BULLETIN

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BULLETIN

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THE

Indian Central Coconut Committee

EDITOR: SRI K. GOPALAN, M. A., B. COM. (MANCH'R), SECRETARY, INDIAN CENTRAL COCONUT COMMITTEE.

COMMITTEE'S OFFICE: TO THE SOUTH OF S.R.V.H. SCHOOL, OFF CHITTUR ROAD ERNAKULAM.

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In this Issue

COVER PICTURE: Coconut trees thrive well on the banks of canals and back-waters

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Secretary,
Indian Central Coconut Committee,
Ernakulam.

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THE INDIAN CENTRAL COCONUT COMMITTEE

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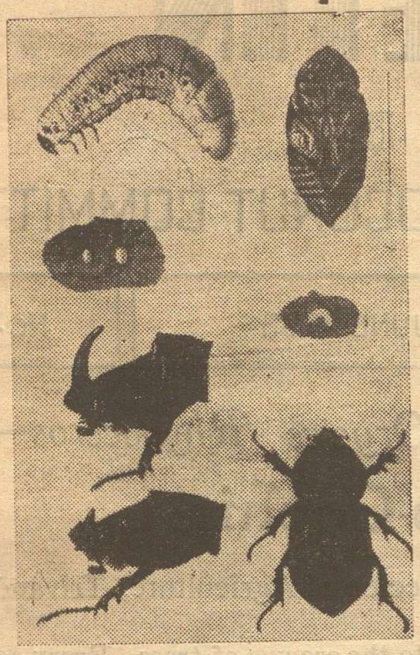
The Palm Beetle—*Oryctes Rhynoceros*—in Travancore-Cochin

By C. S. Venkitasubban, Assistant Director of Agriculture, Trivandrum.

NOT the least important amongst the problems in the cultivation of coconut is the fact that control measures are not carried out properly in gardens against the palm beetle (*Oryctes-rhinoceros*), although their owners are well acquainted with the life history of the pest and the common methods of preventing it. The palm beetle has been always receiving the first treatment in all publications regarding the pests of the coconut, and propaganda and publicity about this insect has gone much ahead than other subjects concerning the palm. The complaint that the results of research are not brought home to the ryots will not hold good in the case of the palm beetle, and even boys in the coconut gardens in the State will now identify the grubs in the manure pits with the beetles that bore into the crowns of trees. Every gardener knows that attention to the breeding places is the first step in control of the beetle. The extraction of the beetles from the crowns of trees is also very familiar to all climbers.

Notwithstanding all this intense familiarity with the pest and its control measures, the beetle continues to be the most common of the insects attacking the coconut. It is found in each and every garden of the State. In many gardens it will be hard to find a single tree that has escaped infection. It is also very difficult to come across a single tree of the dwarf variety, unattacked by the pest.

Control measures against the pest are not carried out in time in a large number of instances, nor are the



Various life-stages of the palm beetle

measures systematically persevered in throughout. The beetles, therefore, continue to breed throughout the year, and in most gardens, all the stages of the pest as eggs, grubs, pupae, and beetles are possible to be spotted out at any time. Remedial treatments to be effective must be carried out as regular and inevitable routine works of the gardens; but this is rarely the case. Many of the owners of bigger gardens live away from the site of their properties, and all cultural, manurial, and harvesting operations are got done by themselves or their agents visiting the gardens at intervals. During such visits they are more anxious to finish off early the cultural, manurial or havesting works and return home, rather than spend some more time and get the pest control measures also completed. In the case of homesteads and small gardens, where the owners live on their own properties, all operations have to be got done by hiring labourers and professional climbers. Such operations in many cases have to wait for the convenience of the owner and the labourer, so much so that none of them, let alone pest control, gets attended to in time.

One of the most common breeding places of the beetle is the decaying log, of the palm, and it is not a rare sight to see headless trees, and stumps breeding grubs in many a garden. Pieces of log used as fencing posts, and as cross-overs in small ditches and channels, are very common in gardens all along the back-water tracts. These logs breed beetles also while continuing to serve the functions they are intended for. The removal of dead logs, decaying stumps etc , is never attended to in time, although the owners are impressed with the necessity for the same.

In many homesteads containing a few trees, if a tree loses its crown, the headless trunk is allowed to remain months and years, breeding beetles because the labour charges in removing the trunk will often times exceed what can be obtained for the logs and fuel.

Perhaps no other agricultural subject has received as much publicity and propaganda, as that of cattle manure and its preservation. Still it is the rule to find cattle manure pits breeding grubs than an exception to it.

The beetle breeds not only in the manure pits, but also in the beds of plants where the manure is applied. It is a common practice in plantain cultivation to dig pits and trenches, fill them up with green leaves and dung, and then plant the suckers. These pits and trenches which are rarely covered with earth before the beetles have had aceess to them serve as very effective breeding places for the beetle, the result being that a crop of beetles also is produced along with plantains Then there are instances where the owner of the manure pit does not care whether it breeds beetles or not because he does not have coconut trees.

The physical extraction of the beetles can be carried out only by professional climbers, and this is an item of work which could be clubbed along with the monthly harvesting of nuts. But this is rarely attended to, and gardeners are more anxious to finish off harvesting and dispose off the nuts, than spend time and money for extraction of the pest. In many small homesteads, the owners are reluctant or indifferent to pay the extra wages necessary for extraction. Extraction is resorted to in a number of cases only after the beetle has done a good deal of its work.

Extracting beetles from the crown of young palm by means of beetle-hook

VANAMAHOTSAVA

By O. Raman Menon

READERS may recall the short article on the above subject, which appeared in the issue of the "Bulletin" for June 1952. The article dealt with the methods of planting of trees like coconut, mango and jack in the eastern regions of Kerala. Since then I have had occasions to tour extensively in the South Kanara District, visit quite a large number of places and learn a lot of new things.

I travelled through areas stretching from the sea coast to the foot-hills of the Ghats, and could note that, compared to the Malabar District, more extensive tracts of arable land were lying uncultivated. In Malabar District, it is in the taluks of Ernad and Walluvanad that most of the uncultivated lands lie. In South Kanara District they lie in the taluks of Puthur and Karkal. There are here innumerable hill sides and valleys where coconut, mango and jack could be successfully grown. People here, however, appear to be labouring under the misunderstanding that without irrigation it is no use planting here seedlings of the above trees. Many were interested to learn that seedlings could be planted and could get established without irrigation and that soil moisture could be conserved by burying in the soil husks of the coconut. I shall, therefore, describe in this article the methods of planting successfully the seedlings of coconut, mango and jack without having to water them.

