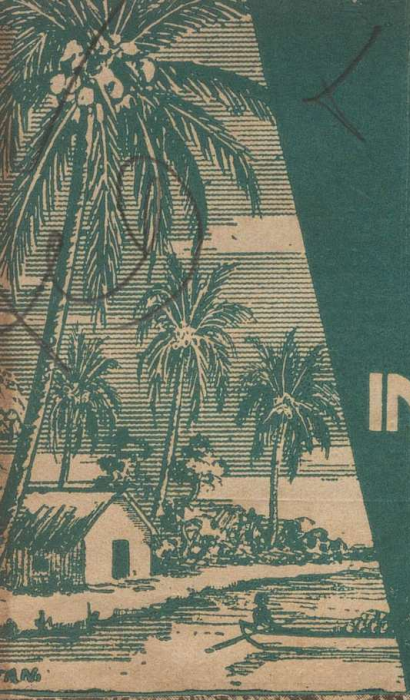
BULLETIN

Issued by the INDIAN CENTRAL COCONUT COMMITTEE



Vol VI Ernakulam July 1953 No 12

BULLETIN

Issued by

THE

Indian Central Coconut Committee

(Under the Ministry of Food and Agriculture, Government of India)

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In this Issue

COVER PICTURE: Covering Sunn-hemp seeds with a rake

NOTICE

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Secretary,
Indian Central Coconut Committee,
Ernakulam.

Bulletin Subscription Reduced !

The annual subscription to the "Bulletin Issued by the Indian Central Coconut Committee" has been reduced to 6 annas with effect from the issue of the Bulletin for August 1953. The cost of a single copy of the Bulletin will, however, remain at 1 anna. The benefit of the reduced subscription will be extended to those who have already paid subscription at the higher rate. The amount standing to their credit on the 1st August 1953 will be adjusted in accordance with the revised rate.

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THE INDIAN CENTRAL COCONUT COMMITTEE

VOL. VI. | ERNAKULAM, JULY 1953 | NO. 12.

Report on a Coconut Garden

IN April last, the Indian Central Coconut Committee participated in the Municipal Exhibition held in Kozhikode and the Agricultural Assistant in the Committee's office who was in charge of the Committee's stall, gave daily talks on the various aspects of coconut cultivation to visitors at the exhibition and invited interested individuals to visit the Committee's stall to get doubts, if any, cleared. Many persons took advantage of the invitation, visited the Committee's stall and obtained additional information on the subject of the day's talk. Some requested the officer to visit their coconut gardens and give advice regarding methods of improving them.

Accordingly the Agricultural Assistant visited some coconut gardens in and about Kozhikode, one of them being 'Silver Hill" the Home for Destitutes, about 4 miles out of Kozhikode on the Kunnamangalam Road. This garden is about 30 acres in extent and not far from the entrance gate is an interesting phenomenon—a six-branched coconut palm with a platform built round it.

The Condition of the Garden

The soil in the garden is gravelly red loam. The water table is about 50 ft. below the surface. There are about 1100 coconut palms in the garden, their age ranging from 20 to 25 years. They have been planted in straight lines with adequate space between palms. As the soil is somewhat hard it is not easy to dig it with the spade. The digging fork is, therefore, used. In some parts of the garden, bananas and vegetables are cultivated using the water coming out of bath rooms and the kitchen. The coconut palms in this area are healthy and good bearers. About 200 palms come under this group. The remaining 900 palms receive neither manuring nor intercultivation. The

Close-up of the crown of the six-branched coconut-palm

At the base of the six-branched coconut-palm

soil is not dug up on account of its hardness and manure is not applied because of its non-availability near by. No wonder, the yield from these palms is poor. They yield on an average not even 10 nuts per annum per palm. The following advice was given for improving the garden:-

1. The cutter is better than either spade or digging fork for digging up soil of the type in the garden and so its use was urged.

2. The raising of inter-crops not requiring irrigation was advocated as a means of improving the condition of the coconut palms.

3. The following procedure was suggested for raising intercrops without watering:-

After the north-east monsoon, prepare between the rows of coconut palms trenches 2 ft. wide, 1 ft. deep and of convenient length. Put in these trenches night soil collected from the latrines of the Destitute's Home and cover with a layer of soil until the trenches are completely filled up. After about a year inter crops can be raised in the places where the trenches were, without the necessity of having to irrigate them.

4. The following rotation of intercrops was recommended:-

First year—Yam, colocassia, ginger, turmeric.

Second year—Paddy & horse-gram.

Third year—Cow-pea.

In the fourth year open up trenches over again and fill them with human manure as already recommended.

5. By following the above procedure of manuring and raising of intercrops the soil will be stirred and the coconut palms properly manured. But the trenches in which night soil is filled should be at least 6 ft. away from the boles of the palms.

From the foregoing, readers will gather that coconut growers must use such manures as are locally available. Only after using all the available local manures should artificial manures be used.

An article on the intelligent utilization of local manures will be published in a future issue of the "Bulletin".

Intensive Cultivation—Its Possibilities in Travancore-Cochin State

By M. SANKARA MENON,
DIRECTOR OF AGRICULTURE, TRIVANDRUM.

THE most important problem that faces the country today is the problem of food. Whereas the all India deficit of food grains is only 10 per cent the deficit in this State is as high as 60 per cent and this deficit is rising year by year as our population is increasing.

Rice is our most important crop and the staple article of food. The production of rice in this State is estimated to be 2,75,000 tons a year. This is extremely insufficient to meet our requirements. To give a moderate 12 oz. ration to the people it is stated that we require 5 1/2l akhs of tons of rice more. We had never been able to get this. The allotments made by the Central Government to this State amounted to about 3 lakhs of tons of rice per year and with this we could hardly maintain an austerity ration of 6 oz of rice. The value of even this limited quantity of rice imported amounts to 20 crores of rupees per year. The State is issuing rice at a subsidised rate of Rs. 17 per maund and in selling rice at this subsidised price she is incurring a loss of 6 crores of rupees a year It is well nigh impossible for any State to depend so much upon imports and continue bearing such huge losses year after year. We have, therefore, to think of ways and means of solving this most difficult problem, the problem of food.

For the last 10 years, Governments all over India had been trying their best to increase the production of food in their respective areas. The first move was to expand the area under cultivation by bringing in fallow lands, waste lands and even village reserves under cultivation. We, in this State, who had very little of uncultivated lands, went to the length of clearing a portion of our valuable forests under the pressure of food production. These measures have not given us the expected results, and by bitter experience we have come to the conclusion that it is only by intensive cultiviation, by concentrating our efforts in areas of assured water-supply that we can increase our food production.

