



Novel Foods Market

Key Trends & Considerations

*Driving sustainability, fortifying future, and ensuring both
nourishment and food security for subsequent generations*

Pusa Krishi, ZTM & BPD Unit, ICAR – Indian Agricultural Research Institute, New Delhi

January 2024

Contact information: ceo@pusakrishi.in

Inspiration:

Dr. A. K. Singh

Director

ICAR-Indian Agricultural Research Institute

Citation:

Sharma, A., Singh, A., Shah, V. and C, Viswanathan. (2024). **Novel Foods – Key Trends & Considerations**. Book published by ICAR-Indian Agricultural Research Institute (pp. 13)

About Pusa Krishi

Nestled in the agricultural landscape of India, Pusa Krishi is a renowned agri-startup incubator, well-known for its cutting-edge technology, extensive industry expertise, and groundbreaking potential. Originally founded in 2014 as an incubator under ICAR-Indian Agricultural Research Institute, it grew into a DST-supported Technology Business Incubator (TBI) and a meta-incubator for agriculture under the Ministry of Agriculture & Farmers' Welfare in 2018. Serving as the exclusive nodal organisation for the Ministry of Agriculture & Farmers' Welfare, Government of India, Pusa Krishi is in charge of the biggest programme for agribusiness incubation, called Rashtriya Krishi Vikas Yojana (RKVY) – Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RAFTAAR). It oversees a network of 24 RAFTAAR Agri Business Incubators and 5 Knowledge Partners across India. Under several pre-incubation, incubation and agripreneurship development programmes, the unit has worked with more than 350 startups thus far, providing them with a wide range of services and support.



Disclaimer:

The data/information contained herein has been obtained from trusted secondary sources and is believed to be reliable. Pusa Krishi disclaims all warranties as to the accuracy, completeness, or adequacy of such data/information. The views presented herein are Pusa Krishi's and not attributed to anybody. Pusa Krishi shall have no liability for errors, omissions, or inadequacies in the information contained herein, or for interpretations thereof.

Novel Foods Market

Key Trends & Considerations

Definition by Food Safety and Standards Authority of India (FSSAI)

According to FSSAI Food Safety and Standards Regulation 2016, food which may not have a history of human consumption are known as Novel Foods; or foods which may have any ingredient used in it which or the source from which it is derived, may not have a history of human consumption; or a food or ingredient obtained by new technology with innovative engineering process, where the process may give rise to significant change in the composition or structure or size of the food or food ingredients which may alter the nutritional value, metabolism or level of undesirable substances.

Consumer Behaviours in Food Consumption are Being Shaped by Six Major Trends

<p>1</p> <p>Demographics changes and increased dietary variety</p>  <ul style="list-style-type: none"> • Globalization and migration have caused cuisines to become dispersed. • New low-meat diets, such as flexitarians, are becoming more and more well-liked. 	<p>2</p> <p>Growth in purpose-driven and sustainable alternatives</p>  <ul style="list-style-type: none"> • Raising public awareness of sustainability. • Expected to source from and collaborate with more ethical brands. 	<p>3</p> <p>Dividing diet into nutritious and indulgent categories</p>  <ul style="list-style-type: none"> • A growing awareness of how food choices affect one's health. 	<p>4</p> <p>Expensive speciality cuisine vs inexpensive food</p>  <ul style="list-style-type: none"> • There is a strong market for both luxury and low-cost products. • Grow in private label sales of specialized goods for both ends. 	<p>5</p> <p>Increased need for time and convenience</p>  <ul style="list-style-type: none"> • Faster and simpler meal preparation is a benefit of dietary modifications. • The emergence of delivery app consolidation and gloomy kitchens. 	<p>6</p> <p>Increasing significance of traceability and food safety</p>  <ul style="list-style-type: none"> • Governments and consumers want a high degree of transparency, and blockchain solutions are starting to catch on.
--	--	--	---	--	--

Novel Foods Gaining Popularity

"Novel foods" are foods that have lately gained popularity or entered the market but were not historically consumed in a particular location. These foods frequently provide distinctive flavors, nutritional profiles, or health advantages. India's market for innovative foods has been developing as a result of urbanization, shifting consumer tastes, and increased consciousness of wellness and health.

Several factors contribute to the growth of the novel foods market:

- 

Health and Wellness Trends : Demand for foods with functional benefits—such as improved nutrition, antioxidants, or other health-promoting qualities—is rising as consumers grow more health-conscious. New cuisines that fit these themes are becoming more popular.
- 

Globalization and Exposure : Travel, global culinary trends, and increased exposure to foreign cuisines have broadened the palates of Indian consumers. This has increased people's curiosity about trying out unusual and unique meals, which has helped them become more widely accepted in the market.
- 

Innovation in Food Processing : Technological developments in food processing have made it easier to introduce new products and ingredients. This covers the creation of superfoods, functional meals, plant-based meat alternatives, and alternative protein sources.
- 

Rising Disposable Income : A middle class that is expanding and has more disposable cash been more open to trying out new foods. A market for specialized and premium foods, including new and unusual products, has been formed as a result.
- 

Changing Lifestyles : A change in eating habits has been brought about by urbanization and hectic lifestyles. Novel meals that have these attributes are becoming more and more popular as consumers look for quick and nourishing eating alternatives.

