Research paper

© 2012 IJFANS. All Rights Reserved, UGC CARE Listed (Group -I) Journal Volume 11, S Iss 3, Dec 2022

# POTENTIAL OF FOOD PROCESSING INDUSTRY IN INDIA AND ANDHRA PRADESH

<sup>1</sup> Rajitha Reshma Bongarala **Designation** -Research Scholar **Department** - Department of commerce and business management **University** - Krishna University Email - rbongarala@gmail.com

<sup>2</sup> Sravani Maddala **Designation** - Assistant Professor **Department** -Department of commerce and business management University - Krishna University Email - sravani me21@yahoo.co.in

DOI:10.48047/IJFANS/S1/120

### **ABSTRACT**

A significant part of India's economy relies on the food processing industry. Connections between agriculture and business are crucial to its success. As a result of its immense potential for value addition, this industry plays a vital role in the manufacturing process. There have been significant shifts in the food industry's production, processing, marketing, and consumption due to the reforms implemented in the 1990s. In the future, India's demand for processed food products is expected to rise, creating possibilities for more value addition, less waste, and new forms of employment. Based on the study's findings, India has a competitive advantage in the food processing industry due to the quality and variety of its raw materials, the expertise of its labour force, the low cost of its operations, and the prevalence of cutting-edge technology. However, the food processing business still needs to fulfil its potential, despite possessing excellent and favourable prerequisites.

**Keywords**: food processing, potential, agriculture, priority, development, employment, industrialization, economy

#### INTRODUCTION I.

The term "food processing" refers to transforming agricultural materials into food or converting one food type into another. It will make items more marketable, last longer, be easier to store and transport, and generate jobs for many people [1]. India's food processing sector is a vital part of the country's economy through its impact on GDP, employment, and investment. It is common knowledge that FPI has had tremendous success and expansion in recent years. The potential for value additions makes this area of the manufacturing business very important. Thus, a developed food processing sector would improve the lives of millions of agricultural households by lowering food waste, guaranteeing value addition, creating new jobs, and increasing export profits [2]. The food processing sector bridges the gap between the agricultural and manufacturing sectors. The transformation of the farm sector is dependent on the food processing industry. Improved food processing in India may help the country's agricultural sector become more diversified, commercialized, and add value. Inclusive growth and food security goals are greatly aided by the expansion of FPI [3]. The agricultural market will benefit from increased output and improved processing of food. As a



Research paper © 2012 IJFANS. All Rights Reserved, UGC CARE Listed (Group -I) Journal Volume 11, S Iss 3, Dec 2022

result, FPI has the potential to propel rural economies forward. Manufacturing-wise, 14.09 percent of all production comes from the food processing sector.

The financial services sector is the largest employer (11.36%) among all other sectors. It is the leader in organized manufacturing and has the most excellent factory density (15.95%). (GOI, 2019). FPI contributed 11.11 percent to agricultural GVA and 8.98 percent to industrial GVA in 2018-2019. When it comes to food production, India has enormous advantages. It can grow a broad range of crops and potentially serve as a major food supplier to the rest of the globe. The nation's growing middle class, increasing disposable income, and evolving tastes contribute to a burgeoning demand for food and beverage items. India's favourable demand and supply dynamics make it a good location for expanding the food sector [4].