Fortunately for us, we have in this State, areas which under normal conditions of rainfall give us an assured water supply to our most important food crop—rice. We have in the south, the Nanjinad area of about 60,000 acres fed by the 'Kothayar' Irrigation System. The construction of the new reservoir at Perinchani has increased the water

supply to this area. The construction of the Neyyar Dam which has now been taken up will assure water supply to an area of 20,000 acres in the Neyyar region. Onattukara area, consisting of the Karthikapally, Mavelikara and Karunagapally taluks is another area of 30,000 acres where under normal conditions of rainfall, crops grow successfully. In Central Travancore we have the Kuttanad area of 1,20,000 acres of Punja lands, which, with the construction of the Spill-way at Thottapally at and the tidal bund at Thannirmukkom would give us assured crops over this entire region. The lift irrigation area of Alwaye is another region of assured water supply where over an area of 10,000 acres we can take not only two, but even 3 crops of paddy a year. In the Trichur District, we have the areas under the Chalakudy Diversion, The Peechi Reservior, the Vazhani Scheme and the Chittur Irrigation System, where, under normal conditions, water supply is assured for an area of over 80 000 acres. We have thus in the State an area of over 3 lakhs of acres where water supply is fairly assured and where intensive cultivation operations can be successfully carried on.

The average yield of paddy in India is estimated to be 800 lbs. per acre. In this State it is estimated at 1,200 lbs. In countries like Japan, Spain and Italy, the average is as high as 3,000 to 4,000 lbs. By adopting intensive cultivation methods, *viz.*, by using better seeds, more manures, by adopting better cultivation practices and by an effective control of pests and diseases, we too can raise our average to these levels.

Scientific research in recent times has shown us the way of increasing crop yields considerably. The chemist has been able to analyse our soils, find out their constituents, tell us their defects and suggest to us methods not only for rectifying such defects, but also of enriching the soils by the use of proper manures and fertilisers. The use of chemicals like ammonium sulphate and super phosphate and of organic manures like oil cakes and bonemeal has led to enormous increases in agricultural production. The use of leguminous crops as green manure has shown us the way to supplying a very cheap and effective source of nitrogen to our soils. Green leaf is the crying need of our paddy lands and this difficulty can be overcome if we adopt the Madras method of growing *Sesbania Speciosa* along the bunds of our paddy lands. If we dibble just 4 oz. of Sesbania seeds on the paddy bunds along with the sowing of our Kanni crop, which would cost us only one anna per acre we can have sufficient green manure for our second crop without using any extra land or incurring any additional expenditure. Seeds of this crop are available with the Officers of the Agricultural Department.

In the field of botany, plant breeders have evolved several strains of our important crops which are giving increased returns ranging from 10 per cent to 25 per cent and more

on account of the superiority of the seed alone. In our State we are multiplying and distributing seeds of improved strains of paddy like Cochin I, PTB 10, MO. 1, MO. 2, T9, ASD. I, CO. 2 and a number of other strains evolved locally as well as by the Madras Agricultural Department. These strains have now spread over an area of 1½ lakhs of acres and it is the aim of the Agricultural Department to cover the entire paddy cultivated area of the State with improved strains in the course of the next 5 years.

In the control of pests and diseases of crops too, science has made rapid progress. Our paddy crop, in particular, is subject to large number of pests and diseases. The swarming caterpillar, the stem borer, the rice hispa, case-worm and the rice bug and diseases like paddy blight and blast and the food-rot take heavy toll from our rice crops. These pests and diseases can be effectively controlled by the use of powerful insecticides like DDT and Benzene Hexachloride and timely sprayings and seed treatment with fungicides.

That by adopting intensive cultivation methods we can considerably increase our yields, has been established beyond the shadow of doubt. The Crop Competitions held all over India during the last 3 years have revealed to the world the possibilities of intensive cultivation. We now hear of astounding crop yields in paddy, wheat and other grains and also in potato, which are 10 times the normal yield. When in the year 1951, Sri Vellaya Gounder of Salem produced a crop of 12,000 lb. of paddy per acre, it was considered to be a feat which could not be surpassed. But during the year 1952, a Coorg farmer by name Sri Janganna C. Sangayya beat this world record and produced a crop of 12,150 lb. of paddy per acre. A yield of 700 paras of paddy per acre is a record worth admiration.

In our own State of Travancore-Cochin we had been getting very high yields during the last 3 years. In 1950, the highest yield recorded was 5,000 lb. of paddy per acre. In 1951, the record rose to 6,800 lbs and in 1952, it rose to 7040 lbs. There were several competitors in each season who produced yields of 300 paras and more of paddy per acre. If only our cultivators in the intensive cultivation areas emulate the example of these prize winners, we can have every hope of solving our food problem in this State.

Now a word about the Japanese method of rice cultivation, of which so much is spoken of now-a-days. The Japanese method of cultivation is nothing but intensive cultivation of rice. The essential features of the system are the use of a low seed rate, heavy manuring of the crop, both in the nursery and in the field, growing seedlings in raised nursery beds, transplanting of the crop in straight lines, adequate spacing between the plants as well as between rows, careful weeding and interculture and judicious watering.

We are now using a seed-rate of 6 to 7 paras of paddy and even more per

acre. According to the Japanese Method it is stated that 6 or 7 lbs. of seed will be sufficient per acre. If this is true, we can effect a tremendous saving in the seed used. Even if we could save 5 paras of seed per acre, we can, from our 8 lakhs of acres save 40 lakhs of paras of seed to the value of 1 crore of rupees per year. This in itself will be a great boon to our cultivators. It will also release for food 40 lakhs of paras of paddy to a a State so badly in need of food.

Besides the application of heavy doses of compost and farm yard manure as well as green leaf, very heavy doses of concentrated manures amounting to 80 lbs. of nitrogen, 80 lbs. of phosphoric acid and 60 lbs. of potash are recommended. Our paddy crops have never been accustomed to such heavy doses. We have yet to see whether such heavy doses can be applied in view of the prevalent blast and blight diseases. For the present we may limit concentrated manures like ammonium sulphate and super phosphate to the extent of 40 lbs. of nitrogen and 40 lbs. of phosphoric acid.

Better spacing between plants and the use of a limited number of seedlings say 3 to 4 per hole are practices which have already given good results. Interculturing in paddy fields is a practice which we have not been doing. Scientifically it should give better aeration to the soil and help better assimilation of plant food. Planting in lines helps weeding and interculture without injury to the plants. We may adopt interculture and interculturing implements with advantage.

The prospects of high yield ranging from 40 maunds to 60 maunds held out under this method are in no way exaggerated and can very well be achieved by our cultivators. The system is well worth a trial in the State. The Agricultural Department has already arranged to conduct experiments at 4 of its experimental farms and trials in 200 fields of the ryots in the State during the ensuing Kanni crop. If the methods are found successful, they will be adopted on a much larger scale in the succeeding Kumbhom crop.

(By Courtesy A. I. R. Trivandrum)

Manuring of the Coconut Crop

By

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Introduction: The coconut is an important crop, particularly in Madras where there is an area of about 6.2 lakhs of acres producing about 1,500 million nuts and accounting for 41% of the acreage and 46% of the production in India. On the West Coast where 69% of the area under coconut in this State is concentrated, the crop is of considerable economic importance. The present production in India which is estimated at 3,300 million nuts falls short of the requirements of the country by about 50%. This naturally results in abnormal rise in prices and necessitates importing coconut products from foreign countries. There is, therefore, urgent need to step up production. This can be done by two ways: (1) by extending the existing area under the crop, and (2) by increasing production of the existing area. The first is a long-range method; and the production from the existing area can be stepped up by adopting proper manuring and cultivation. This paper deals with this aspect of the subject.

