

Food Processing Sector in India

Opportunities and Challenges

September 2022



Message from Nexdigm Group Executive Chairperson

In recent years, the Government of India has identified a number of focus sectors for the overall development of the country which leverages the benefits of India's geographic, infrastructural, production, domestic consumption, and evolving technological capabilities. Among these sectors, Food Processing has gained tremendous momentum because of its inherent benefits to the nation's economy and its populace at large, and is expected to do well along with other sectors due to India's rich history of being a top agrarian country worldwide, the evolving demography, changing consumption patterns, and more.

With several existing schemes and initiatives to promote the Indian Food Processing sector, the Government recently launched a Production Linked Incentive scheme specific to the sector. This has already resulted in many major international and domestic Food Processing companies investing or expanding their operations in India to tap the intrinsic potential of this sector and cater to domestic as well as global markets. This paper exhibits the opportunities which are likely to be capitalized on by industry players in coming years and further aid in the double-digit growth rate that is to be expected.

Realizing the potential in the Food Processing sector and the increasing interest from the Indian Government, Nexdigm has focused on supporting businesses within this sector with our Business and Professional Services for a few years now. Nexdigm regularly prepares and publishes thought leadership, and our experts are featured at various speaking engagements that help companies understand the environment and support them in taking advantage of opportunities in the sector.

I would like to extend our sincerest gratitude to the **Federation of Indian Chambers of Commerce & Industry (FICCI)** and the various **industry experts** who contributed their thoughts, views, and inputs to make this a holistic report. This would not have been possible without their encouragement and guidance which has helped to bring this thought leadership to fruition.

Finally, I would like to thank all the Nexdigm associates who have spent countless hours and effort in researching statistics, consolidating information, analyzing data, and providing insights to ensure this report provides value to our readers across the globe.



Guljit Singh
Group Executive
Chairperson
Nexdigm

Foreword from FICCI

The true extent of a country's food processing capabilities is intrinsically linked to its technological prowess and agricultural production. While India is a leading producer of many food products such as milk, fruits, vegetables, and eggs, the country is still at a nascent stage in terms of processing, partly due to consumption habits and lack of technologies. In comparison, we can see much higher levels of processing in major economies such as the US, China, Germany, etc. and this clearly showcases that the Indian food processing sector, with its huge production potential, is at the cusp of a major shift that will outpace the growth of several other sectors and possibly the overall economy in coming years.

While food production within the country always reached a net positive, wastage during storage and transport has been high, reaching levels of approximately 40% in certain sub-segments. This high degree of wastage can be managed with better farming methods, supply chain efficiencies, and processing of the produce for value-added products. Processing can help preserve these products for a longer time, create a variety of value-added products that are in demand, fetch more value globally, and upgrade the entire value chain of the food sector.

As the country recovers from the effects of the pandemic, there has been a shift in consumption patterns and customer wants. In Tier I cities that have robust supply chains and adequate cold chain infrastructure, consumers are now seeking not only Ready-To-Eat/Ready-To-Cook processed foods but also foods with more functional properties such as protein-rich, high-fiber, vegan, organic, nutrient-rich, and more. Similarly, in Tier II and Tier III cities, there has been a growing demand for Ready-To-Eat foodstuffs.

Since the launch of the 'Make in India' program in 2014, India has been encouraging companies to develop, manufacture, and assemble products in India. The announcement of the Production Linked Incentive (PLI) scheme for food processing companies in 2021 further encouraged companies to participate in segments across the value chain including production, distribution, innovation, and marketing.

The government's focus on developing this sector and the attractive schemes launched signify their commitment to making India a global hub and champion of food processing in the future.

This report collaboratively developed by FICCI and Nexdigm provides insights into India's diverse food processing sector. It provides an overview of the macro indicators of the sector, deep dives into key sub-sectors exploring crucial growth drivers, challenges, and emerging trends along with pearls of wisdom from industry experts. The report covers an overview of the investment landscape as well as the surrounding regulatory regime, incentives and initiatives available for business in the sector. We hope you find this report insightful, practical, and useful for your business needs.



Arun Chawla
Director General
Federation of Indian Chambers
of Commerce & Industry

Foreword from Nexdigm

India has always been a predominantly agrarian society. From the time of independence till the present day, the agricultural sector has been the major employer within India. However, the share of employment has decreased from approximately 60% in the 1950s to about 40% today.

The rapid urbanization, increasing disposable income, greater accessibility to markets, and increased awareness about safer and healthier foods has led to a change in consumption patterns across the country. As more people move to urban cities in search of better opportunities, there is a shift in demand for food items from lesser primary processed food items to more processed items on account of convenience, time-saving on cooking, healthier options, etc. in these select locations.

Segments such as Ready-To-Cook/Ready-To-Eat and frozen/chilled food categories have witnessed tremendous growth and processed foods such as cheese, yogurt, and biscuits are becoming staples within the country. While India features among the leading agricultural producers in the world, its share in food processing lags significantly and will only grow at a faster pace with changing demographics, urbanization, consumer patterns, etc.

Upon identifying the tremendous scope for growth, the Indian Government announced Production Linked Incentive (PLI) schemes for the food processing sector to encourage domestic processing along with schemes relating to specific sub-sectors by their respective ministries. The government aims to attract large domestic and international players to set up their processing plants in India for both domestic consumption as well as for exports.

Recognizing the benefits, many large processing companies have entered the Indian market, either by setting up their own facilities or via mergers and acquisitions. Such large greenfield investments have ranges averaging from USD 100 million to USD 300 million. Furthermore, while the total number of M&A deals in this sector may be modest, the deal value has been quite significant, increasing from USD 50 million in 2020 to USD 876 million in 2021 for disclosed deal sizes.

With a strong focus on developing the sector, increasing demand for processed foods both domestically and abroad, and significant infrastructural investments, India's food processing sector is poised for a period of rapid growth that may redefine consumption trends for the next decades.

Nexdigm and FICCI are pleased to present a comprehensive report on India's food processing sector which sheds light on the current strengths and challenges, recent and emerging trends across major sub-sectors, a high-level overview of incentives, and insights from industry experts on the future of the sector and more.



Mayank Lakhani
Senior Managing Director,
Nexdigm
Board Member,
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Executive Summary

With demographic transition, urbanization, and consumers seeking healthier and a wider variety of food and beverage alternatives, the Indian food processing sector is at the cusp of rapid change. The changes in consumption patterns have further been accelerated due to the pandemic. The Indian food ecosystem is evolving swiftly to ramp up capacities, improve technologies and capabilities, and meet the new increasing market needs domestically as well as globally.

The Indian food processing sector is expected to grow to over half a trillion dollars by 2025 (from ~USD 260 billion in 2020, expected to achieve a CAGR of over 15%). This growth is expected to be driven by a fast-changing market, much-needed government impetus, capacity and capability building, foreign investment, and more. It is impossible to not be impressed by the sheer production power that India has in terms of the food sector. However, it still continues to be plagued by age-old problems related to outdated practices, lower technological integration in farming, low processing levels, and high wastage, among others.

Primary produce still constitutes 50% of the food sector, showcasing the immense potential for food processing and value addition in India. The food processing sector is constituted of six major sub-sectors (Dairy, Fruits and Vegetables (F&V), Animal and Poultry, Marine, Grains and Cereals, and Consumer Foods) supported by the Cold Chain sector. India ranks 1st in milk production and 2nd in F&V with the top position in select items. It also has the largest livestock population (cattle and buffalo), is the leading exporter of buffalo meat, ranks 2nd in egg production, and is among the top 3 countries in terms of fisheries and aquaculture. The level of processing across each of these sub-sectors ranges from levels as low as 5% to a maximum of 35%. These processing levels average out to only about 10% at an overall level, which is much lower in comparison to developed economies and some other developing economies. Wastage, as high as up to 40%, are seen across sub-sectors, which opens a host of opportunities for scaling the warehousing and cold chain infrastructure, thereby increasing the scope of food processing in the country which currently is playing catch-up as we move forward.

In terms of the trade situation, India has witnessed a net trade surplus for the food sector. India is a major exporter of rice, buffalo meat, spices, fresh vegetables such as onions and okra, along with fruits such as bananas, mangoes, and grapes. The major destinations of these exports are spread across the Middle East and North America. India imports pulses, alcoholic beverages, and citrus fruits from Europe and certain South-East Asian countries.

Over the years, India has seen a steady flow of Foreign Direct Investment (FDI) in this sector. The food processing sector allows 100% FDI through the automatic route. As a result, the sector has attracted FDI in excess of USD 11 billion through organic as well as inorganic routes from April 2000 to March 2022.

To promote the growth of the sector, the Government of India has launched several initiatives and incentives including the Production Linked Incentive (PLI) scheme, which was recently launched for certain value-added food products such as specific cheese products, processed marine products, etc. The scheme has a financial outlay of nearly USD 1.5 billion. Close to 60 applicants including large players such as ITC, Haldirams, Nestle, Amul, Parag Milk, etc. have been approved under this scheme. The long-standing PMKSY (Pradhan Mantri Kisan Sampada Yojana) scheme provides incentives across several areas including new processing set-ups, cold chain set-ups, the set up of mega food parks, etc. Many schemes such as agri-finance and agri-insurance schemes have been launched to safeguard the interests of farmers and bolster farm production.

Indian food and related sectors are regulated by the Food Safety and Standards Authority of India (FSSAI) which forms laws and rules relating to food safety and regulation in India. While these laws are formed by FSSAI to cover various aspects such as licensing requirements, standards, food additives, labelling and display guidelines, recall mechanisms, etc., they have come a long way from mere prevention of adulteration guidelines. Indian laws are now aligned with CODEX, allowing a degree of standardization on various laws internationally applicable to food and agriculture related businesses. Food businesses and other stakeholders have and must keep partaking in representations on draft regulations for the inclusive evolution of food laws.

With changing consumer needs, the government's focus on growth of this sector, developing infrastructure, and improvements in agriculture, India's food processing ecosystem is at an inflection point, poised for exponential growth. Domestic players as well as international players have identified this potential and are gearing up for this paradigm shift which will see India move up the global rankings as one of the top food processing countries.



Understanding the Food Processing Sector in India

1. Macro Indicators
2. Understanding the Value Chain
3. An Overview of the Sector
4. Trade Information



MACRO INDICATORS

1

The Indian Food Processing Sector has witnessed a lower double-digit growth rate over the past few years, however, experts predict it to grow at a CAGR of over 15% and reach USD 535 billion by FY 2025-26. Factors such as the growing population,

increasing household disposable income, changing lifestyle and consumption patterns, coupled with demand for value-added and healthier food items continue to be drivers for growth in the sector.

India commands a leading position in most of the food sub-sectors (from a production standpoint), however, the overall processing level is only about 10%. Low adoption of processing technology, small farm sizes, traditional farming techniques and limited mechanization, and farmer's opting to grow simple table-grade products continue to be hurdles in the development of the sector.

The contribution of value-added processing food items lags in comparison to several other economies. With the astounding production prowess, variety of farms and other produce, the massive size of land under agriculture, favorable climatic conditions, etc. providing a strong foundation for the sector, the lower level of processing offers significant potential for growth. While the government and value chain participants are undertaking several steps to address these issues, there is still a long way to go.

A more focused approach from the government in the form of increased expenditure on associated infrastructure, greater utilization and integration of the latest technology, private sector participation, and innovation can transform the sector and move India closer to utilizing its ability to the fullest.

Some of the key areas showcasing India's strength from a production standpoint and areas of improvement in comparison to select other economies of the world are covered in the tables below.

