CHAPTER 3

REVIEW OF LITERATURE
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CHAPTER 3
REVIEW OF LITERATURE

3.1 Introduction

This chapter presents the review of literature of the past studies dealing with food processing industries. Literature pertaining to selected food processing industries and the studies conducted on the same has been reviewed and presented.

3.2 Ph.D Thesis Review

3.2.1 Arangannal R (2014) “Food cluster for the promotion of food processing industry in Madurai district a critical study” Thesis submitted to the Madurai Kamraj University

Researcher in this research has considered 202 units of food cluster supported by Ministry of Industry and Commerce, Government of India in Tamil Nadu. She has studied the enriched demographic, improved quality, infrastructural, environmental, technical, marketing and financial profile of the units is in CPS cluster. This thesis analysed performance of the units in CPS Cluster through its Human Resource Management, finance and production capabilities. Researcher find out in terms of technical education and qualification of owners of unit among the entire unit 75.25 per cent of the units are not having any educational and technical qualification in their related field.


In this thesis researcher taken 160 units of Marathwada region out of the total units selected on the basis of purposive sampling method and the reference time period for the field study is 2001-02 to 2010-11. Researcher throws light on study of economic, social, occupational and educational
backgrounds as well assess the growth and development of the small businessmen involved in food processing industries in Marathwada region. As well examine existing institutional networks and connectivity, government programs and policies, involvement of support agencies and find out the enterprises potentialities. Study objective is to recognised obstacles faced by the food processing industrial units and scope for development mainly in the low developed districts of Marathwada Region. According researcher major challenges faced by most of the industries are availability of cold storage insufficient, disposal of food waste products, lack of latest technology and infrastructure.

3.2.3 Ravinder Kumar (2017) “Processed Food Industry in Haryana: A SWOT Analysis”. Thesis submitted to the Kurukshetra University, Kurukshetra, Haryana

During this research the researcher has studied and evaluated the efficiency in terms of production and market competitiveness of processed food industry at national level means within India. The primary data was collected from 275 units are selected on the basis of stratified sampling techniques. This research study evaluates strengths and weakness of the food processing industry. Available raw material is of good quality with wide range of variety etc. is strength of Food processing Industry. On the other hand seasonal nature of availability of raw material, low labour efficiency, higher wage rate of skilled labour, frequently power cut, low price control due to competition etc. as a weakness in Food processing Industry

3.2.4 M. Radha (2011) “Growth, Productivity and Efficiency of Food Processing Industries in India” Thesis submitted to the Bharathiar University, Tamilnadu

Researcher has studied level of production, technical cost and allocative efficiency as well productivity performance during pre (1980-81 to 1990-91) and liberalisation period (1991-92 to 2007-08) of food processing industry in India. Objectives of this thesis are studies Indian food processing
industries’ performance in productivity; examine the growth during pre and liberalisation periods, costs, production scale, techniques and efficiency.

### 3.3 Research Paper and Article Review:

#### 3.3.1 Dr. Anoop Kumar Singh (2014) “A Study on Development Trends of Food Processing Sector in India” Shodh Sanchayan ISSN 2249-9180 (Online) ISSN 0975-1254 (Print) Vol-5, Issue-1 15 Jan.

In this Research paper an attempt has been made to have an analysis of present situation of the Food Processing industry as well as this industries role in the development and growth of the Indian economy in general and financial status of rural or villager people. It has also been attempt to find out different challenges faced by small scale firms with regard to food processing industry and how to deal with these challenges.

Accordingly he India is the highest producer of milk by producing 110 million tonnes annually and in fruit and vegetable production capacity wise second rank in the world. He also note that food processing industry’s share in manufacturing occupies 9% share and in that 9 %. This 9% has been divided into five main segments including meat, fish, fruits & vegetables, 40.2%, beverages 19.6 %, grain mill products 10.8%, dairy products 5% and other food products accounting for 24.5%.


