CHAPTER - II

REVIEW OF LITERATURE

INTRODUCTION

Review of previous studies and related literature helps one to have a broad understanding of the subject of study. Further, it ensures the research to be more focused by identifying the gap in the subject of study. Therefore, in this section an attempt has been made to outline various concepts used and conclusion made in the earlier related studies. There are number of studies about various economic aspects of cardamom. The researcher made an elaborate review on those studies as well as on the studies relating to similar plantation crops. The most important concepts used and inferences drawn in those studies, which are relevant to the present research are briefed in this section.

Cost

De Wett (1969) stated that fixed costs were those which were paid even though production had been stopped temporarily. Fixed cost is one, which do not proportionally vary with the level of output. It includes rent for buildings, interest on capital invested in machinery and salaries of the permanently employed staff1.

According to Tandon and Dhandyal (1971) variable costs also known as prime cost depended upon changes with varying levels of production2.

Bernard and Nix (1973) classified costs into the variable and the fixed costs. Fixed cost represented overhead farming expenses and it did not change with the level of output. Depreciation of assets, cess, interest payment and rent formed the fixed cost, while variable cost would change with the level of output3.

SangeethaRao (1980) considered four cost concepts. She considered cost $A_1$ as the expenditure incurred by the farmer in cash and kind. Cost $A_2$ included cost $A_1$,

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plus rent paid for leased land. Cost B included cost A2 plus rental value of owned land and interest on owned fixed capital (excluding land). Cost C was the imputed value of farm labour added to cost B⁴.

According to Paul Samuelson (1973), application of farm inputs involved costs which could be divided into fixed and variable costs. Fixed cost referred to the cost which did not vary with the output in the short run. They were also called overhead costs which included rent, maintenance, depreciation, overheads, salaries and wages⁵.

According to Kahlon and Sandhu (1971), fixed cost included the depreciation on the value of capital investment. An additional item of rent paid or payable was also taken into account⁶.

Sheth (1985) defined fixed costs as those costs which did not vary with the change in farmers’ output over the short run. They were incurred even if there was no production. Rent, property tax, interest charge and salaries were classified as fixed costs. Variable cost changed with the level of output and it increased with the increase in output⁷.

Agarwal et al. (1981) worked out the depreciation of farm assets like building at the rate of five per cent and depreciation of farm equipment at the rate of 15 per cent per annum on calculating the expenditure components involved in the production of poultry⁸.

According to Jayaraman (1981) the total cost of production consisted of fixed cost and variable cost. Fixed cost included annual share of total establishment cost, land revenue, interest on fixed capital, and depreciation of fixed assets and rental value of land. The variable cost reflects the annual maintenance cost which included

labour involved in various operations, manuring, watch and ward and plant protection chemicals.  

Venkatraman (1964) in his study said that apportionment of fixed cost is done on different criteria in the case of perennial crops. He assumed the life period of grape vineyard as 25 years and apportioned the land value to the entire life period with 10 percent interest on the share of land value for the particular year. The cost of establishing the vineyard was also distributed among the life period of 25 years.  

Madappa (1970) has divided the cost of production of coffee into three main categories namely (i) cost of cultivation (ii) cost of preparing the produce for the market and (iii) other costs.  

Hasneen Jahan and Jaim W.M.H., (2004) studied the changes in cost and return structure of rice production in Bangladesh and indicated that farming had become more capital intensive rather than labour intensive and cash need was on the increase in the recent years.  

Gowda and Muthappa (1967) estimated the cost and revenue for the total life span of the cardamom crop in Karnataka State.  

In the present study, cost included both the fixed and the variable costs. Fixed cost included land revenue, rental value of land, annual share of net establishment cost, depreciation on fixed assets, repairs and maintenance and interest on fixed capital excluding land. The variable cost included the cost of cardamom seedlings, preparation of land, plant protection chemicals, weeding, manures and fertilizers, mulching materials, tying materials, irrigating, harvesting and interest on working capital.