Strengths

Countries	% of Arable Land	Global Rank (F&V)	Global Rank (Milk)	Global Rank (Eggs)	% Employment in Agriculture	% Agriculture Contribution to GDP
India	52.3	2	1	2	43	16.8
US	17.2	4	2	3	1	1.1
China	12.7	1	4	1	25	7.3
Brazil	6.7	3	5	5	9	6.9
Russia	7.4	6	7	7	6	3.8
Japan	11.3	35	25	9	3	1
France	32.8	16	8	11	3	1.6

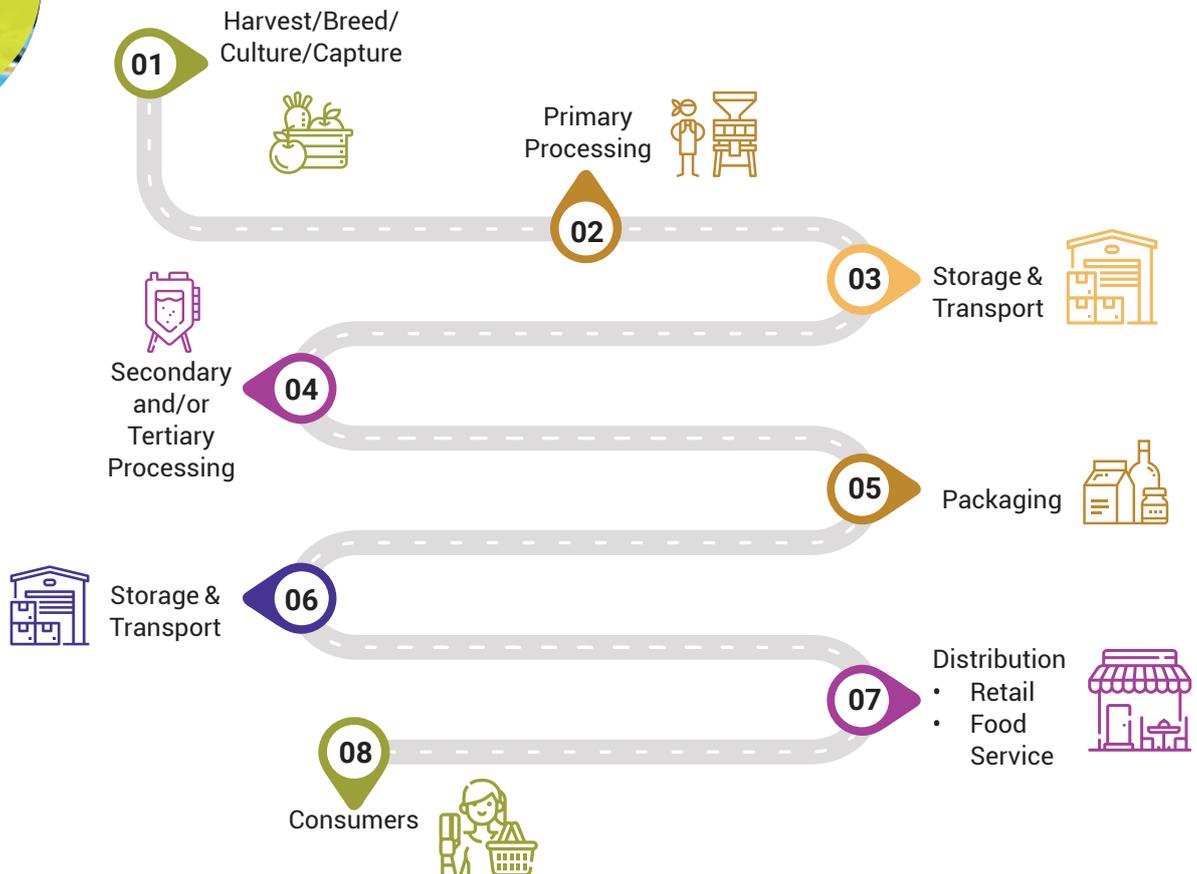
Improvement Areas

Countries	Secondary & Tertiary Processed (%)	Average farm size in acres	Protein supply grams per capita per day 2017-19	Kcal intake per capita per day 2019-2021	% of Under-nourishment 2019-2021	Avg. Primary Crop Yield (tonnes/ha) 2020
India	50	3	64.3	2594	16.3%	8.8
US	58	434	114.3	3864	<2.5%	18.8
China	67	2	103.1	3336	<2.5%	14.8
Brazil	50	159	94.3	3235	4.1%	12.4
Russia	51	48	103	3365	<2.5%	7.1
Japan	50	6	87	2640	3.2%	15.5
France	61	142	108.7	3515	<2.5%	14.5

UNDERSTANDING THE VALUE CHAIN

2

Food Value Chain



Food Processing Types



Primary

It involves basic processing of produce into a usable or saleable commodity through cleaning, grading, sorting, winnowing, milling, drying, shelling nuts, etc.

Examples: Fruits, vegetables, raw wheat kernels, etc.



Secondary

The primary product is modified/alterd in a form whereby the original essence of the product is retained but the produce is suitable for home cooking/consumption.

Examples: Grain flour, spices, wheat flour etc.



Tertiary

It includes manufacturing higher value-added products such as ready-to-eat foods, heat-and-serve food, or ultra-processed food items which involve a combination of more than one food item/ingredient and is served in forms either ready for consumption or almost ready for consumption.

Examples: Jams, health drinks, instant noodles, frozen pizzas, packaged snacks, confectioneries, ice-creams, donuts, etc.



AN OVERVIEW OF THE SECTOR



Industry Size

By 2030, India's annual household consumption is expected to triple, making it the 5th largest consumer market. The Indian food processing sector is currently the 5th largest

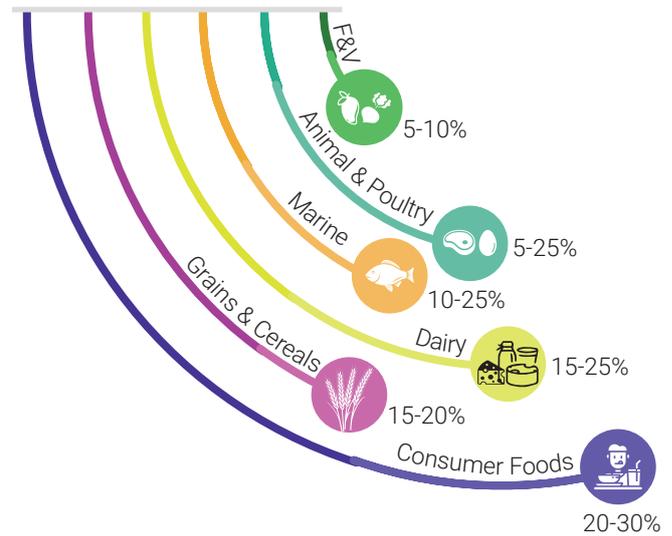
manufacturing sector in the country with an 11.6% employment share and a 10.4% share in India's total exports.

The Indian food processing sector is expected to reach USD 535 billion by FY 2025-26, at a CAGR of about 15.3% over the coming years. While the food processing sector size of developed economies such as the US and China is much larger, it is expected that the Indian food processing sector will outpace their growth in coming years on account of the lower base. The sector offers huge opportunities for growth supplemented by a strong production position, increasing household disposable income, changing consumer patterns, government incentives, and growing supporting structures.

Global Processing Share

Currently, only 25-30% of the Indian food processing sector is organized. The sector is majorly dominated by primary processing i.e., consumption of raw food items which is as high as 50% amongst different processing categories. When comparing India's position to other developed economies like the US, China, and some European countries such as Germany, Netherlands, etc., we notice that their contribution to secondary and tertiary level processing is approximately 60-90%, clearly outlining the potential for growth in the Indian food processing sector.

Sub-sector Processing Percentage



The Indian food processing sector comprises of six major sub-sectors namely Dairy, Fruits and Vegetables, Animal and Poultry, Marine, Grains and Cereals, and Consumer Foods. It is estimated that the processing level across each of the sub-sectors range from as low as 2% to 35%. Dairy has the highest processing level of 35%, wherein packaged milk for daily consumption in urban areas dominates the dairy sector with the largest share, whereas its shelf life only lasts for 12-48 hours. It is important to note that overall estimated processing levels average out to about 10% only which is much lower compared to several other countries.

India vs World (% share)





Growth Drivers

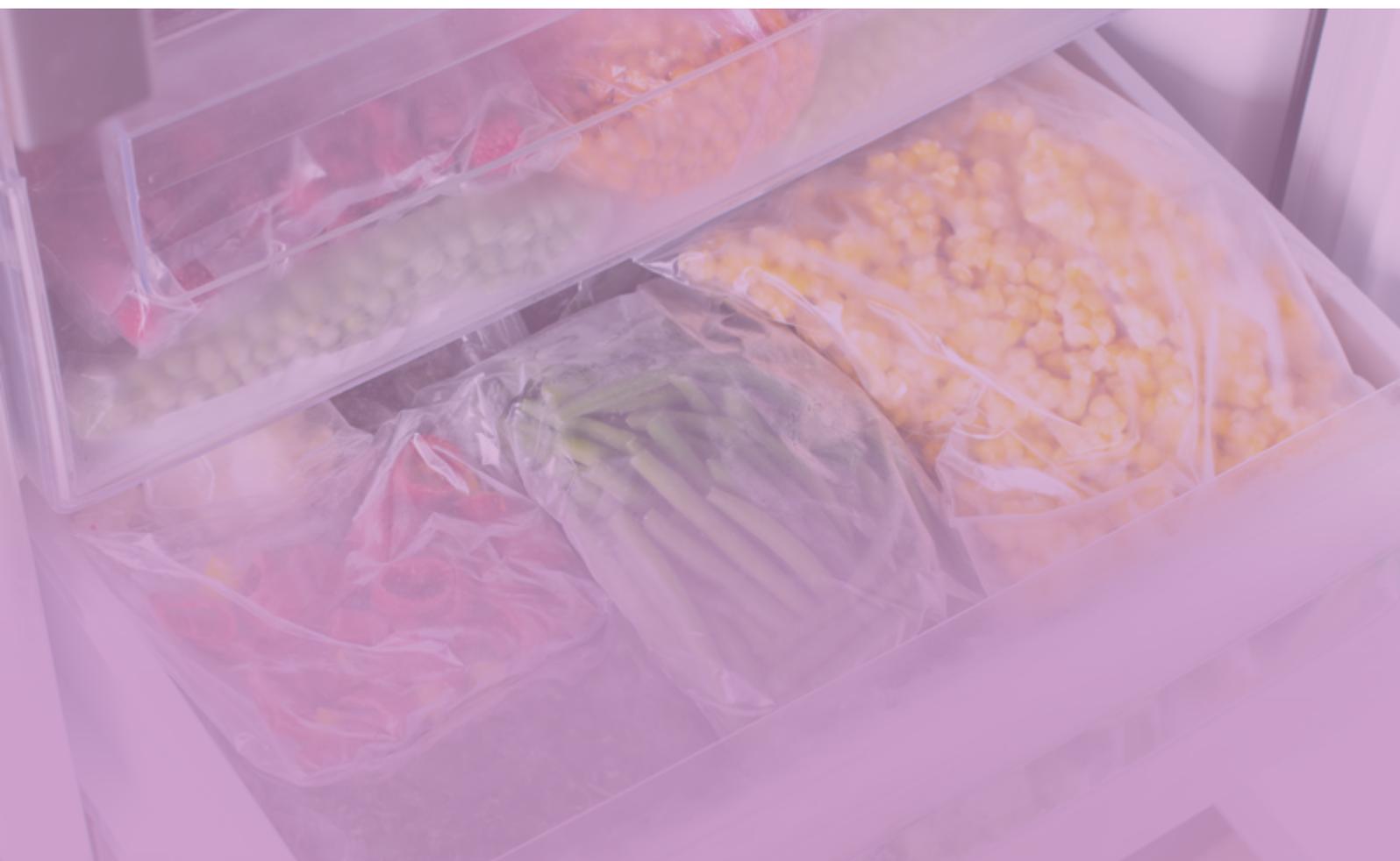
Key factors that will drive the growth of the Indian food processing sector are listed below:

- Estimated three-fold increase in household disposable income. Historically, it has been noticed that once per capita income crosses a certain level, it is the tipping point for consumption to increase manifold, and in many regions in India, we are at that tipping point.
- Rapid urbanization and expansion of organized retail including e-commerce across the country, even in rural areas.
- Shift or change in consumer patterns towards value-added processed food items.
- Increased awareness of minimum daily calorie and protein requirements.
- Move towards consuming organic food items, nutraceuticals, and healthy substitutes.
- A number of start-ups focusing on the farm-to-fork supply chain space.
- Government policies, initiatives, and incentive schemes.

Challenges

The growth in the food processing industry has been significant and is expected to get better, however, much more effort is required. Despite the increase in participation by private players and more government initiatives, most Indians still do not meet the daily calorie and protein requirements. Some of the obstacles faced are listed below.

- Small farm sizes, lack of mechanization, traditional farming methods, growing only table-grade products.
- High wastage across the different sub-sectors and the value chain.
- Inadequate cold chain infrastructure for post-harvest storage, transportation, and value-added products.
- Limited adoption and integration of processing technologies due to lack of scale.
- Inadequate and ambiguous regulatory norms, which requires alignment with global standards.
- Lack of access to marketplaces and lack of development of these markets.





