

# PLANT-BASED SEAFOOD: KEY INSIGHTS AND PRODUCT ROLLOUT GUIDE

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Image: SeaSpire

# INTRODUCTION

Global seafood<sup>1</sup> production is estimated to have reached about 179 million tons in 2018, valued at around USD 400 billion. Out of this total production, approximately 88% (156 million tons) was used for human consumption. The seafood sector is also a major source of employment across the world, with an estimated 59.5 million people engaged in the primary sector of fisheries and aquaculture in 2018. India is home to more than 10% of the global fish diversity and presently, the country ranks second in the world when it comes to total fish production, with approximately 14.2 million tons of seafood produced in 2019-20. The fishing sector contributes around 1.24% to the Indian economy and around 7.3% to the Indian agriculture sector. India is the second largest producer of aquaculture (majorly shrimp production) after China and the largest exporter of shrimp in the world. Total production in the country stood over 800,000 MT during 2019 with the sector managing double digit growth in the last decade.

**With increasing incomes and awareness about the health benefits of fish - perceived as a healthy food containing high levels of digestible protein, PUFA (polyunsaturated fatty acids), and cholesterol lowering capability - the world's appetite for seafood and fish products shows no signs of slowing down.**

Total fish consumption has increased by 122% between 1990 and 2018 worldwide. In per capita terms, the consumption rose from 9.0 kg (live weight equivalent) in 1961 to 20.5 kg in 2018. Average annual growth rate of fish consumption (3.1%) has outpaced the annual population growth (1.6%) in these years, leading to a drop in percentage of fish stocks that are within biologically sustainable levels (decreased from 90% in 1974 to 65.8% in 2017).

The last few years have also seen an increase in the number of consumers who are becoming more conscious about their daily diets. They are looking at reducing their consumption of animal based products for health, ethical, or environmental reasons. Plant-based alternatives to various types of animal meats are gaining acceptance all over the world and are projected to be a USD 100 billion market by 2030. From 2019 to 2021, plant-based seafood consumption grew 42% - albeit on a small consumer base, as several brands and products came to market or expanded distribution. Moreover, Impossible Foods announced in 2020 that it was working on plant-based fish, and Good Catch raised USD 32 million in financing in 2021 for its plant-based seafood. Nestlé also has revealed plans to launch a vegan tuna salad.

While North America and Western Europe are the two largest markets for plant-based meat, China and India have the largest percentage of people who say that they would eat plant-based substitutes. Chicken, mutton, and seafood have the highest appeal if produced using plant-based methods.

**This guide provides key insights that will help manufacturers of plant-based meat in India to successfully roll out plant-based seafood options by laying out do's, don'ts and specifics about the category.**

These insights are shaped by pairing consumer research done by GFI India along with the learnings we've seen from market rollouts in the plant-based seafood space, both in India and other countries.

1. Includes fish, crustaceans, molluscs, and other aquatic animals, but excludes aquatic mammals, reptiles, seaweeds and other aquatic plants.

1

# Who is the target audience for plant-based meat in India?



YOUNG (25-44)



HIGHER INCOME  
(MHI of INR  
50,000+)



WELL EDUCATED  
(GRADUATES AND  
ABOVE)