Returns

Kandasamy et al., (1980) used the term ‘gross return’ to mean the value of the total produce. Net return is the remainder after subtracting total expenditure from gross income.\(^{14}\)

Bal (1982) defined farm income as cash receipts plus value of farm produce consumed in the farm household minus operating expenses, depreciation on such capital and change in the farm inventory.\(^{15}\)

Karnam Lokanathan (1982) defined gross income as the total value of the output of areca nut, income obtained from sale of leaf sheath and husk retained for farm requirements. The net income was defined as gross income minus total cost comprising direct and indirect costs.\(^{16}\)

Sivanandam et al., adopted present value of flow of future returns, benefit cost ratio, internal rate of return and pay back method for measuring the productivity of capital. These methods were further extended with sensitivity analysis by changing the parameters to suit real world situation.\(^{17}\)

According to Murugadass (1997) gross income is the actual amount realized on the sale of the produce and he arrived at the net income by deducting cost of cultivation from the gross income.\(^{18}\)

George and Joseph (1973) in their study on “Cost Benefit Analysis of Investment in Tree Crops” evaluated financial feasibility of investments in tree crops,

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using the payback period method, the Net present value technique, the Benefit cost ratio and the Internal Rate of Return.  

Reddy et.al., (1984) defined gross income as gross value of output sold and net income was the residue of gross income after deducting the total cost.

Vijayalakshmi (1995) stated that gross income refers to total value of output and its by – product, the stalk. The farm business income was computed by deducting cost A1 from gross income. Net income was computed by deducting the total cost from gross income.

Manoharan (2001) defined in his study the gross return on the sale of total output after deducting marketing cost. Contribution was been calculated by deducting variable cost from the gross returns. Deducted fixed cost from contribution to arrive at the net profit. And also he assessed the worthiness of investment in pepper cultivation on long- term basis. Internal Rate of Return (IRR) in investment in pepper as the rate of discount, which equals benefit and cost. He found that Internal Rate of Return (IRR) is 60 per cent for the projected year 20 years and net Present Value (NPV) is Rs.2, 77,839, and Benefit Cost Ratio (BCR) is 4.03.

In the present study, gross return on cardamom production is the value realised on the sale of total output after deducting the marketing cost and variable cost. The net return is arrived at by deducting fixed cost from gross return.

**Production Function**

The efficiency of production at the farm as a whole was studied by fitting an appropriate econometric model, which necessarily relates the input quantity and output produced.

Ferguson (1982) has defined production function as a schedule showing the maximum amount of output that can be produced from any specific set of inputs.

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given the existing technology. In short the production function is a catalogue of output possibilities.

According to Koutsyiannis (1983), the production function included all the technical efficiencies of production.

Ranjan Mishra (1984) used the production function to determine the effect of irrigation on production and resource use in Mayurkashi canal irrigated area of the Birbhum district of West Bengal. He concluded that co-efficient of regression for irrigation showed a significant ‘t’ value with a positive appropriate sign, thus acting as a significant component of yield increase. He also concluded that fertilizer and pesticides were positively correlated to irrigation.

Rane (1990) fitted linear and non-linear forms of production function for estimating their parameters. For analysing the variation in land productivity, the double log linear form was used. The independent factors he identified were per capita cropped area, rainfall index, irrigation index, soil quality index and fertilizer use index. He obtained a higher $R^2$ value of 0.89 suggesting a good fit and for him cropped area index and irrigation index came significant in coherence to approximate expectation.

According to Anindya Sen (2000) production function consisted of those combinations of inputs such that the corresponding amount of output can be produced from the given inputs. Production function is the relationship between inputs and outputs such that inputs are combined to produce the output in the most efficient way.