The Story of Consumer Food Products in India is Shifting from Mass-Market, Standardized Products for Satiation, to Hyper Personalized Wellness and Nutrition Product Lines

Mainstreaming of high quality branded packaged food in the mass market

- **Nutritious packaged food is increasingly popular.** ~17% growth rate of branded packaged food in 2018, during a general consumption slowdown in India, indicating its strength going forward.
- **GST paves way for organized food retail:** New tax law pushed out unorganized players when launched in 2018, which paved the way forward for branded packaged goods.
- **Health-conscious food consumption on the rise.** 30% Estimated share of agricultural GDP contributed by the packaged food industry in **2030, a threefold** increase since 2020, led by growth in health-conscious consumer foods.

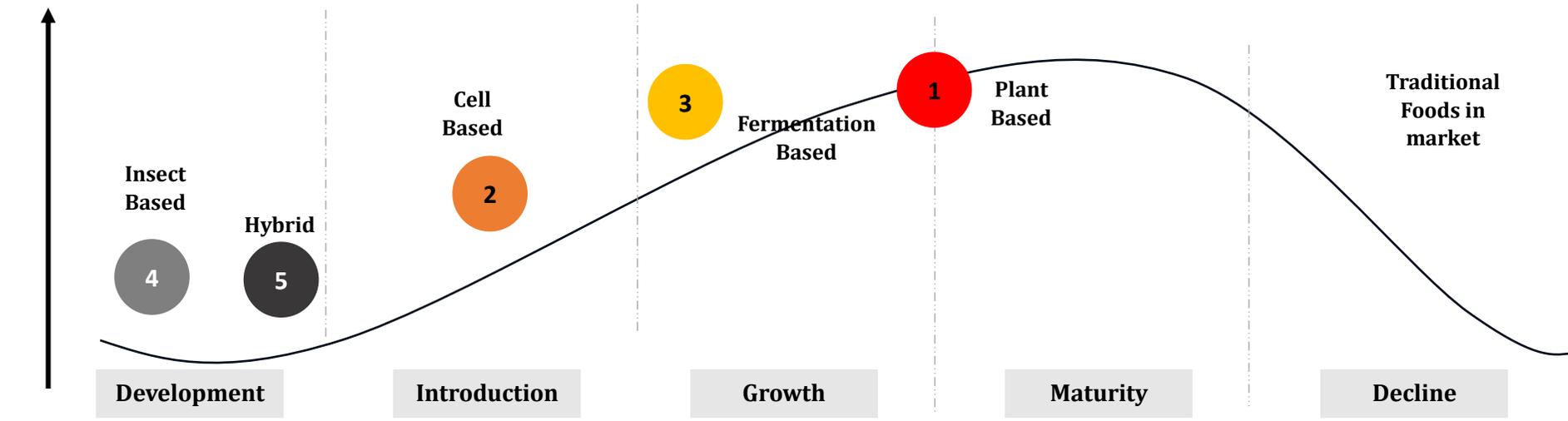
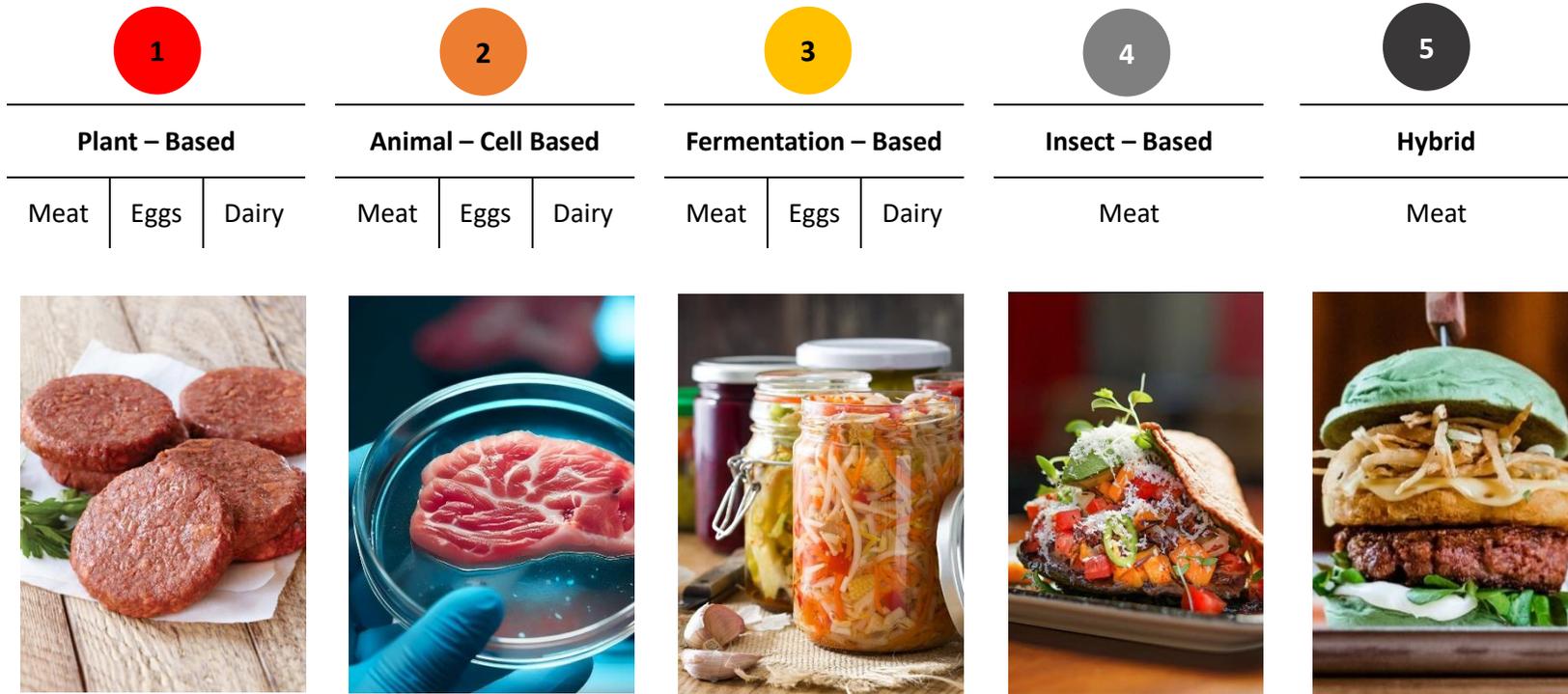
A large-scale push towards health and wellness amongst middle, upper middle and top tier of consumers

