CHAPTER - 1

INTRODUCTION

1.1 The Concept of the Study

Agriculture is the oldest and most important avocation of the world. The human society is dependent upon agriculture for its food, clothing and shelter. At certain stages of human development it used to be the only known means of living. Even today in the highly developed industrial countries, agriculture plays a major role as the supplier of raw materials for industries and commerce apart from its basic role in supplying food, clothing and shelter. Therefore the welfare of a state to a large extent is dependent upon the prosperity of its agriculture. Agriculture is the major sector of economic activity. It provides not only food and raw materials but also employment to a very large proportion of population. Agriculture is the source of livelihood for more than two third of our population. It remains the back bone of our economy.

Agriculture is the corner stone of development. Indian agriculture is known for its multi-functions of providing employment, lively hood, food, nutritional and ecological securities.

In a country like India, where more than 80 percent of the population living in rural areas and more than two third of our population dependent on agriculture and allied sector, the need for rural base industries – especially agro based should be more emphasized. Agro-based industries in our countryside hold great promise to bring about substantial improvement in the quality of life of rural people. With continuous increase in labour force in rural areas and declining employment opportunities in agriculture, these industries will play an increasingly important role in income and employment generation in the coming decades. There should, therefore be a proper integration and coordination
between agriculture and industry to ensure intensive and extensive development of agriculture, thereby creating additional employment for the rural population.

The growth of agro-based industries helps in raising the standard of living of the rural population by providing them more income, consumer goods at cheaper rates and social economic overheads. An expanding agriculture sector increases the demand for non-farm inputs like fertilizers, agricultural machinery, and implements manufactured in the non-agricultural sector. The stimulus received by the industrial sector in turn increases the demand for wage, goods and raw materials which help to expand agriculture employment and income.

This is in turn creates market demand for consumer goods of industrial origin by providing a future stimulus to industrialization and development of market. The tertiary sector also expand with the development of trade and commerce. In addition to production of food articles, agriculture is the main supplier of raw materials to industries. The significance of this role depends on the importance of agro-based industries in the total industrial sector. It may be recalled that industrialization in India started with the setting up of factories for processing of agriculture commodities or manufacturing industries whose raw materials were produced on farms. There has been significant diversification of agriculture and the agro-based industries in number and expanded their production during the last few decades.

Agriculture transformation through creation of forward and backward linkages with industry is a recently emerged phenomenon. Our farmers' efforts in using Green Revolution technologies are strengthening our food and income security. While a part of the surplus production is stored in our buffer stocks,
the remaining portion is yet to attract the value addition chain - the key for agricultural growth.

The term agro based industries implies proximity and affinity between agriculture and industry. Generally agrobased industries may be divided into two groups – input based and output based. Input based industries may be defined as those industries whose products serve as inputs to the agricultural sector.

**Agro based industries are industries which:**

1. Lead to better processing and conversion of agricultural commodities.
2. Increase agriculture production.
3. Ensure high returns to the value added products.

**Agro based industries can be divided into two categories:**

1. Capital Intensive Processing Industries and
2. Labour Intensive Processing Industries

In the case of Capital Intensive Processing Industries the capital involved will be larger. Hence the persons employed will require some amount of technical training of knowledge. The processing industries that use agriculture products as its raw-materials are Rice Processing Mills, Sugar Industries, Oil seed industries, cotton industries, Tobacco industries, Fruits and Vegetable processing units. Among agro-industries, rice processing industry is the biggest industry in India because India is the largest producer of rice next only to China.

**1.2 Significance of the Study**

Among agro-industries, rice processing industry is the biggest industry in India. Rice is one of the important agricultural commodities in the world. It is obtained by processing paddy. More than 50 percent of the worlds population
consumes rice as their main food. But it is significant to note that world trade in rice is less than five percent of the total production. In India food grain production has increased almost four times since independence. In Kerala, rice is the staple food. Rice processing industry is one of the traditional industries in Kerala. The present study enquires about the growth and development of rice trading. It is to be noted that the growth and development of rice trading will lead to solve the problems of unemployment to a greater extend. The present study is proposed to chart out the role that can be played by rice mills in Kerala.

The study also analyses different aspects such as declining of economic activity due to paddy field conversion, change in cropping pattern that resulted declining of area as well as production of rice. In Kerala, the production of rice is deteriorating every year, this creates widening the supply gap in food grains. The decline of rice production created irreversible threat on Kerala’s food security. The importance of rice processing get enhanced because of the following factors.

These processing units can very well effectively utilize the raw material of local cultivation.

These industries facilitate to change the traditional method of processing to sophisticated technology by establishing rice mills in the modern lines. These industries will help the growth of entrepreneurship in rural areas and it will help to generate employment and provide job for rural workers.