Coconut

Many persons believe that it is impossible to plant coconuts in the elevated laterite areas, without watering them. But if the seedlings are planted as described be low, there will be no need to water them. The planting pits in these areas should be 4ft. cube. When digging the pit keep apart the top-soil from a depth of 6 inches. The remaining soil that is dug out should be put all round the pit-head to prevent storm water from flowing into it. The pits

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The result is, that with all the publicity and propaganda and the acquisition of the necessary knowledge about control measures by the gardeners, the beetle continues to be as bad as it was. It is clear that mere education of the ryots does not solve the problem. Methods have to be devised to make them act.

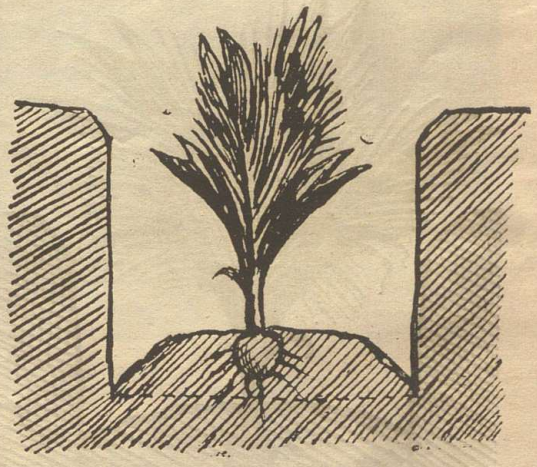
A regular and systematic campaign against the pests backed up by legislation can alone meet the problem. The appointment of the Plant Protection Officer which has been carried out recently, and the establishment of an efficient plant protection service, which is in progress, will enable a campaign to be organised early and be put into effect.

An ideal mother palm

should be dug immediately after the north-east monsoon. As the north-east monsoon is not heavy in South Kanara District it would be desirable to have the planting pits dug in September itself.

The sides of the pits should be charred twice or thrice by filling them with rubbish and burning it. Any half-burnt odds and ends remaining in the pits should be picked out and removed as they would otherwise attract white ants.

Next, trim the sides of the pit and collect the earth at the pit bottom. Add to it the top soil that has been kept separately and one or two tins of sand. Mix the whole thoroughly and heap them into a mound in the centre of the pit bottom. When the south-west monsoon starts plant on the mound a healthy coconut seedling. When planting, sprikle round the nut a quarter pound of gammexane to prevent white ant attack. The nut should be completely covered while planting as show below. As the seedling is planted on a mound inside the pit, rain water that falls into the pit will flow off the mound and will not affect the roots of the seedling. The roots strike into the mound quickly and the seedling gets established and grows up fast.

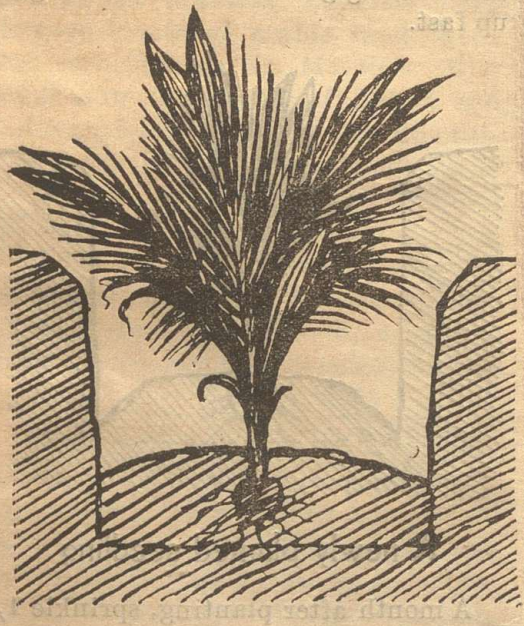


A newly planted seedling

A month after planting, sprinkle 1/8 lb. of ammonium sulphate round the mound when it is raining heavily. If this is done twice or thrice the seedling

will register very good growth. There is nothing like ammonium sulphate to quicken plant growth. The only thing to remember is that it should be applied several times in small doses. If too much ammonium sulphate is applied in a single dose the plant may wither and die.

Immediately after the rains sprinkle in the pit a pound of common salt. Trim the edges of the pit until the level of soil inside rises to the collar of the seedling. This will prevent evaporation and loss of subsoil moisture. This moisture will be sufficient for the seedling to get through summer. It is enough if it is protected against the sun's heat with a shade



A Coconut plant in the second year after planting

With the commencement of the second year's monsoon (south.west) add to the pit 5 lbs. of ash and 1 lb. of bone meal. Instead of bone meal, super phosphate also may be applied. A month after this, commence applying ammonium sulphate at the rate of 1/4 lb. each time. At the end of the monsoon, trim the pit sides and spread the trimmings round the seedling to prevent evaporation of sub-soil moisture.

At the start of the third monsoon apply 1/2 a tin of ash and 2 lbs. of bone meal to the seedling. A month hence apply ammonium sulphate four times at the rate of 1/2 a pound each time. The application of ammonium sulphate should be made only when there are good rains. At the end of the rains trim the edges and sides of the pit and prepare a soil mulch.

A Coconut plant in the third year after planting

From the fourth year onwards bulky manures such as green leaves, cattle manure etc. can be applied to the palm. These should be put without touching the bole, in a wide circular basin dug round the palm. If the bulky manures are applied before the fourth year there is the likelihood of white ant attack and therefore, their application should wait till the fourth year. From the fourth year the local methods of manuring and regular intercultivation are sufficient to make the palm grow well and to make it yield from the eighth year.

In dry areas the seedlings should be planted in deep pits, for then only will the entire bole area be under the soil surface when the tree is fully grown. Palms planted in this manner will have very good root anchorage, plenty of roots and good yield. Mr. Fernandes, a retired official at Mudanidambur near Udippi had planted eight seedlings as described above. They are now about 20 years old and yield about 1,000 nuts per annum. They have been cultivated without any watering whatsoever.

Shri Shekara Menon of Kallanmarthodiyil in Pattambi, Malabar District, grows coconuts in this manner without watering them. Several persons in Kurumrbanad Taluk in Malabar District are also known to have planted coconut seedlings in deep pits and given scientific attention to the palms without doing any watering whatsoever.