- **High quality food demand on the rise.** 16% CAGR of organic foods and superfoods, some of the fastest growing product categories for modern retailers at the turn of the decade.
- **Youth are increasingly spending money on wellness.** FICCI analysts report the wellness industry in India's value at ~USD 6.5 billion.
- **Value for money, private-label brands will grow** to serve India's deeply ingrained value consciousness. With limited pre-existing knowledge of brands, customers will move directly from unorganized purchases to private-label brands. Private-label apparel and grocery is already growing rapidly and expected to constitute up to 50% of organized retail sales by 2030, up from 5%-10% share today
- **Demand for super-foods on the rise.** Spirulina, Chia, finger millets, moringa, amaranth. Examples of ingredient lists in new launches in modern markets

Increased consumer standards after shock events

- **The science of synthesizing proteins from non-animal sources has moved faster in the past five years than ever in human history.** Climate change and the rise of the alternate-protein industry has stimulated by far the largest movement in protein-based food science in the world,
- **Yet, we have only scratched the surface of the potential that lies ahead.** The world is at an early stage of protein synthesis using microorganisms like bacteria and algae. As big-ticket investments in agritech, biotech, and life sciences startups continue to rise this decade. Finished products will reach a stage of flavour and texture mimicry that make them indistinguishable from their substitutable counterparts

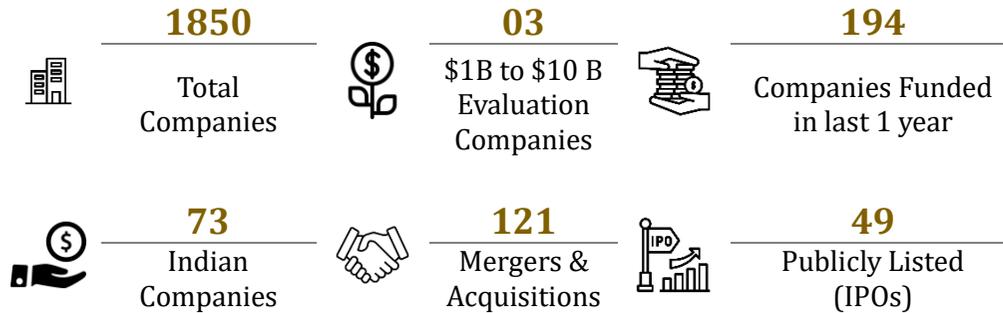
Types of Novel Foods & Its Market Development Phases