TRADE INFORMATION

India's net agricultural trade has seen a surplus as the country's export volumes have consistently increased, offsetting the rising imports. The major items of export include rice, buffalo meat, and marine products, and it is expected that this trend will

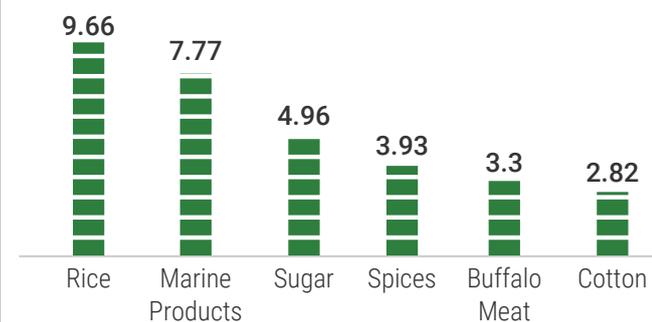
continue in the coming years with the addition of millet, pulses, and spices. High imports of vegetable oils and oilseeds are expected to reduce in the future as the Union Budget 2022-23 has provisions for significant domestic capacity addition for the same.

Export and Import, 2021-22, USD Bn

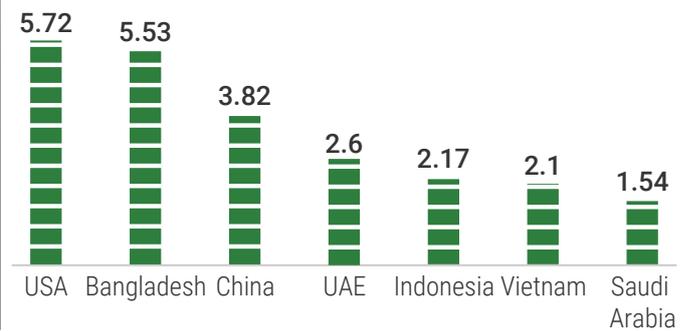


India's Exports

Top Commodities of Export, 2021-22, USD Bn



Top Countries Exported to, 2021-22, USD Bn

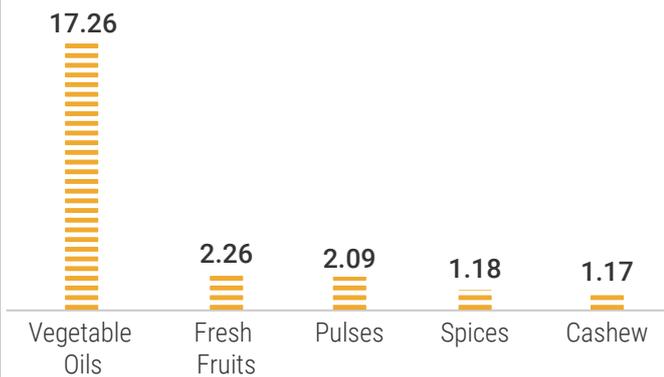


- The pandemic impacted India's export capability with several restrictions in place through the lockdown on cross-border movement of goods, which were eased from the second half of 2020.
- India is in a unique position in terms of exports as the country can cater to the majority of the world's demand as a result of the variety of produce.
- Major Indian food items exported includes rice and marine products which were valued close to USD 17 billion in FY 2021-22, followed by sugar, spices, buffalo meat, and cotton.
- India has been facing stiff competition from other South-East Asian countries for rice exports.
- Buffalo meat has been a major export due to high demand from the Middle East on account of the increasing logistics cost of procuring from the American and European markets.
- With a recovery in the world sugar market in the form of higher demand along with a better crop season, and higher prices, Indian exporters are able to profitably expand sugar exports.
- Within niche products, mango pulp and tomato paste dominate exports due to very high customized demand from Europe for the same.
- Fresh fruits and processed fruits have a huge export potential for American and European markets which demand such products with higher levels of customization.
- The majority of farmers still produce basic table-grade products instead of global high-value, high-demand items.

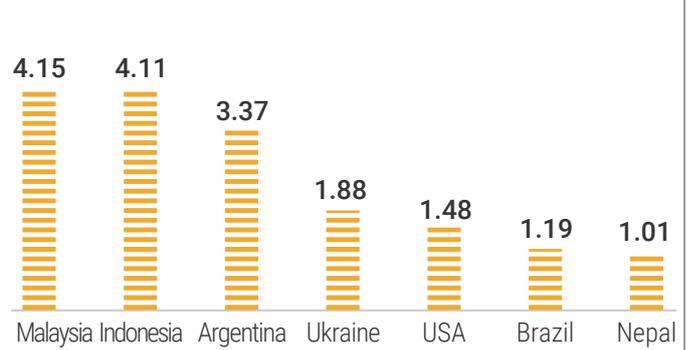


India Imports

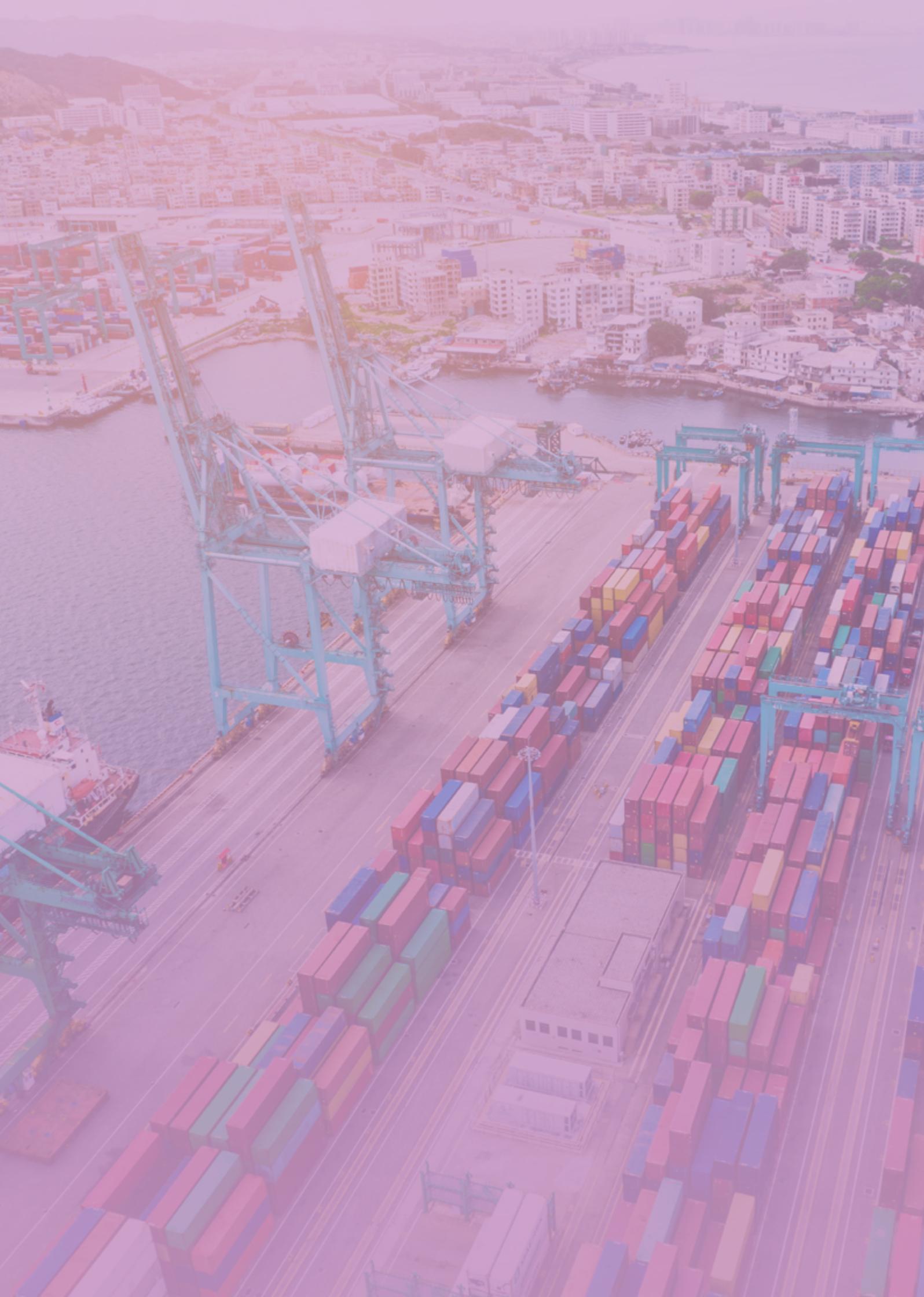
Top Commodities of Import, 2021-22, USD Bn



Top Countries Imported from, 2021-22, USD Bn



- India's imports, like other countries in the world, did not increase during the pandemic.
- India continues to be heavily dependent on oil imports, which are led by Malaysia. Over 60% of India's agri-imports are from vegetable oil. In light of this, the government, via the new Union Budget, has introduced measures to curb these imports by enhancing the domestic capacity for growing and processing oils and oilseeds.
- Despite India being the top producer of pulses, specialized pulses are imported in large quantities as India's domestic production is low in comparison to the domestic demand.
- Amongst fresh fruits imports, Apples and Oranges are contribute close 80% of total fresh fruits imports in India. Further, Avocados, cherries and blueberries are emerging import categories.
- Additionally, some specialized spices and vegetables (edible oils) are among the other top import items which highlights the significant opportunity in domestic production despite India being an indigenous producer of all these items.





Sub-sector of Indian Food Processing Sector

1. Dairy
2. Fruits and Vegetables
3. Animal and Poultry
4. Marine
5. Grains and Cereals
6. Consumer Foods
7. Cold Chain

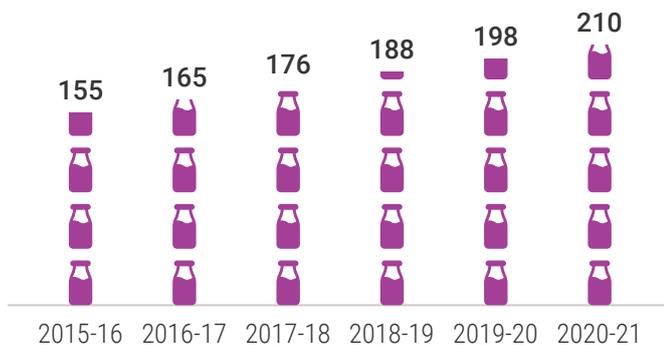
DAIRY

1

The dairy sector constitutes milk and milk products (ghee, butter, curd, cheese, ice cream, paneer (cottage cheese), flavored milk, etc). It is the largest food sub-sector with milk production of ~209.9 MT in FY 2020-21 and value at nearly USD 175 billion

during the same period. The sector has grown at a CAGR of 6.3% over the past five years. **Globally, India is the largest milk producer.** The production numbers are 50% higher than the US and three times larger when compared to China.

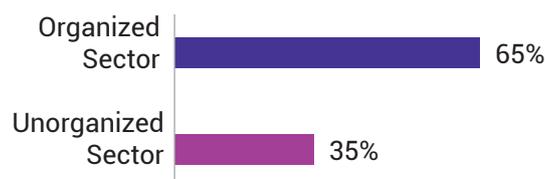
Milk Production (in million tonne)



- The dairy sector recorded exports worth USD 201.4 million and imports worth USD 63 million in FY 2020-21.
- Dairy is expected to grow at a CAGR of ~15% from 2022 to 2027.
- The estimated processing levels in the dairy sector is the highest (up to 35%) compared to other sub-sectors within the Indian food processing sector.

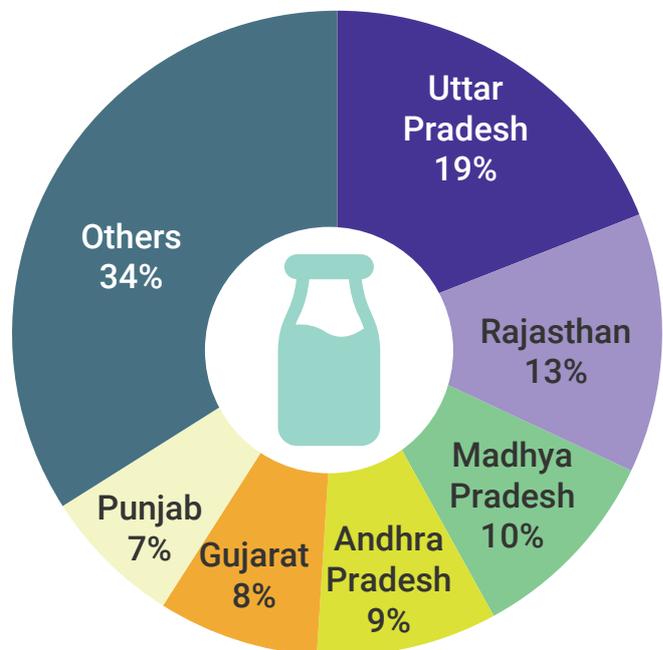
Market Structure

Only 30-40% of the dairy sector is organized with demand primarily from urban cities and Tier-II cities which is catered to by private players and cooperatives.



