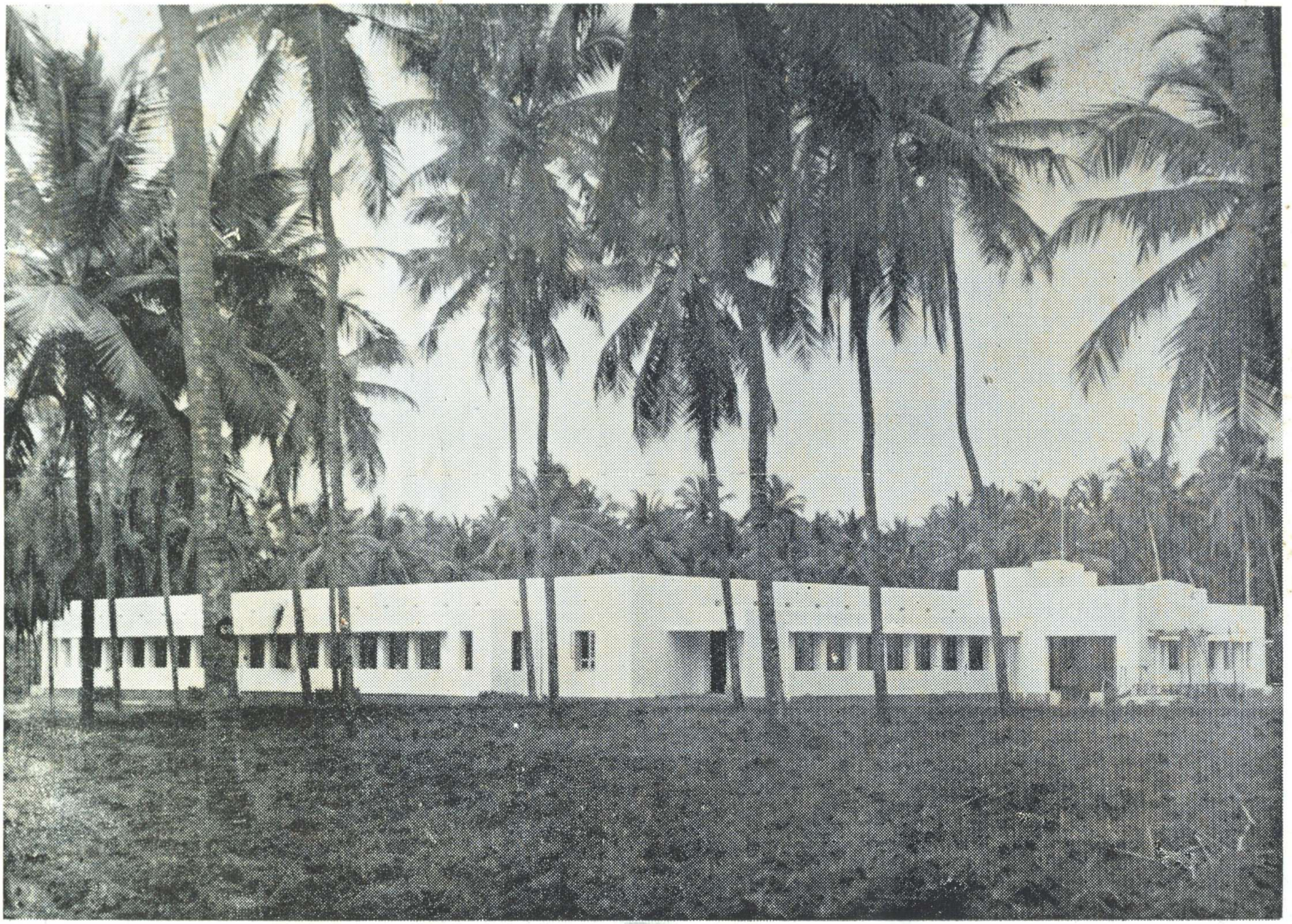
COCONUT BULLETIN



ISSUED BY THE INDIAN CENTRAL COCONUT COMMITTEE
(MINISTRY OF FOOD & AGRICULTURE, GOVERNMENT OF INDIA)
ERNAKULAM

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OUR COVER PICTURE

Snake-boats, long and slim, propelled by a hundred oars, race up and down the palm-fringed rivers of Kerala.

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Editor :

DR. P. J. GREGORY

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THE INDIAN CENTRAL COCONUT COMMITTEE

(MINISTRY OF FOOD & AGRICULTURE, GOVT. OF INDIA)

ERNAKULAM, S. INDIA

Editorial

SUMMER IS UPON US AND SUMMER BRINGS WITH IT TO COCONUT cultivators in sandy tracts the problem of irrigation.

IN THESE AREAS, DURING THE HOT MONTHS OF THE YEAR, THE water table goes very low and unless the coconut palms are watered, their yield is seriously affected. On the other hand, if the palms standing in sandy soil are irrigated properly during Summer, their yield can be raised if the other conditions of adequate manuring and regular cultivation are also present.

TRIALS CONDUCTED AT THE AGRICULTURAL RESEARCH STATION at Nileshwar have proved this beyond doubt. Moreover irrigation by installing filter points has been found to be a comparatively cheap method at Nileshwar.

THE QUESTION OF STEPPING UP COCONUT PRODUCTION BY irrigation in summer months was considered by the Indian Central Coconut Committee when it met in January last and the Committee has recommended to the State Governments that pump sets be supplied to coconut growers on easy payment terms and subsidies given to them for sinking wells.

IN SANDY AREAS INSTALLATION OF FILTER POINTS WOULD BE more effective than digging wells and it is to be hoped that in the sandy areas of Kerala and elsewhere, coconut growers will be enabled to set up, with State assistance, a number of filter points by working which it would be possible for them cheaply to irrigate their coconut gardens in Summer and thus to raise their production.

Dr. M. S. Randhawa Reviews

Central Coconut Committee's Work

Welcoming Shri E. M. S. Nambudiripad, Chief Minister of Kerala and requesting him to inaugurate the 25th plenary session of the Indian Central Coconut Committee on 31st January, 1958, Dr. M. S. Randhawa, President, Indian Central Coconut Committee, reviewed the activities of the Committee.

Dr. Randhawa spoke as follows:-

ON behalf of the Indian Central Coconut Committee and on my own I extend to you, Sir, a hearty welcome to the 25th meeting of the Committee. Kerala is the most important coconut-growing State with about 70 per cent of the total area under coconut in the country. As such, your presence here as the Head of the chief coconut-growing State in India is a source of encouragement to the Committee, whose main concern is the development and improvement of this crop and we are all grateful to you for kindly consenting to inaugurate this session of the Committee.

I also extend a hearty welcome to all those who are present here today and particularly the new members – Messrs. Keraleeyan and A. C. Sankaranarayanan, nominated by the Government of Kerala to represent the growers of coconut, Messrs. Srinivasa Iyer and Sabariperumal Pillai, the Madras Government's nominees, Messrs. Balakrishnan and Eacharan, Members of the Lok Sabha and representatives of the consumers. I

welcome these gentlemen into our midst and wish them a term of useful work as members of the Committee. They have already made a very useful contribution to the deliberations of this Committee by giving us the benefit of their experience as coconut growers.

Work of the Committee at its Research Stations

For the benefit of the distinguished visitor who is in our midst today and for the benefit of the new members let me touch briefly upon the objectives and functions of the Indian Central Coconut Committee and the steps that the Committee has been taking in the pursuit of its objectives. Although India has an area of over 15 lakhs of acres under coconut and produces annually more than 4150 million coconuts and is next only to the Philippines from the point of view of the area under and the production of coconuts, she does not produce all her requirements of this commodity. A deficit estimated at about 30 per cent of the existing production has to be made up to make the country self-sufficient. This is the main problem before the Committee and it has been trying to tackle it by a number of long-term as well as short-term measures. Realising that an immediate increase in production is possible only through the adoption by cultivators of improved methods of coconut culture, the Committee has been popularising through its officers and through its publications better methods of cultivation and manuring and of pest and disease control. The long-term measures for improving the coconut industry include fundamental research such as breeding for hybrid vigour which is undertaken at the Committee's Central Research Station at Kasaragod and the investigation of pests and diseases which is done at the Central Research Station of the Committee at Kayangulam. The Committee is also running jointly with the State Governments concerned Regional Research Stations in Kerala, Bombay, Orissa, Andhra Pradesh and Assam to undertake cultural and manurial trials of local importance. Regional Stations in Madras and Mysore will be started shortly.

Nursery Schemes

Another long-term measure of great significance which the Committee has adopted almost from its inception, is the distribution of quality coconut seedlings among coconut growers at a concession price, from a number of nurseries jointly financed by the Committee and the State Governments concerned. As early as 1946, shortly after the Committee was set up, eight such nurseries with a total annual production target of 55,000 quality seedlings were started. In 1948 the number of nurseries had risen to 15 and the annual production target to 2,11,000 seedlings.

By 1951 the number of nurseries had gone up to 30 with a total production target of 4,78,000. The target remained practically the same for the next two years. The target figure of production went down to 3,62,750 seedlings in 1954 as some of the older nurseries had been wound up on the termination of the period for which they had been sanctioned. Just at present there are 27 nurseries jointly financed by the Committee and State Governments with an annual production target of 3,32,500 seedlings. These include 9 nurseries located in nine National Extension Service Blocks in Kerala State. The Committee has sanctioned the starting of a maximum of 50 such nurseries in the National Extension Service Blocks of Kerala and they are expected to go into production shortly. A number of nurseries have been or are being started under the Second Five-Year Plan Scheme for coconut development. It has been estimated that the

total annual target of the existing nurseries and those coming into existence will be of the order of about 10 lakhs.

Considering the requirements of the Second Five-Year Plan as well as of the Third and Fourth Plans it is desirable that a much larger number of plants should be produced. Hence it is dersirable that the services of private nursery-men should also be harnessed by providing them guidance in the selection of nuts from high yielding mother plants and adoption of plant protection measures. These nursery-men can surely supplement the production from Government nurseries.

Plant Protection

In the field of plant protection the Committee has been advocating a number of measures to save the coconut palm from the ravages of pests and diseases. One of the most important of these measures has been the spraying of coconut crowns with a copper fungicide to control the leaf disease. The Committee was running for several years a demonstration spraying scheme and I am glad to say that the Kerala Government have started since November 1956 a spraying scheme on a comprehensive scale to cover all the taluks in the State where the incidence of this disease is observed.

