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A Quantitative Description of Pepper Cultivation in Kerala

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Abstract:

In India, Kerala is the largest producer of pepper, accounting over 50 per cent of India's total output followed by Karnataka and Tamilnadu. But, at a time when black pepper production has seen a drastic fall due to climate change, the unexpected rise in the price of pepper has brought cheer to farmers in Kerala."The influx of pepper from Vietnam and Sri Lanka was the main reason for the fall in pepper price in the Indian market," said Binoy Kurian, a spices merchant in Kattappana."When cheaper pepper from these countries continued to flood the market, the price of pepper produced domestically gradually decreased. There was also a stagnation in the market due to the low price as farmers were not ready to sell their produce."Hence, the study theoretically analyzes the pepper cultivation, variation in the production and yield rate and cost of cultivation of pepper in Kerala state. Secondary data has been used for the study which includes reports from Department of Economics and Statistics, Indian Agricultural Statistics and other National and International Journals.

Keywords: Fragile Plant, Infestations, Pepper, Replanting, Spices, Yield.

I. INTRODUCTION

Spices have played a crucial role in the history of human civilization. Spices are agricultural productssubstantial for their taste, aroma, flavour and colours in food, beverages, aspreservative, as medicine and as a substance in perfume industry. India is known as 'the land of spices' to theworld. According to the importance in foreign trade andinternal marketing, spices such as black pepper, cardamom, ginger, chillies andturmeric are grouped under major spices and the remaining are grouped under minor spices. Black pepper is a perennial vinegrown for its berries extensively used as spice and in medicine. Black Pepper is one of the most ancient and traditional spicecrops of India which has been produced and traded worldwide. Indiais one of the major producer, consumer and exporter of black pepperin the world.Black pepper is a plant of humid tropics requiring high rainfall andhumidity. The hot and humid climate of sub mountainous tracts ofWestern Ghats is ideal for its cultivation. In India, Karnataka and Kerala are the major pepper producing states. Kerala is the largest producer of pepper, accounting over 50 per cent of India's total output followed by Karnataka and Tamilnadu. They also pointed out that, India's domestic demand is anticipated at 45,000 tonnes p.a. On this background, this paper investigates the cultivation of pepper in Kerala state. Besides, italso investigates the values of black pepper in Kerala.

II. REVIEW OF LITERATURE

Hema .M, et. al. (2007)[1] identified from their study that, most of the pepper plantations are very old, senile and have become uneconomical. Through their study they suggested that, the availability of disease-free planting material with lower fruit-bearing age and the financial assistance on easy terms would help the farmers to replant for realizing increased pepper crop yield and its profitability. Further they insisted that, under such circumstances, the role of Spice Board also needs to be widened and more supportive role towards pepper crop growing farmers seems to be warranted.

According to **Yogesh, M. S and Mokshapathy .S (2013)**[2],India is the second largest pepper producer in the world. In India, Karnataka and Kerala are the major pepper producing states. Kerala is the largest producer of pepper, accounting over 50 per cent of India's total output followed by Karnataka and Tamilnadu. They also pointed out that, India's domestic demand is anticipated at 45,000 tonnesp.a.

Hena .M (2016)[3] studied about the opportunities and constraints inExport Marketing of Pepper in India. She found that the low productivity of pepper is an important issue for an immediate concern. She also identified that, India's lowest unit production per hectare in pepper production, results in higher unit cost of production thereby hampering price competitiveness. She gave the solution to this problem like increasing efficiency in production will lead to bring down the cost of production and effective marketing would help us to maintain our price competitiveness in the international market.

Regeena .S (2016)[4]identified from her study "Economic Analysis of Black Pepper Cultivation in Kerala" that, ensuring planting of improved high yielding varieties like Panniyur 1 to Panniyur 8 depending on availability of sunlight, proper and scientific crop management, ensuring prophylactic measures for pest and disease management, promoting good agricultural practices and a more regulated system of planting with standards of uniform height will be helpful in improving overall production and productivity. She also insisted that proper awareness given to pepper producers on post-harvest handling and value addition of pepper will also could help them to realise better income from pepper crop.

According to **Amogh P. Kumar, et. al. (2017)**[5]the compound annual growth rateof the climatic variables showed that, rainfall and maximum temperature had negative growth trend, while minimum temperature had positive growth trend in Idukki and Wayanad districts. Further the researchers found that, morning and evening relative humidity of these two districts showed opposite trends which was negative for Idukki district and positive for Wayanad district.