Only quality seedlings that look vigorous and have good girth at collar

(Left) Poor seedling–unfit for planting
(Right) An ideal seedling

should be planted. Not all the seedlings obtained by planting seednuts from ideal mother palms prove to be quality ones. The weaker seedlings should be rejected and destroyed In the coconut nurseries run under the joint auspices of

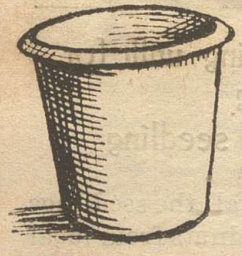
the Indian Central Coconut Committee and the State Governments about 15 per cent of the seedlings are rejected and destroyed Private nursery men cannot be expected to destroy such seedlings. Some of them apply special manures to the week seedlings to make them look good and thus comouflage their inherent worthlessness. This of course, is not done in the Government nurseries. Therefore, the seedlings should either be produced by the grower himself or they should be purchased from reliable sources only.

If you plant good seedlings the proper way, you will get 100-150 coconuts per tree per annum

Mango and Jack

Mango and jack will thrive in shallow soils There are several good, indigenous varieties of mango, such as Chandrakaran, Mayilpili, Prayor, Olar etc. Seedlings of these and of good varieties of jack should be raised in mud pots. One-year seedlings from the pot should be transplanted in specially prepared pits.

Filling the pots with soil:- Get prepared some earthenware pots 12" high and 6" wide. There should be a hole at the bottom of the pit and a disc to close it when necessary. Put in the bottom of the pot a layer of pebbles or bits of broken tiles. Next fill the pot with a mixture of equal quantities of garden soil, sand and rotted dung up to a height one inch below the rim of the pot. Arrange the pots near tanks or wells and sow in them the seeds of mango, jack, tamarind, cashew etc. at the rate of one seed for each pot. Germination will be easy if the sowing is done at the commencement of the south-west monsoon. During the ensuing summer the seedlings should be watered. It is to facilitate the watering that the pots are arranged near wells or ponds. During the following monsoon the seedlings should be planted.



The planting pot

Pot showing the hole and the disc.

Preparation of the planting pits: As mango and jack are big trees they should be planted 50 feet apart. According to a Malayalam proverb the distance between the trees should be such that a monkey jumping from one tree should not be able to reach another. Similarly there are sayings which mean that a squirrel should not be able to jump from one coconut tree to another and that ants should not be able to cross from one arecanut tree to another. Mango and jack should be planted 50 feet apart, coconuts 28 feet and arecanuts 10 feet.

As mango, jack and tamarind are trees that live for a long time, often for more than 200 years, the planting pits should be 3½ ft. cube. It is always desirable to have the pits charred by burning rubbish in them. The more

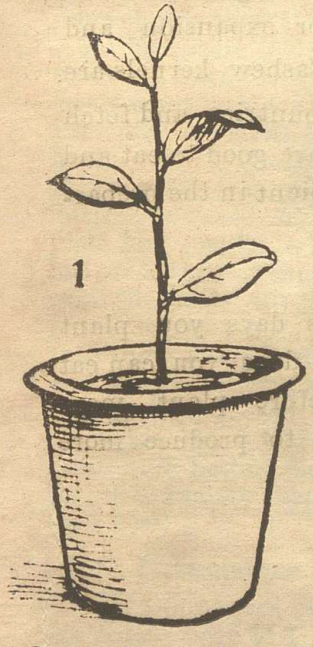
the number of times the pits are charred the better it is for the plants planted in them. At the beginning of the monsoon fill the pits with green leaves and cattle manure and trim the sides leaving only a depth of six inches. When the contents of the pits are well rotted as a result of a few rains transplant into them the seedlings from the pots.

Putting up tree-guards:- Each seedling should have a bamboo-mat guard tied to three stakes stuck round it to protect it from the depredations of cattle. The guard should have an outer dressing of thorns to prevent cattle from rubbing their necks against it and damaging it.

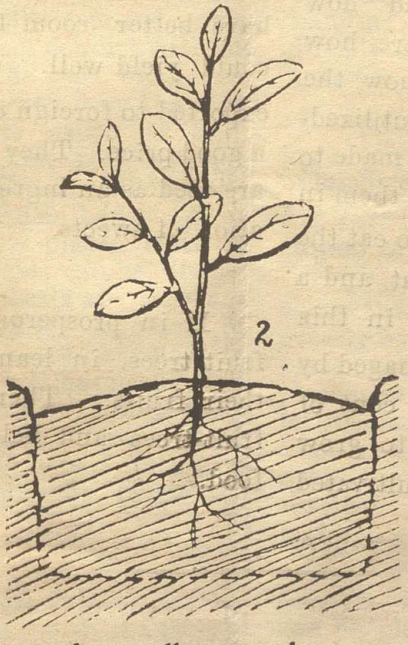
By the end of the rainy season the seedling would have grown up and would be showing itself above the top of the guard. The soil round the base of the plant should now be dug up to conserve moisture. One more year and the seedlings would have grown into young trees.

Cashewnut

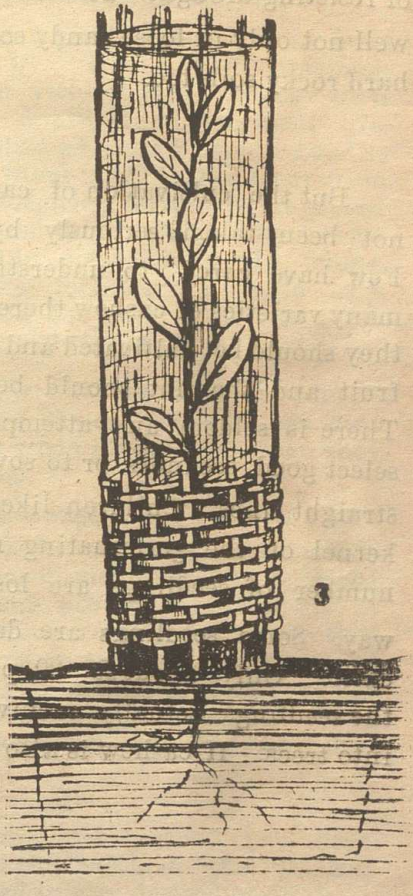
In Travancore there is a loose sandy tract extending from Shertallai to



A seedling planted in the planting pit



A seedling in the pot



A seedling protected by tree-guards

Ambalapuzha. In Malabar District there is a similar tract stretching from Ala to Chettuva in the Ponani Taluk. In South Kanara District a large tract of loose sand can be seen between Trikarpur and Kanhangad. In these tracts the trees that thrive are cashew and casuarina. They have great powers of resisting drought. The cashew grows well not only in loose sandy soil but in hard rocky soils too.