Having thus made a brief and general reference to the activities of the Committee I would like to review the developments that have taken place since we met at Bangalore in February, 1957.

We had, at that meeting, set up four special sub-committees – 1) with Dr. K. Ramiah as Chairman to review the work of the Central Coconut Research Stations at Kayangulam and Kasaragod, 2) with Dr. B. P. Pal as Chairman to examine the possibilities of effecting co-ordination of research work on coconut and arecanut, 3) with Dr. D. R. Dhingra as Chairman to go into the question of the organisation of technological research on coconut and 4) with Dr. V. G. Panse as Chairman to draw up a scheme for carrying out manurial trials on coconut cultivators fields and in the Regional Coconut Research Stations.

All the four sub-committees have submitted their reports.

Recommendations of the Special Sub-Committee for reviewing the work of Research Stations and some suggestions

The Special Sub-Committee which was set up for reviewing the work of the Central Coconut Research Stations at Kayangulam and Kasaragod, headed by Dr. K. Ramiah, has given a very useful report. As regards the research station at Kayangulam it has suggested that the number of investigations are too many and it has suggested the closure of some of them which had proved unfruitful so far. The method of control of Rhinoceros beetle which the Station has discovered deserves to be extended in the Community Development and N.E.S. Blocks on a large scale. I am also glad to learn that the biological control of *Nephantis serinopa* has also proved successful and it should also be extended over a very large area. While reviewing the work at the Research Station at Kasaragod, the Sub-Committee pointed out the desirability of introducing exotic varieties from South Viet Nam and encouragement of Ganga Bondam variety of East Godavari area in Andhra Pradesh. Study of mother palms with high bearing qualities is another matter which requires serious consideration. Such trees should be clearly marked with a special sign and the owners of such palms should be provided with cards with details of such

palms. This is a work which should be done by the staff of the research stations of the Indian Central Coconut Committee as well as the agricultural research stations of the State Government, both inside and outside the N. E. S. organisation. Already useful results have been achieved by hybridising tall and dwarf palms. Now it is desirable that a proper scheme be put up for preparing hybrids of tall and dwarf palms on a large scale. The Joint Director of the Kasaragod Research Station has been asked to take up this work on the scale indicated. Apart from this, the work done at the Research Station at Kasaragod has clearly shown the beneficial effect of N. P. K. fertilisation, burying of coconut husks and usefulness of ploughing of gardens. These are all practices which should be adopted on a very large scale by the farmers and I hope the Agricultural staff and N. E. S. staff in the States would take up this work on a substantially large scale.

It is also desirable that quality seedlings which are certified to be disease-free are supplied from the nurseries. This is a very necessary step to safeguard against the spread of diseases.

Co-ordination of research on coconut and arecanut

The Special Sub-Committee set up to study the fields in which co-ordination of research work on coconut and arecanut is possible, has also given a useful report. The co-ordination which has been suggested in the fields of physiology, entomology and mycology is bound to be beneficial and will also be a measure of desirable economy.

Central Supervisory Body

This Committee meets only once a year while it is desirable that the progress of the implementation of the schemes under the Second Five-Year Plan is reviewed more frequently. It is with this objective that I suggested the organisation of a Central Supervisory Body under the chairmanship of the Vice-President of the Committee. I am glad that two meetings of the Central Supervisory Body were held last year. It should, however, meet at least quarterly and the Directors of Agriculture of the coconut-growing States ought to attend these meetings. This should not be difficult for them as the meetings of this body would be held at the headquarters of the chief coconut-growing States.

Publications

At the meeting of the Committee held at Ernakulam in 1956, I suggested that a monograph on the coconut palm, in which the entire research work done on this tree crop should be incorporated, be brought out. I am glad that this work has made progress and within a couple of months this important publication would be out. It is also proposed to bring out an "Atlas on Coconut" which will give information regarding area under and production of coconut in the whole country.

Price of coconut oil

The price of coconut oil remained on a high level and at Cochin it was never below Rs. 1,500 per ton during the whole of 1957. During the last two months it has ranged from Rs. 2,000 to Rs. 2,200 per ton. This is very beneficial for the growers and I do hope it will provide the necessary incentive for adoption of intensive cultivation measures including application of fertilisers and irrigation. I hope the farmers of Kerala, Mysore and Madras will take full advantage of the prevailing high prices and would plough back into their gardens a part of their gains. It is only by extension of irrigation and application of fertilisers that

(Continued on page 427)

a coconut research station takes shape

by

S. S. S. V. RAO



Young seedlings in a nursery

THE farmers of Orissa know very little about the scientific methods of coconut cultivation, particularly the cultural and manurial requirements and the control of different pests and diseases that affect the palm. Often, the percentage proportion of barren trees in a plantation is as high as 35 and the average annual yield per tree is 15 nuts, as against the average of 40 nuts in Kerala State.

Coconut-growing is mainly confined to the coastal districts of Balasore, Cuttack, Ganjam and Puri, which constitute a quarter of the area and account for nearly half of the population of the State. The largest area, however, is in the district of Puri, the palm being extensively grown in and around Sakhigopal. The region represents a loamy soil type with high water table and is taken as one of the typical regions under coconut cultivation in the Indian Union. The coconut can also be grown in some areas in the districts of Mayurbhanj, Dhenkanal, Boudh-Phulbani and Koraput.

In 1948, the first Research Station dealing with the regional problems of coconut was started at Sakhigopal by the State Government under the auspices of the Indian Central Coconut Committee. The Station was closed in March 1953, on account of the unsuitability of the site and the new Regional Coconut Research Station was started in 1955 on a fresh site nearly 90 acres, about 3 miles from Sakhigopal.

New Station

The new Research Station has about 54 acres of shrub jungle of bamboo clumps, palmyra palms, trees, shrubs and 35 acres of cultivated land, tanks and water channels. The area is uneven and at places the difference in the level of the land is over four feet. The soil, however, is loamy and fertile.

The first task, therefore, was to clear the jungle and level the fields after uprooting the bamboo roots and stumps of trees. Instead of levelling the entire area and bringing it to one uniform level, it was considered easy and advantageous to take up the work plot-wise so that the entire area could be divided into a number of convenient blocks, without heavily altering the soil column.



A general view of seednuts planted in the nursery

Manual labour was employed to fell the trees, cut the bamboos, clear the jungle and uproot the stumps and roots of bamboos.

Buildings Get Ready

The main road of the Research Station,



Placing the nut portion of the seedling in the sub-pit

temporary sheds for some staff, labourers, office, storing seed coconuts and implements and the cattle shed and bulldozer shed were got ready. The sites for setting up of the Meteorological Observatory and construction of permanent quarters and buildings are also now ready.

Crops of KULTHI *(Dolichos biflorus)* and BIRI *(Phaseolus mungo)* are also grown in the plot for use as cattle feed. The coconut nursery has been located in this plot which is adjoining a tank.

The levelling work is complete on about 19 acres and in progress on about 14 acres.The construction of permanent quarters and buildings has also been taken up. It is expected that in the course of this year the entire area will be levelled up and the construction completed.

A special coconut nursery was attached to the Regional Coconut Research Station in 1956. This nursery will supply 3,000 three-year old quality seedlings annually to cultivators from 1959. At the same time, it will meet the Station's requirements of quality and uniform seedlings. The coconut palm takes nearly seven years to start fruiting and stands for over hundred years.

Great Care

In a crop that matures so slowly and stands so long, great initial care is necessary for raising uniform quality seedlings in the nursery. Quality seedlings of 17 world varieties received in 1956 from the Coconut Research Stations in Madras and Kerala have also been planted. A study of their performance in the environment will give us good information about their acclimatization capacity, behaviour and the retention of their characteristic features.

In selecting seed nuts for planting in the nursery, 500 mother palms were selected in the locality. From them, over 7,000 seed nuts were collected in 1956. The mother

palm (parent tree) number, the harvested bunch number and the position of the nut in the bunch (nut number) were all marked on individual nuts. These nuts were planted in the nursery in pits usually after giving a resting period of three months. Twenty-five nuts are planted in one plot in five rows. An empty space of three feet is left all round a plot. From nut to nut in a row the distance is $1\frac{1}{2}$ feet while from row to row, it is two feet.

Pit size

The size of a pit varies according to the size of the nut, so that the latter is planted flush with the ground. The numbers marked on the seed nuts are noted and they are placed in the pits in a regular order. Each nut is held in proper position and the earth is put around, so that the nut is planted flush with the ground with the stalk-end up.

Ultimately, the nursery consists of seed nuts in beds, plots, rows and lines. A bed consists of 9 to 12 plots and five lines. The distance from bed to bed is three feet while between any two lines it is exactly half. Each plot is labelled properly to facilitate the follow up of germination and other observations of individual nuts from the time of harvest till the removal of the seedlings from the nursery.

Removal of Seedlings

After some time, the nursery will have germinated seedlings in different stages: seedlings six months old and just a month old. When they advance still further in age, uniform seedlings are selected by measuring the height, girth at collar and the number of leaves. Each of these seedlings will be removed carefully for planting at the permanent place. At first, the earth around the seedling is removed, the seedling lifted up with the nut and the roots then cut flush with the nut.

For planting in the permanent places, pits measuring three feet x three feet x three

Watering the transplanted seedlings



feet are dug 25 feet apart, ash, tank silt and earth are well-mixed and the bottom one foot of the pit is filled up with this mixture. A small sub-pit just to fit in the nut portion is prepared with the hand in the centre of the filled-up portion and the seedling with the nut is placed there. Later, earth is put in just to cover the nut portion and the seedling is watered regularly. As the seedling grows up, the pit is also covered up. Planting the seedling below the ground level this way and later filling up the pit facilitates the retention of the entire root system of the plant within the soil. It may be mentioned that the coconut stem has got capacity to give out adventitious roots from the bottom up to three feet.

Green manures being economic, the seeds of a number of varieties like *Tephrosia candida, Fleminge sonjesta, Pueraria javanica and Crotalaria usaramensis* have been obtained and grown at the Research Station with a view to making a comparative study of their growth and collecting enough seeds for multiplication on a large scale for future experimentation. More varieties of seeds are expected to be received in 1957.