Large, organized players include Amul, Mother Dairy, Nestle, and Parag Milk who offer milk and milk products throughout the country with several processing centers. The unorganized sector caters to the rural demand, accounting for nearly 60-70% of the market. It is fragmented with several unorganized players owning cattle and livestock. In such cases, the milk produce is used for self-consumption while the excess is sold in the market or to other neighboring consumers.

State-wise Percentage of Milk Production



Growth Drivers

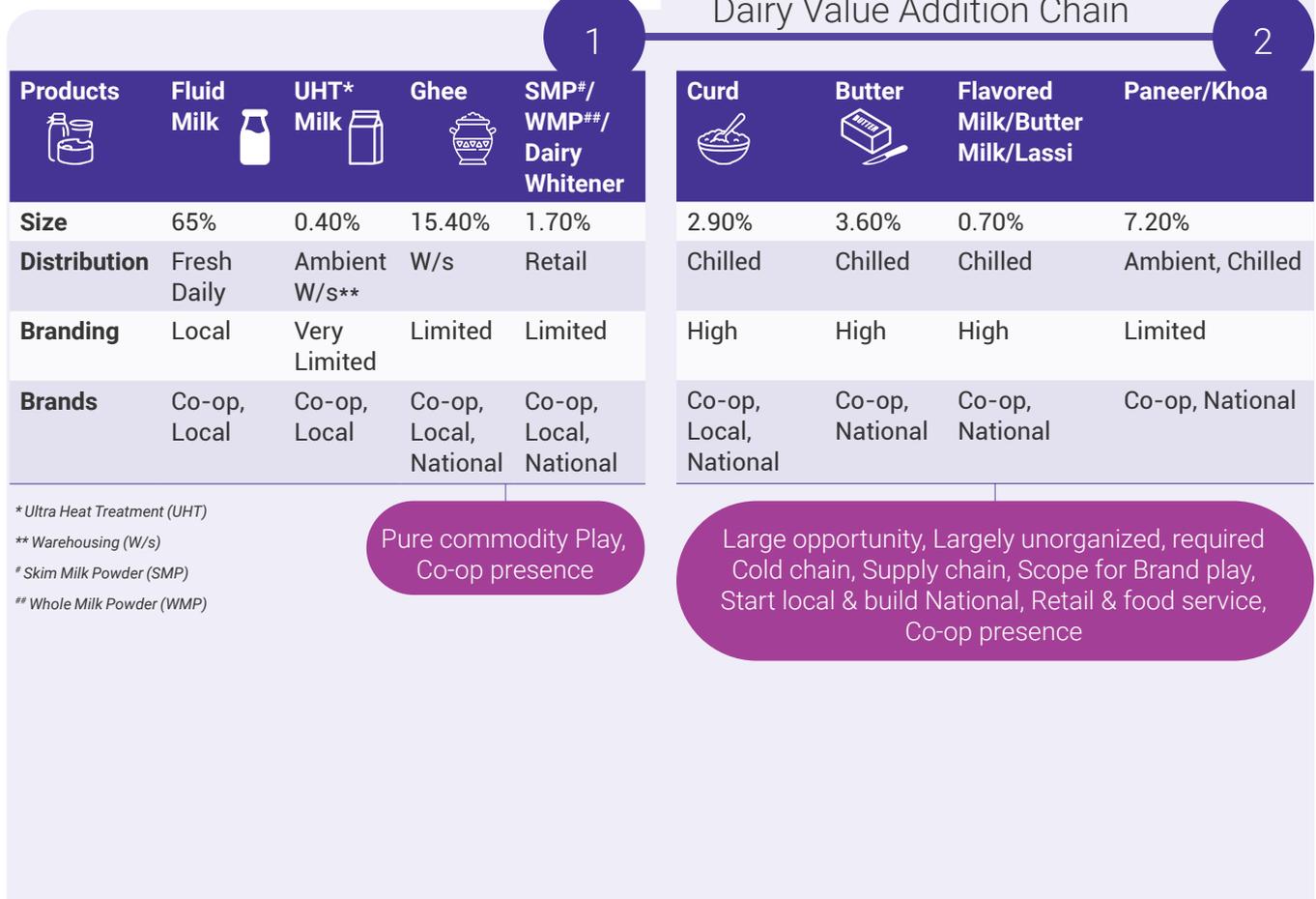
- India's per capita milk availability has increased to 427 grams per day in FY 2020-21, up from 319 grams in FY 2014-15.
- Increased cattle productivity and livestock. As of 2021, India houses over 30% of global livestock.
- New private/foreign investment has been witnessed in recent times. Some of these investments have been covered in the greenfield section of the report.
- Increasing demand for value-added products such as yogurt, different types of cheeses, etc.

Challenges

- Largely unorganized market.
- Lack of proper channels for disbursing credit to over 50 million dairy farmers.
- Underdeveloped procurement ecosystem and infrastructure, impacting the supply chain.
- No minimum support price for milk.

Emerging Trends and Opportunities

- Development of value-added dairy products such as cheese, smoothies, flavored milk, custard, yogurt, and other ethnic Indian products namely sweets and mithais.
- Development of practices for health-conscious milk products such as skimmed milk products.
- Expansion in the distribution network and improved packaging technology.



* Ultra Heat Treatment (UHT)

** Warehousing (W/s)

Skim Milk Powder (SMP)

Whole Milk Powder (WMP)



Comments From Industry Players

1. Post-COVID, like many packed products, adoption of packed milk in Tier II/III cities has increased.
2. The growth opportunity for Value-added Dairy Products (VADP) is immense as long as consumers see value in such offerings. In VADP, mass consumption items such as curd, buttermilk, etc. show high growth along with butter, cheese, etc.
3. Known, affordable, and accessible brands are attracting consumer attention. Additionally, small pack sizes are being preferred more.
4. Productivity, scalable breeding techniques, and optimizing quality continue to be critical areas requiring improvement.



R. S. Sodhi
Managing Director
Amul

1. Fermented products and affordable high protein VADP are big opportunities.
2. Safe, sustainable, and healthy food demand from consumers will drive the growth of sub-segments as well as product development, especially high-protein solutions.
3. Inexpensive quality assessment technology and tools, digitization of milk production and veterinary services, etc. are some big opportunities for the start-up ecosystem.
4. Currently, start-ups digitizing value chains of the dairy industry are likely to lead to the emergence of several national players from the current ecosystem of regional players leveraging such start-up services.



S. Nagarajan
Venture Partner
Omnivore



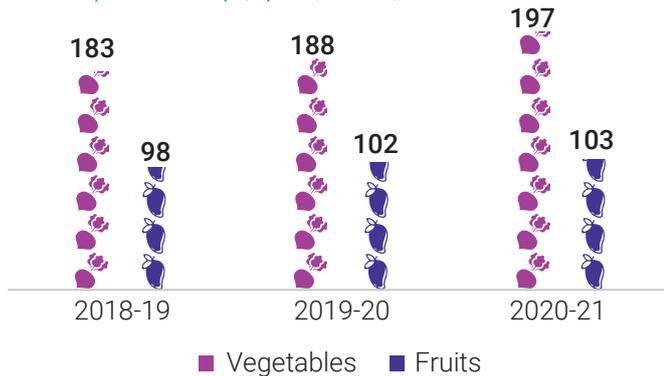


FRUITS & VEGETABLES

Fruits & Vegetables (F&V) production grew to ~335 MT in FY 2020-21. Globally, **India is the 2nd largest producer of F&V**, after China. India is a global leader in some items such as bananas, mangoes, papayas, ginger, and okra, and it is the second

largest for potato production. The processed F&V market's value was estimated at ~USD 15.4 billion in 2019. While developed economies like the US have relatively lower production numbers, the processing levels of F&V is around 65%. China, being the global leader in F&V production, still has an average of 23% estimated processing levels, which is much higher than India where the estimated processing levels are close to 5% on average.

Fruits & Vegetables Production (in million tonne) *excludes plantation crops, spices, flowers, etc.*

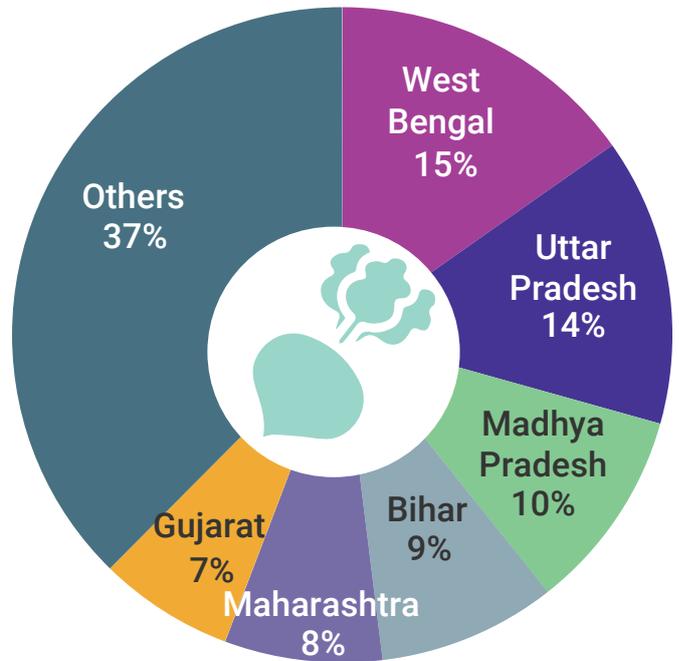


- Experts predict that the F&V segment is expected to grow at a CAGR of ~7.62% from FY 2017-18 to FY 2022-23.
- Fresh F&V sector exports amounted to USD 1.7 billion while imports were worth nearly USD 2.3 billion in FY 2021-22.
- On the other hand, processed fruits, juices, and vegetable exports amounted to USD 1.21 billion whereas imports were only worth ~USD 0.15 billion in FY 2021-22.

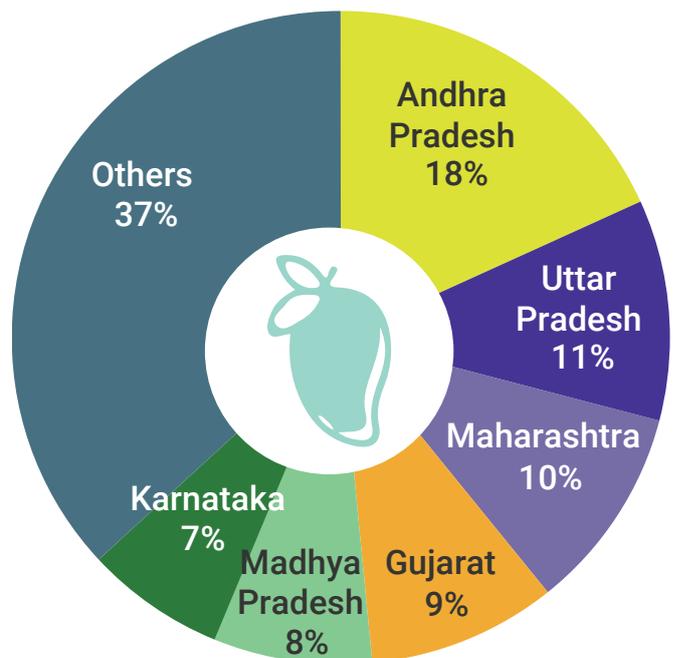
Market Structure

The bulk of the F&V sector is unorganized with a few large organized retail players. Only a handful of brands exist in this space with over 1000 SKUs present across categories including secondary and value-added goods derived from F&V.

State-wise Percentage of Vegetable Production



State-wise Percentage of Fruit Production





Growth Drivers

- Increased demand for fresh F&V and associated products, with rising awareness and demand for food service customers and also organically grown F&V.
- International demand for select India-grown F&V (such as mangoes, jackfruits, etc.).
- Gradually improving agricultural harvesting and methods for post-harvesting, thereby minimizing post-harvest losses.

Challenges

- Perishability losses and high post-harvest wastage of fresh produce.
- Inadequate cold chain infrastructure.
- Limited processing of fresh produce.
- Growing only table grade F&V and not switching to high-value F&V.
- Lack of innovation in the retail space and limited shelf-life.
- No standardized quality measures or set of quality certifications.

Emerging Trends and Opportunities

- Processed F&V derivatives (pulp, purees, pastes, sauces, jams, dehydrated products, freeze-dried products, etc.).
- Innovative production, processing, and packaging technology to reduce damage as well as lengthen shelf-life of F&V and derived products.
- Artificial intelligence and automated solutions being deployed for quality testing and other functions.
- Cold-plasma, high-pressure processing, and the implementation of Radio Frequency Identification (RFID) in applications for the F&V supply chain including traceability right up to the farm.
- Demand for products such as processed ginger, garlic, amla, and turmeric has risen multi-fold due to their immunity-boosting properties.
- Vegan meat substitutes such as jackfruits and soya are becoming more popular as consumers are replacing meat in their diet.

