



7. “Economic Aspects Of Nutmeg Cultivation With A Kerala Perspective”

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ABSTRACT

The nutmeg is distinctive type of tree spices that is commonly cultivated in the central parts of the Kerala State. Nutmeg and mace are two main products of the plant that are used to extract essential oils. It is widely cultivated in Ernakulam District of Kerala. It is a major source of income of the small and marginal farmers of the state. Both mace and nutmeg are used as condiment and medicine. Recently, the demand for nutmeg and mace has been showing a rising trend, as it has been used for the preparation of various ayurvedic medicines, spice mixtures and its use in various cuisines. Nutmeg has proved to be one of the most remunerative mixed crops among all tree spices, especially in coconut plantations. According to the data provided by Spices Board India the area under nutmeg cultivation in India is more than 16000 hectares. This area is spread over Kerala, Tamil Nadu, Karnataka and southern Maharashtra. The annual production of nutmeg is estimated at over 11000 tonnes. About ten per cent of the produce is exported. The produce has much demand in domestic market also. This paper is an attempt to assess the economic aspects nutmeg cultivation with a Kerala perspective.

Key Words- *Spices, Tree Spices, Nutmeg, Mace, Cost of Cultivation*

Introduction

The nutmeg tree has a unique place in the world of spices. It is a large evergreen tree that provides two distinct kinds of spices such as nutmeg and mace. Both of these have commercial significance and it provides a major share of income to the farmers cultivating it. The botanical name of nutmeg is ‘*Myristica fragrans* Houtt’ It belongs to ‘*Myristicaceae*’ family. Nutmeg requires heavy manuring. Normally, the yield from nutmeg trees depends on its size and proper growth. Nutmeg contains twenty five to forty percent of fixed oil. This oil can be obtained through scientific extraction process. In Kerala, nutmeg is mainly cultivated in three districts namely Ernakulam, Thrissur and Kottayam.

Significance of the Study

During the post WTO regime the magnitude of price risk faced by the spices cultivating farmers has increased. The prices of various spices are fluctuating in a greater manner. Recently, the fluctuations that occurred in the price of nutmeg and mace were severe. On the other side, the cost of nutmeg cultivation is escalating year after year. The fog of distress is surrounding the nutmeg farmers mainly due to these reasons. Both the supply and demand side factors are responsible for the price variations. It is argued that the fall in price is due to the import export policies adopted by

the central government as a part of globalisation process. In this context it is worthwhile to examine that to what extent the globalisation process and WTO regime have influenced the cost and profitability aspects of nutmeg cultivation. The prominent question is that whether our spices sector and the farmers are capable and prepared to face the challenges raised in relation to globalisation process. Any kind of information pertaining to these matters may be useful for the agro sector and farmers. If they are getting proper suggestions and guidelines the nutmeg cultivators can reap the benefits of trade liberalisation and globalisation policies. The present study is an attempt to examine the cost and revenue aspects of nutmeg cultivation in Kerala.

Objectives of the Study

The major objectives of the study are,

1. To describe the present status of nutmeg cultivation in Kerala.
2. To estimate the cost and revenue aspects of Nutmeg Cultivation.
3. To identify major problems faced by the nutmeg cultivating farmers of Kerala. And suggest the relevant measures to tackle it.

Methodology of the Study

An analytical approach has been adopted to outline the economic aspects of nutmeg cultivation in Kerala. For this purpose a micro level enquiry has been conducted in



Ernakulam District, as it is the major centre of nutmeg cultivation in Kerala. For this study relevant data has been collected from both the primary and secondary sources. Present study was based on data collected from 125 nutmeg cultivating farmers. These sample respondents were randomly selected from various Panchayaths of Ernakulam districts such as Kalady Grama Panchayat, Okkal Grama Panchayat, Karkutty Grama Panchayat and many places of Perumbavoor Municipality. The required information was collected from these farmers by using a structured questionnaire. Secondary data was also collected from various journals, reports, books, and websites and office of the Spices Board India, Kochi.

