PROBLEMS AND PROSPECTS OF FOOD PROCESSING INDUSTRY IN KERALA

Thesis
Submitted to the
University of Calicut
for the award of the Degree of

DOCTOR OF PHILOSOPHY IN COMMERCE

Under the Faculty of Commerce and Management Studies

By

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Declaration

I hereby declare that this thesis entitled **"Problems and Prospects of Food Processing Industry in Kerala",** submitted to University of Calicut, for the award of Degree of Doctor of Philosophy in Commerce, is a record of the bonafide research work done by me under the supervision and guidance of **Dr. Sr. Rosa K.D.**, Associate Professor (Retd.), Research & PG Department of Commerce, St. Joseph's College, Irinjalakuda, Thrissur and co-guidance of **Dr. Vasanthakumari P.**, Associate Professor, Department of Commerce, N.S.S. College, Ottappalam.

I also declare that this thesis has not been formed the basis for the award of any degree, diploma, associateship, fellowship or any other title of recognition from any university or institution and to the best of my knowledge and belief, it contains no material previously published by any other person, except where due references are made in the text of the thesis.

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The thesis is the outcome of heroriginal work andhas not formed the basis for the award of any degree, diploma, associateship, fellowship or any other similar title and is worth submitting for the award of the Degree of Doctor of Philosophy in Commerce under the Faculty of Commerce and Management Studies, University of Calicut. All the relevant corrections and modifications recommended by the Doctoral Committee during the pre-submission seminar has been incorporated in the thesis.

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Anjana.V.M

List of Abbreviations

AAGR	- Average Annual Growth Rate
AD	- Advertisement
AMUL	- Anand Milk Union Ltd.
APEDA	- Agricultural Products Export Development Authority
ASSOCHAM	- Associated Chamber of Commerce Industries
AV	- Availability
BN	- Brand Name
BRC	- British Retail Consortium
CAGR	- Compound Annual Growth Rate
CH	- Variety of Choice
CRM	- Customer Relationship Management
CSCMP	- Council of Supply Chain Management Professionals
DGCIS	-Directorate General of Commercial Intelligence and Statistics
DIC	- District Industrial Centre
DIPP	- Department of Industrial Policy and Promotion
DIS	- Display
EIA	- Export Inspection Agency
ENT	- Environmental Friendliness
EU	- European Union
EXPGAP	- Expectation Experience Gap
FDI	- Foreign Direct Investment
FIPB	- Foreign Investment Promotion Board

FMCGs	- Fast Moving Consumer Goods
FPI	- Food Processing Industry
FY	- Financial Year
GDP	- Gross Domestic Product
GMO	- Genetically Modified Organism
GMP	- Good Manufacturing Practices
GOI	- Government of India
GST	- Goods & Service Tax
HACCP	- Hazard Analysis Critical Control Points
IC	- Industrial Climate
ISO	- International Organization for Standardization
KINFRA	- Kerala Industrial Infrastructure Development Corporation
MNCs	- Multi National Companies
MOFPI	- Ministry of Food Processing Industry
MOSPI	- Ministry of Statistics and Program Implementation
MPEDA	- Marine Product Export Development Authority
MSME	-Micro Small Medium Enterprises
MT	- Metric Tonne
NDDB	- National Dairy Development Board
NMFP	- National Mission of Food Processing
NT	- Nutrition
OP	- Organic Product
PC	- Price
PC	- Problems related to Working Capital

PEX	- Problems related to Export
PH	- Problems related to Human Resources
PKG	- Package
PM	- Problems related to Marketing
PO	- Promotional Offer
PP	- Problems related to Production
PRAW	- Problems related to Procurement of Raw Materials
QT	- Quality
RoC	-Registrar of Companies
SAT	- Satisfaction
SSIs	- Small Scale Industries
SWOT	- Strength Weakness Opportunities and Treats
TST	- Taste
UHT	- Ultra High Temperature
WWW	- World Wide Web

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ANJANA V. M. “PROBLEMS AND PROSPECTS OF FOOD PROCESSING INDUSTRY IN KERALA”. THESIS. RESEARCH & PG DEPARTMENT OF COMMERCE & MANAGEMENT STUDIES, ST. JOSEPH’S COLLEGE (AUTONOMOUS), IRINJALAKUDA, UNIVERSITY OF CALICUT, 2018.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Food Processing Industry in India is buoyant for huge growth, increasing its contribution to the world food trade every year. The Indian food processing sector has emerged as a high growth sector due to its massive potential for value addition. The Indian food processing industry contributes to around 14 percent of manufacturing Gross Domestic Product (GDP), 13 percent of India's exports and six percent of total industrial investment. The Government of India is making all efforts to encourage investments in the business through the Ministry of Food Processing Industry (MOFPI).

The food processing industry helps to reduce wastages of agricultural raw materials and to improve the value of agricultural products. It also generates employment opportunities and ensures reasonable prices to farmers as well as affordable prices to consumers. Agriculture is the backbone of Indian economy and it plays an important role in the economic development of the country. The prosperity of India depends upon the agricultural prosperity. India is blessed with vast sources of agricultural raw materials and agro-climatic condition, which is suitable for the production of agricultural products. The agricultural products are classified into industrial goods and consumer goods. The raw agricultural products are processed for value addition. The end consumers use the final products only after the agricultural products have passed through different manufacturing processes. These types of agricultural products are known as industrial goods. The consumer goods are used by the consumers in their natural form without any manufacturing processes.

The agricultural production depends upon some natural conditions like suitability of land, soil and climatic conditions. Agricultural productions are seasonal in character and they are perishable in nature. But, the demand for the agricultural products exists throughout the year. Therefore, there is a need to keep the agricultural products throughout the year to meet the demand of the consumers. The marketers or producers need to use cold storage facilities to keep the agricultural products for

transforming them into various finished products through the manufacturing processes. Processing is an effective method to reduce wastages of agricultural products and to keep the products for long term.

There are some problems in the marketing of agricultural products. The quality and quantity of the agricultural products are varying and it depends upon the natural or climatic conditions. It is beyond the control of the producer. Hence, the grading and sorting of agricultural products become very difficult. Price of the agricultural products also shows a fluctuating trend due to the imbalance of demand and supply of the products.

As per the National Accounts Statistics – 2015 of the General Statistical Organisation, the share of agriculture in Indian Gross Domestic Product (GDP) has declined significantly. In 2010-11, the share of agricultural sector in Indian GDP was 15.58 percent and it is decreased to 12 percent and 11.7 percent for the year 2011-12 and 2012-13 respectively. During the year 2013-14, the share of agriculture in India's GDP was 11.8 percent and its corresponding amount was Rupees 1233595 Crores.

India has assorted agro-climatic conditions and sufficient raw material bases in different forms suitable for food processing industry. The food processing industry plays an important role in between agriculture and industry. Agriculture and industry are the two major sectors of the economy and food processing industry connects these two sectors. Both agriculture and industry are regarded as active and co-equal partners in the process of economic development of India.

The Indian food processing industry is a fastest growing sector and ranked fifth in the world. According to the Ministry of Food Processing Industry, "the food processing industry includes the items pertaining to these two processes, viz., (a) Manufactured Processes: If any raw product of agriculture, animal husbandry or fisheries is transformed through a process (involving employees, power, machines or money) in such a way that its original physical properties undergo a change and if the transformed product is edible and has commercial value, then it comes within the domain of Food Processing Industries and (b) Other Value-Added Processes. Hence, if there is significant value addition (increased shelf life, shelled and ready for consumption, etc.), such produce also comes under food processing, even if it does not undergo manufacturing processes" (Annual Report of MOFPI 2013-14).

Indian food processing industry is mainly export oriented. The export of processed food and related commodities has been showing an increasing trend. In 2010-11, the value of export of processed food and related commodities was US $ Million 20427 and it increased to US $ Million 37798 in 2013-14 with the Average Annual Growth Rate (AAGR) of 20.53 percent for five years ending 2013-14 (Annual Report of MOFPI, 2013-14). But during the period 2014-15, the export decreased to US $ Million 36171.96.

Kerala has gained a prominent place in the food industry with tremendous production and export growth. Food processing is a very significant sector of Kerala's industry. The Government of Kerala has accorded "priority status" to the food processing sector, due to its huge potential for development. Kerala has always been in the front position with respect to food processing, being a major exporter of food products. Food processing industry serves two markets - the fast emerging domestic market and a steady-growing export market as stated by P Sathasivam (Governor of Kerala). Kerala Industrial Infrastructure Development Corporation (KINFRA), which is set up under the Act of the State Legislature, has played a pivotal role in boosting the food industry in the country for the past two decades.

The agriculture sector in Kerala has much potential; it is facing many challenges with regard to growth. According to the data from the Directorate of Economics and Statistics (DES), the year-on-year growth rate of agriculture and allied activities were -3.1 percent in 2012-13, -3.8 percent in 2013-14, 0.75 percent in 2014-15, and - 7 percent in 2015-16. Thereafter, the sector witnessed growth of 2.5 percent in 2016-17. The share of Agriculture and allied sectors in total GSVA of the State has also declined from 13.7 percent in 2012-13 to 10.5 percent in 2016-17.

Growth in the food processing sector which uses agricultural products as raw material will give a boost to the agricultural sector which is declining in Kerala. In 2016 -17, Kerala produced 2520340 tonnes milk and milk products, 4430580 tonnes processed fruits and vegetables, 436710 MT grain and cereal products, 468.84 MT meat and poultry products.

People are living in a busy world today and hence they prefer more packaged and processed foods. The rapid urbanization, increasing standard of living, changing life style, changing taste and preferences of consumers are some of the reasons for

preferring packaged food and it opens new opportunities to the food processing sector.

1.2 Significance of the Study

Kerala is a consumer dominating state and has very bright scope for food processing industry. Economic liberalisation, globalisation, and the entry of Multi National Companies (MNCs) in the processed food segment have enormously increased the opportunities as well as the competition in the market. This study would focus on domestic market, keeping in view the fast changing tastes of consumers and their preference towards processed food products. All the Food processing units have to put their efforts to understand the need of each and every customer. This study discusses the problems and prospects related to the food processing companies, consumers' experience and their expectation with an effort to analyse the food processing units in Kerala.

This study intends to find out the problems faced by the food processing units in Kerala. It will in turn provide input for resolving the problems existing in the food processing units. The present study will provide useful information to the policy makers and Government to improve their support for the development of the food processing sector.

1.3 Statement of the Problem

In Kerala, the demand for the processed food products has been increasing day by day. But the local industrial units contribute only a meagre share to the processed food market of the State. The major share of the processed food market is captured by the producers and sellers outside Kerala. Though the Government has introduced various schemes for boosting up the food processing industry in the state, they seem to be inadequate. Though many of the units are running at profit and some others are running at a loss. The present study entitled the 'Problems and Prospects of Food Processing Industry in Kerala' makes an attempt to study the problems faced by the units related to finance, production, procurement, marketing, human resources and export. The study also seeks to examine the impact of these problems on the industrial climate of the food processing industry in Kerala.

The consumers are the ultimate users of processed food products. Consumers are the important factor for the success of each and every business since they represent the basic source of income. Their taste and preference is a major factor in the success of the industry. After the globalization, a large number of processed food products have entered the Indian as well as Kerala food market. Hence, the Kerala based food processing units face a large competition from these national and international companies. The entry of international products into our market has brought a change in the food habits of the consumers. The present study also tries to identify the major factors that affect the consumers in making the purchasing decisions for processed food products, their perception, expectations and their experience as the users of the processed food products.

Hence, the present research work investigates the following major issues.

1. The financial performance of the food processing units functioning in Kerala
2. The various problems faced by the food processing industry and its impact on industrial climate.
3. The factors influencing the consumers' perception regarding processed food products.
4. The extent to which the consumers satisfy their expectation from the processed food products.
5. The future potential of food processing industry, including export possibilities.

1.4 Scope of the Study

The present study aims at an analysis of the financial performance, problems and growth potential of the food processing companies in Kerala. For this purpose, the food processing companies which are registered under Registrar of Companies, Kerala. As per the classification of the Ministry of Food Processing Industry, the food processing industry is divided into meat processing, grain and cereal processing, fruits and vegetable processing, milk and milk processing, marine processing and consumer foods. Samples from these sectors have been selected and analysed for the purpose of the study. The study also focuses on the consumers' expectation and experience towards the processed food products. The export potential of the industry is also studied.

1.5 Objectives of the Study

1. To assess the financial performance of food processing industry in Kerala.

2. To identify the problems faced by the food processing sector in Kerala and its impact on industrial climate.

3. To examine the role of various factors which determine the satisfaction level of the consumers through the expectation and experience of the consumers.

4. To shed light to the future prospects of the food processing industry in Kerala.

1.6 Hypotheses

The following hypotheses have been formulated and tested by applying suitable statistical tools.

Objective 2:

1. $H_{0\ 1}$: The Problems related to procurement of raw material faced by food processing units in Kerala is average.
2. $H_{0\ 2}$: There is no significant difference among the categories of food processing units and the problems in procurement of raw materials faced by the food processing units in Kerala.
3. $H_{0\ 3}$: Factors influencing on the Product Design is at average level
4. $H_{0\ 4}$: Problems related to production faced by the food processing units in Kerala is average.
5. $H_{0\ 5}$: There is no significant difference among the categories of food processing units and the problems in production faced by the food processing units in Kerala.
6. $H_{0\ 6}$: The problems related to raising of the working capital, faced by the food processing units in Kerala is average.
7. $H_{0\ 7}$: There is no significant difference among the categories of food processing units and the problems in raising working capital faced by the food processing units in Kerala.
8. $H_{0\ 8}$: The problems related to marketing of processed food products faced by the food processing units in Kerala is average.

9. $H_{0\ 9}$: There is no significant difference among the categories of food processing units and the problems in marketing faced by the food processing units in Kerala.
10. $H_{0\ 10}$: The problems related to employment faced by the food processing units in Kerala is average.
11. $H_{0\ 11}$: There is no significant difference among the categories of food processing units and the problems in employment faced by the food processing units in Kerala.
12. $H_{0\ 12}$: The problems related to export of food products faced by the food processing units in Kerala is average.
13. $H_{0\ 13}$: There is no significant difference among the categories of food processing units and the problems in export faced by the food processing units in Kerala.
14. H_{014}: The problems related to the procurement of raw materials have an adverse effect on the industrial climate.
15. H_{015}: The problems related to production have an adverse effect on the industrial climate.
16. H_{016}: The problems related to marketing have an adverse effect on the industrial climate.
17. H_{017}: The problems related to the working capital have an adverse effect on the industrial climate.
18. H_{018}: The problems related to human resource have an adverse effect on the industrial climate.
19. H_{019}: The problems related to export have an adverse effect on the industrial climate.

Objective 4:

1. $H_{0\ 20}$: The determinant factors related to the purchase of processed food is perceived at average level.

2. $H_{0\ 21}$: The consumers' expectation regarding the processed food items is average in Kerala.

3. H_{022}: The consumers' experience with regard to the consumption of processed food products is average in Kerala.

4. H_{023}: There is no significant difference between the expectation and experience of consumers with regard to the processed food products.

5. $H_{0\ 24}$: There is no significant gender difference with respect to the product quality, health factors and convenience factors.

6. $H_{0\ 25}$: There is no significant difference between age group and expectation with regard to the product quality, health factors and convenience factors

7. $H_{0\ 26}$: There is no significant difference between the profession and expectation about product quality, health factors and convenience factors.

8. $H_{0\ 27}$: There is no significant difference between the educational qualification and the expectation about the product quality, health factors and convenience factors.

9. $H_{0\ 28}$: There is no relationship between the expectation and experience of consumers regarding the processed food products.

10. H_{029}: The problems perceived by the consumers in terms of nutrition increase the consumers' expectation-experience gap.

11. H_{030}: The problems perceived by the consumers in terms of environmental friendliness increase the consumers' expectation-experience gap.

12. $H_{0\ 31}$: The problems perceived by the consumers in terms of organic product supply increase the consumers' expectation-experience gap.

13. $H_{0\ 32}$: The problems perceived by the consumers in terms of quality increase the consumers' expectation-experience gap.

14. $H_{0\ 33}$: The problems perceived by the consumers in terms of availability increase the consumers' expectation-experience gap.

15. $H_{0\ 34}$: The problems perceived by the consumers in terms of price increase the consumers' expectation experience gap.

16. $H_{0\ 35}$: The problems perceived by the consumers in terms of product packages increase the consumers' expectation-experience gap.

17. $H_{0\ 36}$: The problems perceived by the consumers in terms of advertisements increase the consumers' expectation-experience gap.

18. $H_{0\ 37}$: The problems perceived by the consumers in terms of variety of choice increase the consumers' expectation-experience gap.

19. $H_{0\ 38}$: The problems perceived by the consumers in terms promotional offer increase the consumers' expectation-experience gap.

20. $H_{0\ 39}$: The problems perceived by the consumers in terms of brand name increase the consumers' expectation-experience gap.

21. $H_{0\ 40}$: The problems perceived by the consumers in terms of taste increase the consumers' expectation-experience gap.

22. $H_{0\ 41}$: The problems perceived by the consumers in terms of product display increase the consumers' expectation-experience gap.

23. $H_{0\ 42}$: The expectation-experience gap adversely impact the customer satisfaction.

1.7 Research Methodology

The present study focuses on the problems and prospects of food processing units in Kerala. The study analyses the financial performance and the problems faced by the food processing units in Kerala. It also tries to analyse the consumer expectation and experience with regard to the processed food in Kerala. The present study is quantitative and analytical in nature.

1.7.1 The Period of the Study

The financial data has been collected for the study for a period ranging from 2012 -13 to 2016 -17. The primary data was collected during the period 2015 – 17.

1.7.2 Sources of Data

For the present study both the secondary and primary data have been used.

1. **Secondary Data**

The secondary data have been collected from the websites of the Ministry of Food Processing Industry (MOFPI), National Dairy Development Board (NDDB), Marine Product Export Development Authority (MPEDA), Agricultural and Processed Food Products Export Development Authority (APEDA), Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce and Industry various Research Journals, Dissertations and Theses.

2. Primary Data

Primary data have been collected with the help of two sets of structured questionnaire from the authorities of food processing companies and from the consumers.

1.7.3 Method of Analysis and Variables Used

The present study aims to analyse the problems faced by the food processing sector in Kerala and also to identify the prospects of this industry in the domestic as well as export market. To fulfil these objectives, the following variables are used.

1. Problems faced by the food processing industry
    a. Problems in Procurement of Raw materials
    b. Problems in Production
    c. Problems in Finance
    d. Problems in Marketing
    e. Problems in Human Resource
    f. Problems in Export
2. Prospects of the Food Processing Industry
    a. Demand of the processed food products
    b. Export of the processed food products

The study also evaluates the expectations and experience of consumers with regard to the processed food products. The following variables are used to fulfil this objective.

1. Factors affecting the Consumers' buying Behaviour
2. Consumers' Expectations
3. Consumers' Experience

Scaling technique has been used to convert qualitative data into quantitative data. The Five Point Likert Scale is used in the study as measurement scale.

The study also analyses the performance of the Food Processing Sector.

The main variable used:

The performance of the Food Processing Industry

The variables used for the study are briefly explained below:

1.7.3.1 The Problems of Food Processing Industry

The researcher identified the variables related to the problems of food processing industry by reviewing the literature related to the topic and by discussing with the supervisor and the officials of food processing companies. A total of 53 variables have been identified for the study, which are related to the following six main variables.

i. Procurement of Raw materials

Procurement of raw material is an act of finding and acquiring the raw materials, which are necessary for the production process from external sources.

ii. Production

Production is the method used to transform tangible inputs such as raw materials and intangible inputs like ideas and information in order to make something for consumption.

iii. Finance

Finance is the life blood of each and every business unit. Financing is the task of providing or acquiring the necessary funds required by the business unit for fulfilling its objectives.

iv. Marketing

Marketing is the process of moving goods or services from the producer to the consumer. Marketing is defined by the American Marketing Association (2013) as "the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and the society at large."

v. Human Resources

The human resources are the people who structure the workforce of a business sector.

vi. Export

Export is an international trade whereby goods produced in one country are transported to another country for future sales.

The following are the sub variables used for measuring each variable with regard to the problems of food processing industry.

Table No: 1.1

Variables related to the Problems Faced by the Food Processing Industry and Prospects of the Industry

Sl. No.	Dependent Variable	Independent Variable	
I.	**Problems faced by the Food Processing Industry**		
1.	Procurement of Raw material	1.	Poor Quality
		2.	Shortage in quantity
		3.	Unavailability of credit
		4.	Fluctuating prices
		5.	High transportation cost
		6.	Unfair trade practices
		7.	Intervention of intermediaries
		8.	Long distribution channel
		9.	Tentative nature of suppliers
		10.	Unavailability at the required time
2.	Production	1.	Increase in procurement cost
		2.	Difficulty in procurement of raw materials
		3.	Difficulty in quality control
		4.	Insufficient production capacity due to lack of facilities
		5.	Obsolete technologies for production
		6.	Electric power shortage

		7.	Insufficient labourers
		8.	High customs duties on imported capital goods and intermediary goods
		9.	Absenteeism of labourers
3.	Finance	1.	Difficulty to get loan for working capital
		2.	Difficulty to avail loan at the required time
		3.	High rate of interest
		4.	Rigid rules and regulations
		5.	Insufficient repayment period
		6.	Lengthy process for bank loan
		7.	Difficulty in procuring funds from financial institutions
		8.	Restrictions on fund procurement and settlement
4.	Marketing	1.	Decrease in demand from customers
		2.	Intervention of intermediaries
		3.	Inflow of cheap imported goods into the local market
		4.	Entry of competitors
		5.	No increase in new customers
		6.	High expense for advertisement

		7.	Lack of marketing information
		8.	Lack of storage facility
		9.	Increase in competition
5.	Human Resources	1.	Increase in employee wages
		2.	Difficulty in recruiting efficient employees
		3.	Low rate of worker retention
		4.	Frequent demand for advances
		5.	Increase in absenteeism
		6.	Friction with labour union
		7.	Shortage of skilled workers
6.	Export	1.	Problems in fluctuating currency
		2.	Difficulty in catching export market
		3.	High export duty
		4.	High competition in export market
		5.	Quality Approval issues
		6.	Issue of License
		7.	Complicated export procedures and formalities
		8.	Export policy changes
		9.	Demand of high product standards
II.	**Prospects of the Industry**		
1.	Prospects	1.	Demand of the processed food

			products
		2.	Export

1.7.3.2 Consumer Satisfaction

To study the expectation and experience of consumers' with regard to processed food products, 12 variables have been identified. The expectation regarding the products prompt the consumers to purchase processed food products, when the experience of the customer after consumption is at par with or greater than the expectation before consumption, than there is consumer satisfaction. The variables used for measuring the consumer satisfaction are explained in brief, below:

1. Factors influencing Consumer Behaviour

Throughout the purchasing process, various factors like taste, brand name, price, advertisement, variety of choice etc., may influence the consumer.

2. Consumers' Expectation

Consumers expect some perceived value from the company's product while they make purchases.

3. Consumers' Experience

The consumers' experience means what the consumer experienced from the consumption of the purchased products. If the experience is greater than or superior to the expectation, the consumers become delighted. And if the experience is inferior to the level of expectation, the consumers become unhappy.

The following Table shows the statements used to measure the variables on Consumers' Expectation and Consumers' Experience.

Table No. 1. 2

Variables of Consumer Satisfaction

Sl. No.	Dependent Variable	Independent Variable	
1.	Consumers Expectation	1.	The product should be ready to cook.
		2.	The product should be ready to eat.

		3.	The food processing company should provide nutritious food.
		4.	The product should be tasty.
		5.	There should be variety of choice for food items.
		6.	The product should be environment friendly.
		7.	Consumers are able to choose good quality products.
		8.	Consumers prefer more organic products.
		9.	Consumers need oil free products.
		10.	Consumers prefer fat free products.
		11.	Consumers need more fresh products.
		12.	The products should be free from pesticides.
2.	Consumers Experience	1.	The products are ready to cook.
		2.	The products are ready to eat.
		3.	The food processing companies provide Nutritious food.
		4.	Consumers experience good taste for food items.
		5.	Consumers get variety of choice for food items.
		6.	The products are environment

			friendly.
		7.	Consumers are able to choose good quality products.
		8.	Consumers get more organic products.
		9.	Consumers get oil free products.
		10.	Consumers get fat free products.
		11.	Consumers get more fresh products.
		12.	The food products are pesticide free.
3.	Factors influencing Consumer Behaviour	1.	Nutrition
		2.	Environment Friendliness
		3.	Organic Nature Product
		4.	Quality
		5.	Availability
		6.	Price
		7.	Package of the Product
		8.	Advertisement
		9.	Variety of Choice
		10.	Promotional Offers
		11.	Brand
		12.	Taste
		13.	Good Display of the Product

1.7.3.3 Performance of the Food Processing Industry

The researcher identified the variables related to the performance of the food processing industry by reviewing literature. The following table shows the variables related to the performance of the food processing industry.

Table No 1.3

Variables related to the Performance of the Food Processing Industry

Dependent Variable	Independent Variable	
Performance of the Food Processing Industry	1.	Production
	2.	Export
	3.	Import
	4.	Domestic Consumption
	5.	Gross Profit Ratio
	6.	Operating Profit Ratio
	7.	Net Profit Ratio
	8.	Return on Asset
	9.	Asset Turnover Ratio
	10.	Current Ratio
	11.	Liquid Ratio

1.7.4 The Tools for Data Collection

Questionnaire is used as the fundamental tool for data collection. Two sets of questionnaires have been designed and distributed to two categories of respondents.

The first set of questionnaire has been distributed to the officials of food processing companies in Kerala. The first part of that questionnaire deals with the questions related to the company details and then the questions related to the problems faced by the company. The second part of the questionnaire is broadly divided into the following six sections.

1. Procurement of Raw Materials
2. Production
3. Finance
4. Marketing
5. Human Resources
6. Export

The second questionnaire was distributed to the consumers. The questionnaire starts with the demographic details of the consumers and then proceeds to the questions related to consumer satisfaction regarding the processed food products, which includes the following aspects.

1. Factors influencing the consumers' purchasing pattern.
2. The Consumers' Expectation regarding processed food products; and
3. The Consumers' Experience after the consumption of the processed food products.

1.7.5 Pilot Study

The researcher conducted a pilot study with the questionnaire, for checking the validity and reliability of the instrument. For the pilot study, questionnaires were distributed to 50 food processing units and 128 consumers' and the data was analysed.

A. Reliability Analysis

A widely used measure of reliability, the Cronbach's Alpha, has been used for measuring the reliability of the questionnaire. The Cronbach's Alpha reliability coefficient normally ranges between zero and one. Cronbach's alpha can be written as a function of the number of test items and the average inter-correlation among the items. It is calculated by using the following equation.

$$\alpha = \frac{K\,\overline{C}}{\overline{V} + (K-1)\,\overline{C}}$$

$\overline{C}$ = the average inter item covariance among the items.

K = the number of items

$\overline{V}$ = average variance

The measured variables and their respective alpha values are presented in a Table 1.4.

Table No. 1.4

Reliability Statistics

Sl. No.	**Variables**	**No. of items**	**Alpha Value**
Problems in Food Processing Units			
1.	Procurement of raw materials	10	0.857
2.	Production	9	0.736
3.	Finance	8	0.826
4.	Marketing	9	0.701
5.	Human Resource	7	0.765
6.	Export	9	0.821
Total		**52**	
Consumer Satisfaction			
1.	Consumers Expectation	12	0.818
2.	Consumers Experience	12	0.859
3.	Factors influencing Consumer	13	0.859

	Behaviour		
Total		**24**	

Source: Primary Data

The table shows that all the values of Cronbach alpha are above the standard value 0.7. Hence, it proves that the measurement scales have internal consistency and that the scale is reliable.

B. Validity

1. Construct Validity

It is used to ensure that the 'measure', actually measures what it is intended to measure and no other variables. Using a panel of experts familiar with the construct is a way in which this type of validity can be assured. The expert can examine the items and decide what that specific item is intended to measure.

2. Content Validity

The systematic examination of the survey content to determine whether it covers a representative sample of the behaviour domain to be measured.

1.7.6 Normality Testing

Kolmogorov – Smirnov test was applied to test the normality of data. If the result shows that the 'p value' is less than 0.05, it means that the data is not normal. Here, it is necessary to test Skewness and Kurtosis to see whether the deviation is problematic.

Skewness and Kurtosis values ranges in between $\pm$ 2.58 and $\pm$ 1.96 (Hair, Black et.al, 2006). Here, if the values are in between the range, univariate normality can be assumed. Hence the researcher can do parametric test by assuming normal distribution.

1.7.7 The Sample Design

1.7.7.1 The Universe

The universe of the study consists of six categories of food processing companies in Kerala registered under Registrar of Companies, Kerala. It includes

fruits and vegetables, milk and milk products, meat and poultry, fisheries and sea foods, consumer foods and grain and cereal. The details of the food processing units were collected from the office of the Registrar of Companies (RoC) situated at Ernakulam. The food processing units registered under RoC constitute the universe for the study.

1.7.7.2The Selection of the Sample

a. Selection of the Food Processing Units

In Kerala, there are 249 food processing companies which are registered under the Registrar of Companies (RoC), Kerala. For the purpose of this study, Kerala state is broadly divided into three zones such as the north, the south, and the central. For the present study, one district is selected from each zone, on the basis of the total number of food processing companies existing in each district. The district with the maximum number of units is selected from each zone. Thus, Kozhikode is selected from the North Zone, Ernakulam from the Central Zone and Alappuzha from the South Zone.

The food processing units are divided into six different strata as per the classification of the Ministry of Food Processing Industries. The six categories of the Food Processing industry, classified by the Ministry of Food Processing Industries are, milk and milk products, fisheries and sea food, meat and poultry, fruits and vegetable processing units, grain mills and consumer foods are covered in the present study. All the food processing units in these six categories, from the three selected districts, are included in the sample.

The following table shows the details of food processing companies registered under the Registrar of Companies, Kerala, classified into six categories.

Table 1.5

Food Processing Companies Registered under RoC, Kerala

Districts	Fruits & Vegetable	Meat & Poultry	Milk & Milk Processing	Marine & fish processing	Consumer foods	Grain & Cereal Processing	Total
Kasaragod	-	-	-	1	-	-	1

Kannur	-	1	1	1	4	-	7
Wayanad	1	-	1	-	1	-	3
Kozhikode	9	1	8	1	4	4	27
Malappuram	3	2	3	2	4	-	14
Thrissur	3	-	5	1	11	5	25
Palakkad	2	1	-	-	7	7	17
Ernakulam	9	1	15	22	13	26	86
Pathanamthitta	1	-	1	1	1	-	4
Idukki	1	-	-	-	1	1	3
Alappuzha	1	1	2	20	1	2	27
Kollam	-	-	2	3	8	-	13
Kottayam	-	-	1	1	2	1	5
Trivandrum	3	1	2	3	5	3	17
TOTAL	**33**	**8**	**41**	**56**	**62**	**49**	**249**

Source: Compiled by the researcher from the data from RoC, Kerala

Table 1.4 shows the total number of food processing units registered under RoC, Kerala as 249. Among all the districts in Kerala, Ernakulam has the maximum number of units (86), which constitutes more than 1/3rd of the total units in Kerala.

Another notable feature is that, Ernakulam has the maximum number of units in all categories, except in meat and poultry.

Table No: 1.6

The Number of Food Processing Companies in the Selected Districts

Districts	Fruits & Vegetable	Meat & Poultry	Milk & Milk Processing	Marine & fish processing	Consumer foods	Grain & Cereal Processing	Total
Kozhikode	9	1	8	1	4	4	27
Ernakulam	19	1	15	22	13	26	86
Alappuzha	1	1	2	20	1	2	27
Total	**29**	**3**	**25**	**43**	**18**	**32**	**140**

Source: Compiled by the researcher on the basis of data obtained from RoC, Kerala.

There are 27 registered food processing companies in Kozhikode District, 86 in Ernakulam district and 27 in Alappuzha. The data have been collected from all the 140 food processing companies in the three districts.

b. Selection of Consumers

One objective of the present study is to analyze the consumer satisfaction derived by the people of Kerala from processed food products. Since, the population in Kerala is infinite, Cochran's formula (1997) is used, for calculating the sample size of the consumers. The formula is,

$$n_0 = \frac{z^2 \, p \, q}{e^2}$$

Where,

n_0 = Sample Size

z = Selected critical value of desired confidence level

p = Estimated proportion of an attribute

q = 1 – p

e = The desired level of precision

The population is infinite. Assuming the maximum variability, which is equal to 50 % (p = 0.5) and confidence level 95 %,

$$n_0 = \frac{(1.96)^2 (0.5) (0.5)}{(0.5)^2}$$

$$n_0 = 384.16 = \underline{384}$$

Thus, according to Cochran's formula, the sample size of consumers is 384. Therefore, it is decided to select 128 consumers each from the three districts selected for the study.

420 questionnaires were distributed to the consumers. Data cleaning was done by removing the missing data. Among the 420 questionnaires distributed, 19 unfilled questionnaires were ignored. The data from the duly filled questionnaires were used for the final analysis.

1.7.8 Tools Used for Analysis of Data

The details of tools used for data analysis are given below.

1. Mean and Percentage

Mean is the average which represents the entire data in a sequence by one figure. Percentage is a number or ratio expressed as a fraction of 100.

2. One Sample t Test

It is used to determine whether a sample of observations could have been generated by a process with a specific mean.

3. Paired Sample t Test

It is used to compare two means that are from the same individuals, objects or related units. The purpose of the test is to determine whether there is statistical

evidence that the mean difference between paired observations on a particular outcome is significantly different from zero.

4. Exploratory Factor Analysis

It is used to reduce the variables to a smaller set of summary variables and to explore the underlining theoretical structure of the phenomena.

5. One Way ANOVA

It is used to ascertain whether the difference in the mean values is significant or not, and whether the different samples under study are drawn from the same universe, or from different universes.

6. Independent Sample t Test

It compares the means of two independent groups in order to determine whether there is statistical evidence that the associated population means are significantly different.

7. Correlation

It can show whether and how strongly the pairs of variables are related.

8. Structural Equation Modeling (SEM)

Structural Equation Modeling (SEM) is a methodology for testing a network of the relationship between variables. It tests the hypothesised patterns of directional and non-directional relationships among a set of observed and unobserved variables (MacCallum & Austin, 2000).

1.8 Operational Definition of Terms and Concepts

The following concepts and terms are used in the study.

1. Food Processing

Food processing is a method used to convert the raw agricultural or animal products into a final product for human consumption. Food processing technique includes cleaning, grading, sorting, harvesting and butchering.

2. Food Processing Industry

The food processing industry refers to a group of food processing companies or business organisations.

3. Consumer

Consumer is a person who buys the product for his personal consumption. The consumer is an ultimate user of a product.

4. Consumers' Experience

The actual experience of the consumers which is derived from the use of a product.

5. Consumers' Expectation

Consumers' expectation refers to the total perceived value that the consumers seek from the purchase of products.

6. Consumer Satisfaction

Consumer satisfaction is a measurement used to quantify the degree to which a consumer is happy with a product.

7. Industrial Climate

The problems related to the functional areas of business that affect their operational process.

1.9 Limitations of the Study

1. The present study includes the food items as per the classification of MOFPI. Some other food items such as coffee, tea, oilseeds, sugar, spices and alcohol made from molasses are not included, as these items fall within the purview of other ministries that come under the allocation of business rules for the Central ministries.

2. Due to the unavailability of the financial data, the financial analysis was conducted using the financial data of only one third of the sample of food processing companies under each category.

1.10 Review of Literature

From the literature review, it is found that there are different studies on food processing industry regarding consumer behaviour and financial performance of food processing industry at national and international levels. But, there are only a very few

studies in the area of food processing industry in Kerala and they are mainly in the area of sea food processing and fruits and vegetable processing. The reviews are classified into three categories as follows.

1. Studies on the Food Processing Industry

   This section includes the studies on different areas of food processing like dairies, meat and poultry processing, fisheries, fruits and vegetable processing and consumer food.
2. Studies on the Financial Performance of Food Processing Industries
3. Studies on the Consumer Behaviour.

1.10.1 Studies on Food Processing Industry

Ancy and Raju (2014) have made an overview of the structural changes in the fisheries sector of Kerala. The fisheries sector plays an important role in the development of the economy. It provides more employment opportunities, powerful income and helps to earn foreign exchange. Structural revolution exists in the fisheries sector due to changing quality standards, changing consumption pattern, technological development and emerging marketing forces. The study suggested that a concentrated approach is needed to promote private and public co-operation in establishing an efficient quality infrastructure for improving the seafood export. The study also focuses on financial constraints, which weaken the strategies of fisheries sector and restrict the growth of export from Kerala.

Ancy and Raju (2016) conducted a study to analyse the issues of seafood processing export industry. The study focused on demand side issues and supply side issues. Demand side issues includes quality issues, international standards and regulations, labelling and certification requirements, anti-dumping duty, SPS and codex standards. Supply side issues deal with low productivity, low capacity utilization, low levels of mechanisation, varying quality safety and hygiene, inadequate supply and quality of raw material, access to finance, changing business cycle and Government legislation. The Kruskal Wallis test, a non-parametric test, was applied to analyse the problems faced by the seafood export processing units. The major problem faced by the seafood export industry is the scarcity of raw materials, its inferior quality, delayed supply and unexpected price variations. The second factor

is the labour issues, shortage of trained and professional labourers. The study identified the lack of energy conservation measures, lack of new technology, lack of value added products, competition from branded firms, lack of export orders, lack of market infrastructure, changes in the market trends, lack of quality measures, lack of fund for expansion, high interest rate, changes in the international quality standards, low research and development process, and lack of effective communication skills as the issues faced by the seafood export processing industry.

Ancy and Raju (2016) have conducted a study to explore the details about the export trend, issues and challenges among marine products. The Compound Annual Growth Rate was used to examine the growth trends in marine exports and marine fish production in India and Kerala. From 1960 to 1985, it was a slow modernisation phase due to high demand for prawns from the international market. The second phase is from 1985 to 1997. It was a period of rapid expansion and faced challenges of economic and ecological impact of motorization, ban on monsoon trawling, era of new economic policy with liberalization, privatization and globalization. The third phase from 1997 to 2004, gives more importance to quality of the product. International quality assurance and Hazard Analysis and Critical Control Points (HACCP) had been implemented in this period. The fourth phase (2004 -2014), highlights the issues of antidumping duty on Indian shrimp and the effect of global recession on seafood export processing industry. The study suggested that the seafood processing units should be encouraged for value added production by expanding their capacity and diversifying their activities through foreign collaboration, investments, tie ups in marketing of value added products and importing raw materials for further processing and re-export in the form of value added products.

Athukorala, et al. (2002) observed that as the developed countries have better processing technologies, packaging facilities etc, they are better positioned for export prospects of food processing sector over the developing countries.

Bhattacharya (2013) conducted an empirical study to analyse the prospects and problems of fruits and vegetable processing industry in Assam. The study revealed that the infrastructure, availability of raw material, Government policies and schemes are the major influencing factors for the growth of the industry and lack of finance, poor infrastructure, inadequate post-harvest technology and facility, shortage

of power are the major problems faced by this sector in Assam. The study also suggested that proper training should be given to the entrepreneurs for the betterment of this sector.

Desai (2012) pointed out that the Food Processing Industry plays an important role in establishing the farm sectors formal linkages that result in high income and employment generation while minimizing the wastages.

Dhanabalan (2009) hasconducted a study to estimate the marginal value productivities of various inputs that help to increase the milk production. The study considered green fodder, dry fodder, concentrates, maintenance cost and miscellaneous expenditure as various inputs and concluded that there is a huge scope for increasing milk production by increasing the use of these inputs.

Dhanya (2013) has conducted a study entitled "Status of women employed in seafood pre-processing units of Alappuzha, Kerala". Through this study, the author tried to present the problems of women workers in seafood pre-processing units. The author selected Alappuzha district for the study because of the reason that the major seafood pre-processing units are located in Alappuzha. It is a labour intensive sector where, a large number of women are employed. The author observed that most of the women workers have good experience and excellent skill. It is also noticed that the workers are facing different kinds of work related health problems.

Dulari and Haridas (2014) made a study entitled "The rise of convenience foods - A comparative Study of Private and National Brands in Kochi", which tries to understand the role of private labels in the purchasing behaviour of convenience foods. The convenience foods were categorised into ready to cook and ready to eat products. In that study, stratified sampling method was adopted to select 150 customers as a sample from the three major organised retail outlets in Kochi. The statistical tool ANOVA was applied to analyse the category of employees' relationship with price sensitivity for national and private brands and perception of quality of national and private brands. The result of the analysis revealed that the category of employees had an impact on their sensitivity of price for both national and private brands and there was no effect on the perception of quality of private and national brands.

Gautam (2012) in his article, "Product Strategies and Advertising in Small Firms: A Study of Punjab Units", suggested thatsmall manufacturing units have to update their manufacturing technology to compete in the domestic as well as in the international markets and the industry should realise that there is an urgent need to incorporate diversification plans matching the markets' and customers' demands. The study points out that a majority of the units were not advertising their products. The study suggested that the small scale industry should realise that they are facing competition directly or indirectly from the national and multi-national companies and adopt suitable strategy.

Gopal, et al. (2010) conducted a study on Growth Strategies: A case study of Maharashtra's Sea Food Exporters. The study reveals that Indian Sea Food industry is developing quickly with near double-digit positive levels of growth posted consistently year-on-year, since the beginning of the decade. The growth is being propelled by the decision of the Indian Government to provide a major impetus to Sea Foods Exports. Growth is a cherished cultural value. A growing company is known better and it attracts better management. In industries which are subjected to frequent changes in technologies and external environment, growth is necessary for survival. Globally there are several strategic choices of growth, that can be followed by a firm.

Guleria, et al. (2015)have studied the current scenario of Indian meat industry. The Indian meat processing plants are mainly for export. It shows a healthy growing trend. 2.3 million tonnes meat products were exported from India at the end of tenth five year plan and it has been increased to 6.2 million tonnes in 2013-14. The study emphasizes some factors affecting slow growth of Indian meat industry. They are (1) The lack of a sufficient cold chain infrastructure; (2) Indian consumers' preference to fresh meat rather than frozen meat; and (3) Unhygienic conditions of the slaughterhouses and the meat shops. The study also pointed out the required changes in Indian meat industry such as (1) Setting up of cold storage, (2) Training programmes for workers in meat industry, (3) Need of modernizing the quality control laboratories of the Government sector, and (4) Proper utilization of by-products from meat industry.

Guptha and Mehra (2010) have tried to explore the strategy of Micro-Packs adopted by Fast-moving consumer goods and benefits of micro packs to manufactures

as well as consumers. The company adopts pull and push strategies for enhancing the sale of micro-packs. Micro-packs allow highly expensive brands to be sold at economical price. It provides benefits to the manufacturer for providing products in small quantity. It helps the manufacturer in cutting down the costs of test marketing at the time of the launching of a new product. The micro-packs can increase convenience of trying new product for the customer. The study suggested that the product portfolio of micro-packs should be expanded and its product range should include the items like sugar, rice, pulses, spices, etc.

Guptha and Neelesh (2010) conducted a study to explain some of the major strategies implemented by the soft drink companies in India. The study identified the marketing strategies like market entry strategy, sales and distribution strategy, segmentation strategy, localization strategy, rural focus strategy, sales promotion strategy, trade promotion strategies, pricing strategy and the product line strategy adopted by the two prominent players in the soft drink industry in India.

Jakate and Ganguly (1979) highlighted some of the important issues involved in promoting the marketing of bakery products. It was said that the prices play a significant role in marketing of the bakery products. Consumption pattern depends upon the food habits. It was concluded that publicity work on a planned basis must be done in order to create consumption. The market for bakery products is susceptible to food habits. A market survey must be conducted and the prospects of the products must be assessed before the enterprise is started. It is necessary to study the market segment and obtain full information on various points enabling the entrepreneurs to decide output volume and the pattern of sales. As the bakery products are of perishable nature, the distribution system must be efficient which links the products with the consumers and reduce the spoilage of products. Along with many other important issues, various new products must be developed so as to match the needs of the consumers.

Jose (2004) has conducted a study on economics of food processing industries in Kerala. The study reveals certain evident problems experienced by the food processing industry in Kerala. One of the most important problems faced by the FPI is the procedural difficulty in getting the industrial unit started and operation continued. Preparation of the project report and acquisition of the necessary administrative

sanctions create many procedural and financial strains because of the lack of expertise and also because of the faulty systems. Lack of expertise in the preparation of the project report especially in the case of the small scale units and even some of the medium scale units become effective weapons in the hands of officials to delay sanctions.

Joshi, et al. (2009) haveconducted a study to understand the challenges and strategies of India's dairy exports. They pointed out that, the opening up of economy under the WTO's multilateral trade regime has increasingly exposed the Indian dairy sector to the international markets, which in turn have been distorted by domestic support, prohibitive tariffs and export subsidies in the developed countries and offers a number of challenges both in the production and exports of dairy products from India.

Kadam (2015) has conducted a critical analysis of the problems and prospects of food processing industries in Marathwada Region. The study found that majority of the fruit processing industry in Marathwada region suffer from want of sufficient and easy and concessional bank loans. Another major problem faced by most of the industries is the problem of disposal of food waste products. They are worried about sufficient place for dumping waste products. Since there is no direct marketing for buying products middle men sell raw materials at exorbitant rates to the units. Electricity is another serious problem for fruit processors. Fast technological developments make it necessary for the fruit processors to change their machinery frequently, for which, they have to spend huge amounts very often. The government of Maharashtra is neglecting asceptic Packing Unit under common facility which is highly essential for the fruit processors.

Kamboj (2012) has published an article 'Maggi Noodles: Magic of the 2 Minute Campaign'. The major objectives of the study are to determine the promotional strategies adopted by Maggi Noodles in India and the hurdles faced by Maggi Noodles. The study concludes that good quality cheaper products can be pushed into the market with systematic strategy and network.

Khosla(2012) has conducted a study on production efficiency of the selected agro industries in Punjab. He opined that a high degree of correlation exists between

the output and the joint effect of labourers and capital invested, making it feasible to develop more agro based industries in the Punjab State. The target group of processed food industry is the families having working couples and all those families, which require convenience food at one point of time or the other. With this target group, it has been identified that the foreign countries possess a huge market for the processed foods and India is at an advantage as India is an agriculturally dominant country.

Koshy (2005) in his conference paper 'Prospects and challenges in the agri-business sector in the country with special focus on Kochi', said that, food processing has tremendous potential in the state. However, there is a need for development of a modern, sophisticated food park equipped with most scientific technologies. Infrastructure facilities are the need of the hour for the development of food processing in the state. He also added that high value crops like fruits and vegetables and fresh water and marine water fishes are the sunrise sectors in the state.

Kumar (2013) conducted a study on FDI trends in the food processing sector in India. The study analyses the FDI inflows in Indian food processing industries during the period of 2000-01 to 2011-12. The study pointed out that, the last few years' FDI inflows in the food processing industry were highly fluctuating. The Government of India has been providing transparent and investor friendly climate to the investors, which helped to increase the FDI inflows.

Kumar (2014)conducted a study on the problems and prospects of small business in Dakshina Kannada. The objectives of the study are to examine the problems faced by the small business units and to assess the prospects for the small business entrepreneurs in the present globalized and liberalized economy. The study includes 80 entrepreneurs from Dakshina Kannada on ransom basis. The t Test was used to ascertain the significant difference in the mean of challenges faced by the entrepreneurs on the areas like shortage of skilled labour, electric supply, finance, price fluctuation, license and the impact of Government Policy. The study revealed that the frequent power failure is the major problem which hinders the smooth functioning of the small business units, followed by non-availability of skilled labour, finance, price fluctuation, etc. From the analysis of the impact of liberalization on small business entrepreneurs, 45 percent of the respondents feel that liberalization has

positively influenced their business. As a result of liberalization, new technology and lack of restrictions helped them in the growth of their business.

Kumar and Rani (2011) have conducted a study to analyse the performance of rice mill industry and to find out the problems faced by the agro-industries. The data were collected from 19 rice mill units of Patiala district. Problems in these units have been analysed using weighted average score. The study has pointed out that, the agro based rice mills are facing major problems like non availability of finance, distance from warehouse, dependence on Government policy, large investment in fixed assets, frequent breakdown problems, non-availability of research laboratory for quality control and unfavourable Government policy problem. In addition to that, the study observed some other problems like higher cost of production of agro-based products, increasing loss of perishable products and delay in the delivery of goods. The study suggested that the financial institutions should provide financial assistance to the needy entrepreneurs of agro based industry and the Government must analyse the problems of entrepreneurs of agro based units before launching developmental policy for them.

Malleswari, et al. (2014) discussed the role of food processing training for the rural women because they have less awareness about starting small scale agricultural and allied business and lack of availability of training centres for providing education related to food processing units in rural areas. For the study, 200 respondents were interviewed. The study revealed that the training programmes were helpful in bringing attitudinal changes in the trainees and they were encouraged to take up efforts to start or set up their own companies or units in the food processing sector. Therefore, it helps to change their financial status and improve their standard of living.

Mandeep and Kalyan (2014)conducted a study to analyse the relationship between advertisement, sales and profits. For the purpose of the study, 100 FMCG companies were interviewed. Karl Pearson's Coefficient of Correlation was used to analyse the relationship between advertisement, sales and profits. The test result shows that there is a highly positive correlation between these variables.

Majumdar (2013) reveals that the constraints like non-availability of adequate infrastructural facilities, age-old technology, lack of adequate quality control,

inefficient supply chain, inadequate shortage facility, high inventory cost, and high packaging cost are creating negative environment to the growth of food processing sector. Despite all these problems, this sector has a bright future. Several giant firms have entered in to this sector. It can be mentioned that effective supply chain needs to be develop for the sustained growth of this sector. Brand building through technology up gradation should also be taken into consideration to give a fillip to this sector. There should be quality management, firm adherence to export commitments and acquisition of appropriate negotiation skills.

Michael(2008), in his article, "World Food Crisis - Causes and Consequences", has opined that greater emphasis is to be provided to ensure adequate availability of food grains at affordable prices, especially to the poor section of the society. But, this is a big challenge because of the increasing trend in the World population and the demand for food grains on the one side and the decreasing productivity and production of food grains on the other.