Novel Foods Quick Snapshots

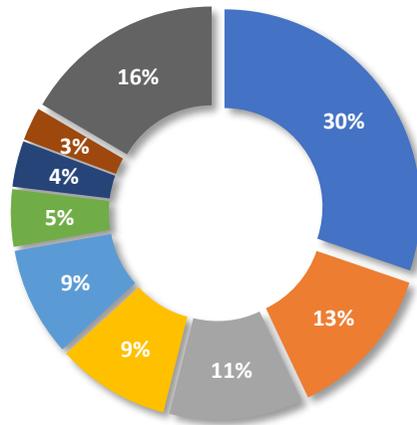


Key Statistics ~ Global

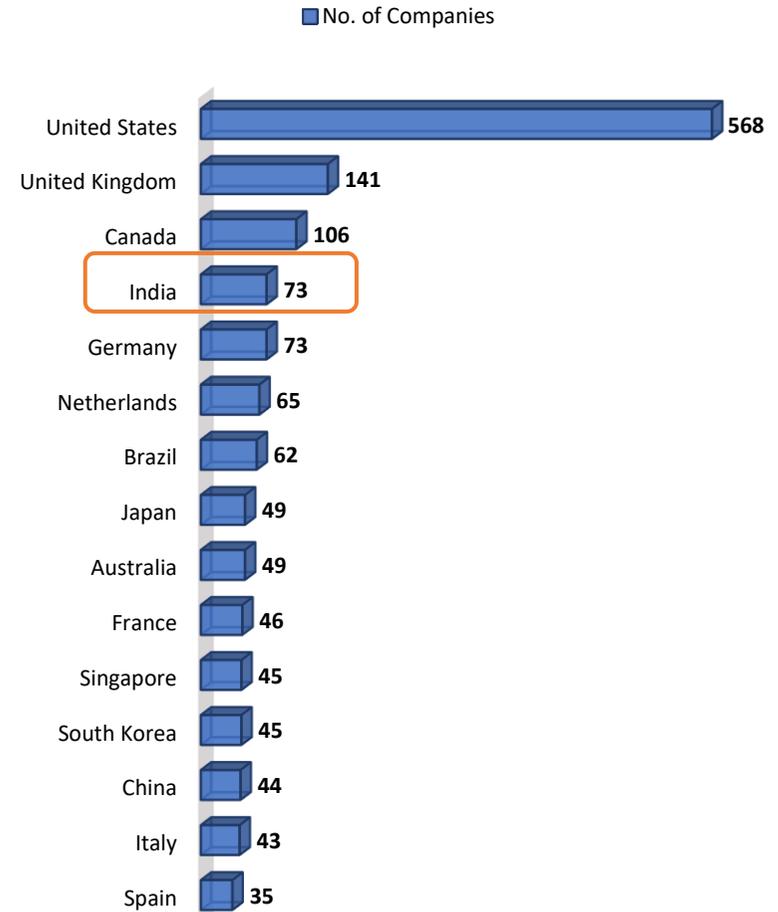


LAST TYPE FUNDING RAISED BY THE COMPANIES

- Seed
- Venture Series
- Pre Seed
- Series A
- Grant Money
- Non Equity Assistance
- Series B
- Angel
- Others Sources



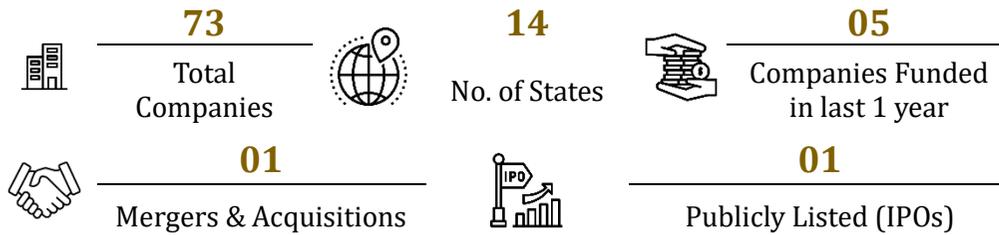
COMPANIES FROM TOP 15 COUNTRIES



Source: [Crunchbase Analysis](#) (with keywords description: Novel Foods, Alternative Protein, Food Innovation, Plant-based Foods, Cellular Agriculture, Culture Meat, Functional Foods, Food Biotechnology, Clean Meat, Future of Food, Sustainable Nutrition, Edible Insects, Precision Nutrition, Sustainable food, Plant-based meat, Animal free dairy, Cultured Meat, Plant-based ingredients, Cellular agriculture technology, Planet's resources, Maximum Nutritional Value, Hybrid meat)