These industries can make the village life more livable by providing basic amenities.

These industries in the rural level can very well absorb surplus labour force which is a common phenomenon with agriculture employment.
These industries can very well avoid the exploitation of middle men in the rice trade as they can directly purchase raw material from the farmers in the village level.

The modernization of rice mill are capital intensive the government can provide more fund to the village enterprises to convert their traditional mills to modern lines.

As these industries are started on modern lines they can export their products to foreign countries and can earn foreign exchange.

These industries can foster self confidence and to encourage qualities of leadership, initiative and enterprise among the rural youth.

Paddy processing industry is one of the traditional industries in Kerala. Earlier paddy processing was considered as a house hold business. As time passed, with the increase in production and productivity of paddy, rice mills on modern lines began to flourish. Paddy production is highly concentrated in the districts of Palakkad and Alappuzha Districts in Kerala. These two areas are known as the ‘rice bowls’ of Kerala. The increase in output of paddy in these two districts, there happened progressive growth in the establishment of rice mills in Ernakulam District. It is highly significant to note that out of 120 modern Rice Mills in Kerala, 80 are located in Ernakulam Dist. This is about 67 percent of the total modern rice mills in the state. Out of this 80 modern rice mills in Ernakulam District 52 modern rice mills are located in and around Kalady. This resulted a cluster development of rice mills in Kalady.
1.3 Theoretical Frame Work

The growth pattern of the rice mills in Kerala and its conglomeration in and around Kalady in Ernakulam District can be essentially viewed from the angle of some well established and accepted logical theoretical derivations. The staunch champion and father of Economics – Adam Smith – in his earlier writings put a strong plea for the development of the specialization and division of labour so as to increase production. Though this can be interpreted as a statement which is having a generality, when one peep into prose and corns of the statement one can understand that it has its own relevance in the expansion of individual sectors. Hence the views of Smith can be followed from the point of view of the reason for specialization and conglomeration. David Ricardo, one of the veterans in the classical trio-launched his Comparative Advantage Theory which essentially stated the production and transfer of items in which a country posses comparative advantage. When this view is transplanted into the spectrum of the industrial clusterings viz rice mill cluster one can very well substantiate that the very existence of this clusters can be some how or other related to the comparative advantages emerged from clustering. The neo classical stalwart Alfred Marshall demonstrated the essential nature of the then prevailed small and tiny industrial units and their relative growth by absorbing its comparative advantage which essentially resulted from conglomeration of these units. He pin-pointed the basic fact that of higher efficiency meeted out by these firms. This view may be practically labelled as a forerunner of modern theories on clustering, so the essential nature of functioning of rice mill industry possibly linked towards this theoretical view point.

Modern theoretical development relating to the clustering aspects of industries are primarily due to the work of Porter (1998). Porter had improved
upon the earlier writings of Smith and Ricardo and devised a special theoretical logic especially labelled as Diamond Theory. Porter shifted the scheme of analysis to specific industries and pinpointed the benefits derived from product differentiation, competitiveness, technological development, economics of scale and the relative size of the market.

The crucial factors which shaped the diamond theory are (1) The firm strategy, (2) structure and rivalry (3) Conditions of factor supply (4) The structure of demand conditions (5) Supporting Industries (6) Competition that can be emerged within the industry.

In addition to these major aspects government policy and chance variables influence the above determinants. So the above six factors altogether influence the proper shaping of the structure of the conglomeration. These aspects exert its relative influence upon the conglomeration depending upon the size and structure of the conglomeration.

The diamond theory outlined above encompasses the following special features.

1. The inter related group of firms and institutions in a particular field of activity in a particular area.

2. Value creation and addition

3. Firm strategy structure and rivalry factor conditions and demand conditions of related and supporting industries.

Basing Porters diamond theory a novel attempt is done, so as to elicitate the nature and process of the factors governing and influencing the conglomeration of rice mills in Ernakulam District in and around Kalady – the granary of rice mills.
1.4 Statement of the Problem

The present study focuses mainly on the various relevant aspects of the main agro processing industry i.e. Rice Processing in Kerala. Paddy is a main crop in Kerala. Kerala has succeeded in developing a very good rice processing and packaging infrastructure to bring about stew of rice brands in to the market. But the production of rice deteriorated from year to year in Kerala. The rice mills in the state are concentrated mainly in and around Kalady. The study aims to analyse the factors that lead to the clustering of rice mills in and around Kalady. The present study also proposes to analyse the financial performance of rice mills in and around Kalady.