T.M. Sridhara Murthy guest faculty and M.S. Yogesh research scholar of Agribusiness Management, Institute of development Studies, Manasagangothri, University of Mysore, Mysore, Karnataka has written research paper on An overview of Food Processing Industry in India – Challenges and Opportunities. This research paper food processing sector divided in six major segments first Fruits and Vegetables: India has second rank in production of fruits and Vegetables in world. Horticultural crop 7%
total cropped area used of the country’s it means of 12 million hectares. Produce 50 million tonnes fruits and 100 million tonnes vegetables. Second milk and milk product: India is on top position in terms of production of milk and milk products with 17 % of global milk 96 million tonnes annually. 46% of milk consume in liquid milk form and rest of the converted into milk product. Third Meat and Poultry: In livestock population India has the world’s largest livestock population. FAO has estimated the current production of poultry and meat products at 4.42 million tonnes. Most of consumers purchased in the frozen/ fresh form for conversion into products at restaurants, home etc. Fourth Fisheries and Sea Food: India has endowment of the seventh largest marine landing with 7,500 km. Presently 2.7 million tonnes fish harvest from inland waters. Fifth Grain Processing: post-harvest losses reduced due to development of Food processing industries. Production of food grain has been 225 million tonnes annually. Sixth Alcoholic Beverages: There is production of 160 million lit. annually by 36 licensed breweries. Since 2007-8 to 2013-14 foreign investment of 7,000 million takes place in this sector.

Researchers found that instead of these major challenges are insufficient infrastructure facilities, lack of suitable national agriculture policy, absence of skill worker etc. whereas Opportunities and Strengths are diverse conditions of agro-climatic, due to high population biggest emerging market, increasing urbanization, availability of cheaper human resource etc.


Both the IIT delhi student published research paper Analysis of Indian Food Industry- a Global Perspective In this paper comparative study of India’s food industry and other countries specially BRICS and neighbour countries of india has done. This paper explained there is in multiple number businesses developed in food processing and provide huge employment opportunities. The researchers tried to explain food processing industry of India has been Compounded Annual Growth Rate of 11% with valued at USD 39.71 billion.
In terms grocery and food market India is on 6th position in entire world and employment annual growth rate is 5.1%. Nearby 21% of India’s GDP accounts for Food and its products Contribution of food processing industry in Gross Domestic Product (GDP) has increased upto Rs.66078 cr. in 2009-10 from Rs 44355 cr. in 2004-05, with Compound Annual Growth Rate (CAGR) of 8.49 percent.

3.3.4 Dr. T. K. Jadhav (2014) “A study of food processing industries in India” Prime International Research Journal, ISSN 2349-2139, Volume I Issue 1 June, 2014

This paper attempts to analyze the share of food processing sector has grown up in Indian GDP, for this study only secondary data use from 2010-11 to 2012-13. Objectives of this paper to know total firms in organised food processing industry, growth of food processing industry and contribution to India’s GDP, exports and SWOT analysis of food processing industries in India. He explained that export of agro product increased by 32.93 to 36.08 in 2010 to 2011-12, whereas contribution in GDP increased from 1.3% in 2009-10 to 1.5% in 2011-12.

The study expressed that India has huge market for processed food products because of high demand for all types of foods; raw material availability increased because of increased agricultural production, government is supportive for food processing industry. But still there are some obstacles to develop food processing industry like lack of infrastructural facilities, high competition and scarcity of capital. Researcher state that limitation for this study is only organised food processing sector considered for limited time period.


This research paper is deal with the skill required for optimum utilisation of resources regarding vegetable and fruit processing industry. Skill
requirement for this industry its study has done by using generic value chain as well find out skill gaps of value chain at each step and feasible measures are suggested to recover skill gap. They also explains various segment or sector wise success factors and risk factors like fruit and vegetables sector ability to create backward and forward linkage, use of automatic technology instead of manual method for production, innovation, branding, use of high yielding seeds etc. key success factors whereas high wastage around 35% due to lack of sufficient cold chain and lower performance are key risk factor in this industry. India’s food processing industries contribution state wise shown by chart accordingly chart Maharashtra’s food processing industry 14%, Andhra Pradesh and Gujrat 13% per head and Uttar Pradesh 12% these are the top states.

Researchers analyse skill gap accordingly function or level and functions or levels are divided in procurement, production or floor level, supervisor and sales and marketing theses four categories. First function procurement and skill gap for procurement is lack of skill of communication to motivate farmers for more productivity and good quality, provide guidelines for better framing and reduce wastage, insufficient ability and knowledge to aware and educate farmers on demand. Second type is production means at floor level skill gap is absence of knowledge and interest to reduce wastage of production and productivity tracking as well improvement. Third function is supervisor the skill gap found for supervisor is lack of motivational skill and operation of computer for filing and documentation. Fourth function type is not able to find out changing trend of customer preferences, absence of articulate views ability and fail estimates demand for new products.