Jhingan (1987) opined that production function expressed the functional relationship between quantities of inputs and outputs. It showed how and to what extent output changes with variations in inputs.\textsuperscript{28}

Alka Gupta, Murali Gopal and Rohini Iyer (2001) analysed that rhizophene microorganism, contributed significantly to the control of pests and enhancements of plant growth.\textsuperscript{29}

Jyothirmai et al., (2003) defined production function as the relationship between gross returns of the crop output and the specified variables.\textsuperscript{30}

Nirmala (1998) explained the basic assumption of the production function is that output alone is subject to random errors.\textsuperscript{31}

Hazarika, and Subramanian, studied the technical efficiency of the tea estates in Assam to help to formulate policy measures to remove the production constraints. They came to the conclusion that under the present technology potentials there were chances for improving the productivity with proper allocation of existing resources, and they further emphasized the significance of educating the tea planters about rational use of input.\textsuperscript{32}

In examining the impact of risk and risk aversion on the adoption of special purpose lines of credit in Nepal, Anderson and Hamal, referred to the prevalence of risk aversion among farmers may be reason for their less likely participation in the adoption of new technology. Farmers with a relatively high degree of absolute risk aversion tended to perceive greater risk in new technology. The years of education


\textsuperscript{29} Alka Gupta, Murali Gopal and Rohini Iyer, “Need for Introduction the Concept of ‘PGPR’ in Coconut Crop Production System from Improved Plant Growth and Establishment”, \textit{Indian Coconut Journal}, Vol.XXXI, March 2001, p.12.


were not significantly associated with the farmers’ perceptions of variance of yields and gross margins\textsuperscript{33}.

Sankhayan and Cheema, stressed that care should be exercised in not using wrong model formulations inconsistent with the arithmetic logic while using Linear Programming for obtaining farm plans\textsuperscript{34}.

Haque et al., (1983) measured the relative role of different factors in influencing intra-regional and inter-regional variations in productivity, the conclusions were that the profitability was on the decline in all regions and the rate of decline was higher in the more developed states. They insisted that infrastructure facilities like irrigation, input supplies, extensions and marketing facilities needed to be strengthened and the agricultural policies pursued by the Centre and States should be consistent with the national goals of optimal resource use and production\textsuperscript{35}.

According to KanagaAnbuselvam (1990) farm business income declined as size of holding increased and there existed inverse relationship between farm size and productivity\textsuperscript{36}.

In evaluating the total productivity growth (TPG) in Japan, South Korea and Taiwan, Nirvikar Singh and Hung Trieu decomposed the TPG into capital and labour, and affirmed that these countries respectively showed the average output growth by 5.44, 8.67 and 8.48 percentages because of technological progress\textsuperscript{37}.

Sharma (2004) after analyzing the economic efficiency of farm size in Punjab observed that gross margins per hectare increased with the increase in size of the farm\textsuperscript{38}.


\textsuperscript{36} Kanaga Anbuselvam “A Study on farm size, factor productivity and income distribution in Periyar - Vaigai command area in Madurai District, Tamil Nadu” unpublished Ph.D., Thesis submitted to Madurai Kamaraj University, Madurai, 1990.


Jeromi (1994) in his study found that increased area under pepper in Kerala State had been the major contributor to production growth since 1960 and that growth in yield had been negative. The growth rates of area and production for rubber, coffee and cardamom revealed that pepper was facing acute competition from these crops. He concluded in his study that growth of pepper production in Kerala state had not been encouraging in view of high instabilities in production, stagnant yields and export uncertainties.

**Resource-Use Efficiency and Returns to Scale**

Efficiency is being considered a ratio of ends to resources. The ends are considered in the broadest or narrowest sense, depending upon the particular problem on hand.

According to Kalirajan (1990) economic efficiency included technical efficiency whereby the greatest output could be obtained from any given set of inputs in a technical production function and price efficiency yields equality between the marginal value product and opportunity cost.

Kumbhakar (1994) defined the production frontier as the focus of maximum possible outputs for each level of input use. A producer is said to be technically efficient if the observed output was maximum, given the input quantities and a failure on the part of the farm to produce the frontier level of output, with the input quantities being attributed to technical inefficiency.