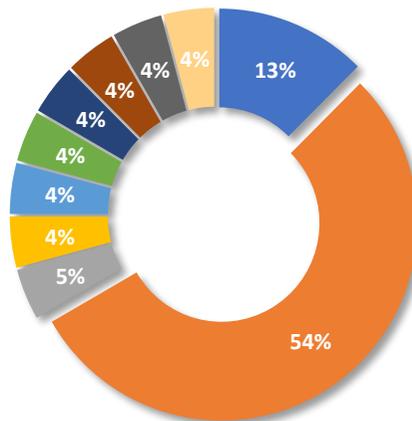


Key Statistics ~ India

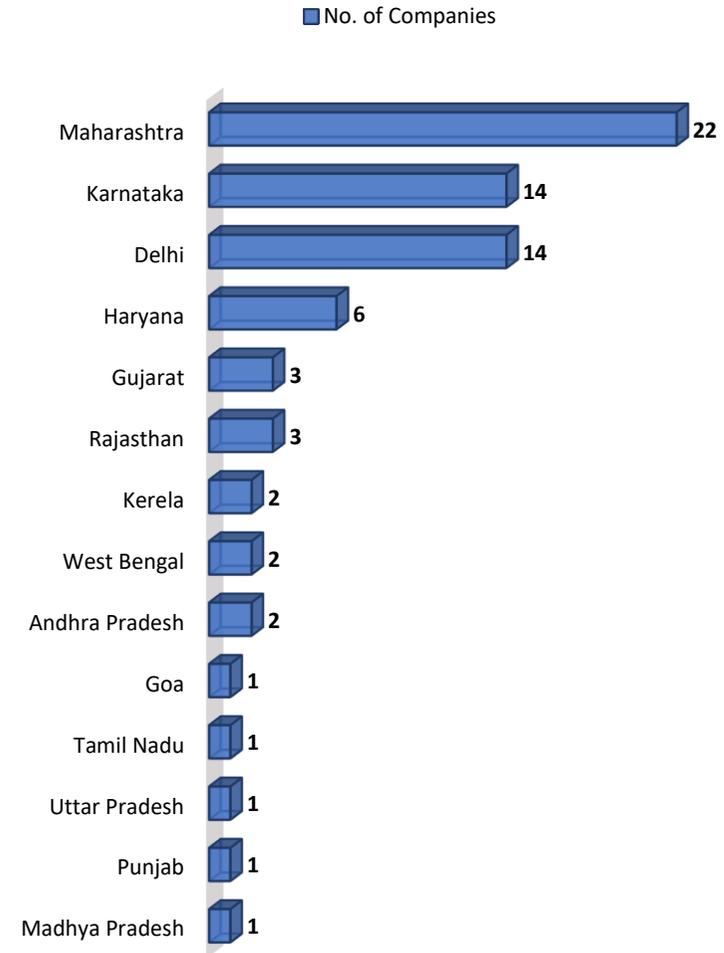


LAST TYPE FUNDING RAISED BY THE COMPANIES

- Pre Seed
- Seed
- Series A
- Series B
- Venture Series
- Angel
- Private Equity
- Grant Money
- Corporate Round
- Non Equity Assistance



COMPANIES FROM INDIAN STATES



Source: [Crunchbase Analysis](#) (with keywords description: Novel Foods, Alternative Protein, Food Innovation, Plant-based Foods, Cellular Agriculture, Culture Meat, Functional Foods, Food Biotechnology, Clean Meat, Future of Food, Sustainable Nutrition, Edible Insects, Precision Nutrition, Sustainable food, Plant-based meat, Animal free dairy, Cultured Meat, Plant-based ingredients, Cellular agriculture technology, Planet's resources, Maximum Nutritional Value, Hybrid meat)

Novel Foods Trend in India

In India, there is a discernible shift toward plant-based substitutes, functional meals, and sustainable sources of protein. This tendency is consistent with global shifts toward more ethical, ecologically friendly, and health-conscious eating choices. Important facets of this tendency include:



Plant-Based Alternatives

: The market for plant-based substitutes for conventional animal products is expanding. Indian businesses have started launching a wide range of plant-based products, such as sausages, burgers, dairy substitutes, and more. Consumers who are worried about their health and the welfare of animals are frequently the ones driving this movement.



Functional Foods

: Functional foods have become more and more popular because they provide health advantages beyond simple nourishment. Products enhanced with vitamins, minerals, antioxidants, and other bioactive substances fall under this category. Frequently, the goal is to enhance general health and wellbeing.



Sustainable Protein Sources

: Sustainable protein sources are becoming more popular as environmental sustainability becomes more widely recognized. This covers both novel sources like algae and fungus as well as plant-based proteins like soy, lentils, and peas. Additionally, businesses developing lab-grown or cultured meat as an alternate source of protein have drawn more attention.



Vegan and Vegetarian Options

: Food firms in India are extending their plant-based product lines in response to the growing popularity of vegan and vegetarian lifestyles. Along with animal replacements, this also contains a range of dairy alternatives and other vegan-friendly items.



Health and Wellness Products

: Health and wellbeing are receiving more attention, and customers are searching for goods with practical uses. This includes goods that support intestinal health, nutrient-fortified drinks, and snack foods.