### II. REVIEW OF LITERATURE

# A. Employment Generation

The relevance of the construction of the food processing sector in India is realized owing to the high incidence of unemployment. The sector can provide rewarding work for persons of varying levels of education and experience. The prosperity of the local population is crucial to the region's economic growth. That is why having a diversified set of revenue streams is so important. Despite this, with an agrarian economy employing around 40 per cent of the workers, India still needs to build essential ties with the industrial sector. This exemplifies the sector's crucial role in the national economy. The current job climate and worker productivity are the subjects of extensive study in several scholarly books. Dandapat [5] obtained NSSO data from the 67th (2010-2011) round and compared it to the 73rd (2015-2016) cycle. From 2010–11 to 2015–16, they discovered a considerable uptick in the quantity and quality of jobs available at UFPEs. They also found that enterprises that prepare animal feeds, seafood, and edible oil items had higher average labour productivity. "Furthermore, grain mill-related activities made for the lion's share of both the number of firms and the number of persons employed." Shilpa [6] used a non-parametric data envelopment analysis (DEA) model to analyze the industry's performance from 2008-2018 based on technical efficiency and total factor productivity (TFP). They determined that the number of factories expanded by 46 percent between 2008 and 2018. However, throughout this same period, there was a 7% decrease in the overall number of workers. Automated machines are replacing employees as a result of technological advancements. However, in their research covering 1998–1999 through 2013-2014, Akram [7] determined the factor intensity of labour and capital. They observed that the sector is labour-intensive and has a rising return to scale. A few years ago, however, Ali [8] looked at the shift in labour needs in the food processing industry during periods of liberalization. It was determined that the Improvement in TFP results mainly from a shift in technical processes brought about by higher capital input levels. Because efficiency has little impact on total factor productivity growth, investing in one's education and training is essential. Kumar [9] analyzed annual survey of industries (ASI) data from 1989 to 2008. "There is remarkable growth in the food processing business, with Net Value Added (NVA) reaching 6.29 percent." However, job creation is relatively slow (CAGR = 1.25%), and the total number of new jobs is relatively small. Therefore, over that period, the manufacturing sector gained a total of 3.65 lakh new employees. "He also stated that the food processing business is capital expensive owing to tight and onerous labour rules."

Research studies are being undertaken regarding the potential for self-employment in the food processing business. Gogoi [10] evaluated 55 food processing plants in Tinsukia District



Research paper © 2012 IJFANS. All Rights Reserved, UGC CARE Listed (Group -I) Journal Volume 11, S Iss 3, Dec 2022

(Assam) by interviewing entrepreneurs with the use of a timetable. In his research, he discovered that employees are generally untrained, that markets are undeveloped, that strikes are joint, and that government backing is little. He realised the necessity to modify the younger generation's mindset and push them to self-employment. Tiwari [11] studies food processing facilities related to sugar production in the Kushinagar area (Uttar Pradesh) and raises similar concerns. The shortage of trained workers and the absence of entrepreneurial spirit are additional problems in this area. There is social and economic deprivation despite the abundance of sugarcane farms.

Numerous scholars have noted the dearth of available talent in the labour market. The sector is very technical. Thus there is a significant skills gap between those who need work and those who can do the work. Rais [12] focused on the problem above and stated that the skill needs are typically dictated by the degree of technology utilized in the sector, which further informs us about the sort of human resources employed in the business. Despite the industry's enormous potential for creating jobs, their research shows that it needs to be more utilized. "The labour force is highly unskilled, with 80 per cent having a level of education below the tenth standard." In their analysis of Parbhani District food processing, bakery, and confectionery businesses, Asmatoddin [13] draws several parallels (Maharashtra). "They determined that the average bakery employs around 2871.24 people over the course of a year, with skilled employees accounting for 46.36 percent of the workforce and unskilled workers for 27.37 percent." Therefore, they suggested skill development and mentoring as there is a greater demand for skilled workers in the food processing industry. Wages are around 33% lower than typically seen in the industrial sector, and this is only one of several employmentrelated aspects lacking. There is elevated participation of women, but wages are lower than agricultural labourers.

Regular working hours are extended, and productivity is cyclical. Very few social security benefits are available, and working conditions are unhygienic. Prejudice based on a person's caste is also common [14]. Geographical features and dietary preferences can contribute to sector-wide differences. The first study of 30 food processing facilities in West Bengal was conducted by Ghosh [15]. The processing units generated jobs in a wide variety of ways. Employment has been generated at a higher rate by fish processing plants than by those that handle fruit or rice. Whereas it would be possible in Punjab, India, wheat cultivation and related processing might be the primary Source of employment.

