An Economic Analysis of Cost of Production of Black Pepper in Wayanad District of Kerala in India

Abstract

The present study was conducted in Wayanad district of Kerala. Totally 100 respondents were randomly selected and interviewed from the district. The data was gathered in the form of prestructured interview schedule. The study revealed that average cost of cultivation of Black Pepper per hectare was incurred Rs 419606 which was found to be Rs 438600, Rs 412826, Rs 407393 per hectare on Marginal, Small and Semi medium farmers respectively. Input- Output ratio related to cost C was (1:1.94) (1:1.85) and (1:1.76) on marginal, small and semi medium farmers respectively. As per the size of farm increases the production cost decreases.

Keyword: Black Pepper, marketing cost, Input-output ratio

1. INTRODUCTION

India is the second-largest producer of pepper in the world, behind Vietnam, with 17% of global production. The demand in the global market for spice has kept increasing in recent years, due to the increase in the consumption of snacks and medicinal consumption **(Santhosh and Yogish 2023)**. The increased surge in fast food consumption in many countries such as Indonesia and India, drive the spice market. It is forecasted that the Compound Annual Growth Rate (CAGR) will increase by 3.1 per cent from 2019-2030, which means by the end of 2030, spice production will be 18 million tons. India is well known as "The Land of Spices" for varied flavor of spices which is predominantly used in kitchens. India plays a major role in producing, consuming and exporting black pepper. Indian spices have high demand in global market for their gastronomics value and medicinal properties. Black pepper is one among the worlds most demanded spice crop. Well known for its pungent and unique flavor, it is widely used in cooking and pharmaceutical industries **(Hammouti *et al,* 2019)**. It is called the king of spices and is an evergreen seed spice. The green and red berries evolved on the long hermophrodic spikes are the part of commercial that are used as whole corn peppers, white pepper, grounded pepper etc. It is also called black gold for its durability and high prices. Black pepper is native to India. Kerala is one of the highest producers and exporter of black pepper in India. The unique flavor of black pepper is due to the compound piprene which is similar but different than the flavor found in chilies. The ideal sunshine required for this crop is 28 degrees but can also survive between 25 to 32 degrees. Deep, well-drained soil with pH of 5.5 to 6.5 is most ideal for this crop. It is grown 1500 meters above sea level. It needs average humidity of 75-80 percent for its best growth. Pepper vines has an indeterminate growth type and grows up to 4-5 meters. Eighteen improved varieties of black pepper have been released for cultivation. Black Pepper (Piper nigrum L.) belongs to the piperaceae family, popularly known as the "king of spices" there are many other spices in the family of piperaceae, among which black pepper unique due to piperine, the principal pharmacological component. Due to the export value black pepper is also called "Black Gold" **(Kumar and Swarupa 2017)**. And it is the most traded spices in the world. Black pepper is used to add flavor to the majority of food products such as candies, beverages, meat products, cheese etc. The oil which is extracted from the berries is used for manufacturing of perfumes. Among the other states, Kerala ranks second in black pepper production with a future estimated production of 36000 tonnes in the year 2021-2022.

2. Research Methodology

2.1Sampling procedure

1st stage selection of district
2nd selection of block
3rd selection of villages.
4th selection of farmers/ respondents.

2.2Selection of District

Out of 14 districts present in state of kerala, Wayanad district was selected purposely, because wayanad district is a major contributor to the state's pepper production. The district's topography also favors the cultivation of pepper, as it has a hilly terrain that provides natural shades and allows for proper drainage

2.3Selection of Block

To select a block, a complete list of blocks was obtained from the Head Quarter of Wayanad District. Out of 8 blocks, the key potential block is Sulthan bathery, Vythiri, Thariyode. Block Sulthan bathery was selected purposively for the present study, as it has a large area of rubber and coffee, its favorable climatic condition and hilly region make it more suitable for high production of black pepper , and moreover, it was easily accessible to the researcher to visit the block

2.4Selection of villages

A list of black pepper producing villages was prepared with the help of an extension officer, KVK, Wayanad, then Ambalavayal, Noolpuzha, Pulpally, Poothadi , and Nenmeni villages were selected randomly from 48 villages there by making 5 sample villages.