Leading Startups Revolutionising India's Food Ecosystem

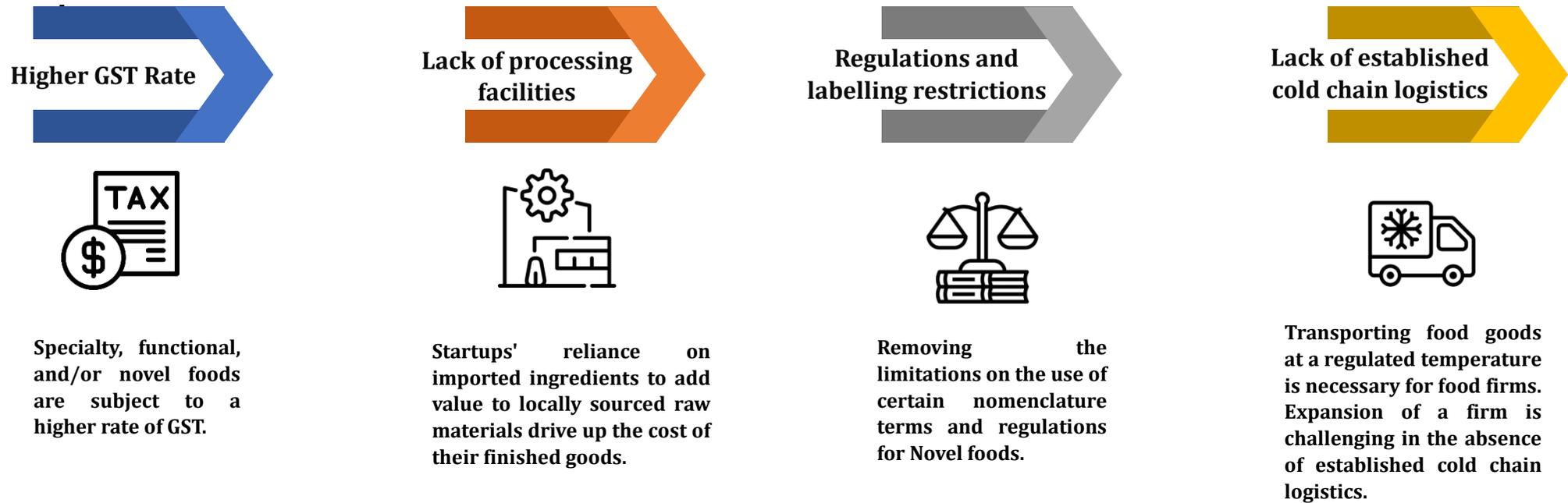
Sno	Logo	Company Name	Founder/s	About	Total Funding Amount	Funding Rounds	Investors	Product Reference
1		Good Dot and GoodDo	Abhishek Sinha, Abhishek Sinha, Deepak Parihar & Shruti Sonali	Introducing India to plant-based meat. GoodDO is a network of vegan kiosks that serves a variety of faux meat meals to promote vegetarianism.	\$6.5 Million	3	3	
2		Evo Foods	Kartik Dixit & Shraddha Bhansali	The food processing firm Evo Foods creates and produces a delectable and fluffy plant-based egg substitute.	\$4.3 Million	5	15	
3		Mister Veg	Rupinder Singh & Simarjeet Singh	Mister Veg uses advanced technology to create products that have the flavor and feel of meat without compromising the nutritional content	\$570K	2	1	
4		Goodmylk	Abhay Rangan	Dairy substitute producer Goodmylk offers door-to-door delivery.	\$1.4 Million	2	12	
5		Sain	Sheena Jain & Tarun Jain	Sain is a vegan dairy brand that sells items made with fresh almond milk.	Nil	Nil	Nil	

6		Greenest	Gaurav Sharma	Plant-based protein food items are offered by Greenest.	\$511K	1	2	
7		ClearMeat	Siddharth Manvati & Pawan Dhar	Lab-cultured meat is produced by Clear Meat.	\$160.2K	2	1	
8		Devigere Biosolutions	Smitha Devigere & Abhishek Devigere	Making innovative, quality, and sustainable plant protein concentrates from pulses	Nil	Nil	Nil	
9		Nourish You		Nourish You are the forerunners of the revolution in organic food.	167.7 million INR	5	5	
10		Live Yum Foods	Taanya Ravi & Victor Sjodin	A plant-based cheese business that uses potato starch, refined coconut oil, and vegan natural flavours to make vegan cheese, shreds, and cream cheese.	Nil	Nil	Nil	
11		String Bio	Ezhil Subbian	Global food security is enhanced by the sustainable industrial goods designed by String Bio.	\$20.2 Million	3	9	