Future plans

A rapid determination of the relative responses of different manures, fertilizers and cultural operations shall be taken up from 1957 onwards on an existing plantation of 20 to 30 acres proposed to be taken up on lease basis.

Thus, by the end of the Second Five-Year Plan, the entire area of the Research Station will be ready with its convenient blocks, suitable roads, drains, tanks and quality coconut seedlings for conducting cultural and manurial experiments. The precise magnitudes of responses to various manures and cultural operations shall be determined at the new plantation of the Station later on.

Experiments on the suitable month of harvest of seed nuts, the position of the nut in the bunch with respect to germination and growth of seedlings, however, are expected to yield results by the end of the Second Five-Year Plan for the benefit of the coconut growers.

—Indian Farming

Dr. M. S. Randhawa Reviews.....

(Continued from page 422)

the coconut growers of the main States concerned can participate in the implementation of the Second Five-Year Plan.

There is another matter which is of grave concern to us. One of the chief factors on which we have been relying for increased production during the Second Five-Year Plan is the application of fertilisers to coconut palms. Difficulty has been experienced as regards the import of potassic fertilisers. I do hope that the Government of India will take note of this difficulty and take necessary measures to allow import of the much needed fertilisers.

In the end let me thank you once again for so kindly agreeing to be amongst us today. I have much pleasure in requesting you to inaugurate this, the 25th Session of the Indian Central Coconut Committee. I have no doubt that on account of your presence here the farmers of Kerala will be inspired to take all necessary steps for the implementation of the Second Five-Year Plan in regard to this important crop.

There's scope for

Coconut Cultivation in Kutch

By

M. M. KRISHNA MARAR

IN the fight for stepping up the production of coconuts in India, particularly with an eye to the future, increasing interest is being evinced of late in bringing new areas under cultivation of the crop. Assam, Saurashtra and Kutch are some of the areas which have been suggested in this connection. Some places in Kutch which appear to offer scope for coconut cultivation were visited by the author in October 1955 and a report on his observations and suggestions submitted to the Indian Central Coconut Committee. The following are the salient points of the report.

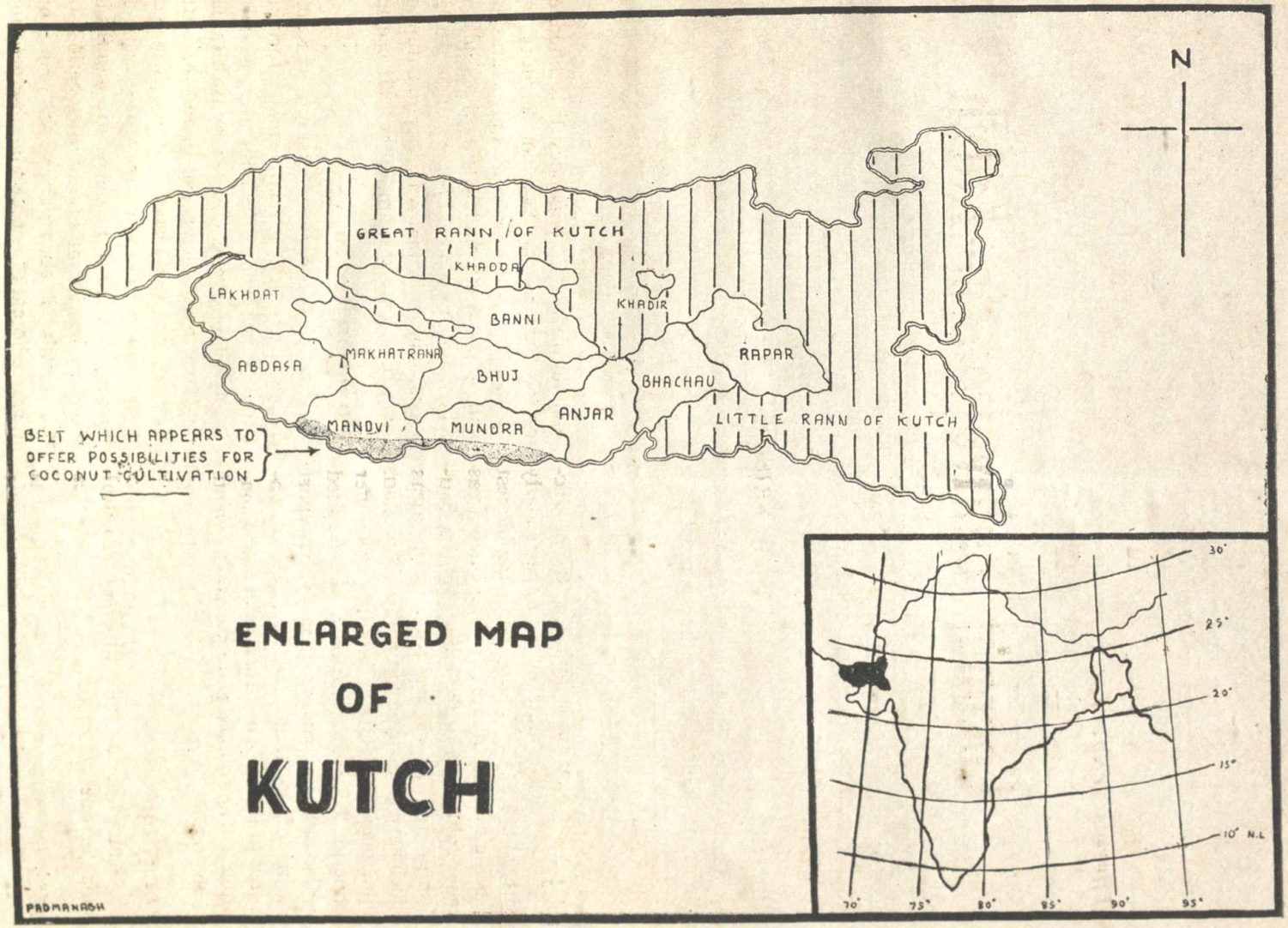
Location

Kutch* lies on the north-west corner of India, between 22.8° and 24.2°N. latitudes and 68° and 72°E. longitudes. It is bounded on the north by the Pakistan territory, on the east by North Gujerat and Saurashtra and on the south and west by the Gulf of Kutch and the Arabian Sea. It is 16,724 square miles in extent with a population of about 5.7 lakhs according to the 1951 census.

* Since the reorganisation of the States Kutch is a part of the Bombay State. Before that it was a separate Centrally Administered State.

Physical Features

The most conspicuous feature of Kutch is that nearly 9,000 square miles, forming about 54 per cent of the total area, is quite uninhabitable, being covered by two Ranns, the Great Rann of the North and the Little Rann of the South-east. Rann is a salt desert only a few feet above sea level. It remains flooded for four or five months in the rainy season and also during periods of low tides in the other parts of the year. This area is permanently in a state of wetness and is highly saline. Except for mangrove bu-



ENLARGED MAP OF KUTCH

shes no other vegetation appears to exist on this extensive land. The central portion of the country is broken up by hills and hillocks covered by rocks and scrub growth. Between the sea coast and the hilly region lies a belt of fertile and cultivated area. There are a number of water courses running into the Gulf of Kutch and Arabian Sea; but, these are purely seasonal, receiving freshes only during limited part of the year.

The total cropped area in the State is only 9.3 lakhs of acres of which about 12,000 acres are estimated to have irrigation facilities, mostly from wells. Thus, in a major part of the area arid conditions are the normal feature.

Climate

The climate is distinctly dry in the interior of Kutch, but on the sea coast it is somewhat cool and moist.

The rainfall is not only poor in quantity but is also irregular and uncertain. The average rainfall in the different talukas varies from 12 to 20 inches. Most of the rainfall is received between July and September on about 3 to 13 rainy days. Pre-monsoon and winter rains are practically absent; the drought period thus extends over 9 months in the year.

Extremes of temperature are also recorded in the tract, particularly in the interior. During summer the temperature goes up to as high as 120°F. The average maximum temperature is reported to be about 107°F. and the average minimum 46°F. In Mundra and Mandvi Talukas lying along the southern sea coast the variation is much less; the minimum is about 50°F and the maximum 100°F.

The humidity varies from about 40 per cent in summer to 90 per cent in the rainy season. Dry winds blow practically throughout the year at high velocity causing the soil to dry up quickly.

Soil and Subterranean Water Conditions

Four different types of soils are reported to occur in Kutch. They are alluvial soils, sandy soils, swampy soils and black clayey or loamy soils. Alluvial soils are found distributed in a narrow belt lying between the high sand dunes on the sea coast and the central hilly areas. The soils in the other parts excepting valleys are shallow and of poor fertility. Even in alluvial areas, the depth of soil is found to vary considerably from one or two feet to 20' or more. Here the underlying strata appears to be 'murram' and sometimes sand.

In the interior parts of the country water-table is generally very low and water is also brackish. Such areas are invariably scarcely populated. On the other hand, in parts of Mundra and Mandvi Talukas sweet water is found in abundance about 10' to 15' below ground level. Such favoured areas are found only in narrow strips or patches and not in consolidated large areas. Deepening of some of the existing wells yielding sweet water is reported to have resulted in the water turning brackish.

The Present State of Coconut Cultivation in the area

At present the coconut is not being considered as of any great importance to the tract. Except for a couple of instances the palms are never found planted on a plantation scale. The planting is mostly confined to the sides of irrigation channels in some of the 'Wadis' or well irrigated gardens which are found distributed in the Mundra and Mandvi Talukas. These 'Wadis' are

found lying scattered and rarely in contiguous blocks, the reasons for which are not very clear. May be the selection is based on the availability of sweet water and satisfactory soil conditions.

The introduction of coconut in the tract is attributed to 'Kutchis', the name by which the inhabitants of this area are generally referred to. These people are well known for their enterprise and business acumen and have extensive business interests in East Africa and on the West Coast of India. In the course of their frequent travels between Kutch and their centres of activity they have introduced interesting plant material and raised them in gardens purely out of interest or curiosity and only rarely with any profit motive. In a number of gardens it is possible to see living specimens of interesting and rare African plants. The introduction of coconut in the tract also appears to have come about this way. Earliest introduction might have taken place about 60 to 70 years back.