Since rice is a major crop of Kerala and the majority of farmers in the state are rice farmers, the prosperity of the people of Kerala is based on the performance of the rice crop and hence Kerala’s economy is largely rice based. The study also aims to go through the decline in paddy cultivation in Kerala. The declining trend in paddy cultivation has resulted a significant lowering of total rice production in the state thus widening the self sufficiency, of predominantly rice eating population of Kerala. The present annual production is nearly 1/6 of the estimated requirement of rice in Kerala. The reasons for the wide gap between the demand and the actual production also need special attention from policy makers.

1.5 Conceptual Frame Work

To have an unambiguous theoretical explanations and logical conclusions the present study utilized some terms and concepts. The utilization of concepts and terms in this study are essentially related to the actual theoretical derivations,
but some conceptualisation are made in the usage so as to have a better clarity to the explanation of facts. For the attainment of the general and specific objectives outlined in the study the following terms and concepts are used.

**Clustering**

A cluster can be defined as a group of firms engaged in a particular product market in a particular location.

"A Cluster can be defined as a group of firms engaged in a particular product market in a particular location." (Porter 1998).

"A Group of producers making similar things in close vicinity to each other". (Schumitz 1995).

"Cluster is an industrial district, ie a core of more or less equal small enterprises bound in a complex web of competition and co-operation. (Piore and Sabel 1984).

**Rice Mill**

Paddy and Milling was a traditional business in Kerala. Decades back each family was having its own paddy for their requirements and boil it and mill traditionally. Slowly the system changed and people preferred to purchase rice due to convenience and milling is done by most sophisticated rice mills known as modern rice mills.

**Conglomeration**

This is the physical presence of a system of activity concentrating in a particular space having more or less homogeneous features, acting with a mission of physical output orientation.
**Agro Based Industry**

Agro Based Industries which depend on agriculture for the supply of raw materials. This is effect of forward linkage.

**Agro-processing Industry**

Processing of farm products to consumer commodities and in the process reduces wastage, increases shelf-life which resulting in value addition and higher income transfer to the farmers. The most prominent activity in food grains processing is primarily milling of paddy.

**Financial Performance**

Profitability is best regarded as earnings generated in relation to the resources invested in a firms activities.

In the theory of the firm, and also in business practice, the economics of a firm can be looked from two points of view, the static and the dynamic. In the theory of the firm the static aspect is reflected in the value of the firm, and the dynamic aspect is reflected in the charges of this value during a period. In business practice, the financial performance means the financial standing and dynamic aspect means the annual performance. The balance sheet reflect the financial standing and the income statement for evaluating the performance of the firm.

**Capacity**

The ability of an industry to produce with present resources and facilities which it commands is called the capacity of an industry. The capacity levels are maximum or theoretical capacity, practical or operating capacity, actual capacity, idle capacity etc.
Marketing Strategy

It is the strategy adopted either by a producer or a distributor to supply goods and services to the ultimate users by way of different channels of distribution.

Ratio Analysis

Meaning of Ratio: A ratio is a mathematical relationship between two related items expressed in quantitative form. When this definition of ratio is explained with reference to the items shown in financial statements, it is called 'accounting ratio'. An accounting ratio is defined as quantitative relationship between two or more items of the financial statements connected with each other. This quantitative relationship may be expressed in the following ways.

(a) In proportion. In this form the amounts of the two items are being expressed in a Common denominator. For eg. The relationship between current assets and current liabilities as 2:1.

(b) In Ratio or Times or Co-efficient: In this form, a quotient obtained by dividing one items by another items is taken as unit of expression. The example of this form is sales divided by stock. When ratio is expressed in this form it is called as “turnover” and is written in times.

(c) In percentage: In this form, a quotient obtained by dividing one item by another is multiplied by one hundred and it becomes the ‘percentage’ form of expression. The relation between gross profit and sales may be expressed as 25%.

Significance of Ratio Analysis

I. The business facts shown in financial statements, do not carry any importance individually. Their importance lies in the fact that they are inter-
related. Hence there is need for establishing relationship between various but related items, if any correct and accurate conclusion is to be drawn by their use.

II. Ratio - Ratio analysis as a tool for the interpretation of financial statements is also significant because ratios help the analyst to have a deep peep into the data given in statements. Figure in their absolute forms shown in financial statements are neither significant nor able to be compared.

Classification of Ratios

Significant structural ratios may be classified on the basis from where the statements are derived and on this basis ratios are classified as Statement based Ratios. 1. Balance sheet ratios 2. Profit and Loss Ratios 3. Combined Ratios.

Balance Sheet ratios are called as financial ratios. They are

(1) Liquidity Ratio (2) Current Ratio (3) Stock Ratio
(4) Proprietor Ratio (5) Capital - Gearing ratio.