Object of Manuring: Manure is food for the crop and manuring serves two purposes: (1) to replenish the manurial ingredients of the soil which have been removed by the crop and (2) to maintain the crop in a normal condition so as to ensure proper yields. The manure to be applied naturally consists of such ingredients as are required for the purpose mentioned. These, broadly speaking, are (1) nitrogen, (2) potash and (3) phosphoric acid. In addition to these three main ingredients a number of other elements are required to keep the plant in healthy and proper condition. It is presumed that secondary elements are found in the required quantity in the soil and are, therefore not ordinarily added to the manure that, is given to the crop. However, to give the plant or the crop a complete food it is necessary to analyse the soil and find out exactly the constituents of the soil and see whether they are present in the required quantity and in an available form sufficient for the growth of the crop. If not such want has got to be made good.

Manurial Requirements of the Coconut: The work done on the manurial requirements of the coconut in this State has been mostly confined to the Coconut Research Station, Kasaragod, South Kanara district. The soil is a

deep sandy loam with the following analysis:—

Loss on ignition	2.25
Available $P_2 O_5$	0.001
Available $K_2 O$	0.002
Lime	Trace
Magnesia	0.07

A regular bearing coconut garden yielding about 2,000 nuts per acre, per year has been found to require about 24 lb. of nitrogen, 12 lb. phosphoric acid and 60 lb. of potash. These figures include the quantities required to build up the trunk, to form the leaves and flowering bunches and also the nuts. These figures are much less than those given for Malaya and Philippines. Therefore, it goes without saying that these ingredients have to be given back to the soil so as to maintain its normal fertility.

Coconut is a perennial crop, producing nuts practically throughout its life time from the time of commencement of the first flowering. Every month a bunch of nuts is produced. Therefore, the manurial ingredients from the soils are being regularly and constantly removed and it is necessary that manuring has to be done regularly every year if not every month. The effect of manuring in the coconut as expressed in terms of yield of mature nuts is perceptible only in a period of about 3 years from the commencement of manuring because, the time taken from the formation of the primordia of the flowering bunch till the time of harvest is about three years. And this process of formation goes on practically throughout its life under normal conditions. Therefore, it is obvious that the necessary supply of plant food should be available to the plant all through its life-time. The main ingredients of the coconut manure consist of three major elements namely, nitrogen, phosphoric acid and potash. To find out the quantity that should be applied, a well-laid out experiment consisting of N, $K_2 O$ and $P_2 O_5$ singly and in combination and if possible at different levels is necessary to arrive at a clear indication of the requirements of the crop. The response of the crop to the treatments given as exprssed in terms of yield has to be considered. Some experiments in this direction have been carried out at the Coconut Research Station, Kasaragod. The first set of manurial experiments was started in 1922—1923 and continued till 1931—1932. Nitrogen in the form of ammonium sulphate and fish guano, potash in the form of potassium sulphate and ash, and phosphoric acid in the form of super-phosphate were given. Also cattle manure, salt and lime were tried singly and in combination. In this experiment, the maximum response was obtained with ammonium sulphate 3 lb. and 20 lb. of wood-ash per tree per year. The next best was cattle manure at the rate of 100 lb. per tree, per year. Significant increase in the yield viz., 14.5% was obtained in case of low-yielding palms (below 30 nuts per year) and also medium bearers (27% increase)but not in the high-yielding ones, giving 80 or more

nuts per tree, per year. It must be noted in this connection that though the high-yielding palms have not given increased yield consequent on manuring, it goes without saying that they also should be manured to maintain soil fertility and the normal production of nuts. Otherwise, the soils will soon be deprived of the manurial ingredients and the yield would naturally go down in due course. In this connection it may be stated that ammonium sulphate alone did not give as much marked response as ammonium sulphate and ash. Salt and lime did not give any significant increase of yield. Based on the indications obtained in the previous experiment, a new series of experiments were laid out in 1932 with ammonium sulphate and ash and cattle manure applied broadcast and in basins (6' radius 1' deep.) It was conclusively proved that ammonium sulphate 3 lb. and ash 20 lb. gave the highest yields and that broadcasting of the manure was better than applying it in basins. The experiment was further elaborated in 1937—1938 to find out whether a higher dose of 4½ lb. of ammonium sulphate would give better results than 3 lb. and also whether it could be substituted with groundnut cake, and ash with potassium sulphate. It was found that increased dose of ammonium sulphate, namely 4½ lb. per tree, per year gave higher yields than 3 lb. of it per tree, per year. It was also found that ammonium sulphate can be replaced by groundnut cake on equivalent nitrogen basis and ash can be replaced by potassium sulphate on equivalent potash basis. It may be stated that no significant response was obtained consequent on the application of $P_2 O_5$. The soil contained only 0.35 of total and .001 of available $P_2 O_5$. Perhaps this quantity though small meets the normal requirements of the crop. Still, as large quantities (12—40 lb.) are being annually removed by the crop, it is necessary to add $P_2 O_5$ in some form or other as superphosphate or as bone-meal. As the soils are acidic in reaction and as coconut is said to thrive better under a slightly alkaline medium, it is desirable to add some lime also to the soil. The ash applied which contains about 22% of CaO, is considered to be helpful in this respect.

Organic matter and green manuring:

The Kasaragod soils were poor in organic matter, the loss on ignition being only 2.25%. Therefore, to augment the supply of organic matter it is necessary to add it in the form of farmyard manure, compost or green-leaf, or as oil-cakes. Farmyard manure is available only in very limited quantities and is required for other crops. Oil-cakes are in short supply. The best and cheapest form of organic matter appears to be a green manure crop grown in the field and ploughed in. All the known green manure crops that are likely to be of use for coconut plantations have been tried and the best is the wild sunhemp or *Crotalaria striata*. This leguminous plant has at times given as much as 20,000 to 30,000 lb. of green stuff per

acre and it comes up very well under the shade of coconut trees. In this connection it should be mentioned that it is desirable to return to the soil as much as possible of coconut by-products other than those required by man. For example all the dried leaves, husks and all the refuse usually found in a coconut garden which contain valuable manurial ingredients, should be buried in the field in trenches, or the ash obtained by burning them should be given back to the soil. Where the green husks are utilised in the manufacture of coir, they cannot be used as manure. But dried husks prove very valuable to the soil. In an experiment conducted at the Kasaragod station for a period of 7 or 8 years it was found that burying of coconut husks at the rate of 1,000 husks per tree with all the dried leaves and refuse obtained in the garden was found to benefit it and increase the yield to a marked extent (70%). The effect of burying the husks and leaves once, lasted for about 5 years without the addition of any other manure. The field received, however, regular cultivation and a crop of green manure was grown in the field and ploughed in and incorporated in the soil. This practice of burying husk is of considerable value particularly in rain-fed gardens.

Importance of ash: In the manuring of the coconut gardens, special attention should be paid to the application of potash. It is perhaps more important then even nitrogen itself, because potash is the main ingredient in the various parts of the palm, particularly the leaves (4% K_2 O), husks (1%) and kernel (.4%). From the manurial experiments conducted, it was found that even the application of ash alone at the rate of 20 lb. per tree, per year gave highly significant increase in yield of about 34 nuts more than the control plot without ash. In one of the manurial experiments mentioned in the previous para, it is stated that ash, which is not available in the required quantity can be replaced by potassium sulphate. Though the yield is not affected by this substitution, it must be stated that ash is a better manure for the coconut in the long run than potassium sulphate, because potassium sulphate contains only K_2 O while ash contains other ingredients also, besides K_2 O and CaO. Therefore, it is worth while finding out an artificial product approaching the ordinary ash in analysis and containing all the ingredients.