1. To build at scale, adoption of the cluster approach for appropriate interventions (such as farmer trainings, team deployment, better farming practices, quality checks, harvesting and storage, etc.) enable consistent quality, better yield, etc. This ensures that farmers become accountable for their output and also better produce realization.
2. From a supply chain perspective, an end-to-end data driven control mechanism and single point accountability of any deterioration/wastage/storage issues can lead to world-class benchmarks.
3. India is poised for hyper-growth as the world needs to ensure secure, sustainable access to food which is complimented by multi-agro-climatic zones, infrastructure development, etc. Sub-sectors of agriculture (staples, perishables, fisheries, etc.) are set for fast-paced growth.
4. There are constraints on account of an evolving policy framework (lack of effective contract enforcement mechanism with farmers, ad hoc bans on exports, etc.) and domestic distribution complexities driven by developing retail distribution.



Comments From Industry Players



Pankaj Khandelwal
Managing Director
Ini Farms

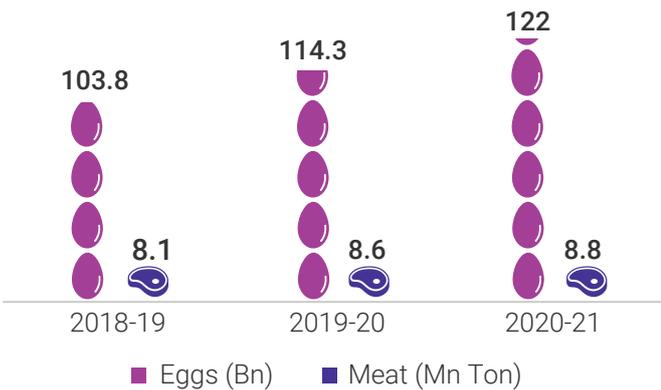


ANIMAL AND POULTRY

India managed a yield of 8.8 million tonnes of meat production and 122 billion eggs in FY 2020-21 (Provisional estimates). It is estimated that the overall animal and poultry products market in India was close to USD 18.5 billion in FY 2019-20. **Globally, India**

has the largest livestock population (cattle and buffalo), is the 2nd largest producer of eggs, and the leading exporter of buffalo meat. Despite the high production, the estimated egg processing levels are only about ~6%, and the estimated processing levels for meat is close to ~20%, whereas in the US and China, the processing level of meat is much higher.

Egg & Meat Production

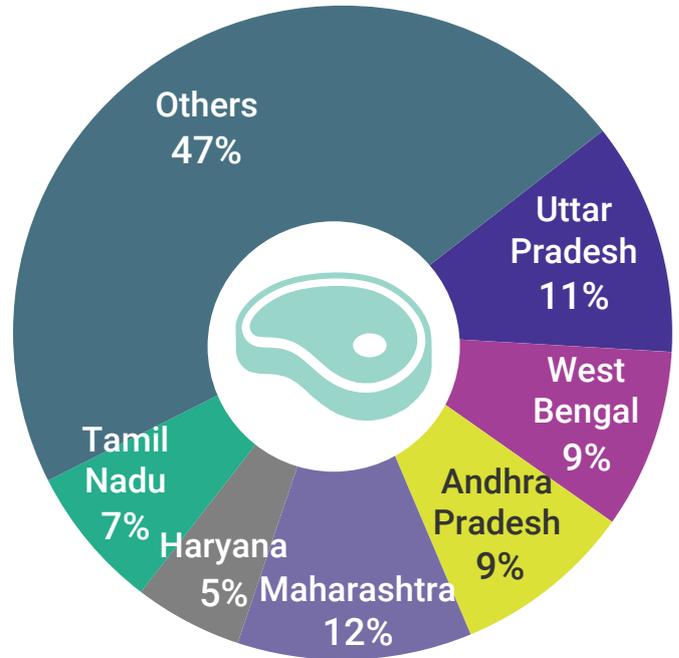


- Poultry products are expected to grow at a CAGR of 10.5% and eggs at 13% in the coming years.
- India exported eggs and poultry worth over USD 59 million and imported nearly USD 1 million worth of the same in FY 2020-21.

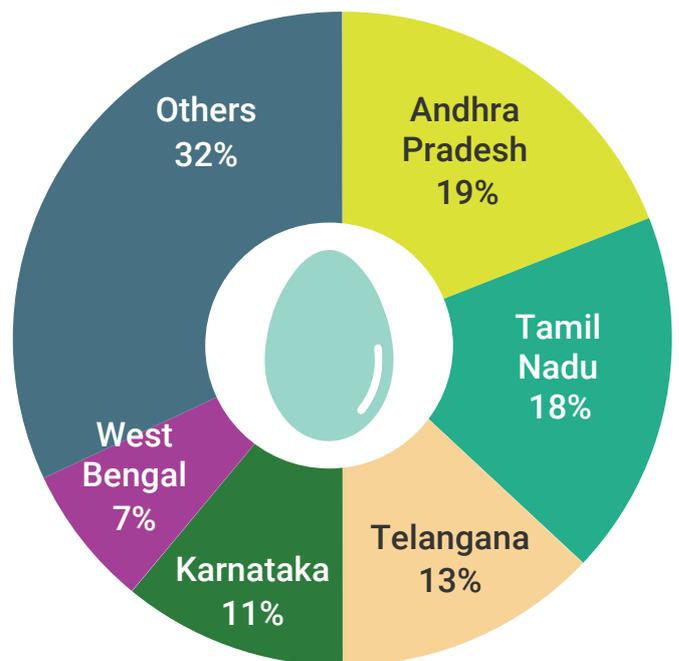
Market Structure

Less than 20% of the sector is organized with large players commanding a sizeable section of the poultry organized sales channels. Major product categories include processed and value-added products. The major organized players include Venky's Group, Suguna Foods, and Srinivasa Farms. However, there are several local unorganized shops selling animal and poultry products which caters to local regional demands only.

State-wise Percentage of Meat Production



State-wise Percentage of Egg Production





Growth Drivers

- Improved livestock rearing and breeding mechanisms.
- Changing customer patterns and dietary habits.
- New ventures and brands focusing on frozen meat products.

Challenges

- Production disparity among states leading to logistical and transportation issues.
- Higher costs of infrastructure unaffordable to the unorganized sector.
- Absence of bio-technical standards and bio-security by poultry breeders.
- Price fluctuations and market volatility based on customer sentiments.

Emerging Trends and Opportunities

- Conversion from the unorganized to the organized sector, which has been capitalized on by start-ups/ local chains to address consumer demand.
- Growing markets for Ready-to-eat and Ready-to-cook food items along with canned, chilled, and frozen foods.
- Booming bakery and confectionery market resulting in an increased requirement for eggs.
- New meat processing technology, new feed formulations, and manufacturing techniques.
- Modern butcheries and cold chain technology integration.
- Rising sea food consumption in non-coastal areas and also a rapid rise in farmed aquaculture.
- Production of designer eggs richer in Omega 3 fatty acids due to their immunity-boosting properties.

1. Organized meat retailing is expected to grow rapidly as consumers are becoming more conscious about hygiene and food safety, which will lead to roadside butchers upgrading their facilities. This will lead to rapid growth across formats such as fresh, chilled, and frozen.
2. Better feed for animals and poultry: Feed that is disease resistant, produced with the use of limited pesticides, fungicides and fertilizers, and constrained use of water, etc. is required..
3. End-to-end digitization of the livestock sector through Enterprise Resource Planning (ERP) deployment (from sourcing, production, storage, and distribution to retail) enabling deep analytics and diagnosis for better yield and lower wastage.
4. Crop yield estimation through drones, remote sensing, auto-harvesting tech, etc. are some areas that will bring significant efficiency to crops and livestock in the future.
5. Lab-grown meat, plant-based protein, and modified grains are some upcoming areas of interest in the food processing sector.
6. For livestock and meat products, India will start capturing GCC markets due to the increased logistics cost from the US and Brazil.
7. Contract farming/integration of chicken is prominent in western and southern states. This trend will pick up in the northern and eastern states of India in the coming years with medium to large players looking at aggregation/consolidation.



Comments From Industry Players



Naveen Pasupathy
Co-founder
Nandu's Foods

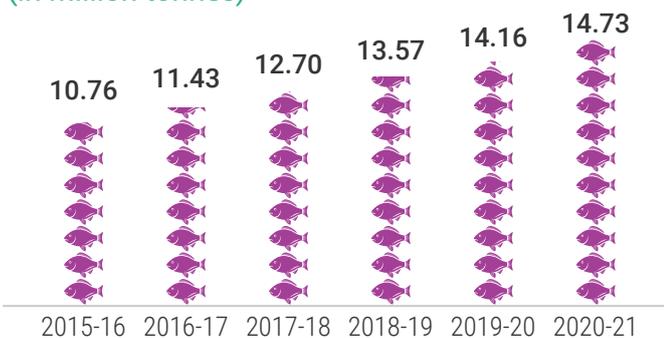


MARINE

Marine production grew to 14.7 million tonnes in FY 2020-21 with a value of over USD 16 billion in FY 2021. **Globally, India ranks 2nd in fish production** after China. India is one of the leading exporters of fish in primary forms, both inland and marine.

Despite one of the highest production levels in the world, estimated average processing levels are under 23%, which is lower when compared to the US and China where marine products are estimated to be processed at levels over 35%.

Marine & Inland Fish Production
(in million tonnes)

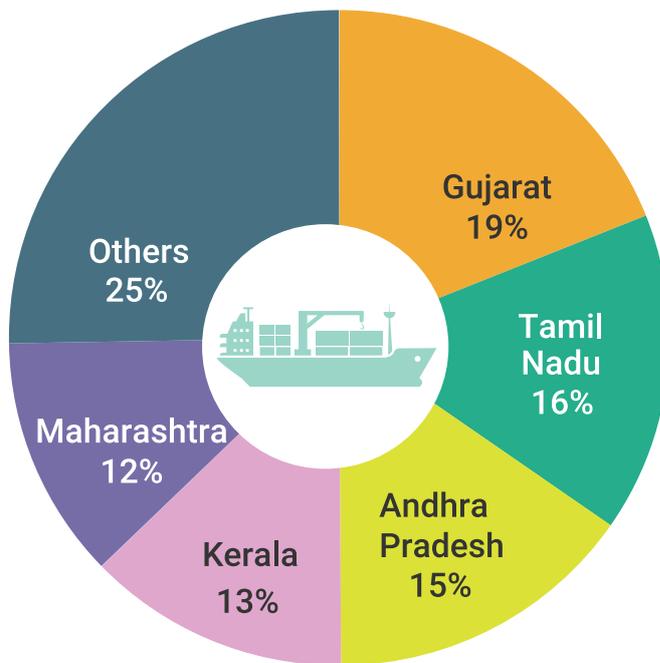


- Experts predict that this sub-sector is expected to grow at a CAGR of over 10% over the next five years.
- India exported marine products of over USD 7.76 billion in FY 2021-22 led by frozen shrimp (75% of total value) majorly due to demand from the US and China.

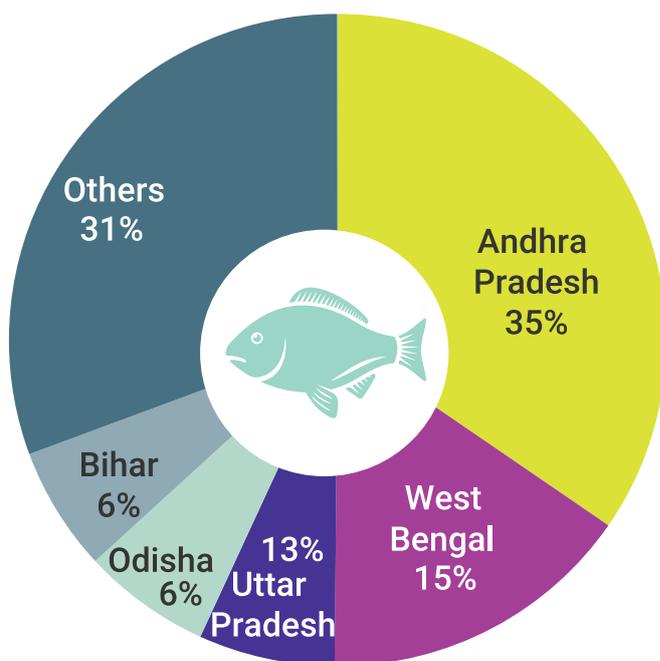
Market Structure

The sector is 50% organized with requirements arising on the back of robust exports for growing fish capturing, culturing, and value-added processing. Major players include August Seafood in Maharashtra and Empire Foods in Tamil Nadu. There are several local fish farmers who use traditional fishing techniques and generally cater to regional demands in the local markets only.