In Kerala, generally the farmers are cultivating nutmeg mixed with coconut and arecanut trees. In such cases the number of nutmeg trees in a hectare will be lower than this and it is around hundred nutmeg trees per hectare. Here for the cost of cultivation of nutmeg per hectare was estimated on the basis of the assumption that there exist 150 nutmeg trees in one hectare of land.

Review of literature

Economic review (2002) has stated that international prices of agricultural commodities are characterized by high volatility which is a crucial factor for the trade policy and the strategy under WTO obligation. The world prices of almost all agricultural commodities have witnessed a steep decline after experiencing a boom in the end of 1990s.

Reeta Kumari Bhagat and S.K.Upadhaya (2007) have examined the potentials of India in the export of agro-products under the WTO regime. The economic reforms of 1991 have created favourable conditions to the agricultural sector through the trade policy reforms and devaluation of the currency. But liberalisation under WTO has not increased the share of agricultural products in country's global exports.

Srijit Mishra (2008) has assessed that in recent years the incidence of farmer's suicides in India has increased. According to him the farmers are price takers in the product as well as in the input markets. Such a situation could lead to increase in input costs and decrease in output prices, and hence, decline in profitability and returns from cultivation.

Nutmeg Production in India

Since 2010-2011 the area under nutmeg cultivation and its production in India is showing an increasing trend. For the last five years ranging from 2011-2012 to 2015-2016 the average area under nutmeg cultivation in the country was 19617.4 Hectares and the average production was 13279.6 MT. The trends in area under nutmeg cultivation and the production in India is furnished in Table-1

Table-1 Trends in Area under Nutmeg Cultivation and It's Production

Year	Area (in Hectares)	Production (in Tonnes)
2011-2012	18407	12138
2012-2013	18730	12730
2013-2014	18730	12730
2014-2015	21110	14400
2015-2016	21110	14400
AVERAGE	19617.4	13279.6

(Source-Spices Board India)

Export of Nutmeg & Mace from India

Likewise the area under nutmeg cultivation and its production in our country, since 2010-2011 the export quantity of nutmeg and mace as well as the export earnings are also showing an increasing trend. For the last five years ranging from 2011-2012 to 2015-2016 the average export quantity of nutmeg and mace from the country was 3965.2 MT and the average Export value realised was Rs.24140.15 Lakhs. The trends in the export quantity of nutmeg and mace and the trends in export earnings are furnished in Table-2

Table-2 Trends in Export Quantity of Nutmeg and Mace and Export Value

Year	Quantity (in Tonnes)	Export Value (in Rs.Lakhs)
2011-2012	3620	24097.51
2012-2013	3231	22591.87
2013-2014	4450	26285.62
2014-2015	4475	26797.50
2015-2016	4050	20928.25
AVERAGE	3965.2	24140.15

(Source-Spices Board India)

Nutmeg cultivation in Kerala

Kerala today accounts for more than 90 per cent of the total production of nutmeg. Nutmeg



cultivation in Kerala is concentrated in the Thrissur, Ernakulum and Kottayam districts. Much like for rubber, the climatic conditions of Kerala suit for the cultivation of nutmeg. It requires warm, humid conditions and abundant rainfall that is 150 cm and more. It thrives on clay loam, sandy loam and red laterite soils. It cannot withstand heat and needs the cover of shady trees. This makes it an ideal intercrop in coconut, clove, coffee or areca nut plantations. It is difficult to calculate the area under nutmeg cultivation in the State, as it is grown in homesteads and as an intercrop. It is estimated that 14921 hectares in the Kerala State came under nutmeg cultivation in 2007-2008, yielding 11217 tonnes. During the year 2013-14, the area under nutmeg cultivation is 19627 Ha where as the last year it was 18462 Ha, an increase of 6%. Nutmeg cultivation increased 158% in Kerala from the year 2001-02. Thrissur (33%), Ernakulum (31%), & Idukki (15%) districts stands 1st three positions in area under nutmeg cultivation. The area under nutmeg cultivation shows an upward trend continuously. On analyzing the area under nutmeg for the last 10 years, it is the maximum this year.