An attempt has been made by three professors of Tennessee State University’s Department of Agricultural and Environmental Science Sciences, Nashville, Tamil Nadu. To study the “The Food Processing Industry in India: Challenges and Opportunities”. The study revealed that India’s agricultural
development is strong pillar for food processing industry but still food product processing is low and wastage is very high because of this India’s share in world export remained at about only 1.5 percent. This paper examines status and trends of the food processing industry. Trends in area production of major crops last three decades shows as the total area used 40.1 million hectare for rice in 1983-84 and 43.8 million hectare in 2008-09 whereas production of rice 53.5 million tons in 1983-84 to 95.0 million tons in 2008-09 it means 9.22% crop area and 76.63 % production increasing trend during 1983-84. Fruits & vegetables total area used 8.3 million hectare for rice in 1993-94 and 13.6 million hectare in 2008-09 whereas production of fruits & vegetables 95.6 million tons in 1993-94 to 188.7 million tons in 2008-09. It means 63.85% crop area and 97.38 % production of fruits & vegetables increasing trend during 1993-94 to 2008-09. For food grain crops total area used 128.5 million hectare in 1983-84 and 122.8 million hectare in 2008-09 whereas production of food grain 138.4 million tons in 1983-84 to 227.8 million tons in 2008-09. It means 04.45% crop area decreased during given period due preference for other crop and 64.78 % production of food grain increased with the declined crop area during 1983-84 to 2008-09

Researchers also mention the factors of production, processing and distribution which affecting the food processing industry. Skill factor is very important for efficient production but due to lack of skill and outdated technology traditional methods are used. Capital availability to farmer and manufacture is very poor. The conclusion made by SWOT analysis there are so many supporting things like large size of Indian market, social trend for consuming processed food, availability of raw material, cheap human resource etc. which helps develop this industry. There are still some weaknesses like high working capital requirement, sub-standard quality of raw material, low level of research and development, inadequate automation etc. restrict development of this industry.

This research paper analysed and provides details of skills, S & T capability and employment generation by using secondary method of research. Utilising data source referred from National Skill Development Corporation, NABARD, National Sample Survey Organisation (NSO), Annual Survey of Industries (ASI) etc. They have divided food processing industry into two categories first category is primary processed foods such as pluses, salt, flour, vegetables and fruits etc and second category is processed value-added foods such as jams, chess, dairy products, juices, etc.

Paper discussed into four broad parts in first part put lights on Indian food processing industry. After green revaluation specifically in 1980s Indian food processing industry accelerated their growth rate but still food processing industry under developed even after good base of agricultural production. India is largest producer of cashew nuts, fruits, tea, milk and coconut in world and contributes 1.17% Export share in world processed food market. Second part deals with skills and employment scenario of industry according to them food processing industry provides directly 13 million and indirectly 35 million employment opportunity, 82% labour of this industry works in unorganised sector whereas only 18% of labour works in organised sector. In state wise share of employment in proceed food sector with 14.1% Andhra Pradesh is on 1st rank whereas Assam and Gujarat on 2nd and 3rd rank with 4.7% and 5.9% employment respectively. About the skill there is wide gap between availability of skill resources and requirement of skill resources. These gaps are inadequate knowledge of quality production, inability of practically conduct test, unable to correct estimation of demand, fail to innovating technology etc. Third part of paper deals with analyse the effect of government policies and schemes. Some policies specially developed by ministry of food processing industries for rural person and weaker section of society. Scheme for match the quality standard by formulating scheme for implementation of ISO 2000, ISO 14000, quality/safety management etc. Forth part deals with different challenges and opportunities of this industry. There are various challenges but mainly found the regarding non availability of skill human resource, food safety laws, defective food processing polices, miss match of central and state government policies, inadequate infrastructural
Potential of this industry is very high because of in last few decade food processing industry registered positive growth rate, with growing urban population demand also growing, FDI for this sector increased.


Article attempts to analyze India is second largest producer of fruits but in the global market fruit processing contributes only 1% and 30-35% wastage of fresh fruit process form harvest to packing and distribution. Three steps and two technologies explains for fruit processing first step is minimal processing means grading, cleaning, sorting and cutting without changing appearance. Second step is primary processing it involves product storage like pulps, paste, slice, preserved and flavoured. Third step is secondary processing it involves fermentation and dehydration like candies, jam, pickles, chips, ketchups etc. There are two types of technologies used for fruit processing one is traditional and modern processing technology.