Precautions in applying ammonium sulphate, ash and cattle manure: Ammonium sulphate applied alone without ash did not give significant increase in yields. It is very important, therefore that ammonium sulphate should always be applied with ash. However, it should be borne in mind that ammonium sulphate is acidic and ash is alkaline in reaction and the two manures should not be mixed up and applied. They should be applied separately at an interval of a fortnight or a month. Cattle manure at the rate of 100 lb. per tree, per year gave a significant increase

in yield coming next in rank to ammonium sulphate and ash. But cattle manure cannot be had on a large scale and in sufficient quantities and its use can only be very limited. Also in places where cattle manure is applied, there is the danger of the soil breeding the rhinoceros beetle which is a bad pest of the coconut.

Time and method of application: Manures should be applied only when there is sufficient moisture in the soil, though not too much of it. The best time to apply the manures under the West Coast conditions is some time in September. Incompatibles like acid and alkali manures should not be mixed.

The method of applying manure is an important consideration. As feeding roots of the coconut are found all over the field, it is considered necessary to apply the manures broadcast all over the field. The feeding roots go to a depth of some 3 or 4 feet below the ground level and it is desirable to put in the manure as deep into the soil as possible. For this purpose the soil should be ploughed deep so as to incorporate the manures in the deeper layers of the soil. In an experiment conducted on the method of application of manures it was found that application by broadcasting gave better yields than applying them in basins dug near the bases of the trees. However, in the case of young seedlings or palms where the root system has not spread throughout the field, the manures may be applied near the palms, extending to a radius of about 5' or 8' all round. The dose of the manure to be applied to the young palms till they come to the bearing stage is about half the dose of the adult trees.

Effect of manuring on the produce: It has already been stated that the yield of nuts particularly of low bearers, increases considerably as a result of manuring. It has effect on the quality of crops also, which contain more of N and $P_2 O_5$. Palms receiving complete manure (viz. N, P, and K), cattle manure and green manure, had higher copra content per nut, and in the case of palms receiving ammonium sulphate the percentage of oil also increased.

Manuring and disease:

A coconut garden which is regularly cultivated and manured is able to withstand the vagaries of the season better than a neglected garden. In times of severe drought and other adverse conditions, properly maintained gardens do not suffer to the same extent as the neglected ones. Where the trees are weak due to neglect they suffer more, consequent on the incidence of pests and disease than robust healthy trees. In the trials conducted at the Coconut Research Station, Pilicode, where 'shoot rot' disease is prevalent it was found that a regular application of potassium sulphate warded off the disease to a marked extent.

Manuring and Cultivation

In the coconut, manuring goes hand-in-hand with cultivation of the

soil. In an experiment designed to find out the effect of cultivation alone and manuring alone it was found that there was significant increase in the yield of plots receiving regular cultivation alone without manuring (166% over the unmanured and uncultivated plot), while the plots receiving manuring alone (5 lb. of fish guane, 40 lb of ash and 40 lb. of greenleaves per tree) without cultivation did not give significant increase in yield. It is therefore evident that cultivation by itself is more important than manuring alone without cultivation. In normal practice it is necessary that manuring should be practised along with regular cultivation of the soil. Cultivation by ploughing not only keeps down the growth of weeds but also gives a root pruning at the surface of the soil and helps to keep the roots below the ground level which is considered beneficial for the coconut. Also regular cultivation aerates the soil and also enables the rain water to soak into the soil.

Schedule of manuring: The following schedue of manuring will be found to be the best and most suitable for coconut gardens in the West Coast under rain-fed conditions. Plough the land in February-March with a mouldboard plough so as to create soil mulch and receive the summer rains. In May, when there is sufficient rainfall, sow a green manure crop, like *Crotalaria striata*, at the rate of about 20 lb. per acre and cover with a light plough or a cultivator like the Junior Hoe. In September-October, after the cessation of the South-West monsoon rains broadcast ammonium sulphate and bonemeal at the rate of 4½ lb. of the former and 2 lb. of the latter. Plough in the manures applied and also the green manure crop by means of a heavy iron plough. If the green manure crop cannot be ploughed into the soil it is to be cut and buried in shallow trenches between rows of trees, the position of trenches being shifted every year. Then in November-December broadcast wood-ash at the rate of 30 lb. per tree and work a light plough or cultivator so as to incorporate the manure into the soil and also to put down the growth of weeds.

Ammonium sulphate can be replaced by groundnut cake or other oil cakes on equivalent nitrogen basis. While ammonium sulphate contains about 20% of N, groundnut cake contains about 8% of N. Ash can be replaced with potassium sulphate on equivalent potash basis. Ash contains 3% of potash and potassium sulphate contains 43%. Among the phosphatic manures bonemal contains about 16% of P_2O_5 and superphosphate-ordinary 22%. If it is not possible to grow a crop of green manure in the field green leaves (1% of N) at the rate of about 50 lb per tree may be applied. The schedule given in the foregoing is a complete scheme of manuring and cultivation which not only maintains

the soil at a high level of fertility but also ensures regular and increased yield of the trees. As has already been explained it is important that these operations are carried out regularly every year. If it is not possible to give nitrogenous and other manures, attempts should be made to supply every year at least ash or potassic manures. If even this is not possible a green manure crop may be regularly grown and ploughed into the soil. If, however, even the green manure crop cannot be grown or green leaves applied, the soils should be regularly ploughed and cultivated once or twice in a year.

In addition to manuring and cultivation it is very necessary that the garden is protected from pests and diseases by taking prompt action and adopting remedial measures in time. Regular and systematic search for the rhinoceros beetle in the crowns of palms should be made and the beetles killed. It may be pointed out that neglect in this respect is usually responsible for a loss of about 10% or more of the yield.

Economics of manuring: After all, agriculture as a business proposition should pay. Intercultivation and manuring of the coconut as indicated in the foregoing can easily increase the yield cosiderably. The increase in yield should cover the cost of manuring and cultivation and leave a reasonable margin. The major manures to be used and the quantity to be applied depends on the availability of manures and their prevailing market prices. Taking the price of ammonium sulphate at about As. 2½ per pound, and ash at about Rs. 2 per 100 lb. and bone meal at As. 2 per pound, the schedule of manuring and cultural operations mentioned cost about Rs. 2-8-0 per tree per year. And the yield is put at an average of about 50 nuts per tree, per year, valued at Rs. 10/- which leaves a net profit of about Rs. 7—8—0 per bearing tree, or about Rs. 470 per acre. In a neglected garden taking the yield at about 20 nuts per tree, per year, the net profit due to manuring, per tree, is about Rs 3 - 8 —0 per year. At the present high prices for coconut, manuring and cultivation certainly do pay. But it should be remembered that the garden should be always looked after and cared for irrespective of the market price of the coconuts The system of manuring and cultivation advocated in this paper pertains mostly to the West Coast rain-fed conditions and cannot be said to be applicable in full to the other coconut tracts of the State. To get at the correct data of manuring, a regular experiment should be conducted in the tract concerned for a series of years and then alone can the findings be advocated with confidence.