The first major attempt at growing the coconut on a plantation scale in Kutch was in the Vijaya Vilas gardens of His Highness the Maharaja of Kutch at Kathoda, 3 to 4 miles from Mandvi town. About 5,000 seedlings are reported to have been planted in about 100 acres in 1927 or so. The plantation is found very well laid out and planted giving proper spacing between trees. Because the trees were not progressing well, the Maharaja had the plantation inspected on a couple of occasions by experts, but it is not known whether their suggestions had ever been carried out. Any way, the present position of the coconut palms is not at all satisfactory. A number of them have died out and only 2,000 plants are reported to be surviving now. These are also not having good growth. Continued neglect to give proper irrigation and manuring appears to be the important reason for the present unsatisfactory state of the plantation though shallow soil and slightly brackish nature of the water used for irrigation might have also contributed their share. There is no denying the fact that this unhappy experience should have discouraged and will continue to discourage people from attempting large-scale planting of the coconut in the tract.

A painstaking attempt made in 1954 by Shri R. N. Mehra, the then Agricultural Officer of Kutch to take a census of the population of coconut trees in the Mundra and Mandvi Talukas by visiting individual 'Wadis', has brought forth a fund of information regarding the present position of coconut palms in Kutch. According to his observation, which is also confirmed by that of the author, the palms, except in a few instances, are growing in a state of neglect. There is no wonder that dead or dying palms were found in a number of 'Wadis'. At present about 6,000 to 8,000 palms of different ages are estimated to be growing in Kutch. A rough estimate of the present production will be about 2 lakhs of nuts per annum.

The variety of coconut largely met with under cultivation is 'Zanzibar', though Malabar varieties are also found here and there. The large scale business connections which 'Kutchis' are having with East Africa and the import into Kutch annually of fairly large numbers of nuts from that country account for the predominance of this variety. The general practice is to utilise for planting, sprouted nuts from imported consignments of nuts.

The production of coconuts in the trees growing in Kutch appears to be seasonal. It is reported that only two harvests are done during the year, *viz.*, in July and November, when there is always great demand for coconuts, because of the

important festivals occurring during that part of the year. Tender nuts are also harvested as and when there is demand. The seasonal production may be due to the severe summer conditions causing abortion of young spadices or drying up of newly opened inflorescences. As a matter of fact, on many trees a number of bunches in early stages of growth were found to have been dried up. A detailed study of the flowering and fruiting phases of the palm may give interesting information.

The palms are generally free from any serious insect pests or diseases. Rats and squirrels are, however, reported to do serious damage.

Defects in the present practices

One of the important defects noticed is that the coconut palm is not considered as a crop requiring special attention, by way of irrigation or manuring. Ordinarily, the crop gets the benefits of irrigation only indirectly i. e. when water is taken through channels to irrigate standing crops in the field. Otherwise, nobody bothers about the coconut palm which is left to take care of itself without any attention being paid to it. This is to some extent substantiated by the fact that palms growing in gardens devoted to raising plantains or other fruit trees requiring frequent irrigation are on the whole faring much better than those in gardens devoted to the cultivation of annual crops.

Close planting even at distances of 6′ to 10′ is very common, resulting in palms growing in all directions and angles. Though it is permissible, when only a single row is raised, to plant seedlings closer than what is normally recommended for a plantation, the spacing should not, ordinarily, be reduced below 15′ or 20′.

Surface planting is seen to be the common practice adopted in the tract. This is found to cause the bole area to bulge out and get exposed.

As already referred to earlier, a large majority of growers harvest nuts only twice in a year. This means that every time they must certainly be harvesting a large number of bunches which are not fully mature, a practice which cannot but affect adversely the quality of the nuts. The growers also do not appear to take any steps to control the menace of rats and squirrels.

Possibilities of Future Development

The soil and seasonal conditions do not appear to offer scope for any large scale development of coconut cultivation in the State. For successful cultivation, deep soils, abundant supply of sweet water and somewhat equable climate are essential and these conditions are obtained in a large measure only in parts of Mundra and Mandvi Talukas, where distinct possibilities can be said to exist. Facilities for giving frequent and heavy irrigations are the first prerequisites. The palms growing in suitable area and under good management are found to make quick and very vigorous growth and can stand comparison with the best palms growing in the reclaimed backwater areas of Travancore-Cochin. Such palms have been reported to commence bearing in 5 or 6 years after planting and to yield heavily for 15 to 20 years with some decline setting in later. Trees with 20 to 25 bunches in different stages of growth have been seen.

To make the best use of the possibilities, however, a cautious and step by step approach is necessary. A proper atmosphere has first got to be created by sustained propaganda and areas suitable for planting coconut have to be marked out. These should precede any attempt at large-scale introduction of coconut on a plantation

scale in the tract, because the risks of failure under unfavourable conditions or bad management are really great. The palms cannot suffer neglect even for a short period. They will deteriorate rapidly and die in large numbers.

Steps to be taken to develop large-scale coconut cultivation and to improve present plantations

The following measures are to be implemented to promote large-scale planting of the coconut in Kutch and also to improve the condition of the palms now growing:—

(1) *Soil Survey* : A detailed survey of the soil and underground water resources has to be carried out in the existing 'Wadis' as well as in areas, now lying waste but capable of being brought under cultivation. This will enable to demarcate areas which can possibly be planted up with coconut. The State Department of Agriculture may arrange to have this done as early as possible. Failure of plantations raised in unsuitable conditions will be taken to indicate that the tract as a whole is not fit for coconut cultivation and will discourage many in taking to it in future.

(2) *Appointment of a Coconut Development Officer:* The appointment of a Coconut Development Officer is necessary. As already referred to, the coconut palms now being grown are not, in many cases, receiving proper attention. The Coconut Development Officer can visit each and every 'Wadi' having coconut palms, study their present condition and render suitable advice for their better management. He can also advise and help those who are desirous of raising new plantations in matters relating to selection of site, choice of planting material, method of planting, care of young plantations, etc. He can also provide some sort of follow-up service in order to keep close contact with the growers and to see that the instructions given are carried out. This aspect connot be too much emphasized as in the absence of such an arrangement the growers are apt to neglect the palms, for when they have to wait 8 to 10 years after planting to recoup the benefit of their labours, they may in course of time lose their initial enthusiasm and become inattentive. The Coconut Development Officer, to be in a position to offer sound advice regarding coconut cultivation, should be sent to undergo training for a short period in the Central Coconut Research Stations at Kasaragod and Kayangulam.

(3) *Organisation of Demonstration plots:* In an area where coconut is not being grown at present on a plantation scale, it is necessary to organise suitable demonstration centres under the aegis of the State Government to demonstrate practically beyond doubt the possibilities of such a venture to prospective growers. Some of the demonstration plots may be located, in areas now lying waste but possessing possibilities of future development. Each demonstration plot may be of 5 acres in extent and four such centres may be organised in the first instance. It is understood that a scheme on the above lines has already been drawn up by the Agricultural Officer, Kutch. This may have to be started as early as possible.

Though not fully coming under the above category, it is also suggested that an observation plot of 2 or 3 acres in extent may be laid out if it could be arranged, in the Vijaya Vilas Plantation with the object of investigating the causes of the present unsatisfactory state of the coconut garden and to explore the possibilities of improving it by the adoption of proper management practices.

(4) *Supply of selected coconut seedlings:* The need to plant good coconut seedlings does not appear to be sufficiently realised in the tract and at present sprouted nuts obtained from imported or stored nuts are very often used for planting. It is now accepted on all hands that half the success of a plantation lies in the selection of good planting material. Steps should, therefore, be taken to make available good seedlings to the prospective growers. For this purpose a nursery has to be established in a suitable area in the tract itself. To begin with, a target of 2,000 selected seedlings per annum can be fixed. In the initial stages, good seednuts may have to be obtained from the West Coast of India. The proposal that the requirements of the tract for coconut seedlings can be met from the nurseries now being run in other coconut growing States does not commend itself, because when the seedlings have to be transported through dry tracts over long distances requiring transhipment at a number of places there is likely to be a high percentage of casualties among seedlings.

(5) *Raising of subsidiary crops:* As abundant supply of sweet water is absolutely necessary for attempting coconut cultivation on a large scale, it will be possible to grow profitably a number of intercrops in the coconut garden. In fact it is necessary to grow such crops to provide a subsidiary source of income to the grower and also to reduce the maintenance charges of the coconut garden.

Both perennial fruit plants and annual crops can be cultivated. Where perennial crops are favoured it is better to grow them in different blocks. It is not advisable to grow these as is being done at present in a few of the 'Wadis' because first of all, such cropping creates overcrowding and secondly it is not possible to cater to the requirements of the different crops according to their special needs. If annual crops are to be raised it is better to restrict their cropping to strips between rows of coconut palms so that at least six feet of vacant space round the base of the coconut palm is left uncropped to facilitate basin irrigation, hoeing or digging and application of fertilisers. Even in raising intercrops it would be desirable to adopt a suitable rotation including a leguminous green manure crop which can be turned into the soil.

(6) *Method of irrigation:* The coconut can be successfully raised only with adequate irrigation and it is necessary to adopt proper methods which will ensure that the water is used to the best advantage. This aspect will assume greater importance when the crop is to be grown on a plantation scale. The palms are now found planted mostly on the sides or inside the water channels. A better way appears to be to run the channel along one side and let in water in basins dug round the bases of the palms till they get filled up and then divert water to some other basins. By this method the palms will receive soaking irrigation without wasting much of water. The coconut palms should receive irrigation at frequent intervals irrespective of the fact whether there are other crops in the field to be irrigated or not.

Concessions and inducements to the growers

Sustained attention to the crop from the very beginning itself is necessary to make coconut cultivation a profitable proposition, and it should be the endeavour of the State Government to provide inducements to the growers to make them do so. The coconut growers may be supplied seedlings, manure, etc., at subsidised rates.

(Continued on page 437)

FAO plans

INTERNATIONAL COCONUT BUREAU

THE FAO Group on Coconut Products held its first session in Rome from 25th November to 3rd December 1957. Twenty-four governments were represented at the meeting; sixteen as members and eight as observers. Members were Australia, Burma, Ceylon, France, German Federal Republic, India, Indonesia, Italy, Japan, Malaya, Netherlands, Norway, Philippines, Thailand, United Kingdom and United States and observers were Brazil, Dominican Republic, Guatemala, Mexico, Pakistan, Portugal, Sudan and Viet-Nam. A representative of the South Pacific Commission also attended.

