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## Banana farming: Source of enhancing income and sustaining livelihoods in Meloor Panchayath

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### Abstract

Banana is a widely perennial fruit crop grown in Meloor Panchayat due to high economical gain for small and marginal farmers throughout the year. Meloor is one of the largest producers of Banana in Thrissur District with an average of 2812 tons from an area of 75 hectares with average productivity of 30 to 35 tons per hectare. Moreover, 25 hectares were added to banana cultivation in Meloor Panchayat during Post Covid Period. 70 percentage farmers sell their bananas in Chalakudy Market, 20 percentage in VFPCCK and 10 percentage in Horticrop. The overall objective of the study is to examine economically feasibility of banana production and the sustainability of by-products. It also examines the major role played by cooperatives banks, insurance schemes and agriculture departments which helps to enhance farmer's income and also create job opportunities. Agriculture and allied activities provide the main source of livelihood and income to 80 percentages of people in Panchayath. The government should take all necessary measures and support the panchayat to start micronutrients, nutraceuticals (baby food), livestock feed, natural fibres, and bio-fertilizers units. As Cochin International Airport is 18 Km away panchayat has huge potential for export. The unemployment can be sorted out by supporting small and cottage industries sector for byproducts such as Chips, figs, flour, powder, banana pulp, food and infants, clarified banana juice.

**Keywords:** Meloor, banana farming, sustainable livelihood, nendran, job opportunities

### Introduction

Meloor Gram Panchayath is an agrarian village on the banks of Chalakudy river sharing 17-km borders with the river is in, Thrissur District of Kerala State. It has an area of 1987 hectares, which is famous for its natural beauty and plantations. The richness of Meloor panchayat is its fertile land and lateritic soil of river valleys which are ideal for banana growing and is known for high yield banana. The four boundaries of Meloor Panchayat are Chalakudy River in the north, Karukutty panchayat in the east, Kadukutty panchayat in the west and Koratty panchayat in the south. The total population of the panchayat (1991 census) is 27698.

### Methodology of the study

The present study is based on primary data and secondary data. Primary data are collected directly from the banana cultivators, banana sellers and a well-structured interview schedule were used for data collection from the farmers. Secondary data are collected from Panchayath, Agriculture office, VFPCCK etc.

### Objectives of the study

- To study the varieties of bananas in terms of commercial values
- To identify the problems faced by the banana cultivators in the production and marketing of their products.
- To study the role of VFPCCK (Vegetable and Fruit Promotion Council Keralam) and Horticrop, banks, insurance schemes and agriculture department in the support of Banana Farmers.

### Scope of the study

- The scope of the study is to bring into the notice of government about the commercial value of banana and employment the opportunity of Meloor village.
- The study was primarily intended to analyse the production and marketing of bananas.

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- The outcome of the study is more beneficial to the farmers and government prioritising key areas that the banana industry might address to improve its productivity and sustainability.

**Table 1:** Area under Banana

Year	Production(tones/hectare)
2017	600
2018	500
2019	550
2020	650
2021	650

### Banana characteristics and its production

Meloor is located on the banks of the Chalakudy River and having tropical humid lowlands and an optimum temperature of 25 °C. The soil in Meloor Panchayath is having good fertility and an assured supply of moisture are best suited. Farmers prefer banana cultivation in the month of April-May but normally grow under a good irrigation condition and continue cropping whole years on lands, house compounds as well as paddy fields. On average in one-hectare 1600 bananas were planted. The yield from one plant is an average of 75 fruits. One bunch containing 15-16 fruits arranged in 5 to 6 clusters. The Nendran grown in Meloor panchayat is very tasty, sweet and soft with a thin peel. Unripe Nendran bananas from Meloor were in high demand among chips producing companies and exporters.

### Package of practices

#### Planting season

The planting time for long-duration cultivars average 12

months is different from short-duration ones of 10 months. The planting time might be adjusted to avoid high temperature and drought at the time of emergence of bunches (i.e. approx. 7-8 months after planting). Planting during rainfed is from April to -May and for Irrigated crop is August- September.