Sumamry

The coconut is an important oilseed crop of the Madras State with an area of 6·2 lakhs of acres, mostly in the West Coast. Still the production is only 50% of the demand and

has to be stepped up. This can be done by manuring. The crop yields nuts throughout the year and practically throughout its life-time from the time of commencement of first fruiting. Considerable quantities of plant food are being continually removed by the palm to build up its body and produce nuts. Therefore complete manuring has to be done regulary every year so as to replenish the soil with the ingredients removed, and maintain the palms in good condition and high productivity. As a result of a series of experiments conducted at the Coconut Research Station, Kasaragod, it has been found that the best manure for the coconnt is 4½lb. of ammonium sulphate or 15 lb. of groundnut cake, 30lb. of superphosphate in addition to a crop of green manure (*Crotalaria striata*) grown in the coconut garden and incorporated into the soil. The most important ingredient is potash contained in ash. Manuring goes hand in hand with regular cultivation. Even if the soil connot be manured it should be regularly cultivated. A schedule of manuring for the West Coast rain-fed gardens is given. It is very desirable that all unwanted dry leaves spathes, dry husks and other refuse which contain valuable manurial ingredients are buried in the garden.

The effect of manuring on the yield is perceived in a period of two to three years after the commencement of the operations. Low yielders (beow 30 nuts per tree per year) respond best to manuring with an increased yield of even 65%, and the medium yielders can give 27% increase. But the heavy yielders giving about 80 nuts per tree cannot further increase their yields. Still they should be manured regularly to maintain the yields. Manuring improves the quality of produce also. At a modest estimate a regularly cultivated and manured garden can give a net profit of Rs. 470 per acre at the prevailing market rates.

The schedule of manuring given here is not quite applicable to all the different coconut tracts of the State, and experiments have to be conducted in each tract before recommending the best manure suitable for the tract.

—*Madras Agricultural Journal.*

September Operations in Coconut Garden

IT is usual in Kerala to excavate basins round the coconut palms before the south-west monsoon and to fill them up in September. A Malayalam proverb says, "The South-west monsoon should get in and the North-west monsoon should stay out." At the beginning of the South-west monsoon circular basins should be prepared round the palms and bulky manures like green leaves and cattle manure put into them. After these have been well rotted in the basins, add the remaining manures and fill in the basins with earth at the end of the south-west monsoon Thus the rains of the north east monsoon fall on the filled-in basins. Usually 1 or 2 tins of ash are added before the basins are filled in. Chemical manures, if any, may be added now. If, along with ash either bone meal or prawn dust is added there will be good nut-setting. Two pounds of bonemeal or 10 lbs of prawn dust may be applied. If the palm appears to be unhealthy 15 lbs. of oil cake may be applied along with the ash. Ammonium sulphate should not be applied along with ash.

2. If a green manure crop has been raised in the garden it is in September that it should be slashed and incorporated into the soil. If the plants have woody stems it would be desirable to cut them into pieces and bury them in trenches dug between rows of palms.

3. Heavy bunches should be tied up in September also to prevent them from buckling.

4. Horse-gram may be sown in coconut gardens at the beginning of September. In May, paddy is sown and after the paddy crop is harvested the land is ploughed again three or four times and horse-gram sown. Before ploughing, add ash at the rate of 50 tins per acre. Cover the seeds with a light plough or a harrow. The seed rate is 2 paras per acre. The gram stalks may be dried after sprinkling over them a little salt solution, and stored as cattle fodder.

5. As the north-east monsoon rains are few and light in the South Kanara District, cultivation to prevent drought must be started in September itself. Pits for planting coconut seedlings, trenches for growing vegetables etc. also should be dug in September when the soil is still soft.

6. September is the most suitable time for transplanting tomato seedlings. The seedlings should be planted in the trenches prepared as described in the issue of the "Bulletin" for June, 1953. They should be 18" apart and planted according to the triangular method of planting. Before planting dig the trenches once.

Take out the seedlings from the pot

You Ask, We Answer

Planting Coconuts on fallow lands

Question: A portion of my compound is lying fallow. If one or two trees standing in the garden are cut and removed more area will be available. I wish to plant coconut seedlings in this place. The garden is composed of wet kari soil. Now that the rains have started, is there any harm in digging pits and planting seedlings in them ? Please also let me know whether it is advisable to put in the planting pit green leaves and cattle manure at the time of planting.

Answer: From your description the land appears to be suitable for planting coconut. It is necessary before planting to clear the land of all trees with roots growing at the site and to fence it properly. If the land is sloping, it has got to be terraced to prevent rush of water during rains.

After the land is made ready for planting, seedling pits of 3'x3'x3'may be dug in advance and allowed to weather. The sides of the pits may also be charred by burning rubbish in the pits. A spacing of 26' to 28' either way may be given between the pits which may be dug in straight rows. Coconut seedlings should not be planted at or very near the place where the trees are standing, at present. It is not advisable to add green leaves or cattle manure in the pits at the time of planting as these are likely to attract white ants which do serious harm to the young seedlings. The seedlings may be planted in the centre of the pits and the nut portion completely covered with surface soil to which some sand and red earth have been added, and the soil pressed down well. A handful of common salt and about 10 lb. ash may also be added to the soil in the seedling pit and well forked in. It may be necessary to tie

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in which they have been raised, only after watering them an hour before. Water the pot at about 5 p. m., uproot the seedlings at about 6 p. m. Water the seedlings with rosepan after transplanting. Next morning fix some leaf shades to protect the plants against heat. The shades must remain in position for about a week. The seedlings must be watered both morning and evening. The shades must be removed only in the evening.

Every two weeks apply to the plants a mixture of rotted cowdung and ash and fork it in. When the plants begin to grow up fix a stick near each and tie them to the sticks. About a month hence, fruiting commences.

the seedlings securely to a stake fixed in the pit if there is the likelihood of the seedlings getting disturbed by wind.

After planting the seedlings have to be profusely watered every alternate day in case rains are not received in time. If heavy rains are received care should be taken to see that water does not stagnate in the pits for any length of time, by baling out water occasionally. Excess soil washed into the pits has also to be removed then and there.

Heaping soil at the base of coconut palms

Question: Is it good to heap up sand or soil round the base of coconut palms? Is watering of grown up coconut trees essential during summer?

Answer: There is no harm in heaping sand or earth at the foot of the tree. But if the heap is allowed to remain for a long time, some roots may form and these may come out or get exposed to the sun, if the heap were to be removed later or washed away by rain. Heaping the soil at the foot of the tree is believed to give protection to the surface planted coconut trees during summer. Grown up coconut trees do respond well to watering in summer, especially trees planted on the surface or in soils with low water table and low moisture holding capacity. It is not essential to water grown up trees growing in moisture retentive soils or in places where the water table is fairly high in summer.