According to Shanmugam and Palanisamy (1993), the measurement of economic efficiency included technical efficiency and price efficiency. Technical efficiency referred to the proper choice of production function among all those activities in use by farms. Price efficiency referred to the proper choice of input

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combinations. The issue of economic efficiency in agriculture has now been broadened from the earlier emphasis on price efficiency to technical efficiency\textsuperscript{42}.

Sunandhini et al. (1993) used Marginal Value Product (MVP) to factor cost ratio as the measure of resource-use efficiency. Equality of MVP to factor cost ratio indicated the optimum use efficiency of a particular input\textsuperscript{43}.

Bindu Padmini, fitted a multiple regression type production function to estimate resource productivity in pepper farms. The analysis revealed that 76.7 per cent variation in the output was accounted for inputs included in the study. Price of pepper and labour were found to be decisive factors influencing the productivity\textsuperscript{44}.

Mohan assessed the level of resource use efficiency in pepper production by using Cobb-Douglas Production function. It was observed that the variables considered accounted for 90 per cent variation in the yield. The analysis revealed that the establishment cost, the area of the garden and the age of the pepper plants significantly influenced the yield of pepper\textsuperscript{45}.

Kurup (1984) reasoned that the deforestation was the main cause for the failure of monsoon and change in the climatic conditions that largely influenced the production of cardamom\textsuperscript{46}.

Singh, et al. (2005) revealed that resource use efficiency was found to be the most determining factor in the productivity of food grain. This was followed by animate and mechanical power. The study proposed for provision of long term low interest credit facilities, especially for marginal and small farmers for the installation of irrigation facilities\textsuperscript{47}.


\textsuperscript{46} K.R. Kurup, “The Forest Climate Cardamom Relation”, April, 1984, pp.9-11

In the present study, Cobb-Douglas type production function is fitted to estimate the resource returns, returns to scale and resource use efficiency. The output of cardamom in kilograms per acre has been taken as dependent variable. The labour in man days, the manures and fertilizers in rupees, the cost of mulching materials in rupees, the cost of plant protection chemicals in rupees, the cost of irrigation in rupees and the age of cardamom seedlings in years have been taken as independent variables. The efficiency of resource use is studied with the help of MVP/MIC ratio using Cobb-Douglas production function.

**Capital Productivity**

George and Joseph (1973) in their study on “Cost Benefit Analysis of Investment in Tree Crops” evaluated financial feasibility of investments in tree crops using the pay-back period method, the net present value techniques, the benefit-cost ratio and the internal rate of return\(^48\).

Santhosh (1985) evaluated the economics of investment in the production of pepper using four indicators, namely pay-back period, net present value, the benefit-cost ratio and the internal rate of return\(^49\).

In the present study, economic viability of investment in cardamom cultivation has been determined by using the pay-back period, the net present value, the benefit-cost ratio and the internal rate of return.

**Market**

The concept of market has been viewed with different approaches by researchers.

Elling (1969) considered market as a place where a transfer of merchandise takes place\(^50\).

According to John (1971), the concept of market extends an opportunity for

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demanders and suppliers for transferring ownership or right to use a factor, goods or service\textsuperscript{51}.

Kulkarni (1964) defined market as an institutional or organisational set up in the course of commercial activity which influences the change of produce from producer to consumer\textsuperscript{52}.

For the present study, market refers to the place of exchange of cardamom from the primary producer to the ultimate consumer through various channels of distribution and intermediaries.

**Marketing**

Marketing is the total function of bringing goods and services from their usable or finished state to the ultimate consumer, with the implication of the physical transfer of goods and services as well as the economic terms on which these transfers are made\textsuperscript{53}.

Viewed in this perspective, marketing is the performance of the business activities that directs the flow of goods and services from producer to consumer. Marketing is a management task of strategically planning, directing, controlling and the application of enterprise efforts to profit making programmes for customer satisfaction, a task which involves the integration of all business activities into a unified system of action.