Survey of Demand & Supply Situation

After reviewing the world coconut situation, the Group agreed that an economic appraisal of the supply and demand situation was essential, both for making production plans and assessing probable supplies. Coconut and coconut products have never been the subjects of comprehensive analysis, owing partly to the paucity of basic information on the production side and partly to the complicated nature of the many factors affecting demand. Arrangements were, therefore, made for collection of

information and the preparation of reports on consumption and production in individual countries and a preliminary survey of the trends and outlook for world demand and supply will be conducted by the Group at its next session. The survey will cover the commercial production of coconut products, commercial utilization in producing countries, world trade developments, use in such products as margarine and soap in importing countries, price developments, and major events and conditions influencing the short-term outlook.

Improvement of Statistical Data

The Group asked FAO to present to its second session information on ocean freight rates for coconut products and on stock statistics. FAO was also requested to issue a quarterly summary of up-to-date information on international trade in coconut products, beginning in early 1958. In considering the possibility of improvement in basic agricultural statistics on these products, the Group recommended a technical assistance project for the Far East Region with the purpose of analysing the available material on sample surveys and of drawing up recommendations for suitable methods and pilot schemes to be adopted in representative areas.

Quality Standards for Copra

The Group discussed at length the question of copra quality and standards. In view of the changing situation in the use of coconut oil, technical and economic problems relating to improvement in the quality of copra demand thorough investigation. There is no common agreement on the characteristics for which it would be desirable to establish standards, although it was noted that importing countries have begun experimental studies on this question. It is essential for copra producing countries to know what technical standards are desired by users so as to provide a sound economic basis for setting up national standards and encouraging improvements in marketing, production, processing, and handling.

The Group, therefore, felt that joint consultations should be held between users and consumers on these questions and requested that the fullest possible information be submitted to allow a review to be made at its next session. FAO was asked to promote experimental work on desirable standards of moisture content in copra. The International Association of Seed Crushers was asked to make available a report on the progress made in the work of its sub-committee on copra quality. Finally, a standing sub-committee on the quality and grading of copra was established. It will meet immediately prior to the second session of the Group, and governments, together with international organizations interested in this field, will be invited to send expert representatives.

Exchange of Scientific Information

The Group also considered technical matters relevant to the economic aspects of its work. It agreed that the collection of information on the existence and value of "prepotent" strains of coconut would be of special importance to breeders working on this crop in all countries and emphasized the necessity of modernizing coconut breeding procedures, possibly through international co-operation. Information was obtained on FAO's work in assisting countries to exchange coconut material. International co-operation in the control of pests and diseases was studied and attention drawn to obligations under the International Plant Protection Convention. It was stressed that FAO's main role should lie in an

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over-all co-ordination of research on fundamental problems and reports from governments on reseaarch work on coconut in progress and planned were requested. It was agreed that a practical first step towards a more rapid exchange of technical and scientific information than present facilities afforded could be made through the appointment of a Technological Expert under the Expanded Technical Assistance Programme. The Expert would assess the present status of research, start work on the collection, organization and exchange of information and make a preliminary study on the structure and functions of a proposed International Coconut Bureau.

The Group decided to hold annual sessions and the next session is provisionally scheduled to be held in Manila in October, 1958.

Coconut Cultivation in Kutch.....

(Continued from page 433)

Parties of growers may also be taken at State expense to the demonstration plots to be established and also to the gardens of those who have made a success of the job.

Publications

Pamphlets on coconut cultivation may be arranged to be published in the regional language for the benefit of the growers. In preparing the propaganda material, the special needs of the tract have to be borne in mind.

Acknowledgement

The author owes a deep debt of gratitude to Shri S. V. Patel, B. Sc. (Agri.) (Hons) and Shri R. N. Mehra, M. Sc., the then Agricultural Officer and Plant Protection and Quarantine Officer, Kutch respectively who accompanied him during the tour and gave all facilities.



MAY in COCONUT GARDENS

Modan Paddy

IT is in May that coconut gardens are made ready for the cultivation of *modan* paddy, monsoon vegetables or green manure crops. The land is ploughed two or three times and all weeds and grass removed.

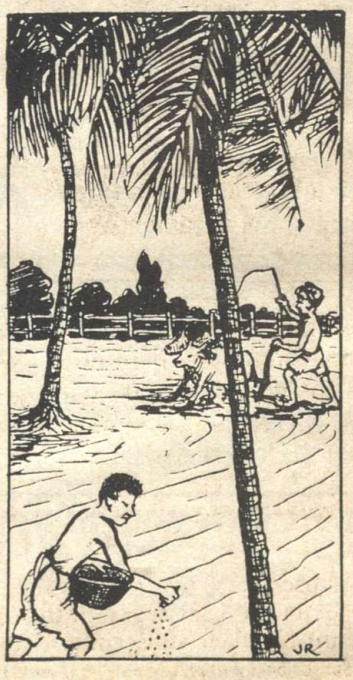
If *modan* paddy is proposed to be cultivated, apply oil cake and bone-meal at the rate of 2 cwt. and 1 cwt. respectively and plough them in before sowing the seeds. The seeds may be sown during the first fortnight of May. The seed rate is about 80 lb. per acre and a light plough worked to cover the seeds.

Monsoon vegetables

Towards the second half of May, vegetables like bhendai, brinjals, pumpkins, cluster beans, etc., are raised in the west coast. For this, trenches 6″ deep are dug and cattle manure and ash applied in these trenches. After closing the trenches, the seeds are dibbled in rows.

Sowing of green manure seeds

For green manure crops the garden should be prepared as for *modan* paddy.



Farmyard manure and ash should be applied at the rate of 200 baskets of the former and 750 to 1000 lb. of the latter per acre and ploughed in. The green manure seeds, after sowing, must be covered with a light plough.

The seed rate is 20-25 lb. per acre. Sunnhemp, wild sunnhemp, dhaincha, sesbania, kolinji, etc., are good for green manure.

Planting of seedlings

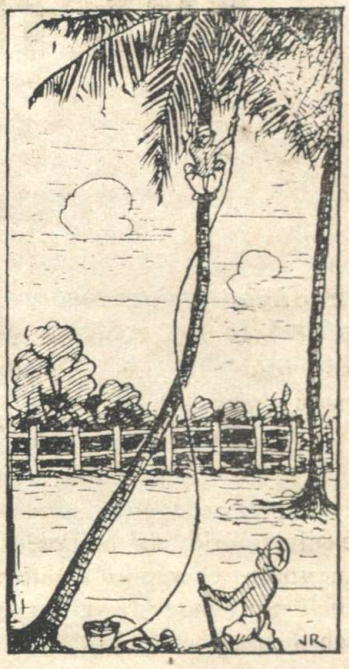
It is desirable to plant coconut seedlings with the first light showers of May, for they



will then get established before the heavy rains of the south-west monsoon. With the the commencement of regular rains the watering can be stopped and the shades removed.

Seedlings should be protected from drought and waterlogging as they react very sensitively to these conditions. Weeding also should be done regularly. On some hill-slopes and in sub-montane areas weeding may have to be done once or twice a month. Otherwise the seedlings would be suffocated by weeds.

Spraying coconut palms



The pre-monsoon spraying of coconut crowns with a copper fungicide is carried out during the earlier part of this month.

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Secretary, **Indian Central Coconut Committee**, ERNAKULAM

YOU ASK WE ANSWER



Question: If a green manure crop is grown in the coconut garden and ploughed into the soil, is there need to apply other manures?

Answer: In addition to ploughing in the green manure, it is desirable to add to the soil some groundnut oil cake and ammonium sulphate also. The following manures must be applied and ploughed in before sowing the green manure seeds :—

Manure.	Quantity per acre.
Farmyard manure or compost	200 baskets
Bonemeal or Ash	750 to 1000 lb.
Superphosphate	1 cwt.

The green manure plants then grow up luxuriantly and fix a lot of nitrogen in their root nodules. Thus, when they are slashed down and incorporated into the soil, they give back to it the manures they used for growing up and the store of nitrogen they had accumulated while growing. It is better to apply the available manures to grow the green manure crop and incorporate it into the soil rather than apply the manures in basins dug round the palms.

Question: In my coconut garden I have a lot of trouble with weeds. In less than two weeks after I have cultivated the garden in July-August, the place is again full of weeds. What is the easiest method of getting rid of them?

Answer: The best method of controlling weeds is to dig up the garden, heap the soil into mounds and then scatter the mounds. Dig up the weeds and collect them and over the collected weeds heap the soil in mounds. A large collection of weeds should be covered with a large mound of soil. The weeds would decompose underneath the soil heaped over them. But digging up the weeds and covering them in the manner described above should be done before the weeds set seed. After the rains have stopped completely, the mounds should be levelled. If it rains after the mounds are levelled, grass and weeds will grow up again. Therefore, in

February the garden should be ploughed once and all the weeds collected and buried in a place. If all these things are done the weeds in your garden will be reduced considerably.

Question: In some localities coconut trees are planted intermingled with arecanut palms and plantains. Although the gardens are well manured and watered, during summer months the yield is not satisfactory. What is the reason for this?

Answer: Unless sufficient space is left in between the different trees *viz,* coconut, arecanut and plantains and the garden is very heavily manured, yields are bound to be low. Plants, whether coconuts, arecanuts or plantains, require sufficient space for their root development, for taking up nutrients from the soil and sufficient sunlight for proper growth and photosynthesis. To keep up the yields you may give the maximum quantities of manures generally recommended for each of the three crops. Manures may be applied to the above crops as detailed below.