The study also explained the scenario of Indian fruit processing industry and shelters the global, government’s various policies and scheme for fruit processing industry. Food park scheme it has approved 50 food parks with financial support of US$ 23 million to boost food processing industry. To improve shelf of the product packaging centres scheme developed Rs. 1450 million sanctions for Jammu and Kashmir packaging centre.

3.3.9 Prof. Ajay Shukla, Prof. Vandana Sharma and Prof. Hetal Bhinde (2012) “Agro and Food processing Industry in India: Status, Opportunities & Challenges” International Journal of Social & Scientific Research (IJSSR), India ISSN 2454-3187

Researchers state that in research paper industry and agriculture sector two separate characteristic and contribution wise in economic development. Study focus on the status and evaluation of agro and food processing industry by interviewing concern businessman and their views on Government reforms,
incentives, technological progress, incentives by the government, research and development, constraints, growth trajectory, export potential, competition etc.

This research study analyzes SWOT analysis of agro based industry such as Rice milling, Ayurvedic and Herbal, Winery, Dairy sector. For rice milling sector strengths are wide national and international market, suitable climate, bulk and quality supply of raw material, incentives for export etc. with tremendous opportunity of exports, use of quality improving and cost reducing technology. Seasonal nature of business, lack of awareness of latest technology, controlled MSP, high production cost etc. is the major weakness with threats of cut throat competition, out dated technology etc. In Ayurvedic and Herbal according to report of EXIM bank 2012 world herbal industry is growing with annual growth rate of 7% and market size will be 6 trillion by 2050. Indian Ayurvedic and Herbal market export of Rs. 4205 cr. and his export potential Rs. 7000 estimated by 2020. In dairy sector, strengths are availability of raw material, pool of trained technical human resource, good margin etc. with problem of quality, procurement and distribution. About winery consumption has increased annually 25-30% over a 5 year period, availability of good quality of grape, increasing urban population and wine acceptance by youth and women is the strength for winery sector with weakness and threat of storage problems, less than 50% legally (25 years) old enough to drink, poor awareness and ethical issues etc.


This research paper is based on report of National Horticulture Board and reviews of various journals. In terms of production in many vegetables and fruits India is largest producer in the world but because of post harvest improper handling, management and storage still there is huge gap between demand and supply. Main cause of these problems is lack of cold chain facilities, insufficient vehicles equipped with temperature control system, carting without bagging etc. These problems can be minimised thorough
proper supply management of vegetables and fruits by adopting best practical methods in packaging, transportation, storage, handling etc.

Researchers highlight that in vegetables peas share of India in world’s peas production is 2.5 with first rank and brinjal with 8.3, cabbage with 5.3, onion with 10.4, Cauliflower with 4.9 percent share of world market with second rank in this respective of all vegetables. India in terms production of fruit Banana with share of 32.6 percent and Mango with share of 22.1 percent ranks first in world production. Whereas the share of Papaya is 6.6 percent and Pineapple 1.9 percent in world production with fifth rank. This article also explain scenario of supply chain in India. Out of total agriculture production 18% constitute by fruit and vegetables with about 130 million tone. India has capacity of 30.11 million tones for cold storage with help of about 6300 cold storages. Number of cold storages in 1991 was 83 which further increased up to 6000 in 2008.


The paper has highlighted India has archived tremendous growth in production of milk from 17 million tonnes in 1950-51 to 112 million tonnes in 2009-10 and explained need of value addition in milk and milk products. According to report of government of India in 2010 about 35 % milk is processed, of which 22 per cent by unorganised sector and 13 per cent by organised sector. In organised sector most of milk used for pasteurization it is around 80 per cent other major value added dairy products are butter, cheese, cream, curd, ghee, khoya etc.

Researchers conclude as the value addition increase the profitability of the dairy sector but for this they have to improve continuously. To maintain the standard laws of food safety must be developed with properly enforcement.

This research paper has been attempted with objective of understand the Catering Segments mango pulp demand and preference three districts of Gujarat namely Navsari, South Gujarat and Valsad. Primary data collection method used with a sample of 10 mango pulp processor and 20 cateress.