But the cultivation of cashew has not been taken seriously by people. Few have cared to understand how many varieties of cashew there are, how they should be cultivated and how the fruit and the nut should be utilized. There is seldom any attempt made to select good seednuts or to sow them in straight lines. Children like to eat the kernel of the germinating nut and a number of seedlings are lost in this way. Some seedlings are damaged by cattle. Only about 25—30 per cent of the seedlings actually survive to grow into trees. If cashew is also cultivated just as mango and jack are, it will live long and yield well.

The nuts of good varieties of cashew alone should be selected for purposes of sowing. If the seedlings are planted in pits filled with manure just as the seedlings of mango and jack, they will grow up rapidly and begin to yield from the 3rd year. They live for about a hundred years. The pits for planting cashew seedlings are dug 15 feet apart. After about 15 to 20 years the trees in alternate lines and the alternate tree in the remaining lines may be cut down for fuel, so that the remaining trees could have better room for expansion and could yield well. Cashew kernels are exported to foreign countries and fetch a good price. They are good to eat and are used as an ingredient in the preparation of sweets.

If in prosperous days you plant fruit trees, in lean days you can eat their fruits. Therefore plant more fruit-trees and help to produce more food.

How to Place Fertilizer

WHAT does placing mean ?

Placing means applying the fertilizer in a band near the seed according to a fixed pattern at the time of sowing. This way is good because fertilizer placed near the root is more quickly and fully used, leading to a saving in plant food.

Fertilizers may be placed, (1) in contact with the seed, when the seed and the fertilizer can be drilled together, (2) it may be a little away from the seed, above or below it, or on one side, or both sides of it.

The best methods

No single method can be considered best for all crops. Yet, research workers have shown that: (1) Nitrogen and potassium fertilizers in direct contact with the seeds are harmful to the seed. Such fertilizers must be placed away from the seed. Phosphatic fertilizers cause no such harm. They yield best results when placed away from the seed. Phosphatic fertilizers cause no such harm. They yield best results when placed close to the seed; thus phosphates can be drilled with the seed. (ii) Cereals are different from other crops, mainly legumes, in that they are not so much harmed by contact placement. (iii) It has been found that shallow rooted crops benefit more by side-band placement. Deep rooted crops give better yield when fertilizers are placed fairly deep directly below the seed row.

Work on potatoes

In the course of an experiment on the potato crop at I. A. R. I. the broadcasting of different doses of mixed fertilizers was compared with two methods of placement:

(a) Fertilizers banded one inch, directly below the seed tubers, and (b) Fertilizers placed on both sides of the tuber 2-1/2 inches to the side and 1 inch below the level of seed tuber.

Both the methods give higher yields. Double-band placement on both sides of the tuber is superior to single-band placement directly below the seed tuber

Increase in yields upto 7.8% has been obtained by single-band method. Increase in yields upto 14.5% has been secured by double-band placement Nitrogen fertilizers should be applied on the side of the tuber 2-1/2 inches away from it, while phosphatic fertilizers are placed below the seed tuber. This method gives best results in potato crop. In maize, banding the fertilizer in single row directly below the seed level has given increase in yield upto 33 per cent.

Placing is cheaper than broadcasting. It saves 25 per cent to 30 per cent of fertilizers when placed than when they are broadcast.

Hopes of Increase

The results of these experiments show that crop yields can be increased greatly by the use of the methods of placement. These results also show that placement means savings in the use of fertilizers. The method of placement has to be fixed according to the nature of the crop, the fertilizer, the soil and the weather.

Equipment used

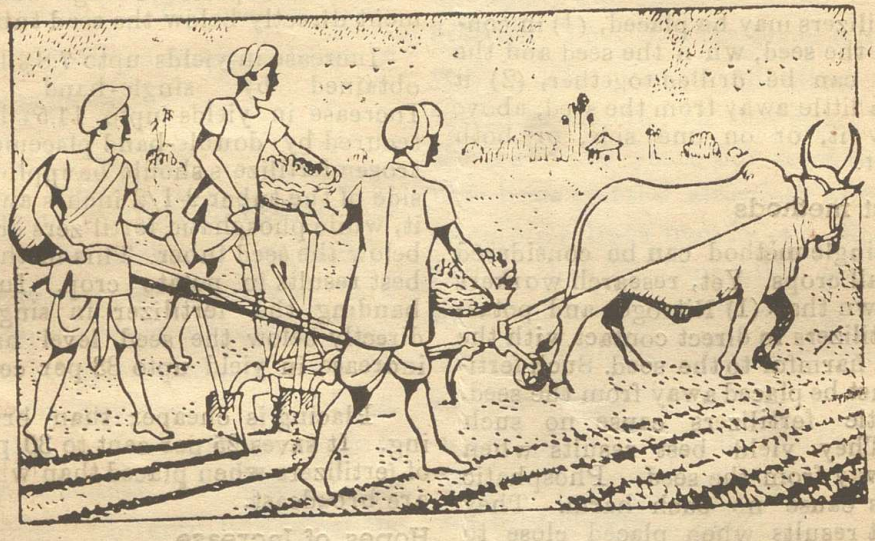
A mechanical method has been devised. By this method, the fertilizer can be placed in any desired position.

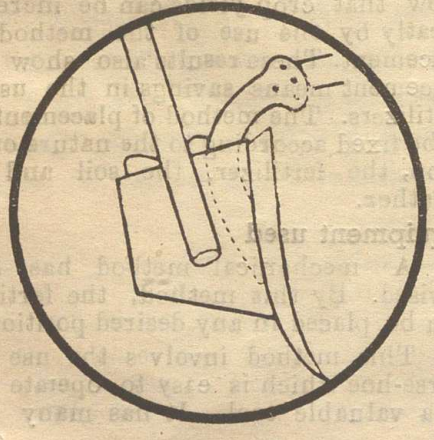
This method involves the use of a horse-hoe which is easy to operate and is a valuable tool. It has many uses

to the farmer throughout the year for such operations as inter-row cultivation, mulching, earthing up, etc. Because it cuts narrow furrows and its tines are adjustable for depth and width between the furrows, it is ideal for the placement of fertilizer.

The method of sowing the seed and drilling the fertilizer

Poras (metal or wooden tube with funnel at the top) about 2 inches across are fixed at the top at outward angle to the frame of the horse-hoe with thin metal clamps. This will provide enough space for 2-3 men to move easily when they sow. The metal clamps can be bended to enlarge or narrow down the moving space.





