total	8,48,037.00

Sd/
Superintendent,
I. C. A. C.

Sd/-
Secretary,
Indian Central Arecanut Committee.

Certificate

I have examined the foregoing Accounts of the Indian Central Arecanut Committee, Kozhikode and obtained all the information and explanations that I have required and subject to the observations in the Audit Report appended. I certify, as a result of my audit, that in my opinion these accounts are properly drawn up so as to exhibit a true and fair view of the state of affairs of the Committee according to the best of my information and explanations given to me and as shown by the books of the Committee.

Sd/-
(T. N. Kuriakos),
Accountant General, Kerala.

Trivandrum,
21—11—1963.

APPENDIX I (A)

Indian Central Arrecanut Committee, Kozhikode

Receipts and Expenditure Statement for the Year 1962—63 (as per Bye-law XII (5))

Part I (b) Committed Schemes

Receipts		Expenditure	
Particulars	Amount Rs.	Particulars	Amount Rs.
Opening Balance	80,817	a) Administration of the Society	27,218
(a) Money received from Government of India	3,50,000	b) Measures taken in connection with work on improvement of cultivation of arecanut	2,60,756
(b) Other moneys received by the Society	30,660	c) Measures taken in connection with work on development and improvement of arecanut and its products in India	16,950
		d) Measures taken in connection with improvement in marketing of arecanut and its products	16,691
		e) Miscellaneous	...
		Total Expenditure:	3,21,615
		Closing balance:	1,39,862
Grant Total	4,61,477		4,61,477

Sd/-
Superintendent,
I. C. A. C.

Sd/-
Secretary,
Indian Central Arecanut Committee

Certificate

I have examined the foregoing Accounts of the Indidn Central Arecanut Committee, Kozhikode and obtained all the information and expalanations that I have required and subject to the observations in the Audit Report appended. I certify, as a result of my Audit, that in my openion these accounts are properly drown up so as to exhibit a true and fair view of the state of affirs of the Committee according to the best of my information and explanations given to me and as shown by the books of the Committee.

Sd/-
(T. N. Kuriakos)
Accountant General, Kerala.

Trivandrum,
21—11—1963.

APPENDIX I (A)

Indian Central Arecanut Committee, Kozhikode

Receipts and Expenditure statement for the year 1962-63 as per Bye law XII (5) Part II (IIIrd Five Year Plan Schemes)

Receipts		Expenditure	
Particulars	Amount	Particulars	Amount
Opening Balance	—	Measures taken in connection with work on the improvement of the cultivation of arecanut.	2,16,000
1(a) Money received from Government of India	2,16,000	Total expenditure	2,16,000
(b) Other moneys such as application fees Miscellaneous etc.	70	Closing balance	70
Total	2,16,070	Grand total	2,16,070

Sd/-
Superintendent,
I. C. A. C.

Sd./-
Secretary,
Indian Central Arecanut Committee.

Certificate

I have examined the foregoing Accounts of the Indian Central Arecanut Committee, Kozhikode and obtained all the information and explantations that I have required and subject to the observations in the Audit Report appended. I certify, as a result of my audit, that in my opinion these accounts are properly drawn up so as to exhibit a true and fair view of the State of affairs of the Committee according to the best of my information and explanations given to me and as shown by the books of the Committee.

Trivandrum,
21—11—63.

Sd/-
(T. N. Kuriakos)
Accountant General, Kerala

APPENDIX I (B)

Indian Central Arecanut Committee

Receipts and Expenditure account for the year 1962-63

Part I (B) Normal Activities)

Receipts			Expenditure		
Particulars		Amount Rs. np.	Particulars		Amount Rs. np.
Opening Balance		1,21,209.00	I. A.	Administration	88.225.00
IA.	Administration-Sale proceeds of Publications, Miscellaneous	8,122.00	I. B.	Propaganda and Publicity	25,898.00
IB.	Propaganda and Publicity—Subcription for Journal, Advertisement charges etc.	2,035.00	II.	T. A. of non-official members	11,911.00
III.	Agricultural Research: Receipts from nurseries, Central and Regional Research Stations, Plant Protections etc.	33,636.00	III.	Agricultural Reserve :-	
	Grant from the Government of India	5,00,000.00		A- Grant-in-aid to Nurseries, Research Stations etc,	2,27685.00
	Advance recovered	1,81,635.00		B. Subsidy for Technological Researeh.	10,596.00
	Deposit	1,400.00		C. Central Arecanut Research Station	1,44,186.00
				D. Statistics Branch	6,344.00
			IV.	Marketing and economices:—	
				A. Organisation of Co-op. Marketing Societies	10,284.00
				B. Subsidy for Co-op. Marketing Societies	5,78.00
			V.	Scheme for the study of the cost of Cultivation of areca nut	28,186.00
				Advanee recoverable	1,87,058.00
				Refund of deposit	900 00
				Total Expenditure	7,41,851.00
				Closing balance	1,06,186 00
	Grant Total	8,48,037.00		Grant total	8,48 037.00

APPENDIX I (B)

Indian Central Arecanut Committee

Receipts and Expenditure account for the year 1962-63. Part I (B) (Committed Plan Schemes)

Receipts		Expenditure	
Particulars	Amount Rs. nP.	Particulars	Amount Rs. nP.
Opening balance	80 817.00	I. Regional Research Stations	2,60,756.00
Grants from the Government of India	3,50,000.00	II. Technological Laboratory	12,662.00
Receipts from Research Stations	28 156 00	III. Grants to Universities for Technological Research	4,228.00
Receipts from Co-operative Societies	2,504.00	IV. Subsidy for Co-operative Marketing Societies	16,691.00
		V. Scheme for estimation of area and production of arecanut	—
		VI. Administration and Co-ordination	27,218.00
		Total Expenditure	3,21,615.00
		Closing balance	1,39,862.00
Grant total	4,61,477.00	Grant total	4,61,477.00

APPENDIX I (B)

Indian Central Arecanut Committee

Receipts and Expenditure account for the year 1962-63 Part II (Third Five Year Plan Scheme)

Receipts		Expenditure	
Particulars	Amount Rs. np.	Particulars	Amount Rs. nP.
Grant from the Government of India	2,16,000.00	1. Scheme for establishment of Regional Arecanut Research Stations.	—
Miscellaneious receipts, Application fees tcc.	70.00	2. Scheme to provide further facilities in the existing Regional Research Stations.	—
		3. Scheme to provide fundamental researches on Botony, Chemistry and Entomology of arecanut and Establishment of a statistical unit at the C. A. R. S., Vittal.	3,441.00
		4. Scheme for investigation on yellow leaf disease of areca palm in Mysore State.	15,000.00
		5. Pilot sample survey scheme for the correct estimation of area under and production of arecanut in the Indian Union.	1,97,559.00
		Total expenditure:	2,16,559 00
		Closing balance.	70.00
Grant total	2,16,070.00	Grant Total	2,16,070.00

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INDIAN CENTRAL ARECANUT COMMITTEE

FOURTEENTH ANNUAL REPORT

1962-63.

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