The dairy industry is by far the most popular sort of food processing business in India. From rural to urban areas, it has been observed that dairy farming and coops constitute an essential source of employment generation in India. "A field study has been carried out by Khan [16] in Moradabad district (Uttar Pradesh)." Primary data is collected from 5 hamlets by interviewing 150 dairy farmers selected through stratified random sampling. Participation is higher among semi- and medium-sized dairy farms since they have a more considerable excess of labourers (56.67 per cent). Their research led them to the conclusion that dairy farming is now a crucial industry, elevating it from its former status as a supplementary means of subsistence. The continuous supply of milk and dairy products has generated tremendous employment opportunities for rural people. In three different states, Bihar, Punjab, and Uttar Pradesh, Kumar [17] surveyed 675 dairy farming families. "The cooperative member households have contributed higher quantities of milk at higher levels of productivity than the non-member homes." They also have easier access to the market. They have a lower cost per unit of milk produced and get more excellent pricing than farmers who



### IJFANS INTERNATIONAL JOURNAL OF FOOD AND NUTRITIONAL SCIENCES

ISSN PRINT 2319 1775 Online 2320 7876

Research paper © 2012 IJFANS. All Rights Reserved, UGC CARE Listed (Group -I) Journal Volume 11, S Iss 3, Dec 2022

are not part of the cooperative. Gour [18] also supported dairy cooperatives in his study. The cooperative dairy movement in India, he said, has been instrumental in bettering the lives of rural people and creating new job opportunities. However, there is still a lack of education and experience in the dairy industry, which necessitates government intervention.

# B. Capital Requirements

Understanding the challenges and opportunities facing the food processing sector requires considering the availability of sufficient resources. It needs both fixed and working capital for a business to function. Most food processing companies need a large initial investment of money, which is a significant limitation since it discourages new entrants to the market [19]. Bank credit, market loans, and retained profits are the most frequent financing for small-scale enterprises. However, they need help with various issues that prevent them from gaining access to the necessary cash, maintaining appropriate debt ratios, and making effective use of money. Various studies have been performed to ascertain the capital sufficiency and additional needs of the structure and size of the companies. Saha [20] used the nonparametric two-stage network DEA to study the material costs of dairy and grain milling in Bihar. Measures of operational and promotional efficacy may be acquired using this evaluation. He concluded that the high overhead of small businesses is due to their ineffective marketing. Due to the increased cost, small businesses are deterred from diversifying and expanding, contributing to the dearth of midsize businesses. Nithyashree [21] showed how the transformation in the structure of the food processing sector influenced the expansion of that sector's productivity.

The investment efficacy of businesses and the variables that affect that efficiency were also assessed. ASI is contacted for aggregate industry statistics and data on individual businesses. The development of technology is evaluated using a semi-parametric technique, while the effectiveness of investments in terms of their utilization of resources is evaluated with a fourstage DEA. They discovered that structural change—in terms of production, labour, and technology—had a beneficial effect on the expansion of the food processing sector. On the other hand, the return on investment is just 11%. They advocated for technological advancements and a stable financial system to boost the effectiveness of investments. In light of the firm's size and market share, Desai [22] investigated the elements that influence the financing decision of a food manufacturing company. The impact of relevant variables on 40 enterprises over five years is determined by secondary data collection (literature research) and multiple regression analysis (2013-14 to 2017-18). Several variables were shown to affect a company's borrowing patterns significantly. These included liquidity, growth potential, tangibility, operational cash flows, etc. Comparing businesses, they discovered that small businesses are more likely to rely on borrowing in the case of a profit. In contrast, big businesses are more likely to rely on retained profits and the stock market.

Research paper

© 2012 IJFANS. All Rights Reserved, UGC CARE Listed (Group -I) Journal Volume 11, S Iss 3, Dec 2022

#### III. FOOD PROCESSING SECTOR -GROWTH POTENTIAL



The following graphic depicts the numerous elements that will contribute to the future demand for processed food. If India's agricultural production is increased by government programs without equivalent investment in processing facilities, this mismatch might lead to rural hardship and a decrease in farmers' income. Increasing the value of the farmer's goods is the single most effective way to strengthen his negotiating position. This will happen if agriculturalists can meet the norms and needs set by consumers. Farmers can better cater their products to the market's demands if food processors and merchants generate the required demand for their products. It is a win-win because farmers get more money, and more people get jobs. The customer also stands to gain since there will be more options to choose from perishable food items.

