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Problem And Remedies Of Coconut In Kerala

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Introduction

Coconut (cocos nucifera) plays a significant role in the agrarian economy of India. It has a long association with human history over 1000 years. Since then, this crop has been considered both as an object of reverence in the local tradition and as the most profitable economic activity.

The coconut palm, with its tall slender and uniformly thick stem and massive crown with large number of leaves , bearing bunches of nuts in their exiles is one of the beautiful and useful trees in the world. It perhaps yields more products of use to mankind than any other tree. So it is no wonder that the palm is looked upon with reverence and affection by the inhabitants of the coconut producing countries and considered as "KalpaVruksha".

Its wide distribution has been favored by its usefulness as well as by its adaptability to different ecological conditions. The crop has significant role on the economic, social and cultural lives of millions of small and marginal farmers who form the backbone of the coconut culture and industry of the country. Thus coconut is a crop of great antiquity in India. Coconut palm is also named as "Tree of Life", "Tree of Heaven", "KalpaVriksha" as well as "God's Gift to Mankind".

The coconut industry is intimately connected with the economic and domestic life of the inhabitants of the coconut growing countries. It provides employment and perhaps the only source of livelihood to many thousands of people. In most of agriculturally dominant countries, the economies of coconut

cultivation has become a subject of great importance. The countries like Bangladesh, Philippines, Indonesia, Sri Lanka and India have raised many questions regarding coconut cultivation. Particularly coconut crop cultivation has attracted the attention of India agriculture since modernization. Also India being the third largest production of nuts in the world.

ORIGIN

The country of the origin of the coconut is unknown and various regions have been indicated by various scientists from South America to Melanesia, Asia and Madagascar. The coconut was introduced to India in the post vedicperiod and in spite of discovery of fossil cocos species in Rajasthan, India cannot be considered the original home of coconut.

In India the first recorded history of coconut dates back to Valmiki Ramayana period. In the Valmiki Ramayana there are references to coconut in Kishkinda Kanda and Aranya Kanda.

USES

Each and every part of the coconut palm is useful in one way or another. The tender coconut supplies a very popular, refreshing and satisfying beverage. The raw kernel is an important article of food. The oil from the nut is used in cooking and in the manufacture of soap and other toilet requisites. The coconut oil cake is a valuable cattle feed. Fiber from the husk is used in the manufacture of coir ropes, mats and matting's. The trunk otherwise called porcupine wood is used in house construction and furniture making. The leaves after plaiting are used to thatch houses. The juice obtained on tapping the inflorescence is rich in sugar and is converted in jiggery, sugar, vinegar and sweet or fermented toddy. The products of commercial importance are copra , oil, oilcake, desiccated coconut and fiber.

Coconut Cultivation in Kerala

Major coconut growing states in India are Kerala, Tamil Nadu, Karnataka and Andhra Pradesh. Among them Kerala is the leading state in area under cultivation of coconut and its cultivation.

Till 1980,Kerala was the major producer of coconut with 80-85% share in area under coconut cultivation in the country has fallen sharply from 57% in the early 1990s to 43% in 2008-2009.

Coconut in Keral

In a family of 5 members on an average a coconut per day is consumed in Kerala. They use coconut for preparing vegetables chutney and oil. It is an integral part of their food habit.

A large number of coconut products such as coconut water, copra, oil, raw kernel, cake, toddy, shell and wood based products, leaves and coir pith are manufactured in Kerala which has domestic and export market.

Although coconuts are cultivated on almost 30% of the state's cropped area, there are very few large coconut plantations in Kerala. More than 95% of coconut trees are grown in the front and backyards of homesteads. The average land holding under coconut cultivations 20-25 cents and average coconut trees per household are about 15. Mono cropping models practiced do not support the livelihood security of the dependent families so people are adopting inter-cropping and mixed cropping productivity.

In Kerala, tender coconut harvesting is very less. It is estimated less than 2% of the total nuts produced are marketed as tender nuts. Harvesting of matured coconut is a traditional practice in Kerala. Since, copra making oil extraction and coir making are principal activities of industrial importance. About 70%of matured nuts are converted into copra and out of the total copra produced; about 85% is milling copra and15% in the form of edible ball copra. About 30% of nuts are utilised for culinary and other purposes, including dispatches to other states. About 80% of milling copra is converted into oil and the rest along with ball copra is dispatched to other states.

High Yielding Varieties of Coconut trees.