Mugaonkar, et al. (2013) have conducted a study on "Seafood Labelling: Awareness and perception among consumers of organised fish retail outlets in India", which investigates the problems related to seafood labelling. Seafood labelling helps to get better quality, nutritious products to the consumers. The study indicates that the consumers give sufficient importance to seafood labelling while deciding to purchase seafood products. The study suggested that the retailers and processing company need to spread awareness about seafood labelling through proper promotional programmes.

Murthy and Yogesh (2014) have discussed about the challenges and opportunities of food processing units in India. They found that the absence of comprehensive national level policy on the food processing sector, food safety laws and inconsistency in the state and central policies, lack of adequate trained manpower, low price elasticity for the processed food products, need for distribution network and cold chain, development of marketing channels, backward-forward integration from farm to consumers, inadequate infrastructure facilities, development of linkages between industry, lack of applied research, Government and institutions, constraints in raw material production, and lack of competitiveness of Indian food products in the global market are the major challenges for the growth of food processing sector in

India. The study also identified strength and opportunities of Indian food processing sector. There are three aspects such as (1) India has diverse agro-climatic conditions; it has a wide range of raw material base; (2) Rapid urbanization, increased literacy, rising per capita income and increased demand for processed foods leading to new opportunities for the food processing sector; and (3) The availability of cheaper workforce. The study concluded that, to achieve the full growth potential of the food processing sector, it has to identify the current challenges faced by the sector and need to take the proper steps or remedies to remove the bottleneck of the sector.

Nicholass, et al. (2015) have conducted a study entitled "Indian seafood industry strength, weakness, opportunities and threat in the global supply chain", which is an attempt to analyse SWOT faced by Indian seafood trade in the changing global market scenario. The study found that the growth of aquaculture has established fishing industry with a wide variety of species; and the well established export supply chain with good storage, processing and transport infrastructure are the strength of seafood industry. Less number of Environmental Impact Assessment (EIA) approved labs for testing is the major weakness for Indian seafood industry. Establishment cost result in high unit cost of production and price uncertainties result in addition to the cost of storage and delay in shipment. The growth of aquaculture compensating the decline in the sea catch and the widespread international acceptance of Indian quality are the major opportunities for Indian seafood industry. Unsustainable fishing practices and decline in sea catch worldwide are the major threats faced by Indian seafood industry.

Patil and Navadkar (2008) have conducted a study to analyse the export of meat products from India. The study shows a fluctuating trend in the export of meat products.

Prakash and Dinesh (1997) conducted a study on Infrastructural requirements for the development of Agro-processing industries in rural India. In their opinion, lack of market information systems, post-harvest technology and lack of adequate and timely financial support are the major problems faced by the agro-processing industries in rural India.

Raj(2013) has conducted a study"An empirical evaluation of Brand Loyalty among Packaged Milk Users". He suggested that an attractive advertisement in television displays in the main junctions will help the prospective buyers to select a particular brand of packaged milk. He also suggested that the packaged milk producers should carefully gather the expectations and wants of the middle and old aged category of respondents. The common problems faced by the customers should be analysed and necessary remedial measures should be taken especially in the price fluctuation problems, abnormal increase of price and low quality of packaged milk products for establishing a good customer relationship management.

Rajeev (1998) opined that the fruits and vegetable processing industry required less investment in plant and machinery in Kerala as the processing operation was labour intensive. The study reveals that the capital contribution to output is significant and labour is the major significant factor influencing the level of output. The study identified that mobilizing adequate finance for working capital needs, penetration of markets because of brand images built by transnational and big national players, lack of quality control and difficulties in procuring quality fruits and vegetables are the major problems in the fruits and vegetable processing industry in Kerala.

Ramachandran (1988) found that Seafood processing industry in India had emerged as a good foreign exchange earner within a short period of time. The individual processing plants are struggling for existence due to low productivity and loss. Many industrialists had left the field and more and more units are becoming sick year after year. The capacity utilization is far below the break-even level. This is the result of unrestricted entry of the entrepreneurs into the field in the initial stage, attracted by the huge profit margin prevailed at that time for shrimp products. This resulted in severe competition among the processors for raw material and subsequent reduction in the profit margin. The cost of production has shot up without corresponding increase in the export price.

Rangasamy and Dhaka (2007) opined that the cost of collections and chilling by the bulk milk coolers and dairy cooperative societies keeps on rising, due to low milk procurements, which increases the cost of processing and transportation.

Roy (1997) opined that the lower capacity utilization of the agro-based industries was due to the lack of infrastructural facilities such as lack of transportation, storage and technology for post-harvest handling. It revealed that the lack of integrated network between the producer farmer and the processor is an indirect problem of agro-based industries.

Saraswati (2014) has conducted a study entitled "Export potential of food processing industry in India", which analysed the share of food processing industries' studied the total exports of India and the export potential of food processing industries. The study also explains the role of Agricultural and Processed Food Products Export Development Authority (APEDA). The study is mainly based on the secondary data. Annual Growth rate of export of food products has been calculated in this study. The analysis has pointed out the fluctuating trend in the growth rate of food processing industries. To boost the growth, the firms have to increase the share of exports and reduce the instability of export. The APEDA is responsible for the development and promotion of the export of agricultural and processed food products. The APEDA providesfinancial assistance and subsidies to the export processing zones. The study suggested that the industry needs to adopt new technologies to inject greater efficiency, which could provide economies of scale and cost effectiveness.

Sathyan, et al. (2014) conducted a study to understand the socio-economic status and challenges faced by the owners and women workers of shrimp pre-processing units and to access the available facilities at these units located in Alapuzha district in Kerala. The study shows that most of the pre-processing centres lack facilities. The pre-processing centres could not provide the basic amenities like uniform, gloves, masks, hand and foot dip, first aid facility, etc., to the workers. The women workers are highly attractive in this field but they get lesser wage. Most of the peeling shed owners are indebted to financial institutions and they are finding very hard to repay the debt amount. The study suggested four important aspects such as (1) Soft loans or interest free loans should be provided to the pre-processing units for development of infrastructure and quality improvements according to EU standards; (2) To develop cold storage facilities in the pre-processing centres to help them to ensure regular supply of pre-processed materials (3) To take necessary action to make pre-processing jobs more safe and attractive by providing good working environment, ensuring

periodical body checkups, giving attractive wages to employees and improving the skill of the workers through training; and (4) The owners of peeling sheds should be encouraged to use modern technologies to dispose waste because most of the pre-processing centres dump their waste in nearby waste land and water bodies.

Sharma and Garg (2013) have made a study on "Functional Foods: Marketing Health to Modern India", which analyses the impact of urbanisation on the health of Indians. The study was based on secondary data including the Government agencies' consulting reports and company sources. During urbanisation, most of the Indian people give importance to functional food, which means food items are mainly targeted with the value of nutrition, health benefits and disease risk reduction ability. The functional foods include edible oil, confectionary, dairy, bakery and baby food categories. The study shows that there is a tremendous growth opportunity for the functional food companies and for achieving better consumers' acceptance. The marketers should focus on studying the consumers' expectation about the product, judicious product development, effective communication and efficient distribution.

Shassi (1998) explained the scope for the introduction of Total Quality Management (TQM) system in the seafood industries in Kerala. Introduction of the TQM in the seafood industries also helps for the successful implementation and operation of HACCP concepts. However, for this there is need to change the existing autocratic or feudal organisational structure existing in various factories. Quality Circles will help to boost the morale of the employees. These changes can be adopted without any financial commitment to the management.

Shrikant (2006), in his study on export marketing of dairy products, the cost competitiveness of the dairy industry as well as the government policies would determine whether India would increase exports. The study suggested some ways to overcome various problems in marketing of dairy products as this sector needs to improve the productivity of Indian livestock in order to make the products internationally competitive both on price and quality and need to be protected from unfair trade competition.

Sing, et al. (2012) identified that skill, technology, rules and regulations, capital investment and structure of the firm are the major factors which directly or

indirectly affect the Indian food processing industry. The study pointed out that the absence of adequate infrastructure, lack of electricity supply, inadequacy of information and marketing linkages, absence of cold chain system, high cost and low availability of credit, and poor infrastructure for storing the raw material are the major problems for the growth of Indian food processing industry. The study also mentioned the opportunities of Indian food processing industry. They are large crop and material base, opening of global markets, vast domestic market and integration of developments in contemporary technologies.

Singh (2013) conducted a study to analyse the problems perceived in the marketing of organic products by the farmers in Uttarakhand. The purposive random sampling method was used to select the sample of the study. The 72 farm families in the plains and hilly regions of the Uttarakhand were interviewed to identify the problems in marketing of organic products. The statistical tool Chi-square Test has been applied to study the difference in the problems perceived by the organic farmers in the plains and hilly regions. The study includes the problems related with marketing like inadequate local buyers, inadequate transport, high production cost, inadequate storage, lack of faith in the merits of organic products and organic farming, availability of cheaper alternative products, lack of awareness among the consumers about the merits of organic farming and organic products, poor price and non availability of a separate market area for selling organic products. From the analysis, the most important thing in the marketing of organic products among the farmers in the plain regions was high production cost that leads to low profit or no profit and the farmers in hilly region reported the unavailability of an earmarked market place or shop for selling the organic produce.

Singh and Bansal (2013) have made an attempt to evaluate the major problems and prospects of food processing industry in Punjab. For the purpose of the study, small and medium scale organised milk processing units operating in the Co-operative and Private sectors were selected. Factor analysis has been used for the study to simplify a set of data by reducing a large number of measures. The study observed that the milk processing industry is facing several problems like rigid Government regulations, high tax rates, lack of distribution, high initial investment, low product shelf life and unawareness of consumers about the quality of processed food.

Srivastava and Surjan (2013) conducted a study entitled “Micro, Small and Medium Enterprises in India: The Challenges of Technology Adoption”, and it tries to examine Micro, Small and Medium Enterprises’ (MSME) challenges of technology adoption. The study observed that there are five major barriers for technology adoption, which includes cost, lack of skilled manpower, low awareness of the benefits of technology, security and privacy and poor infrastructure. Through innovativeprogrammes, MSME should be enabled to access technology by making it affordable, easy to use and also to increase better communication around those technology solutions.

Sundaram (2013)has conducted a market survey on “Dairies on Expansion Spree”, which pointed out that milk production and per capita availability of milk in India has been increasing day by day. Dairies convert milk into milk powder to meet the demand in the lean season. The study focused on some problems in the dairy sector like lack of finance to invest in improving the cattle yields. Low prices in the international market is a hindrance for exporters and farmers who face fodder shortage, forcing them to use low-quality feed.

Thomas(2012) has published an article “Marketing Paradigms for Rural India”, which discusses the shifting paradigms in marketing. The concept of developmental marketing refers to the efforts of reaching out to the rural customers. It implies the building up of a demand where none exists. The study has pointed out that the ideal route to reach the rural psyche is to understand the culture and sub-cultures, their aspirations and motivations, their needs, power centres and discretionary income.

Tuteja and Singh (2004) conducted a study on employment and income generation through livestock based milk processing units in rural Haryana. The study revealed that the production of milk in Haryana grew at the rate of 4.07 percent per annum during 1980-81 to 2000-01. Therefore, milk processing on commercial scale has great potential in terms of enhancing the income of the farmers by selling milk products in the expanding domestic and international markets. The milk processing units on an average generated employment of 8.40 persons in Gurgaon, and 5.86 persons in Jind district. The factories generated the highest employment of about 14 persons in the former and 11 persons in the latter district. The study highlighted that

marketing of local products faced severe competition from the multinationals. Hence, promotional policies need to focus on the marketing bottlenecks and devise efficient marketing channels through public and private partnership. Special zones can be created in those areas where raw material/milk is easily available. The alternative way could be formation of cooperatives like Amul.

Veena (2006) asserts that entrepreneurship is suitable to women and it is possible to do work when she has free time. Self-employed women have no restrictions and time bound work, which makes it easy for her to manage the responsibilities of work, home and child at a time. Secondly, it is convenient for women to control a small business. This pattern of working in small business suits her dual role. With this, there is a growing realization that, the strength of a country is in the small business. She recommended more case studies in this direction, so that women entrepreneur get more recognition and acceptance. Such studies will help women to solve the problems faced.

Venkaiah (1987) conducted an intensive study of four selected villages covered by four different types of agro-based industries, namely, sugar factory, rice mills, tobacco processing and khandsari sugar factory. Changing pattern of employment, occupations, wages, incomes, migration etc. in the rural areas, because of the setting up of these industries was also studied. It was seen that the employment pattern differed depending upon the nature of agro-based industry. Indirect employment was also looked into. Changes in the cropping pattern consequent upon the setting up of agro-industries resulted in the creation of substantial additional employment in the farmsector. The impact of these industries was significant on the income level of all categories of rural population. The impact of these industries on migration was also very significant. Overall impact of these industries at the micro level and macro level were also studies. It was concluded that all these findings were very useful for planners and policy makers.

Vetrivel and Iyyampillai (2009) in their article have tried to study the problems and prospects of Small Scale Industries (SSIs) in Tamil Nadu. They portrayed the marketing problems, high cost of production, poor supply of labour, high competition and price war, higher taxes, shortage of poor supply, shortage and high cost of raw material, obsolete technology, lack of finance and lack of managerial

expertise as the major problems faced by SSIs in Tamil Nadu. The study suggested that the District Industries Centre (DIC) should conduct awareness programme for small scale units regarding the incentives, assistance and subsidies provided by the State and Central Governments.

Vikram, et al. (2008) have made an attempt to identify the marketing problems of inland fish management in Haryana. The study suggested that the Government should take measures to reduce the cost of inputs and fish feeds, which helps to remove constraints of fish feed and lack of sale countries for fishery inputs.

Wati and Tribhuvan (2015) have made an attempt to study the demand drivers, success, risk factors and value chain associated with the food processing industry with special reference to the fruits and vegetable sector. The article also tried to identify the human resources and skill required at each level of the industry. The study identified the success factors and risk factors of the food processing industry. The success factors are (1) Competitive pricing; (2) Product innovation – packaging, look and feel – especially in snack; and (3) Strong branding. The study includes the risk factors, namely Poor supply chain facilities and cold storage, Continuing preference for fresh food among consumers and Poor yield of crops and milch animals. The study divided the functions or levels into operations (supervisor and floor level), procurement, sales and marketing. Good reporting, documentation skills, excellent communication skill, ability to manage labour issues, ability to handle crisis and ability to take corrective actions in the case of quality issues, knowledge of procedures and sequence of steps or machines skills are required in the operation level. Excellent communication skills to interact with the farmers and to educate them about the produce handling method, processing techniques, ability to coordinate with sales teams, and farmers equally are needed in the procurement level. Ability to gauge the customers' requirement, good communication skill and awareness about the product details are required in the sales and marketing level. The study analyzed the skill gaps in fruits and vegetable sector such as (1) Inadequate documentation skill; (2) Inadequate knowledge of operations resulting in wastage; (3) Lack of interest and knowledge in tracking the productivity and improving the same over a period of time; (4) Inadequate knowledge and ability to educate farmers; (5) Inadequate communication skill; and (6) Inadequate ability to understand changing customer

preferences. The study suggested that the specific skills required in the functions are created through short term or modular or vocational courses.

1.10.2 Studies on the Financial Performance of Food Processing Industry

Mathi and Pandey (2007) and Geetha and Lavanya (2013) have made an attempt to study the financial performance of food processing industry. Reviews of these studies are given below.

Geetha and Lavanya (2013) in their article, "Economic analysis of Dairy farming in Vellalore village in Coimbatore District", have made an attempt to analyse the different cost structures and returns in milk production of dairy enterprises. Hundred dairy farming households were randomly selected for the study. The study identified that the supplement family income was the major motive or reason for starting dairy farming and followed by family occupation, sources of income and easy availability of bank loan. In this study, the cost function was used to analyse the interrelationship between maintenance cost per day and yield of milk per day, which revealed that the quantity of milk produced had a positive impact on the maintenance cost. The study suggested that critical steps will have to be taken to ensure a reasonable price to the producers and to educate the farmers about the latest breeding, feeding and animal management techniques.

Mathi and Pandey (2007) try to estimate the cost benefit ratio of processing units, to identify the problems encountered by the entrepreneurs and to make an outlook of the strength and weakness of Guava processing units. Large availability of raw material, easy availability of labour at low cost, and the wide scope for export of guava products was identified as the strength of guava processing units. The guava processing units have some weaknesses like short shelf life, lack of farmer's awareness about good agricultural practices, inadequate post-harvest management, lack of infrastructural facilities and inadequate finance. The estimation of benefit cost ratio of processing units showed that all the guava processing units get nearly two times the return of investment. It indicates that the guava processing is a profitable business.

1.10.3 Studies on Consumer Behaviour

Ali, et al. (2010) have tried to develop a marketing strategy for a modern food or grocery market based on consumer preferences and behaviour. The study shows that the consumers give more priority to nearby market place, cleanliness, freshness of food products followed by quality, price, packaging, variety and non-seasonal availability. Friedman test was used for analysing the consumers' responses on food purchasing decisions like frequency of purchase, monthly expenditure, preferred market place, preferred market distance and preferences on packaging. The result shows that most of the consumers prefer nearby marketplaces to meet their food consumption requirements.

Amaresha and Dinakar (2012) together made an effort to know the benefits provided by organised retail shops and to understand the factors of motivating the consumers to shift towards organised retail sector from unorganised retail sector. Convenient sampling method has been used to select 25 organised retail shops and 25 unorganised retail shops for the study. Price, ambience, products, service, quality, and CRM are used as parameters for study. Most of the consumers prefer organised retail outlets because of improved quality, service, reasonable price and increased variety of products.

Batra (2014) has conducted a study, titled 'Factors influencing consumer purchase decisions at organized retail stores in New Delhi', to identify the factors affecting consumer preference related to shopping at organised retail store. The factors identified are price, ambience, service, quality, promotions, availability and variety. Product availability and variety of stock is found as the most significant factor in consumer preferences. With the changes in the customers' needs and wants, it becomes the big challenge for retailers to attract customers, persuade them to make purchase and satisfy them. The study proposed that the retailers need to make changes and adopt innovative strategies to attract consumers.

Chakrabarti and Baisya (2007) have conducted a study on the "Purchase motivations and attitude of organic food buyers". It aims to examine the role of major consumer motivation and attitudes for both regular and occasional buyers' in the purchase of organic food. The study revealed that both the regular and occasional buyers are correlated with health motivation, motivation of taste and nutrition while they purchase organic food products. Occasional purchasers attach more importance

to curiosity motivation at the same time regular buyers attach more importance to taste motivation.

Chattopadhyay (2013) in his study, titled 'Consumer shopping behaviour in the new era of retailing: An empirical study on food and grocery and apparel purchase in East India', has focused on the ever changing consumer behavioural patterns while shopping. Simple random method was adopted to collect data from 329 respondents in four state capitals. The result indicated that for food and grocery, the respondents gave greater consideration to the purchase location and the collection of products. The behavioural pattern of the respondents with respect to frequency of visit, preferred group size during shopping and decision maker in choosing a shopping destination revealed a fairly uniform pattern across the state capital.

Deepthi (2014) has made an attempt to find out the expectation, attitude, and satisfaction level of customers towards Ponlait milk products. The study also tries to analyse the role of advertising in selecting Ponlait milk products and indicated that advertisements through TV, radio, newspaper, etc., are playing an important role in promoting the dairy products in India. The study suggested that the company should concentrate on loyalty programmes and reward system in order to retain the existing customers and also increase promotion through hoardings and bill boards to attract rural people.

Fawi, et al. (2013) have studied the milk preferences of consumers and the effect of the marketing mix on the consumers' purchase decision of dairy products. The main objectives of the study were to analyse factors affecting the consumers' purchase decision of dairy products. In this study, stratified sampling procedure has been adopted to select 450 household consumers.Price, promotion, quality and packaging were identified as the factors influencing consumers purchasing behaviour. From the analysis of the data, the study revealed that quality was the most important factor affecting the consumers' purchasing decision followed by price, packaging and promotion. The study suggested that the dairy processors and producers should pay more attention to the promotional activities that create awareness about the nutritional value of different milk types, thus increasing the demand for innovative products and implementing modern marketing concepts that focus on the consumers' needs and wants.

Goyal and Singh (2007) found, rising income, increased urbanization, changing lifestyle, greater willingness to experiment with new products, increase in the number of working women etc. have led to a strong growth in consumption of processed food products.

Gupta (2009) explored the consumer behaviour of food products in India. The study identified variables related to the food purchasing decisions such as cleanliness, lack of pesticides, freshness, good for health, value for money, quality, taste, seasonality, flavour, good display of products, availability, good ambience, colour, shape, advertising, etc. The study revealed that cleanliness of the product, lack of pesticides, freshness and good for health were the most important factors, which affect the consumers while purchasing the food products. The study also found that the number of visits to organised shopping malls has increased and suggested that the local retail shops should improve their personal relationship with the local buyers.

Gupta (2013) has conducted a study to investigate the various factors of brand preference towards beer. It also made an attempt to understand how brand preference and consumption pattern of beer changes across demographic variables. For the purpose of the study, the respondents were selected randomly. The Chi-square test was applied to identify the relationship between demographic variables and factors influencing brand preference of beer. The study revealed that the demographic variables such as marital status, occupation, income, education and age have a significant relationship with the brand preference of beer. The frequency of beer consumption is also significantly influenced by education, marital status, income and age of respondents.

Hysen, et al. (2008) have analysed the consumer behaviour with regard to Dairy products in Kosovo, in South Eastern Europe. It was conducted to identify the effect of variables on consumers' buying behaviour on dairy products. The study pointed out that the consumers' basic criteria while purchasing dairy products are trust, price, quality, brand and packaging. The study identified socio-economic variables including trust, gender, quality, origin and price of products, habits, packaging, brand, and age of consumers. From the analysis, trust and quality of products have strong effect on consumers' purchasing decisions of dairy products.

The study also observed that the packaging, age of consumer, brand, type of shop, and the producer name have no effect on purchase of dairy products.

Ingavale and Thakar (2012) have conducted a study on customer preferences for milk and milk products and analysed the reasons for change in the purchase decision of milk and milk products. The study is in descriptive nature and stratified sampling method was used to select the respondents for the survey. The study revealed that the marketing related factors such as price, quality, availability, advertisement and variety lead to the changes in customers' purchase decision. The result also showed that there is no correlation between demographic variables and the reasons for changing customers' preference for milk and milk products.

Jayanthi (2014) has studied the consumers' buying behaviour and its impact on Deval milk. The purpose of the study was to identify consumers' needs and wants, their buying behaviour, preferences, perceptions and attitude towards dairy products. Stratified random sampling was administered for selecting the sample. The study identified some reasons for purchasing milk such as good flavour, availability, reasonable price, and credit facility by the agent, brand name and advertisement. Price and availability were the most influencing factors in buying decision.

Khamkar (2014) tries to find out the consumption pattern of dairy products by Indian consumers and also tries to know the dairy product mix consumed by Indian customers and the production and availability pattern of milk products. The production or per capita availability of milk in India has shown an increasing trend. The dairy industry has started the innovative strategy of organised retailing, balanced product portfolio, product development and supply chain management. The study focuses on the major reasons for growth of milk production and it has been due to demand side development and supply side promotions, which increases demand for value added products fromthe customers and extensive dairy development programmes.

Khedhkar(2009)conducted a study on the role of packaging in food processing. The study emphasised that the packaging is an essential part of production and physical distribution of food products. It acts as a tool for marketing. The functions of packaging are to preserve, present, protect and dispense the product

packaged to the consumer. Packaging is a medium to communicate between the manufacturer and the consumer. Packaging needs to communicate clearly all the mandatory information about the product to the consumer and it communicates the way to handle the package or the product.

Khushbu and Jain (2013) have conducted a study to analyse the level of customer satisfaction with service quality dimensions and to identify the difference between the customers' expectation and perception in the fast food outlets. The study included SERVQUAL dimensions like tangibility, reliability, responsiveness, assurance and empathy for analysing the customers' expectation and perception towards restaurant chain and fast-food outlets. The result of gap analysis shows that the restaurant chains and fast food outlets are not able to perform the promised services properly. The mean quality gap score of the variable responsiveness shows negative value that means the restaurants should take some necessary action for the betterment of their responsiveness towards the consumers. While analysing the variable 'assurance', the mean quality gap score shows a negative value, which shows that the staff have no enough knowledge and failed to develop trust and confidence among the customers. The mean score of perception and expectation towards empathy shows the highest value, but the mean quality gap score is negative which means there is lack of efforts taken by the employees to understand the needs of customers.

Kumar and Babu (2014) have published an article titled, 'Factors influencing consumer buying behaviour with special reference to Dairy products in Pondicherry State'. The aim of the study was to understand customer satisfaction level and the factors influencing the purchase of dairy products. The study was descriptive in nature. Percentage and weighted average methods were used to analyse the data. The study identified variables like availability, packaging cost, variety, quality, taste, pricing, advertisements and brand image that influence the customers. Quality and brand image were found as the most influencing factors.

Kumari (2012)considered the perception, buying behaviour and satisfaction of the consumers in Indian market and attempted to know the strategies adopted by the marketer to influence the consumers' purchasing behaviour. Simple random sampling technique was used for selecting the sample. The study revealed that online shopping,

celebrity influence, quality oriented outlets, freebies and eco-friendly products are the recent trends in marketing strategies applicable among Indian consumers.

Malik (2012) tried to discuss the parents' perception of the food advertising practices targeted at children. The study identified brand, price, taste and nutrition as the key factors, which they consider while purchasing food for children. The study revealed that there is relationship between family income and the key factors of purchasing. The parents give more importance to the nutritious factor while purchasing food products to their children and they give less importance to the price of the products.

Maruthamuthu, et al. (2006) conducted a study to understand the brand preference and reasons for purchasing Britannia Biscuits by consumers. One hundred and fifty Britannia customers were randomly selected for the study. The study identified brand image, quality, price and availability as the reasons for the purchase of Britannia biscuits. Brand image was the most influencing factor while making the purchase decision. The study revealed that a majority of the respondents came to know about the product through television and there is a significant relationship between media and the purchase decisions of the consumers.

Mburu and Paulos (2010), made an attempt to find out the factors affecting preferences and motives in the selection of in-store food products. For this study, a sample size of 280 respondents was selected with the convenient sampling method. The study found that the taste of food,cleanliness of store and customer services are the major factors affecting preferences and motives in food selection followed by food prices, food smell and food choice to be served. The study also revealed that health, convenience, dangers of food poisoning, affordability, hygiene, variety of food to choose, nutrition, quality, buying purpose and price level are some of the factors on consumers' perception of in-store prepared foods.

Nandi, et al. (2014) in their study, 'Consumer preferences and influencing factors for purchase places of organic food products: An Empirical evidence from South India', has attempted to know about consumers' preferences regarding the purchase place of organic products in Bangalore city. In this study, stratified sampling method has been used to select the consumers and the data were analysed

with descriptive statistics, Kendall's W test, Friedman's test, and seemingly unrelated regression. The result of analysis revealed that most of the consumers preferred supermarkets and hypermarkets to purchase organic food products because of trust and quality of the product. The study also shows that the variables like education, family income, and family size, children in the family, food habit, and employment status are the influencing factors of purchase place of organic food products.

Radam, et al. (2010) have made an attempt to study the consumers' perception and attitude towards safety of beef consumption. Factor analysis is used to analyse the consumers' perception. The study identified major factors influencing consumers' perception like health consciousness, involvement of Government, and beef safety awareness. The study found that the demand and consumption pattern of beef is high. The study suggested some ways to improve the beef market; the Government should take initiative to formulate proper standards, policies and promotion programs for beef safety and should take more efforts of research and development in improving the production technologies and food safety systems for beef.

Rani (2014) gives an idea about the factors influencing consumer behaviour. Cultural, social, personal and psychological factors are influencing the consumers' buying behaviour. Many of these factors cannot be controlled by marketers. The study suggested that the marketers try to understand the impact of these factors and adopt appropriate marketing strategies to attract the customers.

Sheereen (2013) has made an attempt to study the influence of advertisement over purchase decisions of the consumers of bakery products. The study concluded that the attitude of the customers is influenced by advertisements of the bakery products. Consumers prefer television as the basic source of advertisement. The study revealed that age is a determinant of purchase of bakery products. Hence advertisements that have aimed at children and home makers increase the sales of bakery products.

Smitha (2012)has made an attempt to analyse the buying behaviour of people with respect to organised retail outlet, to analyse the factors influencing their behaviour, and to establish the potential of Visakhapatnam for the growth of organised retailing. She suggested that the products like staples are the strong hold of

the unorganised retailers, whereas household cleaning products and packaged food are the much sought after products at organised outlets. She also suggested that there are equal spaces for both organised and unorganised retailers in an emerging city like Visakhapatnam, although the consumers would utilise the service of an unorganised retailer in their neighbourhood for fulfilling their basic needs.

1.10.4 Research Gap

The above authors have dealt with food processing industry in general, or a particular category of food processing and consumer behaviour, but, none of them have made a study on the Food Processing Companies in Kerala, registered under the Registrar of Companies, as per the classification of MOFPI, nor have measured the consumer satisfaction from the gap analysis of the expectation and experience of consumers, regarding the processed food products. Therefore, the present study is an attempt to fill these gaps.

1.11 Chapterisation of Thesis

The study is presented in five chapters. The chapter scheme is as follows:

Chapter 1: Introduction

The introductory chapter deals with the statement of the problem, significance of the study, objectives of the study, hypotheses of the study, operational definition, research methodology, scope, period and limitation of the study.

Chapter 2: The Performance of Food Processing Industry in Kerala

The second chapter gives the details of the performance of food processing industry in India as well as Kerala including export. It also deals with the profitability analysis of the food processing companies in Kerala.

Chapter 3: The Problems Faced by the Food Processing Units in Kerala

The third chapter includes a detailed analysis of problems faced by the food processing units in Kerala. The problem related to procurement, production, finance, export, human resources and marketing activities are studied. It also attempts to make an analysis of the general problems.

Chapter 4: Expectation and Experience of the Consumers and the Future Prospects of the Industry

This chapter includes the analysis of the customers' expectations and experience and their satisfaction levels with regard to processed food products. The prospects of the food processing industry are also given in this chapter.

Chapter 5: Findings, Recommendations and Conclusion

The findings and conclusion are drawn on the basis of the detailed analysis and interpretation of the collected data. Appropriate recommendations are also given, based on the findings.

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CHAPTER 2

THE PERFORMANCE OF THE FOOD PROCESSING INDUSTRY IN KERALA

The present work makes an attempt to study the problems and prospects of food processing industry in Kerala. This chapter aims to evaluate the performance of food processing sector in India as well as Kerala. This chapter includes the production, import and export possibilities of the food processing industry, foreign direct investment inflows in food processing industry and the profitability analysis of the food processing industry in Kerala. This chapter is divided into two parts; the first part deals with the performance of the food processing industry in general and the second part evaluates the financial performance of the food processing industry in Kerala.

A general introduction of the food processing industry in India and Kerala is given in the following pages, as an introduction to the topic.

2.1 The Food Processing Sector in India

India ranks second in terms of the total food production globally. India is the largest producer of milk and dairy products in the world and the second largest producer of seeds, fruits, vegetables and fish products. The perishable fruits and vegetables constituted around 60 per cent of the production and India is the second largest consumer of food items in the world. India has a vast potential to produce and even greater potential to consume.

Hundred Per Cent FDI have been allowed in trading through E-commerce for food products manufactured in India. There are huge opportunities in food processors and food retailers to invest in India. India has huge agricultural produce, large customer base, growing retail market and an organised retail having a very small percentage. India's young population with large disposable income and preference for retail shops, E-commerce and processed food, provide golden opportunities for retailers.

Apart from the retail opportunities, attractive fiscal incentives have been instated by the Central and State Governments. These include capital subsidies, tax rebates, and depreciation benefits as well as reduced customs and excise duties for processed food and machinery. To boost investments in the food processing sector the Government has introduced 42 mega food parks with the investment of 15000 Crore rupees (mofpi). The Government has created cold chain infrastructure to link the farmers to consumers and to create cold chain grid in the entire country. With abundant natural resources and investor friendly policies, India is truly an investment destination for food processing.

The workers from the field of agriculture have moved into the Food Processing units, which have helped the productivity in the food processing field. Better productivity led to better GDP. At present, the food processing industry forms a significant sector in India with its investment and employment. The GDP precipitated from the Indian food processing industry is 14 per cent.

According to Ministry of Food Processing Industry (MOFPI), "Indian food processing industry is one of the largest industry and ranked fifth in terms of production, export, consumption and growth prospects." (MOFPI, 2006).

According to the MOFPI and Government of India, "the food processing industry is classified into milk and milk processing (dairy), fruits and vegetable processing, grain and cereals processing, meat and poultry processing, marine and fish processing and consumer foods including packaged foods, beverages and packaged drinking water".

Make in India programme gave greater priority to the food processing sector. MOFPI has been investing in the infrastructure for promoting the food processing sector. Setting up mega food parks with facilities like water supply, road, electricity,

and processing facility like pulping, dry storage, packaging and logistics are being promoted in strong agricultural areas. The mega food parks provide developed plots and factory outlets to the entrepreneurs for long term, on lease basis.

2.1.1 Employment in the Food Processing Sector

The Food Processing Industry is one of the major employment intensive segments constituting 17.41 per cent of the employment generated in all Registered Factory sector in 2013-14. During the last five years ending 2013-14, the employment in the registered food processing sector has been increasing at an Average Annual Growth Rate of 2.25 per cent. The scenario of overall employment in food processing sector is given below.

Table No: 2.1

Number of Employees Engaged in the Registered Food Processing Units in India

Year	Persons (in Lakh)	Growth (%)
2009 – 10	16.06	2.71
2010 – 11	16.62	3.46
2011 – 12	17.77	6.92
2012 – 13	16.89	-4.94
2013 – 14	17.41	3.08
AAGR		2.25

Source: Annual Survey of Industries, MOSPI

2.2 The Food Processing Sector in Kerala

Food processing is a very substantial part of Kerala's industry. Government of Kerala has given a significant position to the food processing sector due to its huge potential for development. Kerala has always been in the lead with respect to food processing, being a major exporter of food products. Kerala's association with food exports to various foreign countries dates back to 16th century. Therefore, it can be said that Kerala has always been a "leader state" in food processing.

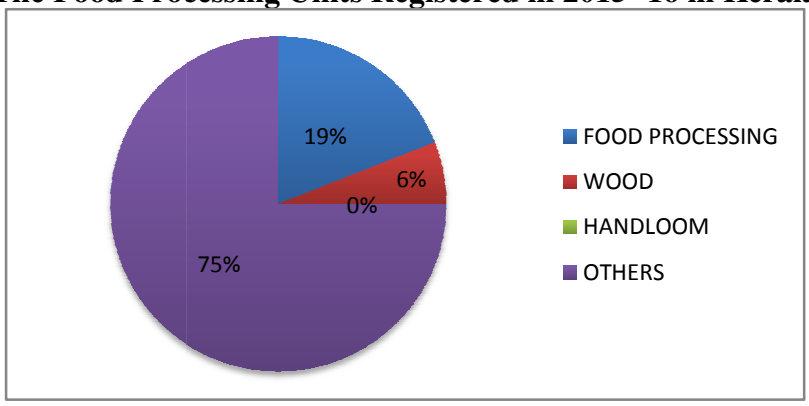
Since the time of the country's independence, products that were exported from Kerala such as cashew, seafood and spices mainly constituted the traditional industrial sector of Kerala. These sectors have over the years evolved into modern food processing sectors. The business has developed to such an extent that, the raw material produced in the state has become insufficient to meet the demand and therefore raw materials are being imported to be processed and the exported.

National Mission on Food Processing (NMFP) is a centrally sponsored scheme introduced by the Ministry of Food Processing Industries, Government of India in the 12th Five Year Plan. The funding pattern is 75 per cent contribution from the center, and 25 per cent contribution from the state. The implementation of the scheme is entrusted to the state through the state food processing missions. Kerala Industrial Infrastructure Development Corporation (KINFRA) is the nodal agency for the state food processing mission in Kerala. As on 31 March 2015 an amount of Rupees 967.18 Lakhs have been received and an amount of Rupees 966.91 Lakhs had been utilized for the implementation of schemes under the National Mission on Food Processing (Source: KINFRA). KINFRA has promoted investments in the State and created investment friendly climate within its Parks, contributing significantly to the State's economy. In this regard, 634 industrial units have been allotted land in the various Industrial Parks of KINFRA with a total committed investment of 1581 crore, providing direct employment to 35898 persons. KINFRA has also successfully implemented a Single Window Clearance system in all the Parks.

Food processing sector in Kerala has always made a significant contribution to food exports. Kerala has been a major exporter of marine products, spices, cashews, coffee, tea and pickles. Two thirds of Kerala's export income comes from processed food. In Kerala, the number of food processing units registered during 2015 – 16 is 879. Thiruvanathapuram district has registered 237 units, which has the largest number of registered units. The share of food processing units in the registered sector is only 19 per cent.

Figure No: 2.1

The Food Processing Units Registered in 2015 -16 in Kerala



Source: Directorate of Industries and Commerce

Today, Kerala's food processing industry serves two markets - the fast emerging domestic market and the steady-growing export market. The availability of raw materials, and trained man power, high quality water and power, very active local market, a vibrant retail chain, successful track record of existing players and a very large expatriate community, ensuring a captive market abroad are the advantage of Kerala. The agro-based raw materials available in Kerala for the Food and Agro based industry are Jackfruit, Mango, Papaya, Plantain, Coconut, Cashew fruit, Spices, Pineapple, Rice, Tapioca etc. The growth of the industries based on these agro based raw materials will also encourage the farmers of these agro-products which will further enhance the employment opportunities and economy of the state.

The emerging food processing industry in Kerala is happy at the measure of 100% FDI through Foreign Investment Promotion Board (FIPB) route in the marketing of food products manufactured in India, announced in the Union Budget 2016. Kerala is a major producer of pineapple, banana and jackfruit majority of which are now going unprocessed. The state produces 3.25 lakh tonnes of pineapple, which is mostly grown as inter-crop in rubber plantations. At a time when rubber prices have crashed, the fruit provides alternate income to the rubber growers. "At present about 7000 tonnes out of 3.25 lakh tonnes is going for processing outside the state. With 100% FDI, this can be raised to even 50,000 tonnes, which will help in maintaining a remunerative price for the pineapple farmers especially when there is a glut in the market," said Baby John, former president of Pineapple Farmers Association. The case of banana is no different. The state is famous for its popular banana chips. But it is dominated by non-branded players. "The arrival of big players, though , may hit the

existing players, will be good for the banana farmers in the long run as they will be able sell all their produce," said Alex Thomas, managing director of Tierra Foods. The state produces around 3 lakh tonnes of banana.

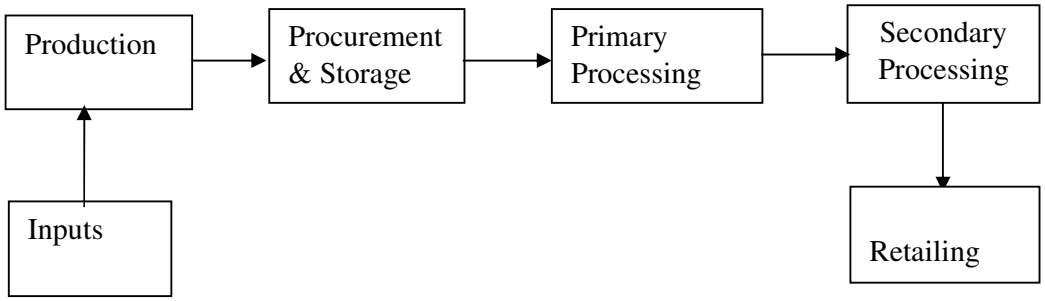
Kerala holds a prominent share in the production of a number of agricultural commodities of national importance in view of their potential for exports or import substitution. The loss of agricultural produces after harvest was disturbingly high and estimated as 30 per cent in the case of fruits and vegetables.In the case of certain fruits like jack, papaya, cashew apple, the loss is almost 90 per cent. A strong and effective agro-processing sector could play a key role in reducing such losses and quality deteriorations by utilizing the agricultural products for the production of value-added products.

2.3 Stages of Food Processing

From an analytical perspective, food processing can be viewed as different levels of processing – primary, secondary and tertiary. Primary Processing relates to conversion of raw agricultural produce, milk, meat and fish into a commodity that is apt for human consumption. It involves various steps such as cleaning, grading, sorting, packing etc. Food Processing Industry usually deals with higher levels of processing where new or higher value food products are manufactured. The different stages of processing of food are as depicted in the following figure.

Figure No. 2.2

Different Stages of Processing of Food



Source: MOFPI Annual Report

2.4 Plan Scheme for the Food Processing Sector

A strong and energetic food processing sector plays a significant role in the diversification of agricultural activities, improving value-addition opportunities and creating surplus for export of agro-food products. This requires policies and plans for improvement of food processing infrastructure including up-gradation of technology, enforcement of quality standards and promoting investment in food processing. Food Processing has tremendous potential for enabling the farmer to add value to their produce both in terms of quantity and quality to meet the requirements and standards of the market at all stages of value chain, processing and retailing. Considerable investments are required in rural infrastructure and in components of the supply chain by way of grading and packing centres, controlled atmosphere facilities, reefer vans, cold storage for perishable cargo at port/airport/ railway stations, a chain of testing laboratories to meet international quality standards, etc., which are not likely to come from private sources. Significant public investments would, therefore, be required to create suitable infrastructural facilities to develop a sustainable supply chain, linking farmers to the processing centers. The Ministry of Food Processing Industries has been supporting a range of initiatives for the growth of the food processing industry.

Make in India programme paid more priority to the food processing sector. MOFPI has been investing in the infrastructure, for promoting the food processing sector. Setting up mega food parks with the facilities like water supply, road, electricity, and processing facility like pulping, dry storage, packaging and logistics are being promoted in strong agricultural areas. The mega food parks provide developed plots and factory outlets to the entrepreneurs for long term, on lease basis.

2.4.1 Scheme for Infrastructure Development

The Ministry of Food Processing Industries is implementing the Scheme for infrastructure development which has 3 components, namely Mega Food Parks, Integrated Cold Chain and Setting up/Modernization of Abattoirs.

2.4.1.1 Mega Food Park Scheme

Mega Food Park Scheme, being implemented since 2008, aims to create a modern food processing infrastructure for the processing units, based on a cluster approach and on a hub and spoke model in a demand driven manner. The scheme intends to facilitate establishment of an integrated value chain, with food processing at the core and supported by requisite forward and backward linkages. The central

processing centre is networked with the primary processing centres and collection centres located at the farm-gate in the production areas. The broader idea behind the scheme is to bring together farmers, processors and retailers and link agricultural production to the market, so as to ensure maximization of value addition, minimization of wastages and improving the farmers' income.

2.4.1.2 Scheme for Cold Chain, Value Addition and Preservation Infrastructure

India has made significant achievement in production of various agricultural crops and allied products. However, the post-harvest management, preservation, transportation and value addition are not adequate in the Indian farm sector. This results in huge wastage at each stage of the supply chain. Post-harvest losses can be minimized to a greater extent by creation of continuous cold chain infrastructure linking the farm gate to the retail outlet. Efficient and adequate storage and transportation facilities will not only result in more income to the farmers, but also in fixed supply of food products at retail outlets. The current scenario reveals that there is a tremendous scope for the development of cold chain and preservation facilities. In this background, the Ministry launched the scheme of cold chain, value addition and preservation infrastructure in year 2008 with an objective to provide integrated cold chain, value addition, and preservation infrastructure facilities without any break from the farm gate to the consumer. Under the scheme, the cold chain infrastructure can be set up by individuals, groups of entrepreneurs, co-operative societies, Self Help Groups (SHGs), Farmer Producer Organizations (FPOs), NGOs, Central/State PSUs, etc. with business interest in cold chain solutions and also by those who manage supply chain.

2.4.1.3 Scheme for Setting up / Modernization of Abattoirs.

During the 11th Plan, the Ministry had launched a comprehensive scheme for modernization of abattoirs across the country. The scheme provides for induction of private capital, better technology, backward and forward linkages. Financial assistance is provided, subject to necessary approval, at 50% and 75% of the cost of Plant & Machinery and Technical Civil Work in general and difficult areas respectively, subject to a maximum of Rs. 15 crore for each project. Difficult areas

consist of North Eastern States including Sikkim, Jammu & Kashmir, Himachal Pradesh, Uttarakhand and ITDP notified areas of the States.

The scheme provides for the implementation of the projects with the involvement of local bodies (Municipal Corporations and Panchayaths)/ Public Sector Undertakings/ Co-operatives/ Boards under Government and has the flexibility for involvement of private investors on PPP basis. Regulatory functions continue to be discharged through local bodies. This enables the local bodies to participate in the venture and also be assured of a stream of income. A proposal for up scaling of the scheme has been approved for setting up of 25 new abattoirs and modernization of 25 existing abattoirs at a total project cost of Rs 330.84 crore, inclusive of committed liabilities in respect of the on- going projects of the 11th Plan.

2.4.2 The Scheme for Technology Upgradation / Establishment/ Modernization of Food Processing Industries

The Ministry has been implementing the Scheme of Technology Up gradation/ Establishment/ Modernization of Food Processing Industries since the ninth Plan. Under this Scheme, Ministry extended financial assistance to the food processing units, including fruits and vegetables units, in the form of grants-in-aid to the implementing agencies/ entrepreneurs at the rate of 25% of the cost of Plant & Machinery and Technical Civil Work Subject to the maximum of Rs. 50 lakhs in general areas and 33.33% up to a maximum of Rs. 75 lakhs in difficult areas. At the beginning of the 12th Plan (as on 01.04.2012), there was a committed liability of Rs. 740 crore for 3168 cases. The Scheme of Technology Up-gradation/ Establishment/ Modernization of Food Processing Industries was subsumed in centrally sponsored scheme – National Mission on Food Processing (NMFP) during the 12th Plan, for implementation through the State/ UT Governments w.e.f. 01.04.2012. However, the NMFP has since been de-linked from the Central Government Support with effect from 01.04.2015, except for UTs (upto 31.03.2016). However, committed liabilities are being discharged under this scheme.

2.4.3 The Scheme for Quality Assurance, Codex Standards and Research & Development and Other Promotional Activities

2.4.3.1. Setting Up/Up-gradation of Quality Control/ Food Testing Laboratories

For a successful food processing sector in India, various aspects of Total Quality Management such as quality control, quality system and quality assurance should function in an integrated fashion. These are vital for reaching the world market as well as to avoid being swamped by imported food items. The Ministry aims at setting up a network of laboratories 57 to help in implementing quality regime for processed food. The major objectives are: (a) To establish a surveillance system for monitoring the quality and composition of food (b) To analyze the samples received from processing industry and other stakeholders. (c) To reduce the time for analysis of samples by reducing transportation time of samples. (d) To ensure compliance of international and domestic standards on food in case of exports as well as imports.

2.4.3.2. Research and Development

Research and Development in the processed food processing sector is an important area where much focused attention is required as it is related to improvement of production, quality, enhancement of trade, consumer safety and public health. There is a need for up gradation of processing, handling, packaging, storage and distribution technologies for all major processed food products so as to meet the domestic and international standards.

2.4.3.3. Implementation of HACCP/ ISO22000, ISO 9000/ GHP/ GMP

Implementation of HACCP/ISO 22000, ISO 9000/GHP/GMP and other quality/safety management systems in food processing units will help in improving the overall quality of food and safety and hygiene in the sector and facilitate increase in our share in the global food trade.

2.4.3.4. Promotional Activities

The Promotional Activities of the Ministry are aimed at the development of the processed food sector, creating awareness, attracting investment, etc. Participation in national or international exhibitions or fairs is made to disseminate information regarding food processing industries, familiarizing the existing and prospective entrepreneurs with modern techniques of production and packaging, development of market and popularization of products. The Ministry also provides assistance for organizing workshops, seminars, exhibitions or fairs, studies or surveys or feasibility

reports as essential to monitor various schemes for the Ministry as well as for allied sectors.

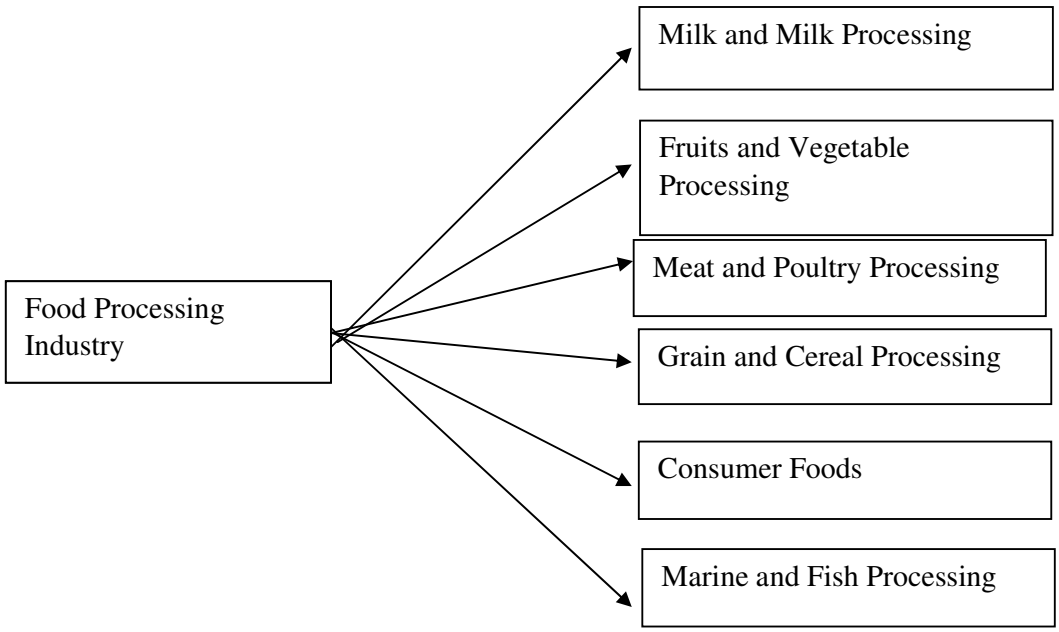
2.5 Classification of Food Processing Industry

According to the Ministry of Food Processing Industry and Government of India, "the food processing industry is classified into milk and milk processing (dairy), fruits and vegetable processing, grain and cereals processing, meat and poultry processing, marine and fish processing and consumer foods including packaged foods, beverages and packaged drinking water".

The following figure no. 2.3 shows the classification of the food processing industry.

Figure No. 2.3

Classification of the Food Processing Industry



Source: Charted by the researcher as per MOFPI Reports

The following Table No. 2.2 shows that the segmentation of various sectors in the Industry.