A healthy supply chain will efficiently connect the farmer to the manufacturing and retail sectors. The farmer is driven to sell his goods to the "Adathiya (Broker)" without waiting for a higher price due to the lack of on-farm chilling and grading arrangements and the delayed development of cold chain infrastructure. In order to increase his crop's worth and get a higher price from processors, a farmer needs the ability to sort and store his harvest on-site.

In the early stages of the food processing industry's growth, private investment in infrastructure and supply chain components, including grading and packaging centres, controlled environment storage facilities, reefer vans, testing labs, etc., may not be feasible. As a result, a significant increase in public investment is required to support these elements of rural infrastructure so that the private sector may assume responsibility for the remaining financially viable elements of the supply chain. This is supported by evidence from industrialized nations, where the state has actively constructed rural infrastructure. "This Ministry has stimulated development in this sector by measures such as carefully calibrated subsidies, novel techniques, empowering rural producers and consumers through increased awareness, and providing assistance to entrepreneurs in the form of technology and training."

#### IV. FOOD PROCESSING INDUSTRY IN INDIA

More advanced food processing helps cut down on food waste, boosts value addition, encourages farmers to grow a wider variety of crops, provides a greater rate of return to those farmers, creates jobs, and boosts export revenues. Food insecurity, food inflation, and access



Research paper © 2012 IJFANS. All Rights Reserved, UGC CARE Listed (Group -I) Journal Volume 11, S Iss 3, Dec 2022

to healthy food for everyone are all problems that the efforts of the agricultural industry may alleviate.

India's agricultural output has been trending all year upward. In 2018, India had the third-best position in world agriculture for grains, the first-best position for pulses, the second-best position for vegetables, the first-best position for fruits, the first-best position for milk, the third-best position for eggs, etc. The food processing industry has benefited from the availability of cheap labour, rising consumer demand, and government subsidies. The food processing industry has grown at an AAGR of around 11.18 percent during the five years ending in 2019–20, whereas the agricultural sector has grown at an AAGR of about 4.19 percent over the same period (at 2011-12 prices). The food processing industry in India has grown into a significant part of the economy in recent years, drawing attention to its impact on GDP, job creation, and investment. In 2019-2020, the industry accounted for as much as 9.87 percent of GVA in the Manufacturing sector and 11.38 percent of GVA in the Agriculture sector (at 2011-12 prices).

Table 1: Gross Value Added (GVA) by Food Processing Industries (FPI) at Constant 2011-12 Prices

Economic Activity	2017- 18	2018- 19	2019- 20
<b>GVA -All India</b>	1	1	1
	20.34	27.44	32.71
<b>GVA Manufacturing</b>	2	2	2
	2.09	3.26	2.69
<b>GVA Agriculture, Forestry And Fishing</b>	1	1	1
	8.40	8.87	9.69
GVA-FPI	1	2	2
	.93	.32	.24

(rs. in Lakh Crore)

Source: National Accounts Division, Central Statistics Office

There were 20.05 lakh people employed in the recognized food processing industry in 2018–19, as reported by the latest Annual Survey of Industries (ASI). According to the National Sample Survey Organisation (NSSO) 73rd Round, 2015–16, 14.18 percent of all manufacturing jobs were held by those working in the unregistered food processing industry. This section provides a snapshot of the food processing industry's employment landscape:

**Table 2: Employment in Food Processing Industry** 

Sector	Food Processing*	Overall Industry	(%) Share of F.P.
	Industry		sector
Registered (2018- 19)#	20.05 lakh	162.80 lakh	12.32
Un-incorporated (2015-16)**	51.11 lakh	360.41 lakh	14.18

