CHAPTER –II
REVIEW OF LITERATURE

INTRODUCTION

This chapter consists of research finding drawn from review of Literature relevant to the study. Acquaintances with earlier, pertinent study and formulate, appropriate research methodology. There are number of theoretical and empirical studies on the various aspects of productions, Marketing and export of coconut. In this chapter, the most relevant literature is presented keeping in view the objectives and methodology of the present study. Since, there were limited studies related to coconut Marketing problems faced by the farmers, an attempt is made to put together some of the closely related and available literature on research study. The information is presented under the following headings.

The research on coconut in India is being carried out by the institutions under the Indian Council of Agricultural Research and the State Agricultural Universities Located in different coconut growing states. Research on post harvest processing of coconut is also undertaken by the institutions under the CSIR (Council for scientific and industrial research) the board has a programme to sponsor research and harvest processing of coconut through such research institutes. The institutes under the Coir Board Mainly undertake the coir research. Coconut development Programmes in India are mainly carried out by the Coconut Development Board, which was established in 1981. The board’s schemes are either implemented directly or through the Department of Agriculture / Horticulture of the states and union territories. The state government also implements their own programme to suit the local needs. The board functions under the administrative control of the Ministry of
Agriculture, Government of India with the Chairman as the chief executive. The coconut Development Board Headquarters is in Kochi, Kerala implement and monitor various developmental projects. The Coconut Development Board has established field offices in various parts of the country. The following table shows the All India Estimates of area and production of Coconut in India state wise.

The coconut is a crop with unique features. Owing to its versatile uses, the demand for coconut and its products has been on the increase. The crop is spreading fast even to the interior tracts and the north and northeastern parts of the country gaining national acceptance. Having already attained the premier position in the world, Indian’s thrust now shall be to exploit the wealth potential of the Coconut in all respects. Moreover coconut is an eco-friendly crop which permits coexistence of multi-species plants. It enriches soil fertility in association with other crops and is quite amenable to organic farming, if appropriate intercrops are grown in the inter-space. Due to multifarious uses, the future of the coconut is very bright irrespective of the locations where it is grown in the world.

2.1 REVIEW OF LITERATURE

This section briefly reviews some of the concepts used in the earlier studies on coconut as well as other commercial crops grown. It presents the concepts relevant to the present study.

The review has been classified into four heading for better exposition and clarity. The review of previous studies is done in a systematic manner.
1. Studies related to cost structure.
2. Studies related to return.
3. Studies related to coconut.
4. Studies related to marketing.

2.2 STUDIES RELATED TO COST STRUCTURE

Costs are defined as the cash expenses, the costs, which a farmer incurs on crops, are categorized into: (1) fixed cost and (2) variable cost. Fixed costs are for an overhead nature and do not vary with output. Such expenses include rental value of land, depreciation, livestock, agricultural implementation and interest on fixed capital. Variable expenses such as expenditure on seedlings, fertilizer, pesticide and maintenance do vary with the output.

Venkatraman\(^1\) in his studies says that apportionment of fixed cost is done on different criteria in the case of perennial crops. He assume the life period of grape. Vineyard as 25 years and apportioned the land value to the entire life period with 10 per cent interest on the share of land value for the particular year. The cost establishing the vineyard is also distributed among the life period of 25 years.

Coconut is a perennial crop. Perennial crops are entirely different from seasonal crops. The cost analysis of potential crops bristles with conceptual and methodological problems due to their complex production characteristics. The right decision on investment in farming activities can be taken only when valuable information on cost and returns are available.

\(^1\) J.V. Venkatraman, Economics of production and marketing of Grapes in Bangalore, south Taluck (Unpublished M.Sc (Ag) Thesis Department of agricultural Economics, Tamil Nadu Agricultural university, Coimbatore 1964, 4.7.
Such information will be useful to improve cropping pattern as well as efficiency through least cost combination resources Madappa\(^2\), has divided the cost of production of coffee into three main categories viz Cost of cultivation (2) cost of preparing the produce for the market and (3) Other costs.

Mittal and saxena\(^3\) explain that fixed cost in agriculture as those which are independent of level of production where as the variable costs every with the of output.

The directorate of Economics and statistics used the concept in many of the cost of production and farm management studies. Those four concepts are discussed below\(^4\).

