

still more which have not been studied. The whole time of ten persons is spent on the work but even so there is much that has to be passed over for want of time.

Unfortunately most of the characters of direct economic importance are of a complicated nature. They will be thoroughly understood only after much study, but there is every prospect that the final result will much more than repay all the trouble taken.

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Nendrum Plantains (*Musa sapientum*).

The cultivation of Nendram is confined to the West Coast viz., Malabar, Cochin and Travancore. It is otherwise known as 'Eathan Kaya' (Picotta plantain) indicative of its large requirements of water, since picotta is the oldest known water lift here. On account of the attention that one has to bestow on the crop the area which each ryot puts under it is confined to a few cents for which again picotta is a convenient water lift. When the owner of the plantation is the labourer as well, it is for him a necessity to set up a picotta as the most preferable water lift for irrigation. Therefore the cultivation of Nendram Plantains, over a large area of the West coast, is closely associated with the picotta or Eatham: hence the name. 'Onavazha' a name by which it is known over a large portion of North Malabar explains the idea that it takes a prominent place for the Onam feast of the Malabar people. It is considered a necessary fruit of consumption during the Onam days and can be found in each and every house of a Malayalee whether poor or rich. Almost every ryot in the southern taluks plants at least a few plants for his home consumption, if not with a view to sell the surplus at a good profit at the Onam Fairs where sometimes fancy prices are offered for properly matured fruits of big size. In many lease deeds in certain parts

of Malabar one or two nendrum bunches worth 8 to 10 annas can be seen laid down as a bounty the tenant has to give his landlord at the Onam time; a failure to submit them is considered to be an insult. However, the fact remains that the price of the bunches, as stipulated in the document, has to be paid to the landlord with interest if delayed. Even in the remote corners of Malabar the large and busy sales of nendrum fruits in weekly fairs coming close to Onam is, indeed, a sight to see. During some years the crop happens to be late and the Onam market price of nendrum runs high in as much as the demand increases since the requirements cannot be curtailed. So much for the importance of nendrum in localities where it is largely cultivated.

There are two varieties, one known as 'Nendrum' (nana nendrum) or 'Ethan Kaya' or 'Ona Vazha' smaller bunches with sweeter fruits. The other is known as 'Attu Nendrum' which produces bigger bunches with thinner yet cylindrical fruits which when ripe are not as sweet as the first variety. Attu Nendrum can be allowed to remain in the ground for two years allowing the best of the first formed suckers to bear a bunch, and does not require as much water as the other. However, when cultivated in paddy lands, as it is mostly done, it is not retained longer than one season. In the northernmost parts of Malabar where nendrum cultivation is not very extensive the second variety is grown, and the method of cultivation adopted differs very widely in details from the one hereunder described. This is, however, the more popular method adopted over a larger area where the ryots always grow the sweeter variety.

Single crop wet lands, often seen in terraces, and fertile garden lands are selected for this cultivation. Double crop lands are seldom selected but not wholly avoided. The questions for the ryot are the availability of plenty of irrigation water and the possibility of draining the crop during the rainy months.

In about October trenches 10" to 12" broad and 12 to 18 inches deep are dug about six and eight feet apart alternately. These are allowed to weather for a month or so at the close of which any available rubbish is put in and set fire to and the ashes dug in with the

partially burnt soil, when the trenches are ready for receiving the suckers.

Well developed suckers removed from the previous crop are selected for planting. The roots (underground stem) of the suckers are stripped of their fibrous roots, and dusted with ashes while they are green, and often dried till the bits of false stem on the roots are dried up. These suckers are then planted out about 6 feet apart in trenches with the roots fully buried. A handful or two of ashes are often worked into the whole for each sucker and pot watering is given until they sprout. Some ryots plant a few vegetables, say cucumber, chillies etc., on the newly heaped narrower ridge while the broader ones have to accomodate the irrigation channel for the main crop. When plants are well sprouted pot watering is stopped and the irrigation by means of the old picotta or any other water lift is resorted to. After the plantains grow to a height of 3 feet heaps of cattle dung and bundles of jungle leaves, such as *calycopteris floribunda*, mango, ficus leaves and even lantana, are applied to the roots of these plants with intervening layers of soil taken off the sides of the ridges. The application of manure and earthing up being repeated every fortnight or a month, the field is gradually levelled. The whole area is then dug once and kept as fine as possible; each plantain can be said to receive about 2 Madras Measures of ashes 25 lbs. cattle-manure and 30 lbs. of green leaves. Some ryots prefer to apply a mixture of $\frac{3}{4}$ cattle-manure and $\frac{1}{4}$ goats-dung. Cattle-manure applied is mostly dry, ashes if any available are also put in. Fish manure is slowly gaining in popularity as a manure for plantains along the seacoast where it can be had cheap.

Circular pits 4 to 5 feet in diameter and 5 inches deep are made round each plant to hold irrigation water given every other day. Ashes are often mixed with water in the beds while being irrigated. The development and taste of the fruits are believed to depend on the regularity of the irrigation given during the months of March and April, when the bunches are just forming within the false stem. Suckers, if any, coming up before the fruits attain their normal size, are pressed under foot. Each plant when about to bear a bunch

is given a strong support planted deep into the soil. Such props last with the ryot for a number of seasons. The bunch-forming-time is the most anxious time for the ryot, because the south west monsoon winds are then very strong and the tender succulent plantain bunches may be easily blown down by a sudden gush of wind. Wind breaks are sometimes provided although the ryot would himself speak of them as screens to shut against the evil eye; for which again hoisting ridiculous forms is as common as elsewhere. The ryot has also to attend carefully to avoid the new bunch resting on some of the leaf petioles from which it may slip down and break. All trouble will be in vain if these minor, yet most important details are not carefully attended to.