Srivastava (1984) stated that the producer’s share is inversely related to consumer price. The retailer’s share increases with an increases in the consumer price, whereas the producer’s share decreases with an increase in the consumer’s price. The benefit derived from all increase in the consumer’s price is absorbed by the retailers\textsuperscript{54}.


Gadhavi, Khunt, and Gajipara., (2001) viewed that farmers cultivating cotton were not using co-operative marketing society and regulated markets to sell their produce and hence village traders played a vital role in the marketing of cotton55.

Banumathy (2001) worked out the price behaviour of coconut using time series analysis method. She analysed the seasonal variation from the original composite time series. The time series data is done by assuming multiplicative model of the \( Y = T \times C \times S \times I \). Where \( y \) = Monthly arrival of price, \( T \) = Trend value, \( C \) = Cyclical movement, \( S \) = Seasonal variation, and \( I \) = Irregular fluctuation56.

Surya Prakash,(1979) studied the relationship between prices and arrivals of potato using time series data. They expressed that the seasonal price fluctuation was predictable and it would help the farmer in timing the production57.

B.B. Singh, (2001) studied about the marketing of Chillies in Begusarai, Bihar. They have identified the three different channels and worked out the price spread and farmer’s share of the consumer’s rupee. They found out that the prices spread indicated that the intermediaries present in the marketing channel charged high margin of profit as compared to the service rendered58.

Pandey (1979) stated that immediate cash requirements and absence or lack of storage facilities forced the farmers to sell their agricultural produce after harvest. The relationship between distance and marketing cost had a positive association as far as marketed surplus was considered, but considering the net price received their relationship showed a negative association59.


S. Balamurugan (2009) in his study on Production and Marketing of Vanilla in Idukki District, Kerala identified lack of adequate finance to meet establishment cost, lack of knowledge of standardised cultivation practices, poor research and development support, inadequate disease management practices, non-availability of sufficient materials, erratic climatic behaviour, lack of institutional support, non-availability of skilled labourers, increasing cost of inputs, lack of quality control at the growers level and conservative mind set among the vanilla growers were common production problems. Wide price variation, lack of market intelligence, lack of knowledge on value addition, absence of crop-insurance facility, competition from synthetic vanilla, problems on grading, Governments’ apathy towards marketing of vanilla, un-organised marketing mechanism, lack of poor storage facilities, lack of coordination among the vanilla promoting agencies were the major marketing problems faced by farmers.

Gunamalai and Subramaniam (1998), while analyzing the marketing cost, marketing margin and price spread in chewing tobacco markets, identified three different channels in marketing the same. They came to the conclusion that in all these channels tobacco producers raised less than 50 percent of consumer’s price. Construction of godowns in rural areas and making them available for farmers to store the harvested tobacco at reasonable rates, and imparting trainings to the growers in cutting, processing, grading and the like were their recommendations for realizing better prices by growers.

Marketing Cost

Dhull and Gangwar (1975) defined marketing cost as the actual cost incurred by each agency involved in the marketing channel. This includes transportation, loading and unloading, weighing and cleaning costs, market fee, commission, sales tax and processing costs.


According to Kulkarni (1964), marketing costs referred to handling charges at local points, assembling charges and transport.  

Venkatraman (1979) identified that, in residual method, margin was derived as the proportion of price received by the producer after accounting for the share of all intermediaries in the marketing.

**Marketing Efficiency**

Marketing efficiency is measured by the marketing margin received by each intermediary and its proportion to the consumer price.

Dole Phal and Hamond (1977) related marketing efficiency to the achievement of minimum cost in the accomplishment of the basic marketing functions such as assembling, processing, transportation, storage, distribution and related physical and facilitative activities.

The marketing efficiency can be improved through operational efficiency and pricing efficiency. The operational efficiency here referred to the cost effectiveness. The latter referred to the structural characteristics of the marketing system where the sellers got the true value of the produce and the consumers received the true worth of their money.

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