Table No. 2.2

Segmentation of Various Sectors in the Food Processing Industry

Sectors	Products
Milk and milk processing (Dairy)	Whole Milk Powder, Skimmed Milk Powder, Condensed Milk, Ice cream, Butter, Ghee, Cheese
Fruits & Vegetable Processing	Beverages, Juices, Concentrates, pulps, slices, frozen & dehydrated products, potato wafers/ chips, etc.
Meat & poultry processing	Frozen and packed, mainly in fresh form
Grain & Cereals processing	Flour, Bakeries, Starch glucose, cornflakes, malted foods, vermicelli, beer and malt extracts, grain based alcohol
Consumer Foods	Snack Food, namkeens, biscuits, ready to eat food, alcoholic & non-alcoholic beverages, packaged drinking water
Marine and fish processing	Frozen & Canned products mainly in fresh form

Source: Ministry of Food Processing Industry

2.6 The Performance of the Food Processing Sector

The performance of the Food Processing sector is studied by analyzing the performance of the six categories of food processing units namely, milk and milk processing, fruits and vegetable processing, meat and poultry processing, grain and cereal processing, consumer foods and marine and fish processing.

2.6.1 Milk and Milk Processing

India is the largest milk producing country in the world, which has produced 155.5 Million Tonnes of milk in 2015-2016 followed by USA (93.5 Million Tonne). It helps to increase the nutritional status and in turn generates employment opportunities in the diary sector. India is also the largest producer of buffalo milk in the world. In India, the states, namely, Punjab, Haryana, Uttar Pradesh, Rajasthan and Andhra Pradesh are the major milk producers.

The USA is the largest producer of cow milk and the second largest producer of milk, which comes to 93.5 Million Tonnes. China is the third largest producer with 45 Million Tonnes of milk and they are the largest importer of milk and milk products. Pakistan could produce around 42 Million tonnes of milk in the year 2015 and buffalos are the main source of milk. Germany producing 29.34 Million Tonnes is the largest producer of milk in the European Union with the share of 21.1 per cent.

The dairy sector is multifunctional in nature, and it contributes to sustainable agricultural development and food security (Manjunatha, et al. 2013). Agriculture and dairy sector have an important role in the economic development of India. Milk is a nutritious food. India is the largest milk producing country in the world and it amounts to 18.5 per cent of the total milk production of the world. In 2014 - 2015, India has produced 146.31 Million tonne milk. In India, the average per capita consumption of milk per day is 322 grams in 2014-2015. In the world, the average per capita consumption of milk is 294 grams in 2014 – 15 and 279 grams in 2016 – 17. Punjab, Andhra Pradesh, Haryana, Uttar Pradesh and Rajastan are the leading milk producing states in India.

The total consumption of milk is 150 metric tonne in India. In the opinion of ASSOCHAM Secretary General D.S. Ravath, it will increase to 177 metric tonne for the financial year 2019-20. As per the report of ASSOCHAM Economic Research Beauro, 92 per cent of milk consumption is increasing without any difference between rural and urban area.

The National Dairy Development Board (NDDB) was formed in 1965 for the development of dairy sector in India. At present, 15 million dairy farmers and 144250 Co-operative Societies are functioning under the AMUL. During the post-independence period (1950-51), only 17 million tonne milk was producing in India. The co-operation of World Food Program (WFP) and European Community (EC) has made a dramatic change in the production of milk. India earned 4.57 per cent growth in the yearly production of milk (Rejimon, 2016).

In Kerala, the high yielding breeds of cows have been decreased, but the consumption of milk has been increasing. In the opinion of Thrivedhi, Advisor of National Dairy Development Board, in the year 2010-11, the production of milk was

only 2.64 million tonne in Kerala and the consumption of milk will be increased to 3.58 million tonne in 2021 (Rejimon, 2016).

As per the report of National Dairy Development Board, Kerala produced 2718000metric tonne milk in 2001-2002 and it was decreased to 2711000 metric tonne during the period 2014-15. The production of milk has been decreasing but the consumption of milk has been increasing day by day.

For about half of the world's population, milk is the primary source of nutrition and protein. The milk of cows, buffalo, sheep and goats are the major source and the milk of camel is also being used in small amount.

The details of production of milk and milk products, Indian export and import of milk products are given in the following table. Domestic consumption given in the table is calculated using the formula,

Domestic consumption = Production + Import – Export

Table 2.3

Milk and Milk Products Production, Export, Import and Domestic Consumption in India

Year	**India**			
	Production (MT)	**Export (Quantity MT)**	**Import (Quantity MT)**	**Domestic consumption (MT)**
2008 - 09	112200000	70146.78	9018.84	112138872
2009 - 10	116400000	34379.96	31374.8	116396995
2010-11	121800000	37435.88	54334.6	121816899
2011 - 12	127900000	25639.51	70699.9	127945060
2012 - 13	132400000	87824.22	7417.44	132319593
2013 - 14	137700000	159228.51	9916.42	137550688
2014 - 15	146300000	66424.34	11901.6	146245477

2015 - 16	155500000	33377.19	16986.7	155483610
2016 - 17	164000000	39397.61	16305.8	163976908
AAGR	**4.93**	**19.81**	**38.8922**	

Source: Websites of National Dairy Development Board and APEDA

It is very clear from the table that the milk production in India has been increasing year by year. The export and import of milk products show a fluctuating trend from the year 2008 – 09 to 2016 – 17. The export of milk and milk products has decreased to 34379.96 MT in 2009-10. The major reason of this decline was the effect of global recession in 2008; it affected the export performance of milk and milk processing sector. The domestic consumption of milk and milk products has been increasing from 2008 – 09 to 2016-17.

The following table shows milk and milk products production in Kerala and Export of milk products.

Table No. 2.4

Milk and Milk Products Production and Export (Kerala)

Year	**Kerala**		
	Production (MT)	**Export (Quantity MT)**	**% of Export**
2007 – 08	2253000	867.99	0.038
2008 - 09	2441000	935.21	0.038
2009 - 10	2509000	53.46	0.002
2010-11	2645000	434.45	0.016
2011 - 12	2716000	238.97	0.008
2012 - 13	2791000	4607.13	0.165
2013 - 14	2655000	3544.69	0.133
2014 - 15	2711000	523.95	0.019

2015 - 16	2650000	558.45	0.021
2016 - 17	2520340	544.52	0.022
AAGR	**1.21**	**230.48**	

Source: NDDB, Dairy Development Department of Kerala, APEDA

Kerala's milk products exports exhibited highly fluctuating trend mainly due to fluctuations in milk productions. 4607.13 MT milk products were exported from Kerala in 2012 – 13, whereas the milk production was only 2791000 MT. The increased demand of the milk products in international market during this period is the reason for increasing export of milk products.

2.6.2 Fruits and Vegetable Processing

India has been blessed with wide varieties of climate and geographical conditions which is suitable for the production of fruits and vegetables. India is the second largest producer of fruits and vegetables in the world. India produced 86.283 million tonnes of fruits and 167.058 million tonnes of vegetables during 2014 – 15. The government expects the processing in this sector to grow by 25 per cent of the total produced by 2025. Processing of fruits and vegetable is the most efficient and effective way to reduce wastage. Banana, mango, citrus, papaya, guava and grape account for major share in total fruit production across India. The major fruit producing states are Andhra Pradesh, Maharashtra, Karnataka, Bihar, Uttar Pradesh, Tamil Nadu, Kerala and Gujarat. The very common processed fruits and vegetable items are jam, pickles, squashes, ready to serve beverages, chutneys, dehydrated fruits. Most of the fruits and vegetables are perishable in nature and have low shelf life. To increase the shelf life of the fruits and vegetables use adequate infrastructure facilities like cold storage, pre-cooling facilities at production sites, radiation plants, reefer vans, mobile cooling units etc. (Source: APEDA).The details of processed fruits and vegetable are given below.

Table No. 2.5
Details of Processed Fruits and Vegetables - Production, Export, Import and Domestic Consumption in India

Year	India

	Production (MT)	Export (MT)	Import (MT)	Domestic Consumption (MT)
2008 - 09	197542.3	845174.19	2625051.73	1977420
2009 - 10	205253.1	809192.33	3793096.34	3189157
2010-11	213512.2	837339.57	2828270.31	2204443
2011 - 12	232749.69	923328.28	3548137.03	2857558
2012 - 13	243471.9	926929.45	4071319.42	3387862
2013 - 14	251874.04	1082429.84	3707351.00	2876795
2014 - 15	257119.6	1008026.93	4679872.56	3928965
2015 - 16	259246.97	975815.39	5914989.60	5198421
2016 - 17	271090.45	889621.79	6718637.30	6100106
AAGR	**3.61**	**0.97**	**12.94**	

Source: Agricultural and Processed Food Products Export Development Authority (APEDA)

The export of processed fruits and vegetable shows a fluctuating trend. 1082429.84 MT processed fruits and vegetables products were exported from India in the year 2014 – 15 and it decreased to 889621.79 in 2016 – 17. Fluctuating trend also shown in the import of processed fruits and vegetable products in India but 2014 – 15 to 2016 – 17 the import shows an increasing trend. In 2014 – 15, the import was 4679872.56 and increased to 6718637.30 in 2016 – 17. The following table shows the details of processed fruits and vegetables in Kerala.

Table No. 2.6

Processed Fruits and Vegetable in Kerala- Production and Export

Year	Kerala		
	Production (MT)	Export (MT)	% of export

2007 – 08	3487180	15036.80	0.43
2008 - 09	3628890	14005.43	0.38
2009 - 10	3312870	13185.25	0.39
2010-11	3359010	12757.25	0.37
2011 - 12	6055540	28465.96	0.47
2012 - 13	6030830	18297.55	0.30
2013 - 14	6462170	12355.23	0.19
2014 - 15	4199180	13806.52	0.32
2015 - 16	462160	13630.29	0.29
2016 - 17	4430580	14505.14	0.32
AAGR	**81.84**	**5.58**	

Source: APEDA, keralaagriculture.gov.in

The export of processed fruits and vegetable decreased to 14005.43 MT in 2008 – 09 from 15036.80 MT in 2007 – 08. The global recession 2008 affected the Indian as well as Kerala export performance. It decreased demand of processed fruits and vegetables in the global market which in turn leads to decrease export. In 2011 – 12, 28465.96 MT products were exported from Kerala.

2.6.3 Meat and Poultry Processing

The total meat processing capacity in India is over one million tons per annum out of which 40 to 50 per cent is utilized. Mostly buffalo meats are export from India. Indian buffalo meat is witnessing strong demand in international markets due to its clean character and near organic nature. The recent trend in India is to establish large abattoirs-cum-meat processing plants with the latest technology. India has already established ten state-of-art mechanized abattoirs-cum-meat processing plants in various states based on slaughtering buffalos and sheep. These plants are environmentally friendly, where all the slaughter house by products are utilized in the production of meat-cum-bone meal, tallow, bone chips and other value added products. The major export destinations in 2015 – 16 are Korea Republic, Saudi

Arabia, United Arab Emirates, Thailand and Maldives. Andra Pradesh, Kerala, West Bangal, Maharastra, Delhi, Uttar Pradesh, Rajasthan are the major areas of processed meat production in India. The individual products under this category are preserved meats, homogenized meat preparations, preserved meat of bovine animals, meat extracts and meat juices, sausages and canned meat and other poultry meat (*Source: APEDA*)

Kerala is the most ideally suited state for the meat development sector. As per the report of Registrar General of Survey (2015 -2016), 97 per cent of Keralites are meat consumers having no taboos or sentiments regarding the type of meat consume. In Kerala 97.4 per cent of women and 96.6 per cent of men are meat consumers. The high literacy rate, improved socio-economic status and measured awareness about the nutritional requirements for healthy living are some of the reasons for increased consumption of meat and meat products in Kerala. It is estimated that 15 lakhs cattle, 3 lakhs pigs and 250 lakhs poultry are slaughtered in Kerala. 90 per cent of the slaughtering is not scientific and only a few number of meat processing industries are functioning in Kerala. There is immense potential for domestic as well as export market. Wayanad is one of the most suited districts in Kerala for meat production due to the geographic and climatic adaptability, availability of natural graze area, availability of fodder, intensive agricultural activities, human resource for rearing of animals etc. The details of Meat and Poultry Processing sector in India are given in the following table.

Table 2.7

Meat and Poultry Processing Sector in India

Year	India			
	Production (MT)	**Export (MT)**	**Import (MT)**	**Domestic Consumption**
2008 – 09	3551.00	431.91	967.75	4086.84

2009 – 10	3794.00	675.18	1404.5	4523.32
2010 – 11	4039.57	922.19	778.57	3895.95
2011 – 12	4606.37	575.94	962.82	4993.25
2012 – 13	9866.96	796.92	569.83	9639.87
2013 – 14	5184.10	488.78	388.5	5083.82
2014 – 15	5568.07	406.11	248.35	5410.31
2015 – 16	5852.61	280.91	72.1	5643.8
2016 - 17	6164.61	140.90	132.47	6156.18
AAGR	**12.44**	**4.72**	**7.97**	

Source: APEDA

The production details shows fluctuating trend. 9866.96 processed meat products were produced in India and exported 796.92 MT in 2012 – 13. The export of processed meat products shows a decreasing trend from the period 2008 – 09 to 2016 – 17. India export 431.91 MT processed meat products in 2008 – 09 and it decreased to 140.90 in 2016 – 17. Several databases, including the United Nations Food and Agricultural Outlook, show that meat consumption in India is increasing. However, the data also shows that beef consumption has been falling over the years. The fall in consumption has been taking place regardless of the political party in power. Chicken consumption, however, was up in that period (The Hindu). The following table shows details of meat and poultry processing sector in Kerala.

Table 2.8

Meat and Poultry Processing Sector in Kerala

Year	Kerala		
	Production (MT)	**Export (MT)**	**% of Export**
2007 – 08	128	28.85	22.54
2008 – 09	124	0.80	0.64
2009 – 10	118	0.17	0.14
2010 – 11	124.38	0.30	0.24
2011 – 12	425.57	0.75	0.17
2012 – 13	801.98	4.87	0.60
2013 – 14	416.06	1.61	0.38
2014 – 15	445.83	28.28	6.34
2015 – 16	466.04	13.4	-
2016 - 17	468.84	0.07	0.01
AAGR	**29.22**		

Source: APEDA

The production of meat product shows an increasing trend from 2007 – 08 to 2012 – 13. 801.98 MT meat products were processed in 2012 -13 and export 4.87 MT products from Kerala. The reviews show that the demand for Indian meat products has huge demand in foreign countries because of its freshness.

2.6.4 Grain and Cereal Processing

India is the second largest producer of wheat, rice and other cereals in the world. The greater demand for cereals in the global market helps to create a better environment for export of Indian cereal products. India produces more than 200 million tonnes of different food grains every year. The following table shows details of grain and cereal processing sector in India.

Table No. 2.9

Grain and Cereal Processing Sector in India

Year	India			
	Production (MT)	**Export (MT)**	**Import (MT)**	**Domestic Consumption**
2008 - 09	234470000	58406.64	1951.42	234413545
2009 - 10	218110000	72744.38	2489.63	218039745
2010-11	244490000	99101.23	3740.38	244394639
2011 - 12	259320000	171158.14	2882.81	259151725
2012 - 13	257130000	273584.42	4522.60	256860938
2013 - 14	265040000	418398.00	3977.44	264625579
2014 - 15	252020000	415984.46	3466.12	251607482
2015 - 16	252230000	431464.52	4393.66	251802929
2016 - 17	275680000	255803.66	3555.95	275427752
AAGR	**1.99**	**23.18**	**10.51**	

Source: APEDA, Directorate of Economics and Statistics

The export of processed grain and cereal products shows an increasing trend. 431464.52 MT products were exported from India in 2015 – 16 and it decreased to 255803.66 MT in 2016 – 17. The fluctuation trend shows in import of processed grain and cereal products. The following table shows the details of Grain and Cereal Processing Sector in Kerala.

Table No. 2.10

Grain and Cereal Processing Sector in Kerala

Year	Production (MT)	Export (MT)	% of Export

2007 – 08	530544	8156.54	1.54
2008 – 09	592200	11089.32	1.87
2009 – 10	600054	10117.70	1.69
2010 – 11	524315	14506.31	2.76
2011 – 12	569891	15048.94	2.64
2012 – 13	508614	12808.30	2.51
2013 – 14	564635	7320.12	1.29
2014 – 15	564294	7938.61	1.40
2015 – 16	549570	13026.78	2.37
2016 – 17	436710	17085.56	3.91
AAGR	**-1.39**	**12.03**	

Source: APEDA, Directorate of Economics & Statistics

The export of processed grain and cereal products shows a fluctuating trend. Major decrease has happened in the period 2013 – 14 (-42.84 per cent). Significant increase was observed in exported quantity of processed cereal products from 2014 – 15 to 2016 – 17 with the AAGR 12.03.

2.6.5 Consumer Food Products

Among the fastest growing segments in India, it includes

- Packaged food
- Aerated soft drinks
- Packaged drinking water
- Alcoholic beverages and non-alcoholic beverages

The following table shows export, import and trade balance of consumer foods in India

Table 2.11
Consumer Food Products Producing Sector in India

Year	India

	Production	Export	Import	Domestic Consumption
2008 – 09	2198900	208836.82	30745.39	2020809
2009 – 10	2034400	172585.30	39125.98	1900941
2010 – 11	2262400	226485.31	37723.72	2073638
2011 – 12	2422000	301289.72	45829.28	2166540
2012 – 13	2387800	293124.29	50428.01	2145104
2013 – 14	2457900	321468.10	52374.21	2188806
2014 – 15	2354900	306328.82	63249.61	2111821
2015 – 16	2522200	316533.41	61392.61	2267059
2016 - 17	2733800	339923.13	67030.69	2460908
AAGR	**2.62**	**6.65**	**10.76**	

Source: APEDA, Directorate of Economics & Statistics

The production of consumer food products shows a fluctuating trend. 2733800 MT products were produced in 2016 – 17. India imports 67030.69 MT consumer food products from other countries. An increasing trend is shown in the export of consumer foods from India. In 2016 – 17, 339923.13 MT consumer foods were exported from India.

Table 2.12

Consumer Food Producing Sector in Kerala

Year	Production	Export (MT)	% of Export
2007 – 08	528000	5557.60	1.05
2008 – 09	590000	9712.88	1.64
2009 – 10	598000	8121.22	1.35
2010 – 11	522000	7630.25	1.46

2011 – 12	569000	9869.97	1.73
2012 – 13	508000	12163.85	2.39
2013 – 14	564000	14200.28	2.51
2014 – 15	562000	13870.49	2.46
2015 – 16	549000	14136.34	2.57
2016 – 17	560000	16050.75	2.86
AAGR	**0.90**	**13.48**	

Source: APEDA

The production of consumer food products shows a fluctuating trend. 560000 MT products were produced in 2016 – 17. There is increasing trend in the quantity exported from Kerala. In 2016 – 17, 16050.75 MT consumer food products were exported from Kerala.

2.6.6 Marine and Fish Processing

India has second place in the exporting of fish globally. In 2015 – 16 India brought 10.06 million tonne fish to the dining tables of the world. Most of it is regional categories of fish. From 1991 onwards fisheries products have been on a hike in the export. The 3.49 million tonne reported in 1991 has reached 10.06 million tonne. India gained 33441.61 crore rupees through fish exporting in 2014 – 15. This is 10.6 per cent higher than last year. As a sector offering jobs to 14.49 million people the field is in the track of growth. According to economic survey report there are 10.18 lakh fishermen in Kerala of which 7.83 work in regional fish industry. Fisheries resources contribute 8.8 per cent of the overall production in the state. But there has been threatening decrease in fish stock income in the state. The growth rate of 1.12 per cent reported in 2011 – 12 has come down to 1.07 in 2014 – 15. While in the financial year the overall fish export in India has raise of 3.49 million tonne. Decrease in foreign exports of fish brought down the income. To encourage exports the state government prepared a project of 181.97 crores for fisheries industry in the financial year 2015 -16. The offerings of 175.70 crore rupees to lighten the debts of fisherman from 2008 – 09 to 2014 – 15 shows the importance of the industry (Rejimon, 2016).

According the records of Central Marine Fisheries Research Institute (CMFRI), the fisheries resources of Kerala has been cut down to half in the last three years. In 2015, 4.82 lakh tonne fish availability was reported, 5.7 lakh tonne in 2014. There has been a loss of 10000 crore rupees in the last three years. It is a massive brought down from the 2012 record production.

According to Malsya Samridhi Project 98.33 hector is used for fresh water fish breeding and 2422.75 hector for the remaining. Through this 25935 metric tonne fish was produced in 2014 – 15 in the state. The goal was achieved by the use of regional areas in the project. As part of NABARD's sustainable development project many initiatives including Chellanam fishing harbor are about to be completed. A project of 62.91 crores is anticipated and 12 fishing centers are to be expected. But the states share in the overall exporting of fisheries resources is decreasing. According to the records the 1.12 per cent reported in 2011 – 12 has come down to 1.07 in 2014 – 15. In 2013 – 14 Kerala came second right behind Gujarat in fish exports. But in 2014 – 15 Kerala was pushed back to fifth position. Despite being a source of high foreign income has been significant decrease in fish production according to the studies. The reason being the amount of oil and petroleum products that settled around Kerala, Karnataka, Goa coastal areas. In the case of regional fisheries resources also Kerala has been left behind by other states. The production of fish lings is only two lakh crore is required.

India has third position in fisheries and second position in aquaculture. Contribution to Indian GDP is 1.07 per cent and contribution to agricultural GDP is 5.15 per cent. Total fish production in 2014-15 is expected to reach 10.06 MT with Andra Pradesh being the largest producer of fish in the country with estimated fish production of 1.9 MT during 2014-15.

Fishing industry places an important role in the economy of Kerala. Sea fishing has been an occupation and major sources of income of people in coastal area. Fishing sector provide approximately 3 percent of the state revenue. Kerala exports fish products nearly Rs. 1200 Crores and has domestic sales worth Rs. 600 Crores annually. Government introduces several schemes like 'Rastriya Krishi Vikas Yojana, Matsya Samrudhi'. The aims of schemes are enhancement of fish production, to increase employment opportunities, promotion of sustainable ornamental fisheries, strengthening farms, integrated paddy fish culture, diversified aquaculture activities.

In Kerala, fisheries are divided into marine fisheries, inland fisheries, and ornamental fisheries. Marine fisheries are fish rearing areas in marine water or sea. Marine fisheries includes coastal, offshore and deep sea fishery. Inland fisheries are rearing area in fresh and brackish water and it includes culture and capture fishery. The following table shows production and export performance of marine products in India.

Table No. 2.13

Production and Export Performance of Marine Products in India

Year	India		
	Production(MT)	**Export (MT)**	**% of Export**
2006 – 07	6860000	612641	8.93
2007 – 08	7120000	541701	7.60
2008 – 09	7600000	602835	7.93
2009 – 10	7990000	678436	8.79
2010 – 11	8230000	813091	9.88
2011 – 12	8660000	862021	9.95
2012 – 13	9030000	928215	10.27
2013 – 14	9570000	983756	10.27
2014 – 15	10160000	1051243	10.34
2015 – 16	10790000	945892	8.76
2016 – 17	1154500	1134948	
AAGR	**-3.89**	**6.24**	

Source: MPEDA and Department of Animal Husbandry, Dairying and Fisheries

The table shows an increasing trend in both the production and export of marine products in India. In 2014 – 15, 1051243 MT marine products were exported

from India. MPEDA stated growth may be viewed under prevailing international market situations. Depreciation of Euro, weaker economic condition in China, devaluation of Yen, depreciation of Indian Rupee, improvement in supply conditions in South East Asian (SEA) countries in comparison to previous year has resulted in continuous drop in prices of shrimp, a principle commodity of Indian seafood export market. In 2015 – 16, the export of marine products declined to 945892.00 MT.

The details of production and export of marine products in Kerala are shown in the following table.

Table No. 2.14

Production and Export of Marine Products in Kerala

Year	Kerala		
	Production (MT)	**Export (MT)**	**% of Export**
2006 – 07	5980000	108616	1.81
2007 – 08	6770000	100319	1.48
2008 – 09	6860000	100780	1.46
2009 – 10	6870000	107293	1.56
2010 – 11	6810000	124615	1.83
2011 – 12	6930000	155714	2.24
2012 – 13	6800000	166399	2.44
2013 – 14	7080000	165698	2.34
2014 – 15	7260100	166754	2.29
2015 – 16	7280000	149138	2.04
2016 – 17	6087200	159142	2.61
AAGR	**0.38**	**3.96**	

Source: Kerala Marine Fisheries Statistics, Govt. of Kerala & MPEDA

The table gives details of export of marine products from Kerala from the financial year 2006 – 07 to 2015 – 16. The production and export of marine products from Kerala shows an increasing trend with the AAGR 4.09. In 2006 – 07, the production was 5.98 MT and it reached to 7.28 MT in 2015 – 16. In 2014 – 15, the export of marine products from Kerala was 166754 MT and it decreased to 149138 MT in 2015 – 16.

2.7 FDI Inflows in the Food Processing Sector

100 percent FDI is allowed in food processing sector with the exception of alcohol. Most of the items in food processing sector are exempted from license agreement excepting those which are kept in reserve for the small- scale sectors. A number of active measures have been taken up by the Government to modernize the food processing units in terms infrastructure, human resource and research and development. This legislation has also allowed 100 percent tax deduction on profits for five years and 25 percent for the next five years especially to the upcoming agro – processing industries. These are the important aspects of Foreign Direct investment (FDI) inflows in food processing industry in India. The following table shows FDI inflows in food processing industry.

Table No. 2.15

FDI inflows in Indian Food Processing Industry

Sl. No.	Year	FDI (US $ Million)	% Growth	AAGR
1.	2000 – 2001	45.75		
2.	2001 – 2002	219.39	379.54	
3.	2002 – 2003	36.88	-83.19	
4.	2003 – 2004	109.22	196.15	
5.	2004 – 2005	43.98	-59.73	
6.	2005 – 2006	41.74	-5.09	
7.	2006 – 2007	102	144.37	

8.	2007 – 2008	70.17	-31.21	
9.	2008 – 2009	102.71	46.37	**106.21**
10.	2009 – 2010	278.89	171.53	
11.	2010 – 2011	188.67	-32.35	
12.	2011 – 2012	170.21	-9.78	
13.	2012 – 2013	401.46	135.86	
14.	2013 – 2014	3982.89	892.10	
15.	2014 – 2015	515.86	-87.05	
16.	2015 – 2016	505.88	-1.93	
17.	2016 – 2017	727.22	43.75	

Source: MOFPI

It is clear from the table, in 2000 – 01 the FDI inflows in Indian food processing industry was 45.75 US $ Million and it was increased to 219.39 in 2001 – 2002. In 2002 – 03, the FDI inflow was decreased at -83.19 percentage and reached 36.88 US $ Million. The FDI inflow was 109.22 US $ Million in 2003 – 04, it shows 196.15 percentage growths from 2002 – 03. Then for the next two years the FDI inflow was decreased and reached 41.75 US $ Million in 2005 – 06. The FDI inflow was decreased to 70.17 US $ Million in 2007 – 08 from 102 US $ Million 2006 – 07. Then it was increased to 278.89 US $ Million for the year 2009 – 10 and decreased to 170.21 US $ Million in 2011 – 12. In 2012 – 13 and 2013 – 14 the FDI inflow was 401.46 and 3982.89 US $ Million respectively. FDI inflow in 2013 – 14 shows a greatest growth (892.10%) and decreased to 505.88 US $ Million in 2015 – 16. In 2016 – 17, FDI inflow was 727.22 US $ Million. Hence it is clear that, FDI inflows in Indian food processing sectors shows a fluctuating trend with the AAGR 106.21.

2.8 Financial Analysis of the Food Processing Industry

Profitability is the capability of a company to use its resources to generate revenues in excess of its expenses. The two major aspects of profitability are revenues and expenses. Revenues are the business income. This is the amount of money earned

from customers by selling products or providing services. Businesses must use their resources in order to produce these products and provide these services. Profitability is a measure of efficiency of an organization. It can be defined as the ability of a business to produce a return on an investment based on its resources, in comparison with an alternative investment. Profitability is the main aim of all business concerns. Without profitability, the business will not survive in the long run. Various profitability ratios can be used to assess the financial strength of a business. The financial ratios include Gross Profit ratio, Operating Profit ratio, Net Profit ratio, and Return on Capital Employed, Return on Asset, Asset turnover ratio, Current Ratio and Liquid Ratio, which are briefly explained below.

1. **Gross Profit Ratio**

Gross profit ratio is a profitability ratio that shows the relationship between gross profit and total net sales revenue. It is an important tool to evaluate the operational performance of the business. The formula of gross profit ratio is given below.

Gross profit ratio = Gross Profit /Net Sales *100

2. **Operating Profit Ratio**

Operating profit ratio analysis helps in analyzing the operation efficiency of the company in running the business. A higher ratio would imply that the company is successful in managing and reducing the various costs associated with the operation of the business whereas, a lower ratio would indicate inefficiency on the part of top management which would need introspection and taking steps for improvement. Given below is the formula for calculating operating profit ratio.

Operating Profit Ratio = Operating Profit/ Net Sales *100

Operating profit = Net sales – (Cost of goods sold + Administrative expenses + selling expenses + distribution expenses)

3. **Net Profit Ratio**

Net Profit Ratio is a commonly used profitability ratio which establishes the relationship between the net profits after tax and net sales. This ratio explains per

rupee profit generating capacity of sales. If the cost of sales is lower, then the net profit will be higher and when we divide it with the net sales, the result is the sales efficiency. If lower is the net profit per rupee of sales, lower will be the sales efficiency. The concern must try for achieving greater sales efficiency. The net profit ratio is calculated by using the following formula.

Net Profit Ratio = Net Profit after Tax / Net Sales *100

4. **Return on Capital Employed**

Return on capital employed is a profitability ratio that measures how efficiently a company can generate profits from its capital employed, by comparing net operating profit to capital employed. ROCE is a long-term profitability ratio because it shows how effectively the assets are performing, while taking into consideration the long-term financing. This ratio is calculated as follows:

Return on Capital Employed = Operating Profit / Capital Employed * 100

Capital Employed = Tangible, Fixed and Intangible Assets + Current Assets – Current Liabilities

5. **Return on Asset**

Return on Asset is a profitability ratio that measures the rate of return on resources owned by a business. It measures the level of net income generated by a company's assets. A high return on assets means that the business was able to utilize its resources well in generating income.

Return on Asset = Net Income/ Total Assets

6. **Asset Turnover Ratio**

Asset turnover ratio determines the ability of a company to generate revenue from its assets by comparing the net sales of the company with the total assets. It is an activity ratio that measures the efficiency with which the assets are used by a company. Some industries are designed to use assets in a better way than others. A higher asset turnover ratio implies that the company is more efficient at using its assets. A low asset turnover ratio, on the other hand, reflects the bad management of

assets by the company. It may also indicate production or management problems. This ratio helps the company to measure how productive the business is, and how much revenue is generated from its investment in the assets. A high asset turnover ratio is a sign of a better and efficient management of assets on hand. It is computed by using the following formula.

Asset Turnover Ratio = Net Sales/ Total Assets

7. **Current Ratio**

Current Ratio also known as working capital ratio is a popular tool to evaluate short term solvency position of a business. Short-term solvency refers to the ability of a business to pay its current liabilities when they become due. Current assets include cash and cash equivalents, marketable securities, short-term receivables, inventories, and prepayments. Current liabilities include trade payables, current tax payables, accrued expenses, and other short-term obligations.

Current Ratio = Current Assets/ Current Liabilities

8. Liquid Ratio

It is a measure of how well a company can meet its short term financial liabilities. It is also known as acid test ratio and quick ratio. It shows a firm's ability to meet current liabilities with its most liquid assets. Liquid assets are those assets which are readily convertable into cash and will include cash balances, bills receivable, sundry debtors and short-term investments. Liquid liabilities include all items of current liabilities except bank overdraft. It can be calculated as follows.

$$\textbf{Liquid Ratio} = \frac{\text{Cash + Marketable Securities + Accounts Receivables}}{\text{Current Liabilities}}$$

The performance of companies is analyzed separately for all the six categories of food processing sectors namely milk and milk processing, meat and poultry processing, consumer food products, grain and cereal processing, fruits and vegetable processing and marine and fish processing. The financial performance analysis is made on one third of the companies under each category.

2.8.1 Milk and Milk Processing Companies

The financial analysis of milk and milk processing companies in Kerala was done by using the financial data of seven companies. The alphabets are used to represent the name of companies. The results of financial analysis are given below.

1. Gross Profit Ratio

Table No. 2.16

Gross Profit Ratio of Milk and Milk Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	A	3.82	3.95	5.58	4.29	4.29	**4.39**	**4.99**
2	B	-0.11	-0.12	-8.88	0.35	-2.08	**-2.17**	
3	C	7.64	13.16	13.63	9.60	9.60	**10.73**	
4	D	2.50	1.82	7.66	9.19	5.87	**5.41**	
5	E	3.82	4.35	4.87	4.71	5.38	**4.63**	
6	F	5.19	4.39	3.83	3.96	5.57	**4.59**	
7	G	8.78	6.39	6.34	7.48	7.92	**7.38**	
Average		**4.52**	**4.85**	**4.72**	**5.65**	**5.22**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is understood from the table that the gross profit ratio of the company B shows a negative trend during the period 2012 – 13 to 2016 – 17 with the average of -

2.17. The gross profit ratio of the companies F and D are fluctuating during the period 2012 – 13 to 2016 – 17. The average gross profit ratio of the above said companies were 4.59 and 5.41 respectively. It implies that these companies do not have a constant gross profit margin according to sales. Above analysis explains that the company C (10.73) has the highest gross profit ratio followed by company G (7.38). The overall average gross profit ratio of these companies is 4.99.

2. Operating profit ratio

Table No. 2.17
Operating Profit Ratio of Milk and Milk Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	A	3.10	3.16	4.45	3.59	3.59	**3.58**	
2	B	-4.96	-5.49	-22.96	-5.38	-9.30	**-9.62**	
3	C	7.05	12.56	12.76	9.06	9.06	**10.10**	**3.56**
4	D	2.50	1.82	7.48	9.15	5.94	**5.37**	
5	E	3.77	4.31	4.38	4.66	3.86	**4.19**	
6	F	4.99	4.24	3.79	3.82	5.49	**4.46**	
7	G	8.70	6.91	5.50	6.69	6.41	**6.84**	
Average		**3.59**	**3.93**	**2.20**	**4.51**	**3.58**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is realized from the table that the operating profit ratio of the company B is found to show a negative trend from 2012 – 13 to 2016 – 17 with the average -9.62.

Company C (9.06) has the highest operating profit ratio in 2016 – 17. Company C (10.10) has the highest operating profit ratio during the period 2012 -13 to 2016 - 17. The overall average profit ratio of this sector is 3.56.

3. Net Profit Ratio

Table No. 2.18

Net Profit Ratio of Milk and Milk Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	A	1.45	1.38	1.59	1.61	1.61	**1.53**	**1.58**
2	B	-8.72	-9.28	-8.88	0.35	-2.08	**-5.72**	
3	C	3.83	7.71	7.81	5.57	5.57	**6.10**	
4	D	2.49	1.87	7.66	3.24	0.59	**3.17**	
5	E	0.52	0.33	0.44	0.94	2.41	**0.93**	
6	F	2.22	2.16	1.45	1.37	1.88	**1.81**	
7	G	3.69	2.61	3.06	3.19	3.49	**3.21**	
Average		**0.78**	**0.97**	**1.88**	**2.32**	**1.92**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Only company B (-5.72) has negative average net profit ratio. Company C (6.10) has the highest net profit ratio and followed by G (3.21), F (1.81), and E (0.93). The overall average of these companies is 1.58. Here, company B is running in loss from 2012 – 13 to 2016 – 17. Milk and milk processing sector is profitable in the year 2016 – 17.

4. Return on Capital Employed

Table No. 2.19

Return on Capital Employed of Milk and Milk Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall

								Average
1	A	13.56	11.68	26.36	7.81	17.47	**15.38**	
2	B	-89.32	-102.89	-194.50	-92.36	-215.23	**-138.86**	
3	C	19.97	28.95	34.94	39.26	18.00	**28.22**	
4	D	5.32	4.15	29.45	28.22	13.75	**16.18**	**1.46**
5	E	10.26	10.29	65.63	15.66	22.43	**24.85**	
6	F	33.72	23.18	13.37	13.37	12.54	**19.24**	
7	G	27.70	30.88	44.57	60.97	62.06	**45.24**	
Average		**3.03**	**0.89**	**2.83**	**10.42**	**-9.85**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is clear from the table that the return on capital employed ratio of the companies B showed negative and fluctuating trend during the study period. Company G showed a continuous growth in the return on capital employed ratio from 2012 – 13 to 2016 – 17. Company G has the highest average return on capital employed ratio (54.24) and followed by Company C (28.22) and Company E (24.85). The overall average of return on capital employed is 1.46.

5. Return on Asset

Table No. 2.20

Return on Asset of Milk and Milk Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	A	6.00	5.21	4.00	5.22	5.05	**5.09**	

2	B	-4.69	-10.14	-7.16	0.27	-7.16	**-5.78**	
3	C	11.67	20.35	15.27	12.49	12.49	**14.45**	**5.52**
4	D	3.27	5.25	-0.13	5.73	5.73	**3.97**	
5	E	0.82	1.40	3.27	2.35	2.35	**2.04**	
6	F	6.07	5.53	4.90	5.11	5.11	**5.34**	
7	G	11.11	10.78	9.08	18.34	18.34	**13.53**	
Average		**4.89**	**5.48**	**4.17**	**7.07**	**5.98**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here, companies C (14.45) and G (13.53) have high return on asset during the period. The high return on asset means these companies are able to utilise its resources well in generating income. Company B (-5.78) has negative return on asset due to the net income of this company was loss. Company D has negative return on asset during the period 2014 – 15, because of increasing expenses for write off the depreciation of the assets.

6. Asset Turnover Ratio

Table No. 2.21
Asset Turnover Ratio of Milk and Milk Processing Companies from the year 2012 –13 to 2016 – 17

Sl.	Company	2012-	2013-	2014-	2015-	2016-	Average	

No.		13	14	15	16	17		Overall Average
1	A	420.48	400.	250.91	311.60	308.60	**338.32**	
2	B	74.98	80.31	89.82	86.68	86.68	**83.69**	
3	C	304.45	263.77	195.41	223.96	223.95	**242.31**	
4	D	153.49	162.45	131.55	140.21	140.21	**145.58**	**228.79**
5	E	184.51	149.17	135.82	179.93	179.93	**165.87**	
6	F	417.48	401.16	258.91	317.60	317.60	**342.55**	
7	G	362.94	337.56	252.51	231.66	231.66	**283.27**	
Average		**274.05**	**256.35**	**187.85**	**213.09**	**212.66**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here, Companies F (342.55) and A (338.32) have the highest asset turnover ratio than other companies. It indicates that these companies are more efficient at using its assets and generate more income from its investment in the assets.

7. Current Ratio

Table No. 2.22
Current Ratio of Milk and Milk Processing Companies from the year 2012 –13 to 2016 – 17

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	A	1.20	1.30	1.38	2.20	2.36	**1.68**	
2	B	1.15	1.19	0.77	0.67	0.67	**0.89**	
3	C	2.08	2.94	3.16	2.97	2.97	**2.82**	**1.74**
4	D	0.97	1.30	1.46	1.54	1.54	**1.36**	
5	E	1.25	3.68	1.63	1.54	1.54	**1.93**	
6	F	1.33	1.42	1.38	2.36	2.36	**1.77**	

7	G	1.14	1.28	1.36	2.45	2.45	**1.74**	
Average		**1.30**	**1.87**	**1.59**	**1.69**	**1.98**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is observed from the table, company C has enough current assets to meet their current liabilities. Company B has no sufficient current balance to meet their current liabilities. The overall average of the industry also shows current assets are lower than the current liabilities.

8. Liquid Ratio

Table No. 2.23

Liquid Ratio of Milk and Milk Processing Companies from the year 2012 –13 to 2016 – 17

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	A	0.05	0.49	0.50	1.06	1.09	**0.64**	
2	B	0.21	0.18	0.15	0.15	0.15	**0.17**	
3	C	1.09	2.03	1.71	1.48	1.48	**1.56**	
4	D	0.61	0.71	0.71	0.79	0.79	**0.72**	**0.93**
5	E	1.09	3.38	1.43	1.28	1.28	**1.69**	
6	F	0.35	0.49	0.55	1.01	1.01	**0.68**	
7	G	0.63	0.62	0.91	1.59	1.59	**1.07**	
Average		**0.57**	**1.13**	**0.85**	**1.05**	**1.05**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here the overall ratio 0.93 is less than '1' but, closer to the ideal ratio. The liquid ratios of companies C, E and G are higher than the ideal value 1. That means these companies have sufficient liquid assets to meet their short- term obligations.

The following table shows the average financial ratios of milk and milk processing companies in Kerala.

Table No: 2. 24

Average Financial Ratios of Milk and Milk Processing Companies

Companies	Gross Profit Ratio	Operating Profit Ratio	Net Profit Ratio	Return on Capital Employed	Return on Asset	Asset Turnover Ratio	Current Ratio	Liquid Ratio
A	3.73	3.35	-4.26	3.56	5.09	338.32	1.68	0.64
B	-2.17	-9.62	-5.72	-138.86	-5.78	83.69	0.89	0.17
C	16.29	10.72	8.83	13.35	14.45	242.31	2.82	1.56
D	5.41	5.37	3.17	16.18	3.97	145.58	1.36	0.72
E	4.63	4.19	0.93	24.85	2.04	165.87	1.93	1.69
F	4.59	4.46	1.81	19.24	5.34	342.55	1.77	0.68
G	7.38	6.84	3.21	45.24	13.53	283.27	1.74	1.07

Source: Compiled by the Researcher

The table shows that the functions of companies A and B are not at satisfactory level. These companies are running at loss. Company C is the more profitable than other companies. Company G has more ability to utilise their capital in an effective manner to generate profit. Company C has more average gross profit ratio and operating profit ratio. As a whole, 62.5 percent of companies show good ratios.

2.8.2 Fruits and Vegetable Processing Companies

The financial analysis of the fruits and vegetable companies in Kerala was done, using the financial data of six companies. The alphabets are used to represent the name of companies. The results of financial analysis are given below.

1. Gross Profit Ratio

Table No. 2.25

Gross Profit Ratio of Fruits and Vegetable Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	H	36.81	39.68	34.29	39.58	37.77	**37.63**	**18.21**
2	I	39.49	43.09	37.72	34.24	32.94	**37.50**	
3	J	12.99	2.93	18.98	19.77	2.24	**11.38**	
4	K	10.76	9.10	6.22	18.33	12.48	**11.37**	
5	L	3.44	1.79	0.94	2.17	4.50	**2.57**	
6	M	8.86	8.79	8.11	8.79	9.68	**8.84**	
Average		**18.72**	**17.56**	**17.71**	**20.48**	**16.60**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is observed from the table that, gross profit ratio of three companies J, K and L are showing fluctuating trend during the period of study. The above table explains that the company H (37.63) has the highest average gross profit ratio followed by company I (37.50). A high gross profit ratio considered as an index of higher profitability. Company L (2.57) has the lowest average gross profit ratio. The overall average gross profit ratio of these companies is 18.21.

2. Operating Profit Ratio

Table No. 2.26

Operating Profit Ratio of Fruits and Vegetable Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	H	18.80	17.95	13.94	14.41	13.44	**15.70**	
2	I	10.28	8.97	7.65	2.73	-1.28	**5.67**	

3	J	1.95	1.43	0.87	1.38	1.70	**1.46**	**6.17**
4	K	5.02	5.27	3.66	6.74	4.75	**5.08**	
5	L	1.19	2.27	1.85	1.62	1.01	**1.58**	
6	M	7.16	7.11	6.79	7.83	8.68	**7.51**	
Average		**7.4**	**7.16**	**5.79**	**5.78**	**4.71**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is observed from the table that company I shows downward trend in operating profit ratio from 2012 – 13 to 2016 – 17 and has a negative operating profit ratio during the period 2016 – 17.Whereas, company H (15.70) has the highest average operating profit ratio. Company J has less average operating profit ratio. The overall average of the companies is 6.17. Except company I, all other selected fruits and vegetable companies show a fluctuating trend in operating profit ratio during the period of study.

3. Net Profit Ratio

Table No. 2.27

Net Profit Ratio of Fruits and Vegetable Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	H	13.56	12.95	9.07	9.14	10.33	**11.01**	
2	I	7.96	6.37	5.20	1.76	-0.95	**4.07**	
3	J	1.26	0.94	0.57	0.80	1.14	**0.94**	
4	K	0.74	1.34	1.90	1.28	1.37	**1.32**	**3.42**
5	L	1.04	1.53	1.22	1.09	1.01	**1.18**	
6	M	2.29	2.27	1.79	2.37	1.32	**2.01**	
Average		**4.47**	**4.23**	**3.29**	**2.74**	**2.37**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is inferred from the table that all the companies show a fluctuating trend in the net profit ratio during the period. Company H (11.01) has the highest average net profit ratio and followed by company I (4.07). The performances of these companies are at satisfactory level. Company J (0.94) has less net profit ratio during the period

and the performance is not at satisfactory level. Fruits and vegetable processing sector is more profitable (4.47) during the period 2012 – 13 and less profitable (2.37) in 2016 – 17. The overall average ratio (3.42) shows that the sector is profitable.

4. Return on Capital Employed

Table No. 2.28

Return on Capital Employed Ratio of Fruits and Vegetable Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	H	13.71	0	10.37	10.69	7.91	**8.53**	**6.02**
2	I	11.18	13.24	12.25	3.7	-1.50	**7.78**	
3	J	0.04	0.03	0.01	0.03	0.03	**0.03**	
4	K	1.22	2.64	6.22	1.20	2.25	**2.71**	
5	L	4.65	12.24	8.22	8.37	9.87	**8.67**	
6	M	3.53	11.05	16.07	8.80	2.48	**8.38**	
Average		**5.71**	**6.53**	**8.85**	**5.46**	**3.50**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here, out of six companies have very high return on capital employed around 8, company L (8.67) shows highest average return on capital employed ratio. It indicates the efficiency and profitability of the company's capital investment. Only company I (-1.50) has negative return on capital employed ratio in 2016 - 17. Company J (0.03) has a low ratio. It shows the inefficiency of the company with which capital is being utilised to generate revenue. The overall average shows that this sector has high efficiency to utilise their capital to make profit.

5. Return on Asset

Table No. 2.29

Return on Asset Ratio of Fruits and Vegetable Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	H	7.00	6.44	6.29	9.20	0.00	**5.78**	**2.58**
2	I	-0.66	1.23	3.56	3.90	4.44	**2.49**	
3	J	2.28	1.86	1.11	1.86	2.61	**1.94**	
4	K	1.44	0.77	3.60	1.72	0.88	**1.68**	
5	L	0.53	0.43	0.45	0.87	3.14	**1.08**	
6	M	1.06	4.09	2.46	2.47	2.47	**2.51**	
Average		**1.94**	**2.47**	**2.91**	**3.34**	**2.25**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here, company H (5.78) has the highest average return on asset ratio than the other companies. The high return on asset of company H shows that, this company is able to utilise its resources well in generating income. Company L (1.08) has less efficiency to utilise its assets properly to generate income. The overall average of the sector is 2.58, it indicates the sector is utilise its resources in proper way to generate profit.

6. Asset Turnover Ratio

Table No. 2.30

Asset Turnover Ratio of Fruits and Vegetable Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	H	71.72	73.45	72.46	71.09	0.00	**57.74**	**125.72**
2	I	69.87	70.29	69.15	62.11	57.79	**65.84**	
3	J	199.68	232.57	193.89	197.67	207.55	**206.27**	
4	K	104.68	60.72	189.32	128.40	119.72	**120.56**	
5	L	195.65	160.86	183.16	183.72	189.28	**182.53**	
6	M	80.69	171.91	137.64	108.64	107.86	**121.35**	

Average	**120.38**	**128.3**	**140.93**	**125.27**	**113.7**

Source: Data compiled and computed from annual reports and accounts of the sampling units

Four out of 6 companies show a high asset turnover ratio. Company J (206.27) has higher asset turnover ratio followed by company L shows that the company is efficiently using its assets to generate sales. Company H (57.74) and I (65.84) have less asset turnover ratio than other companies. It shows that the companies are less productive.

7. Current Ratio

Table No. 2.31

Current Ratio of Fruits and Vegetable Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	H	4.70	4.40	5.17	4.59	0.00	**3.77**	**1.54**
2	I	0.56	0.81	0.57	0.50	0.57	**0.60**	
3	J	1.31	1.30	1.56	1.34	1.27	**1.36**	
4	K	0.85	1.17	1.08	1.26	1.60	**1.19**	
5	L	0.97	1.06	0.97	1.04	0.92	**0.99**	
6	M	1.21	1.28	1.61	2.29	0.33	**1.34**	
Average		**1.6**	**1.67**	**1.83**	**1.84**	**0.78**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

The result shows that, company H (3.77) has the highest average current ratio than other companies. It shows that the company is capable to cover current liabilities with its current assets. Companies L (0.99) and I (0.60) have less average current ratio. It means that company L and I have less sufficient current assets to meet its current liabilities. The overall current ratio of the sector is 1.54.

8. Liquid Ratio

Table No. 2.32

Liquid Ratio of Fruits and Vegetable Processing Units

Sl.	Company	2012-	2013-	2014-	2015-	2016-	Average	Overall

No.		13	14	15	16	17		Average
1	H	3.69	3.15	3.75	3.64	0.00	**2.85**	
2	I	0.28	0.55	0.21	0.19	0.31	**0.31**	
3	J	0.47	0.77	0.96	0.37	0.59	**0.63**	**0.86**
4	K	0.85	0.94	0.84	0.86	0.94	**0.88**	
5	L	0.27	0.29	0.29	0.23	0.15	**0.25**	
6	M	0.22	0.16	0.23	0.33	0.33	**0.25**	
Average		**0.96**	**0.97**	**1.04**	**0.93**	**0.38**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Company H has more liquid assets to meet their short term financial liabilities than other companies. But in 2016 – 17, liquid assets are equal to short term financial liabilities for company H. Companies I (0.31), J (0.63), K (0.88), L (0.25) and M (0.25) have less liquid assets to pay off their short-term liabilities. The overall average liquid ratio is less than 1, it indicates that the sector has less liquid assets to meet their short-term liabilities. The following table shows the average financial ratios of fruits and vegetable processing companies in Kerala.