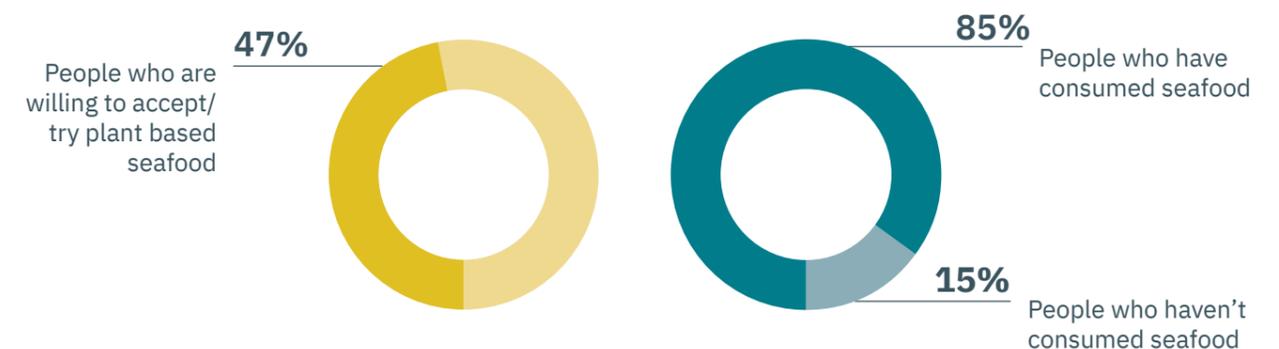


LIVING IN URBAN  
AREAS



OMNIVORES

- **Younger** (25-44), **higher income** (MHI of INR 50,000+), **well educated** (graduates and above) people, living in **urban areas** and **omnivores** are the early adopters for plant-based meat in India. This cohort has a higher intent to purchase plant-based meats regularly (73% of them) and are willing to pay a price premium for plant-based meat over conventional meat (53% of them).
- **Early adopters are meat-eaters** with a high consumption frequency for conventional meat - almost 14 times a week spanning across breakfast, lunch, snacks, and dinner.
- Conventional meat consumption for these audiences has moved beyond **special occasions** and is now a part of their **weekday menus**. Their meat eating occasions range from normal weekday meals, to get-togethers, celebrations, festivals, marriages, office meetings, and more.
- 1 in 4 early adopters claim that they would **not want to consume animal-based products** like chicken, seafood, mutton, dairy, or eggs in the future. Product related barriers (hygiene of the meat procured, smell, ease of cooking, and heaviness on the stomach post consumption) along with increasing consciousness around animal cruelty, impact on planet, and personal health are some of the reasons why early adopters are looking at reducing their conventional meat consumption.



- 85% of early adopters say they have consumed seafood in the last 12 months and 47% are willing to accept/try plant-based options for seafood.

- Seafood is considered a lean protein and the healthiest form of protein. Consumers claim that it is easy to digest and good for all age groups - from toddlers to elderly people.
- Seafood has the **highest market penetration after poultry** among the early adopters. 78% of the early adopters have consumed seafood in its conventional form in the last 3 months and 63% have consumed seafood in the last one week.
- Of the 14 times that early adopters consume conventional meat in a week, seafood is consumed about **2.7 times a week**.
- Lunch and dinner are the key parts of the day for consumption, accounting for 90% of the occasions where seafood is consumed. Only 9% of the early adopters' recent occasions for consumption of conventional seafood were for breakfast and snacks.



- 60% of early adopters consume seafood both at home and out of home, while 30% of them have it only at home, and 10% of them have it only out of home.
- For 68% of the occasions where seafood is consumed, it is home cooked, and for 26% of the occasions it is ordered from outside - showcasing the opportunity for plant-based seafood in both the food service space as well as household kitchens.
- Seafood has a relatively **higher proportion of early adopters consuming it only at home (30% vs 21% for poultry) or cooking mostly at home (68% vs 60% for poultry)**. Higher pricing for seafood relative to chicken could be one of the factors influencing this trend.

## 2

# What is the consumption behavior for seafood among early-adopters?

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## What are the drivers for consumption of seafood?

- Since the **primary target audience is non-vegetarians**, plant-based seafood would be consumed for similar reasons as conventional seafood.



Healthiest form of meat

High Omega-3 content

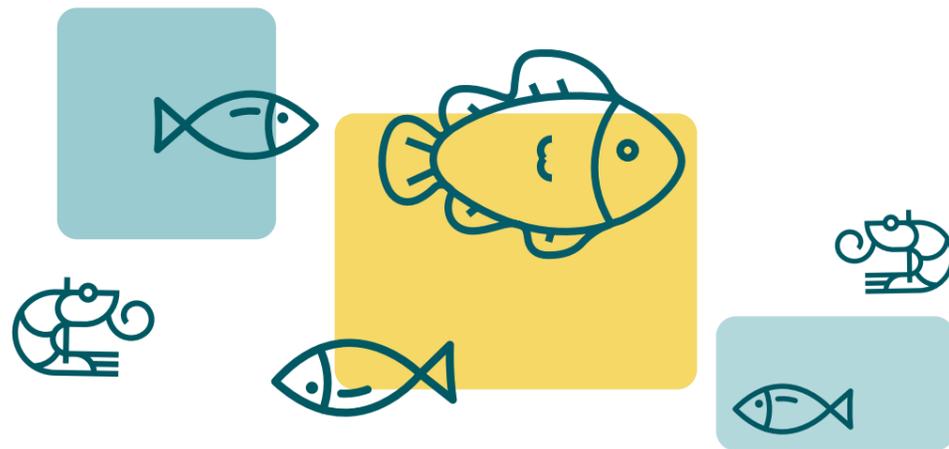
Good for all age groups

Easy to digest

Image: Mighty Foods

- At a spontaneous level, the top associations with seafood are that it is the **“healthiest form of meat, has high omega-3 content, is easy to digest, and is good for all age groups”**.
- When we quantify all the key attributes associated with seafood, **health and nutrition emerges as the top driver** of consumption, compared to poultry and mutton where taste is the primary driver of consumption. It is interesting to note that consumers in Kolkata consider freshwater fish healthier than seawater fish.
- High in lean protein, easy to digest, high omega-3 content, low fat and cholesterol are some of the things that consumers associate with seafood. Consumers also talk about omega-3 being good for hair and skin.