II. Profit & Loss Ratios (1) Gross Profit Ratios (2) Net Profit Ratios (3) Operating Ratios

(III) Balance sheet and profit and loss ratios (Combined Ratios) (a) Return of Capital Employed 2) Return on Share Holders Fund 3) Stock Turn over Ratios.4) Working capital Turnover Ratio’s (5)Current Assets Turnover Ratio (6) Total Assets Turnover Ratios .

(B) Classification by user

This classification is based on the parties who are interested in making the use of these ratios. This classification include.
(a) **Ratios for management:** These are also known as Management Efficiency Ratios. They are

(1) Operating Ratios (2) Return on Capital Employed, Stock Turnover Ratios. Debtors Turnover Ratios etc.

(2) Ratios for creditors, Current Ratios, Solving Ratios, Creditors Turnover Ratio, Fixed Assets Turnover Ratios etc.

(3) Ratios for Share Holders
Return shareholders funds, Capital Gearing Ratios, Dividend Cover Ratios Yield Ratio’s etc.

**Ratio** is a number expressed in terms of another number ie, the relation between numerator and denominator. For the above purpose ratios are classified into (1) Market Based Ratios (2) Firm Ratios (3) Combined Ratios (4) Pure Market Ratios. There is a long gradation of developing and using financial ratios both in practice and in the literature of financial statement analysis.

**1.6 Social Relevance of the Study:**

Rice is the staple food of Kerala. It is the major crop of Kerala and majority of farmers in the state are rice farmers. The prosperity of the people of Kerala is rice based on the performance of the rice crop and hence Kerala’s economy is rice based. The area and production of rice which was steadily increasing till mid seventies succumb to economic pressure emanating from other remunerative crops like coconut, rubber, banana etc. There is a decline of more than 5 lakh hectares of area under paddy cultivation during the last two decades. This increased the gap between the demand and supply of the main food of Kerala. Now the
production of rice is less than 15% of the total requirement of food grains. The other valuable services provided by the paddy fields should also be considered.

In order to increase the production and cultivation of rice in the state, it is necessary to bring a legislation protecting paddy fields in lines with the Conservation and Protection of Forest Act passed by the Central Government and it should be included in the IXth Schedule of the Constitution of India, otherwise within a short span of time the remaining paddy fields will also disappear causing serious food shortage in the years to come.

Since agriculture is the major source of economic activity in the world, the human society is depending upon agriculture for its basic requirements. Apart from this it also supplies raw material to the agro based industries. In India alone more than 80 percent of the population depend on agriculture and allied activities. Among the agro based industries- food processing industry is the largest in terms of production, consumption, export and growth prospective. Moreover the huge population base of 1.08 billion, growing at an average of 1.6 percent per annum provides large and growing domestic market for the food products. Rice and rice products have the very bright scope for value addition and value creation.

In Kerala, rice processing industries have very bright future for expansion. Rice processing industries in the state of Kerala has enormous significance as there is wide gap between the demand and supply of rice - the staple food of Kerala. This bring a great social relevance to the present study.

1.7 Research Design
1.7.1 Research Issues
The basic research issues/questions of this study are enlisted below.

1. What are the real causes for the deceleration of rice production in Kerala?
2. What are the locational factors that influence the conglomeration of rice mill in around Kalady.

3. To what extent the rice mills in and around Kalady satisfies Porter’s diamond model of clustering?

4. What is the financial performance of this agro processing units – rice mills in Kalady?

1.8 General Objectives

The overall objectives of the present study is to provide a thorough enquiry into the growth and progress of rice mill business in and around Kalady. The study also aims to analyse the specific problems faced by the rice mill business in Kerala generally and rice mill units in Kalady specifically. In more precise terms, the following are the specific objectives of the present investigation.

The specific objectives of the study are:

1.8.1. To evaluate the deceleration in rice production due the negative impact of the cropping pattern in Kerala.

1.8.2. To enquire into the factors contributed to the conglomeration of modern rice mill in and around Kalady ie. to isolate the locational components in the growth of modern rice mills in Kalady.

1.8.3. To address the case of rice milling cluster in terms of Porters Diamond Model of clustering.

1.8.4. To evaluate the financial performance of modern rice mill business in and around Kalady.

1.9 Hypotheses

1.9.1. The deceleration in production of rice is due to negative change in cropping pattern effect in the state of Kerala.
1.9.2. There is a positive relation between entrepreneurial growth and availability of pure water resulted in the clustering of rice mills in Kalady.

1.9.3 Technical progress bears a positive influence on sales.

1.9.4 Technically progressed mills have lesser debt-equity ratio.

1.9.5. The capital and long term borrowing are effectively invested in fixed assets and working capital (Current Assets) of the rice mill business.