### Varieties

Bananas are classified into several main groups and subgroups such as Nendran Banana [Nedunendran], Dwarf Cavendish Giant [Palayamkudan], Pisangmasak [Karpuravalli], Morees [Robusta], Mysore Banana [Poovan], Musa acuminata Colla [Njali Poovan], Musa paradisiacal [Kadalai Param], Kannan grew in Meloor Panchayat. Every variety of bananas having a commercial value in the global market, particularly in the Middle East, both by volume and value.

### Selection of seed

From the healthy clump's farmers select 3-4 months old disease-free suckers. In the case of Nendran variety, the pseudo- stem is cut up to the length of 15-18 cm from the corm and remove from its old roots. Then the rhizomes are treated with beejamrutha to control rhizomes weevil and kept for 3 -4 days in sunlight and stored in shade for 15 days before planting.

### Preparation of land

The field was prepared by digging pits for planting. Usually, the size of the pit is taken as 30 cmX10cm still depends upon soil type, water table and variety of banana.

**Table 2:** Spacing and No of Sucker/Ha for Kerala Varieties

Varieties	Spacing (m)	Suckers/ Ha (Numbers)	Duration (No of days)
Nendran Banana [Attunendran]	2.0X2.0	2500	365
Dwarf Cavendish Giant [Palayamkudan]	2.4X1.8	2310	300
Pisangmasak [Karpuravalli]	2.4X2.4	1730	300
Morees [Robusta]	2.4X1.8	2310	300
Mysore Banana [Poovan]	2.1X2.1	2260	300
Musa acuminata Colla [Njali Poovan],	2.1X2.1	2267	300
Musa paradisiacal [Kadalai Param]	2.1X2.1	2260	300
Kannan	2.1X2.1	2267	300

### Recommended manures

FYM (Farm Yard Manures) or compost of leaves @10 kg per plant at the time of planting + 10 g Azospirillum (Gram-negative, microaerophilic, non-fermentative and nitrogen-fixing bacterial genus).

500 gram of lime in the pit and allow to weather Vermicompost @2kg per pit and Groundnut cake/neem cake @ 1 kg /pit at the time of planting.

Mix PGPR (Plant Growth Promoting Rhizobacteria), bio NPK fertilizer@ 500-100 gm/pit mixed with 5 kg of FYM should be applied at the time of planting. Recommended at the time when there is enough moisture in the soil.

Pancagavya 3% as foliar spray 3 times at 3rd, 6th and 9th month after planting.

Sow 50 kg /ha of cowpea seeds before planting banana (20 gram/plant). Incorporate the crop into the soil after 40 days. After 3 months Elephant Foot Yam or Colocasia was planted in between keeping the space of 6 m each. It's an additional income to farmers It's preferable to apply organic manures in two equal doses at 2<sup>nd</sup> and 4<sup>th</sup> a month after

planting.

**Table 3:** Additional Nutrient Required

Varieties	Quantity per Plant			
	FYM / Compost (kg)	Rock Phosphate (g)	Ash (Kg)	SoP (g)
Nendran	20	200	1.0	600
Palayamkudan	10	300	2.0	800
Other Variety	15	300	1.5	800

### Nutrient recommendation

FYM 30kg/plant+ ash 5 kg/plant

Poultry manure 15kg/plant + ash 5 kg/plant

### Irrigation

- Ensure good drainage and prevent water logging.
- During summer months, irrigate once in three days
- About 6-10 irrigations/crop may be given depending upon soil conditions

**New disease found****Weed control**

Avoid deep digging and don't disturb soil after plants start producing bunches. If hand weeding, the operation can be extended up to 4-5 times depending on weed growth.

**Desuckering**

Remove all the side suckers and retain one or two suckers produced after the emergence of a bunch.

**Major pest attack diseases**

Banana pseudostem weevil (*Odoiporus longicollis*), Banana Rhizome Weevil (*Cosmopolites sordidus*), Aphid (*Pentalonia nigronervosa*), Nematodes.

**Major fungal diseases**

Sigatoka leaf spot, Eumusae leaf spot (*Mycosphaerella* sp), Panama Wilt (*Fusarium oxysporum* f.sp cubense).

**Major viral disease found**

Bunchy, Banana Bract Mosaic Disease (Kokkan), Infectious Chlorosis (Cucumber Mosaic) and Banana Streak Diseases.

**Snail attack**

Snails are an emerging problem in banana production in Meloor for the last 3 years and cause damages to the banana fruits. The farmers have destroyed thousands of snails through the application of common salt.