Table No: 2. 33

Average Financial Ratios of Fruits and Vegetable Processing Companies

Companies	Gross Profit Ratio	Operating Profit Ratio	Net Profit Ratio	Return on Capital Employed	Return on Asset	Asset Turnover Ratio	Current Ratio	Liquid Ratio
H	37.63	15.70	11.01	8.53	5.78	57.74	3.77	2.85
I	37.50	5.67	4.07	7.78	2.49	65.84	0.60	0.31
J	11.38	1.46	0.94	0.03	1.94	206.27	1.36	0.63
K	11.37	5.08	1.32	2.71	1.68	120.56	1.19	0.88
L	2.57	1.58	1.18	8.67	1.08	182.53	0.99	0.25
M	8.84	7.51	2.01	8.38	2.51	121.35	1.34	0.25

Source: Compiled by the Researcher

Here, Company H has more average gross profit ratio and average operating profit ratio. Company H is more profitable than other selected fruits and vegetable companies. The table shows that the average return on capital employed ratio of company L is better followed by H. Company J is not as much of profitable and less average return on capital employed ratio. Company H has sufficient current assets to pay off their current liabilities.

2.8.3 Meat and Poultry Processing Sector

Three meat and poultry processing companies have been selected for the study. The performance of meat and poultry processing sector is analysed using the financial data of these three companies. Alphabets are used for representing the name of companies. The results of the analysis are given below.

1. **Gross Profit Ratio**

Table No. 2.34

Gross Profit Ratio of Meat and Poultry Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	**N**	-0.34	0.76	1.12	3.93	3.66	**1.83**	**6.48**
2	**O**	4.15	3.57	6.20	5.77	4.29	**4.80**	
3	**P**	7.07	9.17	13.41	16.77	17.67	**12.82**	
Average		**3.62**	**4.5**	**6.91**	**8.82**	**8.54**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

All the companies have positive ratios except the company N (-0.34) during the year 2012 - 13. Company O showed a moderate trend in the gross profit ratio with the average 4.80. Company P showed a good trend, fluctuating trend in upward direction in gross profit ratio with the average of 12.82 during the period 2012 – 13 to 2016 – 17. The overall average ratio shows that the sector is profitable.

2. Operating Profit Ratio

Table No. 2.35

Operating Profit Ratio of Meat and Poultry Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	N	-1.30	0.64	0.56	1.01	1.44	**1.44**	**7.65**
2	O	1.71	2.71	3.96	5.49	6.01	**3.97**	
3	P	23.10	19.92	18.63	16.82	14.04	**18.50**	
Average		**7.84**	**7.75**	**7.72**	**7.77**	**7.17**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here, only company N has negative operating profit ratio during the year 2012 - 13. Company O has a constant growth in the operating profit ratio with the average 3.97. Company P with the highest ratio of 18.50 showed a fluctuating trend in downward direction.

3. Net Profit Ratio

Table No. 2.36

Net Profit Ratio of Meat and Poultry Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	N	-1.90	13.06	0.02	0.80	1.26	**2.65**	**3.88**
2	O	3.11	2.62	2.94	2.38	1.36	**2.48**	
3	P	7.07	7.80	4.55	5.90	7.22	**6.51**	

Average	**2.76**	**7.82**	**2.50**	**3.02**	**3.28**

Source: Data compiled and computed from annual reports and accounts of the sampling units

The net profit ratio of meat and poultry companies showed a fluctuating trend during the study period. Company P (6.51) is more profitable than other companies. Meat and Poultry processing sector was highly profitable (7.82) during the period 2013 – 14. The overall average of net profit ratio of meat and poultry processing sector is 3.88.

4. Return on Capital Employed Ratio

Table No. 2.37

Return on Capital Employed Ratio of Meat and Poultry Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	N	-0.91	35.05	0.13	2.72	3.74	**8.15**	
2	O	13.94	19.45	25.20	46.43	48.51	**30.71**	**24.72**
3	P	41.48	37.92	35.47	32.18	29.59	**35.33**	
Average		**18.17**	**30.80**	**20.26**	**27.11**	**27.28**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is observed from the table that the return on capital employed ratio of the company N was fluctuating trend with average 8.15. The company O shows an increasing trend in the return on capital employed with the average 30.71. The return on capital employed ratio of company P showed a fluctuating trend in downward direction. In 2014 -15, the ratio was 35.47 and it decreased to 29.59 in 2016 – 17 with the average of 35.33. During the period of study the ratio was fluctuating because there is high fluctuation in earnings before and after tax.

5. Return on Asset

Table No. 2.38

Return on Asset Ratio of Meat and Poultry Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	N	-0.61	20.66	0.07	1.63	3.21	**4.99**	**6.37**
2	O	5.36	9.64	28.47	3.58	3.58	**10.13**	
3	P	5.98	5.67	4.50	0.28	3.54	**3.99**	
Average		**3.57**	**11.99**	**11.01**	**1.83**	**3.44**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

The result shows that, company O (10.13) is better in managing its resources to generate profit and followed by company N (4.99) and company P (3.99). The overall average of meat and poultry processing sector (6.37) shows a better performance in utilising their assets to generate income.

6. Asset Turnover Ratio

Table No. 2.39

Asset Turnover Ratio of Meat and Poultry Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average

1	N	35.21	158.13	279.73	202.64	254.37	**186.01**	
2	O	394.23	414.06	193.65	139.05	139.05	**256**	**175.19**
3	P	79.14	78.53	76.34	92.61	91.14	**83.55**	
Average		**169.53**	**216.91**	**183.24**	**144.76**	**161.52**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

The table shows that company O (256) has highest average asset turnover ratio. The highest asset turnover ratio shows company O is more efficient at using its assets and generates more income from its investment in the assets. Company P (83.55) has lowest average asset turnover ratio, it reflects the bad management of asset by the company.

7. Current Ratio

Table No. 2.40
Current Ratio of Meat and Poultry Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	N	1.35	1.05	0.97	1.34	3.74	**1.69**	
2	O	0.30	0.35	0.27	0.26	0.26	**0.28**	**1.00**
3	P	1.12	1.05	1.03	1.00	0.97	**1.03**	
Average		**0.92**	**0.82**	**0.76**	**0.86**	**1.65**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here, the current ratios of companies N, O and P from the period 2012 – 13 to 2016 – 17 are less than 2, so difficulty may be experienced by these companies in the payment of current liabilities and day to day operations of the business. The current ratio of company N in 2016 – 17 was 3.74; it shows that company is capable to pay their current liabilities.

8. Liquid Ratio

Table No. 2.41

Liquid Ratio of Meat and Poultry Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	N	1.35	0.85	0.87	1.18	2.57	**1.36**	**0.75**
2	O	0.30	0.35	0.27	0.26	0.26	**0.29**	
3	P	0.68	0.64	0.60	0.51	0.52	**0.59**	
Average		**0.77**	**0.61**	**0.58**	**0.65**	**1.12**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here, the liquid ratios of companies O and P for the study period were below the ideal value 1. These companies have less ability to meet current liabilities with its most liquid assets. The average liquid ratio of company N (1.36) shows, company is capable to meet their short-term liabilities with its liquid assets.

The following table shows the average profitability ratios of meat and poultry processing companies in Kerala.

Table No: 2.42

Average Financial Ratios of Meat and Poultry Processing Companies

Companies	Gross Profit Ratio	Operating Profit Ratio	Net Profit Ratio	Return on Capital Employed	Return on Asset	Asset Turnover Ratio	Current Ratio	Liquid Ratio
N	1.83	1.44	2.65	8.15	4.99	186.01	1.69	1.36
O	4.80	3.97	2.48	30.71	10.13	256.00	0.28	0.29
P	12.82	18.50	6.51	35.33	3.99	83.55	1.03	0.59

Source: Compiled by the Researcher

Here, company P shows better performance than other companies. Company P is more profitable than other companies. And it has more ability to manage capital to generate profit. Companies N, O and P have no sufficient current assets to meet their current liabilities. Company N has sufficient liquid assets to meet their short-term financial liabilities.

2.8.4 Grain and Cereal Processing

For the study, thirty two Grain and Cereal processing companies have been selected. The financial analysis of grain and cereal processing companies was done by using the financial data of ten companies. The alphabets are used to represent the name of companies. The results of profitability analysis are given below.

1. Gross Profit Ratio

Table No. 2.43

Gross Profit Ratio of Grain and Cereal Processing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	Q	-2.87	2.60	4.53	2.35	4.78	**2.27**	**10.94**
2	R	10.88	15.43	14.95	13.11	10.72	**13.02**	
3	S	5.97	13.98	14.83	5.74	11.94	**10.49**	
4	T	-2.99	-5.85	2.69	5.61	-2.89	**-0.68**	
5	U	18.18	19.89	21.30	17.71	17.71	**18.96**	
6	V	18.40	18.28	16.91	13.73	10.91	**15.65**	
7	W	8.83	8.99	8.64	7.33	7.33	**8.22**	
8	X	28.66	25.43	27.13	24..65	25.01	**26.18**	
9	Y	12.10	6.77	11.39	6.74	6.71	**8.74**	
10.	Z	6.84	6.61	5.40	7.30	4.51	**6.14**	
Average		**10.4**	**11.21**	**12.77**	**8.85**	**9.67**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is understood from the table that company T is not performing at satisfactory level and showed negative gross profit ratio (-0.68) during the period 2012 – 13 to 2016 – 17. Company Q has negative gross profit ratio (-2.87) in 2012 – 13. Company X (26.18) has the highest gross profit ratio during the study period.

2. Operating Profit Ratio

Table No. 2.44
Operating Profit Ratio of Grain and Cereal Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	Q	-4.05	1.39	3.35	1.14	3.37	**1.04**	**4.52**
2	R	9.00	12.29	11.68	10.30	8.35	**10.32**	
3	S	5.52	13.71	14.53	5.36	11.61	**10.15**	
4	T	-29.19	-29.34	-4.92	0.32	-10.25	**-14.67**	
5	U	12.13	13.58	16.01	13.53	13.53	**13.75**	
6	V	15.10	15.87	14.20	10.64	7.66	**12.69**	
7	W	7.27	7.54	7.50	6.48	6.48	**7.05**	
8	X	6.58	1.49	4.39	2.48	1.10	**3.21**	
9	Y	2.14	3.81	3.64	3.23	3.29	**3.22**	
10	Z	1.34	1.34	0.84	-4.76	-6.39	**-1.59**	
Average		**2.58**	**4.17**	**7.12**	**4.87**	**3.87**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

The operating profit ratio of all companies have fluctuating trend during the study period. The operating profit ratio of T has shown negative operating profit ratio from

2012 – 13 to 2016 -17; it implies that this company is not performing well. Company U (13.75) has highest average operating profit ratio and company T (-14.67) has lowest average operating profit ratio. Company Z has negative operating ratio in 2015 – 16 to 2016 -17 with the average of -1.59. The overall average of operating profit ratio is 4.52. A company with good operating profit ratio can successfully survive during the economic crisis.

3. Net profit ratio

Table No. 2. 45

Net Profit Ratio of Grain and Cereal Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	Q	-4.79	1.27	1.96	-0.69	1.63	**-0.12**	**1.53**
2	R	4.97	6.29	6.76	6.41	4.72	**5.83**	
3	S	3.09	8.53	9.40	3.19	7.05	**6.25**	
4	T	-29.29	-34.16	-5.14	0.47	-6.34	**-14.89**	
5	U	7.01	7.96	10.74	8.95	8.95	**8.72**	
6	V	7.56	7.22	5.89	0.31	3.89	**4.97**	
7	W	1.68	1.66	1.45	1.95	1.92	**1.73**	
8	X	4.73	1.15	3.99	1.76	1.19	**2.56**	
9	Y	1.05	2.67	2.52	2.67	2.77	**2.34**	
10	Z	1.33	1.33	0.47	-4.76	-8.74	**-2.07**	

Average	**-0.26**	**0.39**	**3.80**	**2.02**	**1.70**

Source: Data compiled and computed from annual reports and accounts of the sampling units

Company T has negative net profit during the period 2012 – 13 to 2016 – 17 and the average net profit ratio was -14.89, this company is not performing at satisfactory level. Company U (8.72) has the highest average net profit ratio and followed by S (6.25) during the study period. Company U is more profitable than other companies. Company Z was running at loss in 2015 – 16 and 2016 – 17. Grain and Cereal processing sector was more profitable during the year 2014 – 15. The overall average net profit ratio of this sector is 1.53.

4. Return on Capital Employed

Table No. 2. 46

Return on Capital Employed of Grain and Cereal Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	Q	-18.55	4.91	8.12	-3.09	6.30	**-0.46**	**17.90**
2	R	13.26	15.61	15.24	14.65	10.01	**13.75**	
3	S	5.52	18.25	18.50	7.24	17.66	**13.43**	
4	T	-19.93	46.51	-4.91	0.62	-6.50	**87.32**	
5	U	12.65	13.49	27.64	22.73	15.05	**18.31**	
6	V	9.34	9.14	7.11	0.48	12.00	**7.61**	
7	W	8.71	8.69	40.73	16.95	5.03	**16.02**	

8	X	10.07	3.54	9.25	4.46	1.46	**5.76**	
9	Y	7.38	14.24	23.59	24.18	27.50	**19.38**	
10	Z	2.78	2.67	0.97	-8.73	-8.07	**-2.07**	
Average		**3.12**	**55.80**	**14.62**	**7.94**	**8.04**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

The return on capital employed ratios of the above said companies except Y were shows fluctuating trend during the study period. Company Y shows an increasing trend in operating profit ratio from 2012 – 13 to 2016-17. Company Q and Z have negative return on capital employed ratio. Hence, it indicates that the inefficiency of the company with which capital is being utilized to generate revenue. Company T (87.32) has the highest average return on capital employed ratio and followed by Y (19.38).

5. Return on Asset

Table No. 2. 47

Return on Asset of Grain and Cereal Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	Q	-11.85	3.17	3.69	-1.81	4.17	**-0.53**	
2	R	8.25	7.22	6.86	5.26	5.26	**6.57**	
3	S	4.09	14.10	14.55	5.17	11.13	**9.81**	

4	T	-12.52	254.67	-2.52	0.35	-3.56	**47.28**	**9.02**
5	U	8.43	9.02	13.24	11.65	11.65	**10.80**	
6	V	5.98	5.67	4.50	0.28	3.54	**3.99**	
7	W	2.15	2.28	2.18	2.56	2.60	**2.35**	
8	X	3.31	8.82	5.55	7.29	7.29	**6.45**	
9	Y	7.59	6.37	5.98	2.22	2.22	**4.88**	
10	Z	0.46	1.55	1.55	-6.04	-4.48	**-1.39**	
Average		**1.59**	**31.29**	**5.56**	**2.69**	**3.98**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

The table shows, companies Q, T and Z have negative return on assets during the study period due to these companies net income for this period was loss. Companies R and Y shows a decreasing trend in the return on asset means the firm has to improve or need to reduce the expenses or replace the old assets.

6. Asset Turnover Ratio

Table No. 2. 48

Asset Turnover Ratio of Grain and Cereal Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average

1	Q	247.81	271.82	191.95	259.37	255.73	**245.34**	
2	R	131.05	106.85	108.10	111.47	111.47	**113.79**	
3	S	132.26	165.27	154.82	162.04	157.89	**154.46**	
4	T	42.75	52.82	49.18	75.06	56.15	**55.19**	
5	U	120.16	113.34	123.26	130.10	130.10	**123.39**	**143.58**
6	V	79.14	78.53	76.34	92.61	91.14	**83.55**	
7	W	128.07	136.66	149.66	133.12	133.12	**136.13**	
8	X	186.86	219.98	228.23	154.01	154.04	**188.62**	
9	Y	284.09	253.05	223.32	210.55	210.55	**236.31**	
10	Z	69.75	94.88	97.46	116.45	116.45	**99.00**	
Average		**142.19**	**149.32**	**140.23**	**144.48**	**141.66**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Company Q (245.34) has more average asset turnover ratio than other companies. Here, all companies in grain and cereal processing sector shows a better performance in using their assets to produce products and sales. Here, companies Q (245.34), S (154.46), X (188.62) and Y (236.31) shows better management of their assets than other companies, their average asset turnover ratio is higher than the overall average asset turnover ratio.

7. Current Ratio

Table No. 2. 49

Current Ratio of Grain and Cereal Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	Q	1.95	2.04	1.50	1.85	2.42	**1.95**	**1.38**
2	R	1.13	1.20	1.28	1.32	1.32	**1.25**	
3	S	1.14	1.60	1.51	1.22	1.16	**1.33**	
4	T	0.51	0.42	0.37	0.46	0.46	**0.44**	
5	U	1.11	1.16	1.39	2.10	2.10	**1.57**	
6	V	1.12	1.05	1.03	1.00	0.97	**1.03**	
7	W	1.07	1.09	1.12	1.64	1.64	**1.31**	
8	X	0.90	1.06	0.94	2.64	2.64	**1.64**	
9	Y	1.42	1.45	1.63	1.57	1.57	**1.53**	
10	Z	1.67	1.33	1.64	2.07	2.07	**1.76**	
Average		**1.20**	**1.24**	**1.24**	**1.59**	**1.64**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

The current ratios of companies X and Z during the period 2015 -1 6 and 2016 – 17 was higher than the standard value 2. So these companies have sufficient current assets to meet their current liabilities during this period. The overall average of grain and cereal processing sector was 1.38, means the companies under this sector have less current assets to pay off their current liabilities.

8. Liquid Ratio

Table No. 2. 50

Liquid Ratio of Grain and Cereal Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	Q	1.41	1.28	0.64	0.87	1.25	**1.09**	**0.88**
2	R	0.39	0.50	0.63	0.84	0.83	**0.64**	
3	S	0.80	1.13	1.15	0.78	0.58	**0.89**	
4	T	0.29	0.26	0.25	0.31	0.29	**0.28**	
5	U	0.62	0.70	0.79	1.20	2.10	**1.08**	
6	V	0.68	0.64	0.60	0.51	0.52	**0.59**	
7	W	0.46	0.42	0.43	0.54	0.54	**0.48**	
8	X	0.30	0.35	0.33	1.98	1.98	**0.99**	
9	Y	1.18	1.34	1.37	1.44	1.44	**1.35**	
10	Z	1.44	1.03	1.31	1.67	1.67	**1.42**	
Average		**0.76**	**0.77**	**0.75**	**1.01**	**1.12**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

The liquid ratios of companies R, T, V and W are less than the ideal value 1 for the study period. That means these companies have less liquid assets to write off their short term liabilities. Companies Z (1.42), Y (1.35), Q (1.09) and U (1.08) have sufficient liquid assets to pay off their short-term obligations.

The following table shows the average financial ratios of grain and cereal processing companies in Kerala.

Table No: 2.51

Average Financial Ratios of Grain and Cereal Processing Companies in Kerala

Companies	Gross Profit Ratio	Operating Profit Ratio	Net Profit Ratio	Return on Capital Employed	Return on Assets	Asset Turnover Ratio	Current Ratio	Liquid Ratio
Q	2.27	1.04	-0.12	-0.46	-0.53	245.34	1.95	1.09
R	13.02	10.32	5.83	13.75	6.57	113.79	1.25	0.64
S	10.49	10.15	6.25	13.43	9.81	154.46	1.33	0.89
T	-0.68	-14.67	-14.89	87.32	47.28	55.19	0.44	0.28
U	18.96	13.75	8.72	18.31	10.80	123.39	1.57	1.08
V	15.65	12.69	4.97	7.61	3.99	83.55	1.03	0.59
W	8.22	7.05	1.73	16.02	2.35	136.13	1.31	0.48
X	26.18	3.21	2.56	5.76	6.45	188.62	1.64	0.99
Y	8.74	3.22	2.34	19.38	4.88	236.31	1.53	1.35

Z	6.14	-1.59	-2.07	-2.07	-1.39	99.00	1.76	1.42

Source: Compiled by the Researcher

From the table, company U is more profitable than other companies. Companies Q, T and Z are not performing at satisfactory level. Companies Q and Y show better performances in managing their assets to generate their income. All companies under this sector have fewer current assets to meet their current liabilities.

2.8.5 Consumer Food Producing Companies

The study includes the analysis of financial data of six consumer food producing companies. Here, the alphabets are used to represent the name of the companies.

1. **Gross Profit Ratio**

Table No. 2.52

Gross Profit Ratio of the Consumer Food Producing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AA	3.42	2.69	3.66	3.27	3.27	**3.26**	**9.08**
2	AB	12.18	7.58	16.72	5.35	12.57	**10.88**	
3	AC	4.93	6.61	8.02	3.27	5.47	**5.66**	
4	AD	8.83	8.99	8.64	7.33	7.33	**8.22**	
5	AE	8.20	14.78	16.48	18.15	18.35	**15.19**	
6	AF	13.43	9.89	11.01	10.96	10.96	**11.25**	
Average		**8.49**	**8.42**	**10.75**	**8.05**	**9.66**		

Source: Data compiled and computed from the annual reports and accounts of the sampling units

The above table explains that the company AE (15.19) has the highest average gross profit ratio followed by company AF (11.25). Company AA (3.26) has the lowest

average gross profit ratio. It is noteworthy that in those five years all the selected companies are earning positive average gross profit ratio and the overall average is 9.08.

2. Operating Profit Ratio

Table No. 2.53

Operating Profit Ratio of Consumer Food Producing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AA	2.48	1.63	2.69	2.48	2.48	**2.35**	**6.91**
2	AB	9.09	4.13	11.39	1.86	11.23	**7.54**	
3	AC	4.24	5.56	6.42	1.77	4.01	**4.4**	
4	AD	7.27	7.54	7.50	6.48	6.48	**7.05**	
5	AE	5.44	10.90	12.94	14.55	14.65	**11.69**	
6	AF	10.50	7.50	8.25	7.95	7.95	**8.43**	
Average		**6.50**	**6.21**	**8.19**	**5.84**	**7.8**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is inferred from the table company AE (11.63) has highest operating profit ratio. It shows the profitability of sales resulting from regular business. A company with higher operating profit ratio is financially sound. Company AE has continues increase in the operating profit ratio and all other companies show fluctuating trend in the operating profit ratio. The overall average operating profit ratio of this sector is 6.91.

3. Net Profit Ratio

Table No. 2.54

Net Profit Ratio of Consumer Food Producing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AA	0.80	0.19	0.63	0.46	0.46	**0.51**	**0.22**
2	AB	3.53	-0.18	-54.55	-10.18	-0.10	**-12.29**	
3	AC	2.75	3.39	3.97	0.80	2.14	**2.61**	
4	AD	1.68	1.66	1.45	1.92	1.95	**1.73**	
5	AE	2.97	6.10	7.73	8.71	8.95	**6.89**	
6	AF	3.52	0.18	1.62	1.97	1.97	**1.85**	
Average		**2.54**	**1.89**	**-6.52**	**0.61**	**2.56**		

Source: Data compiled and computed from the annual reports and accounts of the sampling units

It is observed from the table that the net profit ratio of company AB is showing negative figures with average of -12.29 for the period 2012 – 13 to 2016 – 17. The performance of this company is not at a satisfactory level. Poor pricing strategies, ineffective marketing programs, competition, inability to keep up with market changes

and inefficient marketing personnel are common causes of decreasing revenue. Companies AE (6.89) and AC (2.61) show better performance compared to the other consumer food producing companies. Except company AB, all other companies have good net profit ratio from 2012 -13 to 2016 -17. Except company AB, all other companies seem to be profitable.

4. Return on capital employed

Table No. 2.55

Return on Capital Employed of Consumer Food Producing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AA	6.41	1.39	21.91	3.75	19.99	**10.69**	**10.33**
2	AB	0.00	-0.42	-38.78	-9.48	-0.10	**-9.75**	
3	AC	14.10	16.92	12.46	2.86	6.59	**10.58**	
4	AD	8.71	8.69	40.73	5.03	16.95	**16.02**	
5	AE	6.86	15.16	18.50	28.54	19.08	**17.63**	
6	AF	18.55	0.88	31.68	26.46	6.56	**16.82**	
Average		**9.10**	**7.10**	**14.41**	**9.53**	**11.51**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is evident from the table that the return on capital employed ratio of Company AB (-9.75) showed negative and fluctuating trend during the study period. Hence it

indicates that the return on capital employed is not satisfactory for this company. It reflects the operational efficiency of the company. Above analysis shows that return on capital employed ratio of company AE (17.63) was satisfactory followed by AF (16.82) and AD (16.02). These companies are advised to utilize its capital efficiently to generate the enough sales. The overall average of return on capital employed of this sector is 10.33.

5. Return on Asset

Table No. 2.56

Return on Asset of Consumer Food Producing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AA	2.58	0.59	2.02	1.43	1.43	**1.61**	**2.76**
2	AB	0.00	-0.16	-22.41	-6.00	-0.06	**-5.73**	
3	AC	6.99	9.39	7.37	1.45	3.95	**5.83**	
4	AD	2.15	2.28	2.18	2.56	2.60	**2.35**	
5	AE	4.51	0.19	1.61	1.77	1.77	**1.97**	
6	AF	3.97	9.58	12.31	12.95	13.78	**10.52**	
Average		**3.37**	**3.65**	**0.51**	**2.36**	**3.91**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here, the return on asset of company AF shows an increasing trend for the study period. It means company use its assets in an efficient manner to generate revenue. Company AB has negative return on asset during the period of study; it indicates that the business is unambiguously unprofitable. It is losing money irrespective of how the assets may have been financed.

6. Asset Turnover Ratio

Table No. 2.57

Asset Turnover Ratio of Consumer Food Producing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AA	318.95	298.29	321.41	308.11	308.11	**310.97**	**161.38**
2	AB	0.0	90.09	41.08	58.99	64.21	**50.87**	
3	AC	254.08	276.94	185.82	181.72	184.12	**216.54**	
4	AD	128.07	136.66	149.66	133.12	133.12	**136.13**	
5	AE	128.22	109.06	99.12	89.93	89.93	**103.25**	
6	AF	133.61	156.97	159.12	148.63	154.30	**150.53**	
Average		**160.49**	**178.00**	**159.37**	**153.42**	**155.63**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Company AA (310.97) has highest asset turnover ratio during the study period. It means the company is using its asset more efficiently. Here, company AB has lowest asst turnover ratio than other companies, it indicates that the company isn't using its assets efficiently and most likely have management or production problems. The overall average (161.38) shows that consumer food producing sector has efficiently utilising its assets to generate their income.

7. Current Ratio

Table No. 2.58

Current Ratio of Consumer Food Producing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AA	0.99	1.01	1.02	1.04	1.04	**1.02**	**1.23**
2	AB	0.00	1.38	1.80	2.14	2.43	**1.55**	
3	AC	1.33	1.19	0.87	1.06	1.06	**1.10**	
4	AD	1.07	1.09	1.12	1.64	1.64	**1.31**	
5	AE	0.77	0.79	0.82	0.87	0.87	**0.82**	
6	AF	0.95	1.23	1.55	2.16	1.98	**1.57**	
Average		**0.85**	**1.12**	**1.20**	**1.49**	**1.50**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

The average current ratio of all companies under consumer food producing sector is below the standard value 2, it means these companies have no sufficient current assets to meet their current liabilities.

8. Liquid Ratio

Table No. 2.59

Liquid Ratio of Consumer Food Producing Companies

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average

1	AA	0.48	0.54	0.56	0.63	0.63	**0.57**	
2	AB	0.00	0.36	0.72	0.86	0.85	**0.56**	
3	AC	0.27	0.36	0.19	0.37	0.37	**0.31**	**0.57**
4	AD	0.46	0.42	0.43	0.54	0.54	**0.48**	
5	AE	0.32	0.31	0.38	0.44	0.44	**0.38**	
6	AF	0.65	0.89	1.11	1.49	1.35	**1.10**	
Average		**0.36**	**0.48**	**0.57**	**0.72**	**0.70**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here, the liquid ratio of all companies except company AF (1.10) is less than the ideal value 1; it means these companies have less liquid assets to meet their short term obligations.

The following table shows the average financial ratios of consumer food producing companies in Kerala.

Table No: 2.60

Average Financial Ratios of Consumer Food Producing Companies in Kerala

Companies	Gross Profit Ratio	Operating Profit Ratio	Net Profit Ratio	Return on Capital Employed	Return on Asset	Asset Turnover Ratio	Current Ratio	Liquid Ratio
AA	3.26	2.35	0.51	10.69	1.61	310.97	1.02	0.57
AB	10.88	7.54	-12.29	-9.75	-5.73	50.87	1.55	0.56
AC	5.66	4.4	2.61	10.58	5.83	216.54	1.10	0.31
AD	8.22	7.05	1.73	16.02	2.35	136.13	1.31	0.48
AE	15.19	11.69	6.89	17.63	1.97	103.25	0.82	0.38
AF	11.25	8.43	1.85	16.82	10.52	150.53	1.57	1.10

Source: Compiled by the researcher

Here, company AB was running at loss. Company AE is more financial sound company. Company AF has the sufficient liquid assets to pay off their short-term liabilities.

2.8.6 Marine and Fish Processing

The profitability of marine and fish processing sector is analysed by using the financial data of eleven companies. The alphabets are used for representing the name of marine and fish processing companies. The results of analysis are given below.

1. Gross Profit Ratio

Table No. 2.61

Gross Profit Ratio of Marine and Fish Processing Units

Sl. No.	Company	2012 - 13	2013 -14	2014 - 15	2015 - 16	2016 - 17	Average	Overall Average
1	AG	6.96	8.96	9.16	8.86	8.86	**8.56**	**13.26**
2	AH	11.06	4.41	15.72	14.69	33.84	**15.94**	
3	AI	18.56	15.16	7.89	-1.47	8.94	**9.82**	
4	AJ	9.55	6.54	8.56	9.23	1.79	**7.13**	
5	AK	10.34	17.54	18.97	-22.87	-22.51	**0.29**	
6	AL	10.07	11.45	12.51	10.76	12.97	**11.55**	
7	AM	3.93	3.11	2.52	2.65	3.57	**3.16**	
8	AN	4.32	5.80	3.54	-97.90	266.94	**36.54**	
9	AO	28.96	29.20	25.04	24.56	21.22	**25.79**	
10	AP	4.30	6.58	8.53	14.87	5.70	**7.99**	
11	AQ	16.66	15.77	17.11	20.83	25.23	**19.12**	
Average		**11.33**	**11.32**	**11.77**	**-1.43**	**33.32**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is evident from the table that the gross profit ratio of all companies showed a fluctuating trend with the overall average 13.26 during the period 2012 – 13 to 2016 – 17.

Company AN (36.54) has highest average gross profit ratio followed by Company AO (25.79). The analysis showed that company AK showed negative gross profit ratio during the period 2015 – 16 and 2016 – 17. Companies AI and AN have negative operating profit ratio in the period 2015 – 16.

2. Operating Profit Ratio

Table No. 2.62

Operating Profit Ratio of Marine and Fish Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AG	3.76	5.85	5.76	4.81	4.81	**4.99**	**12.76**
2	AH	10.95	3.06	11.55	11.69	28.11	**13.07**	
3	AI	18.33	14.90	7.36	-2.85	7.43	**9.03**	
4	AJ	5.96	4.16	5.89	6.94	-0.49	**4.49**	
5	AK	3.15	4.93	4.36	-29.53	-33.80	**-10.18**	
6	AL	7.87	9.40	10.82	8.65	10.62	**9.47**	
7	AM	3.23	2.29	1.74	1.83	2.26	**2.27**	
8	AN	3.70	4.77	2.77	-101.77	410.24	**63.94**	
9	AO	23.57	23.83	19.83	18.85	15.72	**20.36**	
10	AP	2.15	4.65	6.19	12.12	3.09	**5.64**	
11	AQ	14.60	14.07	15.62	18.88	23.15	**17.26**	
Average		**8.84**	**8.33**	**8.35**	**-4.58**	**42.83**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here, the operating profit ratio of all companies shows a fluctuating trend. Company AK (-10.18) has negative average operating profit ratio. If operations start to decline, the company will have to find a new way to generate income. Company AN (63.94) has the highest average operating profit ratio followed by AO (20.36). Companies AQ and AH have continues increase in operating profit ratio from 2013 – 14 to 2016 –

17. A higher operating profit ratio is more favourable compared with a lower ratio because this shows that the company is making enough money from its ongoing operations to pay for its variable cost as well as its fixed cost.

3. Net Profit Ratio

Table No. 2.63

Net Profit Ratio of Marine and Fish Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AG	1.33	1.75	3.22	2.11	2.11	**2.10**	**12.19**
2	AH	5.18	1.73	6.77	7.35	18.09	**7.82**	
3	AI	-3.69	9.37	3.95	-5.00	5.40	**2.00**	
4	AJ	1.73	0.29	1.96	17.62	0.45	**4.41**	
5	AK	-8.64	-3.89	-20.63	-32.59	-224.58	**-58.06**	
6	AL	2.69	3.80	6.42	5.39	5.48	**4.76**	
7	AM	1.80	0.80	0.20	0.38	0.27	**0.69**	
8	AN	0.20	0.42	-0.13	-120.79	816.58	**139.26**	
9	AO	20.50	19.88	15.42	13.17	11.73	**16.14**	
10	AP	1.10	2.83	4.07	8.14	2.27	**3.68**	
11	AQ	9.50	9.02	11.05	12.74	14.22	**11.31**	
Average		**2.88**	**4.18**	**2.93**	**-8.31**	**59.27**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is understood from the table that the net profit ratio of the company AK was negative and highly fluctuated with the average of -58.06. The performance of this company is not at satisfactory level. The company AN has the highest average net profit ratio (139.26) during the study period and followed by AO (16.14). Company AN is more profitable than other companies. In 2014 – 15 and 2015 – 16, company AN was running at loss and company earned high profit during the year 2016 – 17.

4. Return on Capital Employed

Table No. 2.64

Return on Capital Employed Ratio of Marine and Fish Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AG	7.36	12.40	32.41	9.70	22.03	**16.78**	**21.32**
2	AH	6.31	7.85	18.19	19.57	23.11	**15.00**	
3	AI	153.53	78.30	25.28	-28.80	29.20	**51.50**	
4	AJ	12.40	2.71	23.53	79.44	2.02	**24.02**	
5	AK	-9.67	-2.41	-12.26	-22.77	19.94	**-5.43**	
6	AL	8.44	12.29	20.07	10.56	11.32	**12.54**	
7	AM	6.37	4.41	1.03	1.86	0.99	**2.93**	
8	AN	0.80	1.81	-0.76	337.64	48.93	**77.68**	
9	AO	14.10	11.96	8.58	8.06	6.52	**9.84**	
10	AP	2.86	8.72	11.99	20.96	5.31	**9.97**	
11	AQ	21.36	18.59	20.25	19.30	18.70	**19.64**	
Average		**20.35**	**14.23**	**13.48**	**41.41**	**17.09**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

The return on capital employed ratios showed high fluctuations because there are fluctuations in earnings before interest and tax. The company AH shows an increasing trend in return on capital employed. In 2016 – 17, the company AN has high return on capital employed ratio. It indicates that the return on capital employed ratio is at commendable growth rate. Company AK showed negative return on capital employed ratios during the study period. It indicates the return on capital employed ratio is not at the satisfactory level and it also reflects the operational efficiency of the company.

5. Return on Asset

Table No. 2.65

Return on Asset Ratio of Marine and Fish Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AG	3.70	5.22	8.52	4.30	4.30	**5.21**	**2.08**
2	AH	3.59	6.01	11.19	12.35	18.10	**10.25**	
3	AI	-10.41	16.55	6.89	-7.21	10.42	**3.25**	
4	AJ	3.82	0.59	3.48	33.86	0.76	**8.50**	
5	AK	-4.99	-1.65	-7.53	-11.69	-50.79	**-15.33**	
6	AL	5.60	7.76	13.11	7.12	8.65	**8.45**	
7	AM	3.18	2.22	0.36	0.78	0.46	**1.4**	
8	AN	0.40	0.76	-0.20	-104.83	-20.10	**-24.79**	
9	AO	9.76	8.36	5.82	5.57	4.89	**6.88**	
10	AP	2.28	6.97	9.23	17.07	4.32	**7.97**	
11	AQ	9.87	9.36	12.42	11.84	12.04	**11.11**	
Average		**2.44**	**5.65**	**5.75**	**-2.80**	**-0.63**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

It is observed from the table, the return on asset ratios of company AK shows negative return on assets during the study period, because company AK has net loss during this period. Company AN (816.58) was profitable in 2016 – 17 but the return on asset (-20.10) is negative, because company write off a lot of revenue due to depreciation.

6. Asset Turnover Ratio

Table No. 2.66

Asset Turnover Ratio of Marine and Fish Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AG	277.84	297.59	264.37	203.05	203.05	**249.18**	**159.39**
2	AH	69.24	346.16	165.17	167.92	100.03	**169.70**	
3	AI	281.78	176.54	174.23	144.18	192.87	**193.92**	
4	AJ	220.94	204.07	177.14	192.18	169.18	**192.70**	
5	AK	57.85	42.36	36.53	35.87	22.61	**39.04**	
6	AL	207.95	203.99	203.98	131.88	157.86	**181.13**	
7	AM	292.69	277.05	183.89	203.58	171.19	**225.68**	
8	AN	198.53	180.43	157.31	86.78	-2.46	**124.12**	
9	AO	62.41	64.38	59.69	60.49	65.50	**62.49**	
10	AP	206.59	246.28	226.47	209.74	189.80	**215.78**	
11	AQ	103.87	103.79	112.40	92.93	84.65	**99.53**	
Average		179.97	**194.79**	**160.11**	**138.96**	**123.12**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here, company AG has the high average asset turnover ratio than other companies. It indicates that the company is growing into its capacity. Company AN has low asset turnover ratio during the period 2016 – 17 because of poor inventory management.

7. Current Ratio

Table No. 2.67

Current Ratio of Marine and Fish Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AG	0.68	0.70	0.50	0.47	0.47	**0.56**	**1.28**
2	AH	2.31	1.88	1.68	1.97	2.75	**2.12**	
3	AI	0.87	1.18	1.29	1.18	1.32	**1.17**	
4	AJ	0.79	0.71	0.69	0.90	0.88	**0.79**	
5	AK	0.76	1.43	1.34	0.95	0.12	**0.92**	
6	AL	0.78	0.98	1.09	0.84	1.25	**0.99**	
7	AM	1.16	1.27	1.21	1.29	1.27	**1.24**	
8	AN	1.18	1.20	1.10	0.38	0.03	**0.78**	
9	AO	1.56	1.30	1.35	1.45	1.60	**1.45**	
10	AP	2.02	1.59	1.75	3.01	3.27	**2.33**	
11	AQ	1.43	1.49	1.75	1.78	2.06	**1.70**	
Average		**1.23**	**1.25**	**1.25**	**1.29**	**1.37**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Here, the average current ratios of company AP (2.33) and company AH is higher than the standard value 2. Hence, companies AP and AH have sufficiently liquid and can easily pay off its current liabilities with its current assets.

8. Liquid Ratio

Table No. 2.68

Liquid Ratio of Marine and Fish Processing Units

Sl. No.	Company	2012-13	2013-14	2014-15	2015-16	2016-17	Average	Overall Average
1	AG	0.18	0.18	0.15	0.14	0.14	**0.16**	**0.74**
2	AH	2.31	1.88	1.05	1.44	2.26	**1.79**	
3	AI	0.46	0.49	0.48	0.58	0.01	**0.40**	
4	AJ	0.49	0.46	0.53	0.65	0.66	**0.56**	
5	AK	0.47	0.73	0.66	0.59	0.11	**0.51**	
6	AL	0.43	0.63	0.86	0.61	0.88	**0.68**	
7	AM	0.66	0.54	0.89	0.94	0.78	**0.76**	
8	AN	0.59	0.61	0.65	0.37	0.02	**0.45**	
9	AO	1.23	0.82	0.95	0.99	1.08	**1.01**	
10	AP	1.04	0.90	1.11	2.27	2.60	**1.58**	
11	AQ	0.26	0.24	0.27	0.23	0.26	**0.25**	
Average		**0.74**	**0.68**	**0.69**	**0.80**	**0.8**		

Source: Data compiled and computed from annual reports and accounts of the sampling units

Companies AH (1.79), AO (1.01) and AP (1.58) have ideal liquid ratio than other companies. These companies have sufficient liquid assets to meet its short term obligations. The following table shows the average financial ratios of marine and fish processing companies in Kerala.

Table No: 2.69

Average Financial Ratios of Marine and Fish Processing Companies in Kerala

Companies	Gross Profit Ratio	Operating Profit Ratio	Net Profit Ratio	Return on Capital Employed	Return on Asset	Asset Turnover Ratio	Current Ratio	Liquid Ratio
AG	8.56	4.99	2.10	16.78	5.21	249.18	0.56	0.16
AH	15.94	13.07	7.82	15.00	10.25	169.70	2.12	1.79
AI	9.82	9.03	2.00	51.50	3.25	193.92	1.17	0.40
AJ	7.13	4.49	4.41	24.02	8.50	192.70	0.79	0.56
AK	0.29	-10.18	-58.06	-5.43	-15.33	39.04	0.92	0.51
AL	11.55	9.47	4.76	12.54	8.45	181.13	0.99	0.68
AM	3.16	2.27	0.69	2.93	1.4	225.68	1.24	0.76
AN	36.54	63.94	139.26	77.68	-24.79	124.12	0.78	0.45
AO	25.79	20.36	16.14	9.84	6.88	62.49	1.45	1.01
AP	7.99	5.64	3.68	9.97	7.97	215.78	2.33	1.58
AQ	19.12	17.26	11.31	19.64	11.11	99.53	1.70	0.25

Source: Compiled by the researcher

Here, company AK was performing not at satisfactory level. Company AN is more profitable company and also they have more efficiency to manage the capital to make adequate profit. Companies AH and AP have sufficient current assets to pay off their short term liabilities. Companies AH, AP and AO have enough liquid assets to meet their short term obligations.

The following table shows average financial ratios of food processing sector.

Table No: 2.70

Average Financial Ratios of Food Processing Sector in Kerala

Category	Gross Profit Ratio	Operating Profit Ratio	Net Profit Ratio	Return on Capital Employed	Return on Asset	Asset Turnover Ratio	Current Ratio	Liquid Ratio
Milk and Milk Processing	4.99	3.56	1.56	1.46	5.52	228.79	1.74	0.93
Fruits and Vegetable Processing	18.21	6.17	3.42	6.02	2.58	125.72	1.54	0.86
Meat and Poultry Processing	6.48	7.65	3.88	24.72	6.37	175.19	1.00	0.75
Grain and Cereal Processing	10.94	4.52	1.53	17.90	9.02	143.58	1.38	0.88
Consumer Food	9.08	6.91	0.22	10.33	2.76	161.38	1.23	0.57

Marine and Fish Processing	13.26	12.76	12.19	21.32	2.08	159.39	1.28	0.74

Source: Compiled by the Researcher

Here, Marine and Fish processing sector is more profitable and the companies under food processing sector have more ability to manage their capital for making profit. Consumer Food producing sector is the less profit making sector. Milk and milk processing sector has less return on capital employed. These companies should utilise their capital in an efficient manner to enhance the sales volume. Majority of the food processing companies are functioning in profit and some others in loss.

Conclusion

In this chapter an attempt is made to analyse the performance of the food processing sector in Kerala. The financial performance is analysed by using the gross profit ratio, operating profit ratio, net profit ratio, return on capital employed, return on asset, asset turnover ratio, current ratio and liquid ratio. The study reveals that, marine and fish processing sector in Kerala is more profitable than the other food processing sectors. Consumers' food producing sector is less profitable. Majority of the food processing companies are functioning at a profit and some others are at loss. In order to make the food processing sector profitable, the analysis of the problems faced by the units seems to be beneficial. Hence, an analysis of the problems faced by the food processing units in Kerala is made in the next chapter.

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CHAPTER 3

ANJANA V. M. “PROBLEMS AND PROSPECTS OF FOOD PROCESSING INDUSTRY IN KERALA”. THESIS. RESEARCH & PG DEPARTMENT OF COMMERCE & MANAGEMENT STUDIES, ST. JOSEPH’S COLLEGE (AUTONOMOUS), IRINJALAKUDA, UNIVERSITY OF CALICUT, 2018.

THE PROBLEMS FACED BY THE FOOD PROCESSING UNITS IN KERALA

The food processing units have to face a large number of problems throughout the life cycle of the products, such as problems related to procurement of raw materials, production, raising working capital/ finance, marketing, human resource and export. Chapter 2 has dealt with the details regarding the performance of food processing industry, including the production and export of processed food and analysed financial performance of food processing sector in Kerala with the help of secondary data. In this chapter an attempt is made to analyze the problems faced by the food processing units in Kerala. The study is made, analysing the primary data collected, regarding the food processing companies registered under RoC, Kerala. All the 140 units registered under RoC are included in the study. This chapter is divided into two parts. The first part deals with the profile of food processing units and the second part is concerned with the problems faced by the food processing units.

3.1 Profile of the Food Processing Units

The profile of the company includes the location of the units, factors considered while selecting location, form of organisation, reasons for starting the business, categories of food processing companies, and type of standard certificate. The results of analysis are given in the form of tables.

3.1.1 The Location of the Units

The location of the units is divided into three categories; corporation, municipality and panchayath. From the table 3.1 it is seen that, the majority (47.1 percent) of the food processing units are located in Panchayaths. 27.1 percent of them are in the Corporation area and 25.7 percent are located in the Municipality. The details are given in the following table.

Table No 3.1

Location of Units

Sl.No.	Location of Units	Frequency	Percent
1.	Corporation	38	27.1
2.	Municipality	36	25.7
3.	Panchayath	66	47.1
	Total	**140**	**100**

Source: Primary Data

3.1.2 Form of Organization

There are different forms of organisations among the food processing units, such as sole trading concern, partnership firm, private limited company and public limited company.

Table No. 3.2

Form of Organization

Sl. No.	Form of Organization	Frequency	Percent
1.	Sole Trading Concern	1	0.7
2.	Partnership Firm	11	7.9
3.	Private Limited Company	117	83.6
4.	Public Limited Company	11	7.9
	Total	**140**	**100**

Source: Primary Data

From table 3.2, it is found that 83.6 percent of the food processing units are Private Limited Companies. Public Limited Company and partnership firm in the sample constitute 7.9 percent each. There is only one sole trading concern, which is registred under Registrar of Companies.

3.1.3. Reasons for Starting the Business

The researcher has identified some reasons for starting the business like attractive market, to meet the needs of the locality, profit motive and availability of raw materials. The following table shows the reasons that the respondents cited, for starting the company.

Table No. 3.3

Reason for Starting the Business: Multiple Responses

Sl. No.	Reasons	Frequency	Percent
1.	Attractive Market	84	32.8
2.	To meet the needs of the locality	16	6.3
3.	Profit Motive	130	50.8
4.	Availability of Raw Materials	26	10.2

Source: Primary Data

Table revealed that profit motive (50.8 percent) is the major reason for starting the food processing units. It is followed by attractive market (32.8 percent) and availability of raw materials (10.2 percent). Only a small number of respondents said that they started the business to meet the needs of the locality (6.3 percent).

3.1.4 Categories of Food Processing Companies

As per the classification of the Ministry of Food Processing Industry, the food processing sector is divided into meat and poultry processing, milk and milk processing, grain and cereal processing, marine and fish processing, fruits and vegetable processing and consumer foods. All these six categories are included in the study.

The details of units in the sample districts under each category are given in the following table.

Table No. 3.4

Categories of Company

Categories of Company	Frequency	Percent
Meat and poultry Processing	3	2.1
Milk and Milk Processing	25	17.9
Grain and cereal Processing	32	22.9
Marine and Fish Processing	43	30.7
Fruits and Vegetable Processing	19	13.6
Consumer Foods	18	12.9
Total	**140**	**100**

Source: Primary Data

Out of 140 food processing units 43 units (30.7 percent) are marine and fish processing companies. 22.9 percent are representing grain and cereal processing companies. 17.9 percent and 13.6 percent of the selected samples of food processing

units are milk and milk processing companies and fruits and vegetable processing companies respectively. 12.9 percent is consumer food processing companies and only three companies representing meat and poultry processing companies.

Table No. 3. 5

Categories of Company: Multiple Responses

Sl. No.	Categories	Frequency	Percent
1.	Meat and poultry Processing	9	4.5
2.	Milk and Milk Processing	25	12.4
3.	Grain and cereal processing	45	22.4
4.	Marine and Fish Processing	49	24.4
5.	Fruits and Vegetable Processing	36	17.9
6.	Consumer Foods	37	18.4

Source: Primary Data

Based on the observation done at the time of survey, it was found that marine and fish processing units are exclusively dealing with processing of marine and fish products; the milk and milk processing units, are mainly concentrated in the processing of milk only, and the meat and poultry processing units are mainly dealing with processing of meat products. But some fruits and vegetable processing units are also engaged in the processing of grain and cereals, consumer foods, marine and fish processing, and meat and poultry processing. Some of the grain and cereal processing units are also processing fruits and vegetable and consumer foods. From Table 3.5 it is found that, 49 units (24.4 percent) are producing marine and fish products and 22.4 percent of the respondent food processing units are engaged in grain and cereal processing. 18.4 percent and 17.9 percent of food processing units are producing consumer foods and processed fruits and vegetable products respectively, while 12.4 percent of food processing units are concentrated in milk and milk processing sector, only 4.5 percent of the units are producing meat and poultry products.

3.1.5 Types of Standard Certificate

The researcher identified that, some types of standard certificates are obtained by the companies like Food Safety and Standards Authority of India (FSSAI), Agmark, International Organization for Standardization (ISO). Another category includes European Union (EU), Hazard Analysis and Critical Control Point (HACCP), US Food and Drug Administration (USFDA), HALAL, British Retail Consortium (BRC), Good Manufacturing Practices (GMP) etc. The standard certificate will helps the company to get more revenue and business from new customers. Product quality, good manufacturing practices, equipments, facilities provided to the employees etc. must meet the government and municipal standards. These all factors are considered while awarding standard certificates to the companies.

Table 3.6

Types of Standard Certificate: Multiple Responses

Sl. No.	Types of Standard Certificate	Frequency	Percent
1.	FSSAI	93	50.5
2.	Agmark	1	0.5
3.	ISO	37	20.1
4.	Others	53	28.8

Source: Primary Data

From the analysis it is clear that, 50.5 percent of the respondent companies are having FSSAI certificate. 28.8 percent of the companies are certified in other category of certificates. 20.1 percent of companies have ISO certificates. Only 1 company have Agmark certificate.