- ***Dwarf coconut varieties***

Dwarf coconut palms are typically small in structure. They start producing fruit at a small age and size. Sometimes it only takes a few years for a dwarf variety to produce coconuts at which points it may only be a meter or too tall. Even though dwarf coconuts can produce fruit when they are still a small size .

- ***Kalpasree***

Kalpasree has superior quality coconut oil, very sweet tend nut water, and meat is resistant to root disease. This is the earliest flowering cultivator and takes about 2.5 to3 years for flowering. It is tolerant root disease. The mean annual yield is 90 nuts per palm with a copra content of 96.3g per nut. This variety is released for cultivation in root prevalent areas of Kerala.

Kalpa Jyothi

Dwarf variety with yellow fruits , a higher average yield of 114 nuts per palm with an estimated copra yield of over 16kg per palm per year. Recommended for cultivation in Kerala and Karnataka for tender nut purposes.

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- ***Kalpa Surya***

Dwarf with orange fruits is recommended for cultivation in Kerala, Karnataka and Tamil Nadu for tender nut purposes. The average yield is123 nuts per palm per year with an essential copra out turn of 23kg per palm per year.

- ***Kalpa Raksha***

This is a semi tall variety with sweet tender nut water and with higher resistance to root disease of coconut. It becomes to flowering by 54 months from planting. Its annual yield is 87 nuts per palm, 16.38kgcopral palm and 10.65kg oil per palm. In root disease affected tracts, it gives an annual yield of 65

nuts per palm. The quantity of tender nut water is 290ml. This is released as a variety for tender nuts and for cultivation in the root prevalent areas of Kerala.

- ***Malayan Yellow Dwarf***

It originated in Malaysiaand will grow up to 10 – 20 meters. It requires full Sun and well drainedsoil and it is a drought tolerant variety. The Malayan Yellow Dwarf is one of the older varieties, originally cultivated in the late 1800s. It is fairly easy to grow and produce medium sized yellow coconuts after just a few years of age.

- ***Green Dwarf Coconut***

This Malaysian variety can grow up to 10 meters. It requires full sun and well drained soil. This is a drought tolerant variety. The Green Dwarf Coconut is another type of Malayan Dwarf Coconut, and like the two previous types, it is fairly easy to grow. This variety produces green coconuts that don't ever turn yellow or gold. The tree itself also doesn't grow as tall as the other Malayan varieties and the coconuts typically contain more water and less meat.

- ***King Coconut***

This Sri Lankan variety can grow up to 10meters. King Coconut tree require full Sun, well drained soil and medium moisture. King coconuts are common along roads in Sri Lanka and Southern India and are a common part of the diet for people in these countries. The coconuts themselves have an attractive shiny orange husk and also contain more water than other varieties of coconut.

- ***Tall Coconut tree Varieties***

It don't produce as early as the dwarf varieties. As their name suggests, they grow to a larger size before producing coconuts and some can reach incredible heights at maturity. In addition tall coconut varieties typically live longer and are harder than dwarf varieties.

- ***Chandra Kalpa***

The average annual yield is 100 nuts per palm. The palm grows in all types of soil and it can withstand moisture stress. This cultivator is recommended for cultivation in the states of Kerala, Karnataka, Andhrapradesh and Maharashtra.

DISEASES OF COCONUT TREES

- ***Bud rot***

But rot disease commonly occurs in almost all coconut growing countries. In India, bud rot was first reported by Butler in 1906. It occurs commonly in west and east coasts of India.

But rot disease commonly occurs in almost all coconut growing countries. In India, bud rot was first reported by Butler in 1906. It occurs commonly in west and east coasts of India.

Symptoms: The first visible symptom is withering of the spindle marked by pale colour. The spear leaf or spindle turns brown and bends down. The affected spindle can easily be pulled out as the basal portion of the spindle is completely rotten emitting a foul smell. Later the inner leaves also fall away one by one leaving only outer whorl of matured leaves in the crown. Ultimately the palm succumbs to the disease with the death of the growing bud.

Disease Management: Effective management of bud rot can be achieved only if the integrated plant protection measures are adopted at the right time. Cut and removal of palmswhuch are in the advanced stage of bud rot or palms dead due to the disease is very important for better control of the disease. The healthy palms, which are in the vicinity of diseased and treated ones,should also be sprayed with Bordeaux mixture (1%) or pouring mancozeb(5g) dissolved in 300ml of water or keeping 2 perforated mancozeb sachets as a prophylactic measure to prevent the disease.