Cost A\(_1\) approximates the actual expenditure incurred in cash and kind. It includes value of hired human labour, value of bullock labour (owned and hired), machine labour, value of seeds manure and fertilizer, plant protection chemicals, irrigation charge, land revenue and cess, water tax, Interest paid on working capital, depreciation on implements, machinery farm buildings and the like.

Cost A\(_2\) comprises cost A\(_1\), plus rent paid for leased land. Cost B includes cost A\(_2\) plus rental value of owned land plus interest on fixed capital excluding land. Cost C includes cost B plus imputed values of family labour.


Alikhan sadath and Rajagopalan\(^5\) have classified total cost of production. According to them cost of production consists the sum of establishment cost and operation cost. Total establishment cost up to the bearing age is spread over the life of the crop. Annual share of establishment cost, Interest on working and fixed capital, and depreciation charge are included under indirect cost. Kahlon and singh and kahlon and miglon\(^6\), are a few among a number of researchers who have used the same concept of the cost structure.

**A review of some concept is discussed below:**

Padmanandam\(^7\) classified costs as direct cost and indirect cost. According to him direct costs include the operation and maintenance cost and indirect cost. Include the annual share of establishment cost, interest on fixed capital, interest on working capital and depreciation.

Rajagopalan\(^8\), defines the study of cost and return structure of principal crops in the districts of Tamil Nadu. He considered only cost A (variable cost) and cost C (fixed cost). The following components are include in cost A and C.

A) and A:

i. Value of human labour, including family labour.  
ii. Value of bullock labour.  
iii. Value of machinery charges.

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iv. Value of speed.
v. Value of insecticide.
vi. Value of manure and fertilizer.
vii. Cost of irrigation and
viii. Interest on working capital.

B) and A:
   i. Value of human labour, including family labour.
   ii. Value of bullock labour.
   iii. Value of machinery charges.
   iv. Value of speed.
   v. Value of insecticide.
   vi. Value of manure and fertilizer.
   vii. Cost of irrigation and
   viii. Interest on working capital.

C) cost C:
Cost A + rent (including rent paid by the tenant (or) rental value of
owned land) + Interest on fixed capital, excluding Land+ Land
revenue, cesses and taxes+ depreciation of implements and
marketing.

Based on the above studies, cost A and cost C are considered in the
present study. In terms of cost A and cost C, the following factors are
included:
   i. Human labour including family labour.
   ii. Bullock labour.
   iii. Value of seed.
   iv. Chemical fertilizer.
   v. Pesticide.
   vi. Farm manure.
vii. Cost of irrigation.

viii. Interest in working capital.

ix. Rent and

x. Interest on fixed capital excluding Land revenue, cess and taxes and depreciation of implements and machinery.

According to Srinivasan\(^9\) the cost of production consists of direct cost indirect cost. The Direct cost represents the operation and maintenance cost during reference year. The indirect cost refers to the sum of costs such as annual share establishment cost, Interest on fixed capital, Interest on Working capital and depreciation charges. The total sum of the direct cost and indirect cost from the total cost of production.

Thangaraja\(^10\) considers that the total cost of cultivation includes both costs incurre on fixed and variable inputs. Cost on fixed assets include rent, depreciation, tax, Interest, insurance premium, and the like. The variable inputs cost incurred on variable inputs such as human labour, speed, fertilizer, pesticides, mechanical power, and bullock labour and the like.

According to Bhardwaj\(^11\) et.al the items in fixed costs included were feed hopper, chick feeder water foundation and the like Cost of building was excluded in the cost. The expenditure on medicine feed wage and salary, rent electricity bill, transport charge, interest on capital and like, were included in the variable costs.

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Hentry Louis\textsuperscript{12} speaks about in his study cost of establishing a coconut garden in one acre land. In the present study, the total cost of production is classified into fixed cost and variable cost. The cost includes land revenue, rental value of land, annual share of establishment cost, depreciation on fixed asset, and interest on fixed capital, exclude land. The variable cost includes annual operation and maintenance cost which included cost incurred on garden protection labour, manure, fertilizer, irrigation, pesticide and interest on working capital.