3.1.6 Factors Considered while Selecting Location

For business, location is significant. Decision of Location is very important to both large scale and small scale business. The factors considered while selecting location includes nearness to market, nearness to customers, easy transportation, low cost of land, availability of workers and availability of raw material. The following table 3.7 shows the factors considered while selecting location.

Table 3.7

Factors Considered while Selecting the Location: Multiple Response

Sl. No.	Factors	Frequency	Percent
1.	Nearness to Market	9	3.4
2.	Nearness to Customers	10	3.8
3.	Easy transportation	81	30.8
4.	Low cost of Land	15	5.7
5.	Availability of Workers	103	39.2
6.	Availability of raw material	45	17.1

Source: Primary Data

From the table, it is evident that, majority of the food processing units (39.2 percent) are selecting the location on the basis of availability of workers. 30.8 percent have considered the factor easy transportation while selecting the location. The availability of raw material is considered by 17.1 percent of the respondents. Only 3.8 percent and 3.4 percent of the units have opted for nearness to the customers and nearness to the market respectively.

3.2 The Problems Faced by the Food Processing Units

After analysing the profile of the companies, the problems faced by the companies are analysed. The problems under study are related to procurement of raw materials, production, finance, marketing, human resources and export. Choosing the mean score of three as the test score, one sample t test is administered for assessing the statistical significance of problems faced by food processing units in Kerala. Mean score was calculated for the responses of each problem using five point scale.

3.2.1 Procurement of Raw Materials

In the food processing industry, agriculture and allied products are the major raw materials. Raw material is an unprocessed material which is used to produce finished products. The raw materials are converted into finished products through different manufacturing or technical process. The quality of the finished products may depend upon the quality of the raw material.

a. Sources of Raw Material

The company may purchase raw materials either from the open market, regular suppliers, direct from farmers or from the raw material supplier's organization. Some units have their own farm for producing the raw materials. Table 3.8 shows the details of sources of raw materials.

Table No. 3.8

Sources of Raw Materials: Multiple Responses

Sl. No.	Sources	Frequency	Percent
1.	Open Market	16	8.3
2.	Regular Suppliers	127	66.1
3.	Direct from Farmers	42	21.9
4.	Raw material suppliers organisation	5	2.6
5.	Own Farm	2	1.0

Source: Primary Data

From the analysis, it is revealed that, most of the food processing units (66.1 percent) is depending on regular suppliers for raw materials. 21.9 percent of the respondent units are collecting raw materials directly from farmers. 8.3 percent and 2.6 percent of them purchase raw materials from open market and raw material suppliers' organization respectively. Only 2 units have their own farm for raw materials.

b. Problems in the Procurement of Raw Materials

Producers have to face many problems in procurement of raw materials like poor quality, shortage in quantity, unavailability of credit, fluctuating prices, high transportation cost, unfair trade practices, intervention of intermediaries, long distribution channel, tentative nature of suppliers and unavailability at the required time.

$H_0$1: The problems related to procurement of raw material faced by food processing units in Kerala is average.

The following table shows the problems in procurement of raw materials.

Table No. 3.9

Problems in the Procurement of Raw Material: Result of One sample t-Test

Sl. No.	Problems	Mean Score	Rank	t Value	P value	Inference
1.	Poor Quality	2.56	9	-5.94	.000**	Highly Significant
2.	Shortage in Quantity	2.69	8	-3.79	.000**	Highly Significant
3.	Unavailability of Credit	2.91	6	-1.70	.090	Highly Significant
4.	Fluctuating Prices	3.84	1	12.49	.000**	Highly Significant
5.	High Transportation Cost	3.01	5	.103	.918	Insignificant
6.	Unfair trade practices	2.52	10	-8.55	.000**	Highly Significant
7.	Intervention of Intermediaries	3.36	2	6.53	.000**	Highly Significant
8.	Long Distribution Channel	3.04	4	0.52	.602	Insignificant
9.	Tentative Nature of Suppliers	3.28	3	4.39	.000**	Highly Significant
10.	Unavailability at the required time	2.75	7	-4.16	.000**	Highly Significant

Source: Primary Data ** Significant at 1% level

Table (3.9) makes clear that all the factors except high transportation cost and long distribution channel are highly significant. So the hypothesis is rejected at 1 percent level of significance. That means these problems in procurement of raw material are either above average or below average. Based on the mean value, the problems related to poor quality, shortage in quantity, unavailability of credit, unfair trade practices, and unavailability at the required time are below average. The problems related to fluctuating prices, intervention of intermediaries, and tentative nature of suppliers are above average. The factors long distribution channel and high transportation cost are insignificant, so the hypothesis is accepted at 5 percent level of

significance. That means these problems in procurement of raw materials are at average level.

It is clear from the data given in the table that fluctuating prices (mean score = 3.84) is the major problem in the procurement of raw material. Intervention of intermediaries (mean score = 3.36) and Tentative Nature of Suppliers (mean score = 3.28) are the next major problems faced by the food processing units in Kerala during the time of procurement of raw materials. Unfair trade practices (mean score = 2.52) is not considered as a big problem in the procurement of raw material.

c. Problems in Procurement of Raw Materials and Categories of Food Processing Units

One Way Analysis of Variance was used to test whether there is a significant difference in categories of food processing units and problems in procurement of raw materials faced by the units. The results are given below.

H_0 2: There is no significant difference among the categories of food processing units and the problems in procurement of raw materials faced by the food processing units in Kerala.

Table No. 3. 10

Categories of Food Processing Units and the Problems Related to Procurement of Raw Materials: ANOVA

Category	Mean	F	P value	Inference
Meat and Poultry Processing	27.33	6.960	.000**	Highly Significant
Milk and Milk Processing	27.24			
Grain and cereal Mills	30.81			
Marine and Fish Processing	31.81			
Fruits and Vegetable Processing	30.89			
Consumer Foods	29.77			

*Source: Primary Data, ** Significant at 1% level*

Here the p value is .000; hence the null hypothesis is rejected at 1 percent level of significance. That means there is significant difference between the categories of food processing units with regard to the problems in procurement of raw materials. Based on the mean score, 'marine and fish processing units' face more problems in

procurement of raw materials than other units. 'Milk and milk processing units' face fewer problems related to procurement of raw materials.

The One Way ANOVA result shows that there is a significant difference among the category of food processing units with respect to problems in procurement of raw materials. Hence, in order to explore the exact difference, Duncan Multiple Range Test (DMRT) was done. DMRT is a post hoc test used to measure the specific differences between pairs of means. The test result is shown below.

The problems in procurement of raw materials are felt differently in each category, as the p value is less than 0.01. The post hoc result shows the exact difference, which is given in the following table

Table No. 3.11

Post Hoc: Problems in the Procurement of Raw Materials in Food Processing Units

Category	Subset for alpha = 0.05	
	1	2
Milk and Milk Processing	27.24	
Meat and poultry Processing	27.33	
Consumer foods	29.77	29.77
Grain & Cereal processing		30.81
Fruits & Vegetable processing		30.89
Marine & Fish processing		31.81

Source: Primary Data

Based on DMRT, there is a significant difference among the food processing units belonging to milk and milk processing and meat and poultry processing units' grain and cereal processing, fruits and vegetable processing, and marine and fish processing at 5 percent level of significance with respect to problems in procurement. But there is no significant difference among consumer food producing units with any other group.

3.2.2 Production

Production is a process or a method used to transform tangible inputs i.e., raw materials and intangible inputs i.e., ideas, information etc., into a finished product.

a. Processing Techniques

The companies are using manual processing, automatic processing and semi-automatic processing techniques for production. The following table shows the types of processing techniques used by the food processing units for production.

Table 3.12

Types of Processing Techniques

Sl. No.	Processing Techniques	Frequency	Percent
1.	Manual Processing	3	2.1
2.	Automatic	29	20.7
3.	Semi Automatic	108	77.1
	Total	**140**	**100**

Source: Primary Data

From the analysis, it is revealed that majority (77.1 percent) of the food processing units are using semi automatic processing technique for production. While 29 units (20.7 percent) have adopted automatic processing technique, only 3 units have used manual processing for the production of food products.

b. Product Design

'Product Design' is a set of activities from the idea generation to the commercialization of the product. The researcher identified some factors which affect the product design. They are taste/ colour of the product, Technical assistance, Quality of raw material, Quality of competitor's product and the expectation of consumers. One sample t test was administered for testing hypothesis of factors influencing on Product Design. The test results are shown in the following table.

H_0 3: The Factors influencing on the Product Design is at average level.

Table No. 3.13

Factors Influencing the Product Design: Result of One Sample t-test

Sl. No.	Factors	Mean	t Value	P Value	Inference

1.	Taste/ Colour of the product	4.721	32.638	0.000**	Highly Significant
2.	Technical assistance	4.250	18.562	0.000**	Highly Significant
3.	Quality of raw material	4.814	45.331	0.000**	Highly Significant
4.	Quality of competitor's product	3.629	6.875	0.000**	Highly Significant
5.	Expectation of consumers	4.886	58.571	0.000**	Highly Significant

Source: Primary Data, ** Significant at 1 % level

The above table shows that the 'p' values of all the factors influencing the product design are 0.000. It means that the null hypothesis is rejected at 1% level of significance. It is clear from the table, that the factor, 'the expectation of consumers' (mean = 4.886) is the factor influencing the most on product design. The food processing companies design their products as per the expectation of consumers. Another important factor is the quality of raw material (mean = 4.814). Quality of raw material also influences the product design. If the quality of raw material (input) is poor, it negatively influences the finished product (output). 'Taste and colour of the product' (mean = 4.721) is also an important factor and is ranked third among the factors influencing the product design. 'Technical assistance' (mean = 4.250) and 'the quality of competitor's product' (mean = 3.629) are also influencing the product design at above average level and ranked fourth and fifth respectively. So that all the identified factors influencing on product design are above average level.

c. Problems in Production

Increase in procurement cost, difficulty in procurement of raw materials, difficulty in quality control, insufficient production capacity due to lack of facilities, obsolete technologies for production, electric power shortage, inefficient labourers, high customs duties on imported capital goods and intermediary goods, lack of demand and absenteeism are the identified variables related to problems in production for the study.

H_0 4: The problems related to Production faced by the food processing units in Kerala is average.

'One sample t test' was applied for testing the hypothesis. The test result is shown in the following table.

Table No.3.14
Problems in Production: Result of One Sample t-Test

Sl. No.	Problems	Mean Score	Rank	t Test	P Value	Inference
1.	Increase in Procurement Cost	3.307	1	4.017	0.000**	Highly Significant
2.	Difficulty in procurement of raw materials	2.529	3	-6.484	0.000**	Highly Significant
3.	Difficulty in Quality Control	3.221	2	2.521	0.000**	Highly Significant
4.	Insufficient Production capacity due to lack of facilities	1.257	8	-30.216	0.000**	Highly Significant
5.	Obsolete technologies for production	1.250	9	-30.456	0.000**	Highly Significant
6.	Electric power shortage	1.557	6	-22.154	0.000**	Highly Significant
7.	Inefficient labourers	1.493	7	-20.921	0.000**	Highly Significant
8.	High customs duties on imported capital goods and intermediary goods	2.321	4	-6.651	0.000**	Highly Significant
9.	Absenteeism	1.929	5	-20.101	0.000**	Highly Significant

Source: Primary Data, ** Significant at 1%

The result shows that, all the problems in production are significant. Hence, the hypothesis is rejected at 1 percent level of significance. The test result is that none of the identified problems in production are at average level. The variables like Increase in Procurement Cost, Difficulty in Quality Control are the most important problems in production. Obsolete technologies for production are the least felt problem in production faced by food processing units in Kerala. It is concluded that, the problems

related to production, faced by the food processing units in Kerala, is not at average level.

The study analyzed the problems in production; it is found that increase in procurement cost is the most important problem faced by the food processing units in production with the mean score 3.307. Difficulty in quality control (mean score = 3.221) and difficulty in procurement of raw materials (mean score = 2.529) are other problems in production. High customs duties on imported capital goods and intermediary goods is the next problem in production with the mean score 2.321. After this, absenteeism, electric power shortage and insufficient labourers are also the problems in the production with the mean scores 1.929, 1.557 and 1.493 respectively. Inefficient production capacity due to lack of facilities (mean score = 1.257) and obsolete technologies (mean score = 1.250) for production are the least important problems in production.

d. Problems in Production and Categories of Food Processing Units

H_0 5: There is no significant difference among the categories of food processing units and the problems in production faced by the food processing units in Kerala.

Table No. 3. 15

Categories of Food Processing Units and the Problems in Production: ANOVA

Category	Mean	F	P value	Inference
Meat and Poultry Processing	17.66	4.077	.002**	Highly Significant
Milk and Milk Processing	16.60			
Grain and Cereal Processing	18.96			
Marine and Fish Processing	20.97			
Fruits and Vegetable Processing	17.74			
Consumer Foods	18.17			

*Source: Primary Data, ** Significant at 1% level*

In the case of problems in production (p value = .002), here the null hypothesis is rejected at 1 percent level of significance. Hence, it is concluded that, there is a significant difference among the categories of food processing units and the problems in production faced by the food processing units in Kerala. Based on mean score, the

marine and fish processing units face more problems in production than other food processing units. Milk and milk processing units face fewer problems in production.

There is a significant difference in production problems among the food processing units. The post hoc result is given below.

Table No. 3.16

Post Hoc: Problems in Production

Category	Subset for alpha = 0.05	
	1	2
Milk and Milk Processing	16.60	
Meat and poultry Processing	17.66	17.66
Fruits & Vegetable processing	17.74	17.44
Consumer foods	18.17	18.17
Grain & Cereal processing	18.97	18.97
Marine & Fish processing		20.97

Source: Primary Data

Based on DMRT there is a significant difference among the food processing units belonging to milk and milk processing and marine and fish processing at 5 percent level of significance with respect to problems in production. But there is no significant difference among meat and poultry processing, fruits and vegetable processing, consumer foods, and grain and cereal processing units with other groups.

3.2.3 Finance

a. Sources of Working Capital

Finance is the life blood of each and every business. Finance is invested in the business to make earnings. Capital is an amount invested in the company so that it can carry on its activities. There are different sources for raising working capital; it includes own fund or share capital, bank loan, finance from leasing companies, foreign investment and private sources like finance from friends, relatives etc. The following table shows the details of sources of working capital of the companies under the study.

Table No. 3.17
Sources of Working Capital: Multiple Responses

Sl. No.	Sources of Capital	Frequency	Percent

1.	Own funds/ Share capital	128	46
2.	Bank credit/ loan	129	46.4
3.	Leasing Companies	1	0.4
4.	Foreign Investment	1	0.4
5.	Private Sources	18	6.5
6.	Other Sources	1	0.4

Source: Primary Data

Table shows that 46 percent of the sampling units acquired capital from share capital or their own funds. 46.4 percent of them take bank loans to meet their capital needs. Thus owned capital and bank loans are of almost the same percentage (46 percent). 6.5 percent of the units collected funds from private sources including friends, relatives etc. Only 0.4 percent of units depend on leasing companies for raising capital. Only one company has foreign investment and another company got fund from other sources like funds from APEDA, MPEDA etc.

b. Problems in Raising of Working Capital

The researcher identified some variables related to problems in raising capital/ finance. They are difficulty to get loan for long term, difficulty to avail loan at the required time, high rate of interest, rigid rules and regulations, insufficient repayment period, lengthy process for bank loan, difficulty in procuring funds from financial institutions and restrictions on fund procurement and settlement.

$H_{0\,6}$: The problems related to Raising of the Working Capital faced by the food processing units in Kerala is average.

'One sample t test' was applied for testing the hypothesis. The test results are shown in the following table.

Table No. 3.18

Problems in Raising of Working Capital: Result of One Sample t- Test

Sl.	Problems in Raising	Mean	Rank	t Value	P Value	Inference

No.	Capital	Score				
1.	Difficulty to get loan for long term	2.357	7	-7.223	0.000**	Highly Significant
2.	Difficulty to avail loan at the required time	3.421	4	6.125	0.000**	Highly Significant
3.	High Rate of Interest	3.936	3	12.653	0.000**	Highly Significant
4.	Rigid rules and regulations	4.157	1	16.429	0.000**	Highly Significant
5.	Insufficient repayment period	2.250	8	-10.449	0.000**	Highly Significant
6.	Lengthy process for bank loan	4.021	2	14.942	0.000**	Highly Significant
7.	Difficulty in procuring funds from financial institution	3.079	5	0.901	0.369	Insignificant
8.	Restrictions on fund procurement and settlement	2.857	6	-1.962	0.052	Insignificant

Source: Primary Data ** Significant at 1% level

From the analysis, it is clear that all the variables except difficulty in procuring funds from financial institution and restrictions on fund procurement and settlement are highly significant. The 'p' value of these variables being 0.000, the null hypotheses is rejected at 1 percent level of significance. Hence it is concluded that, these problems faced by the food processing units in Kerala in raising working capital are above or below average. But the variables, difficulty in procuring funds from financial institution with p value = 0.369 and restrictions on fund procurement and settlement with p value = 0.052 are insignificant. So the null hypothesis is accepted at 5 percent level of

significance, leading to the conclusion that these two problems faced by the food processing companies in Kerala in raising working capital are at average level.

Rigid rules and regulations of banks and financial institutions (mean = 4.157) is the most important problem in raising working capital. The lengthy process (mean = 4.021) for sanctioning the loan stay close to it. The problem related to high rate of interest (mean = 3.936) is placed in the third position. The food processing companies also face problems like difficulty to avail loan at the required time (mean = 3.421), difficulty in procuring funds from financial institution (mean = 3.079) and restrictions on fund procurement and settlement (mean = 2.857). Difficulty to get loan for long term (mean = 2.357) and insufficient repayment period (mean = 2.250) are the problems least faced by the food processing companies while raising working capital.

c. Problems in Raising of Working Capital and the Categories of Food Processing Units

$H_{0\,7}$: There is no significant difference among the categories of food processing units and the problems in raising working capital faced by the food processing units in Kerala.

Table No. 3. 19

Categories of Food Processing Units and the Problems in raising of working capital: ANOVA

Category	Mean	F	P value	Inference
Meat and Poultry Processing	23.33	1.068	.381	Insignificant
Milk and Milk Processing	24.68			
Grain and cereal Mills	26.41			
Marine and Fish Processing	25.91			
Fruits and Vegetable Processing	27.47			
Consumer Foods	26.83			

Source: Primary Data

The result shows that, the p value of problems in raising working capital is .381. Here, the null hypothesis is accepted at 5 percent level of significance. There is no significant difference among category of food processing units and problems in raising working capital faced by the food processing units in Kerala. Based on mean score,

fruits and vegetable processing units face more problems in raising working capital than other units. Meat and poultry processing units face a lesser amount of problems in raising working capital.

3.2.4 Marketing

The American Marketing Association has defined Marketing as *"the activity, set of institutions and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners and society at large."*

Marketing are the activities of a company related with buying and selling of products. Different kinds of marketing strategies like ambush marketing, mobile marketing, internet marketing, telemarketing, free sample marketing etc., are adopted by the business people to get the attention of the customers. At present, a large number of national and international companies have entered into the market, and as a result, each company face large competition from others. Some strategies adopted by companies for facing competition are improving the quality, charging affordable price, attractive packaging, attractive and effective advertising etc.

a. Competition Strategies

The company managers must know the company's competitive advantages and construct a strategy to face competition. The food processing companies usually adopt certain strategies for facing the competition. They are increasing the quality, charging affordable price, attractive packaging, prompt delivery, and attractive and effective advertisements. The following table shows the strategies adopted by the food processing companies for facing competition.

Table No. 3.20

Competition Strategies: Multiple Responses

Sl. No.	Strategies	Frequency	Percent

1.	Increasing the Quality	135	33.8
2.	Charging Affordable Price	81	20.3
3.	Attractive Packaging	65	16.3
4.	Attractive and Effective Advertisements	33	8.3
5.	Prompt Delivery	86	21.5

Source: Primary Data

From the data analysis, it is found that more than one third of the sampling units adopt the strategy, 'increasing the quality of the food products', to face competition (33.8 percent). 21.5 percent of companies delivered the product at proper time in proper place, so that the consumers could avail the product without any delay. 20.3 percent charge affordable price to the food products, so that, it may attract more consumers to purchase the product. While 16.3 percent of the units use attractive packaging, 8.3 percent conduct attractive and effective advertisements to attract more consumers.

b. Market

The companies sell their products in local, national and international markets. The following table shows the market share of food products.

Table 3.21

Market of Food Products: Multiple Responses

Sl. No	Market	Frequency	Percent
1.	Local Market	88	40.9
2.	National Market	35	16.3
3.	International Market	92	42.8

Source: Primary Data

From the data analysis, it is revealed that, 42.8 percent of the food processing companies market their products in international market. Almost equal shares of 40.9 percent of products are sold in the local market as well. Only 16.3 percent of them market the products in the national market.

c. Problems in Marketing

The researcher has identified some variables related to problems in marketing. They are decrease in demand from customers, intervention of intermediaries, inflow of cheap imported goods into the local market, entry of competitors, lack of increase in new customers, high expense for advertisement, lack of marketing information, lack of storage facility and increase in competition.

$H_{0\ 8}$: The problems related to marketing of processed food products faced by the food processing units in Kerala is average.

'One sample t test' was applied to test the hypothesis. The test result is shown in the following.

Table No. 3.22
Problems in Marketing: Result of One Sample t – Test

Sl. No	Problems	Mean Score	Rank	t Value	P value	Inference
1.	Decrease in demand from customers	1.56	8	-18.80	0.000**	Highly Significant
2.	Intervention of intermediaries	3.75	3	10.66	0.000**	Highly Significant
3.	Inflow of cheap imported goods into local market	3.51	4	4.21	0.000**	Highly Significant
4.	Entry of Competitors	4.56	2	20.58	0.000**	Highly Significant
5.	Lack of increase in new customers	1.63	7	-20.31	0.000**	Highly Significant
6.	High expense for advertisement	3.42	5	4.53	0.000**	Highly Significant
7.	Lack of marketing information	1.35	9	-27.15	0.000**	Highly Significant
8.	Lack of storage facility	2.54	6	-5.13	0.000**	Highly Significant
9.	Increase in competition	4.64	1	26.26	0.000**	Highly Significant

Source: Primary Data ** Significant at 1% level

The table shows that, the p value of all variables related to problems in marketing is 0.000, so the null hypothesis is rejected at 1 percent level of significance. That means the problems faced by the food processing units related to marketing of food products is above or below average. The variables related to problems in marketing of food products like increase in competition, entrance of competitors, and inflow of cheap imported goods into local market, high expense for advertisement and intervention of intermediaries are above average level. All other identified problems related to marketing are below average.

From the analysis, it is clear that, the variables, increase in competition (mean = 4.64) and entry of competitors (mean = 4.56) are the most important problems in marketing. The Kerala based food processing units face a huge competition from the national and international companies. The variable intervention of intermediaries (mean = 3.75) comes as the third. There are a number of intermediaries like agents, wholesalers, retailers etc., who play the role in between the food processing company and the end consumers. The domestic companies also face the problem of inflow of cheap imported goods into the local market (mean = 3.51) with the fourth position. The companies have to spend money for advertisements (mean = 3.42) to attract consumers and it is ranked fifth. Lack of storage facility (mean = 2.54), lack of increase in new consumers (mean = 1.63), decrease in demand from consumers (mean = 1.56), and lack of market information (mean = 1.35) are the less important problems in marketing.

d. Problems in Marketing and Categories of the Food Processing Units

$H_{0\ 9}$: There is no significant difference among the categories of food processing units and the problems in marketing faced by the food processing units in Kerala.

Table No. 3. 23

Categories of Food Processing Units and the Problems in Marketing: ANOVA

Category	Mean	F	P value	Inference

Meat and poultry Processing	24.66	3.160	.010**	Highly Significant
Milk and Milk Processing	26.60			
Grain and cereal Processing	28.40			
Marine and Fish Processing	26.09			
Fruits and Vegetable Processing	28.16			
Consumer Foods	26.11			

*Source: Primary Data, ** Significant at 1% level*

The p value is .010, so the null hypothesis is rejected at 1 percent level of significance. Hence there is a significant difference between categories of food processing units and marketing of processed food products. The result shows that, grain and cereal processing units face more problems in marketing their products and followed by fruits and vegetable processing units. Meat and poultry processing units face fewer problems in marketing their products.

Marketing problems are different in each category of food processing units. To find out the exact difference, post hoc method was applied. The test results are shown in the following table.

Table No. 3. 24

Post Hoc: Problems in Marketing

Category	Subset for alpha = 0.05	
	1	2
Meat and poultry Processing	24.66	
Marine & Fish Processing	26.09	26.09
Consumer Foods	26.11	26.11
Milk and Milk Processing	26.60	26.60
Grain & Cereal Processing		28.40
Fruits & Vegetable Processing		28.15

Source: Primary Data

Based on DMRT, there is a significant difference among the food processing units belonging to meat and poultry processing with other groups such as grain and cereal processing and fruits and vegetable processing units at 5% level of significance with respect to problems in marketing. But there is no significant difference among

marine and fish processing, consumer food producing units, milk and milk processing units with other groups.

3.2.5 Human Resources

Human Resources are very important to organizations from the area of strategic planning to company image. Human resources are set of individuals who constitute the workforce of an organization, business sector or an economy. The workforces for a company are recruited from internal and external sources. Human resources are the workforce available for an organization, to perform certain duties and responsibilities assigned by the management to meet the goal or expectation of an organization.

a.Selection of Employees

Recruitment is the first step in employment process which aims at developing and maintaining adequate human resources. In general, sources of recruitment can be classified into internal sources and external sources. Internal sources of recruitment mean recruiting the workers from the existing staff of the firm. The main internal sources of recruitment are transfer and promotions. The external sources of recruitment means the organization seeks appropriate candidates from outside the organization. The important external sources are notice at factory gates, advertisements, employment exchanges, colleges, institutions and universities, trade unions, private agencies and labour contractors.

According to Edwin. B. Flippo, *"Recruitment is the process of searching for prospective employees and stimulating them to apply for jobs in the organization."*

Each individual differs from the others on mental and physical capability. So the management wants to know the level of ability, knowledge, aptitude and interest of an individual. For this, the management conducts group discussions, interviews and written examination method.

After selecting an employee, the organization provides training to the selected candidate. Training is the learning process that involves acquiring of skills, rules, concepts or attitude to increase the performance of the employees. Training helps to make the newly recruited employees fully productive in the minimum time. On the job training and off the job training are the different methods of training. In on the job training, the newly selected employees are given training at the working place by the

superior. Coaching and job rotation are the important types of on the job training method. Off the job training is conducted within the company or by external agencies. It consists of case study, seminars, role plays, conferences etc.

In the words of Edwin B Flippo, "training is the act of increasing the knowledge and skills of an employee for doing a particular job."

Incentives are monetary benefits paid to the workmen in recognition of their outstanding performance. The organization make payment in two methods, they are piece rate and time rate methods. The details of Selection of employees are given in the following table.

Table 3.25
Selection of Employees

Sl. No.	Factors	Mode	Frequency	Percent	Total
1.	Recruitment	External Source	1	0.7	140
		Internal Source	19	13.6	
		Both	120	85.7	
2.	Methods for Selection	Written Exam	0	0	140
		Group Discussion	0	0	
		Interview	140	100	
3.	Training	On the Job Training	140	100	140
		Off the Job Training	0	0	
4.	Payment	Piece Rate	6	4.3	140
		Time Rate	134	95.7	

Source: Primary Data

From table, it is clear that, out of 140 sample units, majority (85.7 percent) of them use both internal and external sources of recruitment. Only 13.6 percent and 0.7 percent adopt internal sources and external sources of recruitment respectively. All the 140 food processing units adopt interview method for selection of employees and provide 'on the job training' to the employees. 95.7 percent of the units make payment to employees on the basis of time and only 4.3 percent make piece rate payment.

b. Problems related to Labour or Employment

Some variables related to problems in human resources were identified for the study. They are increase in employee wages, difficulty in recruiting efficient employees, low rate of worker retention, frequent demand for advances, increase in absenteeism, friction with labour union and shortage of skilled workers.

$H_{0\,10}$: The problems related to employment faced by the food processing units in Kerala is average.

One sample t test was applied for testing the hypothesis. The test results are given in the table.

Table No. 3.26

Problems related to Labour or Employment: Result of One Sample t- Test

Sl. No.	Problems	Mean Score	Rank	t Value	P value	Inference
1.	Increase in Employee Wages	2.114	3	-12.870	0.000**	Highly Significant
2.	Difficulty in Recruiting Efficient Employees	3.450	1	3.934	0.000**	Highly Significant
3.	Low Rate of worker retention	1.729	5	-19.869	0.000**	Highly Significant
4.	Frequent Demand for Advances	2.543	2	-7.926	0.000**	Highly Significant
5.	Increase in Absenteeism	1.893	4	-17.333	0.000**	Highly Significant
6.	Friction with Labour Union	1.143	7	-39.442	0.000**	Highly Significant
7.	Shortage of Skilled workers	1.514	6	-20.039	0.000**	Highly Significant

Source: Primary Data, ** Significant at 1% level

The table shows that the p value of all variables are 0.000, so the null hypothesis is rejected at 1 percent level of significance. That means the problems related to labour are above and below average level. All problems other than difficulty in recruiting efficient employees are at below average level.

Difficulty in recruiting efficient employees (mean = 3.450) and the employees' frequent demand for advances (mean = 2.543) are found to be severe problems related to employment. Increase in employee wages and increase in absenteeism are other problems related to employment with the mean value 2.114 and 1.893 respectively. Low rate of worker retention (mean = 1.729), Shortage of skilled workers (mean = 1.514) and Friction with labour union (mean = 1.143) etc. are the less important.

c. Problems in Employment and the Categories of Food Processing Units

$H_{0\ 11}$: There is no significant difference among the categories of food processing units and the problems in employment faced by the food processing units in Kerala.

Table No. 3. 27

The Categories of Food Processing Units and the Problems in Employment: ANOVA

Category	Mean	F	P value	Inference
Meat and poultry Processing	13.33	6.258	.000**	Highly Significant
Milk and Milk Processing	12.56			
Grain and cereal Processing	14.03			
Marine and Fish Processing	16.37			
Fruits and Vegetable Processing	12.84			
Consumer Foods	14.61			

*Source: Primary Data, ** Significant at 1% level*

The result shows that, the p value is .000; hence, the null hypothesis is rejected at 1 percent level of significance. It is concluded that, there is a significant difference between problems in employment and categories of food processing units. Based on the mean score, marine and fish processing units' face the greatest problems in employment and milk and milk processing units face employment problems at the least.

The problems related to employment are different in each category of food processing units. The post hoc results are given below

Table No. 3.28

Post Hoc: Problems in Employment

Category	Subset for alpha = 0.05	
	1	2
Milk and Milk Processing	12.56	
Fruits & Vegetable processing	12.84	
Meat and poultry Processing	13.33	
Grain & Cereal Processing	14.03	14.03
Consumer foods	14.61	14.61
Marine & Fish processing		16.37

Source: Primary Data

Based on DMRT, there is a significant difference among the food processing units belonging to Milk and Milk Processing, Fruits and Vegetable Processing, and Meat and Poultry Processing with the group belonging to marine and fish processors at 5 percent level of significance with respect to problems in labour. But there is no significant difference among grain and cereal mills and consumer foods with any other groups.

3.2.6 Export

The term export means sending of goods and services produced in the home country to other countries' markets. The sender of the goods and services is known as exporter and the buyer is known as importer. The main advantages of export are pointed out below.

- ❖ It helps to increase the sales and profits and thereby increase the inflow of foreign currency also.
- ❖ The companies with excess production can sell their product in the foreign market and they need not give unnecessary discounts and they need not stop their excess production.
- ❖ Selling to different markets helps to diversify their business and helps to spread their risk.

a. Problems in Export

The variables identified for the study related to export problems are problems in fluctuating foreign currency, difficulty in catching export market, high export duty,

high competition in the export market, less quality, license issue, complicated export procedures and formalities, export policy changes and demand of high product standards.

$H_{0\ 12}$: The problems related to Export of Food Products faced by the food processing units in Kerala is average.

'One sample t Test' is applied to test the hypothesis. The test results are given in the following table.

Table 3.29

Problems in Export: Result of One Sample t-Test

Sl. No	Problems in Export	Mean Score	Rank	t Value	P Value	Inference
1.	Problems in fluctuating foreign currency	4.033	4	9.700	0.000**	Highly Significant
2.	Difficulty in catching export market	4.367	2	12.058	0.000**	Highly Significant
3.	High export duty	4.022	5	8.888	0.000**	Highly Significant
4.	High competition in export market	4.444	1	13.179	0.000**	Highly Significant
5.	Less quality	1.567	8	-18.497	0.000**	Highly Significant
6.	License Issue	1.533	9	-23.061	0.000**	Highly Significant
7.	Complicated export procedures and formalities	4.089	3	9.780	0.000**	Highly Significant
8.	Export policy changes	3.922	6	8.877	0.000**	Highly Significant
9.	Demand of high product standards	3.111	7	0.944	0.348	Insignificant

Source: Primary Data ** Significant at 1% level

The result shows that all the variables related to problems in export, except 'demand of high product standards' shown in the table are highly significant. The p value is 0.000. For all these variables, the null hypothesis is rejected at 1 percent level of significance. Hence, these problems faced by the food processing units in Kerala in Export of Food Products are not at average level. The variable 'demand of high product standards' (p value = 0.348) is insignificant. Therefore, the null hypothesis is accepted

at 5 percent level of significance. Hence it is concluded that, the problem related to demand of high product standards in export is average.

It is clear from the table that, high competition in export market (Mean = 4.444) is the major problem in export faced by the food processing units in Kerala. The companies are also facing difficulty in catching export market (Mean = 4.367) for selling their products. Complicated export procedures and formalities (Mean = 4.089) is another problem in export and ranked with the third position. Problems in fluctuating foreign currency (Mean = 4.033) and high export duty (Mean = 4.022) are also suffered by the food processing units in Kerala, while they export their products to other countries. Export policy changes (Mean = 3.922) occupies the sixth rank in the problems related to export. Demand of high product standard (Mean = 3.111) is also affecting export to some extent. Low quality of product and license issue with mean around 1.5 is the problems in export faced the least faced by the food processing units in Kerala.

b. The Problems in Export and the Categories of Food Processing Units

$H_{0\ 13}$: There is no significant difference among the categories of food processing units and the problems in export faced by the food processing units in Kerala.

Table No. 3. 30

The Categories of Food Processing Units and the Problems in Export: ANOVA

Category	Mean	F	P value	Inference
Meat and Poultry Processing	33.67	3.541	.006**	Highly Significant
Milk and Milk Processing	28.00			
Grain and cereal Processing	33.83			
Marine and Fish Processing	29.43			
Fruits and Vegetable Processing	33.54			
Consumer Foods	27.78			

*Source: Primary Data, ** Significant at 1% level*

The p value is .006, so the null hypothesis is rejected at 1 percent level of significance. There is a significant difference among the categories regarding the problems in export faced by the food processing units in Kerala. Grain and cereal mills face more problems in export than others, followed by meat and poultry processing and fruits and vegetable processing units. Consumer food producers face lesser amount problem in export.

The problems related to export is different in the food processing units. The result of post hoc is given below.

Table No. 3.31

Post Hoc: Problems Related to Export

Category	Subset for alpha = 0.05
	1
Consumer foods	27.78
Milk and Milk Processing	28.00
Marine & Fish processing	29.43
Fruits & Vegetable processing	33.54
Meat and poultry Processing	33.67
Grain & Cereal processing	33.83

Source: Primary Data

With respect to problems in export, there is a significant difference among the food processing units belonging to consumer foods, milk and milk processing, marine and fish processing, fruits & vegetable processing, meat processing, and grain and cereal mills at 5 percent level of significance.

Result of One Way ANOVA: Brief

The results show that in case of the problems in raising capital, the null hypothesis is accepted at 5 percent level of significance. The p value is 0.381.

But in the case of problems in procurement of raw materials (p value 0.000), production (p value 0.002), marketing (p value 0.010), employment (p value 0.000) and export (p value 0.006), the null hypothesis is rejected at 1 percent level of significance. Hence it is concluded that there is a significant difference between categories of food processing units regarding the problems faced in procurement of raw materials, production, marketing, employment and export.

3.2.7 Problems and Categories of Food Processing Units: Mean Score

The following Table shows the mean score of problems faced by the food processing units, for identifying the most important problem in each category of food processing sector.

It is clear from the Table 3.32 that, problems related to export is the major problem faced by the grain and cereal processing units, fruits and vegetable processing units and marine and fish processing units. Procurement of raw materials is the major problem faced by the marine and fish processing companies. Marine and fish processing companies in Kerala is mainly depend other states like Tamil Nadu and Andra Pradesh for raw materials. Employment or labour problem is the problem least faced by the food processing companies in Kerala. During the period of observation it is found that, large number of migrated people is working in the food processing industry. Grain and Cereal processing companies face more problems in their operations/ functions than other food processing sectors. The milk and milk processing companies face less problems compared to other sectors in the food processing industry.

Table No: 3. 32

Categories of Food Processing Units and Problems: Mean Score

Category	Problems Faced by the Food Processing Units							
	Procurement of Raw Materials	**Production**	**Raising Working Capital**	**Marketing**	**Employment**	**Export**	**Total**	**Rank**
Meat and poultry Processing	27.33	17.66	23.33	24.66	13.33	33.67	139.98	5
Milk and Milk Processing	27.44	16.60	24.68	26.60	12.56	28.00	135.88	6
Grain and cereal Processing	30.81	18.96	26.41	28.40	14.03	33.83	152.44	1
Marine and Fish Processing	31.81	20.97	25.91	26.09	16.37	29.43	150.58	3
Fruits and Vegetable Processing	30.89	17.74	27.47	28.16	12.84	33.54	150.64	2
Consumer Foods	29.77	18.17	26.83	26.11	14.61	27.78	143.27	4
Total	178.05	110.01	154.63	160.02	83.74	186.25		

Source: Primary Data

3.2.8 Environmental Protection

Environmental protection it is the protection of environment by business organizations, individuals etc. for the advantage of human beings and the environment. The researcher identified some methods adopted by the Food Processing Companies for environmental protection. They are given below

1. Use recycling methods
2. Use of Renewable Energy
3. Avoid Burning Garbage
4. Avoid throwing chemicals in different places
5. Turn off unused electric appliance
6. Create compost from waste
7. Water conservation
8. Plant trees
9. Use durable canvas grocery bag instead of plastic bags

The following table shows the environmental protection methods adopted by the food processing units.

Table No. 3.33
Methods for Environmental Protection: Multiple Responses

Sl. No.	Methods	Frequency	Percent
1.	Use Recycling Method	2	0.7
2.	Use of renewable energy	12	4.1
3.	Avoid burning garbage	35	12.0
4.	Avoid throwing chemicals in different places	44	15.1
5.	Turn off unused electric appliance	43	14.7
6.	Create a compost	9	3.1
7.	Water conservation	76	26
8.	Plant trees	68	23.3
9.	Use durable canvas grocery bag	3	1

Source: Primary Data

From the analysis, it is revealed that, 26 percent of the selected food processing units adopt water conservation method to manage the natural resources of fresh water and to meet the present and future demand. 23.3 percent of the food processing units plant trees to protect the environment. 15.1 percent of the sampling units avoid throwing chemicals in different places for avoiding the water, air and soil pollution. 14.7 percent of the food processing units turn off unused electric appliances for saving energy. 12 percent of the units avoid burning garbage to control air pollution. 4.1 percent and 3.1 percent of the food processing units adopt renewable energy method and compost method for protecting environment respectively. Only 1 percent and 0.7 percent use durable canvas grocery bag and recycling method respectively for environmental protection.

The following Table shows a brief summary of problems faced by the food processing units in Kerala.

Table No. 3.34

Problems Faced by the Food Processing Units in Kerala

Problems	Above Average	Average	Below Average
Procurement of Raw Materials	Fluctuating Prices	Long distribution channel	Poor quality
	Intervention of intermediaries	High transportation cost	Shortage in quantity
	Tentative nature of suppliers		Unavailability of credit
			Unfair trade practices
			Unavailability at the required time
Production	Increase in procurement cost		Difficulty in procurement of raw materials
	Difficulty in quality control		Insufficient production capacity due to lack of facilities

			Obsolete technologies for production
			Electric power shortage
			Inefficient labours
			High customs duties on imported capital goods and intermediary goods
			Lack of demand/ orders
			Absenteeism
Finance	Difficulty in availing loan at the required time	Difficulty in procuring funds from financial institution	Insufficient repayment period
	High rate of interest	Restrictions on fund procurement and settlement	Difficulty to get loan for long term
	Rigid rules and regulations		
	Lengthy process for bank loan		
Marketing	Intervention of intermediaries		Decrease in demand from customers
	Inflow of cheap imported goods into local market		No increase in new customers
	Entry of competitors		High expense for advertisement
	Increase in competition		Lack of storage facility
	Lack of marketing information		
Human Resources	Difficulty in recruiting efficient employees		Increase in employee wages
			Low rate of worker retention
			Frequent demand for advances

			Increase in absenteeism
			Friction with labour union
			Shortage of skilled workers
Export	Problems of fluctuating foreign currency		Less quality
	Difficulty in catching export market		License Issue
	High export duty		
	High competition in export market		
	Complicated export procedures and formalities		
	Export policy changes		
	Demand of high product standards		

Source: Primary Data

3.2.9 Model for the Food Processing Industry

Structural equation modelling (SEM) technique using Maximum Likelihood Estimation procedure was employed in the current research to test the proposed hypotheses. SEM is a statistical methodology that follows a confirmatory (i.e., hypothesis-testing) approach to the analysis of a structural theory proposed by the researcher bearing on some phenomenon (Byrne, 2001). While performing SEM, it tests simultaneously all proposed relationships in the hypothesized model which confirms the extent to which the model proposed in the study is consistent with the data. In this line, Byrne (2001) stated that performing SEM is advantages compared to over other related multivariate techniques. First, while performing SEM the researcher takes a confirmatory approach to the model testing and analyses the data basically for inferential purposes by demanding that, the pattern of relationship between the variables within the model framework is specified *a priori.* In contrast to this, many other methods takes the route of descriptive nature, hence SEM is preferred over other related multivariate techniques. Second, the other related traditional multivariate methods are incapable of either assessing or

correcting the overall measurement error. In case of SEM analysis, the researcher can avoid inaccuracies caused by ignoring error when it exists in the explanatory variables. The structural model also helps the researcher also see the specification of error term covariances (Golob, 2003). Third, data analysis using SEM technique, in comparison with other related multivariate techniques also allows measurement of the relationship among unobserved and observed variables comprehensively through the examination of covariance among the observable variables proposed in the study. Another important advantage of SEM is that it can handle a large number of endogenous variables (dependent variables) and exogenous variables (independent variables), as well as unobserved variables simultaneously specified as linear combinations of the observed variables (Golob, 2003). Such widely and equally competitive applied methods are not currently available in the data analysis paradigm alternative to SEM, for modelling multivariate relations among the proposed variables or for estimating point and/or interval indirect effects.

Considering the advantages of SEM over other multivariate techniques, the two-stage SEM analytic estimation technique is adopted to test the simultaneous inter-relationship between the constructs of interest, proposed in the current research. In this two stage estimate procedure, the researcher can avoid the interaction of the measurement model and the structural model (Hair, Anderson, Tatham, & Black, 1995). The general SEM model framework and its estimation, one can decompose it into two sub-models: the first model called as measurement model (See the previous section presented in this chapter) and the second model called as the structural model. The first stage of measurement model indicates the relationship between the unobserved latent variables and observable variables (indicator variables). It was performed in this study using CFA. The estimation and confirmation of the measurement model used provides the link between the observed indicator variables and the underlying constructs they are designed to measure (Byrne, 2001; Golob, 2003; Nachtigall, Kroehne, Funke, &Steyer, 2003), or the major objective of this stage is to confirm the validity and reliability of the scales used. The second stage of structural model represents the relationship among the latent variables (constructs) of interest. The structural model specifies the manner by which particular latent variables cause changes in the values of certain other latent variables in the model. In general parlance, estimation of SEM is performed using the covariance analysis method (called as covariance based SEM), in which the researcher estimates the parameters such that the variances

and covariances implied by the model are as close as possible to the observed variances and covariances of the sample (Golob, 2003).

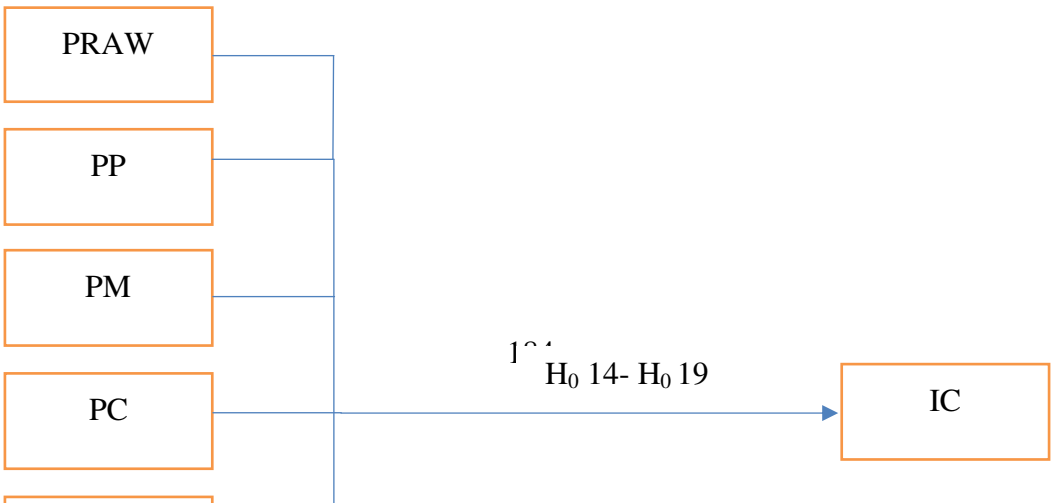
Although in a SEM framework, most of these evaluation criteria or indices are based on the Chi-square statistic, the chi-square value is preferred in a model confirmation perspective over a test statistic as a measure of fit due to its sensitivity to sample size and deviations from multinormality (Golob, 2003). Given the limitations of Chi-square, different researchers have proposed a plethora of newly goodness-of-fit indices in the SEM framework to examine the goodness of fit of the model, and these indices take a more pragmatic approach to the evaluation process (Byrne, 2001). In this, one of the first fit statistics generally used to address this problem was the normed Chi-square, i.e., the ratio of x2/df (Wheaton, Muthen, Alwin, & Summers, 1977). Alternative goodness-of-fit measures of overall model fit have also been developed proposed in the current SEM literature, such as the root mean square error of approximation (RMSEA), root mean square residual (RMR), and standardized root mean square residual (SRMR). In the SEM framework, the root mean square residual (RMR) shows the average residual value derived from the fitting of the variance-covariance matrix for the proposed model to the variance covariance matrix of the sample data collected (Byrne, 2001). However, it has been stated that these residuals are difficult to interpret due to its relation to the sizes of the observed variances and covariances. Considering this limitation, the standardized root mean square residual (SRMR) were proposed, which represent the average value across all standardized residuals. In addition, it is very recently RMSEA been recognized as one of the most useful informative criteria in covariance structure modelling framework (Byrne, 2001). In addition, the other most frequently used goodness-of-fit measures grounded on direct assessment of the variance covariance matrices for the sample and model are the normed fit index (NFI), the non-normed fit index (NNFI), the comparative fit index (CFI), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the parsimony-adjusted goodness of- fit index (PGFI) etc. Among the stated direct assessment measures, the normed fit index (NFI) is considered as a practical criterion for evaluation of proposed model fit, however, there exists some limitation of the same, because it has a tendency to underestimate fit in small samples (Byrne, 2001). Bentler and Bonnett (1980) developed the Non-normed Fit Index (NNFI), also known as the Tucker-Lewis Index (TLI) which generally show the disadvantage of the NFI which is affected by sample size. In addition, CFI was also formulated by Bentler (1990) from NFI to take sample

size into account. The another measure, goodness-of-fit index (GFI) is a measure of the relative amount of variance and covariance matrix of the sample data that is jointly explained by the variance and covariance matrix for the hypothesized model (Byrne, 2001). The AGFI has the benefit of adjusting for the number of degrees of freedom contained in the model, which makes the AGFI unique from the GFI. Both GFI and AGFI indices range from zero to 1.00, where the values close to 1.00 being indicative of good fit of the model. The measure, parsimony-adjusted goodness-of-fit index (PGFI) takes into account the complexity of the hypothesized model proposed for the assessment of overall model fit (Byrne, 2001), which was modified later based on GFI and NFI. In this study, SEM is considered as the appropriate technique, because it can takes care multiple dependence relationships such as those investigated in the present research. In addition, the technique of SEM was used and preferred in this research to determine if the estimated population covariance matrix of the proposed model was consistent with the observed covariance matrix. To examine the same, AMOS software package is used due to its user friendliness. In addition, AMOS can also link data directly to SPSS platform and provides a very user friendly graphical user interface that allows the researcher to configure path diagrams, calculate the necessary model fit, and estimate required parameters.

In this stage of analysis, the study conceptualized a model connecting the problems related to the functional areas of business, such as problems related to procurement of raw materials (PRAW), (b) problems related to production (PP), (c) problem related to marketing (PM), (d) problems related to capital (PC), (e) problem related to human resources (PH), and (f) problems related to export (PEX) as antecedent to determine the industrial climate (IC) of the firm. Figure 3.1 presented below shows the hypotheses proposed in this stage of analysis.

Figure 3.1

Figure Showing the Role of Various Problems to Shape Industrial Climate



Note: *Problems related to procurement of raw materials (PRAW),problems related to production (PP), problem related to marketing (PM), problems related to working capital (PC), problem related to human resources (PH), problems related to export (PEX), industrial climate (IC).*

To examine the aforementioned model (See Figure 3.1) and test the hypotheses (See Table 3.35), the study performed a SEM with the mentioned problems as antecedents and the industrial climate as the outcome variable. The SEM analysis supported a good model fit (X^2 = 123.44, $p < 0.01$, CFI = 0.91, GFI = 0.91, TLI = 0.92, RMSEA = 0.06, SRMR = 0.05).