When rains set in in June the ryot finds that his crop does not require any more irrigation, and earths up the plants often making a mound round the bottom of them with intervening deep drains to get rid of any stagnating water. If water stagnates at this stage the plants turn pale and gradually yellow with leaves often falling down and roots (underground stem) rotting in worst cases. Too large a quantity of manure applied by an over anxious ryot often causes the terminal shoot to rot and the plant is lost. Throughout the period, from the fruits assuming their normal size to the harvest time the ryot has to employ a watchman night and day, the former for fear of hungry thieves that try to knock off fruits to be boiled and eaten because during the months of July and August there is a pronounced scarcity of food grains and work in these parts. When fruits are well maturing green birds, squirrels and at night flying foxes and bats do considerable amount of damage, reducing the market value of the bunch. Well matured fully developed sound fruits providing a good appearance to the bunch fetch the highest price. Sometimes too much manuring or exposure to strong weather causes the fruits to crack. Presence of one or two cracks in a bunch reduces the price considerably out of proportion to the good fruits the bunch contains. To prevent cracking and attacks of enemies the bunches are often wrapped in dry plantain leaves.

It may be interesting to note the special rates of rent fixed for growing the crop in certain parts. Two fruits or sometimes one for

the land and another fruit for the use of the well for irrigation water is the usual rate. A careful cultivator not infrequently does the work of guiding water himself. Much of the irrigation work has to be gone through during the busy dry ploughing season and the work is often finished at nights. Therefore contract rates are more prevalent. The charges may be one to two annas a plant. Coming to the cost of cultivation as a whole, it varies considerably according as the jungle leaves and cow dung are cheap or dear and the quantity of each used. Nearness to irrigation water is another consideration. However, to put it at Rs. 200 to 300 per acre will be about the mark. No ryot keeps an account of it nor is the individual holding generally more than a quarter of an acre. The figures therefore are more or less approximate.

Many cultivators, each with his small area, join together and raise the market crop of a village in a few acres all in one block, where most of the watching work can be conveniently done by the cultivators themselves in turns. A tope when grown for the market is sold to the dealer as a whole, fixing an average value of six to eight annas per bunch. The price of a good bunch may go up to a rupee and a quarter. Retail sales are effected at rates varying from Rs. 5 to Rs. 30 per 1000 fruits according to its appearance and quality. Each bunch of this variety contains nearly 60 fruits. Putting down 1000 to 1100 plants to the acre and allowing 5% for possible loss a ryot can, in the ordinary course of events, obtain a gross income of Rs. 400 to 750 per acre. Sometimes when plants are put in closer the total number may be greater and the value for a bunch will be less. The ryot can also realise something out of the sale of suckers. From each plant one good sucker can be expected. This may be worth nearly 8 pies, but the demand is not always sure. Therefore about Rs. 25 per acre out of the sale of suckers may be taken as a possible figure. Vegetables grown are not intended for sale and their value may be put down as Rs. 5 per acre. The inner stem and tender underground stem are also largely used as vegetables, sales of which cannot be effected. The leaves of the suckers when bunches get matured are another asset of the cultivator, but are seldom sold.

The cultivation is mostly in the hands of needy ryots. It is a great pity that they are often unable to enjoy the full gain from the crop because of the redoubtable money lender ensnaring him with an enticing bait of a few rupees of advance when he is in great straits for money. The usurer is a trader as well. When the crop comes to maturity he offers his unusually low prices for the produce and the poor indebted cultivator has to yield to his formidable friend a good deal. If the idea of co-operation as practised in irrigating the crop and watching is extended to meeting the cultivation expenses and perhaps some of the bare necessities of life during the cultivation season, the cultivator can be free. This end can be gained by establishing a co-operative credit society in such a locality where it is badly wanted.

As regards trade in fruits, apart from Onam fairs, and the use of green and ripe fruits there is a good deal to be written. The most important is the large supply of green and ripe fruits to towns like Calicut, Palghat and even Madras. As a vegetable green fruits are priced high in the West Coast. Green fruits, when the rind is peeled off, are sliced into thin circles salted, fried in coconut oil and sold in Calicut bazaar. The sale is large enough to attract the notice of any casual pedestrian on the bazaar road at Calicut. Of late, this trade is increasing and becoming prominent in most of the West Coast towns. Green fruits sliced fried without salt, and seasoned in boiling jaggery mixed with spices form a highly delicious dish (Sarkara-upperi) in Malabar. Raw fruits sliced and dried are powdered into a sort of flour, which when boiled is considered to be a very nourishing food to young children. Ripe fruits are boiled and mashed with water to a consistency thicker than jam and preserved with ghee, honey and sugar for a long time. There is a very great opening for a big business in the preparation of the various jams and jellies and perhaps in the flour as well. The leaf-sheaths are very fine, and a valuable fibre is extracted out of them in Travancore, where a beginning in this industrial aspect of plantain cultivation is being made with a certain amount of success.

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