2.2 STUDIES RELATED TO RETURNS

Sivanandam et al\textsuperscript{13}, have 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 are further extended with sensitivity analysis by changing the parameters to suit real world situation.

Harrison\textsuperscript{14} studied the cost and return structure of small and large farms in this study on “agricultural modernization and income distribution”. The study was conducted in the Tanjore District Tamil Nadu. The study related that small farmers spend higher amount per hectare on the inputs. Chemical fertilizer is identified the highest input cost incurred in the small and large farms followed by seed.

\begin{itemize}
  \item Hentry Louis. Coconut- the wonder palm coconut corporation Nagercoil, Tamil Nadu, may 2002. PP. 74,75.
  \item James quingly Harrison, Agricultural modernization and Income Distribution: An Economic Analysis of the impact of New seed varieties on the crop production of large and small farms in India, Ph.d., Thesis submitted to Princeton university, USA, 1982.
\end{itemize}
Reddy et.al\textsuperscript{15} have defined gross income as gross value of output sold and net income was the residue of gross income after deducting the total cost.

Vijayalakshmi\textsuperscript{16} defines that gross income refers to the value of input and its by-product the stalk. The farm business income is computed by deducting cost A1 from gross income. Net income was computed by deducting cost that is total cost from gross income.

Thangaraja\textsuperscript{17} in his work has discussed that the net income per farm (profit) was defined as the excess of revenue. According to the farms over its variable expenditure. Hence, total revenue minus total variable (total wage bill) is equal to net income or profit.

According to sundararaj\textsuperscript{18} gross income is the value of total output including the main and by products.

Srividya\textsuperscript{19} has studied the feasibility of establishing a banana processing unit. The study real that the market potential is 35.42 tones per annum. She says that the internal rate of return (IRR) is 9.35 per cent, net present value(NPV) is Rs.250.54 Laksh and Benefits cost Ratio (BCR) is 1.59:1 for the project period of 10 years and the break even analysis of procession plant is 120 tonnes per annum as against the target production of 150 tonnes per annum.

\begin{itemize}
\item \textsuperscript{16} C. Thangaraja; op.cit.
\item \textsuperscript{17} K. Sundararaj, marketing of chillies in Chidambaram District- Tamil Nadu, unpublished Ph.D, Thesis submitted to M.K.V. Madurai, 1997, P.20.
\item \textsuperscript{18} V. Srividya, A study on feasibility of Establishing Banana processing unit in Trichirapalli District, unpublished Dissertatin, Agricultutural university, coimbatore, 1998.
\end{itemize}
Chandran ²⁰ has found that the investment Rate of Return (IRR) 13.72 and 17.63, Net present Value (NPV) are Rs. 24432 and 31273 and the Benefits Cost Ratio (BCR) are 2.21 and 3.04 respectively for tall and dwarf varieties of coconut garden.

Monoharan ²¹ defines in his study the gross return on the sale of total output after deducting marketing cost. Contribution has been calculated by deduction variable cost from the gross returns. Deducting fixed cost from contribution arrives at the next profit.

And also he has defined in his study to assess the worthiness of investment in epper cultivation on long-term basis. Internal Rate of Return (IRR) in this study is defined as the rate of discount, which equalizes benefit and cost. He has found that Internal Rate of Return (IRR) is 60 per cent for the projected year 20 years and Net Present value (NPV) is Rs.277839, and Benefit Cost Ratio (BCR) is 4.03.

In the present study gross return on coconut production is the Value realized on the sale of total output after deducting marketing cost. The contribution has been calculated by deducting variable cost from the gross returns, the net profit is arrived at by deducting the fixed cost from contribution.

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2.3 STUDIES RELATED TO COCONUT

Aravindakshan 22 in his article state that India occupies the premier position in the world production of coconut. More than 90 per cent of the production is contributed by the four Southern States namely, Kerala, Tamil Nadu, Karnataka and Andhra Pradesh. The world production of coconut at 5400 crore nuts of which more than 25 per cent is contribution of India.

Thampan 23, in his article says that the states stability of the rural economy depends on the coconut industry. As coconut cultivation is the mainstay of small and marginat farmer its profitability is important. This depends on the cost production and the demand for coconut products. The cost of production can be minimized by reducing the level of conventional impose and increasing the unit productivity.