Table No. 3.35

Hypotheses for the Food Processing Industry Model

H_0 14	The problems related to procurement of raw materials have no adverse effect on the industrial climate.
$H_0$15	The problems related to production have no adverse effect on the industrial climate.
H_0 16	The problems related to marketing have no adverse effect on the industrial climate.
H_0 17	The problems related to the working capital have no adverse effect on the industrial climate.
H_0 18	The problems related to human resource have no adverse effect on the industrial climate.
H_0 19	The problems related to export have no adverse effect on the industrial climate.

Table 3.36

Hypothesis Testing Results

Endogenous variable		Exogenous Variables	Unstd. Estimate	Std. Estimate	S.E.	Hypothesis Status
PRAW	→	**IC**	-0.155	0.230	0.08	H_0 14 Rejected
PP	→	**IC**	-0.124	0.029	0.06	H_0 15 Rejected
PM	→	**IC**	-0.292	0.181	0.022	H_0 16 Rejected
PC	→	**IC**	-0.260	0.222	0.025	H_0 17 Rejected
PH	→	**IC**	-0.134	0.153	0.042	H_0 18 Rejected
PEX	→	**IC**	-0.152	0.173	0.051	H_0 19 Rejected

Source: Primary Data

As reported in Table 3.36, the examination of the path estimates of SEM analysis provides several important insights. As postulated in hypothesis 14, the researcher assumed statistically no significant effect of problems related to the procurement of raw materials on the industrial climate. The test result shows that problems related to procurement of raw materials have adverse effect on the industrial climate. Hence, the study rejected hypothesis 14.

In hypothesis 15, the study proposed that problems related to production have no adverse impact the industrial climate. But, the path estimates supported a negative and significant path estimates. Hence, Thus, the study rejected the significance of hypothesis 15, which means problems related to production have an adverse effect on the industrial climate.

In addition, in hypothesis 16, the researcher postulated there is no adverse impact of the problems related to marketing activities on the industrial climate. The path estimates derived using SEM modelling indicated a statistically significant path estimate. Hence, the study rejected the hypothesis 16. Hence, the study proposed that the problems related to marketing activities on industrial climate.

It is also postulated in hypothesis 17 that the problems related to working capital have no adverse effect on the industrial climate. The examination of the same using SEM path estimates

supported statistically significant effect. Thus, in this study the researcher rejected hypothesis 17, means the problems related to working capital have an adverse effect on the industrial climate.

The study also made a postulation that problems related to human resource management has no adverse impact on the industrial climate in hypothesis 18. The examination of this hypothesis using the SEM path estimates supported a negative and significant effect. Thus, the study inferred that there exists a significant effect and srejected the hypothesis 18.

Finally, the study has also made a postulation in hypothesis 19 that the problems related to export have no adverse impact the industrial climate. The path estimates showed a significant effect. Thus, the study rejected the hypothesis 19. Hence, the problems related to export have an adverse impact on the industrial climate.

Thus it is seen very clearly from the SEM analysis that, the problems related to procurement of raw materials, problems related to production, marketing, raising of working capital , human resources and export have an significant adverse effect on the industrial climate of the food processing industry.

Conclusion

This chapter dealt with the problems faced by the food processing units in Kerala. Mean, one sample t-test and one way ANOVA were used for analyzing the problems in food processing units. Structural Equation Modelling was also used for analyzing the role of various problems to shape the industrial climate. The study found that, the fluctuating prices of raw material in procurement of raw material, increase in procurement cost of raw material, rigid rules and regulations for raising capital, increase in competition in marketing of processed food products, difficulty in recruiting efficient employees and high competition in the export market are the major problems faced by the food processing sector in Kerala. The study also reveals that, increase in the problems related to procurement of raw materials, production, raising of working capital, marketing, human resources and export badly affect the industrial climate. After this review from the point of view of the processing units, a study is made from the consumers point of view in the next chapter with the analysis of the expectation and experience of consumers towards processed food products.

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CHAPTER 4

EXPECTATION AND EXPERIENCE OF CONSUMERS AND THE FUTURE PROSPECTS OF THE INDUSTRY

The previous chapter attempted to analyze the problems of food processing units in Kerala and its impact on industrial climate. Now this chapter examines the expectation and experience of consumers towards processed food products.

To fulfill the objective of role of various factors which determine satisfaction of consumers towards processed food products, the data have been collected from 401 consumers from the districts Calicut, Ernakulam and Alappuzha with the help of pretested structured questionnaire. The data have been analysed with the help of mathematical and statistical tools like percentage, mean, one sample t test, paired sample t Test, independent sample t- Test, One way ANOVA, Exploratory Factor Analysis, correlation and Structural Equation Modeling.

As per Cochran's formula, the sample size is 384. During the period of data collection, the researcher distributed 420 pre-tested questionnaires to the consumers. Data cleaning was done by removing the missing data. Among the total of 420 data collected, 19 filled questionnaires deleted because of missing figures. Thus the balance 401 data are used for the final analysis.

For the purpose of discussion, this chapter is divided into two Parts. Part one is again divided into two sections. Section A deals with the profile of the sample consumers and section B deals with the attitude of consumers towards processed food products. Part 2 includes the future prospects of the food processing industry.

4.1 Consumer Satisfaction Theories

a. The Dissonance Theory

The Dissonance Theory suggests that a person who expected a high-value product and received a low-value product would recognize the disparity and experience a cognitive dissonance (Cardozzo, 1965). That is, the disconfirmed expectations create a state of dissonance or a psychological discomfort (Yi, 1990). If a disparity exists between the product expectations

and the product performance, consumers may have a psychological tension and try to reduce it by changing their perception of the product (Yi, 1990). If the Dissonance Theory holds true, then companies should strive to raise the expectations substantially above the product performance in order to obtain a higher product evaluation (Yi, 1990).

b. The Contrast Theory

The Contrast Theory suggests the opposite of the Dissonance Theory. According to this theory, when the actual product performance falls short of the consumer's expectations about the product, the contrast between the expectation and outcome will cause the consumer to exaggerate the disparity (Yi, 1990). The Contrast theory maintains that a customer who receives a product less valuable than expected, will magnify the difference between the product received and the product expected (Cardozzo, 1965). This theory predicts that, product performance below expectations will be rated poorer than it is in reality (Oliver & DeSarbo, 1988).

c. The Expectancy Disconfirmation Paradigm

Drawing on the shortcomings of the above early theories of consumer satisfaction, Oliver (1977; 1980) proposed the Expectancy-Disconfirmation Paradigm (EDP) as the most promising theoretical framework for the assessment of customer satisfaction. The model implies that consumers purchase goods and services with pre-purchase expectations about the anticipated performance. The expectation level then becomes a standard against which the product is judged. That is, once the product or service has been used, outcomes are compared against expectations. If the outcome matches the expectation confirmation occurs. Disconfirmation occurs where there is a difference between the expectations and outcomes. A customer is either satisfied or dissatisfied as a result of positive or negative difference between the expectations and perceptions. Thus, when service performance is better than what the customer had initially expected, there is a positive disconfirmation between the expectations and performance which results in satisfaction, while when service performance is as expected, there is a confirmation between expectations and perceptions which results in satisfaction. In contrast, when the service performance is not as good as what the customer expected, there is a negative disconfirmation between the expectations and perceptions which causes dissatisfaction.

d. Inferred versus Direct Disconfirmation

The inferred approach involves the computation of the discrepancy between the expectations and evaluations of performance. This requires researchers to draw separate information relating to customer service expectations and perceived performance. These scores are then subtracted to form the third variable, the dis/confirmation or difference score. The inferred (subtractive) disconfirmation approach (LaTour & Peat, 1979), is derived from the theory of comparison (Thibaut & Kelley, 1959) and assumes that the effects of a post-experience comparison on satisfaction can be expressed as a function of algebraic difference between product performance and a comparative standard.

e. The Value Percept Theory

According to the value-percept theory, satisfaction is an emotional response that is triggered by a cognitive evaluative process in which the perceptions of an offer are compared to one's values, needs, wants or desires (Westbrook & Reilly, 1983). Similar to the Expectancy/Disconfirmation paradigm, a growing disparity between one's perceptions and one's values (value-perception) indicates an increasing level of dissatisfaction.

f. The Equity Theory

According to the Equity Theory, satisfaction exists when consumers perceive their output/input ratio as being fair (Swan & Oliver, 1989). Equity models are derived from the Equity Theory (Adams, 1963), and are based on the notion of input-output ratio, which plays a key role in satisfaction (Oliver & Swan, 1989). According to this theory, parties to an exchange will feel equitably treated (thus, satisfied), if in their minds, the ratio of their outcomes to inputs is fair (Oliver & DeSarbo, 1988).

Part 1

Section A

4.2 Profile of Sample Consumers

It is relevant to discuss the profile of the sample consumers. That has been presented below

4.2.1. Gender - wise classification of sample consumers

Table No. 4.1 shows a Gender wise classification of the selected sample consumers.

Table No. 4.1

Gender – Wise Classification of the Sample Consumers

Sl. No.	Gender	Frequency	Percent
1.	Male	188	46.9
2.	Female	213	53.1
	Total	**401**	**100**

Source: Primary Data

From the table, it is clear that, out of 401 sample respondents taken for the analysis, 188 (46.9 percent) respondents are male and 213 (53.1 percent) respondents are female.

4.2.2 Age - wise Classification of Respondents

Consumers buy different goods over their life time. Consumers' needs and wants change with age. The marketers use different marketing strategies or approaches for different age groups. Table 4.2 shows the age-wise classification of the selected respondents.

Table No. 4.2

Age - wise Classification of Selected Respondents

Sl. No.	Age Group	Frequency	Percent
1.	10 – 20	5	1.2
2.	21 – 30	161	40.1
3.	31 – 40	80	20.0
4.	41 – 50	83	20.7

5.	Above 50	72	18.0
	Total	**401**	**100**

Source: Primary Data

The table shows that out of 401 selected consumers majority of them, ie., 161 consumers (40.1 percent) belong to the age group of 21 – 30. 20.7 percent consumers falls in the group of 41 – 50 and 20 percent in the age group of 31 – 40. 18 percent of the consumers are in the age group of above 50. 1.2 percent are from the age group of 10 - 20.

4.2.3 Religion - wise Classification of the Selected Consumers

For the purpose of the study, the consumers are divided into four categories like Hinduism, Christianity, Islam and others. Table 4.3 shows the Religion wise classification of the selected respondents.

Table No. 4.3

Religion - wise Classification of the Selected Respondents

Sl. No.	Religion	Frequency	Percent
1.	Hinduism	241	60.1
2.	Christianity	111	27.7
3.	Islam	47	11.7
4.	Others	2	0.5
	Total	**401**	**100**

Source: Primary Data

As per the Table 4.3, majority of the members are Hindus and their percentage comes to 72. Christian and Islam in the sample constitute 27.7 and 11.7 percent respectively. Only 0.5 percent of the respondents are from other religion.

4.2.4 Education – wise Classification

The consumers are divided into six categories according to education such as primary, high school, higher secondary, graduates, post graduates and professionals. It is observed from the table 4.4 that, majority of the respondents ie., 146 (36.4 percent) are graduates. 16 percent are high school students and 1.7 percent are primary school students. 7.2 percent are professionals. Only 1.7 percent of the respondents have primary education. 19 percent of the respondents have completed higher secondary education and 19.7 percent are post graduates. The table no. 4.4 shows education of the sample respondents.

Table No. 4.4

Education – wise Classification

Sl. No.	Education	Frequency	Percent
1.	Primary	7	1.7
2.	High School	64	16.0
3.	Higher Secondary	76	19.0
4.	Graduates	146	36.4
5.	Post Graduates	79	19.7
6.	Professional	29	7.2
	Total	**401**	**100**

Source: Primary Data

4.2.5 Occupation – wise Classification

Occupation usually influences the consumption pattern of consumers. The marketers always make an attempt to identify the occupational groups that have above average interest in their products. The following table 4.5 shows the occupation-wise classification of the selected sample of consumers.

Table No. 4.5
The Sample Distribution on the Basis of Occupation

Sl. No.	Occupation	Frequency	Percent
1.	House Wives	112	27.9
2.	Business Personnels	45	11.2
3.	Govt. Employees	52	13.0
4.	Pvt. Employees	139	34.7
5.	Professionals	35	8.7
6.	Students	12	3.0
7.	Pensioners	4	1.0
8.	Unemployed	2	0.5
	Total	**401**	**100**

Source: Primary Data

From this table 4.5, it is revealed that 34.7 percent of the respondents are private employees and 27.9 percent are house wives. Government employees, business personnels and professionals in the sample constitute 13, 11.2 and 8.7 percent respectively. Students and Pensioners together constitute 4 percent. Only 0.5 percent of the respondents are unemployed.

4.2.6 Monthly Income

Table 4.6 shows the classification of the respondents according to their monthly family income.

Table No. 4.6
The Sample Distribution on the Basis of Monthly Family Income

Sl. No	Monthly Income	Frequency	Percent
1.	Below 15000	99	24.7
2.	15001 – 30000	169	42.1
3.	30001 – 45000	62	15.5

4.	45001 – 60000	46	11.5
5.	Above 60000	25	6.2
	Total	**401**	**100**

Source: Primary Data

The analysis of monthly family income of the respondents reported in the Table 4.6 revealed that, most of the respondents 169 (42.1 percent) have family monthly income between Rs. 15001 and Rs. 30000. 24.7 percent and 15.5 percent of the respondents have the family income below 15000 and 30001 – 45000 respectively. 17.7 percent of the respondents have the monthly income above 45000.

4.2.7 Monthly Expenditure for Processed Food Products

The following table shows the details of family monthly expenditure for the processed food products. The result shows that, 50.87 percent of the consumers spend between 5000 - 10000. While 40.15 percent of the respondents spend below 5000 for purchasing processed food products, 8.97 percent of the consumers spend between 10000 -15000 for food products.

Table No. 4.7

Family Monthly Expenditure for Processed Food Products

Sl. No.	Monthly Expenditure	Frequency	Percent
1.	Below 5000	161	40.15
2.	5000 - 10000	204	50.87
3.	10000 – 15000	36	8.97
	Total	**401**	**100**

Source: Primary Data

4.2.8 Locality of the Residence

The locality of the residence has been divided into three categories like Corporation, Muncipality and Panchayath. The following Table shows the sample distribution on the basis of the locality of the residence.

Table No. 4.8

The Sample Distribution on the Basis of the Locality of the Residence

Sl. No	Locality	Frequency	Percent
1.	Corporation	56	14.0
2.	Municipality	80	20.0
3.	Panchayath	265	66.1
	Total	**401**	**100**

Source: Primary Data

On the observation of the table, it is found that 66.1 percent of the respondents live in Panchayath. 20 and 14 percent of the respondents are from the municipality and the corporation respectively.

Section B

4.3 Consumers Attitude towards Processed Food Products

4.3.1 Consumption of Food Category

Consumers purchase more than one food category. So the following table shows the multiple responses of respondents on consumption pattern of food category.

Table No. 4.9
Consumption of Food Category: Multiple Responses

Sl. No	Food Category	No. of responses	Percent
1.	Milk and Milk Products	144	24.8
2.	Processed marine and fish	48	8.3
3.	Processed Meat and Poultry	70	12.1
4.	Processed Fruits and vegetables	155	26.7
5.	Processed Grains and cereals	88	15.2
6.	Consumer Foods	75	12.9

Source: Primary Data

It is clear from Table that, 155 (26.7 percent) of the respondents choose processed fruits and vegetables followed by 144 (24.8 percent) of the respondents who consume dairy and dairy products. 15.2, 12.9, 12.1 and 8.3 percent of the respondents purchase processed grains, consumer foods, processed meat and poultry and processed seafood respectively.

4.3.2 Frequency of the Purchases

The frequency of purchasing of the processed food products are divided into six groups like weekly, fortunately, monthly, bi monthly, rarely and daily. The following table 4.10 shows the frequency of purchase of processed food products.

Table No. 4.10

Frequency of Purchase of Processed Food Products

Sl. No.	Frequency of Purchases	Frequency	Percent
1.	Weekly	206	51.4
2.	Fort-nighthy	44	11.0
3.	Monthly	98	24.4
4.	Bi Monthly	15	3.7

5.	Rarely	28	7
6.	Daily	10	2.5
	Total	**401**	**100**

Source: Primary Data

On the observation of Table 4.10, it is clear that, majority of the respondents 206 (51.4 percent) purchase processed food products weekly. 24.4 and 11 percent of the respondents purchase the processed food products monthly and fort-nightly respectively. 10.7 percent of the respondents purchase processed food products rarely and bi monthly. Only 2.5 percent of the respondents purchase processed food products daily.

4.2.3 Factors Prompting to Purchase the Processed Food

While purchasing the processed food products, various factors are influencing the purchase behavior of the consumers. The factors influencing consumer the purchasing behavior towards the processed food products such as nutrition, environment friendliness, organic nature of products, quality, availability, advertisement, price, package of the product, variety of choice, promotional offers, brand name, taste and good display of the product are included in the present study.

1. Nutrition

Now, people are very conscious about the nutrition value of in food products in relation to the growth, maintenance, health and reproduction of an organism. The food processing company should display the list of nutrition facts containing in the product on the package.

2. Environment Friendliness

Environment friendly means eco- friendly. It is a marketing term referred to goods and services which are not harmful to the ecosystem or environment. The companies use these terms to promote their goods and services.

3. Organic Product

At present, organic foods are becoming very important, because of many reasons. The most important reason that is various chemicals are used in daily food items at various stages. So people start moving towards organic products. Organic products are made from the plants which are grown free from chemical fertilizers, genetically modified organism (GMO) and pesticides. It is a method of farming without using any hi-tech or modern inputs.

4. Quality

People are not ready to compromise the quality of the food products and are ready to pay more, for getting good quality products. The quality of food products consists of two factors, internal and external. The internal factor includes chemical, microbiological, physical etc., while the external factors are size, color, shape, flavor, consistency etc.

5. Availability

The availability of the product is another factor influencing the consumer behavior. In general, people purchase their preferred brand from their nearby shops or convenient shops. The consumers pay greater preference to generally available products. If the brand is not available in their nearby places, it may lead to decrease the demand of such product and shift their choice to other brand.

6. Price

Price is the amount paid by a buyer to a seller for a product. Sometimes, price of the product may act as the indicator of quality, among the consumers. Lower prices are perceived by the consumers to be an indicator of lower quality of the products and higher prices as that of higher quality. The consumers believe that high priced goods are much better than the low priced.

7. Package of the product

Packaging is an activity of enclosing the product in a container like bottle, bag, tin etc. to facilitate storage, transportation, sale and consumption. Package of the product helps to protect the contents of the product until it is consumed. The package helps in branding of products as the name of the brand or design can be printed on the package and it also gives the product

'individuality'. It differentiates the product from the competitors' product. The package can convey important information regarding the quality, usage, nutrition, etc., of the product.

8. Advertisements

Advertisement plays an important role in the consumers purchasing decision. Advertising is a medium used by the marketers to communicate what they sponsored or sell to the consumers. Advertising is a paid form of non – personal communication that is transmitted through mass media such as television, radio, newspapers, magazines, direct mail, vehicles and outdoor displays. Advertisement aims to attract the ultimate consumers and to create brand image. Commercial advertisement helps to increase the consumption of the products through branding.

9. Variety of Choice

At present, wide varieties of products are available in the market in different colors, shapes and taste.

10. Promotional Offers

Promotion is a communication between the seller and the buyer. Informing, persuading and reminding the consumers to buy the company's product are the major aim of promotion. Promotional offers includes giving price discount, providing incentives to sales people, conducting trade contest, trade discount, giving sample products, coupons, rebates, conducting exhibitions, 'buy one get one free' offers etc. These offers help to increase the sales and continuous buying of the company's product.

11. Brand Name

Brand name helps to position the product in the mind of the consumers. Now people buy branded products due to changing life style. Brand is a name, term, symbol, mark or design or a combination which is intended to identify the goods of one company and to differentiate them from the competitors'. Brand name can be spoken including letters, words and numbers. For example, in the Kerala based food processing companies, there are large number of brands like 'Merii Boy, Joy ice cream, Melam, Kaula, Lazza etc.

12. Taste

Taste is another important factor influencing consumers' buying behavior. Each and every person build up a taste preference, which influences the food products purchase decisions.

13. Good Display of the Product

Good display of the product may give more attraction to the consumers. The wholesale and retail outlets display their products in a systematic manner to attract the customers. The ambience of the outlet also influences the consumers. If the ambience is not good, it may discourage the customers to purchase the product from the particular shop. So the retail and wholesale outlets should give importance to their ambience and display of products.

The following table 4.11 shows the factors related to the purchase of processed food products.

Table No. 4.11

The Factors Related to the Purchase of Processed Food Products

Sl. No.	Factors	Mean Score	Rank
1.	Nutrition	4.51	3
2.	Environment Friendliness	4.05	5.5
3.	Organic nature of the Product	4.06	4
4.	Quality	4.65	1
5.	Availability	3.72	8
6.	Price	3.95	7
7.	Package of the Product	3.26	10
8.	Advertisements	2.62	13
9.	Variety of Choice	3.47	9
10.	Promotional Offers	2.63	12
11.	Brand Name	4.05	5.5

12.	Taste	4.57	2
13.	Good Display of the Product	3.11	11

Source: Primary Data

The study analyzed the factors related to the purchase of the processed food products. It is clear from the data given in the table; the quality is which influences the most factor on the purchase of processed food product. Taste and nutrition are placed 2nd and 3rd ranks with mean scores 4.57 and 4.51 respectively. Another factor which relates to the purchase of processed food product is organic product and its mean score is 4.06. Environment friendliness and brand name are having a mean score of 4.05 each. Price, availability, variety of choice and package of the product are other influencing factors on the purchase of processed food products and their mean scores are 3.95, 3.72, 3.47 and 3.26 respectively. Good display of the product is positioned at 11th place and its mean score is 3.11. Promotional offers and advertisements are the factors with the least influence on the purchasing behavior and their mean scores are 2.63 and 2.62 respectively.

4.2.4 Factors Determining the Buying Behavior of the Consumers: t - Test

All the factors mentioned in the Table 4.12, are affecting the consumers buying behavior. It is necessary to use one sample t test to identify the factors which exercise a great degree of influencing on the consumers buying behavior and those which has the lowest influence. One sample t test is used for testing the hypothesis. The test results are shown in the following table.

$H_{0\ 20}$: The determinant factors related to the purchase of processed food is perceived at average level

Table No. 4.12
Factors Related to the Purchase of the Processed Food Products: t-Test

Factors	Mean Score	t value	p value	Inference
Nutrition	4.51	34.423	.000**	Highly Significant
Environment Friendliness	4.05	20.141	.000**	Highly Significant

Organic Nature of the Product	4.06	20.389	.000**	Highly Significant
Quality	4.65	43.491	.000**	Highly Significant
Availability	3.72	14.661	.000**	Highly Significant
Price	3.95	17.129	.000**	Highly Significant
Package	3.26	4.417	.000**	Highly Significant
Advertisements	2.62	-6.124	.000**	Highly Significant
Variety of Choice	3.47	9.043	.000**	Highly Significant
Promotional Offers	2.63	-6.028	.000**	Highly Significant
Brand Name	4.05	19.995	.000**	Highly Significant
Taste	4.57	41.036	.000**	Highly Significant
Good display of the product	3.11	2.107	.036*	Significant

Source: Primary Data, ** Significant at 1 % level, *Significant at 5 % level

Table 4.12 makes clear that all the factors influencing the purchase of processed food products, except 'good display of the product' included in the study are highly significant. This is because the 'p value' is less than 0.05. Hence, the null hypothesis is rejected at 1 percent level of significance. The factor, good display of the product (.036) is significant. The null hypothesis is rejected at 5 percent level of significance. That means, Determinant factors related to 'purchase of processed food perceived' is not at average level. Almost all factors shown in the table are highly influencing the consumers buying behavior. Only two factors like advertisements and promotional offers are the least influencing.

4.3.5 Expectation of the Consumers regarding the Processed Food Products

At present, the consumers expect more from the processed food products. The study includes certain variables indicating to the expectation of the consumers. They are,

1. The product should be ready to cook
2. The product should be ready to eat

3. The food processing company should provide nutritious food
4. The product should be tasty
5. The consumers look for variety of choices for food items
6. The product should be environment friendly
7. The consumers prefer good quality products
8. The consumers prefer more organic products
9. Consumers need oil free products
10. Consumers prefer fat free products
11. Consumers need more fresh products and
12. The food products should be free from pesticides

The following table 4.13 shows the expectation of the consumers regarding processed food products.

Table No. 4.13

Consumers' Expectation regarding the Processed Food Products

Sl. No.	Expectation	Mean Score	Rank
1.	Ready to cook	3.98	10
2.	Ready to eat	3.57	12
3.	Nutritious	4.57	5
4.	Tasty	4.62	4
5.	Variety of Choice	3.82	11
6.	Environment Friendly	4.23	6

7.	Good Quality	4.74	2
8.	Organic	4.19	7
9.	Oil free	4.05	9
10.	Fat free	4.12	8
11.	Fresh	4.78	1
12.	Free from Pesticides	4.72	3

Source: Primary Data

The study analyzed the expectation of consumers regarding the processed food products. It is found that, the consumers expect more fresh products and it is placed in the first rank with the mean score 4.78. Then consumers give importance to the quality of the products, with mean score 4.74. Further, the consumers expect that the food products should be free from pesticides and, it is placed in the third position with the mean score 4.72. Then the consumers expected that, the food processing company should provide tasty and nutritious food. The factors 'tasty and nutritious' are placed in the fourth and fifth place with the mean score 4.62 and 4.57 respectively. Next, the consumers give preferences to environment friendliness (4.23) and organic nature of the products (4.19), which are positioned at sixth and seventh place respectively. The consumers have placed 'health' only at eighth or ninth place preferring fat free and oil free products with the mean score 4.12 and 4.05 respectively. The consumers expect the product to be ready to cook, only at the 10^{th} position with the mean score 3.98. Variety of choices for food products and ready to eat character are given the least priority with mean score 3.82 and 3.57.

4.3.6 Consumers' Expectation Regarding the Processed Food Products: t -Test

$H_{0\ 21}$: The consumers' expectation regarding the processed foods is average in Kerala

'One sample t test' was used for analyzing the expectation of the consumers regarding the processed food products. The test results are shown in the following table.

Table 4.14

Consumers' Expectation Regarding the Processed Food Products: Result of One Sample t-Test

Expectation	Mean Score	t value	p value	Inference
Ready to Cook	3.98	16.846	0.000**	Highly Significant
Ready to Eat	3.57	9.733	0.000**	Highly Significant
Nutritious Food	4.57	36.927	0.000**	Highly Significant
Tasty	4.62	45.633	0.000**	Highly Significant
Variety of Choice	3.82	17.863	0.000**	Highly Significant
Environment Friendly	4.23	29.760	0.000**	Highly Significant
Good Quality	4.74	52.849	0.000**	Highly Significant
Organic	4.19	26.877	0.000**	Highly Significant
Oil Free	4.05	21.923	0.000**	Highly Significant
Fat free	4.12	23.682	0.000**	Highly Significant
Fresh	4.78	58.675	0.000**	Highly Significant
Free from Pesticides	4.72	48.396	0.000**	Highly Significant

Source: Primary Data, ** Significant at 1% level

Table 4.14 shows that, all the variables of consumers' expectation related to the processed food products are highly significant. Its p value is less than 0.010, so the null hypothesis is rejected at 1 percent level of significance. It is clear from the result that, the consumers' expectation regarding processed food products is above average in Kerala.

4.3.7 Consumers Experience with regard to the Processed Food Products

The following table shows the consumers experience related to processed food products.

Table No.4.15

Consumers' Experience Regarding the Processed Food Products

Sl. No.	Experience	Mean Score	Rank
1.	Ready to Cook	4.00	2
2.	Ready to Eat	3.95	4
3.	Nutritious	3.43	8
4.	Tasty	4.13	1
5.	Variety of Choice	3.99	3
6.	Environment Friendly	3.35	9
7.	Good Quality	3.78	5
8.	Organic	3.23	12
9.	Oil Free	3.27	11
10.	Fat free	3.28	10
11.	Fresh	3.51	7
12.	Free from Pesticides	3.53	6

Source: Primary Data

From the analysis of the experience of consumers with regard to the processed food products, the consumers experienced that the food products were 'tasty' (mean score = 4.13) as per they expected. Then the consumers felt that the products were ready to cook (mean score = 4.00). They also experienced variety of choices (mean score = 3.99) for the food products. The consumers experience regarding environment friendliness (mean score = 3.35) is not satisfactory. They couldn't see the products as fat free (mean score = 3.28) or oil free (mean score = 3.27) as they expected.

4.3.8 Consumers' Experience with regard to the Processed Food Products after Consumption: t- Test

$H_{0\ 22}$: The consumers experience with regard to the consumption of processed food products is average in Kerala

'One sample t test' was used for analyzing the consumers experience with regard to the processed food products, after consumption. The test result is shown in the following table.

Table No. 4.16

Consumers Experience with Regard to the Consumption of Processed Food Products: Result of One Sample t-Test

Experience	Mean Score	t value	p value	Inference
Ready to Cook	4.00	20.765	0.000**	Highly Significant
Ready to Eat	3.95	19.725	0.000**	Highly Significant
Nutritious Food	3.43	8.216	0.000**	Highly Significant
Tasty	4.13	30.416	0.000**	Highly Significant
Variety of Choice	3.99	19.161	0.000**	Highly Significant
Environment Friendly	3.35	6.750	0.000**	Highly Significant
Good Quality	3.78	15.878	0.000**	Highly Significant
Organic	3.23	4.514	0.000**	Highly Significant
Oil Free	3.27	5.163	0.000**	Highly Significant
Fat free	3.28	5.199	0.000**	Highly Significant
Fresh	3.51	9.074	0.000**	Highly Significant

Free from Pesticides	3.53	8.688	0.000**	Highly Significant

*Source: Primary Data*** Significant at 1% level

Table 4.16 shows that, all the variables of consumers' experience related to processed food products are highly significant. Its p value is 0.000, and the null hypothesis is rejected at 1percent level of significance. So, it is clear from the result that, the consumers' experience of satisfaction with regard to processed food products is above average in Kerala.

4.3.9 Expectation – Experience: Gap Analysis

Rai (2008) draws the basic formula of customer satisfaction as:

Customer Satisfaction *= Customer perception of the service received – Customer expectation of service.*

In this way it is easy to generalize that if the perception of the service received has exceeded the expectations of the service, the customer satisfaction will be positive; on the other hand, if the perception of the service received is less than the level of expectation of the service, it would lead to customer dissatisfaction.

The most comprehensive definition of satisfaction has been offered by Kotler and Keller who define satisfaction as "person's feeling of pleasure or disappointment which resulted from comparing a product's perceived performance or outcome against his or her expectations".

Parasuraman et al (1991) divide customer service expectations into two levels: desired and adequate. Desired level of service expectations is a state of service that the customer desires to receive, whereas adequate level of customer expectation is the level of service that the customer can only "accept" without being too satisfied with it.

$H_{0\ 23}$: There is no significant difference between the expectation and experience of consumers with regard to the processed food products.

Paired t test was used to analyze the significant difference between the expectation and experience of consumers with regard to the processed food products. Paired t test is used to determine the mean difference between the two sets of observations. Paired t test is used when

the observation in one sample is dependent on the other sample. The test result is shown in the following table.

Table No. 4.17

Expectation – Experience: Gap Analysis

Factors	Expectation Score	Experience Score	t value	p value	Inference
Ready to Cook	3.98	4.00	-3.22	0.747	Insignificant
Ready to Eat	3.57	3.95	-6.999	0.000**	Highly Significant
Nutritious Food	4.57	3.43	16.891	0.000**	Highly Significant
Tasty	4.62	4.13	11.549	0.000**	Highly Significant
Variety of Choice	3.82	3.99	-2.752	0.006**	Highly Significant
Environment Friendly	4.23	3.35	14.894	0.000**	Highly Significant
Quality	4.74	3.78	17.019	0.000**	Highly Significant
Organic Product	4.19	3.23	16.834	0.000**	Highly Significant
Oil Free Products	4.05	3.27	12.370	0.000**	Highly Significant
Fat free Products	4.12	3.28	13.090	0.000**	Highly Significant
Fresh Products	4.78	3.51	21.086	0.000**	Highly Significant
Free from Pesticides	4.72	3.53	18.408	0.000**	Highly Significant

Source: Primary Data ** Significant at 1% level

- From the analysis of the factor, 'Ready to Cook', its expectation and experience score is 3.98 and 4.00 respectively with the p value 0.747. The p vale is greater than 0.051, so the null hypothesis is accepted at 5 percent level of significance. It is clear from the result,

that the experience of the consumers with regard to 'Ready to Cook' products is equal to what they had expected.

- Another factor is 'ready to eat'; the result shows that, its expectation score is 3.57 and experience score is 3.95. The experience and expectation score shows a slight difference. The p vale is 0.000 and it is less than 0.010. Hence, the null hypothesis is rejected at 1 percent level of significance. It is clear that the experience of the consumers is greater than what they expected regarding 'ready to eat products'.
- On the observation of the factor 'Nutritious', the expectation score is 4.57 and the experience score is 3.43 with 'p value 0.000'. The p value is less than 0.010. So the null hypothesis is rejected at 1 percent level of significance. The result shows that the experience of the consumers is less than what they expected from the nutritious nature of foods.
- Similarly, from the analysis of the factor 'tasty', the expectation and experience score are 4.62 and 4.13 respectively. The p value is 0.000, which is less than 0.010. Hence, the null hypothesis is rejected at 1 percent level of significance. The consumers expected the product to be very tasty but their experience is less than the expectation.
- It is clear from the analysis of the factor 'variety of choice' that, the expectation score (3.82) and experience score (3.99) shows a significant difference. The p value is 0.000, which is less than 0.010. So the null hypothesis is rejected at 1 percent level of significance. That means, there is a significant difference between the expectation and experience of consumers with regard to 'variety of choice'.
- The consumers expected the product to be 'environment friendly'. Their expectation score is 4.23 and experience score is 3.35 with the p value 0.000. The p value is less than 0.010. So the null hypothesis is rejected at 1 percent level of significance. The expectation and experience related to the 'environment friendly' nature of products show a significant difference.
- From the analysis of the factor 'good quality', the consumers' expectation score is 4.74 and their experience score is 3.78. It shows that there is a significant difference. The p value is 0.000, which is less than 0.010. Hence, the null hypothesis is rejected at 1 percent level of significance. That means, the consumers are not getting quality products at their expectation level.

- The expectation score of consumers towards the factor 'organic' is 4.19 and the experience score is 3.23. The p value is 0.000, which is less than 0.010. So the null hypothesis is rejected at 1 percent level of significance. It means that, the expectation and experience are different. In this case the consumers' experience was less than their expectation, regarding the organic nature of products.
- It is clear from the analysis of the factor 'oil free', that the expectation (4.05) and experience (3.27) of consumers' shows significant difference. The p value is 0.000, which is less than 0.010. Hence, the null hypothesis is rejected at 1 percent level of significance.
- The expectation scores regarding fat free products and fresh products are 4.12 and 4.78 respectively. Their experience scores are 3.28 and 3.51. The p value of both fat free products and fresh products is 0.000. Since, the p value is less than 0.010; the null hypothesis is rejected at 1 percent level of significance. The consumers experience from these two factors is less than their expectation.
- The last factor is 'free from pesticides'. From the analysis, the p value is 0.000, which is less than 0.010. The null hypothesis is rejected at 1 percent level of significance. The expectation score (4.72) and the experience score (3.53) shows significant difference. The expectation is far higher than what they have experienced.

4.3.10 Exploratory Factor Analysis: The Expectation of the Consumers with regard to the Processed Food Products

In the present research work, exploratory factor analysis was performed among 12 variables related to the 'expectation of consumers' using SPSS 21.0. The result is shown in the following table.

Table No.4.18

KMO and Bartlett's Test: Consumers Expectation

KMO and Bartlett's Test		
Kaiser – Meyer – Olkin Measure of Sampling Adequacy		.781
Bartlett's test of Sphericity	Approx. Chi-Square	1351.406

	Df	66
	Sig.	.000

Source: Primary Data

The table shows, the Kaiser – Meyer – Olkin (KMO) test which is used to test the interconnectivity of the variables in the construct. KMO test is a measure of how suited the data are for factor analysis. KMO values vary between zero and one. Here the KMO measure of sampling adequacy is 0.781.

The Bartlett's test of Sphericity shows a significant value (0.000), which is less than 0.01. The test value, i.e. the approx. Chi- Square value was 1351.406. Principal component analysis was conducted and the set of 12 variables is split into three components, which have the Eigen value greater than 1. These three components altogether explained 55.394 percent of the variance. The following table shows the result of total variance explained regarding the consumers' expectation.

Table 4.19

Total Variance explained by the Variables of Consumers Expectation towards Processed Food Products

Components	**Initial Eigen Values**		
	Total	**% of Variance**	**Cumulative %**
1	4.021	33.505	33.505
2	1.433	11.945	45.450
3	1.193	9.945	55.394

Source: Primary Data

The table explains the percentage of variance and Eigen values of the three components, which explained 55.394 percentage of total variance. The most important component explains 33.505 percent of variance with the Eigen value 4.021. The second important factor explains 11.945 percent of variance (Eigen value 1.433) followed by third component 9.945 percent of variance with the Eigen value 1.193. Altogether, these three components explain 55.394 percent of variance. These three components are identified as the indicators which explain the expectation of the consumers in the present context. It is clear from the scree plot, which is given below;

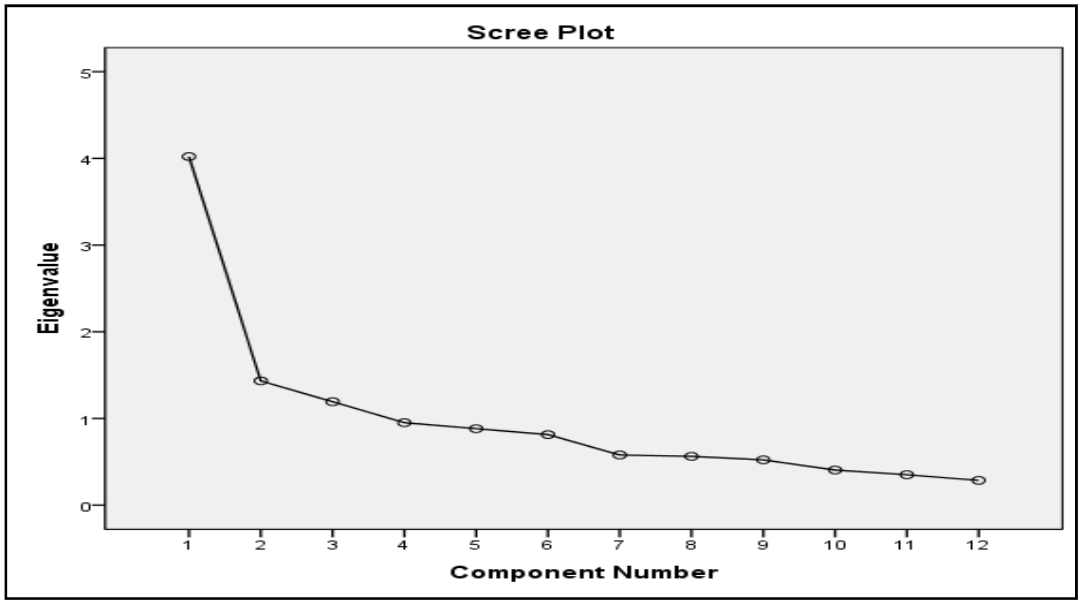


Figure 4 .1 – Scree Test – Consumers Expectation

The figure 4.1 shows that all the 12 variables of the consumers' expectation regarding the processed food products are combined and split into 3 components. Table 4.20 shows the details of each variable of consumers' expectation along with component loading.

Table No. 4. 20

Component Loading of Consumers' Expectation

Sl. No.	Factors	1	2	3
1.	Ready to Cook			.859
2.	Ready to Eat			.671

3.	Nutritious Food	.429		
4.	Tasty	.603		
5.	Variety of Choice	.532		
6.	Environment Friendly	.557		
7.	Good Quality	.771		
8.	Organic		.606	
9.	Oil Free		.803	
10.	Fat free		.757	
11.	Fresh	.828		
12.	Free from Pesticides	.730		

Source: Primary Data

From the table 4.20 above, the factors of consumers' expectation are grouped into 3 factors. The details are briefly explained below;

- Group one has extracted more, i.e. 33.505 percent (as shown in Table 4.19). It includes seven items. They are 'freshness of products', 'good quality', 'free from pesticides', 'tasty', 'variety of choice', 'environment friendly' and 'nutritious'. These variables together related to a common factor, whose characteristics are related to the quality of the product. So, it was named as **Product Quality.**
- The other group which has extracted 11.945 percent of variance (as shown in Table 4.19) and it consists of three characteristics like 'oil free', 'fat free' and 'organic'. They are commonly named as **Health Factors.**
- The component which has extracted 9.945 percent (as shown in Table 4.19) of variance. It includes the factors like 'Ready to cook' and 'Ready to eat'. These factors are called **Convenience factors.**

4.3.11 Gender of Consumers and Expectations about the Processed Food Products

The expectation factors are grouped into three using Exploratory Factor Analysis (EFA), and the groups are named into Product Quality, Health Factors and Convenience factors. Independent sample t-test was used to analyse the significant difference between gender and the expectation regarding the processed food products. The test result is given in the following table.

$H_{0\ 24}$: There is no significant gender difference with respect to the product quality, health factors and convenience factors.

Table No. 4.21

Gender and Expectation regarding the Processed Food Products

Expectation	Gender	Mean	t Value	P value	Inference
Convenience Factors	Male	7.59	0.370	0.712	Insignificant
	Female	7.51			
Product Quality	Male	31.77	1.599	0.111	Insignificant
	Female	31.22			
Health Factors	Male	12.48	1.040	0.299	Insignificant
	Female	12.25			

Source: Primary Data

The result shows that, p vale of the convenience factors, product quality and health factors are greater than 0.051. Hence, the null hypothesis is accepted at 5 Percent level of significance. It is concluded that, there is no significant difference between male and female with respect to the convenience factors, product quality and health factors.

4.3.12 Age of Consumers and Expectations about the Processed food Products

$H_{0\ 25}$: There is no significant difference between age group and expectation with regard to the product quality, health factors and convenience factors.

One way ANOVA was used to test the significant difference between age group with regard to the consumers' expectations. The five age groups considered in the study were below 20, 20 – 30, 31 – 40, 41 – 50 and above 50. The results are summarized in the following table.

Table No. 4.22

Age group and Expectation of Consumers regarding the Processed Food Products: One Way ANOVA

Expectation	Age Group	Mean	F	P Value	Inference
Convenience Factors	Below 20	8.6[b]	3.075	0.016*	Significant
	20 – 30	7.75[ab]			
	31 - 40	7.77[ab]			
	41 – 50	6.96[a]			
	Above 50	7.4[ab]			
Product Quality	Below 20	28.80	2.082	0.082	Insignificant
	20 – 30	31.82			
	31 - 40	31.75			
	41 – 50	30.85			
	Above 50	31.30			
Health Factors	Below 20	11.80	0.278	0.892	Insignificant
	20 – 30	12.28			
	31 - 40	12.31			
	41 – 50	12.50			
	Above 50	12.48			

*Source: Primary Data, * Significant at 5% level*

Note: Different alphabets between mean denotes significance at 5% level using Duncan Multiple Range Test (DMRT)

Since, p value (0.016) is less than 0.050; the null hypothesis is rejected at 5 percent level of significance with regard to the convenience factors. It is concluded that, there is a significant difference between the age group of consumers and the 'convenience factors' regarding the expectation of consumers towards the processed food products. To find out the exact difference among the age group with respect to the convenience factors, post hoc test namely, 'Duncan Multiple Range Test' was used. Based on DMRT, there is a significant difference between the age group 41 – 50 (mean = 6.96) and the age group below 20 (mean = 8.6) regarding the expectation about 'convenience factors'. There is no significant difference among the age group above 50 (mean = 7.4), 20 – 30 (mean = 7.75) and 31 – 40 (mean = 7.77) with other groups, regarding the expectation about convenience factors.

Since, the p value is greater than 0.050, the null hypothesis is accepted at 5 percent level of significance, with regard to the product quality (p value = 0.082) and health factors (p value = 0.892). It means that, there is no significant difference between the age group of consumers with respect to expectation about the product quality and health factors.

4.3.13 Profession of Consumers and the Expectation about Processed Food Products: One Way ANOVA

$H_{0\ 26}$: There is no significant difference between the profession and expectation about product quality, health factors and convenience factors.

To test the hypothesis, 'there is no significant difference between profession and expectation about product quality, health factors and convenience factors', One Way ANOVA was used. The results are given below

Table No. 4.23

The Profession and the Expectation of the Consumers regarding the Processed Food Products: One Way ANOVA

Expectation	Profession	Mean	F	P Value	Inference
Convenience Factors	House Wives	7.37	1.289	0.261	Insignificant
	Business People	7.04			
	Govt. Employees	7.70			
	Pvt. Employees	7.74			
	Professionals	7.82			
	Students	8.16			
	Pensioners	8.25			
Product Quality	House Wives	31.06	0.802	0.568	Insignificant
	Business People	31.17			
	Govt. Employees	31.70			
	Pvt. Employees	31.86			
	Professionals	31.65			
	Students	31.83			
	Pensioners	32.75			
Health Factors	House Wives	12.24	0.221	0.970	Insignificant
	Business People	12.33			
	Govt. Employees	12.41			
	Pvt. Employees	12.46			
	Professionals	12.34			
	Students	12.50			

	Pensioners	13.25			

Source: Primary Data

Since, the p value is greater than 0.050, the null hypothesis is accepted at 5 percent level of significance with respect to convenience factors (p value = 0.261), product quality (p value = 0.568) and health factors (p value = 0.970). Therefore, there is no significance difference between the profession and the expectation of consumers with regard to the convenience factors, health factors and product quality.

4.3.14 Education of the Consumers and the Expectations about Processed food Products: One Way ANOVA

$H_{0\ 27}$: There is no significant difference between the educational qualification and expectation about the product quality, health factors and convenience factors.

One Way ANOVA was used for testing the hypothesis. The test results are given below.

Table No. 4.24

Educational Qualification and Expectation: One way ANOVA

Expectation	Education	Mean	F	P Value	Inference
Convenience Factors	Primary	7.42	1.83	0.105	Insignificant
	High School	7.09			
	Higher Secondary	7.89			
	Graduates	7.51			
	Post Graduates	7.83			
	Professional	7.13			
Product Quality	Primary	32.14^{b}	3.321	0.006**	Highly
	High School	30.78^{ab}			
	Higher Secondary	31.35^{ab}			
	Graduates	31.93^{b}			

	Post Graduates	31.96[b]			Significant
	Professional	29.58[a]			
Health Factors	Primary	13.14[c]	3.681	0.003**	Highly Significant
	High School	11.81[ab]			
	Higher Secondary	12.71[bc]			
	Graduates	12.48[bc]			
	Post Graduates	12.65[bc]			
	Professional	11.10[a]			

*Source: PrimarSource: Primary Data, **Significant at 1 % level*

The result shows that, the p value is 0.105, which is greater than 0.050 with respect to the convenience factors and, the null hypothesis is accepted at 5 percent level of significance. Therefore, there is no significant difference between the educational qualification of consumers and the expectation regarding the convenience factors.

The p value of the educational qualification and the expectation about the product quality is 0.006, which is less than 0.010. So, the null hypothesis is rejected at 1 percent level of significance. Therefore, there is a significant difference among educational qualification and the expectation about the product quality. To find out the exact differences among the educational

groups about product quality, Duncan Multiple Range Test was used. Based on DMRT, there is a significant difference among educational qualifications like primary, graduates and post graduates with professionals with respect to expectation about product quality. There is no significant difference among high school and higher secondary with any other groups.

The p value is 0.003, which is less than 0.010, with respect to the health factors. The null hypothesis is rejected at 1 percent level of significance. It is concluded that, there is a significant difference among educational qualification and health factors. Duncan Multiple Range Test was used to find out the exact differences among the educational group among health factors. Based on DMRT, there is no significant difference among educational group like professional and high school with respect to health factors. There is no significant difference between the High school group with graduates, post graduates and higher secondary with regard to the health factors. There is no significant difference between graduates and Post graduates, higher secondary and Primary with respect to health factors.

4.3.15 The Expectation and the Experience of Consumers towards Processed Food Products: Correlation

To analyse the relationship between the expectation and the experience of consumers towards processed food products correlation is studied. The result is given below

$H_{0\ 28}$: There is no relationship between the expectation and the experience of consumers regarding the processed food products.

Table No: 4.25

The Expectation and Experience of Consumers regarding the Processed Food Products: Correlation

Consumer behavior	Expectation	Experience
Expectation	1	0.252**

Experience	0.252**	1

*Source: Primary Data, ** Correlation is significant at the 0.01 level*

The correlation between the consumers' expectation and the experience is 0.252, which indicates that there is 25 percent positive correlation exists between the expectation and the experience of consumers with respect to the processed food products at one percent level of significance. This is a positive sign that the food processing units are functioning according to the consumer requirements and expectation. Since the correlation is 25 percent, there is skill scope for improvement.

4.3.16 Consumer Model

The relationship between the variables for the consumer model is analysed here. The hypotheses are;

Table No: 4.26

Hypotheses Showing the Relationship of the Consumer Model

H_0 29	The problems perceived by the consumers in terms of nutrition increase the consumers' expectation-experience gap.
H_0 30	The problems perceived by the consumers in terms of environmental friendliness increase the consumers' expectation-experience gap.
H_0 31	The problems perceived by the consumers in terms of organic product supply increase the consumers' expectation-experience gap.
H_0 32	The problems perceived by the consumers in terms of quality increase the consumers' expectation-experience gap.
H_0 33	The problems perceived by the consumers in terms of availability increase the consumers' expectation-experience gap.
H_0 34	The problems perceived by the consumers in terms of price increase the consumers' expectation-experience gap.
H_0 35	The problems perceived by the consumers in terms of product packaging increase the consumers' expectation-experience gap.