State-wise Percentage of Marine Fish Production



State-wise Percentage of Inland Fish Production





Growth Drivers

- Demand for leaner and lighter meat which is rich in protein.
- Demand for cultured sea food items such as exotic shrimp.
- Demand for marine products supplements such as Omega 3, other amino acids, etc.

Challenges

- Massive logistical issues and perishability issues as production disparity is evident among states.
- Higher cost of infrastructure to develop reefers, terminals, and proper aquaculture centers.
- Lack of access to credit to the majority of SMEs in the marine industry.
- European customers seek transparency up to the farm-level.
- Antibiotic residue challenges.

Emerging Trends and Opportunities

- Culturing over capturing can fetch better value in global markets.
- Growing demand for Ready-to-eat and Ready-to-cook food items along with canned, frozen foods, and Individual Quick Freezing (IQF) products.
- Infrastructure development for fishing harbors/landing centers/wholesale markets as per international standards.
- Further customized products suited to ethnic tastes such as shrimp, fish curry, etc.

1. Aquafarming is fragmented. Feed companies and start-ups are attempting to bring sustainable farming methods to the Indian market.
2. Inland farming is witnessing approximately 10-12% growth year-on-year and younger entrepreneurs interested in aquaculture farming are integrating technology in the farms to make their business more lucrative.
3. Shrimp are being farmed commercially and have high global demand.
4. Globally, the ecosystem of aquafarming is becoming organized with large feed companies providing value-add services to farmers in the form of programs that offer farmers a single point of service for various activities



Comments From Industry Players



COO
*Leading On-farm
Diagnostic Equipment
Company*



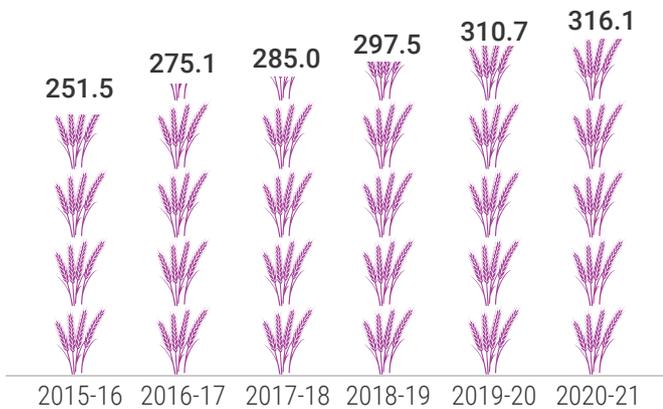
GRAINS AND CEREALS

5

In India, the production of grains and cereals grew to 316 million tonnes in FY 2021-22 as per the second advance estimates released by the Ministry of Agriculture and Farmers Welfare. **Globally, India ranks 2nd in the production of grains** following China

and the largest producer of millet and spices. In terms of grain processing levels, India again lags in comparison to the US and China.

Food Grains Production (in million tonnes)

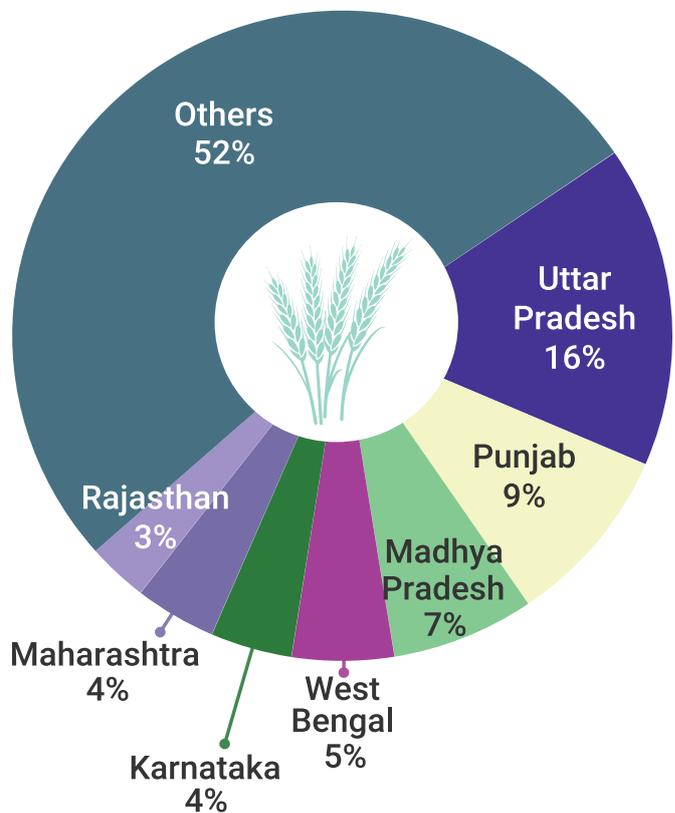


- India exported grains and cereals worth over USD 14 billion to other countries in FY 2021-22.
- Major items constituting the sector include rice and wheat (forming 75% of the volume) followed by nutri/coarse cereals, maize, pulses, etc.

Market Structure

The market is largely unorganized with only a handful of organized players that control segments such as basmati rice, staples such as wheat, flour, etc. The unorganized players include small farmers with fragmented farmlands who grow raw grains, wheat, rice, lentils, and other pulses using traditional farming techniques and sell it in local markets through wholesale mandis.

State-wise Percentage of Grains and Cereals Production





Growth Drivers

- Gradually improving farming mechanization, wider usage of fertilizers, usage of high-quality hybrid disease-resistant seeds, etc.
- Newer market avenues and improved access of credit to farmers.
- Emergence of contract farming and organized retail.

Challenges

- Vulnerable to temperature, humidity changes, etc. due to the use of traditional farming techniques.
- Inadequate post-harvest infrastructure resulting in high wastage.
- Changing weather patterns and environmental challenges.

Emerging Trends and Opportunities

- Processing of cereals to high-value products like snacks, Ready-to-cook/Ready-to-eat products, bakery products, etc.
- The share of healthy variants of cereal-based products are witnessing significant growth.
- Nutri-cereals and other millet-based cereals are gaining popularity due to changing consumer patterns.
- 2023, declared as the International Year of Millets by the United Nations, presents tremendous opportunities for Indian farmers.
- With per capita consumption growth, a rise in protein consumption should increase demand for lentils and pulses. The alternate meat category is also growing which uses lentils/peas, etc.

1. The government continues to focus on food grains due to the presence of traditional skills of farmers, diverse agro-climatic zones, the existence of huge genetic diversity of rice germplasm, and the scope for enhancement in productivity.
2. The average yield of rice in India is about one-third lower than the Global averages. Southeast Asian countries with higher labor productivity pose a threat to India's dominance in worldwide rice production. Thus, it is critical that better quality seeds and controlled agronomy practices are implemented to ensure that yields are significantly improved.
3. Slowly but steadily with education and awareness, some farmers consider crops based on seasonal forecasts, availability of water, market conditions, etc. Rice and wheat dominate the food grains market share in India, however, alternative options such as maize, mustard, jowar, oilseeds, garlic, onions, potato, etc. are being considered based on conditions and better realization possibilities.
4. Younger farmers are more experimental and consider leasing lands to cultivate high-yield crops with a faster churn rate in the market and reduce dependency on traditional cropping patterns.
5. Customers are currently demanding pesticide residue-free grains which requires setting up of a transparent and traceable supply chain from seed to the final output. This is a critical step to eliminate rejections due to the presence of harmful chemical pesticides.

Comments From Industry Players



K. S. Narayanan
*Principal Consultant, Food Processing, Nexdigm
Ex McCain Foods & Ex Unilever*



CONSUMER FOODS

6

India is one of the largest makers of consumer foods in the world and is expected to be a leader in the food retail and quick-service restaurant industry in the future.

India is 5th globally in the production of consumer foods, even though

average estimated processing levels are lower than 10%. Comparatively, the US and China are primarily markets with high value-added consumer foods with estimated processing levels ranging from 50-80%.

The widely tracked Ready-To-Eat (RTE) segment includes biscuits, confectioneries, breakfast cereals, wafers, Indian sweets and snacks, jellies/jams/squashes, energy drinks, ice creams, soups, etc. The exports for these foods were valued at USD 1.71 billion in FY 2021-22. Furthermore, the Ready-To-Cook (RTC) segment exported items worth USD 0.81 billion during the same period which included items such as preparations from flour and milled products, dried pastas, papad, maize starch, IQF products, etc.

Market Structure

The organized market forms a small segment of the total market with retail channels and the rapid growth of online channels in recent years. The market is fragmented due to the presence of many locally available brands. Several brands exist in the organized retail space offering over 50,000 SKUs. Major players include Jubilant Foods, Britannia, General Mills, OSI Group, Halidram's, Graviss Group and Balaji's. Unorganized players in this category sell locally branded/packaged commodities with secondary and tertiary processing. Their coverage is mostly regional markets in nearby locations.

Growth Drivers

- Focus on value-added processing by government incentive schemes such as the PLI scheme.
- The emergence of retail and modern retail, along with the food services industry driving demand.
- Rapid urbanization and associated demands for quick food preparations.

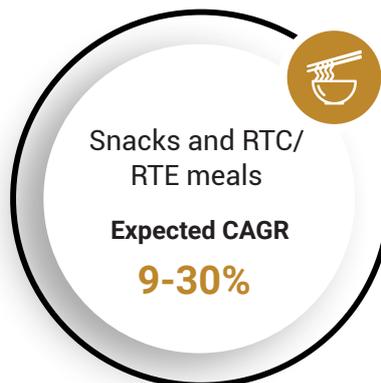
Challenges

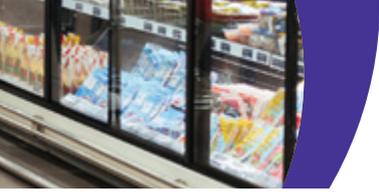
- Shortage of workforce for skills specific to consumer food products.
- Ambiguity in food regulations, packaging standards, and industry compliance measures.
- Lack of rural market development and education/awareness for such goods.

Emerging Trends and Opportunities

- The exponential rise of delivery, quick eats, food service restaurants, and RTC/RTE foods.
- Improved technological integration by organized retail leading to new product innovations.
- Rising market size and opportunities due to new incentives, regulations, and schemes.
- Changing consumption patterns leading to more calorie-conscious food, healthy foods, etc.

Key Food Segments





Comments From Industry Players

1. RTC is a bigger than RTE in India due to conventional cooking preferences.
2. There is a lot of innovation in pastes, purees, gravies, sauces, marinades, etc. which has driven adoption of RTC and RTE products.
3. New processing technologies are being deployed that help in preserving freshness, retaining taste, and developing clean label solutions.
4. Emerging Segments: Health and wellness products based on Ayurveda, functional, high protein nutraceutical foods; indulgent and healthier snacks; RTE breakfast items; plant-based meats; dairy/vegan options.



Rinka Banerjee
Founder & Director
Thinking Forks Consulting

1. RTE/RTC products have gained significant traction. For e.g., freezers which once used to be only for ice creams have given way to a number of frozen snacks, marinated meat cuts, and cut vegetables. Chillers that used to be stacked with colorful soft drink bottles today store a number of dairy products, beverages, and instant meals. Even on ambient store shelves, there are options available for curries, gravies, etc.
2. Though taste is king, health is emerging as the new queen. 'Eating right' as a movement is gaining popularity, and consumers are becoming more conscious of what they intake.
3. Micro-cuisines of India are being recognized globally, consumers are becoming aware of regional cuisines viz. Awadhi, Punjabi, Mangalorean, etc. which are beyond the traditional North/South Indian parlance.



Santhosh Stephen
Managing Director
SYMEGA Food Ingredients

1. Rapid conversion from unbranded and unpackaged to branded and packaged is expected in the next decade.
2. As culinary skills are getting scarcer, more packaged foods options are becoming the choice of consumers.
3. Low unit packs are helping penetrate/bring in new users and also create new consumption occasions for categories that were not widely and frequently consumed.



Mahesh Kanchan
CEO
Del Monte Foods India

1. Clean flavors/condiments are an important need in India. We have just started the journey and we have very complex flavors to be made available in a clean variety



Sreejith Moolayil
Co-founder & COO
True Elements



COLD CHAIN

The Indian warehousing market is highly fragmented. 90% of warehousing is unorganized with only 10% warehousing with organized players. As a result, most of the warehouses have an area of less than 10,000 sq. ft. Due to such fragmented

warehouse holding, there is limited mechanization as well as higher storage and handling losses. Lately, due to international investment in this space, the sector is formalizing, and with government aid in the form of dedicated logistic sector policies and incentive schemes, the sector is expected to develop further.