Husain, shilaja and sobhana 24 in their article state that the coconut climbers are employed for 218 days in a year. Of this, more than,75 per cent of the period (164 days) they are engaged in coconut climbing. They receive maximum number of days of employed during the month of February, March and May. The daily average wage rate of coconut climbers is Rs. 82.30 with a monthly income of Rs.1496. they earn higher income during the month of may followed by march, February and April.

Kumar, Mohamed Abdhulkhader, Pangaswami and Irulappan 25, in their articles that the coconut palm is one of the most beautiful and useful palms in the world. It provides a variety of useful products like food, fuel and timber. Every part of the Tree is utilized for some purpose or other and hence, it is called Kalpavriksha meaning tree of heaven which provides all the necessities of life.

Barman and Ahmed 26, in their article analyze the performance of production and productivity of coconut in Bangladesh and also state that there is considerable expansion in area which mainly contributes to increase in production. The cultivation of coconut of in Bangladesh is mostly concentrated in the coastal regions in chittagong and Khulna divisions. These two divisions account for about 81 per cent of coconut area and 83 per cent of production.

Markose 27, in his article analyzed that the formation of the coconut development programmes for coconut are given new dimensions, by identifying thrust area where efforts are to be concentrated. He has also stated that the decade prior to the formation of the coconut development board witnessed a declining trend in production and productivity with the area under the crop remaining almost stagnant.

Romany Gopalakrishnan 28, in his article, traces the history and growth of coconut in India. He also reveals that the coconut board will continue to serve the coconut industry and will help to stabilize the coconut based economy in the country.

Kathirvel and Manian 29 in their article state that while harvesting the nuts, one has to climb up each tree, usually in our country the farmers practice conventional harvesting system only. Their application in coconut gardens has immense potential. In order to eliminate the above said problems and also to increase the production a power tiller operated telescopic ladder for Radder for coconut harvesting has been developed.

Mamoria 30 In this study analyse and infer that India is the second largest producer of coconut in the world and majority of this area is concentrated in Kerala, Karnataka, Tamilnadu, Goa-Derman and Din. In Tamilnadu production is obtained from Thanjavur, Coimbatore, Kanyakumari, Madurai, Trichy, Selam, Ramanathapuram and Theni districts.

Attri, Sharma, Suryanarayana and Sujatha Nair 31 in their articles speak about the processing and packing of tender coconut water. It is the most nutritive drink and can be taken up on a commercial scale in the Andaman group of islands where about 10-20 percent harvest is being used as tender coconut and the rest for nut purpose.

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Jose Mathew and Santhakumari in their article state that coconut grows well and yield high in regions where rainfall is well distributed. Irrigation during dry spell mitigates the ill effects of water stress and ensures high yields in irrigated palms. Several investigations have been conducted to study the various aspect of water management in coconut. Several recommendations on the scheduling of irrigation to coconut have been formulated based on the results available from the large number of trials conducted in various locations in India.

Remany Gopalakrishnan in this article has stated that all parts and products of coconut are used in one way or other processed or in their natural forms. The leaf, midrib, spindle, inflorescence kernel, ruff-water, shell, husk, stem and roots are all made use of in the daily life of the people. Coconut cultivation and industry have important role in employment generation and poverty alleviation. The crop is a life supporter of more than 10 million people in the country by providing employment and income. By exploiting the full potential the coconut industry can provide livelihood to more than 20 million people even without increasing the total area under the crop in the country.

Sheeba Rebecca Isaac and pushpakumari in their article state that coconut is perhaps the most economically important tree crop that is accommodative of diverse species of perennial and seasonal crops as components of the agro ecosystem, Home gardens is Kerala are predominantly coconut based and these have a crucial role to

play in the agricultural scenario of the state. Tubes crops are the most important food crops to human kind after cereals, tropical tuber crops like, tapioca, sweet potato, yams and elephant food yam.

Kasturi Bai and Rajagopal\textsuperscript{35} analyze that a perennial tree crop of long life is influenced considerable all the weather factors. Rainfall has maximum influence on the seasonal variation in yield. In India the crop flourishes in the coastal belt of west coast and east coast, the reason being ideal climate without much temperature fluctuations. Even the limit to attitude and latitude are determined by temperature.