2.5 Selection of sample Respondents

Totally 100 respondents were randomly selected and interviewed from the district. The data was gathered in the form of prestructured interview schedule.A comprehensive record of all individuals who cultivate black pepper was obtained from KVK. Subsequently, the individuals were sorted in ascending order based on their black pepper cultivation practices and then categories into different groups based on their cultivation of black pepper. Statistics from krishibhavan in wayanad district shows that the majority of the pepper farmers are belong to marginal, small, and semi medium categories.

3. Analysis of data:

3.1Measures of cost concept:

The different cost items that are included under each cost concept are detail below with their procedures.

Cost- A1: it includes the value of:
Cost of Manures and fertilizers
Cost of Plant protection chemical
Cost of Irrigation charges
Miscellaneous charges
Interest on working capital
Depreciation on fixed resources
Land revenue paid to government
The total of all these cost items makes up Cost A1

Cost A2 = Cost A1+ Rent paid for leased-in land, if any.

Cost B = Cost A2 + Imputed rental value of owned land + interest on owned fixed capital.

Cost C = Cost B + Imputed value of family labour. Cost C is the total cost of cultivationor gross cost.

Cost C2=Cost A2+ FL (The value of family labour)

3.2 Measures of Farm Profitability:

Gross income = Per Quintal Price X Yield per Hectare in Quintal
Net income = Gross income – Cost C
Input output ratio (cost benefit ratio) = Gross income / Cost C

4. Result and Discussion

Based on black pepper cultivation, for the study based on the size of holding holdings, farmers were classified into different groups.

Marginal Farmers : 0-1 hectare
Small Farmers : 1-2 hectare
Semi Medium Farmers : 2-4 hectare
Medium Farmers : 4-10 hectare
Large Farmers : above 10 hectare

4.1Cost of cultivation of Black Pepper

Table 1. Cost of cultivation of Black Pepper (Rupees per hectare)

Si. No.	Particular	Size of farm groups			Average
		Marginal	Small	Semi-medium	
1	Cost of stand	16061 (3.66)	12046 (2.91)	11243 (2.75)	13116 (3.12)
2	Cost of pepper vine	32123 (7.32)	30516 (7.39)	24092 (5.91)	28910 (6.88)
3	Manures and fertilizers	203102 (46.30)	193034 (46.75)	193034 (47.38)	196390 (46.80)
4	Cost of PPC	22164 (5.05)	22164 (5.36)	21683 (5.32)	22003 (5.24)
5	Cost of irrigation	49420 (11.26)	40925 (9.91)	40517 (9.94)	43620 (10.39)
6	Hired human labour	64864 (14.78)	60540 (14.66)	60540 (14.86)	61981 (14.77)
	Material cost	387734	359225	351109	366022
7	Intrest on working capital @7%	27141 (6.18)	25145 (6.09)	24577 (6.03)	25621 (6.10)
8	Depreciation	6978 (1.59)	8979 (2.17)	11104 (2.72)	9020 (2.14)
9	Land revenue	80 (0.01)	178 (0.04)	331 (0.08)	196 (0.04)
	Cost A1	421933	393527	387121	400860
10	Rent paid for leased in land	-	-	-	-
	Cost A2	421933	393527	387121	400860
11	Rental value of owned land	11000 (2.50)	12500 (3.02)	12500 (3.06)	12000 (2.85)
12	Interest on fixed capital @ 12%	2167 (0.49)	2599 (0.62)	2872 (0.70)	2546 (0.60)

	Cost B	435100	408626	402493	415406
13	Imputed value of family labour	3500 (0.79)	4200 (1.01)	4900 (1.20)	4200 (1.00)
	Cost C	438600 (100)	412826 (100)	407393 (100)	419606 (100)
	Total input cost	438600	412826	407393	419606