1.10 Methodology

The study is an empirical one, based mainly on primary data. The data required for the study are collected from both published and unpublished data. Primary data is used for collecting primary level information. In addition to this surveys, interviews and discussions among the workers and traders of rice, and the owners of rice mills are also done. Secondary data were obtained from the published sources.

Details regarding production, Marketing, financial position etc. were collected from the Audited Accounts and Balance Sheets for a period of five years (2000-01 to 2004-05).

The study also makes an analysis of the deceleration of rice production in Kerala, its impact on the main foodprocessing industry of Kerala ie. rice processing mills. The present study on declining of rice production of Kerala pertains to the period form 1974-75 to 2003-04. The data on area, production and yield of rice are collected from the various publicaitons of the Government of Kerala.

1.10.1 Selection of Respondents

For the purpose of conducting the present study the following methodological device is employed for sample section. Out of a total of 120
Modern Rice mills in the state of Kerala 80 of them are located in Ernakulam district. Out of 80 rice mills located in Ernakulam district 52 are in Kalady and surrounding areas. The total number of rice mills in the research site are listed. This denotes the total number (universe) of the units. In the case of rice mills in Ernakulam district numbered 80 units are considered. Giving proportional weight to each strata, the sample number 42 were taken for the study. (35% in the state, 52.5% in Ernakulam District).

20 modern rice mills are selected as samples for analysing financial performance on the basis of market surveys based on printed questionnaires. These rice mills together contribute 30 percent of the total market share of branded rice. The number of modern rice mills selected for financial performance analysis is 20 which is equal to 17% in the state and 25% in Ernakulam District.

1.10.2 Techniques Applied

Statistical tools like trend analysis, linear regression, annual average growth rates, Correlation proportion test, Z test etc. have been applied for arriving at the conclusions. In addition to the above mentioned statistical tools, Management accounting tools like Ratio analysis and Cash flow Analysis etc are used for analyzing the data. Simple mathematical tools like percentages, averages, trend projection method are also used for the analysis of the data.

1.10.3 Data Sources

The materials for the study have been collected from various sources namely primary and secondary.
1.10.4.1 Primary data

The primary data for the study are collected from merchants associations, Kalady Rice Millers Consortium (KRMC) Rice mill owners Associations, field survey among rice mill owners etc. Employees and Trade Union leaders related to the rice mills were also interviewed.

1.10.4.2 Secondary Data

The secondary data used for the study are collected from the following sources.


2. Data Book on Agriculture Published by the State Planning Board, Government of Kerala.

3. Annual Audited Accounts of Rice mills selected as sample units.


5. Statistical statements relating to the production, area of cultivation etc. from various Krishi Bhavans in the State and other publishing agencies and individual researchers.

6. Various Journals, Articles, Reports Published by Central Government.

7. Land Resources of Kerala State, published by Kerala State, Land use Board, Thiruvananthapuram.

8. Various Books, Journals, Reports etc. published by Kerala Agricultural University.


1.11 Review of the Earlier Studies

Several studies were conducted with regard to the agro-processing mainly the Rice Mill Industries in Kerala. But some how or other these studies were essentially concentrated on the aspects like the processing of paddy, the impact of mechanisation, and the employee—employer relationship in this sector. So far no comprehensive study is known to have conducted by giving special emphasis to the evaluation of the production, marketing, financial aspects, clustering and capacity utilization aspects of Rice Mill Industries.

According to Jaiswal¹ (1965), the only way to open up a new field of employment and it will ultimately bring prosperity in the rural areas to start large number of properly planned Agro Industries.

Manjumdar² (1966) pointed out that the strategic importance of Agro processing industries started from the fact that backward linkage effect was important for agricultural growth and forward linkage effect provided the base for rural industrialisation.

Pillai³ (1972) in his study revealed that as many agricultural product had a parallel agro industry and showed that the crops like rice, jowar, ground nut, sugar cane, cotton etc. grown in Meerut dist. attracted as many as ten different industries.

Subramani and Potti⁴ (1976), pointed out that the production of food grains, oil seeds, fruits and vegetables, sugarcane would reach 187 MT, 135MT, 16.5MT, 48MT, 171MT respectively in 2000 AD, and hence there was vast opportunities for the industries based on the agricultural products.

Arora⁵ (1978) stated that nearly 2/3 of industry in India was agro based and was dependent on agriculture directly or indirectly. There fore the prosperity of agrobased industries and economic development of the rural sector were closely inter-linked.

Kahalon and Singh⁶ (1979) suggested that the development of agriculture alone did not bring out any significant improvement in productivity and output. So agrobased industries should be developed side by side with agriculture.
Austin (1981) categorised agro industries into three stages on the basis of the degree of processing. He mentioned that higher degree of processing was accompanied by higher capital investment, technological complexity and higher value addition.