**Other chemical fertilizer used according to the needs are**

Mixture of NPK - 10:26:26:250 gram /plant

Urea: 50 gram/plant

Factamfos: 200 gram/plant

**Harvesting and yield**

According to market preference banana is harvested when the fruits are slightly or fully matured. Harvesting is done at 75 -85% maturity for long-distance transportation.

The planted crop gets ready for harvest within 10-12 months of planting and the main harvesting season of banana is from September to April.

Bunches attain maturity from 75-90 days after flowering depending upon variety, soil, weather condition and elevation.

The dwarf varieties are ready for harvesting within 10-11 months after planting while the tall varieties take about 11 to 12 months. After harvesting of the bunch, only leaves are to be cut and the plant system is retained for ratoon crop development. This improves the food supply and about 15% can be saved on irrigation. For getting good quality banana, only 3 to 4 berries are to be retained in a bunch.

**Cost structure and analysis of banana**

Production generally the production and management cost include: land rent, primary tillage, irrigation system seeds, tools, bagging, support poles (Casuarina Pole or bamboo), fertilizer, pesticides, energy cost, wages, temporary worker's wages, transportation and other incidental expenses etc. Comparative costs are listed in the following.

**Table 4:** The Cost of cultivation per hectare (in Rs.) of Banana

Components	Amount (Rs)	Percentage (%)
Land Clearing using Machine	22000	3.71
Labour	5000	0.84
Seed /Seedlings and Labour	35000	5.90
Farmyard manure and chemical	24000	4.05
(Pesticide)	30000	5.06
Casuarina Pole and Tag	128000	21.59
Irrigation	5000	0.84
Labour Charges	32000	5.40
Imputed value of household labour	300000	50.59
Interest Rate of Bank Loan	12000	2.02
Total	593000	100.00

**Marketing of banana**

The banana cultivated in Meloor Panchayath is marketed through VFPCCK. The market is open twice a week (Tuesday and Friday). Farmers brought bananas to the market where farmers are able to sell their product directly to end customers or wholesalers as well as retailers. Vegetable and Fruit Promotion Council Keralam (VFPCCK) avoid middlemen and helps farmers to get a better price for the products. A bunch of bananas were sold at an average rate of Rs 35- 40 Rs/kg and each bunch contain an average of 8 to 10 kg and farmers get between Rs300 to Rs 450. The average cost for one banana cultivation is Rs 370 -400 Rs. From 2018 -19 after the flood, the farmers are in bad debt due to low price.

**Table 5:** Production and Marketing of Banana through VFPCCK

Types of Bananas	Production of Banana (kg)	Price	
		Peak	Normal
Nendran Banana [Changalikodan]	10	50	37
Dwarf Cavendish Giant [Palayamkodan]	15	20	13
Pisangmasak [Karpuravalli]	15	20	13
Morees [Robusta]	20	22	15
Mysore Banana [Poovan]	13	30	28
Musa acuminata Colla [Nijali Poovan].	10	45	38
Musa paradisiacal [Kadalai Param]	7	100	40
Kannan	15	30	10

**Major set backs**

- Government has not tried to open Meloor as the largest plantation to worldwide markets even though Nedumbassery airport is 18 km away from Meloor, the panchayat.
- Not able to address the farmers problem of finance in the production of bananas during good seasons.
- The Panchayat has unnoticed to develop an as largest

commercial unit of India and provide employments in areas from growing the fruit, may also package, process, and ship their product directly from the plantation to worldwide markets.

- VFPCCK is only the institute that can extend its support to local farmers but failed to visualize things in a boarder sense. (Failed to add commercial values to the product).

**Crop insurance package**

- VFPCCK has designed a crop insurance package for its participating farmers for protecting farmer as well as the banker from uncertainties that arises during the cultivation period. Premium: Banana - Rs. 5.70/ plant (VFPCCK Rs 2.7/plant and Farmer Rs 3.0/plant). Again, it's a burden on farmers.
- In VFPCCK Payment from retail traders normally takes four to five days to reach farmers.
- The crop Insurance upto 300 Rs/Plant given by Krishi Bhavan is the scheme for safe guarding the farmers from unexpected damage to agricultural crops due to various reasons including Natural Calamities and the subsequent loss caused by that.