Export of Nutmeg and Mace from Kerala

The trends in the export quantity of nutmeg and mace from Kerala through Cochin Port and the trends in export earnings for the period ranging from 2000-2001 to 2009-2010 are furnished in Table-3

Table-3 Export of Nutmeg and Mace from Kerala

Year	Export Quantity (in Tonnes)	Export Value (in Rs.Lakhs)
2000-2001	0	0.07
2001-2002	13	52.76
2002-2003	0	1.85
2003-2004	3	22.92
2004-2005	1	5.87
2005-2006	8	29.45
2006-2007	7	30.53
2007-2008	7	28.53
2008-2009	3	4.55
2009-2010	3	18.35
2010-2011	0	2.55
AVERAGE	4.19	17.95

(Source-Spices Board India)

Nutmeg Cultivation Practices

The nutmeg tree is a large evergreen that grows to about twenty metres tall. Nutmeg and mace are both products of the fruit of this tree. Nutmeg and mace are commonly used for flavouring savoury and sweet foods and as a medicine. Nutmeg tree requires a deep, well drained loamy sandy soil and it is grown in the shade for the first two to three years. The tree starts to fruit about five to eight years after planting and will continue to yield for about thirty years. The usual method of propagation is by seed. Half the trees are male and do not produce fruit. Normally the sex of the plants cannot be identified until they are six to eight years old.

Nutmeg and mace are both used to flavour foods and beverages. They are used in a variety of sweet and savoury dishes. Nutmeg and mace both contain essential oils, which can be extracted. Broken nutmeg pieces are often used for the extraction of essential oils. Nutmeg and mace both have medicinal properties and can be used to treat a number of ailments.

After the harvest the first thing to do is separate the mace (aril) from the rest of the seed. Mace is the thin lacy material covering the kernel and represents only a small fraction of the weight of the kernel. For each 100kg of nutmeg, there is only 3-3.5kg of mace. The quality of mace depends on the amount of volatile oil. Mace is available in the market as whole, broken or ground types. The separated mace is flattened by hand and dried on mats in the sun. This takes between two and four hours. Mace is graded according to size and quality. Premium price is offered for better quality big size mace. Larger nutmegs are considered superior and are traded at a higher price.

Data Analysis

Table-4 Area of Land Owned and Cultivated by the Nutmeg Cultivators

Area Of Land Cultivated	Number of Respondents	Percentage of Respondents
Less than 1 Acre	93	74.4
1-2 Acres	23	18.4



2-3 Acres	7	5.6
Above 3 Acres	2	1.6
Total	125	100.00

(Source: Survey Data)

Average Initial investment for the first five Years

Normally the nutmeg trees starts flowering after six years of its planting. The peak time of harvesting occurs after twenty years. The nutmeg fruits will be ready for harvesting nine months after the flowering. In the case of nutmeg cultivation flowering and the harvesting continues throughout the year. The nutmeg fruits ripen and become ready for harvesting when their pericarp splits open. Farmers use hill hook for the harvesting of ripen nutmegs. After plucking the fruits, outer fleshy portion should be detached and the mace can be manually taken separately. Normally the farmers keep the nutmeg and mace for drying it separately for three to five days.

The spacing for planting nutmeg recommended by the agricultural scientists are 8 x 8m. On the basis of this recommendation one hectare can conceive around 150 nutmeg trees. In Kerala, generally the farmers are cultivating nutmeg mixed with coconut and arecanut trees. In such cases the number of nutmeg trees in a hectare will be lower than this and it is around hundred nutmeg trees per hectare.

Table-5 Initial Investment for the First Five Years

(Cost in Rs./ Hectare)

Sl.No	Item	Cost incurred
1	Land preparation	97059.75
2	Cost of plants	4750.26
3	Cost of planting	15784.25
4	Manure & Fertilisers	74129.8
5	Application of Manure & Fertilisers	33764.34
6	Chemicals & Pesticides	17713.9
7	Application of Chemicals & Pesticides	12016.25

8	Irrigation	54278.1
9	Other Plant Protection Measures	18241.62
10	Miscellaneous Expenses	22681.25
SUB TOTAL		350419.50

(Source: Survey Data)