The cold chain sector is one of the most critical components of the food processing value chain, where perishables form one of the largest segments. Even now, some sub-segments of perishables see wastage as high as 40% due to several factors, including a lack of cold chain infrastructure. The Indian cold chain sector is at a nascent stage and remains largely untapped due to several factors such as the requirement of high capital investment, lack of requisite supporting transport infrastructure (roads, bridges, etc.), etc. There is a significant opportunity to serve the cold chain demand in India. In order to further bolster the attractiveness of the sector, the Ministry of Food Processing Industry (MoFPI) under the PMKSY initiative (explained in the incentive section) provides financial incentives for setting up cold chain infrastructure.

Market Overview

Over the next decade, as India's perishables market is expected to grow at the back of the food processing sector's 15% CAGR, the need for cold chain facilities is expected to increase exponentially. As per available information via the Ministry of Agriculture and Farmers Welfare, there are 8,186 cold storages with a capacity of 37.42 million MT available in the country for storing perishables.

Market Structure

The cold storage space in India is highly unorganized with a significant portion of the facilities being privately owned. The distribution of cold storages is highly uneven, with majority of the cold storages located in Maharashtra, Uttar Pradesh, Gujarat, Punjab and West Bengal which are being used for storage of primary produce situated close to farming areas for crops like potatoes, chilies, onions, etc.

Cold Storage in India



Global Comparison

As per the 2020 Global Cold Chain Capacity report by Global Cold Chain Alliance (GCCA), the global cold chain capacity was estimated to be 719 million cubic meters, 16.7% greater than the capacity reported in 2018. India was among the top five countries in terms of total capacity along with the US, China, Japan and Great Britain. However, in terms average warehouse size, countries like the US, Canada, and Brazil have warehouse sizes of over 100,000 cubic meters, in contrast to India where the capacity per cold chain warehouse is approximately 20,000 cubic metres, highlighting the fragmentation of warehouses in the country. Such fragmentation results in higher handling requirements and resultant losses, scalability issues, and more challenges.

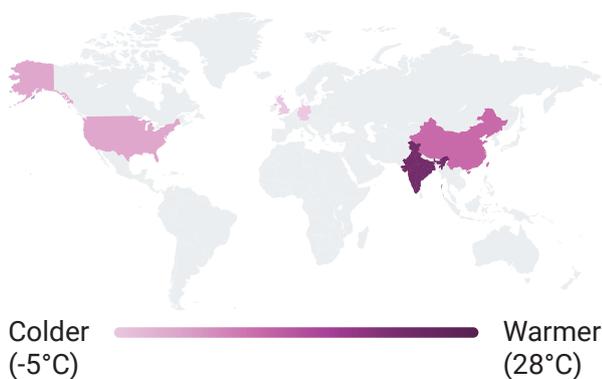
Furthermore, India being a tropical country experiences an average temperature which is higher compared to other nations amplifying the requirement of cold chain infrastructure.

- The Indian market needs to provide higher capacity warehouses/densely set up warehouses which can hold a large volume of fruits, vegetables, dairy, etc. similar to the set ups in the US, China, and other developed nations. Bridging that gap will allow India to reduce wastage and build a robust ecosystem to accommodate for future growth in production and boost export volumes.
- Comparing the production volumes of fresh produce (F&V and Dairy) with the capacity of the cold chain in the country clearly showcases the need for developing the cold chain infrastructure with larger investments.
- Furthermore, throughout the year, the Indian subcontinent experiences tropical weather. India has one of the most humid and highest average temperatures in the major crop seasons, which shortens the life of fresh perishable produce.
- In comparison to the US, UK, Germany, and China, India is much warmer and does not get as cold during

the winters. Hence, during this period, these countries are colder in comparison to India, which naturally lengthens the life of fresh produce.

- Fresh produce and perishables being transported in such weather conditions deteriorate in quality quicker than other colder nations. This is aggravated due to the underdeveloped cold chain infrastructure

India is much warmer than the US, UK, Germany and China during winters



Growth Drivers

- Growing organized retail.
- Increased food quality, safety, and product sensitivity.
- Growth in food processing and pharmaceutical industry.
- Key government impetus and initiatives.
- Increased investment in farm-to-fork supply chain space and innovative start-ups integrating technology to map demand and produce for optimized supply chain models.

Challenges

- High capital costs and overhead costs.
- Uneven distribution of capacity.
- Growing cost of operations, real estate, and constant power supply.
- Supply chain and capacity utilization gaps.

Way Forward

- Developing cold chain facilities in Tier II and Tier III cities is essential. A few developments here could lead to a massive reduction in wastage, thus making available more food for sale and further processing.
- Planned set-up of cold chain infrastructure near production centers and close to markets for sale would be important to ensure minimal wastage.
- Operators must work in conjunction with real estate developers to optimize the costs of cold chain facilities.
- Financial institutions should provide easy credit, easier loan sanctioning, lower interest rates, and easier disbursement to bolster investment in India's cold chain.
- The government should treat temperature-controlled warehousing for non-agricultural commodities at par with infrastructure projects to encourage investments in the cold storage industry.
- Further frameworks must be developed to provide tax benefits and tariff subsidies for cold chain facilities.
- New technology adoption, improved storage and handling processes, etc. aim at reducing transmission losses, increasing the duration of storage, and offering better price availability in the market.



Comments From Industry Players

1. Adoption of cold chain is limited due to cost concerns that are three times that of a dry chain.
2. Cold chain development will be possible only by safeguarding cold chain investors from increasing input costs and attracting more investment by making it financially attractive and economical for usage.
3. QSRs (particularly due to online/home delivery business), seafood (due to increased exports), and FMCG (for convenience) can grow at 15-20% CAGR.
4. Unlike large cold storage capacities in the west, India will continue to see small but densely spread cold storages near consumers, which can make it an effective strategy.



Sunil Nair
CEO
Snowman Logistics

1. Recent growth is positive owing to organized retail and the growth of underlying user sectors. Investments will continue to grow for the next 5-7 years.
2. Chocolates and bakery products are expected to witness high growth in urban areas.
3. With increased focus and worldwide adoption of sustainability, we are likely to see more innovation and investment in mid- and last-mile delivery of cold chain solutions.



Rajat Gupta
Founder and Director
TESSOL

Investment Landscape

1. Foreign Direct Investment
2. M&A Deals Landscape
3. Greenfield Setups



FOREIGN DIRECT INVESTMENT

Over the years, India has seen a steady flow of Foreign Direct Investment (FDI) in Food Processing Sector as 100% FDI is allowed through the automatic route, resulting in no requirement for formal government approvals.

- India has received over USD 11 billion of FDI in food processing from April 2000 to March 2022.
- The food processing sector is among the top 15 sectors receiving FDI consistently over the years.

Despite being a large contributor to both GDP and employment, the food processing sector contributes a relatively lower percentage to total FDI due to its nascent stage, showcasing the market's highly under-tapped potential to grow in the future.

Cumulative FDI in FPS in India, USD Bn



FDI limits across the food processing sector

India is one of the top FDI destinations

Amongst the top 10 recipients of FDI in 2019

100% FDI

Automatic Route

Food Processing / manufacturing

Agro chemical manufacturing

Floriculture, Horticulture, Animal Husbandry

Pisciculture, Aquaculture, Apiculture

Cash & Carry Wholesale Trading (B2B)

Single Brand Retailing (subject to conditions)

FDI

Approval Route

Trading (including through e-commerce) of food products manufactured or produced by another Indian entity In India: 100%

Multi-brand Retailing: Up to 51% (Subject to conditions)





M&A DEALS LANDSCAPE

Despite the hardships brought on by COVID-19 in the last two years, deal-making in the food processing sector has shown resilience with active investor interest. 2021 witnessed M&A deals in the food industry attempting to return back to strength, with the value

of inbound deals increasing to USD 876 million in 2021 vs USD 48 million in 2020. In the last five years, a large number of deals have been dominated by Private Equity players and Venture Capitalists (PE and VCs), with M&As comprising less than a quarter of all deals. The gradual organization of a massive market with rising demand for healthier, affordable,

and easy-to-access products has garnered the interest of both investors and entrepreneurs alike. Food tech has been a sunrise segment, wherein although the number of deals might be low but contributes the highest to deal value over the past years.

Within India, Maharashtra and Karnataka enjoy a prominent position in the deal industry, due to their agro-climatic zones, long coastline, well-developed infrastructure in terms of food parks and cold chain facilities, and availability of skilled manpower. Major inbound M&As in this sector are received from USA, Switzerland, Japan, and Singapore, primarily in the grains, consumer foods, and dairy segments.

Segment Trends

Deal Value (and Volume) for January 2017 to September 2021							
Value in USD mn	Consumer Foods	Dairy	F&V	Grains	Marine Products	Poultry	Others
Domestic M&A	2,188 (63)	265 (10)	34 (15)	41 (18)	1 (2)	NA (3)	234 (12)
Inbound M&A	954 (12)	151 (1)	-	246 (2)	NA (1)	-	47 (2)
Outbound M&A	NA (3)	-	NA (1)	NA (2)	-	-	-
Private Equity Investments	391 (23)	107 (7)	28 (4)	20 (1)	-	42 (2)	1,240 (3)
Venture Capital & Debt	625 (79)	35 (11)	290 (9)	30 (6)	2 (1)	489 (12)	11 (3)
Private Equity Exits	298 (28)	22 (5)	NA (3)	66 (6)	-	88 (2)	25 (1)
Others	337 (179)	21 (17)	26 (15)	10 (12)	1 (2)	3 (7)	291 (21)
Grand Total	4,793 (387)	601 (51)	378 (47)	414 (47)	5 (6)	621 (26)	1849 (42)

Consumer Foods

This is a segment which has witnessed big-ticket transactions in recent years. Several large companies were raising their stake in the health foods category, enhancing their food portfolio, strengthening their brand name by acquisition of product brands from competitors, as well as further innovating and diversifying to suit consumer demand. Singapore actively deals in this sector.

Dairy

Domestic and inbound deals have dominated the dairy segment. Milk brands in India and around the world operate on slim margins, since milk prices have a cap. Experts believe that the two key ways to grow profits is to increase operational efficiency through implementation of technology or expand inorganically through acquisition of established brands which align with long-term growth objectives of buyers, strengthen the balance sheet, and provide global technical expertise and institutional relationships.

Fruits, Vegetables and Poultry

Sub-segments such as F&V and Poultry have seen increased interest of PE and VCs. Investment in these sectors is made with the motive to improve supply chain management, diversify the produce to expand operations, focus on new products, enhance technology, and fund the working capital.

Grains

India, since early times, has been an agrarian country. However, the grains segment has been under stress recently due to climatic changes, reduced crop rates, etc. Therefore, M&A deals in the grains segment have been dependent on consolidation, economies of scale, and repaying debts.

Marine

India has a natural advantage in the aquaculture sector, having a long coastline over 8000 sq km, thus attracting inbound deals. Foreign players are acquiring Indian marine companies to diversify sourcing of raw materials and operational risks while enhancing technological and production capabilities.

Deal industry moving forward

Western giants in the food and beverages sector are seeking to collaborate or acquire Indian companies for consumer foods, supported by changing lifestyle and consumption patterns, aggravated by nationwide lockdowns creating dependence on packaged and ready-to-eat foods. Online food ordering companies are experiencing exponential growth which would further boost the entire food processing sector and create traction for inbound and domestic deals. The deal trend is expected to be bullish in the food processing sector as the inward focus of investors/companies during 2020-2021 shifts from operations and supply chain issues to growth. Investors are gauging adaptation abilities of the companies to the shift of Direct to Consumer (D2C) purchasing to online purchasing.

Food technology is considered a hot sector that has witnessed a surge in investments, further proved by promising valuations. Globalization has increased the accessibility of resources, equipment, technology, and ideas worldwide. This would aid to the emergence of newer trends from farm-to-fork.

India's food and beverage industry is evolving as we speak. The Indian food palate has also evolved over the years with an increase in popularity of a wide variety of cuisines, customer demand, dispensable income, and technology upgrades. These mixed with aspirational lifestyle patterns and an expectation of the sector to become more organized are a few factors that PE and VCs are banking on.