Coconut cultivation on hill-slopes

Question: I have a small coconut garden with sandy soil on the surface and laterite rock beneath. The trees suffer drought during summer. The garden is situated on a hill-slope; bringing river sand and silt to the garden is, therefore, out of question. The garden was not intercultivated for about eighteen years. Recently when the garden was dug and soil stirred many of the roots of the trees were cut off and consequently the yield has been reduced considerably. Inter-crops raised in the garden have not been successful The trees are more or less free from any disease. Please let me know what I shou'd do to get economic yield from the garden.

Answer: The land appears to be quite unsuited for coconuts. The coconut palms require fairly deep soil and sufficient quantity of moisture during the summer months if they are to grow and yield well. The best way would have been to terrace the land by putting up proper bunds on the contour and plant coconuts in pits not less than 3'x3'x3' size. This would have to some extent warded off the effect of summer conditions. The only way to improve your garden, if at all it is possible is to terrace as far as possible and grow regularly a crop of green manure during the monsoon months and plough it down into the soil with the close of the monsoon. Application of large quantities of green leaf and cattle manure is also desirable.

News And Notes

Import duty on copra reduced

The Government of India have reduced with effect from the 28th June, 1953 the import duty on copra from 25 per cent *ad valorem* (standard) and 15 per cent *ad valorem* (preferential) to 15 per cent (standard) and 5 per cent (preferential). The former rates had been in force from the 2nd January, 1952. Prior to that date the standard duty was 37½ per cent and the preferential duty 25 per cent. The variation in the import duty on a ton of copra before and after the 1st January, 1952 has been as follows;-

	Standard duty. Rs.	Preferential duty. Rs.
Before 1-1-1952	405	270
From 2-1-1952	320	192
From 1-2-1953	250	150
From 28-6-1953	150	50

The reduction from the 1st February, 1953 to 28th June, 1953 was due to a reduction in the tariff value of copra from Rs. 64 to Rs. 50 per cwt,

It is reported that the Travancore-Cochin Government have requested the Government of India to reconsider the reduction as it would vitally affect the common man's economy in the State.

* * * *

5 lakh acres brought under Jap method of paddy cultivation

It is expected to bring under the Japanese method of paddy cultivation about 5 lakhs of acres of paddy in India by the end of the current year. Conditions in the States of Madras, Bombay, Bengal, Behar and Orissa are said to favour the adoption of this method and a great deal of enthusiasm has been evinced for it. It is reported that the Central Government propose to popularise the method through films and other such means.

* * * *

Distribution of coconut seedlings

The Horticultural Assistant, Coconut Nursery Scheme, Assam, has reported that during the month of May, 1953, 282 coconut seedlings were distributed among 11 growers from the nursery at Kahikuchi functioning under the joint auspices of the Assam Government and the Indian Central Coconut Committee. The nursery which started distributing coconut seedlings from November, 1952 onwards has supplied 1029 seedlings during the seven months from November, 1952 to May, 1953.

* * * *

The Director of Agriculture and Food Production, Orissa has reported

that during the month of April, 1953, 24 coc nut seedli gs were distributed among 5 growers from the nurseries at Puri and Cuttack functioning under the joint auspices of the State Government and the Indian Central Coconut Committee.

* * * *

The Director of Agriculture, Madras, has reported that about 1,50,000 quality cc conut seedlings will be available from the nine coconu nurseries of the State functioning under the joint auspices of the Madras Government and the Indian Central Coconut Committee for distribution among growers during the 1953 planting season. It has also been reported that a total number of 1813 coc nut seedlings have been distributed among 27 growers during the month of May, 1953.

Increased use of fertilisers

Dr. Frank W. Parker, one of the World's leading authoriti s in soil science and fertiliser research is expected to reach India this month to advise the Union Ministry of Food and Agriculture on the organisation of research and demonstration in the manuring of crops and the use of fertilisers. Dr. Parker has been Agronomist, Soil Scientist and Director of soils research since 1942 at Beltsville, Maryland, U. S. A. It is expected to step up the consumption of ammonium sulphate from 250,000 tons per annum to 500,000 tons. A Special drive will be organised for increasing the use of fertilisers in the Jap method of cultivation.

Five-point plan for Agricultural Development

A five-point plan of agricultural development in India comprising (1) introduction of land refoms (2) supply of foreign trained teachers and qualified locally trained personnel, (3) assistance to the cultivator through co-operatives and subsidiz d fertiliser supply (4) expansion of practical aggricultural education at the village level and (5) application of mild forms of social and legal pressure on reactionary elements averse to progress, was advocated by Dr. E. C Behtley, Cannadian Agricultural expert from the University of Alberta addressing the world university service seminar, recently held in Mysore. Dr. Behtley is at present working with the Colombo plan in Ceylon The problems to be tackled were listed by him as follows:-

1) Lack of agricultural technicians and experts with proper acedemic and practical training (2) difficulty of mechanisation owing to dearth of mechanically trained personnel (3) land tenure problems and (4) social resitance to change and conservatism on the part of cultivators.

Dr. Behtley deprecated the tendency on the part of Asian students to disdain practical mannual work.

* * * *

Travancore-Cochin families to colonise the Andamans.

According to a newspaper report

some families from Travancore-Cochin will be permitted to settle down in the Andamans. The selected families will each be given 5 acres of land and a loan of Rs 2000. They will also be allowed tax remission for a peried of 5 years.

* * * *

Spraying Scheme to control Coconut Leaf Disease.

Under the scheme for the spraying of coconut palms to control the leaf disease, functioning under the control of the Joint Director, Central Coconut Research Station, Kayangulam, 6,621 trees were sprayed during the month of May 1953 in the taluks of Quilon, Karunagappally, Thiruvella, Kottayam, Meenachil, and Cochin Kanayannur. The total number of trees sprayed during the 3rd extension of the scheme from the 1st December, 1952 to 31st May 1953 was of the order of 66,934.

The Scheme has been tremporarily suspended for the South West Monsoon period from 1st June 1953 and will be resumed from 1st September.

* * * *

M. P.'s Visit to Central Coconut Research Station, Kayangulam.

Sri. K. C. George, Member, Council of States and a Member of the Indian Central coconut Committee visited the Central Coconut Research Station at Kayangulam in Travancore-Cochin State on the 3rd July 1953. He was taken round the Station by the Joint Director, who explained to him in detail the various items of work in progress at the Station. Sri George evinced keen interest in the work but felt that there should be more efficient methods by which the results of research could reach the farmer for practical application.