An article written by Markose\textsuperscript{36} Analysis that the coconut has assumed considerable significance in our national economy. Proper technology is needed effectively for utilizing coconut wood and other palm parts. He also reveals that the coconut lands would be more productive in terms of food security in the new millennium.

Singh\textsuperscript{37} in his article analyze area, production and productivity of coconut is different in coconut growing countries.

Soundrapandian and Shiny Philip\textsuperscript{38} in their article state coconut husk which is abundantly available in India should be put to proper utilization on a commercial scale which in turn will provide means of living to the masses. Mallillin, Askali and

\begin{itemize}
\item V.T. Markose “Assured Bright Futures” the Hindu survey of India Agriculture, 2000, P.89.
\item H.P.Singh “Coconut Industry in India Challenges and Opportunities” India coconut Journal, Vol.XXX, 39.4, August 2000, P.5.
\end{itemize}
Magalaya in their articles analyze have made a comparative study of the soluble fiber of coconut flour with other local sources such as banana, cassava, wheat and rice flours.

Rathinam, in his article, entitled “Research output and farmers adoption of technology on coconut based farming system in the Indian experience”, state that young plantations upto the age of 8 years need, good light transmissions.

Alka Gupta, Murali Gopal and Rohini Iyer in their article analyse that rhizophene micro organism, contribute significantly of the control of pests and enhancement of plant growth.

2.4 STUDYING RELATED TO MARKETING

Srivastava has stated that the producers share is inversely related to consumer price. The retailer’s shares increase with an increase in the consumed price, whereas the producer’s share decrease with an increase in the consumer’s price. The benefit derived from all increase in the consumer’s price absorbed by the retailers.

The observation of Banumathy is that farmers cultivating cotton are not using co-operative marketing society and regulated markets to sell their produce and hence village traders play a vital role in the marketing of cotton.

43. S.Banumathy, channel the service rendered.Economics of production and marketing of cotton in Kamarajar District. Tamil Nadu unpublished Ph.D, This is submitted to Madurai Kamaraj University Madurai 1997. P.167.
Gadhavi et.al\textsuperscript{44} has worked out the price behaviour of coconut using time series analysis method. They analyse that the seasonal variation from the original composite time series. The time series data is done by assuming multiplicative model of the \( Y = TXCXSX1 \). Where \( Y \) = Monthly arrival or price, \( T \) = Trend value, \( C \) = Cyclical movement, \( S \) = Seasonal variation, and \( I \) = Irregular fluctuation.

B.B.Singh etal\textsuperscript{45} has studied about the marketing of chillier 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 have found out that the princes spread indicate that the intermediaries present in the marketing channel charge high margin of profit as compared to channel the service rendered.

**2.5 EMPIRICAL STUDIES ON COCONUT MARKETING PROBLEMS**

Cocos nucifera Beccari or coconut belongs to the palm family, Arecales (=palmaceae) which consists of 200 genera and over 2,000 described species (child1974). According to Woodroof (1970) the term coconut is derived from the Spanish and Portuguese word, “coco” which means “monkey / grotesque face” but the plant is known in many countries by local names. For example, it has been know as “man”’s most useful tree” , “king of the tropical forest”, “tree of life” , “ tree of heaven” and lazyman’s crop , inter alia. (Woodroof,1970).


Coconut varieties fall under two broad groups, Tall or typical and Dwarf or nana. Tall and Dwarf coconut types may hybridize to produce intermediate forms (Woodroof 1970, child 1974). The tall variety has greater genetic variability as it is usually cross pollinated. The coconut plant is monoecious, producing both male and female flowers. The male flowers are located distally while the female flowers are found proximally on each inflorescence. The type of pollination is determined by the relative maturation times of the male and female flowers. In the Tall varieties the male flowers open before the female flowers, hindering self pollination while, an overlap of the opening phases of male and female flowers in Dwarf plants allows for self pollination and greater tendency toward homozygosity. Coconuts are also named after areas where they grown long enough to have developed distinctive characteristics, e.g., Panama Tall, West African Tall and Malayan Dwarf (Woodroof 1970, Child 1974). Mayapan variety is a hybrid of the Malayan Dwarf and Panama Tall varieties (Coconut Industry Board [Jamaica], 1973).