Key Transactions

Year	Segment	Buyer	Target	Type	Value (USD mn)	% sought
2019	Consumer Foods	Patanjali Ayurved Ltd.	Ruchi Soya Industries Ltd.	Domestic	630.88	100
2021	Consumer Foods	Heineken N.V.	United Breweries Ltd.	Inbound	786	14.99
2017	Dairy	Lotte Confectionery Co. Ltd.	Havmor Ice Cream Ltd.	Inbound	151	100
2019	Dairy	Tirumala Milk Products Pvt. Ltd.	Sunfresh Agro Industries Pvt. Ltd.	Domestic	238.36	100
2021	Fruits & Vegetables	Huruma Fund, The Lightsmith Group and others	Waycool Foods and Products Pvt. Ltd.	Venture Capital & Debt	117	NA
2022	Fruits & Vegetables	Alpha Wave Ventures, Sequoia Capital, Tiger Global	Ecso Global Pvt. Ltd.	Venture Capital & Debt	100	NA
2017	Grains	NA	LT Foods Ltd.	Private Equity Exits	31	8.17
2018	Grains	India Agri Business Fund II	Nature Bio Foods Ltd.	Private Equity Investment	20	NA
2017	Marine Products	Air Control India Pvt. Ltd., Dewpoint Air and Systems Engineering Pvt. Ltd.	Ruia Aquaculture Farms Ltd.	Domestic	1	88.8
2022	Marine Products	Elara India Opportunities Fund Ltd.	Ace Seafood Bazaar Pvt. Ltd.	Venture Capital & Debt	2	0
2019	Poultry	International Finance Corp.	Srinivasa Farms Pvt. Ltd.	Private Equity	42	NA
2021	Poultry	Vertex Ventures Group, Bertelsmann Corporate Services and others	Delightful Gourmet Pvt. Ltd.	Venture Capital & Debt	192	27.4

Note: The database used for M&As in this report is for the period January 2017 to June 2022. All deals considered under consumer staples sector in the VCC Edge database relating to food and beverages sub-segments are reclassified into consumer foods, grains, dairy, poultry, fruits and vegetables, and marine products in our analysis basis individual judgment and could differ.





GREENFIELD SETUPS

3

India has been an attractive destination for global investors and recently, the food processing sector gained prominence amongst foreign investors looking to tap into the sector's potential. The pandemic impacted several deals and existing plans. However, the food processing sector saw its fair share of major investments during the pandemic. It is expected that with the existing schemes and the government's new initiatives, many new investments are expected in greenfield units in India over the next five years. We have provided some recent investment plans below:

#	Sub-sector	Company	Brief investment details
1	F&V (Processing)	CN-IFFCO	This is a Joint Venture (JV) between Congelados de Navarra (CN Corp.), a Spanish company and IFFCO (Indian Farmers Fertilizer Cooperative Limited) for setting up a food processing plant in Punjab aiming to procure vegetables for quick freezing by engaging with 5000 farmers.
2	Poultry (Processing and Retailing)	Suguna Group	The group is expanding its operations in India for meat processing and for the acquisition of equipment for slaughterhouses. Recently, the company has also launched a new brand called Delfrez which will be an online and offline retail outlet.
3	Mega Food Park	Italian Government	The Italian Government has launched a mega food park, the first Indo-Italian food processing venture. The project aims to synergize food processing equipment and new technologies for agriculture through the venture.
4	F&V (Warehousing and Cold Chain)	Patanjali	Patanjali group has invested in setting up a mega food park with the Government of Uttar Pradesh, which is expected to benefit farmers of six states. It will do so through processing primary goods of F&V into secondary and tertiary processed goods for the farmers to sell.
5	Dairy (Processing)	Sabar Dairy	Sabar dairy which produces milk products under the Amul brand will invest USD 66 million in Telangana to set up a new state-of-the-art dairy processing plant to cater to the growing demand for new dairy products in the south, with a capacity of 500,000 liters of milk per day.
6	RTE/RTC (Processing)	ADF Foods	As part of the PLI Scheme, the US food maker has promised heavy investments in a greenfield plant in India to cater to the growing demand for frozen and RTE foods.
7	Consumer Foods (R&D and Processing)	Mondelez International	The international chocolate maker has committed to expansion in four states in India along with producing home-grown chocolates. The company aims to fund research to improve local sourcing as it currently imports over 50% of the raw materials from Africa.
8	Consumer foods (Processing)	AB Mauri	AB Mauri, one of the world's leading bakery ingredient makers, has set up a plant in Uttar Pradesh worth USD 150 million for yeast manufacturing to supplement the growing demand for baked goods in India.
9	Vegetables (Processing)	Agristo	Belgian frozen potato maker Agristo has set up a plant in Uttar Pradesh to prepare RTE frozen potato snacks in India and expand their product portfolio to be part of the Indian market.
10	Fruits and Vegetables (Processing plant and park)	Lulu Group	Lulu Group, one of UAE's biggest conglomerates, has pledged over USD 100 million to set up two food processing units in Jammu and Kashmir as well as Uttar Pradesh. The group has additionally earmarked funds for the set up of a food park which will be 100% export oriented.

Regulatory Regime and Initiatives

1. Rules and Regulations
2. Government Incentives
3. Government Initiatives



RULES AND REGULATIONS

1

Considering the nature of the sector, the relevant rules and regulations play a vital role in governing the sector. The laws related to the food processing sector have been evolving over the years. Food Safety and Standards Authority of India (FSSAI) is the apex body for formulating and implementing laws relating to food safety and regulation in India. We have briefly covered major laws under **Food Safety and Standards Regulations** which food businesses need to be aware of for doing business in India, below:

Licensing and Registration of Food Businesses (2011)

All food business operators in the country need to be registered or licensed in accordance with the procedures laid under this Act. The regulation provides definitions and rules along with standard procedures for identification, registration, and business licenses for different categories of food types and operators in India.



Product Standards and Food Additives (2011)

This Act defines the standards and guidelines to be followed for different categories of food products with respect to permissible standards, preservatives, additives, acidic levels, etc., including quantities, levels, and contents that are allowed in food products.



Labeling and Display (2020) & Advertising and Claims (2018)

These regulations prescribe the labeling requirements of packaged foods and guidelines regarding display of essential information (content information, manufacturing location, expiry date, batch and lot number, etc.) on the package. It also defines age limits, advertising criteria, and several communication guidelines for food items produced in India and in some cases, for international communication. The Advertising and Claims Act is aimed at establishing fairness in claims and advertisements of food products and making food businesses accountable for such claims and advertisements made by the company to protect and safeguard consumer interests.

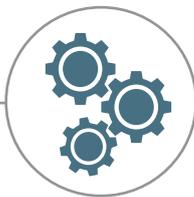


Furthermore, specific states like Maharashtra, Telangana, West Bengal, Uttar Pradesh, etc. consider food processing as a thrust sector and provide additional incentives under the State Industrial Development Policy to new investments in food processing units. Such incentives include power tariff reduction, exemption of stamp duty and electricity duty, interest subsidy, State GST reimbursement, etc., for a certain period based on specified conditions. Such state-specific schemes can provide benefits up to 15% of investment costs.



Prohibition and Restriction of Sales (2011) and Import (2017)

The Restriction of Sales Act provides information on prohibited goods in India, and conditions under which goods become unfit for sale and thereby unconsumable in India. The Import Act defines the standard procedures for clearance of foods imported into India which includes provisions related to licensing of food importer, import clearance, sampling and testing conditions, etc.



Food Recall Mechanisms (2017)

Recall rules were introduced in 2017 to provide guidelines and set procedures for the recall of food items introduced in the market due to different reasons. The Act further ensures the removal of food under recall from all stages of the food chain while providing guidelines for retrieval, destruction, or reprocessing of food under recall along with customer communication.



Other Regulations

There are several other regulations which include Rules on Contaminants; Toxins and Residues; Laboratory and Sampling Analysis; Organic Foods; Approval for Non-specific Food and Food Ingredients; Alcoholic Beverages; Fortification of Foods; Food Safety Auditing; Recognition and Notification of Laboratories; Foods for Infant Nutrition; Safe Food and Balanced Diets for Children in Schools, etc. These regulations provide various information regarding standards, procedures, guidelines, etc. that food businesses need to adhere and comply with while conducting business in India.



GOVERNMENT INCENTIVES

The food processing sector is a sunrise sector in India with numerous investment opportunities. The Central Government, Ministry of Food Processing Industries and individual

food sub-sector ministries have introduced several schemes offering incentives and subsidies for investment to amplify growth in the food processing sector. Major incentives available across the entire sector have been summarized below:

Ministry/Scheme/ Fund	Outlay (in USD)	Value chain			Support	
		New processing set-ups (Processing and preservation capacities)	Cold Chain ¹ (storage/ warehouse and temp. controlled transport)	Supporting infra. set-ups (Agri Processing clusters, Mega Food Parks)	Quality, Testing, R&D	Export Promotion
Pradhan Mantri Kisan Sampada Yojana	900 mn	✓	✓	✓	✓	
Pradhan Mantri Formalisation of Micro Food Processing Enterprise	1.3 bn	✓		✓		
Production Linked Incentive Scheme	1.45 bn	✓				✓
Operation Greens (TOP to TOTAL) ²	90 mn	✓				✓
Ministry of Integrated Development of Horticulture	2 bn	✓		✓		
Pradhan Mantri Matsya Sampada Yojana and Fisheries and Aquaculture Infrastructure Development Fund	1 bn	✓				
Dairy (National Dairy Plan)	1.5 bn	✓		✓	✓	✓
Animal Husbandry Infrastructure Development Fund	2 bn	✓		✓		
State Incentives	Up to 15% of investment	✓				

1. 324 approved cold chain projects, out of which 216 are operational

2. The scheme helps to manage the price fluctuation of Tomato, Onion, Potato by promoting Farmer Producers Organisations (FPOs), agri-logistics, processing facilities and professional management etc. Its scope has expanded to include 22 other perishable products in order to encourage value addition in agriculture and allied products



Furthermore, specific states like Maharashtra, Telangana, West Bengal, Uttar Pradesh, etc. consider food processing as a thrust sector and provide additional incentives under the State Industrial Development Policy to new investments in food processing units. Such incentives include power tariff reduction, exemption of stamp duty and electricity duty, interest subsidy, State GST reimbursement, etc., for a certain period based on specified conditions. Such state-specific schemes can provide benefits up to 15% of investment costs.

While most of these schemes at the Central and State level are individual schemes offered by different ministries and authorities, there is limited linkage and integration across these schemes for easy of understanding of the investors. However, these schemes do offer a range of fiscal benefits over a period and a new investor must avail these benefits under relevant schemes, which would make the investment more profitable.





GOVERNMENT INITIATIVES

3

The Indian Government has launched various incentives, as mentioned above, which provide fiscal benefits for food processing in India and unlocks value for industry players. Furthermore, the government has also taken several steps in the form of regulations and public expenditure to provide several non-fiscal benefits to the players in the industry. Some of these key initiatives and reforms are briefly covered below:

Mega Food Parks (MFP)

- Under the PMKSY scheme, fiscal benefits are offered to companies investing in establishing MFPs as they aim to be the link between farmers, processors and retailers.
- It is based on a cluster approach which creates the latest infrastructure for modern food processing units in industrial parks with a robust supply chain.
- Till date, 41 MFPs have been sanctioned and 22 are operational in India.



Ready Infrastructure

- 41 Approved Mega Food Parks
- 22 Operational Mega Food Parks



E-NAM (Electronic National Agriculture Market)

- Set up under the Ministry of Agriculture, E-NAM is an online platform for trading agricultural commodities in India. It provides price discovery and allows buyers and traders to connect with the farmers for marketing and sales directly.
- The aim is to provide freedom and access to both buyers and sellers to each end of the value chain. It provides single window services for all Agricultural Produce Market Committee (APMC) related services and information.
- This includes commodity arrivals, quality and prices, and e-payment settlements directly into farmers' account, 11 language options, and a mobile app among other things.
- Currently, over 170 agro products are being traded under E-NAM and as of December 2021, the value of goods traded on the platform is worth around USD 16 billion.

Facilitation Cells and Portals

- A dedicated Investment Targeting and Facilitation Desk (ITFD) at Invest India has been set up to assist potential investors in a structured manner, and help frame policies/strategies to sensitize the investment community about opportunities as well as policies.
- Nivesh Bandhu was created as a dedicated investors' portal aimed at facilitating ease of doing business, and presenting information on incentives and policies on a single platform.

Research and Development Institutions

Large institutions for knowledge development and a committee for the sector have been set up to aid policy-making, awareness, investment attraction, etc. Such large institutions include the National Institute of Food Technology Entrepreneurship and Management (NIFTEM), Indian Institute of Food Processing Technology (IIFPT), Indian Council of Agricultural Research (ICAR), Central Marine Fisheries Research Institute (CMFRI), Central Food Technology Research Institute (CFTRI) and more.



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Acknowledgments

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