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The "Nendran" or Malabar Plantain.

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The Nendran is a type of plantain chiefly grown on the West Coast of the Presidency and abundantly in Malabar. Although sporadic efforts have been made to grow this crop in other parts of the Province, it has not been successful outside Malabar and parts of South Kanara. Probably the partiality of this crop for the porous well drained laterite soil and the heavy rainfall of the Coast is responsible for its coming up well only in these tracts.

Uses. The fruits both raw and ripe are available in important towns of Malabar all the year round. It is much bigger than the ordinary plantain fruit, and is a favourite among the people of the West Coast. It forms a part of the New Year present on "Vishu" from the tenant to the landlord or on festive occasions like 'Onam', etc. Both ripe and raw fruits are used in all households in various ways. The raw fruit is used for culinary purposes either by itself or mixed with other vegetables. After peeling the skin and slicing, the well matured fruits are fried in oil and preserved either salted or sweetened in jaggery syrup. The ripe fruits are consumed either in their natural state or by cooking in steam or baking in hot cinders. They are best eaten when the rind becomes flecked. The fruits are largely used in the preparation of 'prathaman', 'halva', fruit salad and many other sweets

and can also be preserved either in honey or syrup. 'Figs' are prepared by slicing well ripe fruits whose rind has been removed, and dried in the hot sun for 4—5 days.

The pulp of fruit is rather hard compared with other varieties of plantains and keep for fairly long period (10—15 days) after ripening and do not easily fall off from the bunch. Due to the keeping quality, the export trade of this commodity of late, to particularly large towns such as Madras, Trichinopoly, Madura and Coimbatore has been on the increase.

Like the coconut tree, almost every part of the plant is useful. The fruits, flower, flower stalk, and the rhizomes of the suckers are edible, while the sun-dried fibre is a good substitute for coir and other ropes. Usually no leaves are cut from the mother plant but the dry leaves are used for thatching sheds, etc.

Varieties. The chief varieties are *Nendran, Attunendran, Nanan-endran, Nedunendran, Tiruvodan, Chengaikodan, Myndoli, Kudiraivoly*, etc. They vary in duration, size of bunch, number, size, shape and taste of fruits, etc.

Cultivation. *Season.* Unlike other ordinary plantains, *Nendran* is not ratooned but fresh plantings done every year. The two main seasons of plantings are (i) with the outbreak of the N—E. monsoon in September and (ii) during November at the close of the rains. As off season fruits fetch better prices, wherever facilities exist, planting is resorted to during other months of the year also.

Planting. Planting is done both in wet and garden lands. As the crop cannot stand waterlogging the land selected should be well drained. As it needs copious irrigations also, facilities should be provided for watering the plants, when there is no rain. Pits large enough to hold the rhizomes are dug in the fallow field before planting is not usually resorted to. The land is dug up with a mammotee before pits are dug.

Seed material. Suckers taken from plants that have not flowered, are considered unsuitable as planting material. Suckers that sprout right below the bunch of the mother tree and the one just opposite to it are generally preferred for planting as they are supposed to yield big bunches. When these are not available all the available good suckers are planted. The suckers may be planted either as fresh ones immediately after digging them out or after they are dried in the sun. In either case topping is done nearly a foot above the rhizome. It is not an uncommon practice to have the stems of the planted suckers, trampled under the feet of buffalo. In this case the new shoots that sprout are more vigorous than the one coming out of a freshly planted sucker. Fresh suckers planted put forth new shoots within a week while the dried ones take from 15—30 days for putting forth new sprouts.

Manure. As the rhizomes are damaged by the grubs of rhinoceros beetle, no cattle manure is usually applied. A handful of ashes is put in the pit at the time of planting. When the young plants have put forth 3-4 leaves the base is opened and green leaf (about 20 lb.) and ashes (5 lb.)

are applied and covered. A second and bigger dose of the above manure is applied when the crop is about 3-4 months old. Some people give a third application of the same manure after 2 months from the date of second application. Burnt earth is considered a good manure. Though the crop responds well to application of concentrated manures it is beyond the reach of ordinary cultivators on the West Coast and as such not resorted to.