The traditional commercial coconuts were the Tall varieties which were preferred above the Dwarf varieties which were preferred above the Dwarf varieties because of the quality and quantity of copra they produce (Woodroof 1970). They normally live for over 60 years, are adaptable to a wide range of soil conditions, fairly resistant to diseases and water stress, and start to bear within six to ten years. The Dwarf varieties come into within three to four years, attain full production by the ninth year and have a life span of about 30 to 40 years. While they show greater susceptibility to some diseases, the Dwarf varieties exhibit greater resistance than the Talls to some viral diseases, including lethal yellowing (Woodroof 1970, Child 1974).
Each coconut inflorescence emerges from the base of a leaf and is approximately 120° around from the previous one. After fertilization of the female flowers, each inflorescence is in direct contact with the spikelet remnants of an older bunch (Hall 1981, Moore and Alexander 1987).

The native habitat for the coconut palm is unknown because coconut is dispersed by water, although human activity could be credited for much of its dispersal (Child 1974). Of all the cultivated trees in the world, the coconut palm has the widest geographical range (Ghai and Wadhi 1983). Ninety percent of the world’s coconut acreage lies within 20° S of the Equator (Woodroof 1970, Persley 1992). The coconut is best grown within 600 ft above sea level, with over 1,250 mm rainfall or a high water table on a rich silty loam. Coconut was introduced into the West Indies at the beginning of the 20th Century (Woodroof 1970, Child 1974). The main variety was the panama Tall found in Guyana, Jamaica, St. Lucia, Venezuela, Trinidad and Tobago. There was also the dwarf variety, with its Yellow, Red (golden), and Green colour morphs (Griffith 1982 a).

2.6 SOCIAL AND ECONOMIC IMPORTANCE OF COCONUT

The coconut palm and its fruit are regarded as the most important plant to humans around the world (Child 1974). Among its most important uses coconut is a food source, provides supplement for body fluids and minerals, and acts as an antihelminthic. The liquid endosperm is also a media for in vitro storage of semen and a growth regulator of plants (Woodroof 1970). Copra, the dehydrated endosperm of the nut, is next to soybean as a source of oil for food. Coconut oil is also used in cosmetics and pharmaceuticals. The material that remains after oil is expressed from
copra is called oilcake and is used as animal feed (Woodroof 1970). Coconut shell is used directly as fuel, filler, extender in the synthesis of plastic, to make activated charcoal, household articles, and to produce various distillation products, such as tar, woodspirit and pitch. Coir, a course fiber from the husk of the nut, has various domestic and industrial uses. Coconut root is brewed and in folk medicine, for example, as a cure for dysentery (Woodroof 1970).

Coconut oil is produced by crushing copra, the dried kernel, which contains about 60-65% of the oil. The oil has the natural sweet taste of coconut and contains 92% of the oil. The oil has the natural sweet taste of coconut and contains 92% of saturated fatty acids (in the form of triglycerides), most of them (about 70%) are lower chain saturated fatty acids known as medium chain fatty acids (MCFAS).

The review covers the production of coconut oil, its uses coconut oil is consumed in tropical countries for thousands of years. The studies done on native diets high in coconut oil consumption show that the population is generally in good health.

2.7 INTERNATIONAL STUDIES ON COCONUT MARKETING

Coconut oil has a long shelf and is used in baking industries, processed foods, infant formula, pharmaceuticals, cosmetics as hair oil. Chemistry, MCT and its applications taking a holistic approach on the good and bad effects of coconut oil reported in the literature.

Coconuts play a unique role in the diets of mankind because they are the source of important physiologically functional components. These physiologically functional components are found in the extracted coconut
oil. Lauric acid, for the unique properties that it lends to nonfood uses in the soaps and cosmetics industry. More recently, lauric acid has been recognized for its unique properties in food use, which are related to its antiviral, antibacterial, and antiprotozoal functions. Now, capric acid, another of coconut’s fatty acids has been added to the list of coconut’s antimicrobial components. These fatty acids are found in the largest amounts only in traditional lauric fats, especially from coconut. Also, recently published research has shown that natural coconut fat in the diet leads to a normalization of body lipids, protects against alcohol damage to the liver, and improves the immune system’s anti-inflammatory response. Clearly, there has been increasing recognition of health-supporting functions of the fatty acids found in coconut. Recent reports from the U.S. Food and Drug Administration about required labeling of the trans fatty acids will put coconut oil in a more competitive position and may help return to its use by the baking and snack food industry where it has continued to be recognized for its functionality. Now it can be recognized for another kind of functionality, the improvement of the health of mankind.