MARKET REPORTS

I. COCHIN, ALLEPPEY & CALICUT.

The daily prices of coconuts, copra, coconut oil and coconut oil cake at Cochin, Alleppey, and Calicut from 11—6—1953 to 10—7—1953 are given below:-

Date	Coconuts per 1000			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.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
11-6-53	155	*	122-8	1231-14	1214-2	1280	1828-10	1829-11	1920	349-8	333-7	376
12-6-53	150	*	122-8	1221-11	1214-2	1280	1811-9	1821-2	1904	349-8	333-7	384
13-6-53	155	155	*	1214-13	1214-2	*	1793-12	1812-6	*	349-8	324-14	*
14-6-53					Sunday							
15-6-53	155	*	126-4	1211-6	1222-10	1280	1794-8	1829-11	1904	349-8	316-6	384
16-6-53	152-8	*	127-8	1194-6	1214-2	1272	1781-12	1795-8	1872	341	324-14	384
17-6-53	152-8	*	137-8	1186-11	1205-9	1248	1764-10	1795-8	1872	332-8	316-6	384
18-6-53	155	*	137-8	1193-8	1214-2	1248	1781-12	1812-10	1872	323-13	312	384
19-6-53	155	*	137-8	1202	1231-3	1248	1790-4	1829-11	1864	328-3	312-1	384
20-6-53	155	155	136	1193-8	1231-3	1280	1781-12	1829-11	1856	323-15	312-1	384
21-6-53					Sunday							
22-6-53	155	*	137-8	1195-3	1222-10	1280	1790-4	1812-10	1856	323-15	307-13	384
23-6-53	160	*	137-8	1195-3	1232-15	1280	1790-4	1812-10	1856	323-15	307-13	384
24-6-53	160	*	145	1197-12	*	1280	1791-8	*	1856	323-15	*	384
25-6-53	160	*	145	1201-2	1231-3	1288	1798-12	1804-1	1848	323-15	316-6	384
26-6-53	160	*	141-4	1191-13	1239-12	1283	1784-4	1786-14	1872	328-4	316-6	384
27-6-53	160	160	142-8	1184-15	1222-10	1288	1768-14	1778-6	1872	332-8	314-8	384
28-6-53					Sunday							
29-6-53	160	*	137-8	1776-7	1188-7	1248	1746-12	1769-14	1856	328-3	316-6	384
30-6-53	*	*	137-8	*	1162-13	1248	*	1744-3	1840	*	316-6	384
1-7-53	155	*	132-8	1176-7	1188-7	1248	1751-14	1769-14	1840	332-8	316	384
2-7-53	*	*	133-8	*	1188-7	1248	*	1744-3	1840	*	316-6	384
3-7-53	*	*	135	*	*	1232	*	*	1832	*	*	368
4-7-53	155	150	135	1185	1188-7	1232	1773-3	1761-5	1824	328-3	316-6	368
5-7-53.					Sunday							
6-7-53	155	*	135	1193-8	1214-2	1240	1786	1778-6	1824	362-5	312-1	368
7-7-53	150	*	142-8	1196-15	1214-2	1264	1790-4	1782-11	1840	332-8	312-1	368
8-7-53	150	*	148-12	1200-5	1231-3	1264	1791-8	1778-6	1840	332-8	312-1	368
9-7-53	150	*	156	1185	1214-2	1280	1768-15	1778-6	1840	332-8	312-1	368
10-7-53	150	*	156-4	1180-11	1205-9	1280	1760-7	1761-5	1840	328-3	312-1	368

Trend of Coconut Oil Price in Cochin

(From our own correspondent)

Cochin, 10th July, 1953.

As anticipated in my last month's despatch, the price of coconut oil in the Cochin Market showed a down-ward trend during June, in sympathy with a similar trend in the Singapore and Colombo Markets where larger arrivals of stock and falling demand from foreign buyers had tended to depress prices. In Colombo, the price of coconut oil which was Rs. 1,325- per ton (ex-godown) on the 1st June 1953, had fallen to Rs. 1125/- on the 29th of the month. In Cochin, the price of the Coconut oil which was Rs. 1,837-2.0 on the 1st of June, fell to Rs. 1768-14-0 on the 27th and to Rs. 1 746 12-0 on the 29th. Easy conditions in the groundnut oil markets, following the ban on the export of groundnut oil, and restoration of the electricity cut leading to larger production of coconut oil, also helped the downward trend.

On the 27th June the Government of India, announced a reduction in the import duty on copra with effect from the 28th June (Vide News and Notes). The immediate reaction was that the price of coconut oil in Cochin which was Rs. 1,768-14-0 on the 27th dipped to Rs. 1,746-8-0 on the 29th. The price, however, rallied to Rs. 1,773 on the 30th as a result of scattered support by some exporters to North Indian markets.

Following the reduction in the import duty, there was a rush of order for Ceylon Copra, from Bombay and West Coast millers which has had the the result of sending up the price of coconut oil in the Colombo market. It has risen from Rs. 1,125 per ton on the 29th June to Rs. 1,200 yesterday. This has had a slightly favourable reaction on price in the Cochin Market too. The opening quotation to-day was Rs. 1,757/14/- per ton which rose to Rs. 1,764/10/- by about 2 p. m.

Demand from Bombay buyers continues to be weak, and unless, there is good foreign buying in the Colombo market, prices in Cochin are likely to be weak and fluctuating.

II. BOMBAY

Weekly wholesale prices of coconuts, copra, coconut oil and coconut oil cake at Bombay during the month of June 1953.

DATE	COCONUTS PER 1000						Copra per candy of 22½ qrs.			Coconut oil price naked per quart.	Oil Cake per bag of 168 lbs.
	NEW			OLD				Edible			
	Small Rs.	Medium Rs.	Large Rs.	Small Rs.	Medium Rs.	Large Rs.	Milling Rs.	Rajapur Rs.	Alleppey Rs.	Rs.	Rs.
4—6—53	180	235	*	185	265	295	375	410	375	24- 6	25-8
11—6—53	180	230	*	190	275	305	374	400	370	24- 4	25-8
18—6—53	180	230	*	210	280	315	373	400	370	24- 4	25-8
25—6—53	195	240	*	211	291	331	370	410	365	24- 2	25

III COLOMBO

The weekly prices of Coconuts and Coconut products at Colombo during the month of June 1953 are given below:-

COMMODITY	UNIT	1-6-53 Rs. Cts.	8-6-53 Rs. Cts.	15-6-53 Rs. Cts.	22-6-53 Rs. Cts.	29-6-53 Rs. Cts.
Coconuts (Husked) for export at Buyers' Stores	Per 1000 nuts					
Fresh Coconuts (Husked) used for Copra making and local consumption.	,,	170.00 to 175.00	170.00 to 175.00	165.00 to 170.00	170.00 to 175 00	170.00 to 175.00
Copra—Estate No 1 Quality at Buyer's Stores.	Per Candy of 560 lbs.	202.50	202.50	187.50	19?.00	185.00
Desiccated Coconut—Wharf delivery or Buyer's stores—Medium and fine 50%.	Per lb.	0.57	0.60	0.54	0.54	0.49
Coconut oil—white, naked, wharf delivery	Per ton	1325.00	1,300.00	1200.00	1200.00	1125.00

Commodity	Unit	30-5-53 Rs. Cts.	6-6-53 Rs. Cts.	13-6-53 Rs. Cts.	20-6-53 Rs. Cts.
Coconut (Husked) for export at Buyer's stores	Per 1000 nuts	320.00	330 00	340.00	315.00

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SECRETARY,
INDIAN CENTRAL COCONUT COMMITTEE.
Ernakulam.

E. 250, E. 353, E. 367, E. 481, E. 487, E. 634, E. 688, E. 873, E. 1030, E. 1035, E. 1047, E. 1048, E. 1050, E. 1054, E. 1055, E. 1057, E. 1059, E. 1062, E. 1063, E. 1067, E. 1068, E. 1072, E. 1074, E. 1076, E. 1081, E. 1084,

IV. Malabar Markets

Arrivals and sales of coconuts and copra in the different markets in Malabar during June, 1953.