Active Investors Investing in Indian Novel Foods Ventures

Investor	Logo	Investor Type	Headquarters	Number of Deal Counts	Portfolio Companies
ProVeg		Incubator	Berlin, Germany	10	Fattastic Technologies, Algrow Biosciences, Mister Veg, Naka Foods, Pro Meat, Rewild Bio, Seaspire, Clear Meat, Alt Foods, and Altein Ingredients
Better Bite Ventures		Venture Capital	Christchurch, New Zealand	4	Shaka Harry, Greenest, Phyx44, and Klever Meat
Big Idea Ventures		Venture Capital	Singapore	3	Evo Foods, Phyx44, and Green Gourmet Foods
Ahimsa VC		Venture Capital	Mumbai, India	3	Demolish Foods, Phyx44, and Alt Foods
Brinc		Accelerator	Hong Kong	3	Clear Meat, Zero Cow Factory, and Naka Foods
Ankur Capital		Venture Capital	Mumbai, India	2	String Bio
Unovis Asset Management		Venture Capital	San Francisco, USA	2	GoodDot and White Cub
Huddle		Venture Capital	Gurugram, India	2	Wakao Foods and Milkin Oats
Sandhya Sriram		Angel Investor	Singapore	2	Evo Foods and Phyx44

Major Challenges Faced



Source: [The Health Site](#)

India's Changing Regulatory Landscape for Novel Food

A new trend in the market for unique meals has been sparked by increased global connectedness. Novel foods have made their way into the Indian market, including genetically modified foods and food products, plant- and fermentation-derived proteins, and meat, eggs, and dairy substitutes made from cells. It is crucial to comprehend the regulatory framework established for innovative foods as a result. Novel foods are defined by FSSAI under the Food Safety and Standards (Health Supplements, Nutraceuticals, Food for Special Dietary Use, Food for Special Medical Purposes, Functional Food, and Novel Food) Regulations, 2016.

REGULATIONS PERTAINING TO NOVEL FOODS IN INDIA



The Food Safety and Standards (Approval of Non-Specified Food and Food Ingredients) Regulations, 2017 were notified by the Food Safety and Standards Authority of India ("FSSAI") on September 11, 2017. Certain food items or ingredients must have prior permission under the 2017 Regulations before being introduced to the market.

The 2016 Regulations also control eight food categories, including novel foods. A list of ingredients and additives that can be used in particular food categories is provided by the laws. Food Business Operators ("FBO") who want to produce, import, or market the designated foods must rigorously abide by these rules.

While the 2016 Regulations were superseded in March 2022 by the Food Safety and Standards (Health Supplements, Nutraceuticals, Food for Special Dietary Use, Food for Special Medical Purpose, and Prebiotic and Probiotic Food) Regulations, 2022, the latter explicitly excludes novel foods from its application. As a result, novel foods are still governed by the 2016 and 2017 Regulations.

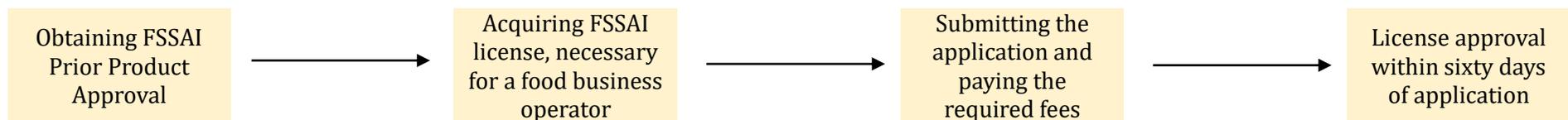
Additionally, the Food Safety and Standards (Vegan Foods) Regulations, 2022 ("Vegan Regulations"), which control plant-based food items that are novel foods, were notified by the FSSAI in 2022. The Vegan Regulations include labeling declarations, prerequisites for previous approval, and what constitutes a vegan diet, among other things.

PERMISSION FOR NOVEL FOOD MANUFACTURERS



According to the Food Safety and Standards (Licensing and Registration of Food Business) Regulations, 2011, new food enterprises must apply for a central license from the licensing authority. FBOs must adhere to hygiene and safety norms in addition to the particular license application requirements.

PROCESS TO PROCURE THE NOVEL FOOD LICENCE



Source: [FSSAI Regulation](#) and [Mondaq](#)

The Current State of Novel Food Regulation Globally

Alternative protein companies are rapidly emerging in countries all over the world. Several precision fermentation products that have been approved in the US are yet to be approved in the EU (e.g. Impossible Foods', Perfect Day's whey or EVERY's hen egg whites). Cultivated meat has only been approved in Singapore (e.g. Just's Good Meat) and the United States of America (e.g. Upside Foods) so far.

Progress to commercialization and industry growth is stilted because, currently, only a few countries in the world have a novel food regulatory framework. Even fewer have what would be considered 'progressive' frameworks: those that are easily accessible, supportive, and expeditious.

Other countries with existing frameworks include Australia, Canada, the European Union, Israel, New Zealand, Saudi Arabia, Singapore, the United Arab Emirates, and the United Kingdom.