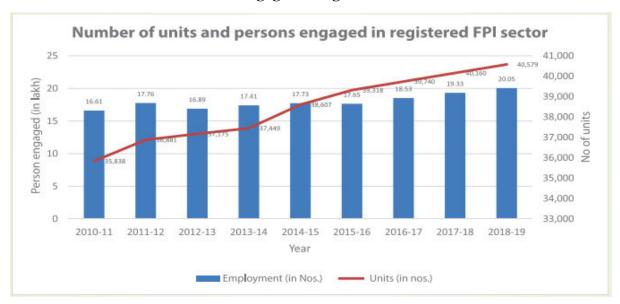
<sup>\*:</sup> Components of food and drink are included; #: Data from the 2018-19 Annual Survey of Industries;



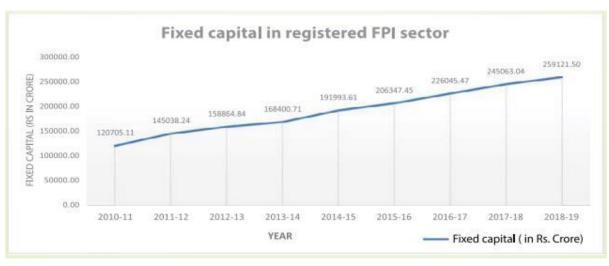
Research paper © 2012 IJFANS. All Rights Reserved, UGC CARE Listed (Group -I) Journal Volume 11, S Iss 3, Dec 2022

\*\*Source: "NSS 73rd Round Report No.582 (73/2.34/2): Economic Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India (July 2015 - June 2016)"

Chart 1: No of Units and Persons engaged in registered FPI sector



**Chart 2: Fixed Capital investment in FPIs** 

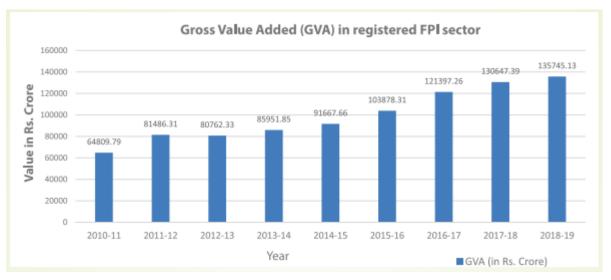


**Chart 3: Gross Value Added in registered FPIs** 



Research paper

© 2012 IJFANS. All Rights Reserved, UGC CARE Listed ( Group -I) Journal Volume 11, S Iss 3, Dec 2022



According to the most recent Annual Survey of Industries (2018–19), there were 40,579 food processing enterprises in the nation. Andhra Pradesh has the greatest concentration of registered factories in the FPI sector industries (13.93%), followed by Tamil Nadu (12.28%), 'Telangana (9.61%), Punjab (7.57%), and Maharashtra (6.88%), as reported by the Annual Survey of Industries (2018-19).

Sl.	Name of the	Number of Registered	Number of Unincorporated Enterprises
No.	State/U.T.s	Units as per Annual	Manufacturing Food and Beverages as
		Survey of Industries	per 73rd round Survey of NSSO, 2015-16
		2018-19	
1.	Andhra	5653	1,54,330
	Pradesh		
2.	Tamil Nadu	4982	1,78,527
3.	Telangana	3900	80,392
4.	Punjab	3114	63,626

Source: Annual Survey of Industries 2018-19, NSSO 73rd round (2015-16)

During 2020–21, India exported goods worth US\$291.17 billion. Of this amount, 13.2 percent came from the agri-food and processed food sectors.

For the fiscal year 2020–21, India imported goods from the agriculture and food processing sectors to US\$20.99 billion, or 5.3% of the country's total imports (US\$393.61 billion).