Study revolves that food processor like Amul, Shelvin Agro, Havmore supply or sold with majority of 70% mango pulp. Analysis shows that 100% caterers are ready to serve mango pulp and main season for them is March to June its 80-90% served during this period. All caterers prefer to procure mango pulp directly from manufacturers with package of 20-25Kg. There is variety of mango pulp flavour like keshar, alphonso and Mix but most of caterers prefer keshar flavour of mango pulp. Price and quality most matters at the time of purchase. Caterers have given some suggestions such as companies should supplies fresh stock instead of old stock to clear their stock, pack size should be developed as per the requirement, to solve the problem of leakage packaging material should be of best quality.

3.3.13 Urmila Devi and Shashi Kanta Verma (2010) “Information Processing Pattern of Farm Women for Wheat Cultivation” J. Dairying, Foods & H.S., ISSN 0971-4456-Volume 29 Issue 3&4-Sep&Dec 2010

Urmila Devi and Shashi Kanta Verma has conducted study in four villages of Jind and Jaithal district of Haryana to assess the use of information sources and usefulness and satisfaction of the information after used, for this study interview technique used with 165 actively involved farmer women who select random sampling basis. Various satisfaction levels measured with the help of 3, 2, 1 as assigned for completely satisfied, partly satisfied and unsatisfied respectively.

The study analysis ranks first neighbours second family members and third friends as source of communication and information. In mass media source of information television is on first and recorded cassette is on second
rank but they gives partly satisfaction. They conclude as neighbour, friends and family members were very useful sources of information to cultivation of wheat and they are satisfied.


Researchers stated that High Pressure Processing (HPP) is the technology which has potential to modify the proteins properties without damaging nutritional values, so the High Pressure Processing drawn the attention and interest of research. High Pressure Technology use in dairy sector increased. Cheese produced with help of HPP technology. The present study also highlights the effect on cheese of high pressure of processing. HPP reduced rennet coagulation time, preserve cheese, improve overall acceptance, accelerate cheese ripening, improve body structure.


In the present study researchers tries to attempt and evaluate the opportunities and challenges of agro-processing industries in the state of Harayana. The study identified that there is huge scope for various agro-processing industries in the Haryana where good quality supply of raw material available, manufacturing and selling are not major issues. Basic required infrastructural facilities are well developed for smooth working. Development potential of agro processing industry depends upon feed and concentrate industry, rice milling and wheat milling, sugarcane milling, cotton and edible oil processing, vegetable and fruit processing. Development of agro industry generates forward and backward linkage in concerned industry which creates more and more employment opportunities as well with value addition process and product income of farmers increases.

The present study analyzes the role of Andhra Pradesh (AP) cooperative sector with special reference to development and growth of dairy industry. It is based on secondary data. Dairy industry has its own importance especially in rural economic development because of the capacity of dairy sector to develop backward and forward linkage and value addition process. He states that empowerment is the main and simple factor of success of dairy cooperatives. Control of dairy cooperatives in the hand of farmers and it operates first time in Anand village of western India in 1946. According to Sample Survey reports of Department of Animal Husbandry, AP In 2011-12 Capacity of Andhra Pradesh in milk production was 12087000MTs. Guntur is the highest milk producing district in Andhra Pradesh with the capacity of 998000 MTs. East Godavari is the second highest milk producing district in Andhra Pradesh with the capacity of 751000 MTs. Growth rate of India in milk production in 2007-08 was 3.94 per cent whereas in Andhra Pradesh it was 12.42 per cent and in 2011-12 growth rate of India in milk production was 4.97 per cent whereas in Andhra Pradesh it was 7.89 per cent it means that the dairy industry of AP performing better than India's average production performance.

The study state that Andhra Pradesh Dairy Development Co-operative Federation ltd. (APDDCF) is the cooperative organisation started in 1960 under the Andhra Pradesh government to provides marketing support to the farmers under the brand name of VIJAYA. For the development of dairy industry Andhra Pradesh government follow the three-tier pattern of Anand. It include milk-producers’ Co-operative Federations at state level, milk-producers’ Co-operative Unions at district-level and milk-producers’ Co-operative Societies at village-level. It proves the growth engines for milk production to AP. Andhra Pradesh government lunch the project worth Rs.6000 cr as state milk mission to increase milk production. Objectives of this mission are increase 58 per cent in per capita production, increase 25.5
percent productivity per day, increase 33 per cent milch animals and increase 83 percent availability of pasteurized milk.