Ahluwalia and Rangarajan (1986) estimated that the dependence of the Indian industry on Agriculture was very high and added that growth of the industries was limited by the development of agriculture.

According to Swaminathan (1986), sustainability of rice production system had to be viewed with serious concern along with the sustainability of ecosystem, since other two factors viz. political and economic were highly controversial with arguments for and against. Ecological consideration was the main study, since one has to think about the survival of the future generation.

Srivastava (1989) divided Indian Agro Industry into Manual-mechanical, Mechanical, Chemical signifying higher degree of processing in that order. He observed some movement of agro-industries from mechanical based to chemical based processing and found mechanical-based processing dominates.

Singh and Vyasala (1989) highlighted the fact that there was a high degree of correlation between agriculture and agro based industries and as such, many economics of small scale fall to these industries.

Dixit (1991) stated that a continued economic growth could only be achieved through further value adding in agriculture. This study also mentioned that existing imbalance in the economy with 70 percent of the population being supported by a sector contributing to only 40 percent of the net domestic product, needs to be rectified.

Mohanty (1995) conducted a study on the impact of agro based industries on rural economy in Orissa and found that the agro based industries by raising income levels of the rural workers brought about significant changes
in the standard of living which in term created a potential demand for goods and services. According to Sivayya and Das\(^4\) (1996) modernisation process should start at the base and this can be done only if we set up a chain of micro industries at the village level.

Study of Nair\(^5\) (1997) revealed that in Kerala, paddy fields are undergoing rapid conversion. As per revenue record in 1940, the area under wet paddy land colloquially named as 'Nilaoams' was 5.75 lakh hectares. It shrunk to 3.3 lakh hectares by 1992–93. Out of this, 2.4 lakh hectares was lost for paddy cultivation. 61% was lost for growing annuals and perennial crops, 15% was used for non-agricultural use and 8% still remain as fallow.

Study conducted by Venkatesh, Ramesh and Varada raju\(^6\) (1997) where about drought in Bijapur districts of Karnataka. The results indicated that the district had undergone extreme drought condition due to the conversion of wet land into other cultivation purposes.

From the study of Veeramoni, Balasubramaniyan\(^7\) (1997) they found out that drought in the various places of Tamil Nadu was mainly due to the paddy fielded conversion and modern cultivation practices.

Jaikumaran\(^8\) (1999) opined that conversion of paddy land to other cash crops as well as non-agricultural uses had severally affected paddy land ecosystem, apart from serious set back in rice production. Conversion was to be stopped at any cost for the sustainability of rice production as well as restoration and maintenance of environmental harmony.

Singh and Nema\(^9\) (1999) in their study revealed that agro-processing units operating in the area employed 2713 regular workers and 4739 casual labourers in the mustard oil seed processing while rice and pulses processing units jointly employed annually 2345 regular workers and 3331 casual labourers in this activity.
Ramiah (1937) in his study observed that Rice (*Oryza sativa*) was one of the earliest crops which come under cultivation and it belonged to the great group of plant comprising the family of "GRAMINEAE" in which Wheat, Maize, Cholam, Ragi, Sugarcane and all fodder grasses were included.

Grist (1953) in his book discussed the evolution of rice, the evolution of rice certainly dates to the earliest age of man, and long before the era of which had historical evidence, the rice was probably the staple food and first cultivated crop in Asia.

Choudhary and Ghose (1953) stated that carbonized paddy grains were found in the excavations at Hastinapur (UP) at a site dated between 1000 – 750BC. This was the oldest rice specimen yet known in the world.

Richaria and Govinda Sami (1966) stated that Rice Research in India started only a half century ago in the province of Bengal by Dr. G. P. Hector in 1911 and by Dr. F. R. Parvell in Madras in the year 1912.

Comhaire (1965) in his book revealed that the demographic growth was no compensated for by an improvement of the yield of crops, the nutritional standard was very low and they lived permanently in danger of starvation. He identified the remedy for this was only increasing the area of rice field but also adopting modern and rational methods of cultivation.

Johnson (1969) in his study found that the need for planning for tackling marketing problem, viz. harvesting, transporting and processing became imperative in the situation created by the increased production of paddy.

Muthiah (1972) reported that there was a sharp rise in the production of paddy in South India in the wake of successful implementation of high yielding varieties programme between 1967 – 68 and 1970 – 71.

Sahadevan (1966) analysed the origin of the term and found that the generic name "oryaza" was derived from Arabic "Arruz" (Al-ruz) which has its origin in the Dravidian name "Arsi" of which the Malayalam word "Ari" for rice
was derived. He stated that Rice was predominantly an Asian crop, 60 percent of its production and consumption being confined to the Asian countries.