- **The fact that the “whole family likes it” and “taste” are the next most important drivers for consumption of seafood after health.** There are preferences seen for types of seafood depending on the source of origin. Consumers in Mumbai prefer seawater fish as against the consumers in Delhi, Bangalore, and Kolkata who prefer freshwater fish. However, compared to poultry and mutton, seafood scores low on taste, indulgence, and craving.
- **Easy availability** is also a key driver of consumption, with seafood being available in both open markets as well as organized markets. However, some consumers had concerns around picking up the right quality of fish while buying.
- Seafood scores **relatively lower on ease of cleaning**, cooking, and the aroma/ smell of cooking, as compared to poultry and mutton. Many consumers in Kolkata raised concerns about the amount of time spent cleaning seafood. However, once cleaned, seafood doesn’t take much time to cook.



*Large number and varieties of fish available for consumption*

- Seafood also scores low in terms of versatility (the number of dishes that can be prepared with it). Cooking is limited mostly to curries or pan fried dishes. However, this is compensated by the **large number and varieties of fish available for consumption**. With a wide range of fish available from freshwater to saltwater, each type of fish has a different taste and caters to a different palate.
- **Affordability is also a concern** with seafood - with most early adopters rating it lower than poultry and mutton. This shows the skew in consumption towards premium seafood for early adopters.



*Image: The Plant Based Seafood Co.*



PRODUCT DEVELOPMENT



PACKAGING



PRICING



POSITIONING



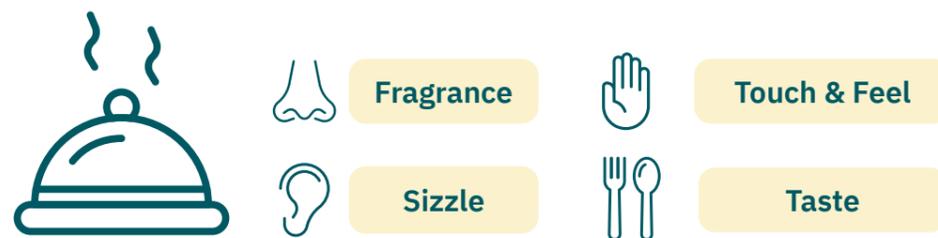
DISTRIBUTION

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**How do we go about developing a marketing mix for plant-based seafood?**

## 4.1. PRODUCT DEVELOPMENT

- **Taste profile of seafood varies depending on the variety and source of water.** While some regions prefer freshwater fish, some prefer saltwater. Hence, it is important to recreate the exact taste profile.
  - Rohu, catla, hilsa, pulasa, kajuli, rani, betki, etc are some of the commonly consumed varieties in freshwater fish.
  - Pomfret, kingfish, salmon, red snapper, sea bass, bangda, mandeli, bombil, etc are some of the varieties in saltwater fish.
- Fresh meat is preferred (65% of the time, seafood procured is fresh). However marinated (26%) and ready to cook (22%) products are also making in-roads with consumers. Building on the same trend, there is opportunity for innovation across formats - from frozen to refrigerated in plant-based seafood.
- Since the category is new, having consumers try plant-based meat products via variations in popular menu dishes is the best possible way to get consumers to experiment. The same has been proven in the US, where **familiar contexts, formats, flavors, and preparations resonated well with customers trying plant-based meat.** Most manufacturers recreated formats that are popular with consumers like burgers, meatballs, sausages, ground meat, and so on. When we look at formats and preparations that work well for India, **seafood curry and fish fry** emerge as the most loved seafood dishes.