Placement attachment–A close-up

The lower end of the pora is bolted on to a thin iron plate about 14 inches long and 7 inches broad. It will be bent into the shape of U. The U-shaped iron piece is then fixed with the open end of U facing backwards in between the frame and the tine, with the same bolts as normally provided to fix the tines to the frame of the horse-hoe. This will keep the furrow open for seed and fertilisers to be dropped in position. The seed and the fertilizers are dropped through separate poras (depending upon the type of placement desired) into the space between the arms of U. The seeds and fertilizer are thus dropped in position before the furrow gets filled up.

I. C. A. R. Pamphlet

Coconut Cultivation by Irrigation

WHEN recording the important events for 1888, there is no question that what took place in the Mahaoya Valley on the 10th March will rank as one of the principal events of the year. It was bruited about for the past 12 months that heavy machinery was being removed to a coconut estate in the valley belonging to a native gentleman, but for what cause or purpose was not quite apparent. The month of March, however, saw the completion of the first machinery for irrigation purposes on a coconut estate belonging to Mr. Akbar, M. M. C., and his brothers, at Katukenda, adjoining the famous Badalgama property of Dr. Elliott and in the vicinity of other properties, I believe the most extensive in Ceylon. An engine of 30 horse power working a pair of double motion pumps throwing 32,000 gallons per hour, fixed on the banks of the Mahaoya The engine room, so beautiful and clean with a gorgeously painted ceiling fit for the finest drawing room in Colombo. Eighty tons of cast iron pipes laid with a main pipe of 5 in. branching in different directions of 5 in., 4 in., and 3 in., with galvanised piping of 7 in. carrying water to the different sections The pump working at nights carrying water to at least about 30 reservoirs cut on every rising ground and from there distributed over 240 acres, giving each tree at least 10 gallons of water.

I was always sceptical about the yield of 100 nuts per annum per tree that your veteran authority of the valley used to preach, and having pretty well moved about in my time of life from Tangalla in the Southern Province to the confines of Chilaw, I never saw any coconut estate of any great extent in one block that in my opinion gave over 50 nuts per tree per annum. But here was to be seen a block of about 240 acres of as fine a land with 60 trees to the acre, the yield being 97 nuts per tree per annum. I need hardly say that with the grand improvement just effected of preventing any lengthened drought, this being the great draw-back of the district, I expect the yield to be three fold in a couple of years. In fact even at present one small portion of about five acres had over 150 nuts plucked per tree per annum for the last three years.

The contrast between this property and the neighbouring one belonging to one of our millionnaires is apparent at a glance, and Mr. Akbar, in inaugurating the occasion of the completion of the works for which he so long planned and schemed, invited about a score of his friends to rejoice with him as it were. The bar, merchants, brokers, planters, agriculturists, and even an editor, were represented, and a sumptuous breakfast was given in a very handsome summer house built on the bank of the river.

The whole estate comprises 700 acres out of which 600 acres are planted but only 240 acres have bearing trees, the annual yield of these is at present over a million nuts; what will it be when the full 600 acres are in bearing? A competent authority valued the place at £ 40,000.

(*Reproduced from Tropical Agriculturist, 1888*)

August Operations in Coconut Gardens.

COCONUT gardens are inter-cultivated twice—once in July-August and again in October-November. The first operation is to keep weeds under and the second to conserve soil moisture. If a green manure crop is proposed to be raised in the garden, it should be dug up in May-June also. The severity of the south-west monsoon becomes less with the advent of August During this period coconut gardens can either be dug or ploughed or the soil dug up and heaped into mounds. While the cheapest form of cultivation is ploughing, heaping the soil into mounds is the most effective way of keeping weeds under. The bunds which prevent soil erosion are strengthened at the same time as mounds are formed.

In the months of August, September, October and November the heavy coconut bunches are tied up to prevent them from buckling.

August is the time for sowing sesame in coconut gardens, if it is desired to raise an inter-crop of sesame. The garden must be ploughed 7 or 8 times after applying to it cattle manure, ash etc. The seeds are sown by the middle of August. Only 5 lbs. of seeds are required to sow on an acre. Special skill is required to sow sesame as the seeds should not fall too close to each other. The seeds should be covered by scattering ash over them. Nothing more need be done except pulling out the weeds, once or twice.

Sesame does not require much rain. If there is too much rain there will be excessive vegetative growth and a corresponding reduction in yield. But the crop could do with a rain at the time of flowering. This should be followed by good sunshine. The crop could be harvested 90 days after sowing. The yield will be about 20-25 paras of sesame per acre.

If tapioca is being cultivated in coconut gardens, it is in August that weeding should be done, ash applied and the beds earthed up. If in the larger coconut plantations of 25 to 30 acres, tapioca is grown in about 3 to 4 acres it will be useful for preparing curry for workmen who may have to be engaged for seasonal operations at the beginning of the south west monsoon.

Tomatoes also can be grown between rows of coconut palms. In August tomato seeds are sown to raise the necessary seedlings and the trenches in which they are to be transplanted, are also prepared.

Marglobe is the variety of tomato most suited to conditions on the west coast. Seedlings may be raised by sowing the seeds in wide-mowthed earthen-ware pots filled with fertile soil. After sowing, water the seeds with rose-pan and after watering sprinkle ash on the seeds and on the brim of the pot. The watering and the sprinkling of ash should be done twice a day until the seeds germinate. Ash is strewn on the seeds to prevent ants from carrying them away. The seeds begin to germinate in about a week's time and the seedlings can be transplanted four weeks hence.

The trenches in which the tomato seedlings are to be transplanted should be 2 ft. wide, one foot deep and of convenient length. Put in them a layer of green leaves and cover it with cattle manure and cover the whole with soil sufficient to make a bed 2 inches high.

Transplant the seedlings in September when the manures in the trenches will have become well rotted.

You Ask, We Answer

Ploughing and Irrigating of Coconut Gardens

Question:- I have a coconut garden about 3 acres in extent. The soil is clayey. For intercultivation I use Cooper No. 26 and 11 ploughs. The tillage will be only 5 or 6 inches deep. Kindly let me know whether this depth is sufficient for these east coast clayey soils (gardens). After 1 or 2 ploughings can I use a R. E. Guntaka for shallow cultivation ?

Your Bulletin for March, 1953, publishes an article "Weeds on coconut lands". It says that weeds are to be encouraged because "A carpet of weeds protects the soil from the heat of the tropical sun. When there is clear weeding the soil is hotter and there is a greater loss of moisture by evaporation and of soil by oxidation."

I can bale in water to my garden once in March and once in April. If I can water the garden in March and April, can I safely raise a fodder crop like sunn-hemp or daincha in March and April without the coconut trees being affected by drought? Of course, I can water the garden in June.