For the majority of countries, the approval process has yet to be defined for many types of novel foods, including cultivated and precision fermentation-derived products. For example, in Japan, there is no specific novel food framework but a legal framework for ‘substitute meat’ or ‘cultured meat’ is under consideration. For now, novel food is subject to the same safety requirements as traditional food, with no additional requirements.

In the USA, there is no specific novel food regulation nor even a legal definition of novel food. However, if a substance has not already gone through one of the approval procedures or does not have a history of use prior to 1958, then it is likely considered a ‘novel food’.

Despite the lack of a novel food framework to encompass all alternative proteins, regulatory pathways for food ingredients are well-developed in the USA, and applicable to novel foods including from sources such as precision fermentation.

Best Practices for Setting-Up Novel Food Regulatory Framework

The following should be taken into consideration when developing a progressive novel food regulatory framework:



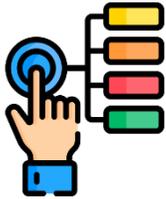
Mutual acceptance of approved novel foods :

- ✓ A progressive innovative food regulatory system should contain a clear method to approve items that have already received approval in other jurisdictions, since this prevents duplication of effort.
- ✓ The regulatory authority and the applicant may incur substantial costs and time for safety assessments and evaluations; mutual recognition would greatly cut down on the time and resources required to approve new goods.
- ✓ Mutual recognition has the potential to stimulate international cooperation and collaboration, therefore expediting the worldwide expansion of the alternative protein sector.



Providing comprehensive and unambiguous product-specific guidance :

- ✓ The regulatory authority will need less time and resources to analyze and approve applications if the particular data requirements for each product type are outlined, encouraging applicants to provide only pertinent information.
- ✓ Clear advice may also reduce the possibility of delays or rejections brought on by missing or irrelevant data, providing businesses with more assurance and clarity about their capacity to secure regulatory clearance.



Giving interactive guidance prior to submission :

- ✓ Considering regulatory procedures may be intricate and subtle, applicants may need interactive assistance to navigate them successfully. Pre-submission guidance will also foster an open and cooperative relationship while guaranteeing that applications will be processed correctly to maximize the likelihood of a favorable result.



Approval process ought to take six to twelve months. :

- ✓ Currently, the EU's new food approval timeframe spans between 18 and 36 months. This is far too lengthy for entrepreneurs, who sometimes have limited funding and must launch their products swiftly in order to begin making money.
- ✓ Together with fast changing consumer tastes, plant-based trends, and competitive pressures, the alternative protein business is likewise moving quickly. Startups may find it difficult to draw investors and risk losing out on market share and product profitability if the clearance process takes longer than a year.

Source: [Bright Green Partners](#)

Conclusion

Concerns about environmental sustainability, changing consumer choices, and health consciousness are all driving a radical change in the Indian and worldwide food scene. The emergence of plant-based substitutes, functional meals, and sustainable protein sources in India is indicative of a vibrant and encouraging trend.

Sustainable agriculture, alternative protein production, and biotechnology are all contributing factors to the global breakthroughs in the new food industry. Innovative alternatives, such as plant-based meats and cultured proteins, have emerged as a result of the need for healthier and more ecologically friendly meals. These advancements are not only changing dietary preferences but also fostering a more ethically and sustainably run food business. It is imperative that stakeholders—regulatory agencies, business leaders, and consumers—work together to promote a responsible and creative food ecosystem as we navigate the future of new foods.

India will lead its own variant of the plant-based food revolution driven by its unique dietary and cultural traditions. The movement here will primarily be an extension of India's vegetarian cuisine and snack market.

Improved processing and extraction technologies will enable FMCG companies to incorporate indigenous plant nutrients into ready-to-eat products far more efficiently. With this, plant-based products will seek to match animal products in their protein and micronutrient (zinc, iron, etc.) availability. This will cater to consumers across the spectrum who desire healthier and more nutritious alternatives to today's carb-heavy vegetarian snack options, without having to eat animal-based products.

Another large segment will focus on offering dairy alternatives to those who are lactose intolerant (a steadily growing figure as awareness levels rise). These products will go beyond milk towards more value-added, nutrient-rich products like ice-cream, yogurt, cheese, and ready-to-drink beverages that meet the population's aspirations.

Parent plants of derivatives will surpass from soy and almond, towards more nutritious and sustainable options like coconut, hemp, and oats that reinforce the "goodness" and "local" USP.

There are possibilities as well as difficulties in the new food scene. In addition to redefining our gourmet experiences, embracing these changes with a proactive and cooperative mindset will be crucial in determining a better, more sustainable future for food production and consumption in India and throughout the world.





pusakrishi.in



[PusaKrishi](https://www.facebook.com/PusaKrishi)



[pusakrishi](https://twitter.com/pusakrishi)



ceo@pusakrishi.in



ZTM BPD Unit, IARI Pusa
Campus, New Delhi