- When innovating within the smart protein segment, **prioritizing the multi-sensorial experience that a plant-based dish promises** and not just what the dish is, works well with customers. For example, while launching a plant-based seafood dish, companies should ask “what is the experience I am creating this for, and what role does conventional meat play there?” rather than simply considering “what form of seafood do I need to replace?” **aroma, sizzle, taste, and feel.**

- In India, we also need to think about plant-based seafood in its final cooked form and not in the raw form. For example, replacing conventional fish in a curry would do better than raw formats.
- Some of the **sensory cues** that need to be recreated for plant-based seafood are:
  - Texture and consistency of meat is important - the texture of your filet or cut should be firm. Consumers claim that seawater fish has thicker meat compared to freshwater fish and so considerations like these need to be taken into account.
  - Color of the meat should be pinkish as white meat is considered to be stale. Meat should not smell too much as too much smell is associated with seafood being stale.
  - Seafood should be quick and easy to cook, and the meat should retain its shape after cooking. If fish falls apart into pieces, it isn't considered fresh.
  - While eating seafood, the meat needs to hold on to the bones but also come off easily when cut. Ideally, there should be a few bones which are easy to remove.
  - Meat should not be chewy as chewiness indicates overcooked meat.
- Seafood is traditionally not available across a few months of the year on account of **breeding seasons**, and even if some fish is available throughout the year, it's considered to be bad quality meat. This could be a good opportunity for plant-based options - to be **available through the year and provide the right quality that consumers are looking for.**
- While developing products for restaurants, it is important to ensure:
  - **Versatility:** SKUs that can be used for multiple dishes.
  - **Similar prep procedures:** SKUs that can be cooked and prepared similar to conventional seafood, with faster turnaround time.
  - **Similar equipment:** SKUs that can be cooked with existing equipment used to cook conventional seafood.

## 4.2. PACKAGING



### Packaging Standards

Preferred pack size 500gm / 1kg

Packaging material Sustainable

Important information Nutrition facts, Protein content, and Ingredient list.

Term of identification Plant-based

Terms to avoid Fish-less

\*Make sure to use good pictures and appetizing descriptions of products

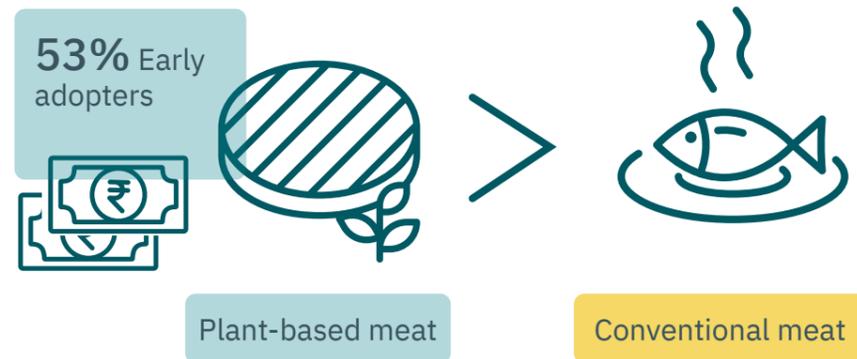
- On average, **1.1 kg** of conventional seafood is consumed for each occasion by the early adopters:
  - 500 gm to 1 kg accounts for 30% of the occasions.
  - 1 kg to 1.5 kg accounts for 30% of the occasions.
  - 250 gm to 500 gm accounts for 17% of the occasions.
- Therefore, while 500 gms and 1 kg are the most commonly bought pack sizes for conventional seafood, plant-based seafood could start with smaller sizes like 250-300 gm to encourage consumer trials.
- For consumers, along with product-related barriers that conventional seafood brings with it, the move to plant-based seafood is also influenced by the preference for a sustainable lifestyle and a better future for the planet. Hence, plant-based seafood manufacturers have to keep in mind that environmentally conscious consumers are also often concerned about the **sustainability of packaging materials used**.

- In a study conducted by GFI India with plant-based dairy users in India, it was found that the majority (90%) of the consumers of the category tend to pay **attention to the labeling** on the products. They check both the front of the pack and back of the pack. Besides looking for the date of packaging/expiry date - which is the most commonly checked criteria for both plant-based and animal-derived foods - consumers of plant-based dairy also paid attention to the **nutrition facts, protein content, and ingredient list**. This could be stemming from the fact that plant-based protein as a category is relatively new compared to animal-derived protein, and we expect the same trend to play out for plant-based seafood as well.
- Using the term **'plant-based' as the primary identifier** rather than vegan or mock meat is very important to access the largest target audience and not alienate any segment of the consumer base. The terminology of 'plant-based' is most universally accepted as 'warm', with a 'farm to table connotation' and is the 'least excluding' term according to the consumers. This nomenclature also taps into larger food trends playing out in the industry.
- Good pictures and appetizing descriptions of products work well. Focus on the positives while labeling and **avoid perceptions of deprivation like 'fish-less, and so on**.