The research over four decades concerning coconut oil in the diet and heart disease is quite clear. Coconut oil has been shown to be beneficial. This research leads us to ask the question, “should coconut oil be used to both prevent and treat coronary heart disease?” This statement is based on several reviews of the scientific literature concerning the feeding of coconut oil to humans. Blackburn et al. (1988) have reviewed the published literature of “coconut oil’s effect on serum cholesterol and atherogenesis” and have concluded that when “…[coconut oil is] fed physiologically with other fats or adequately supplemented with linoleic acid, coconut oil is a neutral fat in terms of atherogenicity.”
After reviewing this same literature, Kurup and Rajmohan (1995) conducted a study on 64 volunteers and found “no statistically significant alteration in the serum total cholesterol, HDL cholesterol, LDL cholesterol, HDL cholesterol / total cholesterol ratio and LDL cholesterol / HDL cholesterol ratio of triglycerides from the baseline values...” A beneficial effect of adding the coconut kernel to the diet was noted by these researchers.

Kaunitz and Dayrit (1992) have reviewed some of the epidemiological and experimental data regarding coconut – eating groups and noted that the “available population studies show that dietary coconut oil does not lead to high serum cholesterol nor to high coronary heart disease mortality or morbidity” they noted that in 1989 Mendis et al reported undesirable lipid changes when young adult Sri Lankan males were changed from their normal diets by the substitution of corn oil for their customary coconut oil.

Mendis and Kumarasunderam (1990) also compares the effect of coconut oil and soy oil in normolipidemic young males, and again the coconut oil resulted in an increase in the HDL cholesterol, whereas the soy reduced this desirable lipoprotein.

As noted above, Kurup and Rajmohan (1995), who studied the addition of coconut oil alone previously mix fat diets, had reported no significant difference from baseline.

Previously, Prior et al (1981) had shown that islanders with high intakes of coconut oil showed “no evidence of the high saturated fat intake having a harmful effect in these populations” When these groups
migrated to new Zealand, however, and lowered their intake of coconut oil, their total cholesterol and LDL cholesterol increased, and their HDL cholesterol decreased statement that any saturated fat is a dietary problem are not supported by evidence (Enig 1993).

Studies that allegedly showed a “hypercholesterolemia” effect of coconut oil feeding, usually only showed that coconut oil was not as effective at lowering the serum cholesterol as was the more unsaturated fat to which coconut oil was being compared. This appears to be in part because coconut oil does not “drive” cholesterol into the tissues as does the more polyunsaturated fats. The chemical esters are 74% unsaturated (41% of the total fatty acids is polyunsaturated) and only 24% are saturated. None of the saturated fatty acids were reported to be lauric acid or myristic acid (Felton et al 1994).

In spite of what has been said over the past four or more decades about the culpability of the saturated fatty acids in heart disease, they are ultimately going to be held blameless. More and more research is showing the problem to be related to oxidized products. One protection man has against oxidized products is the naturally saturated fats such as coconut oil.

2.8 INDIAN STUDIES ON COCONUT MARKETING

According to K. Rajkumar et al., (2009) Coconut is a naturally abundant material and on strictly speaking there is no part of it treated as useless. From the sweet core to the small coir pith is used in number of applications.
The 141st report of Department – related parliamentary standing committee on industry (2003) pointed out the problems faced by the farmers growing coconut in West Bengal that there is no system for collection of coconut husks from consumers of coconuts in the state. Only coconut traders and goladars (stockiest) are the sources of husks as they collect coconuts from primary agricultural markets of different districts, remove coconut for onward disposal to their clients and keep the husks for selling to the processors.

In most of the districts there is no existence of such traders (stockiest) and so there is no adequate machinery to get husks for processing though husks are available in these districts and are mostly wasted by using as fuel. With the development of coir industries in the state in future and with consequent increase of the demand of husks, the system of collection of husks may develop and supply of husk may increase for processing purpose and accordingly may also increase the supply of husk for processing purpose.