**Table 3: India's Food Imports/Exports (in US\$ million)** 

Sr.no.	<b>Commodity Description</b>	Exports 2021- 2022	
		(Apr-Oct)	(Apr-Oct)
1.	MEAT AND EDIBLE MEAT OFFAL.	1,947.4	1.9
2.	FISH AND CRUSTACEANS, MOLLUSCS AND	4,218.3	90.1
	OTHER AQUATIC INVERTEBRATES.		
3.	DAIRY PRODUCE; BIRDS' EGGS; NATURAL	265.8	18.6
	HONEY; EDIBLE PROD. OF ANIMAL ORIGIN,		
	NOT ELSEWHERE SPEC. OR INCLUDED		
4.	EDIBLE VEGETABLES AND CERTAIN ROOTS	859.9	1265.4



Research paper © 2012 IJFANS. All Rights Reserved, UGC CARE Listed (Group -I) Journal Volume 11, S Iss 3, Dec 2022

	AND TUBERS.		
5.	EDIBLE FRUIT AND NUTS; PEEL OR CITRUS	740.6	2170.0
	FRUIT OR MELONS.		
6.	COFFEE, TEA, MATE AND SPICES	2,337.8	520.8
	India' total	233,912.6	328,513.0

Source: DGCIS, Kolkata

Table 4: India's Share in Global Food Trade

	2019	2020
World food export	1488060.0	1525621.1
World food import	1521161.4	1553119.4
India's food export to the	33617.8	35200.7
world		
India's food imports from	19183.7	20365.6
world		

Source: ITC Trade Map (2021)

### V. GOVERNMENT INITIATIVES

The Indian government is encouraging the food processing industry with several laws and financial incentives. The food processing industry has been designated a Make in India focus area because of its importance and status as a high-priority sector. Investments, new ideas, and the introduction of best practices are all targets of many programs that have been launched.

Mega Food Parks was set up with government funding to alleviate supply chain snarls caused by inadequate infrastructure (MFP). Based on the concept of 'clusters,' this plan seeks to improve infrastructure and construct a solid supply chain in order to cut down on food waste, raise agricultural profits, and provide new jobs. To follow suit, 42 mega food parks and 236 integrated cold chains have been given the green light to begin construction on contemporary facilities.

Creating an Environment Favorable to Investments Through the automated approach, FDI may reach its maximum of 100% in the food processing sector. In India, foreign direct investment (FDI) is welcome in all sectors, including producing and selling food goods (even through electronic commerce). The goal is to encourage more foreign direct investment (FDI) in the food business to continue expanding.

Capitalization and Credit Now, food processing facilities may apply for loans under the government's Priority Sector Lending program. NABARD has been responsible for increasing the availability of cheap loans to the food processing industry.

Learning and Improvement The government collaborates with educational establishments like the National Institute of Food Technology, Entrepreneurship, and Management (NIFTEM) and the Indian Institute of Food Processing Technology to improve employees' abilities (IIFPT). Human resource and skill development have been prioritized with the introduction of programs like the Pradhan Mantri Kisan Sampada Yojana (PMKSY).

Growing International Trade, The primary goal of India's 2018 export strategy for agriculture is to broaden the country's export base. Exports of goods with a high value-added are encouraged under this strategy. Eliminating export duties, quotas, and prohibitions on



Research paper © 2012 IJFANS. All Rights Reserved, UGC CARE Listed (Group -I) Journal Volume 11, S Iss 3, Dec 2022

processed food goods and adopting a cluster-based strategy to encourage innovation in the food processing industry.

### VI. CONCLUSION

Despite India's leading raw material exporter status, it processes and sells less than 10% of its agricultural output. This is due, in large part, to the country's enormous customer base, which favours fresh produce over manufactured food. At the national level in India, the desire for fresh meals is a direct outcome of the slow rate of urbanization and the low level of women's labour force involvement. The empirical research implies that the consumption of processed foods rises as more women join the workforce (Wang et al., 2015). By maintaining quality controls, India might soon become a leading supplier of processed foods. A further boost might come from government programs aimed at improving quality standards.

There will be a rise in the consumption of processed foods because of the growing urban and youthful population. India's food processing sector has to make investments in infrastructure in order to keep up with demand. In order to function, businesses rely on farmers and other producers to provide them with consistent quantities of raw materials that adhere to strict quality standards and are sold at affordable costs. Organizations that bring together farmers and agribusiness owners, or "farmer producer organizations," may help create a more reliable supply chain. Stronger ties to the industry might cut food waste, especially in perishables, while simultaneously guaranteeing farmers a continuous cash stream.