Answer: Ploughing to a depth of 5 to 6 inches is sufficient in a coconut garden. Guntaka can also be worked after ploughing.

Irrigating the garden in summer is definitely beneficial to the coconut trees. You can also raise a fodder crop like sunn-hemp or daincha in March and April in the interspaces of the coconut garden without affecting the coconut trees provided these crops are suitably manured and the garden is irrigated.

Stem-bleeding and its control

Question: The coconut palms in my garden are severely suffering from stem-bleeding. Please state the remedial measures that should be adopted.

Answer: Clean the affected portions of the trunk by scraping them with a sharp knife or chisel. Scoop out from the cracks the diseased matter. All the diseased matter should be burnt immediately. Or else, it will cause the disease to spread. Apply Bordeaux paste to the portions scraped clean. Bordeaux paste is made as follows:-

Dissolve 1 lb. of copper sulphate in 1/2 gallon of water. Dissolve 1 lb. of quicklime in 1/2 a gallon of water. Mix the two solutions together and stir well.

At the beginning of the south-west monsoon open up basins round the palms, and sprinkle in each basin 2 lbs. of sulpher. Next add the usual manures such as cattle manure, green leaves, ash, prawn dust etc. If the palms have good

vegetative growth, apply only ash for one or two years. On the other hand, if they are unhealthy and the leaves are yellowish cattle manure, green leaves and prawn dust should be applied.

At times stem-bleeding may be due to the presence in the tree of an excessive quantity of sap. Hence the advice to apply only ash for one or two years if the trees have good vegetative growth. In the alternative, such trees may be allowed to be tapped.

The circumstances favouring stem-bleeding are water-logging drought and the presence of excessive sap in the tree. These, therefore, should be corrected. Gardens affected by drought should be cultivated in the appropriate seasons and green manure crops grown in them and incorporated into the soil. Water-logging should be overcome by opening channels for draining away the water or raising the level of the land by adding more soil to it.

The roots of palms severely affected by stem-bleeding are seen to rot and die. It is to prevent this that the application of sulphur to the basins round the palms is advised.

In treating for any disease the root causes must be tackled and not merely the symptoms.

Application of Oilcake

Question: I get in my place plenty of *'marotti'* oil cake and good ash. Is it enough if these alone are applied to coconut palms and if so how much of each should be applied to bearing trees and how much to trees about to bear? If any other manure is to be applied what is it and how much of it should be applied?

Answer: Oil cake and ash should be applied to coconut palms only in addition to bulky organic manures. At the commencement of the south-west monsoon dig basins round the palms and spread in each 100 lb. of green leaves or cattle manure or compost. Over this sprinkle 20 lb. of powdered *'marotti'* cake. Cover up the whole with a 2-inch layer of earth. By the middle of August add to each basin about 2 tins of ash, fork it in and cover the basins completely.

The above treatment is for bearing palms. Where the palm has not begun to yield and the wood has just started forming half the above quantities of the manures may be applied. In places subject to white ant attack, seedlings should not be treated to green leaves, compost or cattle manure. In such cases apply oil cake and ash as the basic manures and after about 15 days add a little ammonium sulphate. Ammonium sulphate should be added when there are good rains; if there are no rains, the seedlings should be watered copiously. Do not apply more than a quarter pound at a time. Ammonium sulphate helps to quicken plant growth.

News And Notes

Dr. J. H. Prebluda, an American scientist, has estimated that by adopting a new pattern of farming-with antibiotics-the American farm out-put could be doubled and the world hunger problems solved. Antibiotics, which are produced by microorganisms in soil and materials have two important effects; in small amounts they stimulate plant growth and in large amounts they serve as plant disease killers.

According to Dr Prebluda a single gram of soil may contain millions of microorganisms which are undoubtedly producing antibiotics not yet identified. He believes that they can be isolated and produced commercially in large quantities at low cost.

* * *

An Indian deputation to study the Japanese method of rice cultivation will be proceeding to Japan shortly. It is understood that the deputation will be led by Dr. M. Parthasarathy, Director, Rice Research Centre, Cuttack, who will be accompanied by rice experts from major rice growing centres in India. The deputation will stay in Japan for three to four months to study the technique and method of rice cultivation there.

* * *

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, 13,524 trees were sprayed during the month of March, 1953 and 10,911 trees in April, in the taluks of Meenachil, Kottayam, Changanacherry Thiruvella and Kunnathur. The total number of trees sprayed during the 3rd extension of the scheme from the 1st December 1952 to the 30th April 1953, is of the order of 60,313.

* * *

The Assistant Virus Pathologist appointed at the Central Coconut Research Station, Kayangulam, towards the end of December, 1952, is conducting trials to find out whether the root disease of coconut could be of Virus origin. By extracting the juice from the leaves and petioles of diseased palms and inoculating it on leaflets and petioles of healthy palms, making pin-pricks on leaflets of healthy palms through superimposed diseased leaflets, grafting roots and shoots from diseased palms to those of healthy palms, inserting rectangular pieces of diseased leaflets into slits cut to size in the potioles of healthy palms and liberating insects fed on diseased palms to healthy palms, various trials are being conducted at the Research Station for transmitting the disease on to healthy trees In addition to these, other methods of transmission like injection of sap, leaf mutilation, patch grafting etc., are also proposed to be experimented with.

* * *

The results of the biological method of controlling the coconut caterpillar (*Nephantis Serinopa* Meyr) tried in a coconut garden at Vypeen (Narakal) have been found quite encouraging. The Committee's Entomologist had released parasites of the pest in the garden in November 1952 and again in December 1952 and February 1953 The trees which had been subject to severe attack by the pest at the time of release of the parasites are reported to be free from the attack when the palms were examined in April 1953. No live pests or pupae were seen on the leaves cut down for inspection.

* * *

Shri A. Mahalinga Chettiar, Collector of South Kanara, Sri V. Natarajan, Superintendent, Central excise, Mercara, Shri S. V. Chelam, Revenue Divisional Officer, Puttur and Mr. G. Von Gontard of the Coconut Fertiliser Demonstraion Scheme, Cochin, visited the Central Coconut Research Station, Kasaragod during May 1953. All the visitors were impressed with the work being undertaken at the Research Station.

Dr. Rege, Sugarcane Expert to the Government of Bombay, visited the Central Coconut Research Station, Kayangulam on 26—5—1953.