H_0 36	The problems perceived by the consumers in terms of advertisements increase the consumers' expectation-experience gap.
H_0 37	The problems perceived by the consumers in terms of variety of choice increase the consumers' expectation-experience gap.
H_0 38	Problems perceived by consumers in terms promotional offer increase the consumers' expectation- experience gap.
H_0 39	The problems perceived by the consumers in terms of brand name increase the consumers' expectation-experience gap.
H_0 40	The problems perceived by consumers in terms of taste increase the consumers' expectation-experience gap.
H_0 41	The problems perceived by consumers in terms of product display increase the consumers' expectation-experience gap.
H_0 42	Expectation-experience gap adversely impact customer satisfaction

Test of hypotheses for the consumer model

To test the proposed hypotheses, the researcher conducted a co-variance based SEM technique. This covariance based SEM is preferable when the researcher tries to test and confirm the proposed model under consideration. The SEM technique has applied to test the hypotheses because of several reasons. First, the constructs proposed in this study is measured using multiple questions, and therefore the constructs are latent in nature. In this case, SEM technique is more preferable over other techniques, if the objective is to capture the inter-relationship between the proposed constructs under consideration. Second, in the hypotheses formulation section, the researcher proposed several relationships, which involved the interrelationship between several variables, in a simultaneous fashion. Finally, it is also recommended by experts that SEM is more useful in case of latent variables with multiple items, where the researcher likes to capture item-wise error rate. The SEM modelling involves different phases. In the first phase, the researcher made a conceptual representation of the relationship between the study variables. It is conceptualized that, the various problems, such as nutrition (NT), environmental friendliness (ENT), organic product (OP), quality (QT), availability (AV), price (PC), package (PKG), advertisement (AD), variety of choice (CH), promotional offer (PO), brand name (BN), taste

(TST), and display (DIS) are the antecedents expectation-experience gap (EXPGAP), which in turn influences the customer satisfaction (SAT).

In the second phase, we estimated the goodness of fit coefficients of the conceptual model are estimated the goodness of fit of the model is examined with the observed data. In this goodness of fit indices, the researcher examined various fit indices. Jaccard and Wan (1996) recommend the use of at least three fit tests, one from each of the first three categories like absolute fit, relative fit and parsimony measures as reported in the following table.

Table No: 4.27

Fit Measures used in assessing goodness of fit of SEM Model

Category	**Fit Indices**
Absolute Fit Measure	CMIN, CMIN/df, RMR, SRMR, GFL, PGFI
Relative fit measures	NFI, RFI, IFI, TLI
Parsimony Measures	PRATIO, PNFI, PCFI
Chi-square distribution	NCP,FMIN, RMSEA
Theoretic Fit measures	AIC, BIC, BCC,ECVI
Fit measures on sample size	HOERLTER

Reference: Hair et al. (2010)

Following the suggestion given by Kline (2005), in this study the researcher followed the fit measures, such as χ^2, the ratio of chi-square to df, IFI, GFI, NFI, SRMR, RMSEA, TLI and CFI. In these fit measures, expect an insignificant χ^2 is expected. However, in a study with high sample size one cannot expect insignificant χ^2. In case of other fit indices such as GFI, NFI, TLI and CFI, the fit indices above the suggested cut-off of 0.90 show good model. In case of RMSEA and SRMR, if the fit measures are below the value of 0.08 it indicates a good model.

Table No: 4.28

Goodness of fit-measures of the Structural Model

Fit indices	Estimated values
χ^2	6960.50 (df = 3631, p = .001)
χ^2/df	1.91

CFI	.836
IFI	.838
GFI	.700
TLI	.827
RMR	.055
SRMR	.058
RMSEA	.049

Note: The model fit indices reported here generated from the SEM model.

As shown in Table 4.28, the study found a satisfactory fit of the structural model [Chi-square: χ^2 = 6960.50 (df = 3631), p = .001; the ratio of Chi-square to degrees of freedom: χ^2/df = 1.91; Comparative Fit Index: CFI = .836; Incremental Fit Index: IFI = .838; Standardized Root Mean Square Residual: SRMR = .058; Root Mean Square Error of Approximation: RMSEA = .049]. In this assessment of important model fit indices as reported the Table, such as the ratio of Chi-Square to degrees of freedom (CMIN/df) or normed chi-square which minimizes the impact of sample size on the Model Chi Square (Wheaton, Muthen, Alwin, & Summers, 1977), and was deemed an acceptable ratio at 1.91, because it was less than the suggested limit of 2.0 (Tabachnick&Fidell, 2007). Another important index of assessment is RMSEA, which tests how well the model fits the population's covariance matrix (Byrne, 1998). The measure is considered "one of the most informative fit indices to consult due to its sensitivity to the number of estimated parameters in the model" (Diamantopoulos &Siguaw, 2000, p. 85). An estimated RMSEA well below .08 supports a good fit (MacCallum, Browne, and Sugaware, 1996; Steiger, 2007), which was the case with this study results. Another, crucial index is SRMR, which confirms the "square root of the difference between the residuals of the sample covariance matrix and the hypothesized covariance model" (Hooper, Coghlan, & Mullen, 2008, p. 54). An SRMR value .08 or lower deemed to be acceptable (Hu and Bentler, 1999). In support with this suggestion, we found that in the current measurement model we found an SRMR of 0.058. All these fit indices indicated that the collected data fit to the model well, and therefore the current model can be used to test the proposed hypotheses of the study.

Further, the study examined the path coefficients to test the proposed set of study hypotheses. While checking the path coefficients, it was found that all the estimated path coefficients followed the researchers' expectation with regard to direction and magnitude. Table 4.29 given below, provides the estimated path coefficients derived from the model. In this table, the first and second columns show the relationship between the endogenous constructs and exogenous. The third column reported the unstandardized path coefficients. In the fourth column, the standardized path coefficients are provided. Next, to standardized path estimates, in the fifth column, standard errors are provided. In the final column, the table reported the status of hypotheses testing results (i.e. accepted or rejected).

Table No: 4.29

Test of Hypotheses for the consumer model

Endogenous variable		Exogenous Variables	Unstd. Estimate	Std. Estimate	S.E.	Hypothesis Status
NT	→	**EXPGA**	0.134	0.059	0.05	H_0 29 supported
ENT	→	**EXPGA**	0.192	0.171	0.041	H_0 30 Supported
OP	→	**EXPGA**	0.230	0.276	0.062	H_0 31 Supported
QT	→	**EXPGA**	0.124	0.183	0.058	H_0 32 Supported
AV	→	**EXPGA**	0.315	0.333	0.112	H_0 33Supported
PC	→	**EXPGA**	0.616	0.585	0.107	H_0 34 Supported
PKG	→	**EXPGA**	0.411	0.021	0.117	H_0 35 Supported
AD	→	**EXPGA**	0.154	0.174	0.068	H_0 36Supported

CH	→	**EXPGA**	0.712	0.485	0.112	H_0 37 Supported
PO	→	**EXPGA**	0.114	0.123	0.048	H_0 38 Supported
BN	→	**EXPGA**	0.316	0.485	0.117	H_0 39 Supported
TST	→	**EXPGA**	0.132	0.121	0.018	H_0 40 Supported
DIS	→	**EXPGA**	0.612	0.315	0.102	H_0 41 Supported
EXPGA	→	**SAT**	-0.133	0.164	0.068	H_0 42 Supported

Note: *Nutrition (NT), environmental friendliness (ENT), organic product (OP), quality (QT), availability (AV), price (PC), package (PKG), advertisement (AD), variety of choice (CH), promotional offer (PO), brand name (BN), taste (TST), and display (DIS) as the antecedents to order expectation experience gap (EXPGAP), which in turn influences the customer satisfaction (SAT).*

In the first hypothesis, the study made a proposition that NT has a positive impact on EXPGAP. In support with this proposition, the unstandardized path estimates were significant. Thus, the study found support for Hypothesis 29. That means, the problems perceived regarding nutrition increase the expectation-experience gap.

In hypothesis 30, the study postulated that ENT has a positive impact on their EXPGAP. In support with this, the study received statistical support for the path coefficient. Thus, the study supported Hypothesis 30. Hence the problems perceived in terms of environmental friendliness increase the expectation-experience gap.

In hypothesis 31, the study proposed that OP has a positive influence on EXPGAP. The examination of the path estimates supported a significant effect. Thus, the study supported hypothesis 31. Therefore, the problems perceived in terms of organic product increase the expectation-experience gap.

As postulated in hypothesis 32 that QT has a positive impact on EXGAP, the study results supported a significant path estimate. Thus, the study supported hypothesis 32, which means that, the problems perceived in terms of quality of the product increase the expectation-experience gap.

Further, in hypothesis 33, the study postulated that AV has a positive impact on EXGAP. In support with this, the path estimates have shown a significant impact. Thus, the study supported hypothesis 33, which leads to the conclusion that the problems perceived regarding availability increase the expectation-experience gap.

In hypothesis 34, the study made a postulation that PC has a positive impact on EXGAP. Following the stated proposition, the study results supported a significant path estimates. Thus, the study supported hypothesis 34, and hence it is found that the problems in terms of price increase the expectation-experience gap.

Further, in hypothesis 35, the study made a proposition that PKG has a positive impact on EXGAP. In support with this presumption, the data analysis results supported a significant path estimates. Thus, the study supported hypothesis 35, which proves that the problems related to packaging increase the expectation-experience gap.

In hypothesis 36, the study proposed that AD has a positive impact on EXGAP. In support with this proposition, the path estimates of this relationship supported a significant effect. Thus, the study supported hypothesis 36 and hence it is explicit that the problems regarding advertisement increase the expectation-experience gap.

In hypothesis 37, it was proposed that CH has a positive impact on EXGAP. In this line, while analysing the estimates, the study results supported a statistically significant path estimates. Thus, the study received support for hypothesis 37, and accepted the same. Therefore, the problems related to variety of choice increase the expectation-experience gap.

In hypothesis 38, the study made a postulation that PO has a positive impact on EXGAP Following the stated proposition, the study results supported a significant path estimates. Thus, the study supported hypothesis 38. Hence the problems in terms of promotional offer increase the expectation-experience gap.

Further, in hypothesis 39, the study made a proposition that PKG has a positive impact on EXGAP. In support with this presumption, the data analysis results supported a significant path estimates. Thus, the study supported hypothesis 39. The problems related to packaging increase the expectation-experience gap.

In hypothesis 40, the study proposed that AD has a positive impact on EXGAP. In support with this proposition, the path estimates of this relationship supported a significant effect. Thus, the study supported hypothesis 40.

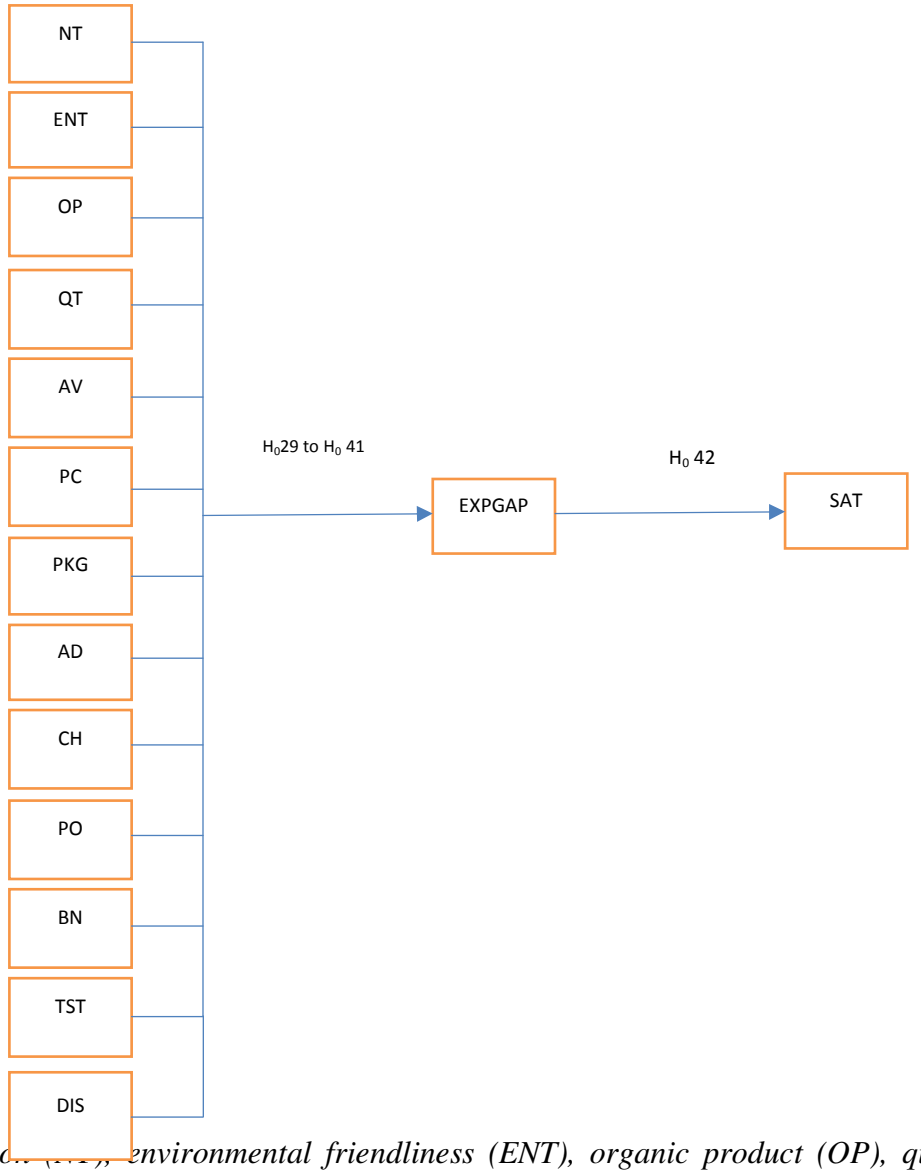
In hypothesis 41, it was proposed that CH has a positive impact on EXGAP. In this line, while analysing the estimates, the study results supported a statistically significant path estimates. Thus, the study received support for hypothesis 41, and accepted the same.

In hypothesis 42, the study proposed that EXGAP has an adverse impact on SAT. In support with this proposition, the path estimates of this relationship supported a negative and significant effect. Thus, the study supported hypothesis 42. Thus, it is proved that, the expectation-experience gap will adversely affect consumer satisfaction.

In figure 4.2 given below, all the variables which affect adversely or increase the expectation-experience gap of the consumers are presented in the form of a meaningful model.

Figure No. 4.2

The Relationship between Variables in the Consumer Model



Note: *Nutrition (NT), environmental friendliness (ENT), organic product (OP), quality (QT), availability (AV), price (PC), package (PKG), advertisement (AD), variety of choice (CH), promotional offer (PO), brand name (BN), taste (TST), and display (DIS) as the antecedents to expectation experience gap (EXPGAP), which in turn influences the customer satisfaction (SAT).*

Part 2

4.3 Prospects of Food Processing Companies in Kerala

Demand for processed food products have been increasing day by day due to changes in the taste and preferences of consumers. The reviews show that, at present people prefer more processed food products because of increasing nuclear families, increasing number of working women, increasing standard of living and changing life style. As a result, the potential for the food processing industry has tremendously increased in Kerala. This part of the chapter makes an attempt to analyse the demand of processed food products and the future prospects of the industry.

4.3.1 Demand for Processed Food Products

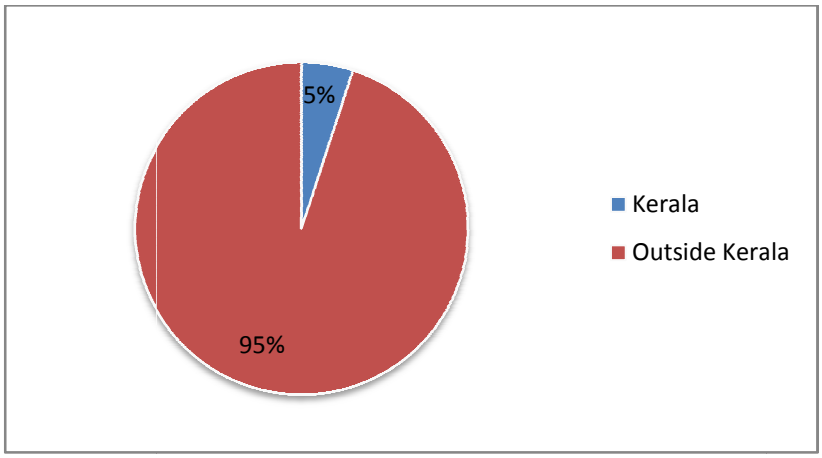
The major reason for food processing is to increase the shelf life so that raw food does not go bad. By processing food, we are able to increase the shelf life and are able to complete the logistics cycle to get the food to the end consumer. The demand for processed food from the consumer side is definitely on an upswing as we are moving to a more convenience based economy. Through food processing, consumers are now able to avail of food products at the consuming level, which they would never have even thought of. More product offerings by the food companies and food marketing on a large scale have altered people's appetite – they demand more and more processed food items everyday.

From the purchase details of the hypermarkets, and from the discussions with the owners of hyper markets, it is revealed that 95 percent of the Milk and Milk products, 85 percent of the Grain and Cereal products, 80 percent of the meat and poultry products, 90 percent of fruits and vegetable products and 95 percent of marine and fish products are collected from other states. Data are represented in the form of pie chart.

1. **Milk and Milk Products**

The following pie chart shows the purchase details of milk and milk products.

Figure No. 4.3 Purchase Details of Milk and Milk Products



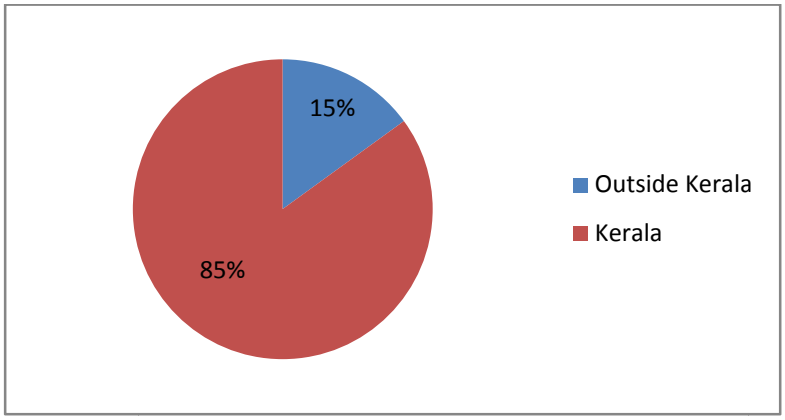
Source: Compiled by the Researcher

It is clear from the pie chart that the hypermarkets purchase 95 percent processed milk and milk products from outside Kerala and only 5 percent from Kerala.

2. Grain and Cereal Products

The following pie chart shows the purchase details of grain and cereal products.

Figure No. 4.4 Purchase Details of Grain and Cereal Products



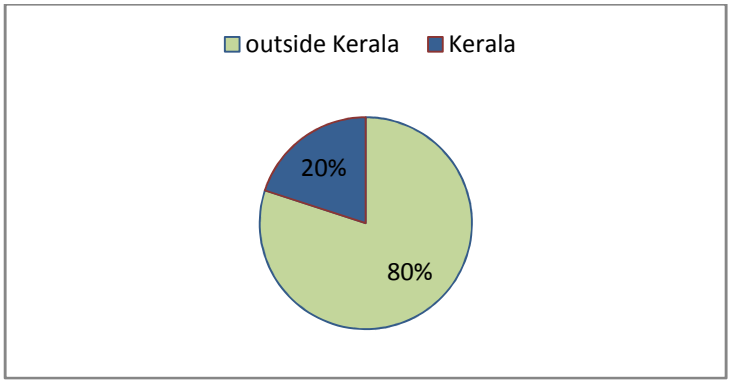
Source: Compiled by the Researcher

It is clear from the pie chart that the hypermarkets purchase 85 percent from Kerala and only 15 percent grain and cereal products from outside Kerala. So, this is an item which is produced in the state and consumed in the state to the extent of 85%.

3. Meat and Poultry Products

The following pie chart shows the purchase details of meat and poultry products.

Figure No. 4.5 Purchase Details of Meat and Poultry Products



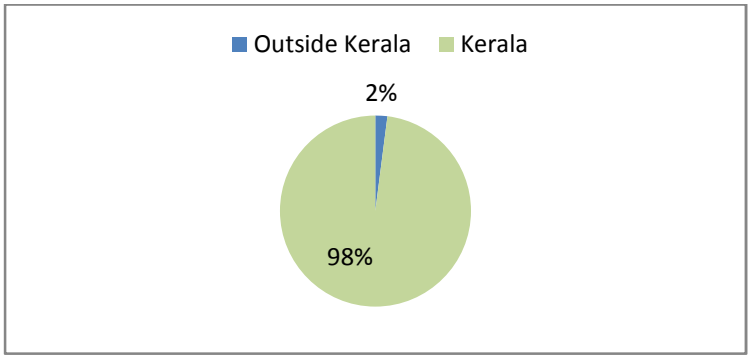
Source: Compiled by the Researcher

It is clear from the pie chart that the hypermarkets purchase 80 percent from outside Kerala and only 20 percent meat and poultry products from Kerala.

4. Marine and Fish Products

The following pie chart shows the purchase details of marine and fish products.

Figure No. 4.6 Purchase Details of Marine and Fish Products



Source: Compiled by the Researcher

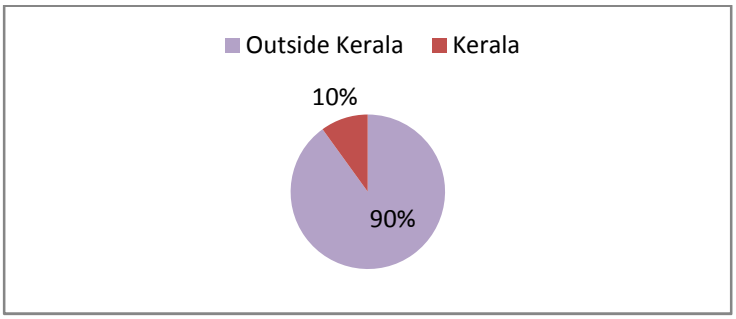
It is clear from the pie chart that the hypermarkets purchase 98 percent from Kerala and only 2 percent grain and cereal products from outside Kerala. Therefore, fish and fish products

have the maximum production in Kerala. 98% of the purchases in hypermarkets are from within the state.

5. Fruits and Vegetable Processing

The following pie chart shows the purchase details of fruits and vegetable products.

Figure No. 4.7 Purchase Details of Fruits and Vegetable Products



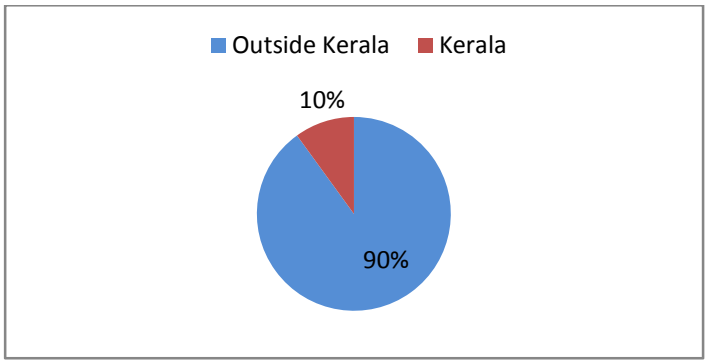
Source: Compiled by the Researcher

It is clear from the pie chart that the hypermarkets purchase 90 percent from outside Kerala and only 10 percent fruits and vegetable products from Kerala.

6. Consumer Food Products

The following pie chart shows the purchase details of consumer food products.

Figure No. 4.8 Purchase Details of Consumer Food Products



Source: Compiled by the Researcher

It is clear from the pie chart that the hypermarkets purchase 90 percent of the products from outside Kerala and only 10 percent of consumer food products is purchased from Kerala.

This is also confirmed by the details regarding brand preference, obtained from the analysis of the primary data collected from the consumers.

4.3.2 Most Preferred Brands of Food Products in Kerala

The huge gap in the production of processed food products and the estimated demand is seen to be filled by the food items manufactured in other states, imported items from various foreign countries, the products processed by indigenous agencies like kudumbasree and other local food processing units. The following table gives details about the most preferred food product brands among consumers in Kerala.

Table No. 4.30

Most Preferred Brands of Food Products in Kerala

Milk and Milk Products	Marine and Fish Products	Fruits and Vegetable Products	Grain and Cereal Products	Meat and Poultry Products	Consumer Food Products
Amul	Buffet	Kissan	Nirapara	Mpi	Sunfeast
Nambisans	Fresho	Maggi	Double Horse	Buffet	Parle
Arun	Tasty nibbles	Maaza	Elite	Malabar meat	Oreo
Dairy Whitner	Sumeru	B Natural	Kaula	Sumeru	Nutella
Nestle	Seafood Delight	Tropicana	Kohinoor	Suguna	Dukes
Baskin Robbins	Royal Chef	Minute maid	Nature Fresh		Lotte
Cavins		Lion	Fortune		Unibic
Sakthi		Aachi	Aashirvaad		Maggi

Milma		Maa	Melam		Cadbury
Sonata		Nirapara	Periyar		Tiffany
Merriboy		Caico	Devon		Elite
Kiwi		Happy	Eastern		sumeru
Gokulam		Fruitoman's	Ponnus		Crust N Crumb
People		Kalyan	Brahmins		Asian
Lazza		Double Horse	Pavizham		

Source: Primary Data

From the table, it is clear that majority of the brands of food products are from outside Kerala. The brand preference for 53.33 percent for milk and milk products, 20 percent of marine and fish products, 60 percent of processed fruits and vegetable products, 26.66 percent of processed grain and cereal products, 71.43 percent of consumer food products are from outside Kerala. To meet the domestic demand of the consumers, the marketers need to import more products from outside the state. The study suggested that, to meet the local needs of consumers, Kerala based food processing units need to increase their production capacity. The consumers prefer more branded products. From the observation it is found that, the demand for food products made by the Self Help Groups is very less. These products are available only in the shops in the rural areas.

4.3.3 Assessment of the Demand for Processed Food Products

From the data collected from the interview schedules to the consumers, the demand for all the six categories of processed food is estimated as follows.

Annual consumption per household = *Processed food requirement per household per month * 12*

Processed food requirement for the whole state of Kerala can be found using the formula,

Estimated ***Demand*** *= Consumption required per household per year * Number of households*

The total number of households in Kerala as per census 2011 is 78,53,754. The following table shows the quantity of estimated processed food products required to be produced for one year for domestic consumption.

Table 4.31

Estimated Annual Demand of Processed Food Products for Domestic Consumption

Category of Processed Food Products	**Number of households in Kerala (in lakh)**	**Average Annual Consumption (in KG) per household**	**Total Estimated Consumption (in Lakh Tonnes)**	**Total Estimated Consumption (in Lakh MT)**
Processed Milk and Milk Products	78.53754	7.72	606.3098088	550.034998
Processed Fruits and Vegetables		9.44	741.3943776	672.581686
Processed Meat and Poultry Products		5.76	452.3762304	410.388813
Processed Marine and Fish Products		9.87	775.1655198	703.218331
Processed Grain and Cereal Products		32.41	1558.184794	1413.561467
Consumer Foods		27.11	1541.69191	1398.599375
Total		92.31	5675.122641	5148.38467

Source: Primary Data

It is clear from the table, that the state has an annual requirement of 550.034998 lakh MT processed milk and milk products, 672.581686 lakh MT processed fruits and vegetables, 410.388813 lakh MT processed meat and poultry products, 703.218331lakh MT processed marine and fish products, 1413.561467 lakh MT processed grain and cereal products and 1398.599375lakh MT consumer foods. Thus, a total of 5148.38467 lakh MT of processed food products are required to be produced for domestic consumption in the state for one year.

4.3.4 Production of Processed Food Products in Kerala

At present, many food processing units are functioning in Kerala. They produce different varieties of processed food products. In this table 4.32, the actual production of Processed Food Products produced in the state as per official records is compared with the estimated annual demand.

Table 4.32

Production of Processed Food Products during the year 2016 – 17

Categories	Actual Production (MT)	Estimated Demand(MT)	Demand – Production Gap(MT)	Actual Production as % of Demand
Processed Milk and Milk Products	2520340	55003499.8	52483159.8	4.58
Processed Fruits and Vegetables	4430580	67258168.6	62827588.6	6.58
Processed Meat and Poultry Products	468.84	41038881	41038412	0.001
Processed Marine and Fish Products	6087200	70321833	64234633	8.656
Processed Grain and Cereal Products	436710	141356146	140919436	0.309
Consumer Foods	560000	139859937	139299937	0.400
Total	14035298.84	514838465.4	500803166.4	2.73

Source: Compiled by the Researcher from the secondary data

While comparing the estimated annual requirement of processed food products and the actual production during the year 2016 -17 the result shows that, there is a huge gap between demand and production of processed food products. The demand production gap is shown in column 4 and the production as a percentage of demand is shown in column 5. The results show that, the present production of processed food products is not at all sufficient to meet the demand. It means that, the state has been importing processed food products from outside states and from the global market to meet the domestic demand. In the situation of increasing demand for the processed food products, there is great scope for the food processing sector to increase their production.

4.3.5 Purchase of Processed Food Products

The processed food products market in Kerala is filled with a number of local, national and international brands. Supermarket, hypermarket and small retail outlets are the sources of purchase of processed food products by the consumers. Supermarkets and hypermarkets are providing different offers like discount, buy one get one free etc., to the consumers. Small retail outlets give credit to the consumers. The following table shows sources of purchase of processed food products.

Table No: 4.33

Sources of Purchase of Processed Food Products

Locality	Supermarket	Hypermarket	Small Retail Outlet
Corporation	34 (14.59)	176 (64)	33 (14.79)
Municipality	46 (19.74)	58 (21.09)	46 (20.62)
Panchayath	153 (65.66)	41 (14.91)	144 (64.57)
Total	**233**	**275**	**223**

Source: Primary Data

Out of 401 consumers, 233 consumers purchase processed food products from super markets, 275 consumers prefer hyper market and 223 consumers make purchases from small retail outlets. The consumers in panchayath mostly prefer supermarkets and small retail outlets for purchasing. The people located in corporation and municipality purchase processed food products mainly from hypermarkets.

4.3.6 Export of Processed Food Products

Kerala based Food Processing Companies export their products to other countries. There is a rise in the demand for processed food from Kerala, in the international market. In addition to changing consumer tastes in foreign markets, approximately 30,843,41916 people of Indian origin live abroad (Ministry of External Affairs, India). With India's increased integration with the global economy and proximity to important foreign markets such as the Middle Eastern countries and Africa, the country's food processing industry is also witnessing greater export potential. The following table shows the export of processed food items from Kerala during the period 2008 – 09 to 2016 -17.

Year	Milk & Milk Processing	Marine and Fish Processing	Meat and Poultry Processing	Fruits &Vegetable Processing	Grain &Cereal	Consumer Foods

Table No: 4.34

Export of Processed Food Products from Kerala

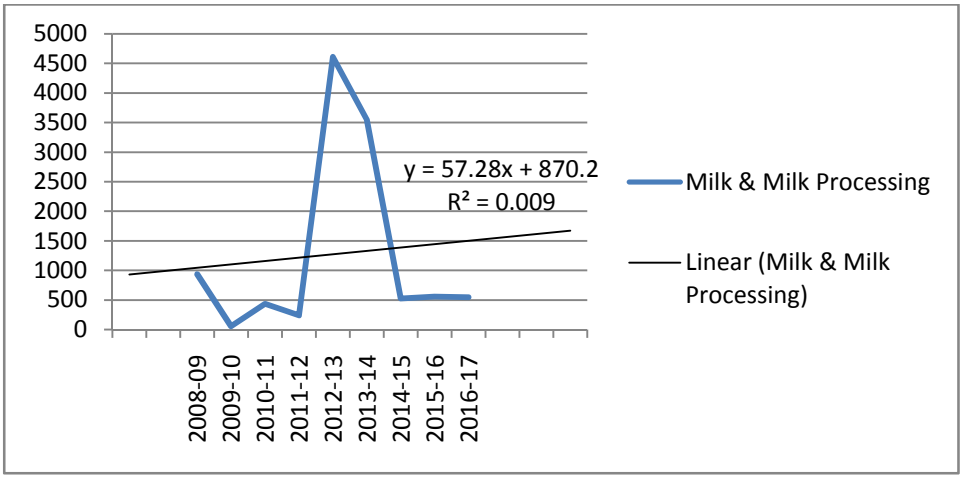
2008-09	935.21	100780	0.80	14005.43	11089.32	9712.88
2009-10	53.46	107293	0.17	13185.25	10117.70	8121.22
2010-11	434.45	124615	0.30	12757.25	14506.31	7630.25
2011-12	238.97	155714	0.75	28465.96	15048.94	9869.97
2012-13	4607.13	166399	4.87	18297.55	12808.30	12163.85
2013-14	3544.69	165698	1.61	12355.23	7320.12	14200.28
2014-15	523.95	166754	28.28	13806.52	7938.61	13870.49
2015-16	558.45	149138	13.4	13630.29	13026.78	14136.34
2016-17	544.52	159142	0.07	14505.14	17085.56	16050.75

Source: Compiled by the Researcher (figures in MT)

4.3.6.1 Export of Milk and Milk Products

Linear trend line is used for forecasting the export performance of milk and milk products for the next 3 years. The results are given below.

Figure 4.9: Export of Milk and Milk Products

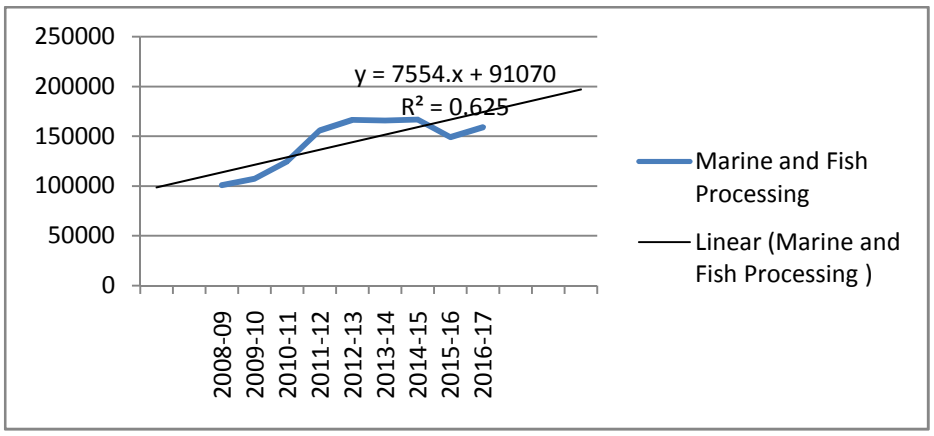


Source: Compiled by the Research

The R-Square value is 0.009, the trend line shows an increasing trend for the export of milk and milk products. The trend line predicts that 1557.56 MT milk and milk products will be exported from Kerala in 2019 – 2020. The trend line equation is 57.28*12 + 870.2 = 1557.56.

4.3.6.2 Export of Marine and Fish Products

Figure No. 4.10 : Export of Marine and Fish Products

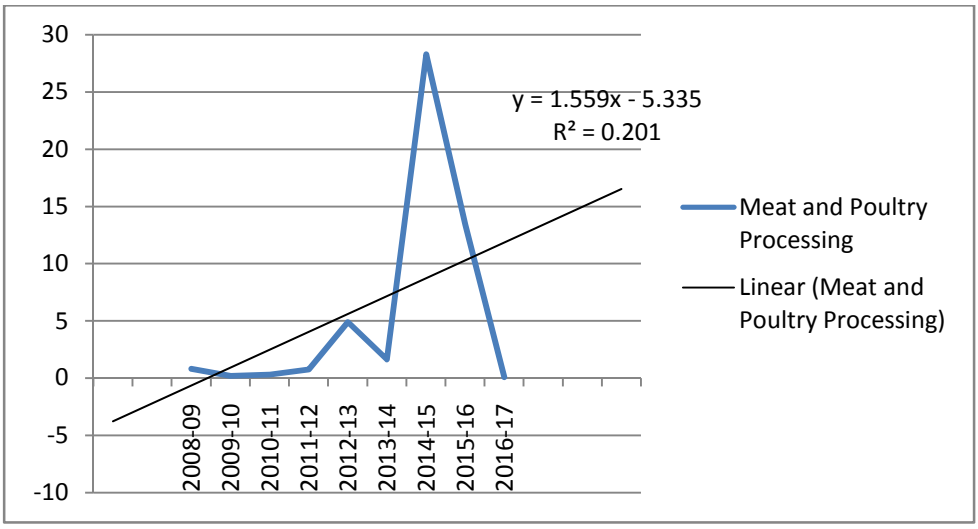


Source: Compiled by the Researcher

The R square value is 0.625, the trend line shows an increasing trend in the export of marine and fish products. The trend line equation is 7554*12 + 91070 = 181718. The trend line predicts that 181718 MT marine and fish products will be exported from Kerala in 2019 – 20.

4.3.6.3 Export of Meat and Poultry Products

Figure No. 4.11 : Export of Meat and Poultry Products

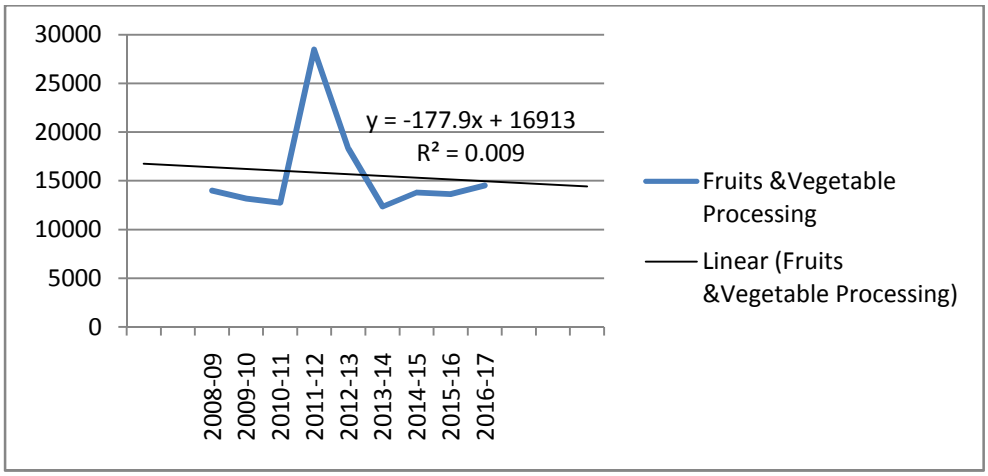


Source: Compiled by the Researcher

The R- Square value is 0.201. Only 0.07 MT meat and poultry products were exported in 2016 – 17. The trend line equation is 1.559 * 12 – 5.335 = 13.373. It indicates that 13.373 MT meat and poultry products will be exported in 2019 – 20.

4.3.6.4 Export of Fruits and Vegetable Products

Figure No. 4.12 : Export of Fruits and Vegetable Products

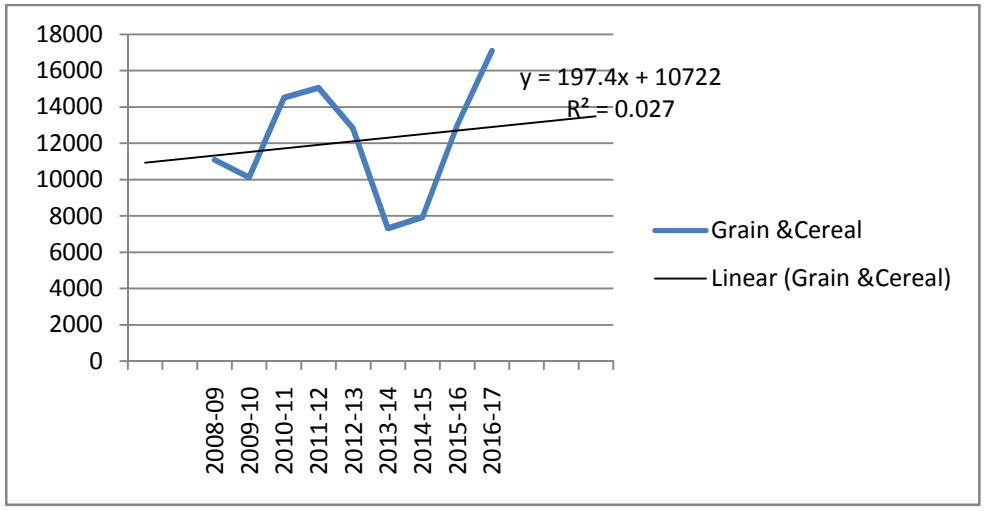


Source: Compiled by the Researcher

The R- Square value is 0.009. The trend line equation is -177.9*12 + 16913 = 14778.2. The trend line shows a slightly decreasing trend. It predicts that only 14778.2 MT fruits and vegetable products will be exported from Kerala in 2019 -20. In 2016 – 17, 14505.14 MT fruits and vegetable products were exported from Kerala. There will be a only a slight increase of 273.06 MT in 2019 – 20.

4.3.6.5 Export of Grain and Cereal Products

Figure No. 4.13 : Export of Grain and Cereal Products



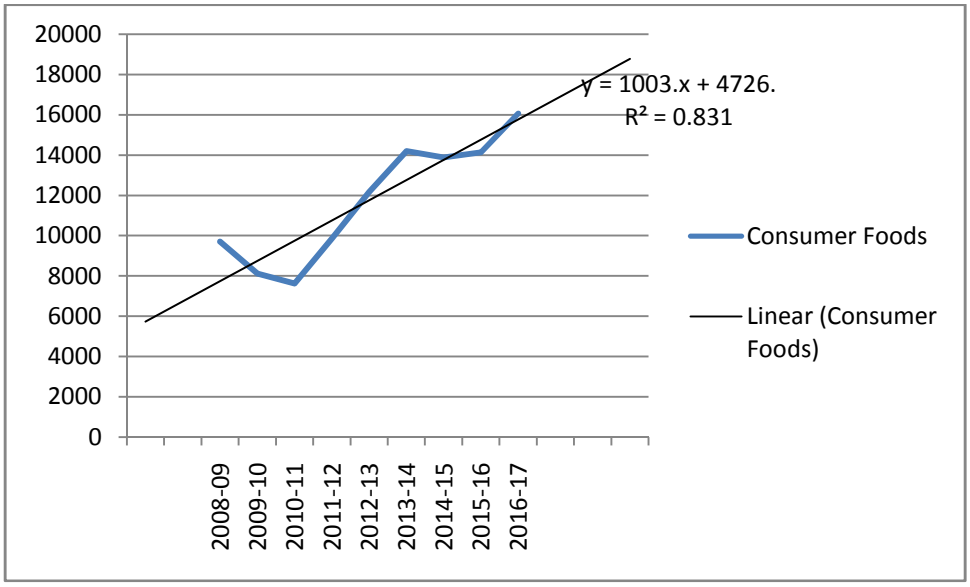
Source: Compiled by the Researcher

17085.56 MT grain and cereal products were exported in 2016 – 17. The R- Square is 0.027. The trend line is 197.4*12 + 10722 = 13090.8. It predicts that only 13090.8 MT grain and

cereal products will export from Kerala in 2019 – 20. It shows a decreasing trend in export of processed grain and cereal products.

4.3.6.6 Export of Consumer Food Products

Figure No. 4.14: Export of Consumer Food Products



Source: Compiled by the Researcher

The R-Square value is 0.831. The trend line equation is 1003 * 12 + 4726 = 16762. It predicts that 16762 MT consumer food products will be exported from Kerala in 2019 – 20. It shows an increasing trend in the export of consumer food products.

The following table shows the export of processed food items in 2016 – 17 and the predicted export figures in 2019 – 20.

Table No. 4.35

Export of Processed Food Items in Kerala during the year 2016 – 17 and the Predicted Export for the year 2019 – 20

Category	2016 – 17	2019 – 20 (Predicted)	Increase / Decrease (%)
Milk and Milk Products	544.52	1557.56	186.042
Marine and Fish Products	159142	181718	12.423
Processed Meat and Poultry Products	0.07	13.373	99.47
Processed Fruits and Vegetable Products	14505.14	14778.2	1.882
Processed Grain and Cereal Products	17085.56	13090.8	-30.52
Consumer Food Products	16050.75	16762	4.431

Source: Compiled by the Researcher (Figures in MT)

While comparing the export of food items in 2016 – 17 and the predicted values in 2019 - 20, the result shows that milk and milk processing sector, marine and fish processing sector, meat and poultry processing sector, fruits and vegetable processing sector and consumer food producing sector have prospective future growth in the export of their products. Hence, steps should be taken to increase the production in these categories of processed food. But the export of processed grain and cereal products will decrease in the future.

General views regarding the prospects of processed food products in Kerala, (a) Setting of Special Economic Zone (SEZ) and food parks like KINFRA will to increase trade, investment and create job opportunities in the food processing sector. It will encourage private investment in the infrastructure. Technological advances have also resulted in a faster growth in the food

processing sector; the new technology is able to provide the consumers healthier and safer food. (b) Increasing trend in the export of processed food products shows a bright future for the food processing sector.

Conclusion

This chapter attempted to examine the expectation and experience of consumers with regard to processed food products and the future prospects of the food processing industry. Mean, One sample t-test, paired sample t-test, independent sample t-test, one way ANOVA, EFA, correlation and SEM were used for analyzing the data. The study revealed that the quality of the product and the taste are the most influencing factors on the purchase of processed food products. Consumers expect more fresh and good quality products, but their experience was not up to the expectation. But the consumers experienced more tasty and ready to cook food products. The study also found the problems perceived by the consumers in terms of nutrition, environmental friendliness, organic nature of the product, quality of the product, availability of the product, the price, the packaging, advertisements, variety of choices, promotional offer, brand name, taste and product display have positive impact on the 'expectation-experience gap'. The study proposed that increase in the 'expectation-experience gap' has an adverse impact on the consumers' satisfaction. The study also revealed that, there is a huge gap between the demand and production of processed food products. The demand for the processed food product is higher than the actual production. The study recommends that the food processing companies should try to meet the consumers' expectation towards the processed food products. Increasing demand for processed food products has given a push to the growth of the industry.

From the analysis of the primary and secondary data in the previous chapters and this chapter, the researcher derived certain findings and conclusions. The next chapter deals with the findings, recommendations and conclusion.

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Chapter 5

Findings, Conclusion and Recommendations

5.1 Introduction

The food processing industry is a sunrise industry in India. Globalization has insightful impact not only on the Food Processing Industry, but on all other related industries in India also. But the impact on food industry was more important and its inference is greater because it is directly related to the agricultural sector and economy. This has posed challenges but also opened up gigantic opportunities to the business.

During this era, a large number of international products have entered into Indian as well as Kerala food market. Hence, the Kerala based food processing companies face a large competition from the national and international companies. There are a large number of choices available to the consumers from a large number of competitors. Companies have started to give more importance to the satisfaction of the consumers. The consumers are very conscious about their health. So the food processing companies try to provide nutritious and healthy products to the consumers. The companies adopt marketing strategies like increasing the quality of the product, attractive packaging, providing more effective advertisements, charging the affordable prices, offering sales discounts etc., to attract the consumers.

5.2 The Research Problem

Creating a good image about the food product is very important for the successful running of every food processing company. It helps to increase the consumers' loyalty to the company; through this the company can achieve the ultimate aim. The food processing companies should give more attention to the consumers' needs, wants and requirements. Now, the demand for the processed food products has been increasing. The food processing industry has a bright future in the light of increasing demand for the processed food products.

Due to globalization, a large number of products have entered into the market. Therefore, wide varieties of processed foods are available in the market. And the food processing industry faces more problems like problems in procurement of raw material, production, marketing, finance, human resources, and export to compete with them. From the available literature, it is found that no systematic and scientific study had been included all categories of food processing industry as per the classification of MOFPI with this particular issue, and no studies included the expectation and experience of consumers towards processed food products. Hence, the researcher made an attempt to fill the gap through the present study.

It is highly significant to investigate the following major issues.

6. The various problems faced by the food processing industry.

7. The extent to which the consumers satisfy their expectation level from the processed food products

8. The factors influencing the consumers' purchasing behaviour of processed food products

9. The future potential of food processing industry

The present study made an attempt to fulfill this.

5.3 Objectives of the study

1. To assess the financial performance of food processing industry in Kerala.

2. To identify the problems faced by the food processing sector in Kerala and its impact on industrial climate.

3. To examine the role of various factors which determine the satisfaction level of the consumers through the expectation and experience of the consumers.

4. To shed light to the future prospects of the food processing industry in Kerala.

5.4 Hypotheses

Objective 2:

20. $H_{0\,1}$: The Problems related to procurement of raw material faced by food processing units in Kerala is average.
21. $H_{0\,2}$: There is no significant difference among the categories of food processing units and the problems in procurement of raw materials faced by the food processing units in Kerala.
22. $H_{0\,3}$: Factors influencing on the Product Design is at average level
23. $H_{0\,4}$: Problems related to production faced by the food processing units in Kerala is average.
24. $H_{0\,5}$: There is no significant difference among the categories of food processing units and the problems in production faced by the food processing units in Kerala.
25. $H_{0\,6}$: The problems related to raising of the working capital, faced by the food processing units in Kerala is average.

26. $H_{0\ 7}$: There is no significant difference among the categories of food processing units and the problems in raising working capital faced by the food processing units in Kerala.
27. $H_{0\ 8}$: The problems related to marketing of processed food products faced by the food processing units in Kerala is average.
28. $H_{0\ 9}$: There is no significant difference among the categories of food processing units and the problems in marketing faced by the food processing units in Kerala.
29. $H_{0\ 10}$: The problems related to employment faced by the food processing units in Kerala is average.
30. $H_{0\ 11}$: There is no significant difference among the categories of food processing units and the problems in employment faced by the food processing units in Kerala.
31. $H_{0\ 12}$: The problems related to export of food products faced by the food processing units in Kerala is average.
32. $H_{0\ 13}$: There is no significant difference among the categories of food processing units and the problems in export faced by the food processing units in Kerala.
33. $H_{0\ 14}$: The problems related to the procurement of raw materials have no adverse effect on the industrial climate.
34. $H_{0\ 15}$: The problems related to production have no adverse effect on the industrial climate.
35. $H_{0\ 16}$: The problems related to marketing have no adverse effect on the industrial climate.
36. $H_{0\ 17}$: The problems related to the working capital have no adverse effect on the industrial climate.
37. $H_{0\ 18}$: The problems related to human resource have no adverse effect on the industrial climate.
38. $H_{0\ 19}$: The problems related to export have no adverse effect on the industrial climate.

Objective 4:

1. $H_{0\ 20}$: The determinant factors relate to the purchase of processed food is perceived at average level.
2. $H_{0\ 21}$: The consumers' expectation regarding the processed foods is average in Kerala.
3. $H_{0\ 22}$: The consumers' experience with regard to the consumption of processed food products is average in Kerala.
4. $H_{0\ 23}$: There is no significant difference between the expectation and experience of consumers with regard to the processed food products.