### **REFERENCES**

- [1] Government of India. (2018). Annual Report-2017-18. New Delhi: Ministry of Food Processing Industries
- [2] Government of India, Ministry of Food Processing Industries. (2011 a). Draft Report of Working Group Food Processing Industries for 12th Five-Year Plan
- [3] Bharti, D. K., Gangwar, L. S., & Kumar, S. (2003). Growth of the food processing industry in India. Indian Journal of Agricultural Economics, 58(3), 614
- [4] Government of India. (2014). Ministry of Food Processing Annual Report 2013-14. New Delhi, India, pp.11-24
- [5] Dandapat A, Dasgupta S, Das P. Growth status of unorganized food processing enterprises in India. International Journal of Social Science. 2020;9(4):291-299.
- [6] Shilpa NC, Amulya M. Growth and performance of food processing industry in India. The International Journal of Business Management and Technology. 2019;3(6):41-50.
- [7] Akram V, Ahmad MI... Does Factors of Production Matter? An Evidence from Food Processing Industries India. CAMEC Journal. 2017;3.
- [8] Ali J, Singh S, Enefiok EP. Efficiency and productivity changes in the Indian food processing industry: Determinants and policy implications. International Food and Agribusiness Management Review. 2009;12(1):43-66.
- [9] Kumar P. Structure and Performance of Food Processing Industry in India. Journal of Indian School of Political Economy. 2010;22:1-4.
- [10] Gogoi MM. Financial Health of Food Processing Industry in Tinsukia District of Assam. International Journal of Trend in Scientific Research and Development. 2017;1(6):647-652.
- [11] Tiwari AK, Pandey RK, Sharma VN. Status of the sugar industry in Kushinagar district, U.P. Transactions of the Institute of Indian Geographers. 2016;38(1):117-126
- [12] Rais M, Shatroopa A, Sharma N. Food Processing Industry in India: S&T Capability, Skills and Employment Opportunities. Journal Food Process Technology. 2013;4(9).



### IJFANS INTERNATIONAL JOURNAL OF FOOD AND NUTRITIONAL SCIENCES

### ISSN PRINT 2319 1775 Online 2320 7876

Research paper © 2012 IJFANS. All Rights Reserved, UGC CARE Listed (Group -I) Journal Volume 11, S Iss 3, Dec 2022

- [13] Asmatoddin M, Pawar GT, Atefuddin M. Employment and Income Pattern in Bakery and Confectionary Units in Maharashtra India. Connects Journal. 2008;3(1&2):1-4
- [14] Rao NC, Dasgupta S. Nature of employment in the Food processing sector. Economic and political weekly. 2009;44(17):109-115.
- [15] Ghosh JK, Khan FH, Datta V. Understanding the Growth and Prospects of Agro-Processing Industries in West Bengal. Agro-Economic Research Centre Visva Bharti Santiniketan (Study No. 159); 2009.
- [16] Khan N, Parashari AK. Employment generation through dairy farming in district Moradabad: A Case Study. International Journal of Emerging Trends in Science and Technology. 2014;1(10):1655-1661.
- [17] Kumar A, Shinoj P, Jee S. Do dairy cooperatives enhance milk production, productivity and quality? Evidence from Indo-Gangetic plains of India. Indian Journal of Agricultural Economics. 2013;68(3).
- [18] Gour D. Role of cooperatives in Dairy Development in India. Research Analysis and Evaluation. 2013;4(40).
- [19] Singh SP, Tegegne F, Ekenem E. The food processing industry in India: challenges and opportunities. Journal of Food Distribution Research. 2012;43(1):81-89.
- [20] Saha D. Food Processing in Bihar: Efficiency in Physical Costs. Economics of the Food Processing Industry. 2020;149-197
- [21] Nithyashree ML, Pal S, Singh A, Jha GK. Structural change, investment efficiency and productivity growth in the Indian Food Processing Industry. Agricultural & Applied Economics Association; 2020.
- [22] Desai J, Desai RR. Critical factors of borrowing in the food processing industry of India. Journal of Commerce & Accounting Research. 2020;9(2):16-26