* * *

The Horticultural Assistant in charge of the Coconut Nursery at Kahikuchi, Assam, has reported that 73 seedlings were distributed during April 1953 among 6 growers from that Nursery financed jointly by the Committee and the Assam Government. The number of seedlings distributed from the nursery during the six months, November 1952, to April 1953 was of the order of 747.

* * *

The Director of Agriculture, Madras has reported that 2906 coconut seedlings, were distributed during April 1953 among 43 growers from six out of the nine coconut nurseries of the State, jointly financed by the Indian Central Coconut Committee and the Madras Government. The total number of seedlings supplied from the different nurseries in the State during the four months from January 1953 to April 1953 was of the order of 7976.

* * *

The Director of Agriculture, Bombay State has reported that during the 1953 planting season 13,700 coconut seedlings would be available for distribution from the coconut nurseries at Kumta and Ratnagiri in the State functioning under the joint auspices of the Bombay Government and the Indian Central Coconut Committee. Of these, 9,200 seedlings are from the Kumta Nursery and the balance of 4,500 seedlings from the Ratnagiri Nursery. The seedlings will be ready for distribution from June 1953 onwards. There is a large demand for the seedlings.

* * *

The Meteorological Observatory for crop weather studies set up at the Central Coconut Research Station, Kasaragod, was declared open by

[*Continued on page 233*]

MARKET REPORTS

I. COCHIN, ALLEPPEY & CALICUT.

The daily prices of coconuts, copra, coconut oil and coconut oil cake at Cochin, Alleppey, and Calicut from the 11th May to 10th June 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.
11-5-53	160	*	145	1197-12	1231-3	1220	1494-8	1804-1	1832	323-15	316-6	320
12-5-53	160	*	135	1189 4	1231-3	1220	1786	1804-1	1832	323-15	316-6	320
13-5-53	160	155	136-4	1192-10	1231-3	1220	1786	1799-12	1832	312-15	316-6	320
14-5-53	160	*	136-4	1195-3	*	1220	1790-4	*	1913-11	323-15	*	320
15-5-53	160	*	136-4	1206-5	1231-3	1220	1807-5	1813-7	1832	323-15	307-13	320
16-5-53	160	155	112-8	1197-12	1222-10	1220	1798-13	1846-13	1832	323-15	316-6	320
17-5-53					Sunday							
18-5-53	155	*	125	1208	1222-10	1232	1815-13	1846-13	1848	323-15	333-7	320
19-5-53	155	*	125	1230-3	1222-10	1240	1841-6	1863-14	1856	332-8	333-7	320
20-5-53	155	*	126-4	1243-13	1239-12	1280	1862-11	1197	1920	332-8	333-7	320
21-5-53	160	*	147-8	1240-6	1256-14	1280	1858-7	1881	1920	332-8	333-7	320
22-5-53	160	*	146-4	1245-8	1248-5	1280	1867	1881	1920	311	359-2	336
23-5-53	160	155	146-4	1246-6	1239-12	1280	1857	1881	1920	341	359-2	336
24-5-53					Sunday							
25-5-53	160	*	142-8	1236-2	1222-10	1288	1841-6	1872-7	1920	345-4	350-9	336
26-5-53	155	*	140	1236-2	1220-15	1288	1837-2	1881	1920	349-8	347-2	336
27-5-53	155	*	150	1231	1231-3	1296	1832-14	1872-7	1920	349-8	350-9	336
28-5-53	155	*	135	1227-10	1222-10	1296	1832-14	1881	1920	349-8	350-9	336
29-5-53	155	*	135	1226-12	1222-10	1296	1828-10	1872-7	1920	345-4	350-9	336
30-4-53	155	155	145	1232-11	1231-3	1296	1837-2	1881	1920	349-8	353-2	336
31-5-53					Sunday							
1-6-53	155	*	130	1233-9	1231-3	1296	1837-2	1898-2	1920	345-4	401-13	336
2-6-53	150	*	130	1234-7	1231-3	1328	1841-6	1906-10	1920	349-8	393-5	352
3-6-53	150	*	130	1242-1	1231-3	1296	1849-15	1898-2	1920	366-9	393-5	352
4-6-53	150	*	130	1240-6	*	1296	1841-6	*	1920	366-9	*	360
5-6-53	155	*	132-8	1208	1211-2	1304	1815-13	1846-13	1920	358-1	376-3	368
6-6-53	155	150	127-8	1227-10	1205-10	1296	1824-6	1829-6	1920	358	359-2	334
7-6-53					Sunday							
8-6-53	155	*	120	1227 10	1214-2	1296	1820-1	1838-2	1920	358-1	350-9	384
9-6-53	152-8	*	118-12	1231-14	1214-2	1280	1824-5	1846-13	1920	349-8	350-9	384
10-6-53	152-8	*	119	1235-2	1207-4	1280	1832	1838-4	1920	349-8	333-7	384

* No Report

Trend of Coconut Oil Price in Cochin

(From Our Own Correspondent)

Cochin,
8th June, 1953.

SINCE my last report on the 7th May, the price of Coconut Oil at Cochin evinced an upward trend due to the complete cut in electricity by the Travancore-Cochin Government and the consequent shortage in ready stocks of oil. An increase in the price of copra at the Colombo market and an upward trend in the price of grount oil in the Indian markets due to some exports, helped to maintain the increase in the price of oil at Cochin. The price on the 23rd was Rs. 1,867—0—0 per ton.

From the 25th May, there was, however, a downward trend consequent on a fall in the price of copra at the Colombo market, the easy conditions in the groundnut and caster oil trades in the Indian markets and the lack of demand for Cochin oil from the Bombay and Culcutta markets. The partial erstoration of the electricity cut by the Travancore-Cochin Governmen led to a further reduction in the price of coco nt oil. Towards the end of last week forward oil also gave way, as sentiment was adversely affected by the Press note of the Commerce Ministry of the Government of India announcing the ban on further exports of groundnut oil. The price per ton of oil on the 5th was Rs. 1,815—13—0.

Subsequently, there was some improvement consequent on large demands from North Indian Markets, and today's opening quotation is Rs. 1,832—13—0. The prices are expected to be maintained at this level for about 10 days. Thereaft r, it is hazardous to make any forecast, as the Bombay and Calcutta buyers are postponing purchases on the expectation of a fall in the prices at the Colombo market by about the middle of this month, when large arrivals of copra are exp cted there with the beginning of the copra season.

REVIEW OF BUSINESS CONDITIONS IN CEYLON IN 1952

Coconut Products

Figures of production are not yet available. Exports of copra and coconut oil in 1952 were 814,612 cwts and 2,134,249 cwts respectively as against 386,927 cwts and 2,195,640 cwts in 1951. Export duty continued to be levied on the sliding scale basis introduced in December 1951 and ranged from Rs. 160/- to Rs. 249 per ton for copra and Rs. 128 to Rs. 199-8/- per ton for coconut oil during the year.