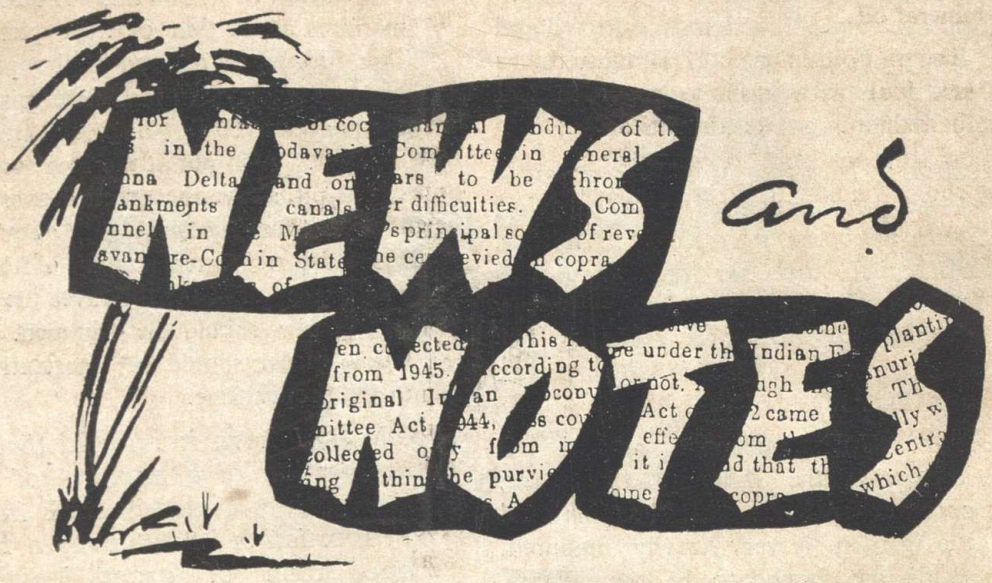
Coconut and arecanut palms :

At the commencement of the south-west monsoon take shallow basins around the coconut and arecanut palms and put in them sufficient quantities of green leaf and cowdung and cover these with a two-inch layer of sand. About 100 lb. of green leaves and 75 lb. of cowdung would be required for a coconut palm. One-fourth of these quantities would be necessary for an arecanut palm. Fill up the basins by the middle of August after applying one tin (4 gallon) of ash to each coconut palm, and ¼ tin to each arecanut palm.

Plantain : Plantains should be manured at the time of their planting. One measure of ash should be put in each pit before planting. After planting apply about 100 lb. of green leaves in each pit. Also put at the four corners of the pit, above the green leaves and without touching the plant, about one basketful of rotted dung. After the emergence of 4 or 5 leaves the sides of the pits should be trimmed. The whole garden should be intercultivated at the proper time.

Question: I have been told that the application of a mixture of salt, lime, ash and paddy husk in the proportion of 1:2:4:6, over a basal application of green leaves is good for coconut trees. What is your opinion?

Answer: Coconut requires a complete manure containing nitrogen, phosphoric acid, potash and other main elements for its proper growth and productivity. The manure mixture mentioned by you will supply only sodium, calcium and potash. Paddy husk has no manurial value. Application of lime may be useful under certain soil conditions while the frequent application of good ash will give good results. You are advised to read the handbook on "Coconut Cultivation" published by the Indian Central Coconut Committee and adopt the manures recommended in it and suited to your locality. Since manures act with maximum effect when the soil has enough of moisture, the best time for the application of manures would be the south-west monsoon period. But in applying manures during this period, care should be taken to see that the manures are not washed off by heavy rains.



Conference of the Secretaries of Commodity Committees

A scheme for constituting a Junior Administrative and Agricultural Service for the employees of the various Commodity Committees was discussed at a conference of Commodity Committee Secretaries held at Hyderabad on the 26th and 27th February, 1958 under the chairmanship of Shri. Mirchandani, Additional Secretary, Indian Council of Agricultural Research.

Dr. P. J. Gregory, Secretary, Indian Central Coconut Committee attended the conference.

New Member of the Indian Central Coconut Committee

The Government of India have appointed Sri. C. M. John, Ex-Director, Central Coconut Research Station, Kasaragod as a member of the Indian Central Coconut Committee for a term up to 31-3-1960.

Advice to Growers

The Agricultural Assistant in the Office of the Indian Central Coconut Committee toured the coconut growing areas from Pattambi to Payyannur (Kerala State) from the 18th February to 6th March, 1958, met coconut growers, visited their gardens and gave them advice regarding the various aspects of coconut cultivation.

Detection of Mineral Oil in Edible Fats

According to a report in the "Research and Industry" the Analytical Laboratories of the Madras Corporation have developed a method to detect the adulteration of edible fats. Refined mineral oil (*white oil*) is being widely used in the adulteration of edible oils and ghee, the worst affected being probably coconut oil. The adulteration can be detected by an improved Holde's method recently developed at the Analytical Laboratories of the Madras Corporation. The method is applicable to all the common edible oils and ghee and is capable of

detecting up to 1 per cent of even the thinnest of mineral oils.

The oil (or melted fat) is refluxed in a 150 ml. flask with aloholic potash (1.4n; 5 ml) for 5 min. The contents are allowed to cool to room temperature under reflux. The cooled liquid (1 ml) is pipetted into a test-tube, alcohol (50% 10 ml) added and the contents mixed well. A turbidity results if mineral oil is present. If necessary a comparison may be made with a blank obtained from genuine coconut oil. If the saponified mass solidifies on cooling, it may be melted by warming before pipetting for the final test.

DDT Factory, Alwaye

India's second DDT Factory at Alwaye (Kerala State) is expected to begin trial production shortly. The Factory, which will have a capacity of 1,400 tons of technical DDT per year, is expected to attain full production by the beginning of next year.

At the same time the expansion programme of the Delhi DDT Factory, which has been in production for the last two years, is likely to be completed by the end of this year. It will then have a capacity of four tons per day — 1,400 tons per year.

The production of the Delhi Factory has been steadily rising. As against the production of 172 tons in 1955 the Factory stepped up its output to 492 tons in 1956. The production this year is estimated to exceed 600 tons of technical DDT, the output in the first six months being 306 tons.

The second unit for doubling the capacity of the Delhi Factory estimated to cost about 21 lakhs, has already been installed. The United Nations International Children Emergency Fund (UNICEF), which helped in setting up the factory, is also assisting in the expansion programme with the supply of plant and equipment.

The Alwaye Factory, which is being put up in collaboration with an American firm, is expected to cost about Rs. 80 lakhs. Raw materials for the factory will be obtained from chemical works in the neighbourhood and from the coke ovens of Sindri and the steel works.

With the completion of the Alwaye project and the doubling of the capacity of the Delhi Factory in the near future, the country's current requirements of anti-malarial insecticides will be met from indigenous production. About 2,000 tons of insecticides other than DDT are being produced by private manufacturers and the total requirements are estimated at 5,000 tons per year.

Both the Delhi factory and the Alwaye project are being managed by the Hindustan Insecticides (Private) Ltd., a Government-owned company under the Ministry of Commerce and Industry.

Distribution of seedlings

Reports received from the departments of agriculture of the different States go to show that quality coconut seedlings from nurseries jointly financed by the Committee and the concerned State Governments were distributed as shown below :

Kerala : In the month of January 1958, 2,953 coconut seedlings were distributed among 6 growers.

Andhra Pradesh : In November 1957, 176 coconut seedlings were supplied to 8 growers.

West Bengal: In the month of January 1958, 70 coconut seedlings were supplied to a coconut grower.

Orissa : In the months of September to December 1957, 4,513 coconut seedlings were distributed among 69 growers.

Gleanings FROM OTHER JOURNALS

Sesbania as Green Manure

Experiments at the Agricultural Research Station, Sambalpur, show that the popular green manure crop of *Sesbania speciosa*, can be grown with success in Orissa too.

Dhaincha is already a popular green manure crop of the State, but these experiments show that *S. speciosa* grows more succulent and stands droughty conditions better than *dhaincha*.

State agricultural officials are now recommending to farmers that they grow *S. speciosa* on field bunds and waste lands for green manure.

They advise that the seed be first sown in nurseries and, when the plants have grown about nine inches high, they be lifted and transplanted.

Where irrigation facilities are available, they advise that the green manure be sown broadcast in the main field itself, but early enough to obtain sufficient green matter for the main crop.

I.C.A.R. Farm News Release

Pruning Sweet Potato Vines

Pruning of all lateral shoots of the sweet potato vine to a particular length leads to an increase in sweet potato yields.

This was seen in an experiment conducted at the Agricultural College, Coimbatore, Madras State.

By pruning the vine, its vegetative growth is checked and the increase in yield may be possibly due to the greater enlargement of the roots.

In the experiment, vines were pruned to one foot, two feet and three feet. The pruning treatment generally promoted increased yields as compared to the untreated vines.

The rolling of vines also appeared to reduce the yields to a certain extent.

I.C.A.R. Farm News Release

Derris Root

Experience in South India shows that there is ample scope for the cultivation of derris root. Derris root *Derris elliptica* is a handsome climber. Its roots contain rotenone, a very useful insecticide. In Bengal, it is used for killing fish.

The plant is largely found in East Pakistan, Burma, Siam, Cambodia, Indo-China and Malaya. The plant flourishes in places with an average temperature of 85° F and an annual rainfall of 90 to 130 inches. Rich, friable, loamy soils are the most suitable for its cultivation. The plant does not come up in swampy and loamy soils. It can be cultivated up to an altitude of 4,000 feet.

The plant is propagated from cuttings from mature stems. Those with a diameter of at least 0.78 inch are preferable to thinner

cuttings. Cuttings 2 to 12 inches in length and having at least two or more buds or nodes should be selected. Longer cuttings with a diameter of 0.4 inch and above are preferable. It is better to make the basal cut 0.4 inch above the bud to prevent it from drying.

Cuttings are planted in nursery beds, later in the field. About 4,840 cuttings are required to plant an acre. Derris root can be raised both as a pure crop and as an intercrop with rubber or kapok. Roots are ready for harvest two years after planting.

In South India, the plant was cultivated in Cochin and Travancore with success. The Kallar Valley Cardamom Estate at Kottayam raised the plants at several places with rooted cuttings obtained from Burma.

At Dankanikota, direct planting of cuttings was done with success.

The rotenone content of the root depends largely on the altitude, temperature and rainfall and also on other factors like size of cuttings and spacing given in the field.

Derris root is a dollar-earner.

—Indian Farming

Edible Oil from Rice Bran

The Mysore Government are considering a scheme costing about five lakhs of rupees to start a factory, as a pilot project, for the manufacture of edible oil from rice bran.