- ***Fruit rot or Immature nut fall***

Immature nut fall in coconut is has been attributed to several factors viz., characteristic feature of mother palm, high soil acidity or alkalinity, drought condition or water logging and sudden changes in soil moisture and also imbalance or deficiency of nutrients. Poor pollination is also one of the factors responsible for button shedding in coconut. Shedding of coconut is also caused by insect attack.

Symptoms: Rotting starts from the point of mite infestation on the nut surface near the perianth as dark brown to black discoloration and gradually extends to the entire surface area. The lesion also spreads deep into the internal tissues. As the lesions spread to about 30% surface area near the perianth region of when the lesion encircles the perianth region, the nut gets detached from the bunch and shed or the remains on the bunch in between other nuts.

Management: This disease can be controlled by spraying carbendazim (0.1%) to bunches of the affected palms. If coconut is cultivated under the organic farming system, spraying of garlic bulb extract (10%) can be recommended for the management of the disease.

- ***Root Wilt***

Root (wilt) disease (RWD) was first observed in Kerala during 1882. The disease is prevalent in a contiguous manner in all the 8 southern districts of Kerala starting from Trivandrum toTrichur and in isolated patches in the remaining 6 northern districts of the state. Apart from Kerala state, this disease is also prevalent in the districts of Tamil Nadu and Karnataka adjoining to Kerala State.

Symptoms: The most diagnostic symptom of the disease is abnormal inward bending or ribbing of the leaf lets in mid whorl termed as flaccidity. The other associated symptoms are foliar yellowing and marginal necrosis. In general,67 to 97% palms show flaccidity,38 to 67% develop yellowing and 28 to 48% show marginal nercosis. When palms below the age of 10 years are affected, 96.8% of them exhibit flaccidity while yellowing and marginalnercosis are virtually absent in them.

Management

1. Cut and remove disease advanced, uneconomical palms yielding less than 10 nuts per palm per year.

2 Grow green manure crops – cowpea, sunhemp , Mimosa invisa , Calapagoniummucanoides may be sown in coconut basins during April- May and incorporated during September – October.

3. Irrigate coconut palms with at least 250litre water in a week.

4 .Apply fertilizers for coconut palms in average management at the rate of 1.3kg urea, 2.00kg super phosphate and 3.5 kg potash /palm/year in the form of urea, rock phosphate and muriate of potash,respectively.

GOVERNMENT SCHEMES

- Coconut Development Scheme
- Horticulture Mission for North East and Himalayan States (HMNEH)
- Pradhan Mantri Krishi Sinchayee Yojana – Per Drop More Crop(PMKSY-PDMC)
- Mission Organic Value Chain Development in Assam (MOVCDA)
- Pradhan Mantri Fasal Bima Yojana (PMFBY)
- State Plan Scheme
- Rashtriya Krishi Vikas Yojana (RKVY)
- SASMIRA Scheme for Agro Textile

BENEFITS OF COCONUT PLANTATION

- Tree of life

  Coconut gives a highly nutritious edible seed,providing landscape, construction and furniture materials, fibre, coir, medicinal contents, oil, tonics, beverage ingredients. It helps to making dye and facewash.

- Long term crop

  Coconut is a long term crop, which can live up to a 100 years. It grows up and matures quickly.

- Constant Revenue and Benefits

  Coconut tree plays an important role in controlling the economy of a huge nation like India. As coconut is a raw material of severe major industries including soap, oil, coir,industrial products etc, the need of the seed is constantly of demand. So those who farm coconut plantation have an easy access to the market on a full time basis, every 45 days and so, to get a handsome amount of profit.

- Extra benefit through intercrops

  Coconut tree farm looks beautiful and divine due to the spacing measures taken while planting the crops. As there is enough space between each coconut tree, it gives the farmer an extra benefit of planting various cash crops to receive better income. Major crops like Cocoa, Pepper, Banana, Pineapple etc will give the farmer an efficient chance to utilize the space and better stability.

- Pillar of Indian culture

  Can you imagine an Indian custom or celebration without the presence of Coconut? This adorable tropical seed is a symbol of good luck and prosperity. Almost every inaugurations, family functions or beginnings start will placing or breaking a fresh piece of coconut seeking a brighter future. The ambience and vibration which a single Coconut creates within a place is astounding beyond belief.