Gai Kwad and Gupta (1979) in their study stated that paddy-rice system consisted of large number of process and activities and it started from post harvest process such as threshing, scalping, cleaning, separation, drying, parboiling, shelling, polishing, grading, packing, by-product utilization, marketing and to the consumer distribution.

Richaria (1966) identified different varieties of rice in India in a historic perspective. He stated that during the Vedic period their existed 400,000 varieties of rice and he estimated that there were 200,000 varieties are still existed in India. The study high lighted the fact that even if a person were to eat a new variety everyday of the year, he could live for over 500 years without re-using a variety. He further stated that 20,000 varieties of rice were collected and identified in the Chathisgarh area alone.

Randhawa (1980) examined that in later Vedic texts (1000 – 500 BC) there were reference to cultivation of wide range of cereals, vegetables fruits and use of iron implements. More over ploughing the soil, several times in a year, broad casting seed following and using of cow dung as a manure were stated, irrigation practices, operations of raping, threshing and winnowing were also described in the Vedic texts.

De Datta (1981) stated that some people in Indonesia believed that the rice grain had a soul like human being. In Srilanka Astrologers were often consulted and prayers offered before rice was planted.

Swaminathan (1985) stated that during the last 35 years, rice production in India had increased by 300 percent from about 20MT in 1950 to nearly 60MT during 1983 – 84. According to him rice had been cultivating in India for the last 7000 years.
According to Mukherjee\textsuperscript{33} (1985) the study of market development for rice had received very little attention, this was due to production of rice being consistently below the market demand in India. According to him with the innovations of paddy - production technology, rice production exceeded the local demand in certain parts of the country and this necessitated the initiating of studies of market development of rice.

Murthy\textsuperscript{34} (1987) examined the trend in rice production. According to him the rice production was 39.3 million tonnes in 1964 - 65 and it increased to 58.6MT in 1984 – 85. He also stated that productivity increased from 1.07 to 1.46 Tonnes/hectare during the same period.

Kant\textsuperscript{35} (1993) pointed out that the vast biomass that we produced in paddy cultivation is largely under utilized. According to him paddy husk and bran had immense potential for production of energy, edible oil, and several important chemicals with considerable value addition. He stated the need for promotion of modern paddy processing units on a large scale, to boost our processing industry.

Siddique\textsuperscript{36} (1994) examined the reasons for low rice export inspite of its vast potential. He urged that most modern automated rice mills were being set up, technology for making silky rice and colour sorters, automatic removal of red, discoloured and imperfectly polished kernels being introduced increasing number of export housed going for the ISO 9000 certificates innovations in packaging and other market strategies were to be given importance. Anitha\textsuperscript{37} (1995) in the study discussed the decline of rice cultivation in Kerala. The total geographical area of Kerala is 38.9 lakh hectares which is about 1.18 percent of the total geographical area of the country. She identified that the state income during 1993 – 94 was Rs. 18133.44 crores, out of which the share of agriculture was estimated as Rs. 6102.18 crores which was about 33.65 percent. She pointed out that rice cultivation declined because of low profitability and due to small size holdings. The average size of holding was only 0.31/ha/person.
Puntambaker (1994) stated that one job was created for every Rs. 5000/- investment in processing units besides other in allied activities like raw material procurement, transportation, storage packing etc. According to him the capital out put ratio was very much favourable in the case of agro processing units.

Solvent Extractors Association (SEA) (1998) observed that India was facing a shortage edible oil, according to them Rice Bran Oil was the best Source of edible oil, it was a better cooking medium. Now India produces only 82 lakh Tonnes, with a potential to produce over 91 lakh Tonnes per annum. If the huller mills were modernized, the quality of bran can be improved and India can improve the production of rice bran oil also.

Vadivel (1999) stated that in India 100 million paddy was produced annually. About 10 percent (10 million) was used for seed purpose, the balance paddy was processed and consumed as raw or parboiled rice, which was consumed in the country itself, and the international trade of rice was only 6.6 percent of the total world’s production.

Dawe (2000) pointed out that rice was one of the most important crops in terms of economic value and approximately 90 percent of the world rice was grown and consumed in Asia in a belt ranging from Pakistan in the west to Japan in the east.