The proposed factory will be run by Government and is expected to be located in Mysore City. Experimental work in connection with the manufacturing process is understood to have been completed at the Food Research Institute at Mysore.

The oil being more than a cooking medium was stated to be rich in nutrition content comparing favourably with codliver oil. Japan is stated to be manufacturing this oil on a large-scale for export to the United States. If the proposed project was successful it was stated, it would pave the way for large-scale manufacture in other parts of the country proving to be a dollar-earner eventually.

Oils & Oil Seeds Journal

WEATHER REVIEW
February 1958

	TEMPERATURE				RAINFALL		SUNSHINE	
	Maximum		Minimum		Quantity	Departure from normal	No. of rainy days	Total hours of bright sun-shine
	Highest	Average	Lowest	Average				
Central Coconut Research Station, Kayangulam	35.3°C	33.5°C	20.5°C	23.5°C	10.7 m.m.	-8.3 m.m.	3	256.3
Central Coconut Research Station, Kasaragod	32.8°C	32.1°C	20.8°C	22.3°C	Nil	Nil	Nil	257.15

MARKET SURVEYS

General

A review of the international markets published in the January, 1958 issue of the Monthly bulletin of Agricultural Economics and Statistics, F. A. O., Rome shows that, in the last quarter of 1957, prices were in general back to or below levels prevailing early in 1956 before the Suez crisis. Price of coconut oil, however, showed a slightly rising trend. Many markets were under pressure from the large exportable supplies of edible oils and fats in the producing countries and large supplies are expected in the current year. This seems to indicate that the up trend in coconut oil price in the last quarter of 1957 is not likely to be maintained in 1958.

Foreign Markets

1. Ceylon: *Copra* :- In Colombo F. O. B. prices for copra during January, 1958 fluctuated from Rs. 195 to Rs. 202.50 in the week ending 6-1-1958 and from Rs. 196.25 to Rs. 205.50 in the week ended 13-1-1958. In the next two weeks ended 20-1-1958 and 27-1-1958 the market was a little easy due to a strike by Colombo dock workers and a considerable fall in exports. Consequently values fluctuated between Rs. 192.50 to Rs. 197 and Rs. 190 and Rs. 191.25 per candy.

Coconut Oil:- F. O. B. values of coconut oil fluctuated between Rs. 1,130 to Rs. 1,160 per ton in the first week of January, 1958 and between Rs. 1,130 to Rs. 1,155 per ton in the 2nd week. The market turned easy in the next two weeks as there were little exports following the strike of the Colombo Dock Workers.

2. Straits Settlements. *Copra* :- There was only limited activity in the Singapore copra market during January 1958. Trading was confined to purchase by oil millers and exporters of "loose" copra arrivals from East Indonesia and Sumatra and occasionally small quantities traded for shipments to India.

F. O. B. price of Copra per picul (133⅓ lb.) ruled at about M $ 30.50 in the week ending 4th January, 1958 and it rose steadily to M $ 31 by about the 11th of that month. The latter level was kept up for the rest of the month.

Coconut Oil :- Owing to the uncertain situation as regards supplies of copra available for milling purposes, Singapore and Penang millers were hesitant in meeting overseas buying levels for crude coconut oil in bulk. Singapore millers sold small parcels of coconut oil in drums.

F. O. B. prices ruled at about M $ 49.50 per picul in the week ended 4-1-1958. Values rose to M $ 51.00 per picul in the week ended 11-1-1958 and kept up that level for another week. In the next week, ended 25-1-1958, however, the price declined to M $ 50.50 per picul.

3. Philippines. The tendency for Philippine copra was steady on keen buying interest from North European Countries, which have in January, 1958 bought fairly large quantities for U. S. $. 187 to U. S. $. 193⅛ per ton C. I. F.

It is reported that a barter transaction for rice against copra has been concluded between the Philippines and Hon Kong Governments. The final destination of the copra is not, however, reported.

The total copra exports from the Philippines for the year 1957 were reported to be 988,366 tons compared with 964,034 tons in the previous year. Europe is still the principal customer with 575,000 tons in 1957 and 548,000 tons in 1956.

Indian Markets

1. Cochin. The coconut oil market at Cochin during the week ended 8-2-1958 was unsteady due to fairly large arrivals of indigenous copra and uncertainty of enquiries from Calcutta and other North Indian markets. Starting from a level of Rs. 2035.77 per ton on the 3rd, the value of coconut oil declined to Rs. 1977.80 per ton by about the 8th of the month.

The market ruled strong in the next week due to large purchases in both "spot" and 'forward' sections of the markets mostly by the Calcutta dealers. Despite good arrivals, values steadily advanced and by about the 15th of the month the value per ton had touched a level of Rs. 2046.

The market opened strong on the 17th of the month at Rs. 2093.74 per ton and kept up that level on the 18th also. Thereafter due to good arrivals of copra and inadequate demand from Calcutta, values declined touching a level of Rs. 2080 per ton on the 21st of the month.

The market opened on the 24th of February almost firm, a ton of oil being quoted at Rs. 2090.33 and this price was maintained upto about the 28th of the month. On the first March, 1958, however, the market turned weak due to larger arrivals of local copra. The market closed for the week at a level of Rs. 2059.64 per ton.

2. Alleppey. Value per ton of coconut oil at Alleppey which was quoted at Rs. 2046 on the 3rd February, 1958 declined to only Rs. 1986.33 per ton by about the 8th despite the fact that the volume of transaction was fairly good. This is reported to be due to inadequate demand at the higher rates and selling pressure from millers in anticipation of large seasonal arrivals of copra.

The market was firm in the next week due to good demand and there was a large turnover of over 1000 candies (293 tons) of ready coconut oil for export. Despite large arrivals of copra, price per ton rose steadily from Rs. 2011.90 on the 11th to Rs. 2052.82 by about the 15th.

On the 17th of February, 1958 price per ton was quoted at Rs. 2063.05. Turnover during the week was over 1035 candies (303 tons) and this heavy demand for ready oil sustained the firm tendency despite continued large arrivals of copra. The market closed steady on the 22nd at the same rate as on the 17th.

When market opened on the 24th February, 1958 ready coconut oil was quoted at Rs. 2097.15 per ton. The market was fairly steady during the week, but towards the week end values declined slightly and the closing quotation on 1st of March, 1958 was Rs. 207 per ton.

The market is expected to be firm for the next few days.

MARKET REPORTS

COCHIN, ALLEPPEY & CALICUT.

The daily prices of coconuts, copra, coconut oil and coconut oil cake at Cochin, Alleppey and Calicut from 1—2—1958 to 28—2—1958 are given below.

Date	Coconut per thousand			Copra per ton			Coconut oil per ton			Coconut oil cake per ton		
	Cochin	Alleppey	Calicut	Cochin	Alleppey	Calicut	Cochin	Alleppey	Calicut	Cochin	Alleppey	Calicut
	Rs. n.P.	Rs. n.P.	Rs. n.P.	Rs. n.P.	Rs. n.P.	Rs. n.P.	Rs. n.P.	Rs. n.P.	Rs. n P.	Rs. n P.	Rs. n.P.	Rs. n.P.
1 - 2 - 58	185 00	180 00	185 00	1392 13	1436 30	1352 00	2086 92	2088 63	2240 00	315 43	289 85	352 00
2 - 2 - 58	S	U	N	D	A	Y	S	U	N	D	A	Y
3 - 2 - 58	185 00	N. A.	185 00	1359 74	1432 20	1344 00	2035 77	2046 00	2080 00	315 43	294 11	288 00
4 - 2 - 58	185 00	N. A.	N. A.	1338 43	1500 40	1264 00	2001 67	2114 20	2160 00	306 90	306 90	288 00
5 - 2 - 58	185 00	N. A.	185 00	1352 92	N. A.	1284 00	2028 95	N. A.	2144 44	306 90	N. A.	288 00
6 - 2 - 58	185 00	N. A.	178 50	1338 43	1381 05	1312 00	2005 08	1994 85	2176 00	298 38	289 85	288 00
7 - 2 - 58	190 00	N. A.	178 50	1310 29	1364 00	1300 00	1960 75	1969 28	2176 00	298 38	289 85	288 00
8 - 2 - 58	190 00	175 00	181 25	1321 38	1381 05	1312 00	1977 80	1986 33	2176 00	306 90	289 85	288 00
9 - 2 - 58	S	U	N	D	A	Y	S	U	N	D	A	Y
10 - 2 - 58	N. A.	N. A.	181 25	N. A.	N. A	1280 00	N. A.	N. A.	2176 00	N. A.	N. A.	280 00
11 - 2 - 58	185 00	N. A.	184 25	1251 21	1381 05	1280 00	2025 54	2011 90	2176 00	306 90	289 85	280 00
12 - 2 - 58	185 00	N. A.	185 00	1348 66	N. A.	1312 00	2022 13	N. A.	2176 00	306 90	N. A.	280 00
13 - 2 - 58	185 00	N. A.	185 00	1384 46	1432 20	1360 00	2073 28	2054 53	2224 00	306 90	306 90	288 00
14 - 2 - 58	185 00	N. A.	188 75	1389 58	1449 25	1360 00	2083 51	2067 31	2224 00	315 43	315 43	288 00
15 - 2 - 58	185 00	180 00	N. A.	1367 41	1449 25	N. A.	2046 00	2052 82	N. A.	315 43	319 69	N. A.
16 - 2 - 58	S	U	N	D	A	Y	S	U	N	D	A	Y
17 - 2 - 58	185 00	N. A.	183 75	1401 51	N. A.	1360 00	2093 74	N A.	2208 00	323 95	N. A.	288 00
18 - 2 - 58	185 00	N. A.	174 25	1402 36	N. A.	1376 00	2086 92	N. A.	2224 00	319 69	N. A.	288 00
19 - 2 - 58	185 00	N. A.	180 75	1392 99	N. A.	1388 00	2076 69	N. A.	2224 00	319 69	N A.	288 00
20 - 2 - 58	185 00	N. A.	181 75	1388 72	1449 25	1376 00	2069 87	2063 05	2224 00	319 69	315 43	288 00
21 - 2 - 58	185 00	N. A.	177 50	1396 40	N. A.	1384 00	2080 10	N. A.	2208 00	319 69	N. A.	288 00
22 - 2 - 58	N. A.	N. A.	N. A.	N. A.	N. A.	N. A.	N. A.	N. A.	N. A.	N. A.	N. A.	N. A.
23 - 2 - 58	S	U	N	D	A	Y	S	U	N	D	A	Y
24 - 2 - 58	185 00	N. A.	177 50	1399 81	1432 20	1376 00	2090 33	2097 15	2208 00	323 95	306 90	288 00
25 - 2 - 58	185 00	N. A.	166 25	1399 81	1466 30	1360 00	2090 33	2071 58	2208 00	323 95	311 16	288 00
26 - 2 - 58	185 00	N. A.	169 00	1394 69	1466 30	1360 00	2086 92	2063 05	2208 00	323 95	311 16	288 00
27 - 2 - 58	185 00	N. A.	171 25	1397 25	N. A.	1368 00	2090 33	N. A.	2192 00	315 43	N. A.	288 00
28 - 2 - 58	185 00	N. A.	N. A.	1384 47	N. A.	N. A.	2069 87	N. A.	N. A.	315 43	N. A.	N. A.