Prices of both copra and coconut oil declined precipitately in the beginnig of the year and touched the bottom (copra Rs. 460 per ton and coconut oil Rs. 750 per ton) in March. This downward tendency prevailed till late September except for some sporadic upheavals. Since September, however, enquiries from the U. K. and Continent were greater and had their tonic effect in supporting the prices. Being the short crop season, these enquiries helped to maintain the prices at a high level during the rest of the year.

Exports.

Exports of coconut oil, copra, desiccated coconut and fresh coconut, together brought in an income of only Rs. 234,557,823 in 1952 as against Rs. 322,827,380 in 1951.

The following statement shows exports of copra, coconut oil and desiccated coconut to principal countries during 1952 as compared to the previous year.

	1951		1952	
	Quantity Cwt.	Value Rs.	Quantity Cwt.	alue Rs.
COPRA				
India	113,559	7,116,713	299,705	12 006,650
Pakistan	169,412	11,563,019	442,647	18,521,418
Total	386,927	27,059,451	814,612	33,193,802
COCONUT OIL				
U. K.	593,475	61,199 148	572 192	33,432,295
India	226 562	21.786,654	179,775	11,681,394
P kistan	155,150	16,335 111	235,664	16,468,561
Holland	440 889	45 592,157	321 450	19,914,308
Italy	191 260	18,687 391	396,681	23,986,281
Sweden	153,089	15,202,725	36,405	2.043,995
Total	21,95,640	227 061,213	2,134,249	133,084,130

II. BOMBAY

The weekly wholesale prices of coconuts, copra, coconut oil and coconut oil-cake at Bombay during the month of May 1953 are given below:-

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	Medium	Large	Small	Medium	Large	Milling	Rajapur	Alleppey		
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs	Rs.	Rs.	Rs	Rs.
7—5—53	175	245	*	205	275	300	375	395	360	24-10	26-0
14—5—53	180	245	*	205	280	295	370	395	360	24- 6	27 0
21 5—53	170	240	*	200	270	291	380	395	365	25- 0	25-8
28—5—53	170	240	*	185	265	290	383	410	375	24-11	23-0

III COLOMBO

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

COMMODITY	UNIT	4-5-53 Rs. Cts.	11-5-53 Rs. Cts.	18-5-53 Rs. Cts.	25-5-53 Rs. Cts.
Fresh Coconuts (Husked) used for Copra making and local consumption.	Per 1000 nuts	160.00 to 165.00	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.	197.50	200.00	200.00	210.00
Desiccated Coconut—Wharf delivery or Buyer's stores—Medium and fine 50%.	Per lb.	0.51	0.55	0.58	0.60
Coconut oil—white, naked, wharf delivery	Per ton	1275.00	1,275.00	1275.00	1335.00

Commodity	Unit	2-5-53 Rs. Cts.	9-5-53 Rs. Cts.	16-5-53 Rs. Cts.	23-5-53 Rs. Cts.
Coconut (Husked) for export at Buyer's stores	Per 1000 nuts	330.00	320.00	320.00	320.00

IV. Malabar Markets

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

Commodity — Market	Carry-over	Arrivals	Sales	Balance
Coconuts (in thousands)				
Kozhikode	683	3,171	2,643	1,211
Badagara	1,350	844	1,013	1,181
Ponnani	483	658	555	586
Tellicherry and Dharmadam.	35	726	681	80
Copra (in candies of 700 lb)				
Kozhikode	1,727	5,800	5,827	1,700
Badagara	1,740	5,094	4,971	1,863

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

Commodity — Market	1st week Rs.	2nd week Rs.	3rd week Rs.	4th week Rs.
Coconuts Husked (for 1000)				
Badagara	135-140	135-140	135-140	130-140
Ponnani	140-155	150-160	145-160	145-165
Tellicherry and Dharmadam.	170-175	170-175	170-175	170-175
Copra at Badagara Market per candy of 700 lb				
Office	380	385	385	390
Edible Copra				
Dilpas	390	395	395	400
Madras	395	395	395	410
Rajapur	410	410	410	420

[*Continued from page 228*]

Shri K. Gopalan, Secretary, Indian Central Coconut Committee on the 12th instant when Mr. Gadre, Assistant Director of Agricultural Meteorology, Poona and Mr. C. M. John, the Director and the staff of the Central Coconut Research Station, Kasaragod were present.

Shri Rama Varma, the Junior Research Assistant of that Research Station has been specially trained in crop weather studies for about three months at the Agricultural Meteorological Observatory at Poona.

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

COMMODITY AND SOURCE	STATE INTO WHICH IMPORTED								TOTAL FOR ALL STATES FOR THE MONTH	
	TRAV-COCHIN		MADBAS		BOMBAY		WEST BENGAL			
	QTY.	VALUE RS.	QTY.	VALUE RS.	QTY.	VALUE RS.	QTY.	VALUE Rs.	QTY.	VALUE RS.
Coconut (In Nos.)										
Maldives	3,900	234	...	...	...	...	...	...	3,900	234
Copra (In cwts.)										
Ceylon	...	...			7,700	4,36,808	...	...	7,700	4,36,808
Maldives	280	16,031			...	...	...	...	280	16,031
St. Settlement	....	...			400	23,600	...	...	400	23,600
TOTAL	280	16,031	...	...	8.100	4,60.408	...	....	8,380	4,76,439
Coconut oil (In cwts.)										
Ceylon	...	...	500	41,627	3,500	3,14,000	17,320	15,39,058	21,320	18,94,685
F. M. S.	...	...	843	70,001	375	30,000	4,640	4,01,398	5,858	5,01,399
St. Settlement	...	...	...	...	....	...	10,641	9,63,981	10,641	9,63,981
U. K.	...	....	...	...	....	...	1	79	1	79
TOTAL	...	....	1,343	1,11,628	3,875	3,44,000	32,602	29,04,516	37,820	33,60.144

Prize for Arecanut Husking and Slicing Machine.

The Indian Central Arecanut Committee has decided to award a prize of Rs. 200 to any person or body who designs the best model of a time-saving and economic machinery for husking arecanut in all stages of maturity and capable of slicing the kernels and demonstrates its working to the satisfaction of the Committee or a competent body appointed by it.

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The Secretary, Indian Central Arecanut Committee,
Post Box No. 14, Kozhikod.

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