III. OBJECTIVES OF THE STUDY

The study has the following objectives:

1. To study the past records of production and yield of pepper in India.
2. To identify the area utilized and pepper production in Kerala.
3. To understand the variations in pepper production in Kerala.
4. To study the cost of pepper cultivation and values of pepper in Kerala.

IV. SCOPE OF THE STUDY

The scope of the study is extended to understand the pepper cultivation, variations in pepper production as well as the cost of cultivation of Pepper in Kerala state.

V. RESEARCH METHODOLOGY

Being an explanatory research it is based on the secondary data. The data collection is done through various sources like Newspapers, reports from the Department of Economics and Statistics, Indian Agricultural Statistics and articles from different journals. Considering the objectives, the descriptive research design is adopted for the study.

VI. PRODUCTION AND YIELD OF PEPPER IN INDIA

During the period 2000-01, the area utilized for pepper production of 63.70 thousand tonnes is 213.90 thousands hectares and the yield taken was 298 kg per hectare. 197.00 thousands hectares were utilized to produce 47.06 thousand tonnes of pepper and yield taken was 239 kg per hectare during the period 2007–08. But the area utilized has been reduced to 123.62 thousand hectares to produce 54.59 thousand tonnes of pepper and the yield taken has been increased to 442 kg per hectare during the period 2014–15.

Table 1 Area, Production And Yield Of Pepper In India

Year	Area ('000 Ha)	Production ('000 Tonnes)	Yield (Kg/Ha)
1997-98	181.50	57.30	316

1998-99	239.80	75.70	316
1999-00	195.60	59.00	302
2000-01	213.90	63.70	298
2001-02	219.38	62.44	285
2002-03	224.40	71.70	320
2003-04	233.40	73.20	314
2004-05	228.30	73.02	320
2005-06	260.23	92.90	357
2006-07	245.96	69.01	281
2007-08	197.00	47.06	239
2008-09	238.71	47.40	199
2009-10	195.92	51.02	260
2010-11	184.00	52.00	183
2011-12	200.30	40.60	203
2012-13	124.60	52.60	422
2013-14	123.81	50.87	411
2014-15	123.62	54.59	442

Department of Agriculture, Cooperation and Farmers Welfare (Horticulture Division)

VII. AREA UTILIZED AND PRODUCTIONOF PEPPER IN KERALA STATE

The Idukki district stands first in the utilization of area (42694 Ha) and production of pepper (25495tonnes) in Kerala state for the period 2015-16. The second position was occupied by Wayanad district (Area – 12498Ha and Production – 6593tonnes). The area occupied and production of pepper is least in Alappuzha district (Area – 616Ha and Production – 134tonnes).

Table 2 Area Utilized And Production Of Pepper In Kerala State During 2015-16

S.No.	District	Area (Ha)	Production (Tonnes)
1	Thiruvananthapuram	2293	972
2	Kollam	3330	1093
3	Pathanamthitta	1707	599
4	Alappuzha	616	134
5	Kottayam	3215	1150
6	Idukki	42694	25495
7	Ernakulam	1867	527
8	Thrissur	1790	479
9	Palakkad	2510	954
10	Malappuram	2938	460
11	Kozhikode	3474	934
12	Wayanad	12498	6593
13	Kannur	4269	1553
14	Kasaragode	2747	1189
State Total		**85948**	**42132**

Department of Economics and Statistics, Kerala State.

VIII. VARIATION IN AREA UTILIZED AND PRODUCTION OF PEPPER INKERALA

The variation in utilizing the area for pepper production is negative (-58%) between the period 2001–02 and 2015-16 whereas the variation in the production of pepper is also shown the negative value only (-28%) during the period 2001-02 and 2015-16.

Table 3 Variation In Area And Production Of Pepper Between 2001-02 And 2015-16

Crop	Area (Ha)			Production (Tonnes)		
	2001 - 02	2015 - 16	Variation %	2001 - 02	2015 - 16	Variation %
Pepper	203956	85948	-58	58240	42132	-28

Department of Economics and Statistics, Kerala State.

IX. VARIATION IN PRODUCTION AND YIELD OF PEPPER IN KERALA

The variation in the pepper production and yield between the period 2014-15 and2015-16 shown a positive result of 3.54% and 2.54% respectively.

Table 4 Variation In Production And Yield Between 2014-15 And 2015-16

Year	Production (Tonnes)	Yield Rate (Kg/Ha)
2014 – 15	40690	476
2015 – 16	42132	490
Variation	**3.54%**	**2.94%**

Department of Economics and Statistics, Kerala State.