OBJECTIVES OF THE STUDY

- To estimate the changes in the export and import value of coconut and its products.
- To identify the important diseases affecting coconut trees and remedies for it.
- To estimate the changes in the area, production and productivity of coconut in both India and Kerala.

Karl Pearson's equation to find correlation is

$$\frac{n\sum xy - \sum x.\sum y}{\sqrt{n\sum x^2 - (\sum x)^2}\ .\ \sqrt{n\sum y2 - (\sum y)^2}}$$

Year	Import(X)	Export(Y)	XY	X^2	Y^2
2011-2012	209.89	838.65	176024.25	44053.81	703333.82
2012-2013	191.90	1022.53	196223.51	36825.61	1045567.60
2013-2014	231.12	1156.12	267202.45	53416.45	1336613.45
2014-2015	264.54	1312.38	347177.01	69981.41	1722341.264
2015-2016	380.02	1450.24	551120.20	144415.20	2103196.06
2016-2017	270.59	2061.70	557875.40	73218.95	4250606.89
2017-2018	369.36	1764.31	651665.54	136426.81	3112789.78
2018-2019	597.58	2045.36	1222266.23	357101.86	4183497.53
2019-2020	802.64	1762.17	1414388.13	644230.97	3105243.11
2020-2021	744.25	2294.81	1707912.34	553908.06	5266152.94
Total	4061.89	15708.27	7091855.06	2113579.13	26829342.44

$\sum x$ – 4061.89 $\sum y$ – 15708.27 $\sum x^2$ – 2113579.13 $\sum y^2$ – 26829342.44

$\sum xy$ – 7091855.06 n – 10

$$\frac{10\times7091855.06 - 4061.89\times15708.27}{\sqrt{10\times2113579.13 - (4061.89)^2}\times\sqrt{10\times26829342.44 - (15708.27)^2}}$$

$$=\frac{70918550.6 - 63805264.8303}{\sqrt{21135791.3 - 16498950.3721}\times\sqrt{268293424.4 - 246749746.3929}}$$

$$=\frac{7113285.7697}{2153.3325167980\times4641.5167787265}$$

$$=\frac{7113285.7697}{}$$

9994729.00689

= 0.7117037155077

The above table shows the relationship between export and import of coconut and its products in India. From the data we found out the correlation coefficient between them, we got a positive correlation, which shows that the productivity increase with export and import

TABLE 1. DISTRICT WISE AREA, PRODUCTION AND PRODUCTIVITY OF COCONUT IN KERALA (2010-2011)

Sl.No	**District 2010-2011**	**Area(Ha)**	**Production (Lakh Nuts)**	**Productivity (Nuts/Ha)**
1	Thiruvananthapuram	69668.00	5720.00	7163
2	Kollam	560660.00	3780.00	6743
3	Pathanamthitta	15627.00	16185.00	7167
4	Alappuzha	39344.00	2640.00	6710
5	Kottayam	28410.00	1480.00	5209
6	Idukki	17012.00	800.00	4703
7	Ernakulam	42894.00	2210.00	5152
8	Thrissur	75364.00	4930.00	6542
9	Palakkad	57094.00	4080.00	7146
10	Malappuram	104178.00	9160.00	8793
11	Kozhikode	121688.00	7700.00	6328
12	Wayanad	10043.00	510.00	5078
13	Kannur	76917.00	5290.00	6878
14	Kasargod	56174.00	4180.00	7441
Total		770473.0	52970.00	6862

Sources of Secondary Data

During the period 2010-2011 **Pathanamthitta** topped the production of coconut both in production and area used for production. And hence Malappuram is topped in productivity also by producing **8793** nuts per hectares.

TABLE 2. DISTRICT WISE AREA, PRODUCTION AND PRODUCTIVITY OF COCONUT IN KERALA (2011-2012)

Sl. No	District	Area(Ha)	Production (Lakh Nuts)	Productivity(Nuts/Ha)
1	Thiruvananthapuram	71424.00	5720.00	8009
2	Kollam	55304.00	4270.00	7721
3	Pathanamthitta	16185.00	1370.00	8465
4	Alappuzha	38556.00	2190.00	5680
5	Kottayam	28209.00	1490.00	5282
6	Idukki	17158.00	950.00	5537
7	Ernakulam	46376.00	2410.00	5197
8	Thrissur	89667.00	6080.00	6780
9	Palakkad	60529.00	4930.00	8145
10	Malappuram	109299.00	9470.00	8670
11	Kozhikode	127699.00	8520.00	6672
12	Wayanad	10515.00	480.00	4565
13	Kannur	90350.00	6450.00	7139
14	Kasargod	59656.00	5080.00	8515
Total		820867.00	59410.00	7237

Sources of Secondary Data

During the period 2011-2012 Malappuram topped the production of coconut both in production

and area used for production. And hence Malappuram is topped in productivity also by producing **8670** nuts per hectares.