After cultivation. Inter-cultivation by use of bullock power is not practised. The field is usually dug up with mammottee after the first manuring is done and the plants are simultaneously earthed up. A second and third digging and earthing up may be given if necessary according to the nature of the condition of the field. It is advisable and often necessary to prop up the flowered plants by means of dead standards in order to avoid breaking of the plants during high winds. In wetlands, cross drains will have to be dug between every two rows of plantains to drain away the excess water. These can be utilised as irrigation channels as well.

Irrigation. Where flow irrigation is possible, it is naturally economical to make free use of this water. The fields are flooded when necessary and all the surplus water is drained away. Usually the plantain cultivation is done under lift by picotah. Where sub-soil spring is high, pits are dug in the middle of the plantation and water is baled out by human-labour in pots and supplied to the plants. The interval between irrigations will naturally depend upon the method of supply and quantity applied. Copious irrigations are considered necessary after the plants attain full growth and put forth bunches.

Fruits. Bunches begin to appear 7—9 months after planting depending upon the treatment received and the variety planted. The plants will then be 7—8 ft. high and would have produced about 30 leaves half of which will still be green and fresh.

Each bunch will have 4—5 hands and from 30—50 fruits. It is not uncommon to see big bunches with 60—70 fruits. When all the hands have formed, the flower is cut away so that the fruits will have maximum advantages for growth. The bunch will begin to ripen 3 months from the date of flowering. For culinary purposes harvest will commence even after 2nd month. The average weight of a bunch with 50 fingers will be 20—25 lb. depending upon the size of the fruits.

Economics. The following is a rough estimate of the cost of cultivating an acre and the return that can be expected in normal seasons.

Cost of cultivation.

	Rs.	As.	Ps.
Cost of preparing the land	6	0	0
Cost of 700 suckers	21	14	0
Digging pits and planting	9	0	0
2 diggings and earthing up and providing standards	20	0	0
Irrigation	22	0	0
Total.	78	14	0

Receipts.				
600 bunches of 40 fruits each	24000			
100 ,, 30 ,,	3000			
Total.	27000			
@ Re. 1 per 100		270	0	0
700 saleable suckers		21	14	0
Cost of fibre, flowers, etc.		14	0	0
	Total.	305	14	0

Net profit per acre. Rs. 227 or 225. More profit can be obtained in seasons of favourable price or if all the suckers produced are sold as seed material.

Conclusion. Cultivation of *Nendran* plantain is generally very paying and it is sure to tempt anybody in venturing on a large scale plantation. But there is the other side of this picture. In spite of all precautions taken very often large areas of this crop are damaged by high cyclonic winds causing irreparable loss to the ryots. The loss in such cases will be immense especially if large areas are owned by one individual. For this reason large areas are conjointly cultivated by many ryots or each individual owns only a limited number of plants. The *Nendran* is and will continue to be the plantain of Malabar.

Ecological Notes on the Sugarcane stem borer (*Argyria, sticticraspis*, Hmp) in the Irwin Canal Area, Mysore.

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Introduction. The observations recorded in this paper were made in 1938 in a small plot $\frac{1}{4}$ acre in extent, situated amidst large blocks of sugarcane at Satnur Farm 3 miles from Mandya in the Irwin Canal tract, Mysore. This plot was divided into ten equal sub-plots of one gunta ($\frac{1}{40}$ acre) each which were planted, one in the middle of every month from February to November 1938. The observations recorded herein were made on each month's planting from the third till the twelfth week after planting. No control measures of any kind against the borer were undertaken, and there was no other deviation from the usual cultivation routine.

This work was undertaken with the purpose of obtaining comprehensive data relating to (a) Egg-deposition rate of *Argyria sticticraspis* Hmp* in different months of the planting year, (b) the percentage of egg mortality due to the egg-parasite *(Trichogramma minutum,* Riley) and other natural factors, and (c) the effect of the resultant hatch of larvae on the young crop. This enquiry was suggested to the author by Tucker's work (ii) in Barbados; but owing to the great difference in the bionomics of the pests concerned,

* No mention of *Diatraea Nenosata* Hmp, which also attacks sugarcane in its younger stages is made in the paper to avoid confusion, as its incidence is extremely slight.