Singh and Pradmankumar (2002) observed that India had high population pressure on land. The massive increase in population and substantial income growth demand an extra 2.5 million tonnes of food grains annually. They estimated that the demand for food grains in the year 2007 will be at the level of 222 million Tonnes comprising 97 million Tonnes of Rice. Sujit and Sujikumar Mishra (2002) expressed belief that the concept of globalisation and liberalization encouraged the establishment of agro-processing industries in India. According to them the processed or value added rice products had large export potential.
Journal of Tropical Agriculture (2002) examined in Kerala there was a reduction of area under rice from 8.74 lakh ha in 1972–73 to 4.2 lakh ha in 1997–98. They have the opinion that due to various socio-economic constraints a change of bringing more area under rice cultivation was very remote. Hence to achieve the target of increased rice production, it required raising productivity per hectare.

Sekhon, Rangi and Manjeer Kaur (2003) pointed out that the agro-processing industries in India accounted for 19 percent of the total industrial output and provided employment to the extent of 19 percent of the total industrial workforce and accounted for 18 percent of Gross National Product (GNP). According to them among agro-industries, rice processing industry was the biggest industry in India.

Shukla, Sharma, Krishna Murari (2003) in their study stated that rice was grown on 44.90 million hectares representing 33.2 percent of the world rice acreage and 29.2 percent of world rice production. Rice and Rice products earned a foreign exchange to the tune of Rs. 13 billion per annum through export. It also pointed out that the productivity of Indian rice during 1999–2000 was 1950 Kg/ha against world average of 3845 Kg/ha.

Balaramgan (2004) in his study stated that rice reflected our culture and unity. Value addition provides a good market for agricultural products. He argued for sustainable agriculture as production of sufficient food grains for the present as well as future generation without altering the quality of soil.

According to Rice India Journal (2004) ‘Rice is life’ and it was a symbol of cultural identity and global unity. According to them rice shaped the religious observances, festivals, customs, cuisine and celebrations. Rice cultivation was the principle activity and sources of income for about 100 million households in Asia and Africa. They estimated that about four-fifth of the world rice was produced by small scale farmers and was consumed locally.
1.12 Research Gap

Though some studies have already been conducted with regard to the general aspects of agro processing industry on the basis of survey of the available literature and discussion with the rice mill owners and rice traders. It was found that more serious and systematic studies are further needed in the field by analysing the performance of the rice mills in Kerala by concentrating in Ernakulam District. Earlier studies failed to cover different aspects such as the clustering of rice mills, financial performance capacity utilization, deceleration of rice production in Kerala and marketing strategy of the existing rice mill in Kalady cluster. The prospects for the rice – processing industry are growing day by day. No systematic study has been conducted so far regarding the important role of rice mills from the above mentioned lines. The present study is the culmination of a such a felt need and is the first of its kind in the field of agro-processing industry. An earnest and simple attempt is made to fill this research gap.

1.13 Limitations of the Study

Statistics relating to many aspects of the rice mills are scattered and inadequate. The rice mill business is an unorganized sector. At present there is no government owned rice mill is operating in the state. So the data collection is a difficult job. Another limitation is that the study can be carried out from different angles such as from the point of view of owners, consumers, workers, and traders etc., the scope of the present study is limited to the analysis from the point of view of the rice mill owners and workers in and around Kalady. Due to the non-cooperation of respondents and partial disclosure of information by some of the rice mill owners, a census survey of the rice mills could not be carried out. Most of the primary data for the present study have been collected from sample respondents based on sample survey method.
In order to draw more meaningful and accurate inferences regarding the trends and composition of production, sales, marketing strategies etc. of rice mills inside the state, data for a fairly long period is required. The non-availability of reliable data is one of the serious limitation of the present study. This study is subject to the normal errors inherent to such social surveys due to the natural bias in the reporting of data by respondents. Even though utmost care has been taken in verifying the reliability of the data, the possibility of such errors cannot be completely be ruled out. Any other limitations in any part of this study is to be viewed not as arbitrary and deliberate.

1.14 Chapter Scheme

The study is presented in six chapters. The first chapter is introductory chapter explaining the conceptual frame work, statement of the problem importance of the study, theoretical frame work, research gap objectives, hypotheses, scope and coverage analytical frame work and statistical tools, methodology, data sources, review of earlier studies, limitations and the design of the study.

The second chapter deals with the area, production and productivity of rice in India, Kerala and in Ernakulam Dist. Hence an explanation of land use pattern and trends in area and production under paddy cultivation is also attempted. The third chapter presents a historical sketch of the rice mill business in Kerala and Kalady. The fourth chapter deals the history of the clustering of rice mills in an around Kalady and the influence of locational factors that result in the conglomeration of rice mills in Kalady in lines with Porter’s Dimoned Model of Clustering.

The fifth chapter deals about the financial performance and problems of modern rice mills in Kalady.
The sixth chapter presents the Findings and Conclusions of the study and the Suggestions and Recommendations based on the findings of the study. This chapter also presents an enquiry into the possibility of further research in this field.

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