TABLE 3. DISTRICT WISE AREA, PRODUCTION AND PRODUCTIVITY OF COCONUT IN KERALA (2012-2013)

Sl. No	District	Area(Ha)	Production(lakh Nuts)	Productivity(Nuts/Ha)
1	Thiruvananthapuram	70233.00	5520.00	7860
2	Kollam	55120.00	3720.00	6749
3	Pathanamthitta	15433.00	1100.00	7128
4	Alappuzha	36986.00	2330.00	6300
5	Kottayam	27500.00	1310.00	4764
6	Idukki	17265.00	940.00	5445
7	Ernakulam	43751.00	2090.00	4777
8	Thrissur	86476.00	5480.00	6337
9	Palakkad	62513.00	4610.00	7374
10	Malappuram	102417.00	11250.00	10985
11	Kozhikkode	124819.00	8820.00	7066
12	Wayanad	9995.00	460.00	4602
13	Kannur	86818.00	5670.00	6531
14	Kasargod	58836.00	4690.00	7971
	Total	798162.00	57990.00	7265

Sources of Secondary Data

During the period 2012-2013 Malappuram topped the production of coconut both in production and area used for production. And hence Malappuram is topped in productivity also by producing 10985 nuts per hectares.

TABLE 4. DISTRICT WISE AREA, PRODUCTION AND PRODUCTIVITY OF COCONUT IN KERALA (2013-2014)

Sl. No	District	Area(Ha)	Production(lakh Nuts)	Productivity(Nuts/Ha)
1	Thiruvananthapuram	71320.00	5510.00	7726
2	Kollam	61309.00	4730.00	7715
3	Pathanamthitta	15606.00	980.00	6280
4	Alappuzha	36880.00	2170.00	5884
5	Kottayam	27019.00	1260.00	4663
6	Idukki	16518.00	900.00	5449
7	Ernakulam	44582.00	2270.00	5092
8	Thrissur	87177.00	6180.00	7089
9	Palakkad	61016.00	3970.00	6506
10	Malappuram	105481.00	9350.00	8864
11	Kozhikode	123115.00	9480.00	7700
12	Wayanad	11725.00	650.00	5544
13	Kannur	85063.00	5740.00	6748
14	Kasargod	61836.00	6020.00	9735
Total		808647.00	59210.00	7322

Sources of Secondary Data

During the period 2013-2014 Kozhikode topped the production ofcoconut both in production and area. But Kasargod topped productivity by producing 9735 nuts per hectares.

TABLE 5. DISTRICT WISE AREA, PRODUCTION AND PRODUCTIVITY OF COCONUT IN KERALA (2014-2015)

Sl.No	District	Area (Ha)	Production (lakh nuts)	Productivity (nuts/Ha)
1	Thiruvananthapuram	73079	6650.00	9100
2	Kollam	52360	3870.00	7391
3	Pathanamthitta	15803	920.00	5822
4	Alappuzha	35161	2180.00	6200
5	Kottayam	26529	1400.00	5277
6	Idukki	16655	750.00	4503
7	Ernakulam	43680	2120.00	4853
8	Thrissur	8322	4850.00	5828
9	Palakkad	60687	4420.00	7283
10	Malappuram	103691	9330.00	8998
11	Kozhikode	123066	10010.00	8134
12	Wayand	10326	590.00	5714
13	Kannur	85807	5330.00	6212
14	Kasargode	63791	7050.00	11052
Total		793856	59470.00	7491

Sources of Secondary Data

During the period 2014-2015 Kozhikode topped the production of coconut both in area and production. But Thiruvananthapuram topped productivity by producing 9100 nuts per hectare.