Initial investment incurred for the planting of nutmeg trees and their guarding for the first five years were estimated and it was found as Rs.350419.50. Flowering of nutmeg trees normally begins in the sixth year onwards. The average flowering period in a full swing is possible for 25 to 30 years. Therefore by considering the thirty eras as the fruitful life span of the nutmeg trees the overhead cost for the current year is estimated as Rs. 11680.65. By considering all other expenses incurred for nutmeg cultivation including the annual overhead cost was worked out and it is described in table-6

Table-6 Average Annual Cost of Cultivation

(Cost in Rs./ Hectare)

Sl.No	Item	Cost incurred
1	Land Management	11366.56
2	Manure & Fertilisers	18532.45
3	Application of Manure & Fertilisers	5235.54
4	Chemicals & Pesticides	6540.25
5	Application of Chemicals & Pesticides	3861.74
6	Irrigation	12259.23
7	Harvesting	18514.89
8	Marketing charges	3547.14
9	Other Plant Protection Measures	6548.24
10	Miscellaneous Expenses	5547.25
11	Overhead Cost	11680.65
SUB TOTAL		103633.9

(Source: Survey Data)

Table-7 Average Earnings from Nut Meg Cultivation

(Revenue Aspects of Nutmeg Cultivation / Hectare)



Sl. No.	Item	Quantity (in Kg)	Market Price (in Rs.)	Revenue (in Rs.)
1	Nutmeg with Shell	1926.75	58.55	112811.20
2	Mace	94.67	1125.75	106574.67
TOTAL		219385.87		

(Source: Survey Data)

The study has revealed that the nutmeg cultivating farmers are incurring an average annual operational cost worth Rs.103633.90. The average income from nutmeg cultivation was found as Rs.219385.87, including the sale of nutmeg with shells and the mace. The average net income of the farmer was estimated as Rs.115751.97. One of the important aspect noticed in the field survey was that the market price of both nutmeg with shell and the mace are inconsistent and are fluctuating. As a result of the market price fluctuations the gross income realised by the nutmeg cultivators are fluctuating. The cost and profitability aspects of nutmeg cultivation are furnished in Table-8

Table-8 Cost and Profitability aspects of Nutmeg Cultivation
(Cost and Revenue Aspects of Nutmeg Cultivation / Hectare)

Sl.No.	Item	Amount (in Rs.)
1	Annual Revenue	219385.87
2	Annual Operational Cost	103633.90
3	Net Profit	115751.97

(Source: Survey Data)

Conclusion of the Study

Karukutty Grama Pachayat, in Ernakulam District, is considered the largest nutmeg-growing Panchayat in the State with about 750 hectares under the crop. There are around 30,000 farmers in the State. About 3,000 farmers are members of the Growers' Association. In a meeting of nutmeg farmer representatives, agricultural scientists and officials from the Department of Agriculture,

Which was organised under the initiative by Innocent, MP, they have decided to form a farmer producer society to address the problems confronting the farmers. Mostly the farmers in Kerala are cultivating nutmeg as an inter crop. Coconut, arecanut, plantain, ginger and turmeric are the other major crops that are cultivated by the farmers in their farm fields.

Price instability for the produce is a major problem causing variations in the earnings of farmers and thus landing them in severe difficulties. Most of the farmers cultivating nutmeg are depending on local merchants for the sale of their crop. Too much deduction in price by assessing the quality of the nutmeg shell and the mace always fetches a lower price compared to the general market prices leads to unnecessary loss of revenue to the farmers.

Nutmeg cultivating farmers of Ernakulam region are not more informative on the advanced technologies of crop production. It has been observed that the yield from a single nutmeg tree would be more when the nutmeg trees are widely spaced. However if the farmers are planting the nutmeg trees in a widely spaced manner production per unit area would come down.

There is the deficiency of co-operative agencies worth doing any valuable services to the nutmeg cultivators for marketing their produce. Another important problem faced by the nutmeg growers is attack of pests and various kinds of diseases that are affecting the yield considerably. The most threatening disease is Nutmeg Wilt in which the plant will gradually wilt and drop leaves and fruit. There is no perfect treatment for this. Soil fungi will attack nutmeg trees. Most often the farmers fail to address this situation and they are not getting any kind of help from the offices of agricultural department.

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