5. $H_{0\,24}$: There is no significant gender difference with respect to the product quality, health factors and convenience factors.

6. $H_{0\,25}$: There is no significant difference between age group and expectation with regard to the product quality, health factors and convenience factors

7. $H_{0\,26}$: There is no significant difference between the profession and expectation about product quality, health factors and convenience factors.

8. $H_{0\,27}$: There is no significant difference between the educational qualification and the expectation about the product quality, health factors and convenience factors.

9. $H_{0\,28}$: There is no relationship between the expectation and experience of consumers regarding the processed food products.

10. $H_{0\,29}$: The problems perceived by the consumers in terms of nutrition increase the consumers' expectation-experience gap.

11. $H_{0\,30}$: The problems perceived by the consumers in terms of environmental friendliness increase the consumers' expectation-experience gap.

12. $H_{0\,31}$: The problems perceived by the consumers in terms of organic product supply increase the consumers' expectation-experience gap.

13. $H_{0\,32}$: The problems perceived by the consumers in terms of quality increase the consumers' expectation-experience gap.

14. $H_{0\,33}$: The problems perceived by the consumers in terms of availability increase the consumers' expectation-experience gap.

15. $H_{0\,34}$: The problems perceived by the consumers in terms of price increase the consumers' expectation experience gap.

16. $H_{0\,35}$: The problems perceived by the consumers in terms of product packages increase the consumers' expectation-experience gap.

17. $H_{0\,36}$: The problems perceived by the consumers in terms of advertisements increase the consumers' expectation-experience gap.

18. $H_{0\,37}$: The problems perceived by the consumers in terms of variety of choice increase the consumers' expectation-experience gap.

19. $H_{0\,38}$: The problems perceived by the consumers in terms promotional offer increase the consumers' expectation-experience gap.

20. $H_{0\,39}$: The problems perceived by the consumers in terms of brand name increase the consumers' expectation-experience gap.

21. $H_{0\,40}$: The problems perceived by the consumers in terms of taste increase the consumers' expectation-experience gap.

22. $H_{0\,41}$: The problems perceived by the consumers in terms of product display increase the consumers' expectation-experience gap.

23. $H_{0\,42}$: The expectation-experience gap adversely impact the customer satisfaction.

5.5 Methodological Design

The present study is both descriptive and analytical nature. Both primary and secondary data were used for the study. The secondary data were collected from the website of MOFPI, NDDB, MPEDA, APEDA, DGCIS, research theses, conference reports, books and journals etc. The primary data have been collected from both the authorities of food processing units and consumers. Among the food processing companies registered under RoC, 140 units were selected from three districts namely, Alappuzha, Ernakulam and Calicut. 401 consumers were also selected from the same districts for the study. Two sets of questionnaires were designed, one for the companies and the other for the consumers and the relevant data was collected.

Mean, Percentage, AAGR, One sample t-test, paired t-test, independent sample t test, Exploratory Factor Analysis (EFA), One Way ANOVA, Duncan Multiple Range Test (DMRT), correlation coefficient and Structural Equation Modelling (SEM) have been used for analyzing the collected data.

5.6 Outline of the Chapters

The research report has been presented in seven chapters as detailed below.

1. The first chapter is the Introduction. It includes the statement of problem, significance of the study, objectives of the study, hypotheses, operational definition, research design, scope and limitations of the study. This chapter also includes the previous studies related to the topic. The literature review is classified on the basis of food processing units, purchasing behaviour of consumers, supply of food products.
2. The Performance of the Food Processing Industry in Kerala is the second chapter. This chapter tries to analyse the overall performance of the industry and financial performance of all the categories of food processing industry as per the classification of MOFPI, and FDI inflows to Indian food processing.
3. The third chapter deals with the Problems faced by Food Processing Units in Kerala. This chapter includes a detailed analysis of the problems faced by the food processing units in Kerala. The problem includes those related to the procurement, production, finance, human resources and marketing. This chapter also analyse the impact of these problems on the industrial climate. The data were collected from the food processing units by using structured questionnaire.

4. The expectation and experience of consumers and future prospects of the industry is discussed in the fourth chapter. This chapter has made an attempt to analyse the factors influencing the consumer behavior, and the consumers' expectation and experience with regard to the processed food products. It also includes the future prospects of the food processing industry in Kerala.
5. The final chapter includes the Findings, Conclusion and Recommendations. The findings and conclusion are narrated on the basis of detailed analysis and interpretation of the collected data.

The present chapter is divided into three sections. The first part deals with the major findings of the study. The second part is concerned with the conclusion arrived at from the findings. The third part presents the recommendations based on the findings derived from the analysis.

5.6 The Findings of the Study

From the analysis of the data collected from the food processing units in Kerala and the consumers, the study arrived at some major findings, which are given below.

5.6.1 The Performance of the Food Processing Sector

1. Milk and Milk processing

a. The milk production in India has been increasing year by year. The export and import of milk products shows a fluctuating trend from the year 2007 – 08 to 2016 – 17. Rapidly growing domestic demand of milk products led to increase in India's dairy import.

b. 4607.13 MT milk products were exported from Kerala in 2012 – 13. The increased demand of the milk products during this period is the reason for increasing export of milk products.

2. Marine and Fish Processing

a. The production details show a fluctuating trend. 9866.96 processed meat products were produced in India and exported 796.92 MT in 2012 – 13. The export of processed meat products shows a decreasing trend from the period 2008 – 09 to 2016 – 17.

b. The production of meat product shows an increasing trend from 2007 – 08 to 2012 – 13. The financial year 2013 – 14 onwards production of meat products shows a decreasing

trend. 801.98 MT meat products were processed in 2012 -13 and export 4.87 MT products from Kerala.

3. Fruits and Vegetable Processing

a. The production of processed fruits and vegetable in India shows an increasing trend. The export of processed fruits and vegetable shows a fluctuating trend. 1082429.84 MT processed fruits and vegetables products were exported from India in the year 2014 – 15 and it decreased to 889621.79 in 2016 – 17.

b. The export of processed fruits and vegetable from Kerala decreased to 14005.43 MT in 2008 – 09 from 15036.80 MT in 2007 – 08. The global recession in 2008 affected the Indian as well as Kerala export performance. It decreased the demand of processed fruits and vegetables in the global market which in turn leads to decrease in export.

4. Grain and Cereal Processing

a. Production of processed grain and cereal products in India shows a fluctuating trend during the period 2008 – 09 to 2016 – 17. The export of processed grain and cereal products shows an increasing trend. 431464.52 MT products were exported from India in 2015 – 16 and it decreased to 255803.66 MT in 2016 – 17.

b. In Kerala, the export of processed grain and cereal products show a fluctuating trend. Major decrease has happened in the period 2013 – 14 (-42.84 percent). Significant increase was observed in the exported quantity of processed cereal products from 2014 – 15 to 2016 – 17.

5. Consumer Food Products

a. The production of consumer food products shows a fluctuating trend. 2733800 MT products were produced in 2016 – 17. India imports 67030.69 MT consumer food products from other countries. An increasing trend is shown in the export of consumer foods from India. 339923.13 MT consumer foods were exported from India in 2016 -17.

b. The production of consumer food products in Kerala also shows a fluctuating trend. 560000 MT products were produced in 2016 – 17. There is increasing trend in the quantity exported from Kerala. In 2016 – 17, 16050.75 MT consumer food products were exported from Kerala.

6. Meat and Poultry Processing

a. The export of processed meat products shows a decreasing trend from the period 2008 – 09 to 2016 – 17.
b. 922.19 MT processed meat products were exported in 2010 – 11 and only 140.90 MT exported in 2016 – 17 from India.
c. From Kerala, 28. 85 MT processed meat products were exported in the year 2007 – 08. In 2009 – 10, only 0.17 MT products were exported and in 2015 – 16, no processed meat and poultry products were exported from Kerala.

5.6.4 Financial Analysis of the Food Processing Industry

a. The financial ratios show that, milk and milk processing sector, fruits and vegetable processing sector, meat and poultry processing sector, grain and cereal processing sector, consumer food producing sector and marine and fish processing sector are running at profitable.
b. The study reveals that, marine and fish processing sector in Kerala is more profitable than the other food processing sectors. Consumers' food producing sector is less profitable.
c. The study also found that some of the food processing companies in each sector are functioning in loss.

5.6.5 The Problems and Prospects of the Food Processing Units

This section includes the major finding from the analysis of data collected from food processing companies.

A. Profile of the Food Processing Units

The summary of findings are given below

1. In all the three districts, majority (47.1 percent) of the food processing companies are located in Panchayaths. 27.1 percent are in corporation area and 25.7 percent are located in the Municipality.
2. 83.6 percent of food processing companies are private ltd companies. 7.9 percent each of food processing units are public limited companies and partnerships. Only one company is a sole trading concerns.
3. 50.8 percent of selected sampling companies are starting the business mainly because of profitability. Attractive market is the reason for starting 32.8 percent of the companies.

10.2 percent of the companies started due to availability of raw material. Only 6.3 percent of the selected companies were started to meet the needs of the locality.

4. From the collected data, 24.4 percent of the food processing companies are processing marine and fish products. 22.4 percent and 18.4 percent are engaged in grain and cereal processing and consumer foods respectively. 17.9 percent and 12.4 percent are concentrating on fruits and vegetable processing and milk processing. Only 4.5 percent are providing meat and poultry products.
5. Majority (50.5 percent) of the respondent companies are having FSSAI certificate, 20.1 percent have ISO certificate, 28.8 percent of the companies hare certified with EU, HACCP, USFDA, HALAL, BRC and GMP and 1 company alone is certified by Agmark.
6. Majority of the food processing companies are selecting the location on the basis of availability of workers (39.2 percent). 30.8 percent have considered easy transportation while selecting the location, 17.1 percent, 3.8 percent and 3.4 percent of the companies have considered availability of raw material, nearness to customers and nearness to market respectively.

B. The Problems of the Food Processing Units

I. Procurement of Raw Materials

1. Majority of the food processing companies (66.1 percent) is depending on regular suppliers for raw materials. 21.9 percent of the responding units are collecting raw materials directly from the farmers. 8.3 percent and 2.6 percent of them purchase raw materials from the open market and raw material suppliers' organization respectively. Only two companies have their own farm for the collection of raw materials.
2. Fluctuating prices (mean = 3.84, p value = 0.000) is the major problem faced by the food processing companies in Kerala in procurement of raw materials.
3. Since the mean score of high transportation cost (mean = 3.01) and long distribution channel (mean = 3.04) are around three, these problems are at average level in the procurement of raw materials.
4. Shortage in quantity (mean = 2.69), poor quality (mean = 2.56), unavailability of credit (mean = 2.91), unfair and trade practices (mean = 2.52) and unavailability at the required time (mean = 2.75) are the problems faced by the units while the procurement of the raw materials and are below average level.

5. The problems of Tentative nature of suppliers (mean =3.28) is at above average level.
6. Categories of food processing companies and the problems in procurement of raw materials faced by the food processing companies in Kerala (p value = .000) have a significant difference.
7. Marine and fish processing companies (mean score = 31.81) face more problems in the procurement of raw materials than other categories of food processing units.
8. Milk and milk processing units (mean score = 27.24) have face only fewer problems in the procurement of raw materials.

II. Production

1. The problem faced by the food processing companies in Kerala in production is not at average level.
   - Increase in procurement cost (mean = 3.307) and difficulty in quality control (mean = 3.221) are the major problems in production and these are at above average level.
   - Insufficient production capacity due to lack of facilities (mean = 1.257) and obsolete technologies for production (mean = 1.250) are the problems in production, which have the minimum impact.
2. 77.1 percent of the selected food processing companies are using semi automatic techniques for production. Automatic techniques are used only by 20.7 percent of the units. Only 2.1 percent of them are adopting manual processing for production.
3. Factors influencing on product design is at above average level.
   - Expectation of consumers (mean = 4.886) is the major influencing factor on product design.
   - Depending upon quality of raw material (mean = 4.814), taste/ colour of the product (mean = 4.721), through technical assistance (mean = 4.250) and quality of competitor's product (mean = 3.629) are the highly significant factors on product design.
4. There is a significant difference among the categories of food processing units and the problems in production (p value = .002) faced by the food processing units in Kerala.
5. Marine and fish processing companies (mean score = 20.97) face more problems in production than other food processing companies.
6. Milk and milk processing units (mean score = 16.60) face less problems in production.

III. Finance

1. 46.4 percent of the companies take loans from the banks to meet their capital needs. 46 percent have their own funds and acquire capital by issuing shares. 6.5 percent of the selected companies collect the finance from private sources like friends and relatives. Only one company has got foreign investment.

2. Rigid rules and regulations of financial institutions (mean = 4.157), lengthy process for bank loan (mean = 4.021), high rate of interest (mean = 3.936) and difficulty to avail loan at the required time (mean = 3.421) are the major problems faced by the food processing units in raising capital.

3. Difficulty in procuring funds from financial institutions (mean = 3.079) and restrictions on fund procurement and settlement are the other problems faced by the companies in raising capital, which are at average level.

4. Difficulty to get loan for long term (mean = 2.357) and insufficient repayment period (mean = 2.250) are the problems least felt in raising capital by the food processing companies in Kerala.

5. There is no significant difference among the categories of food processing companies and the problems in raising capital (p value = .381) faced by the food processing units in Kerala.

6. More problems in raising capital exist in fruits and vegetable processing units (mean score = 27.47) than other units.

7. Meat and poultry processing units (mean score = 23.33) face less problem in raising capital.

IV. Marketing

1. The problem related to marketing of food products faced by the food processing companies is not average level.

- Increase in competition (mean = 4.64) and entry of competitors (mean 4.56) are the major problems in marketing of the processed food products. Inflow of cheap imported goods into the local market (mean = 3.51), high expense for advertisement (mean =3.42), and intervention of intermediaries (mean = 3.75) are highly significant problems in marketing faced by the food processing companies in Kerala. These problems are at above average level.

- Lack of storage facility (mean = 2.54), no increase in new customers (mean =1.63), decrease in demand from customers (mean = 1.56) and lack of marketing information (mean = 1.35) are the other problems in marketing faced by the companies.

2. 33.8 percent of the selected companies are adopting the strategy of increasing the quality of food products to face the competition. 21.5 percent made prompt delivery of the product, 20.3 percent charge affordable price to their products and 16.3 percent of the units use attractive packaging to the products to face the competition in national and international market. Only 8.3 percent provide attractive and effective advertisements.
3. There is a significant difference between categories of food processing units and the marketing of processed food products (p value = .010).
4. Grain and cereal processing companies, (mean = 28.40) followed by Fruits and vegetable processing units (mean score = 28.16) face more problems in marketing.
5. Meat and poultry processing companies (mean score = 24.66) face less problems in marketing their products.

V. Human Resources

1. The problem faced by the food processing companies in Kerala related to employment is not at average level.
   - Difficulty in recruiting efficient employees (mean = 3.450) and frequent demand for advances (mean = 2.543) are the major problems related to employment faced by the food processing units in Kerala.
   - Shortage of skilled workers (mean = 1.514) and friction with labour unions (mean = 1.143) are the problems least found in employment/ labour.
2. Majority of the units adopt both internal and external sources (85.7 percent) for the recruitment.
3. Interview method is followed by the companies for selection of employees and they provide on the job training to the selected candidates.
4. 95.7 percent of the selected units follow time rate system for payment. Only 4.3 percent follow piece rate system.
5. There is a significant difference between the problems in employment and the categories of food processing units (p value = .000).

6. Marine and fish processing companies (mean score = 16.37) face the maximum problems in employment and milk and milk processing units (mean score = 12.56) have less employment problems.

VI. Export

1. High competition in export market (mean = 4.444), difficulty in catching export market (mean = 4.367) and complicated export procedures and formalities are the major problems in exporting of processed food products faced by the food processing units in Kerala.
2. Low quality of the products (mean = 1.567) and license issue (mean = 1.533) are the problems least felt in export.
3. There is a significant difference among the categories of food processing units and problems in export (p value = .006)
4. Grain and cereal processing units (mean score = 33.83) face more problems in export than other food processing companies followed by meat and poultry processing companies (mean score = 33.67) and fruits and vegetable processing companies (mean score = 33.54).

VII. Problems and the Categories of Food Processing units: Mean Score

1. Export is the major problem faced by the meat and poultry processing companies (mean = 33.67), milk and milk processing companies (mean = 28.00), grain and cereal processing companies (mean = 33.83), fruits and vegetable processing companies (mean = 33.54) and consumer foods (mean = 27.78).
2. Procurement of raw material is the major problem in marine and fish processing sector (mean = 31.81).
3. Employment is the problem least felt by all categories of food processing units.

VIII. Environmental Protection

1. 26 percent of the selected companies use water conservation method for environmental protection. 23.3 percent of the companies plant trees for protecting the environment. Only two units use recycling method for environmental protection.

5.6.6 The Expectation and Experience of Consumers

A. The Profile of the Consumers

The summary of the findings are given below,

1. It is clear from the study, 46.9 percent of the respondents were male and 53.1 percent were female.
2. The study found that, 40.1 percent of consumers belong in the age group of 20 – 30. 20.7 percent of the respondents were in the age group of 41 – 50. 20 percent, 18 percent and 1.2 percent are in the age group of 31 -40, above 50 and below 20 respectively.
3. 60.1 percent of the respondents were from Hindu religion, 27.7 percent from Christian. 11.7 percent belongs in the category of Muslim and only 0.5 percent from other religion like Sikh, Judes etc.
4. The survey result shows that, 36.4 percent of the respondents are graduates. 19.7 percent of the respondents are post graduates and 19 percent have higher secondary qualification.
5. It is seen that, 34.7 percent of the respondents were private employees and 27.9 percent were house wives. 13 percent, 11.2 percent and 8.7 percent of the respondents are Government employees, business people and professionals respectively. 3 percent of the respondents were students and one percent from pensioners. Only 0.5 percent respondents were unemployed.
6. The analysis of monthly family income shows that, 42.1 percent of the respondents have the income in between 15001 – 30000, 24.7 percent have the family income below 15000, 15.5 percent and 11.5 percent have the monthly income between 30001 – 45000 and 45001 – 60000 respectively. Only 6.2 percent have a monthly income above 60000.
7. 50.87 percent of the consumers spend between 5000 -10000 and 40.15 percent of the respondents spend below 5000 for purchasing processed food products. 8.97 percent of the consumers spend between 10000 -15000 for food products.
8. Majority of the respondents (66.1 percent) live in panchayath. 20 percent and 14 percent are from the municipality and corporation respectively.

B. Consumers Attitude towards Processed Food Products

1. Most of the respondents (51.4 percent) purchase processed food products every week. 24.4 percent purchase processed food products on a monthly basis. 11 percent, 3.7 and 7

percent of the respondents purchase processed food products twice in a month or once in two months or very rarely. Only 2.5 percent purchase food products daily.

2. Out of 401 respondents, almost half of them (50.37 percent) are purchasing 1 Kg milk and milk products for a month. 32.42 percent of the respondents purchase 2 Kg processed fruits and vegetables. Majority of the consumers (25.68 percent) purchase 3 Kg grain and cereal products for a month and 30.42 percent of the respondents need 2 Kg consumer food products for a month. Only 225 respondents prefer processed meat and poultry products out of this, 52.88 percent purchase 1 Kg processed meat and poultry products. 324 respondents need processed marine and fish products.
3. Determinant factors relate to purchase of processed food perceived is not at average level.
   - Nutrition is the most influencing factor on the purchase of processed food products. The mean score is 4.51, which means the nutrition factor for preference of processed food perceived is above average level.
   - The mean score of the factor, 'environment friendliness' is 4.05, which means the influence of this factor is above average level.
   - The factor 'Organic product' with mean score = 4.06 shows that organic product is a highly influencing factor on consumers purchasing behavior.
   - With regard to the factor 'quality' (mean score = 4.65), the test result shows that, consumers prefer more good quality processed food products.
   - The factor availability of food products (mean score = 3.72) is considered by the consumers while purchase on the basis of its availability.
   - The factor price (mean score = 3.95), it is also a major influencing factor on the consumers purchasing behavior of processed food products.
   - The factors like taste (mean score = 4.57), brand (mean score =4.05), variety of choices (mean score = 3.47), package of the product (mean score = 3.26) and good display of the product (mean score = 3.11) are highly influencing factors on the purchasing behavior of consumers.
   - Both the advertisements (mean score = 2.62) and promotional offers (mean score = 2.63) have less influence on the purchasing behavior of the consumers.
4. Consumers' expectation regarding the processed foods is not average in Kerala.

- The study found that the expectation factors like Ready to Cook (mean score = 3.98), Ready to Eat (mean score = 3.57), Nutritious Food (mean score = 4.57), Tasty (mean score = 4.62), Variety of choice (mean score = 3.82), Environment Friendly (mean score = 4.23), Quality (mean score = 4.74), Organic Product (mean score = 4.19), Oil free products (mean score = 4.05), Fat free products (mean score = 4.12), Fresh products (mean score = 4.78) and Free from pesticides (mean score = 4.72) are above average level.

5. Consumers experience with regard to the consumption of processed food products is above average.

- The result shows that experience factors like Ready to cook (mean score = 4.00), ready to eat (mean score =3.95), nutritious food (mean score = 3.43), tasty (mean score = 4.13), variety of choice (mean score = 3.99), environment friendly (mean score = 3.35), quality (mean score = 3.78), organic products (mean score = 3.23), oil free products (mean score = 3.27), fat free products (mean score = 3.28), fresh products (mean score = 3.51), and free from pesticides (mean score = 3.53) are above average level in Kerala.

6. Paired t test was used to analyze the significant difference between the expectation and experience of consumers with regard to processed food products.

- The experience (mean score = 4.00) of consumers with regard to ready to cook products is equal to what they expected (mean score = 3.98).
- From the analysis of the factor 'ready to eat', the result shows that, the experience (mean score = 3.95) of the consumers is greater than the expectation (mean score = 3.57).
- For the factor 'nutritious' the experience (mean score = 3.43) of consumers is less than they actually expected (mean score = 4.57).
- The consumers expected the product should be tasty but their experience (mean score = 4.13) is less than their expectation (mean score = 4.62).
- There is a significant difference between expectation and experience of consumers with regard to variety of choice. The experience (mean score = 3.99) is greater than the expectation (mean score = 3.82).
- The consumers expected that the product should be environment friendly. But the expectation (mean score = 4.23) is greater than the experience (mean score = 3.35).

- From the observation of the factor 'quality', the consumers' expectation (mean score = 4.74) and experience (mean score = 3.78) shows a significant difference. The consumers do not avail quality products at their expectation level.
- The experience (mean score =3.23) of consumers towards the factor 'organic' is less than their expectation (mean score = 4.19).
- Regarding the factor 'oil free', the expectation (mean score = 4.05) is greater than the consumers experience (mean score = 3.27).
- The consumers expectation of 'fat free product' (mean score = 4.12) and fresh products (mean score = 4.78) is greater than the experience. (fat free product (mean score = 3.28) and fresh products (mean score = 3.51)).
- The test result shows that the expectation (mean score = 4.72) of the consumers on the factor free from pesticides is higher than they have experienced (mean score = 3.53)

7. The study identified factors on expectation of consumers towards the processed food products through Exploratory Factor Analysis (EFA). The factors are Product Quality, Health Factors and Convenience Products. From these three identified factors regarding the consumers' expectation, 'Product Quality' is the most affecting factor followed by Health Factors and Convenience.
8. Independent sample t test was used to analyse the significant gender difference with respect to product quality, health factors and convenience factors.

- The result shows that there is no significant gender difference with respect to product quality (p value = 0.11).
- Gender has no significant difference with regard to health factors (p value = 0.299)
- There is no significant gender difference with respect to convenience factors (p value = 0.712).

9. One way ANOVA was applied to test the significant difference between age group, profession and education with regard to the consumers' expectation.

- The result of the analysis result shows that there is a significant difference between the age group of consumers and the convenience factors regarding the expectation of consumers towards the processed food products (p value = 0.016).
- There is no significant difference between the age group of consumers with respect to the expectation among product quality (p value = 0.082) and health factors (p value = 0.892).

- There is no significant difference between the profession and expectation of consumers with regard to convenience factors (p value = 0.261), product quality (p value = 0.568) and health factors (p value = 0.970).
- There is no significant difference between educational qualification of consumers and the expectation regarding convenience factors (p value = 0. 105).
- There is a significant difference between educational qualification and the expectation about health factors (p value = 0.003) and product quality (p value = 0.006).
- Correlation coefficient test was applied to analyse the relationship between consumers' expectation and experience towards processed food products.
- Consumers' expectation and experience with regard to processed food products have a positive correlation.
- Expectation and experience gap has an adverse impact on consumers' satisfaction.

C. The Prospects of the Food Processing Sector

- Out of 401 consumers, 233 purchase processed food products from super markets, 275 prefer hyper market and 223 make purchases from small retail outlets. The consumers in panchayath mostly prefer supermarkets and small retail outlets for purchasing. The people located in corporation and municipality purchase processed food products mainly from hypermarkets.
- While comparing the estimated demand and actual production of six categories of processed food products the result shows that, there is a wide gap between demand and production of processed food products. The present production of processed food products is not sufficient to meet the demand. That means the Kerala market is filling the gap with processed food products from other states to meet the domestic demand. Increasing demand for the processed food products shows a huge scope for the food processing sector to increase their production.
- While comparing the export of food items in 2016 – 17 and the predicted values in 2019 - 20, the result shows that milk and milk processing sector, marine and fish processing sector, meat and poultry processing sector, fruits and vegetable processing sector and consumer food producing sector have prospective future growth in the export of their products. Hence, steps should be taken to increase the production in these categories of

processed food. But the export of processed grain and cereal products will decrease in the future.

5.7 Conclusion

The major conclusions drawn from the findings of the study are explained below.

Procurement of raw materials is the major problem faced by marine and fish processing units in Kerala. Fluctuating price is the major problem in procurement of raw material. Therefore, marine and fish processing units are mainly depending on other states for raw materials. Increase or decrease the price of fish in Kerala depends on the availability of fish from other states.

The problems in employment is the least felt problem faced by the food processing units in Kerala. This is because, a lot of workers from other states are employed in this sector in Kerala at cheaper rate. The migrated employees are satisfied with this wages because it is greater than the wages in their states. At the same time it is found that, the food processing units find difficulty in recruiting the efficient employees and skilled workers.

The problems in export is the major problem faced by the meat and poultry processing units, milk and milk processing units, grain and cereals processing, fruits and vegetable processing units and consumer foods. The major problems in export are the problems in fluctuating foreign currency, difficulty in catching export market, high export duty, high competition in export market, complicated export procedures and formalities, export policy changes and demand to meet high product standards.

Quality, taste and nutrition are the major factors influencing the consumers' purchasing behavior of processed food products. Promotional offers and advertisements are factors which have least effect on the purchasing behavior of the consumers.

The study proves that there is a significant difference between the expectation and experience of the consumers with regard to the processed food products. The study found that, the consumers expected more fresh products, quality products and free from pesticides. But their experience was not upto the expectation. But they received more tasty products, ready to cook products and variety of choices.

The study reveals good prospects for the food processing industry in the future, since the financial ratios show a sound financial position of the units under study. The estimated demand figures in the six categories of Food Processing Industry shows that there is a wide gap between the actual recorded production and the estimated demand.

Though the study shows that the units face problems related to export, the forecasted export figures shows a bright future for export for the Food Processing Sector, which should be captured efficiently.

Food is an indispensable product for the existence of all people.Availability of raw materials, changing lifestyles and relaxation in policies has given a considerable push to the

industry's growth. Food product marketing has changed from time to time according to the aspirations of people. The food processing sector is growing with respect to the fast life style of people. Food processing companies have devised different strategies to market their food products.The taste and preferences of people are changing day by day. Many people prefer more 'ready to cook' and 'ready to eat' products. Hence, the demand of the processed food products has been increasing in the domestic and international market. Therefore, food processing sector has a bright opportunity in the present economy.

5.8 Recommendations

Based on the findings, the researcher has given the following recommendations for the betterment of the food processing sector in Kerala.

1. It is found that some of the food processing units are functioning at a loss. To reduce losses,

- Effective pricing and marketing strategies should be adopted.

2. Marine and fish processing units and fruits and vegetable processing units face more problems in the procurement of raw materials. Fluctuating prices of raw material is a major problem in procurement of raw material faced by the food processing companies in Kerala. High price shows the scarcity of raw material and low price shows the abundance of resources. To reduce the problem the following measures are useful;

- Aquaponics is a method for cultivating crops by using the waste water from the fish tank or pond. It will be help to increase the production of agricultural and fish products and the consumers will get the organic products. This method also will be useful to the food processing units. Through this method the dependency of other state for raw materials (agricultural and fish products) will be reduced. The responsible authority should try to provide the training and awareness to the farmers about aquaponics method.
- Implement 'Samudra' in Kerala, a project of CMFRI in association with ISRO. The project aimed at helping fishermen easily locate shoals of fish without wasting fuel and time. If it is implemented in Kerala, it would be useful to the Kerala based marine and fish processing units to avail marine products from Kerala coastal area at reasonable price. Instead of depending on other states for raw materials.
- Since, agricultural and allied products are perishable in nature, setting up of recognized cold chain storages will helps to increase the shelf life of the products.

3. Problems in Export is another major constraint faced by the food processing units in Kerala. The following measures will be useful to the food processing units;

- The food processing units face difficulty in catching the export market as well as high competition in the export market. The food processing units are highly responsible to maintain the quality of the product. From the point of producers, it is very necessary to maintain the quality of the product to compete in the current market. It is very important to educate the food processing units about the standards and its importance in the domestic and international market and also promote them to increase their product quality to international standards. The international quality products help to catch the international market. Use more attractive packages and provide more effective advertisements for catching customers. The government and other responsible authorities may take initiatives to provide awareness programmes for consumers regarding the food quality standards and its importance.
- Government should try to reduce the export duty imposed on the processed food products for promoting export.
- The companies should consider international demand for processed food products.
- Fixing of standards and specifications for the food products for the purpose of exports. During the period of observation, it is found that a few companies have no standardized food testing laboratories. In the interest of consumer safety and health there is a need for testing food products in order to ensure that it complies with domestic standards as well as international standards for exports. Ministry of food processing industry provides financial assistance for setting up of food testing laboratories. But, the private sector organizations have less awareness about this. So the Government may try to conduct seminars or workshops to make awareness among the food processing companies.
- Conduct market promotion and publicity
- Participate in specialized international food fairs / exhibitions and general fairs abroad.

4. The study found that, very few companies use renewable energy.

- High cost of fuels and electricity has created opportunities for using alternative energies for post-harvest processing of foods. Solar food processing is an emerging technology that provides good quality foods at low or no additional fuel costs. A number of solar dryers, collectors and concentrators are currently being used for various steps in food processing and value addition. There is a need to integrate the food processing industry with solar equipment developers through governmental, international agencies as well as the experts

in this field. The use of renewable energy in the food processing sector will help to reduce the use of electricity and fuel and also reduce the expenses to meet them.

5. The food processing units in Kerala are facing problems in raising capital.

- The banks and other financial institutions should make an effort to provide financial loans at reasonable interest rate for long term.
- There should be liberalized credit norms for the food processing sector. Modifications are needed in the procedure of extending subsidies to new entrepreneurs.
- Government to give subsidy to boost small food processing units.
- ✓ If the food processing services are added to the cold chain, the ministry has decided to provide 50 percent subsidy.
- ✓ The assistance is in the form of grant subject to 25 percent of the plant and machinery.
- ✓ If the food processing units set up cold chain for storage and use cold chain vehicles to transport materials, the ministry will provide 35 percent subsidy.

Government and other responsible authority may conduct awareness programme on the financial assistance provided to the food processing units. And the units should try to utilize the fund granted by the Government for the betterment of this sector.

6. In order to boost the food processing industry, effort must be made to encourage contract farming. In this method there are no middlemen and there is direct relationship between producer and processor. By contracting, the buyer avoids the risk of availability of raw material and the farmer reduces the risk of market demand and prices of his produce. These types of contracts are best suited for food processing industries, as the raw material needed in this industry is highly perishable and seasonal in nature.
7. Developing seamless supply chains. Supply chains should be market oriented and must maintain backward and forward linkages. Finance and infrastructure support will strengthen development of seamless supply chain.
8. Processed food products need to be offered to the consumer, in hygienic and attractive packaging, at low incremental cost.
9. Food processing industry should be treated as Hi-Tech industry and should be given status and support similar to IT industry as it involves efficient post harvest management and contribution from bio and nano technology.

10. Rural women should be encouraged to set up small scale processing units under Self Help Group (SHG) format.
11. Locating all kinds of production units in a particular zone instead of conducting operation at different areas is another possibility. It will help to earn more investments in the food processing sector.
12. Follow the principles of food safety at all stages of production, processing, packaging, storage and marketing of processed food products.
13. Government should take remedial actions for the exploitation of raw materials.
14. The company should try to maintain the product quality, avoid cut throat competition and perform the social obligations.

5.9 Scope for Further Research

1. The Role of fruits and vegetable processing units in Kerala for agricultural development.

2. Backward and Forward linkages in the food processing sector.

3. Employment opportunities and work life quality of workers in the food processing sector in Kerala.

4. Corporate Social Responsibility (CSR) in the Food Processing Sector.

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APPENDIX I

INTERVIEW SCHEDULE

I. GENERAL DETAILS

1. Name of the Unit/ Company :
2. Address :
3. Location of the unit : Corporation ☐
   Muncipality ☐
   Panchayath ☐
4. Year of establishment :
5. Registration Number :
6. Year of Registration :
7. Form of the organization : Sole trading concern ☐
   Partnership firm ☐
   Private ltd. Co. ☐
   Public ltd. Co. ☐
   Co-operative concern ☐
8. What are the reasons for starting the business?
   ☐ Attractive Market ☐ To meet the needs of locality
   ☐ Profit Motive ☐ Availability of raw materials
   ☐ Any other reason (specify)
9. Please indicate sector/s of activity covered by your company :
   ☐ Meat processing ☐ Dairy Products ☐ Grain & Cereal Mills
   ☐ Processed Marine & Fish Products ☐ Fruits & Vegetable processing
   ☐ Consumer Food Products
10. How many type of finished products do you have?
    ☐ Single product ☐ Multi product
11. Do you have any standard certificate for your organization? ☐ Yes No ☐
12. If yes, type of certificate:

☐ FSSAI ☐ Agmark ☐ ISO

☐ Others Specify……..

13. Factors considered while selecting location:

☐ Near to market ☐ Near to customers ☐ Easy for transport Low ☐ cost of land Availability of workers ☐ Availability of raw material

II. PROCUREMENT OF RAW MATERIALS

14. What source do you adopt in procurement of raw materials?

☐ Open Market ☐ Regular Suppliers ☐ Direct from Farmers ☐ Raw material supplier's organization ☐ Own Farm

15. The terms of purchase of raw material: Cash ☐ Credit ☐ Both ☐

16. What is your opinion about raw material price?

High ☐ Low ☐ Medium ☐

17. If high, state the reason:

……..……

……

18. Do you have any problem in the procurement of raw material?

Yes ☐ No ☐

19. If yes, rate the following problems (5 – very high, 4 – high, 3 – average, 2 – below average, 1 – low)

Sl. No.	Problems in procurement of raw materials	5	4	3	2	1
1.	Poor Quality					
2.	Shortage in quantity					
3.	Unavailability of credit					
4.	Fluctuating prices					
5.	High transportation cost					

6.	Unfair trade practices					
7.	Intervention of intermediaries					
8.	Long distribution channel					
9.	Tentative nature of suppliers					
10.	Unavailability at the required time					
11.	Others (specify)……					

III. PRODUCTION

20. What type of Processing Technique do you Use? :

☐ Manual Processing ☐ Automatic ☐ SemiAutomatic

21. What is your per week/day capacity of production? (Quantity) of any four major products

Sl. No.	PRODUCT	QUANTITY
1.		
2.		
3.		
4.		

22. What are the factors deciding your product design? Rate the following factors in the order of importance. (5 –very high, 4 –high, 3 – average, 2 –below average, 1 – low)

Sl. No.	Factors	5	4	3	2	1
1.	Taste / color of the product					
2.	Through technical assistance					

3.	Depend upon quality of raw material					
4.	Quality of competitor's product					
5.	As per expectations of consumers					
6.	Others (specify)……					

23. Rate the following problems in production (5 –very high, 4 – high, 3 – average, 2 – below average, 1 – low)

Sl. No	Problems	5	4	3	2	1
1.	Increase in procurement cost					
2.	Difficulty in procurement of raw materials					
3.	Difficulty in quality control					
4.	Insufficient production capacity due to lack of facilities					
5.	Obsolete technologies for production					
6.	Electric power shortage					
7.	Inefficient labourers					
8.	High customs duties on imported capital goods and intermediary goods					
9.	Absenteeism					

24. Did you introduce any change in the method and techniques of production?

☐ Yes ☐ No

25. If Yes, when ☐ Currently ☐ One year ago ☐ Five year ago

26. State below, the increase in capacity and the corresponding increase in production in the last five years.

Year	Capacity	Production

27. Do you undertake any contract manufacturing? ☐ Yes ☐ No

28. If yes, to which brand/ company? ……

IV. FINANCE

29. What is your capital investment in the project? .....

☐ Below 25 lakhs ☐ 25 lakhs – 5 crore ☐ above 5 crore

30. Do you prepare financial plan? ☐ Yes ☐ No

31. What are the sources of raising capital?

☐ Own funds/ share capital ☐ Bank credit/ loan

☐ Leasing companies ☐ Foreign investment

☐ Private sources (friends & relatives) ☐ others

32. Do you get any subsidy from Government? ☐ Yes ☐ No

33. If yes, what is the % of subsidy? ……..

34. The purpose for which subsidy is utilized:

☐ Setting up of unit ☐ Expansion/ Modernization of the unit

☐ Promotional Activities ☐ Purchase of technical know how

☐ Technology up gradation

35. State the amount or subsidy received for technology upgradation? ……

36. Do you get loan at concessional rate of interest? ☐ Yes ☐ No

37. If yes, rate of interest: ……

38. Do you get any special concession in the repayment of loan?

Yes ☐ No ☐

39. Do you face any problem in raising capital? ☐ Yes ☐ No

40. If yes, rate the following problems in raising working capital

(5 – Very high, 4 – high, 3 – average, 2 – below average, 1 – low)

Sl. No	Problems in Raising Working Capital	5	4	3	2	1
1.	Difficulty to get loan for long term					
2.	Difficulty to avail loan at the required time					
3.	High rate of interest					
4.	Rigid rules and regulations					
5.	Insufficient repayment period					
6.	Lengthy process for bank loan					
7.	Difficulty in procuring funds from financial institutions					
8.	Restrictions on fund procurement and settlement					
9.	Others (specify)…….					

41. What is the annual sales turnover of your business?

☐ Below 5 Lakh ☐ 5 Lakh – 15 Lakh ☐ 16 Lakh – 25 Lakh ☐ Above 25 Lakh

42. What is payback period of your investment? ……

43. Do you provide incentives for overtime work? ☐ Yes ☐ No

V. MARKETING

44. What channel do you follow in the marketing of your products?

☐ Direct to customers ☐ Retailers – Customers

☐ Wholesalers – Retailers – Customers

☐ Agent – Retailer – Customers

☐ Agent – Wholesaler – Customers ☐ Exclusive agency

45. Rate the following problems in marketing. (5 –Very high, 4 – high, 3 – Average, 2 – Below average, 1 – low)

Sl. No	Problems in Marketing	5	4	3	2	1
1.	Decrease in demand from customers					
2.	Intervention of intermediaries					
3.	Inflow of cheap imported goods into local market					
4.	Entrance of competitors					
5.	No increase in new customers					
6.	High expense for advertisement					
7.	Lack of marketing information					
8.	Lack of storage facility					
9.	Increase in competition					
10.	Others (specify)…….					

46.What are the methods adopted by your company to increase the sales?

☐ Maintains high quality ☐ Attractive packaging

☐ Gives cash discounts

☐ Provides incentives to sales people ☐ Charge affordable price

☐ Effective advertisements

47.Do you think that your product needs advertisement and publicity?

☐ Yes ☐ No

48.If yes, what media have you use?

☐ Radio ☐ Television ☐ Bill books ☐ Sign board

☐ News paper

49. Do you conduct market research properly? ☐ Yes ☐ No

50. If yes, what are the methods have you adopted for market research?

☐ Surveys ☐ Direct observation ☐ Information on the internet

Sales figures ☐ Financial trends ☐ Review of competitors product ☐

51. Do you have competitors in the market? ☐ Yes ☐ No

52. If Yes; ☐ Inside the state ☐ Outside the state

☐ Outside countries ☐ All

53. What is the nature of competition faced by your business unit?

☐ Price Competition ☐ Quality competition ☐ Credit sales

☐ After sales service ☐ Customer Facilities

54. What are the strategies adopted by your company for facing competition?

☐ Increase the quality ☐ Charge affordable price

☐ Attractive packaging

☐ Provide attractive and effective advertisements

☐ Prompt delivery ☐ any others specify……

55. Do you sell the product under any brand name? ☐ Yes ☐ No

56. If Yes; mention the brand name: …….

57. Do you think that the brand name helps you to increase sales? ☐ Yes ☐ No

58. What is the method of pricing the product?

☐ On the basis of competition ☐ On the basis of cost

☐ On the basis of Demand and Market condition

59. Where you market your product?

☐ Local Market ☐ National Market ☐ International Market

VI. HUMAN RESOURCES

60. Do you have any problem of power / electrical shortage? ☐ Yes ☐ No

61. Do you face any employment problem? ☐ Yes ☐ No

62. If yes, rate the following problems related to employment.

(5 – Very high, 4 – high, 3 – average, 2 – below average, 1- low)

Sl. No	Problems related to labor or employment	5	4	3	2	1
1.	Increase in employee wages					

2.	Difficulty in recruiting efficient employees					
3.	Low rate of worker retention					
4.	Frequent demand for advances					
5.	Increase in absenteeism					
6.	Friction with labor union					
7.	Shortage of skilled workers					
8.	Others (specify)……..					

63. Mode of recruitment: ☐ External Sources ☐ Internal Sources

64. State the method you have adopted for selection?

☐ Written Exam ☐ Group Discussion ☐ Interview

65. What type of training do you give to your employees?

☐ On the job training ☐ Off the job training

66. Do you pay the workers on ☐ Piece basis ☐ Time basis

VII. EXPORT RELATED

67. Do you export your product? ☐ Yes ☐ No

68. If yes, in which countries? .....

69. If yes; which channel do you adopt for export?

☐ Through local export agents ☐ Through Govt. approved agents

☐ Directly to the foreign countries

70. Do you face any problem in export? ☐ Yes ☐ No

71. If yes, rate the following problems in export. (5 – very high, 4 – high, 3 – average, 2 – below average, 1- low)

Sl. No	Problems in export	5	4	3	2	1
1.	Problems in fluctuating foreign currency					

2.	Difficulty in catching export market					
3.	High export duty					
4.	High competition in export market					
5.	Less quality					
6.	License issue					
7.	Complicated export procedures and formalities					
8.	Export policy changes					
9.	Demand of high product standards					☐
10.	Others (specify)……..					

72. Are you following the environmental protection standards? Yes ☐ No

73. What are the methods have you adopted for environmental protection?

Use Recycling methods ☐ Use of renewable energy ☐

Avoid burning garbage ☐ Avoid throwing chemicals in different places ☐

Turn off unused electric appliances ☐ Create a compost ☐

Water conservation ☐ Plant trees ☐ Use durable canvas grocery bag ☐

Other methods (specify)…….

Suggestion:

74. What is your opinion about the industrial climate in Kerala?

Highly favorable	Favorable	No opinion	Unfavorable	Highly unfavorable

75. State your valuable suggestions for the development of food processing industry in Kerala:

……
……
……
……
……

DETAILS OF FINANCE

1. Details of Working Capital :

Sl. No.	Items	2012-13	2013-14	2014-15	2015-16	2016-17
1	Cash in hand and bank					
2	Amount Receivable					
3	Amount payable					
4	Raw materials					
5	Finished Goods					
6	Total					

2. Details of Fixed Assets :

Sl. No.	Items	2012-13	2013-14	2014-15	2015-16	2016-17
1	Land & Building					
2	Plant & Machinery					
3	Transport Equipments					
4	Other fixed assets					

5	Total					

3. Details of Expenses :

Sl. No.	Item	2012-13	2013-14	2014-15	2015-16	2016-17
1.	Repair of Fixed Asset					
2.	Postage & Stationary					
3.	Audit & Account Charges					
4.	Repair of Fixed Assets					
5.	Transportation charges					
6.	Insurance Charges					
7.	Taxes					

4. Cost Structure of the Food Products :

Sl. No.	Item	2012-13	2013-14	2014-15	2015-16	2016-17
1.	Cost of raw materials					
2.	labour					
3.	Factory overhead					
4.	Packaging materials Cost					
5.	Manufacturing Overhead					
6.	Administration cost					
	Total					

7.	Tax					
8.	No. of Products produced					
9.	Selling cost					
10	Price to the consumer					

Serial No:…….

APPENDIX - II

INTERVIEW SCHEDULE FOR CONSUMERS

1. Name :
2. Gender : Male ☐ Female ☐
3. Age : Below 20 ☐ 20 – 30 ☐ 31 – 40 ☐
   41 – 50 ☐ Above 50 ☐
4. Religion : Hinduism ☐ Christianity ☐ Islam ☐ Others ☐
5. Education : Primary ☐ High school ☐
   Higher secondary ☐ Graduate ☐ Post Graduate ☐ Professional ☐
6. Profession : House wife ☐ Business ☐
   Govt. Employee ☐ Pvt. Employee ☐ Professionals ☐
   Students ☐ Pensioner ☐ Unemployed ☐
7. Monthly Income : Below 15000 ☐ 15000 – 30000 ☐
   30000 – 45000 ☐ 45000 – 60000 ☐ Above 60000 ☐
8. Monthly expenditure for Processed Food Products :
   Below 5000 ☐ 5000 – 10000 ☐ 10000 – 15000 ☐
   15000 – 20000 ☐ 20000 – 25000 ☐ above 25000 ☐
9. Details of Family Members:

Total number of Members	Children (0 – 14 yrs.)	Adult (15 – 59 yrs.)	Senior Citizen (above 60 yrs.)

10. Locality

of residence : Corporation Municipality Panchayath

11. Sources of Purchase of Processed Food Products:

Supermarkets ☐ Hypermarkets ☐ Small Retail Outlets ☐

12. Which of the following processed food category do you purchase?

Milk and Milk products ☐ Processed sea food ☐

Processed meat & poultry ☐ Processed fruits & vegetables ☐

Consumer Foods ☐ Processed Grain & Cereals ☐

13. What is your frequency of purchasing processed food products?

Weekly ☐ Fortnightly ☐ Monthly ☐

Bi Monthly ☐ Rarely ☐ Daily ☐

14. Which are the most demanded size/ quantity of the product for a month?

a. To whole family

Category	1 Kg	2 Kg	3 Kg	4 Kg	5 Kg
Processed Milk and Milk Products					
Processed Marine and Fish food					
Processed Meat & Poultry					
Processed Fruits & Vegetables					
Consumer Foods					
Processed Grain & Cereals					

15. What factors prompt you to purchase processed food? Rate the following factors.

(5 – Very Important, 4 – Important, 3 – Neutral, 2 – Less Important,

1 – Not Important)

Sl.No.	FACTORS	5	4	3	2	1
1.	Nutrition	VI	I	N	LI	NI
2.	Environment friendly	VI	I	N	LI	NI
3.	Organic product	VI	I	N	LI	NI
4.	Quality	VI	I	N	LI	NI
5.	Availability	VI	I	N	LI	NI
6.	Price	VI	I	N	LI	NI
7.	Package of the product	VI	I	N	LI	NI
8.	Advertisements	VI	I	N	LI	NI
9.	Variety of choice	VI	I	N	LI	NI
10.	Promotional offers	VI	I	N	LI	NI
11.	Brand name	VI	I	N	LI	NI
12.	Taste	VI	I	N	LI	NI
13.	Good display of the product	VI	I	N	LI	NI

16. Rate the following statements regarding the processed food products based on your expectation. (5 – Very Important, 4 – Important, 3 – Neutral, 2 – Less Important, 1 – Not Important)

Sl. No.	FACTORS	5	4	3	2	1
1.	The product should be Ready to cook	VI	I	N	LI	NI
2.	The product should be Ready to eat	VI	I	N	LI	NI
3.	The food processing company should provide Nutritious food.	VI	I	N	LI	NI
4.	The product should be tasty.	VI	I	N	LI	NI
5.	The consumers look for variety of choices for food items.	VI	I	N	LI	NI
6.	The product should be environment friendly.	VI	I	N	LI	NI
7.	Prefer good quality products.	VI	I	N	LI	NI
8.	Prefer more Organic Products.	VI	I	N	LI	NI
9.	The consumers need oil free products.	VI	I	N	LI	NI
10.	The consumers prefer fat free products.	VI	I	N	LI	NI
11.	The consumers need more fresh products.	VI	I	N	LI	NI
12.	The product should be free from pesticides					

17. Rate the following statements based on your experience. (5 – Highly Satisfied, 4 – Satisfied, 3 – Neutral, 2 – Dissatisfied, 1 – Highly Dissati4sfied)

Sl.No.	FACTORS	5	4	3	2	1
1.	The products are ready to cook.	HS	S	N	D	HD
2.	The products are ready to eat.	HS	S	N	D	HD
3.	The food processing companies provide Nutritious food.	HS	S	N	D	HD
4.	The consumers experience good taste for food items.	HS	S	N	D	HD
5.	The consumers get variety of choice for food items.	HS	S	N	D	HD
6.	The products are environment friendly.	HS	S	N	D	HD
7.	The consumers are able to choose good quality products.	HS	S	N	D	HD
8.	The consumers get more organic products.	HS	S	N	D	HD
9.	The consumers get oil free products.	HS	S	N	D	HD
10.	The consumers get fat free products.	HS	S	N	D	HD
11.	The consumers get more fresh products.	HS	S	N	D	HD
12.	The consumers get pesticides free products.					

18. Give the names of most preferred brands in the following table

Processed Milk and Milk Products	Processed Marine and Fish food	Processed Meat & Poultry	Processed Fruits & Vegetables	Consumer Foods	Processed Grain and Cereal

19. Are you satisfied with the product item you select?

Highly Satisfied	Satisfied	Neutral	Dissatisfied	Highly Dissatisfied

Thank You

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