TABLE 6. DISTRICT WISE AREA, PRODUCTION AND PRODUCTIVITY OF COCONUT IN KERALA (2015-2016)

Sl. No.	District	Area(Ha)	Production(lakh nuts)	Productivity(nuts/Ha)
1	Thiruvananthapuram	72340.00	6330.00	8750
2	Kollam	51834.00	3580.00	6907
3	Pathanamthitta	15884.00	910.00	5729
4	Alappuzha	33227.00	1870.00	5628
5	Kottayam	26489.00	1330.00	4954
6	Idukki	16546.00	630.00	3808
7	Ernakulam	41915.00	1880.00	4485
8	Thrissur	81602.00	4890.00	5993
9	Palakkad	59976.00	4510.00	7520
10	Malappuram	103391.00	10460.00	10117
11	Kozhikode	120683.00	9750.00	8079
12	Wayanad	12403.00	770.00	6208
13	Kannur	89238.00	5630.00	6309
14	Kasargode	64335.00	6190.00	9622
Total		790223.00	58730.00	7432

Sources of Secondary Data

During the period 2015-2016 Kozhikode topped the production of coconut both in area and production. But Malappuram topped productivity by producing 10117 nuts per hectares.

TABLE 7. DISTRICT WISE AREA, PRODUCTION AND PRODUCTIVITY OF COCONUT IN KERALA (2016-2017)

Sl. No.	District	Area (Ha)	Production (lakhs nuts)	Productivity(Nuts/Ha)
1	Thiruvananthapuram	70467.00	5730.00	8131
2	Kollam	50938.00	3540.00	6950
3	Pathanamthitta	15877.00	890.00	5606
4	Alappuzha	33670.00	1770.00	5257
5	Kottayam	25610.00	1270.00	4959
6	Idukki	16122.00	630.00	3908
7	Ernakulam	43079.00	1860.00	4318
8	Thrissur	80504.00	5000.00	6211
9	Palakkad	59547.00	3970.00	6667
10	Malappuram	102836.00	8780.00	8538
11	Kozhikode	119064.00	8370.00	7030
12	Wayanad	10322.00	730.00	7072
13	Kannur	88217.00	5270.00	5974
14	Kasargode	65243.00	6030.00	9242
Total		781496.00	53480.00	6889

Sources of Secondary Data

During the period 2016-2017 Kozhikode topped the production of coconut both in area and production. But Kasargod topped productivity by producing 9242 nuts per hectares.

TABLE 8. DISTRICT WISE AREA, PRODUCTION AND PRODUCTIVITY OF COCONUT IN KERALA (2017-2018)

Sl. No.	District	Area (Ha)	Production (lakh nuts)	Productivity(nuts/Ha)
1	Thiruvananthapuram	68110.00	5620.00	8251
2	Kollam	46342.00	2950.00	6366
3	Pathanamthitta	15816.00	920.00	5817
4	Alappuzha	32577.00	1820.00	5587
5	Kottayam	25619.00	1410.00	5504
6	Idukki	15858.00	630.00	3973
7	Ernakulam	40669.00	1810.00	4451
8	Thrissur	80586.00	4690.00	5820
9	Palakkad	54046.00	4140.00	7660
10	Malappuram	105090.00	8550.00	8136
11	Kozhikode	112305.00	8150.00	7257
12	Wayanad	10368.00	620.00	5980
13	Kannur	85972.00	4810.00	5595
14	Kasargod	67085.00	6180.00	9212
Total		760443	52300	89609

Sources of Secondary Data

The coconut production in Kerala shows a downward trend over a course of time. Kozhikode occupies the first position in coconut production. Major portion of coconut cultivated in Kerala is in the Northern portion.

ANNUAL RETURN FROM COCONUT CULTIVATION

TABLE 9.

Approximate Amount	No. Of households	Percentage
<1000	14	28
1000-2000	10	20
2000-3000	11	22
3000-5000	10	20
5000-10000	5	10
>10000	0	0
Total	50	100

Sources of Primary Data

The above table shows the annual income earned by coconut cultivators in sampling households. Most of the farmers are not ready to share their exact ncome and some do not have written notes. But we came to know that most of them earn below 1000 INR per year because most of them aresmall scale farmers and they are not using other marketing possibilities of coconut like husk, shell, leaf etc. Only 10% earn above 5000/-

LABOUR CHARGE SPENT ANNUALLY

TABLE10.

Amount	No. Of households	Percentage
>1000	2	4
1000-2000	10	20
2000-3000	11	22
3000-4000	9	18
4000-5000	12	24
>5000	6	12
Total	50	100

Sources of Primary Data

The above table shows the amount spent annually by the sampling households. Most of them say that the income earned is relatively low compared to labour charge and other expenditures. Majority of households spent an amount between 4000-5000. Since harvesting of coconut requires skilled labourers who demand high wages.