3.3.17 B.Swaminathan and M.Chinnadurai (2012), “Role of Market Intelligence in Agri-Business Management” SSRN-id2169961,

In this paper researchers state that India is blessed with diversified climatic conditions and soil. Indian agriculture sector not only fulfil the need of the people but also supply sufficiently raw material for agro processing industry but still there is lot of scope to develop in agriculture marketing intelligence. Two phases are used in the process of market intelligence Phase I is of secondary research here bulk of the information comes through trade journals, press releases, regulatory filings, analyst reports, and other published sources of information. Phase II Primary Research most of time collecting information through interview and questioner.

This paper highlights the importance of marketing intelligence like its helps identify the area of opportunity and for improvement, reduce the decision making risk, helps in strategic business analysis etc. Paper deals with problems related with agricultural market intelligence like market size very big and its continuously increasing market intelligence should keep pace. Rural periodic market about 85 percent of the total market is lack of sufficient marketing facilities. Scope for the market intelligence stated as to improve quality standard MI is always needed to producer as well as consumer. To develop suitable pattern of crop and change cultivation practices of farmers. To develop market intelligence government role also very important


The present study state that soya is the one of the plant those provide a high quality protein. It helps to improve life expectancy rate and quality of life. It can be used as pulses as well as oilseed. Soybean contains oil, quality fatty acids, minerals, zinc, phosphorus calcium and iron. Soymilk has its own good test and it can be used and handled in same way as animal milk.
Popularity of soymilk increased in west which used as substitute for cow’s milk.

The present study explained some reasons for why use soymilk as alternative to animal milk. There are three major reasons first ideological reasons means no animal product consumption second reasons is health related which gives positive health results from soya and third Medical reasons Allergy to milk lactose or protein intolerance. It also gives some recipes with use of 100 percent soymilk like Ice cream, Nutri pudding, Kalakand, Rasgulla. Recipes by using soymilk curd like Kadhi and Shrikhand etc. When cost of cow milk and soymilk calculated then it was found that the soymilk is cheaper than cow milk. Soya milk is time and cost wise less expensive as compared to animal milk.


This research paper is based on primary data by interviewing farmer’s it was selected randomly total 90 farmers who has more than two milch animals, 10 framers of each tehsil and total nine teshil of Buldana district taken as sample. Researchers analyze that dairy farmer facing the challenge of lack of green fodder throughout year. Only 27.7 percent farmer able to serve green fodder and availability of water is again major issue which is faced by 64.12 percent dairy farmers. Buldhana district comes under the low rainfall region therefore farmers facing the problem of green fodder and water availability. Still 27.78 % farmer had not available the land remaining 72.22 % farmers not able to optimum use of their land due shortage of water. Constructed separate house is essential need of animal husbandry but yet 57.78% farmers not able to provide this facility. 58.89% dairy farmers reported that they are facing the problem of milk marketing. They conclude that if the marketing assurance is given to the farmers then dairy farmers will defiantly increase the milk production .Most of the farmer face the challenge of water availability for green fodder.
Researchers’ states that Food processing industry in Chhattisgarh is in growing rapidly due do endowment of rich natural resources this state has bright future. As rice is the major crop of this state 600 and more rice mills is in functioning. Ministry of Food Processing Industries (MoFPI) is given approval of two mega park project in Chhattisgarh, Raipur district. Government of Chhattisgarh declared their agriculture oriented industrial policy for 2009-14. In addition of this in 2012 government has formulated Agro & Food Processing Industries Policy. Day 1st Nov. 2002 Chhattisgarh rose on India’s horizon. Development & encouraged balanced regional growth policy adopted by government of Chhattisgarh. More than 80 % of the total population of Chhattisgarh engaged with agriculture and allied activities. For value addition activities such as grading, extraction, processing, distillation and waxing, state government has established 25 production units. These include 4 units is of processing of cashew and 4 units is of potato & tomato grading, distillation 12 units is of aromatic crops, 3 units is of gel or juice extraction of Aloe Vera.


G.Raghu, and S.Radha have written an research paper as ‘The Market Potential of Frozen Food Products in Bangalore’ The objectives of the paper are, to check awareness level among the customers, identify the number of customer of frozen food in percentage, to find out leader of market in frozen food, to find out best and fast selling brand of frozen food. Primary data was collected through questionnaire and direct interview with simple randomly selected 100 customers of different outlets super and hyper markets in Bangalore out of it 68 males and 32 females. The study reveals that 72% respondents are aware about brand and most of the respondent gets aware
through word of mouth its 47%. Majority of customer’s means 42 % customers are satisfied and 26 % customers are extremely satisfied and 4% customers are neutral with the pricing of Maiyas product. For Maiyas product 39% customer satisfied and 16 % extremely satisfied with their quality.