**Problems in production and marketing of banana**

- Conditional insurance scheme and lack of finance for banana producers
- In paddy fields banana is not growing well.
- Excess amount of fertilizers and pesticides
- Unfavourable climate condition, floods from last 2 years
- Price fluctuation due to excess of banana coming from other states
- Not a single banana unit to make by-products like banana chips, sweet banana figs, banana flour, banana powder and starch, jam, juice and squashes.
- Lack of Coordination between Krishi Bahavan, VFPCCK, Horticrop, Bank and Insurance to support farmers in need.

**Finding**

- Constraints for selling on the overseas market are high shipping rates for sea and air freight, long-distance which requires cooled containers for fresh products and limited availability of sea transport, especially for smaller quantities.
- Farmers are reluctant to invest time and money in crops which have no guaranteed market still this day's government has not tries to open Meloor as the largest plantation to worldwide markets. Even Nedumbassery Airport is 20 kms away from Meloor, the panchayat is failed to develop it as the largest commercial unit of India and provide employments in areas from growing the fruit, may also package, process, and ship their product directly from the plantation to worldwide markets.
- Government unnoticed the areas where they can support self-finance units like Production-related activities on a plantation include cultivating and harvesting the fruit, transporting the picked bunches to a packing shed, hanging to ripen in large bunches, dividing large bunches into smaller market-friendly bunches, sorting, labelling, washing, drying, packing, boxing, storing, refrigeration, shipping, and marketing.
- Unemployment can be sorted out by supporting small and cottage industries sector of byproducts such as Chips, figs, flour, powder, banana pulp, food and infants, clarified banana juice. There is a very good marketing scope in the metropolitan cities of Calcutta, Mumbai, Chennai and Delhi and international markets if they provide a different variety of bananas and their byproducts. So there exists vast potential for new entrepreneurs in this field.

- Meloor Co-operative banks and all leading banks SBI and Canara in the area offers credit to the farmers as interest free loan for one year, eliminating the dominance of private money lenders. After flood in 2018 farmers are in debt due to low price and low crop yield.
- Kerala state government body Horticrop has started procuring bananas from farmers directly but payment is delayed.

**Conclusion**

"Globally, banana and plantain are the fourth most important crops in terms of food security and value," Fonsah said.

This study assesses the marketing of the 'Nendran' banana in terms of price, special emphasis is laid on marketing practices at the farmer sales level. It is found that most farmers in Chalakudy market sell banana directly to the consumers but the farmers has to pay 3 Rs / banana bunch for unloading +1 Rs for weighing (ie means 4 Rs for each banana bunch). The farmers have to pay transportation charges. In other markets like Thrissur intermediaries often claim up to 6% of the value of sales, pressurizing farmers with few resources to sell bananas directly to consumers. Direct sales are limited, however, by a lack of adequate transport facilities, and the high costs associated with them. Vegetable and Fruit Promotion Council Keralam (VFPCCK) had started its center at Meloor panchayat to support local farmers by avoiding middlemen; buying and selling bananas at the local level. VFPCCK is only the institute that can extend its support to local farmers but failed to visualize things in the broader sense. A statistical study shows that the number of Banana producers, its demand increased and which main sources of household income to many but failed to promote banana as a small-scale industry.

One of the biggest challenges facing our agriculture industry today is the disconnect between consumers and the farmers. An increasing proportion of our population, the new generation shifted from agricultural production that means we must mainly focus on educating the next generation about the importance of agriculture. In Meloor banana agriculture is top and a vital economic driver for the Chalakudy constituency as well as the state. More efforts should be needed to include contacts with industry professionals, including researchers, State Horticulture Mission, with the Kerala Agriculture University, and communication programs ranging from informational booths at public fairs and festivals to highway billboards and websites.

The most important question to answer by panchayat/authorities is how to reduce unemployment and utilize the largest gifted fertile land by integrating farming systems methodologies which are useful in addressing complex issues like environmental and economic sustainability.

The panchayat has also to look after how individual/group horticulture businesses need ongoing technical support for change to more sustainable practices.

Meloor should be brought back to the world map as the largest producer of banana, if the government prioritising key areas that the Banana Industry might address to improve its productivity and sustainability over the next 5 to 10 years.



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