X. COST OF CULTIVATION OF PEPPER IN KERALA

Out of the different components of cost of cultivation of pepper, Hired Human Labour stands first (Rs. 39107/ha) followed by the components Manure and Fertilizers (Rs.6646) and Interest on working capital (Rs.5104). Cost incurred on land tax and irrigation cess (Rs.144 /ha) is minimum compared to all other components of cost of cultivation of pepper in Kerala state.

Table 5 Cost Of Cultivation Per Hectare Of Pepper During The Year 2014-15

S.No.	Component	Cost per Ha (Rs.)
1	Hired Human Labour	39107
2	Machine Labour	232
3	Seed/Seedlings	429
4	Farmyard Manure and Chemical Fertilizers	6646
5	Plant Protection	255
6	Land Tax and Irrigation Cess	144
7	Repair & Maintenance charges of implements, machinery and buildings	1011
8	Interest on working capital	5104
9	Other Expenses	4372
10	**Total Cost 'A' (1-9)**	**57300**
11	Interest on Fixed Capital	2133
12	**Cost B1 (10+11)**	**59433**
13	Interest on Land value	469893
14	**Cost 'B' (12+13)**	**529326**

15	Imputed value of Household Labour	14284
16	**Cost'C' (14+15)**	**543610**
17	Value of Output received (Rs./Ha)	**187414**

Agricultural Statistics 2015-16 (Government of Kerala)

XI. FARM WHOLESALE PRICE OF DRY PEPPER IN KERALA

The wholesale price of Dry Pepper during the month of July 2015 was Rs. 60427.78 per quintal and it has an upward trend till November 2015 (Rs.66697.62). Afterwards it faced a downward trend till February 2016 (Rs.60002) and it reached the highest price of Rs.67282.95 and Rs.66945.12 during the months May and June 2016 respectively.

Table 6 Farm Wholesale Price Of Pepper (Dry) For The Year 2015-2016

Year	Month	Rs. per Quintal
2015	July	60427.78
	August	61164.29
	September	61227.91
	October	63260.71
	November	66697.62
	December	62238.64
2016	January	60401.02
	February	60002.00
	March	61478.72
	April	66244.32
	May	67282.95
	June	66945.12

Agricultural Statistics 2015-16

XII. VALUES OF BLACK PEPPER IN KERALA

Compared to 14 districts of Kerala, the Idukki district's pepper got the highest value of Rs.153770 lakhs followed by Wayanad (Rs.30923), Kannur (Rs.13406) and Kasaragode (Rs.13018). Thrissur district's pepper has got the lowest value for its pepper Rs.3138.

Table 7 Values Of Black Pepper During 2014-15

S.No.	District	Unit (Rs. in Lakhs)
1	Thiruvananthapuram	5413
2	Kollam	7058
3	Pathanamthitta	4616
4	Alappuzha	4389
5	Kottayam	7017
6	Idukki	153770
7	Ernakulam	3421
8	Thrissur	3138
9	Palakkad	6025
10	Malappuram	4073
11	Kozhikode	6487
12	Wayanad	30923
13	Kannur	13406

14	Kasaragode	13018
State Total		**262753**

Agricultural Statistics 2015-16

XIII. CONCLUSION

India is the largest consumer of pepper in the world and the second largest producer after Vietnam. "Drought and untimely rains in major pepper growing areas of Kerala and Tamil Nadu are the major reasons for the decline in production, said Spices Board chairman A Jayathilak, who is also the current IPC chairman. "Production has dropped throughout Kerala because of terrible infestations in ageing pepper gardens, changes in weather patterns, unfriendly market conditions, and a frantic shift to more remunerative crops by growers. Pepper-growers say that the comparatively warmer regions of Kerala are increasingly becoming unsuitable for pepper cultivation. Pepper is a fragile plant, especially when it is young, and requires great care, being quite vulnerable to variations in the weather. It needs rain, scattered and at specific intervals, and sun and warmth, in almost the same measure. If needed, the cultivators have to spend much time watering the plants during the summer and draining out the water during the monsoons. And, there is no yield from the plant for the first three years, or more, when the crop is most vulnerable and is usually ravaged by severe ailments.If the situation is to improve, a massive replanting drive is needed. But that will not happen unless quality planting material is made available and a consortium of farmers, agricultural scientists and local self-government institutions have to supply pepper planting material at subsidized rate to the pepper-growers. In this connection, the Kerala Agriculture University is also started to develop a mechanical pepper harvester that could be used by women.

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