ANNUAL SPENDING ON FERTILIZERS AND PESTICIDES

TABLE-11.

Amount	No. Of households	Percentage
<500	14	28
500-700	11	22
700-900	7	14
900-1000	10	20
1000-5000	8	16
>5000	0	0
Total	50	100

Sources of Primary Data

The above table shows the annual amount spent by farmers of sampling households on fertilizers and pesticides. They are forced to spend because of the frequent attack of pests and to yield more. But only 16% are able to spend more than 1000. Some are not much aware about the use of chemical fertilisers and pesticides at the same time some use traditional methods even nowadays.

Significance of the study

Unique to the rural landscape and cultural life of Kerala, Coconut plays Avery significant role in the economy of the state. Evidently with about 46% of total production, “Kerala” is the largest coconut producing state in India. The name for the state Kerala is believed to be given after the coconut tree with “Kera” meaning coconut tree and “Alam” meaning land,thus giving the meaning as “land of coconut trees”. The major change in coconut production occurred in 1970s. Decrease in the production of paddy was then shifted for plantation crops like coconut.

Choice of the study area

The present study is to analyse an economic study of Problem and Perspectives of coconut production in Kerala. The area under study chosen on the basis of price, area, production productivity, annual return, annual spending, on fertilisers and pesticides, sales, and import and export of coconut and its products.

Period of study

Primary data were collected from the year 2023-2024 related to area, production and productivity in both India and Kerala and export and import values of coconut and its products. Secondary data relating to district wise area under cultivation,production, of coconut and productivity of coconut were collected for the period of 8 years from 2010-2018.

Limitations of the study

1.It is not possible to get accurate price level of coconut

2..Mostly coconut farmers are uneducated so errors can be made into consideration.

3.Coconut farmers do not have written accounts.

4.Study depends mostly on secondary data which has certain limitations.

FINDINGS

In Kerala, the area and production under coconut showed a more or less increasing trend over the years. But in productivity, Kerala is far behind all other states. The over hectare productivity of coconut in Kerala showed a steadily declining trend.

For getting agricultural loan the marginal and small category of cultivators mainly depends on private local money lenders who are also dealers of coconuts. Some cultivators on account of their financial stringency collect the price of their produce in advance from the dealers. In this way, they are permanently indebted to these dealers who usually give a price only lower than the market price.

Mostly the traders in Kerala depend on coconut imported from other states. It reflects on the price as well. The major reasons behind the diminishing of coconut production are wide spread disease of coconut, problems faced by the farmers like loss in money and the unprecedented climate changes.

Plantation crops are very important for the national economy from the view point of their vast employment potential, income generation, export and import substitution. Among these, coconut palm is a versatile plant which is most valuable to the small farmers in the tropical world. Almost every part of this palm is used for the daily needs of the people and its rightly described as “Kalpavrulsha”.

Absence of stabilized price, lack of market information, ineffective organized marketing institutions, price instability is the problems faced by coconut cultivators in coconut production.

SUGGESTIONS

If a carefully operated supply management system is implemented in the co operative society it will help farmers to have a regular assured market with better stabilized market rate by which crisis due to steep price fall etc can be avoided. If the cooperatives are strengthened and their marketing activities are streamlined and coordinated properly towards implementing efficient demand supply management system no formal price support scheme/ Market Intervention Scheme by the Government will be required as the price stabilization at reasonable level will be automatically come.

Coconut Development and should make more funds available for assisting cooperatives in setting up driers in Kerala where there is a longer rainy season, to help increase copra production during rainy season when sun dryings is not possible on all days. This will reduce the gap between the quantity produced during rainy season and lean on by which price fluctuation between season and lean season can be reduced. Necessary financial and technical assistance should be made available by the Coconut Development Board.

With regard to the diversification of products cooperatives are usually reluctant to take up production of new products which are not much popular, because of the risk involved to divert their limited resources for a new product.

CONCLUSION

Having analyzed the various problems related to coconut production on the basis of objectives, the present chapter covers a summary of findings, and making conclusions on the basis of the findings. It also attempts to make a few suggestions for the all-round improvement of the coconut production in Kerala. The study was undertaken with the major objective of analyzing the coconut marketing problems at farm level. It also aimed at examining the production pattern, consumption pattern and trade in the crop.