Awareness of availability of frozen food is very good, 93% respondents have knowledge of available frozen food. Demand for Safal Company’s product is highest with 48 % out of 100% and McCam is on second rank with 16%. Cutlet, samosa is the fats selling product of the Safal. While consumer purchasing frozen food 47% people gives importance to the test and 32% people give importance to health. Most preferable frequency of buyers is once in 15 days, 48% respondent selects this frequency. Majority of respondents are professional its 46% and 29 % are students.

The findings of the study indicate that majority of respondents are happy with variety, price and test as well professional and students are the major customer segment. Frequency is once in fifteen days found. Consumers are ready to spend Rs. 40-50 on frozen food.


Ani Babiyans et. al. (2012) has written an article as ‘A changing scenario of food processing technology in India’. The objectives of the article are, to reduce product cost and loss, to improve the innovation and technology, to achieve high quality standards by maximising value addition. They state that there are various ways and techniques like grading, packaging, sorting, etc used to make value addition in food processing. Development of food processing industry creates bridge between agriculture and manufacturing industry.

The present study has been attempted growth of food processing since 1950. In year 1950-51 very few food processing facilities were available. With passage of time number of units are in food processing grown up very rapidly 30, 000 modern rice mills, 55,000 oil expellers, 54,000 bakery units, 5,000
plants of fruits and vegetables processing, 450 dairy plants etc established up to 2000-2001. In 2009-10 According to the Ministry of Food Processing Industries (MoFPI), 5300 units of fruits and vegetables process, for fish processing 450 units, flour mills more than 900 and meat processing 200 units in the organised sector. For more fast development research and development is very essential. In the year 2000-2001 nearly 2000 scientists were concern with technology improvisation, research and development of agro-processing.


Research article state the scope of food processing is very high it covers the horticulture, agriculture, animal husbandry, plantation and fisheries with 60% of employment providing activities. Present study revealed that three major agro-based industries are developed. Rice processing industry its produce 200 million and more food grain. Second wheat processing industry in 1950-51 production of wheat was only 6.5 Mt, after five decade that increased up to 76 Mt. in 2000-2001. With the development of food processing industry about 15% wheat of total the total production used for biscuits, breads etc. Third agro based industry is fruit and vegetables in this sector in terms of production India is next to China. Production in 2000-2001 80 million tonnes of vegetables and 45 million tonnes of fruits. Government expect fruit and vegetable processing industry will grow up to 10% in 2010 and by 2025 it will at 25%.

The present article has been explained various techniques of food processing these are baking technique for prolonged cooking by dry heat, drying technique is one of the oldest one and it has fundamental importance, freezing its necessary for frozen foods, thermal processing it’s a application of pressure cooking ,heating, frying, nano technology its new innovation of industry it includes smart packaging, on demand interactive and preservatives foods, molecular and fermentation food processing technique.

In this present paper an attempt has been done to highlight the contribution and potential of women in health & nutrition improvement through food processing. Self Help Groups (SHGs) operated by women in South Asia; India, Pakistan, Bangladesh, Nepal etc. contributing development related health and nutritional requirement to all. SHGs institution has active participation in fortified food production with availability of local raw material such as pulses, rice, wheat, maize etc. It helps to reduce losses of post harvest and increase development of food processing industry. The study reveals that world population expected reach to 10.50 billion by 2050 to fulfil need of this population food supplies would be to improve by 60%. India has diversified consumer preference and agro-climatic zones. According to economic times 2013 India incurs loss of Rs. 2lakh cr. every year in segment of fruits and vegetable after harvest. On other hand 46% of children are still malnourished. This problem can be solved by increasing area under agriculture, improve productivity, reduce post harvest wastage and control the population.