The work carried out by Ponciano S. Intal Jr. and Luis Osman Ranit (2001) highlighted that a fragmented agricultural economy has important negative welfare effects on the country. First, as the Congressional Commission on Agricuitural Modernization (congress of the Philippines, 1997, p.72) noted, “marketing inefficiencies result in farmers’ getting low prices for their produce and consumers’ paying more than the fair price”. Second, unexpected large harvests leave farmers with much lower farm prices in a fragmented economy than in a well-functioning distribution system. Third, unexpected demand surges end up in increased imports rather than increased sales by domestic farmers. Fourth, an inefficient distribution system leads to additional pressure for
agriculture protection in order for the domestic products to be able to compete with imports in greater Manila, the country’s largest net deficit food market. And finally, the resulting high food prices lead to demands for higher wages.

Ravi (1975) examined the marketing of coconut and copra in Arasikere and Tiptur regulated markets of Karnataka. He reported that 66.20 per cent of the producers disposed their produce through village merchants, 16.20 per cent directly to wholesalers in village mandies and remaining 10.8 per cent of the produce sold through more than one channel.

Thimmappa (1981) has reported a positive relationship between social participation and adoption behavior of farmers with respect to coconut cultivation.

MCFAS are not to different vegetable oils with lauric acid at 45-56%. Various fractions of coconut oil have medium chain triglycerides and are excellent solvent for flavors, essences, emulsifiers etc. These fatty acids are used in the preparation of emulsifiers, as drugs and also in cosmetics. Its metabolism is different from that of the normal vegetable oils containing long chain fatty acids.

Hence, it cannot be generalized as oil similar in properties to that a 92% long chain saturated fatty acids containing oil / fat. More studies are required to prove the good effects of coconut oil, medium chain triglycerides (MCT) and the fatty acids on humans especially on the ill effects on cardiovascular and other diseases. The review covers the production of coconut oil; its coconut oil is consumed in tropical countries for thousands of years. Coconut oil has a long shelf life and is
used in baking industries, processed foods. Infant formulae, pharmaceuticals, cosmetics and as hair oil. More and more research is showing the problem to be related to oxidized products. One protection man has against oxidized products is the naturally saturated fats such as coconut oil.

In most of the districts there is no existence of such traders (stockiest) and so there is no adequate machinery to get husks for processing though husks are available in this districts and are mostly wasted by using as fuel. With the development of coir industries in the state in future and with consequent increase of the demand of husks, the system of collection of husks may develop and supply of husk may increase for processing purpose and accordingly may also increase the supply of husk for processing purpose.

The work carried out by Ponciano S.Intal Jr. and Luis Osman Ranit (2001) highlighted that a fragmented agricultural economy has important negative welfare effects on the country. First, as the Congressional Commission on Agricultural Modernization (Congress of the Philippines, 1997, p.72) noted, “marketing inefficiencies result in farmers’ getting low prices for their produce and consumers’ paying more than the fair price” Second, unexpected large harvests leave farmers with much lower farm prices in a fragmented economy than in a well-functioning distribution system. Third, unexpected demand surges end up in increased imports rather than increased sales by domestic farmers. Fourth, an inefficient distribution system leads to additional pressure for agriculture protection in order for the domestic producers to be able to compete with imports in greater Manila, the country’s largest net deficit food market. And finally, the resulting high food prices lead to demands for higher wages.
Ravi (1975) examined the marketing of coconut and copra in Arasikere and Tiptur regulated markets of Karnataka. He reported that 66.20 per cent of the producers disposed their produce through village merchants, 16.20 per cent through commission agents, 6.8 per cent directly to wholesalers in village mandies and remaining 10.8 per cent of the produce sold through more than one channel.

This chapter has covered a review of relevant literature regarding the problems and prospects of marketing of coconuts. This chapter began with reviews of the Empirical studies on problems and prospects of cultivating and marketing coconut. This chapter dealt with the studies carried out by the researchers in the world as well as in India pertaining to coconut marketing problems faced by the farmers. This chapter also identified that price and storage related issues involved in the coconut marketing.