(Figures in the parentheses indicate percentages)

It revealed that overall cost of cultivation of black pepper was Rs/ha 419606 and share of material input cost was found to be Rs 366022, which shared to 87.22 percent to the total cost. The large contribution has been observed in manures and fertilizers use with Rs 196390 and shared of 46.80 percent to the total cost. Similar studies find in (**Rageena 2016**) The hired human labour was noticed to be Rs. /ha 61981 which shared to (14.77) percent to the total cost. The share of irrigation is (10.39) percentage. And followed by plant protection chemical with percentage of (5.24). Share of pepper vine (6.88) percentage. And the share of stand (3.12) percentage to the total cost. The cost of cultivation of black pepper per hectare in marginal, small, semi medium farm groups is Rs 438600, Rs 412826 and Rs 407393 respectively and the average cost of cultivation per hectare is 419606. The table clearly indicates that the cost of cultivation of black pepper per hectare in marginal group is higher than small and semi medium size group.

4.2 Measures of Farm Profitability

Table 2.Profitability in cultivation of black pepper (Rupees per hectare)

Sr no	**Particular**	**Size of farm Groups**			**Average**
		Marginal	**Small**	**Semi Medium**	
1	Black pepper Production in Quintal	19	17	16	17
2	Total cost	438600	412826	407393	419606
3	Gross income	855000	765000	720000	780000
4	Net income	416400	352174	312607	360393
5	Benefit cost Ratio	1:1.94	1:1.85	1:1.76	1:1.85

(Source: Primary data)

In this research, overall, estimated gross return of black pepper was Rs/ha 780000 and obtained net return was Rs/ha 360393. The benefit received on per rupee investment was 1:1.85. Across farm size of holding, the gross return of black pepper was varied from Rs/ha 855000 to Rs/ha 720000 of marginal to semi medium farms. The obtained net return was ranging from Rs/ha 416400 to Rs/ha 312607 of semi medium farms. Similar studies find in **(Sajith *et al,* 2015)** The benefit cost ratio of marginal, small, and semi medium farm size is 1:1.94, 1:1.85, and 1:1.76 respectively. However the production of black pepper per quintal in marginal, small, semi medium farm size is 19, 17, and 16 respectively with average of 17 quintal per hectare. The average of net return is found to be Rs. 360393 per hectare.it is conforming from the findings that marginal

farmers were more efficient than that of small and semi medium farmers, because of good management and supervision in cultivation of black pepper.

5.Policy and Recommendations.

Lack of Skilled Labours

Training Programs: Organize training programs to educate and train local farmers or agricultural workers about black pepper cultivation techniques. Collaborate with agricultural universities, research institutes, or government agricultural departments to provide specialized training on various aspects of black pepper cultivation.

Farmer-to-Farmer Knowledge Sharing: Encourage experienced black pepper farmers to share their knowledge and skills with others in the community. Facilitate knowledge-sharing sessions, workshops, or field demonstrations where experienced farmers can mentor and guide less experienced individuals.

Lack of Adequate processing facilities

Technology Adoption: Embrace technological advancements in black pepper processing. Automated sorting, grading, and packaging systems can streamline operations, improve efficiency, and enhance the quality of the final product.

Market Linkages: Focus on establishing strong market linkages to ensure a steady demand for your processed black pepper. Engage with spice traders, exporters, and retail distributors who can provide insights into market trends and requirements.Similar studies find in (Meenakshi et al, 2019)

6. Conclusion

The study of production of black pepper in Wayanad District, Kerala, revealed some interesting findings. The total cost of Production of black pepper is Rs. 438600, Rs.412826 and Rs. 407393 for marginal, small and semi-medium farmers respectively. From this it is clear that the marginal farmers make more profit than small and semi-medium farmers due to scale of operation which means marginal farmers typically have smaller land holding and may focus on intensive cultivation pratices. By optimizing their limited resources and employing efficient farming techniques, they can often achieve higher yields and productivity per unit area. This increased scale of operation enables them to generate more output and subsequently higher profits.

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