Researchers have written an article as ‘A Study on Consumption Pattern of Preserved Foods in Satara District’. The study is based on primary data collected from the 517 samples which selected by Stratified quota sampling technique. This study conducted at Mahabaleshwar, Satara city, Panchgani, Wai, Shirwal and Karad six locations of Satara district. Main focused preserved foods products are Holcon, Bamboo Shoot, Baby Corn, Mushroom, Green Peas, Pineapple Slice, Mix Fruit and Mango Pulp. The findings and conclusions are (i) Among preserved food green peas (92%) and mango pulp (51%) highly consumed (ii) Hotels and Caterers are main
consumers of preserved food (iii) More than 70% consumers preferred branded preserved food (iv) Demand for Bamboo Shoots found only in Karad.

3.4 Book Review:


Professor of department of chemistry, Anna University, Chennai Mr. B. Sivasankar’s book furnishes deep overall coverage on the entire important factors of food science in a way easy to understand. The initial chapters represent aspects of world food requirement, aims, food, health and disease, water and its physical properties and structure as well Composition, structure, derivatives, and functional properties of Carbohydrate. Further topics related to the chemical structure and constituents of foods i.e. various nutritional facts and their functional roles, the chemical action and reactions cause for destroy values and quality of the food and changes in nutritional facts during preservations and processing. Chapter number eight detailed discussed about chemical additives used during food processing for specific purpose. Next nine to twelve number chapters are deals with various types of microorganism relevance with food, microbial activity, their beneficial roles, producing modified and new fermented products like dairy, meat, vegetable etc. by fermentation and harmful effects of food infection and viral. Chapter number thirteen and fourteen deals with operating system used in food industry for conversion and processing of food. Use of low and high temperatures, drying and evaporation and irradiation for preservations detailed discussed in Chs 15-18. The Chapter 19 and 20 deals with various types of plant and animal products of milk and dairy and vegetables and fruits products their preservation techniques. The remaining chapters 21 to 26 separately discussed various foodstuffs such as beverages, meat products, cereal products, confectionary items and spices. In the last chapter food quality and safety with quality factors for consumer assessed.
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Kingdom

Senior Consultant food Technologist P. J Fellows written book titled
‘Food Processing Technology: Principle and Practice’. The book provides
deep coverage over food processing introduction to manufacturing
technologies. The book is divided in five parts: Part –I describes basic
principles and properties of food processing. It includes food composition,
quality assurance, monitor and control process, biochemical and physical
properties and engineering principles. Part – II involved chapter second to
seventh it deals with operations like raw material preparation with grading,
cleaning, cleaning and cooling as well Food components separation and
extraction. This part also referred the size reduction of solid and liquid foods,
food mixing, forming and coating, genetic modification and fermentation
techniques. Part – III describes various application of heat to preserved them
or change their quality by using heat of hot or steam water to blanching,
industrial cooking bye moist and dry heat, pasteurisation, heat sterilisation
effects, evaporation and distillation. Processing using hot air or heated surface,
hot oil and radiated energy. Part – IV describe operations to extend shelf life
of foods by removing heat from foods with minimum change in nutrition
qualities and properties. It deals with heat removing by refrigeration and
refrigeration equipments, chilling and freezing effects and equipments of
chilling and freezing. Part – V describes post-processing operations such as
packaging and its types and materials, Storage material handling, logistics and
distribution

Author mainly focused on the technical and business consideration
such as environmental considerations, food related rules and regulations to
increased sustainability. The book interacts with various processing techniques
that are helpful for the study of biotechnology or food science. It furnished
details of the processing equipment and methods, various operating situations
and the results of processing on microorganism and physicochemical properties of foods.

3.4.3 Prof. Da-Wen-Sun (2015) ‘Emerging Technologies for food processing”

Main aim of author presenting detailed review of technical improvement in food processing, highlighting important stressing topics of food processing industry and identify future trends of research. The book is divided in six parts: Part – I describes importance and effects of high pressure food processing on various foods like salad, ready meals, meats, seafood, fruit and fruit products with microbiological aspects. Part – II describes principled, effects and mechanisms of pulsed electric fields processing on foods like beverages, liquid and solid. Part – III- deals with application of non-Thermal processing techniques and their effects of osmotic dehydration, athermal membrane, high intensity pulsed light technology, radio frequency electric fields and ultrasound. Part – IV describes alternative thermal processing and its heating applications like microwave vacuum drying, ohmic and hybrid drying technology. Part – V describe innovation and development in food refrigeration such as ultrasonic assistance for food freezing and freezing process with antifreeze proteins. Last Part – VI describes factors, and technique of minimal processing for fresh fruit, juice, vegetables, ready meals etc. and their packaged material and properties.