Commodity — Market	Carry-over	Arrivals	Sales	Balance
Coconuts (in thousands)				
Kozhikode	1,211	3,877	4,192	896
Badagara	1,181	1,284	1,404	1,061
Ponnani	586	473	513	547
Tellicherry and Dharmadam.	80	562	359	282
Copra (in candies of 700 lb)				
Kozhikode	1,700	1,313	1,969	1,044
Badagara	1,863	3,041	3,343	1,561

Weekly prices of coconuts and copra in some of the Malabar markets during June, 1953.

Commodity — Market	1st week Rs.	2nd week Rs.	3rd week Rs.	4th week Rs.
Coconuts Husked (for 1000)				
Badagara	135-140	135-140	140-145	140-145
Ponnani	125-130	130-135	120-140	125-145
Tellicherry and Dharmadam.	170-175	170-175	170-175	170-175
Copra at Badagara Market per candy of 700 lb.				
Office	390	385	385	385
Edible Copra				
Dilpas	395	395	395	400
Madras	405	400	400	400
Rajapur	410	410	410	410

June 1953 Issue of the "Bulletin"—Errata.

PAGE	FOR	READ
219—caption under figure (1)	"A seedling planted in the planting pit"	"A seedling in the pot"
219—caption under figure (2)	"A seedling in the pot"	"A seedling planted in the planting pit"

V Import of Coconuts, Copra & Coconut oil into India during the month of May 1953.

COMMODITY AND SOURCE	STATE INTO WHICH IMPORTED								TOTAL FOR ALL STATES FOR THE MONTH		TOTAL FROM THE BEGINNING OF APRIL, 1953	
	TRAV-COCHIN		MADRAS		BOMBAY		WEST BENGAL					
	QTY.	VALUE Rs.	QTY.	VALUE Rs.	QTY.	VALUE Rs.	QTY.	VALUE Rs.	QTY.	VALUE Rs.	QTY.	VALUE Rs.
Copra (In cwts.)												
Ceylon	...	....	...	....	...	....	...	...	....	....	7,700	4,36,808
Maldives	20	1,272	8	7,618	...	...	...	...	100	8,890	380	24,921
St. Settlements	...	...	....	....	...	...	...	...	....	....	400	23,600
Seychelles	...	...	....	...	8,440	4,85,545	...	...	8,440	4,85,545	8,440	4,85,545
TOTAL	20	1,272	80	7,618	8,440	4,85,545	...	...	8,540	4,94,435	16,920	9,70,874
Coconut oil (In cwts.)												
U. K.	...	...	...		*	30	...	...	....	30	1	109
Ceylon	...	...	...		550	52,500	5,810	5,27,592	6,360	5,80,092	27,680	24,74,777
F. M. S.	...	...	...	...	2,050	1,80,300	6,062	5,16,577	8,112	6,96,877	13,970	11,98,276
St. Settlements	...	....	...	...	....	...	29,825	26,76,910	29,825	26,76,910	40,466	36,40,891
TOTAL	...	....	...	...	2,600	2,32,830	41,697	37,21,079	44,297	39,53,909	82,117	73,14,053

N. B. There were no imports of coconuts during June, 1953.

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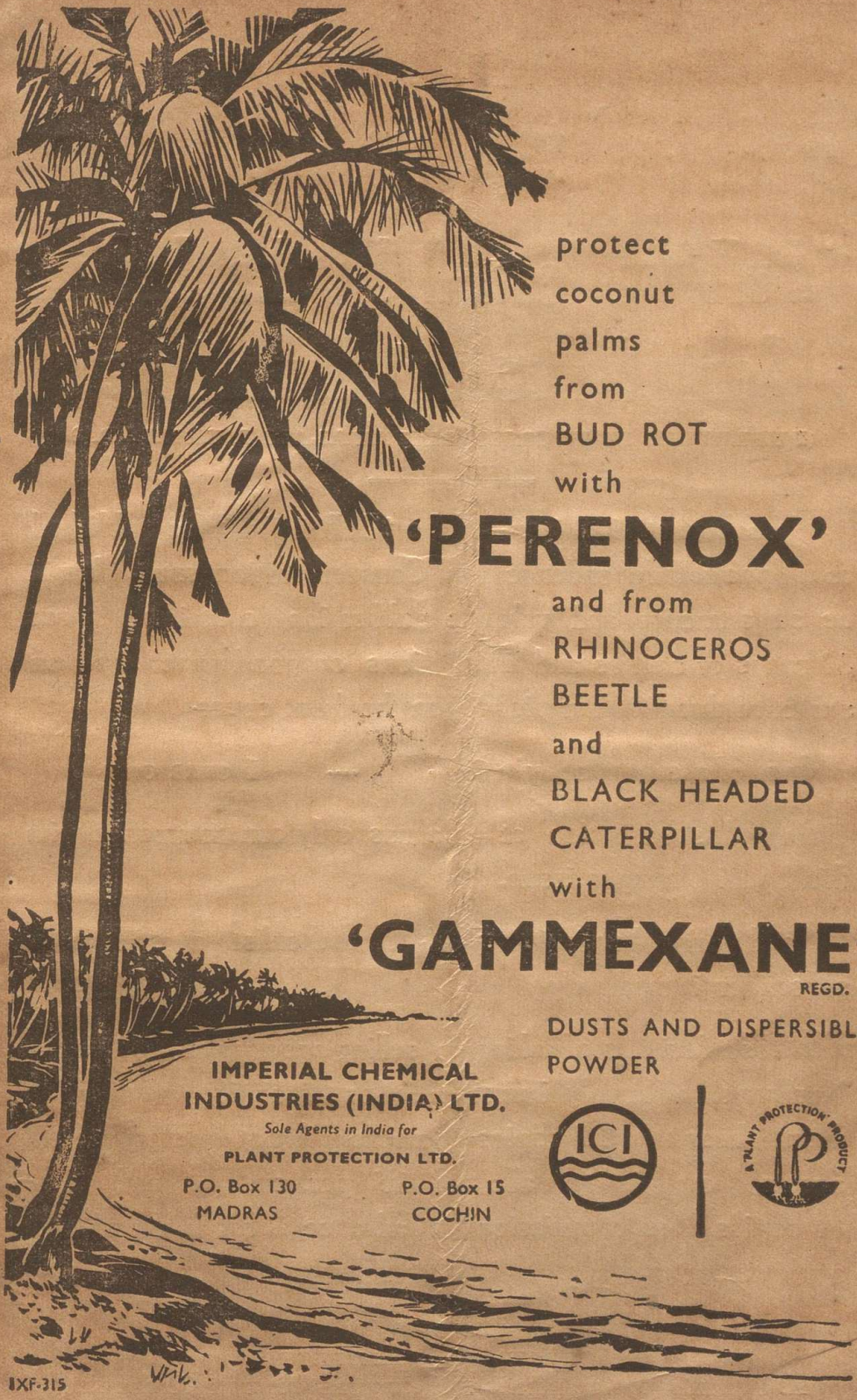

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AT THE DEENABANDHU PRESS, ERNAKULAM.