N. R. : Not Available

II Malabar Markets

Arrivals and sales of coconuts and copra in the different markets in Malabar during the month of February 1958.

Commodity-Markets	Carry-over	Arrivals	Sales	Balance
Coconut (in thousands)				
Kozhikode	500	3,250	3,250	500
Badagara	2,989	4,300	3,978	3,311
Ponnani	179	1,080	1,034	225
Tellicherry and Dharmadam	520	600	580	540
Copra (in candies of 700 lb.)				
Kozhikode	2,785	6,500	5,425	3,860
Badagara	945	3,800	4,120	625

Weekly prices of coconut and copra in some of the Malabar Markets during the month of February 1958

Commodity-markets	1st to 8th	9th to 15th	16th to 22nd	23td to 28th
Coconuts (husked for 1000)				
Badagara	190.00	180.00	177.50	182.50
Ponnani	175.00	172.50	177.50	160.00
Tellicherry and Dharmadam	175.00	173.50	173.50	177.00
Copra at Badagara market per candy of 700 lb.				
Office	497.50	480.00	492.50	492.50
Edible copra				
Madras	450.00	430.00	440.00	440.00
Dilpas	N O	R E	P O	R T
Rajpur	500.00	490.00	495.00	495.00

General: **1. Coconut:** There was heavy demand for Coconuts during the month under report. Despatches were mainly to Bombay and Madhya Pradesh. Prices displayed a mild decline particularly during the concluding week of the month.

2. Copra: There was fairly heavy arrivals of Copra during the month under review. There was good off take of both milling and edible varieties. Despatches were mainly to Bombay and Tamilnad.

III Colombo

The weekly prices of Coconuts and Coconut products at Colombo during the month of December, 1957 are given below :—

Commodity	Unit	Week ending 2-12-57 Rs Cts.	Week ending 9-12-57 Rs. Cts.	Week ending 16-12-57 Rs. Cts.	Week ending 23-12 57 Rs. Cts	Week ending 30-12-57 Rs. Cts.
Coconuts (Husked) for export at Buyers' Stores.	Per 1000 nuts	* N. A.	N. A.	N. A.	N. A.	N. A.
Fresh Coconuts - (Husked) used for copra making and local consumption.	,,	105.00 to 110.00	105.00 to 110.00	110.00 to 115.00	110.00 to 115.00	110.00 to 115.00
Copra - Estate No. 1 quality at Buyers' Stores.	Per Candy of 560 lbs.	181.50 to 185.25	187.50 to 208.75	197.50 to 208.50	193.75 to 202.50	195.00
Desiccated Coconut - Wharf delivery or Buyers' Stores - Medium and fine 50%	Per lb.	00.41½ to 00.42½	00.42 to 00.45	00.44 to 00.44½	00.43½ to 00.44	00.44
Coconut oil - White, naked, wharf delivery.	Per ton	1040.00 to 1100.00	1100.00 to 1200.00	1125.00 to 1200.00	1115.00 to 1140.00	1125.00 to 1130.00

The weekly prices of Coconuts and Coconut Products at Colombo during the month of January 1958 are given below :—

Commodity	Unit	Week ending 6-1-58 Rs. Cts.	Week ending 13-1-58 Rs. cts.	Week ending 20-1-68 Rs. cts.	Week ending 27-1-58 Rs. Cts.
Coconuts (Husked) for export at Buyers' Stores. Fresh Coconuts - (Husked) used for copra making and local consumption.	Per 1000 nuts	110.00 to 115.00	110.00 to 115.00	110.00 to 115.00	110.00 to 115.00
Copra - Estate No. 1 quality at Buyers' Stores.	Per condy of 560 lbs.	195.00 to 202.50	196.25 to 205.50	192.50 to 197.00	190.00 to 191.25
Desiccated Coconut - Wharf delivery or Buyers' Stores - Medium and fine 50%	Per lb.	00.44 to 00.48	00.47 to 00.50½	00.49 to 00.50½	00.47 to 00.49½
Coconut oil - White naked, wharf delivery.	Per ton	1130.00 to 1160.00	1130.00 to 1155.00	N. A.	N. A.

The weekly prices of Coconuts and Coconut Products at Colombo during the month of February 1958 are given below :—

Commodity	Unit	Week ending 3-2-58 Rs. Cts.	Week ending 10-2-58 Rs. cts.	Week ending 17-2-58 Rs. cts.
Coconuts (Husked) for export at Buyers' Stores. Fresh Coconuts - (Husked) used for copra making and local consumption.	Per 1000 nuts	110.00 to 115.00	110.00 to 115.00	110.00 to 115.00
Copra - Estate No. 1 quality at Buyers' Stores.	Per condy of 560 lbs.	190.25 to 191.25	190.00 to 194.00	192.00 to 193.50
Desiccated Coconut - Wharf delivery or Buyers' Stores - Medium and fine 50%	Per lb.	00.49 to 00.51	00.50 to 00.52	00.50 to 00.52
Coconut oil - White naked, wharf delivery.	Per ton	N. A.	N. A.	1130.00 to 1135.00

* N. A. = Not Available

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by

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IV Straits Settlements

The weekly prices of coconut products at Singapore and Penang during the month of December 1957 are given below :—

Date	Singapore		Penang	
	Copra $	Coconut-oil $	Copra $	Coconut-oil $
7 - 12 - 1957	29.00	49.00	28.00	48.00
14 - 12 - 1957	31.00	52.00	30.00	50.00
21 - 12 - 1957	32.00	55.50	31.00	55.00
28 - 12 - 1957	31.00	53.50	30.00	51.50

The weekly prices of coconut products at Singapore and Penang during the month of January 1958 are given below :—

Date	Singapore		Penang	
	Copra $	Coconut-oil $	Copra $	Coconut-oil $
4 - 1 - 1958	30.50	49.50	30.00	49.00
11 - 1 - 1958	31.00	51.00	30.00	50.00
18 - 1 - 1958	31.00	51.00	30.00	50.00
25 - 1 - 1958	31.00	50.50	30.00	50.00

The prices quoted above are per picul, F. O. B. Singapore and Penang, inclusive of the cost of containers, i. e. second hand drums in the case of coconut oil and second hand gunny bags in the case of copra. One picul = 133⅓ lbs. One M. $ = Rs. 1.55 approximately.

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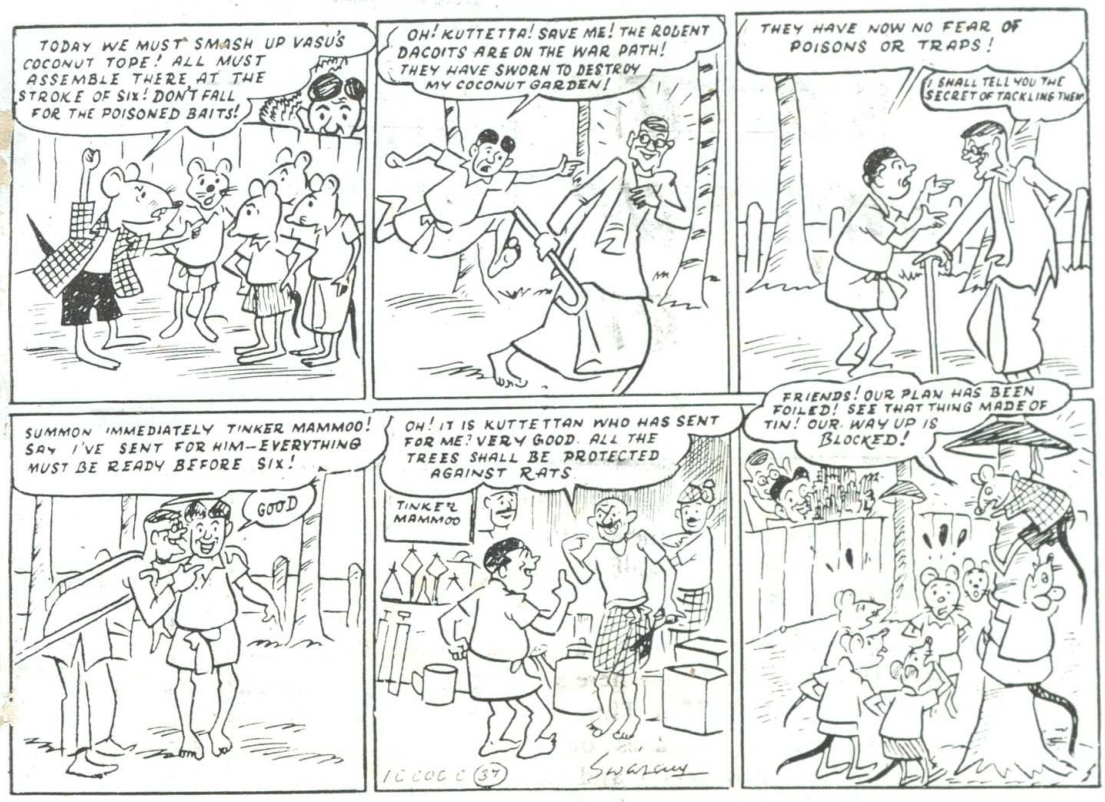
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