Image: Gardein

### 4.3. PRICING



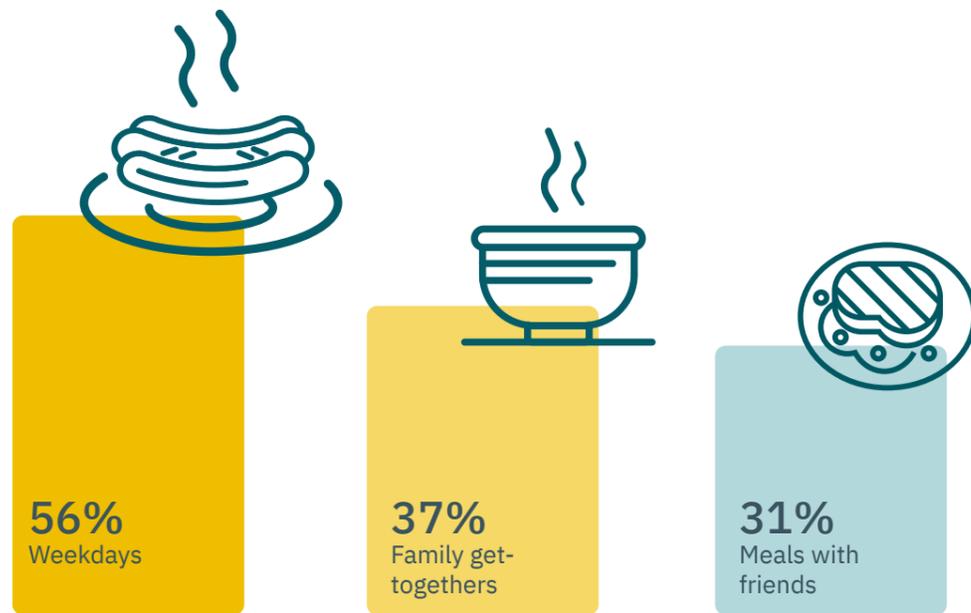
- **53%** of early adopters of plant-based meat in India are willing to pay a price premium for plant-based meat over conventional meat.
- In a qualitative survey conducted by GFI India within the foodservice industry, around half (46%) of consumers are willing to pay a **price premium of 10-20%** above conventional meat.
- On an average **INR 530 is spent for 1.1 kg** of seafood by the early adopter in India. For a protein that is considered to be relatively expensive by the Indian consumer, it would be tough to reach a wide audience if price points for plant-based seafood are too high, compared to the price points for conventional seafood. Manufacturers will have to study the market to understand the price premium that they can charge to start with. For example, Impossible Foods in the U.S. has cut the prices for food-service distributors twice in 2020 as part of its push to compete on price parity with traditional ground beef. It also cut the prices of its meat patties by 20% at U.S. grocery stores in 2021, and is planning to ramp up its production with a larger plan to eventually undercut ground beef prices.
- Beyond Burger - which was selling for about USD 12 a pound while conventional ground beef was USD 5 a pound - has announced value packs for summer barbeque season, pricing their patties at USD 6.40 per pound, bringing their price point closer to conventional beef as a limited time offer. Beyond Meat also claims to be on track to meet price parity with at least one plant-based product by 2024.

### 4.4. POSITIONING

- Eating meat in the Indian context is not just a food choice. It's a way of life, deeply rooted in emotional and cultural associations. Consumption of meat is also associated with affluence and is considered to be a signifier of social status. Therefore, it is important for plant-based meats to **build on the aspirational angle** to be able to win against conventional meat.



- Looking at the case studies from across the globe, marketing is extremely important when it comes to driving plant-based meat consumption, and **taste has to be the primary message within marketing campaigns and product promotions**. With seafood, since health and protein content are the most important drivers for consumption, positioning plant-based seafood dishes as **healthy, high in protein, flavorful, and indulgent can help**.
- Non-vegetarian cooking, especially the cleaning of seafood is seen as an **elaborate and time consuming affair**. Consumers also expressed concerns over **selecting the right quality of seafood** when buying. Therefore, less 'kitchen or cleaning time' or 'faster to prepare' messaging, and 'just the right quality' messaging can work well, along with highlighting motivations that non-vegetarians can relate to around satiation, gratification, and self-expression.



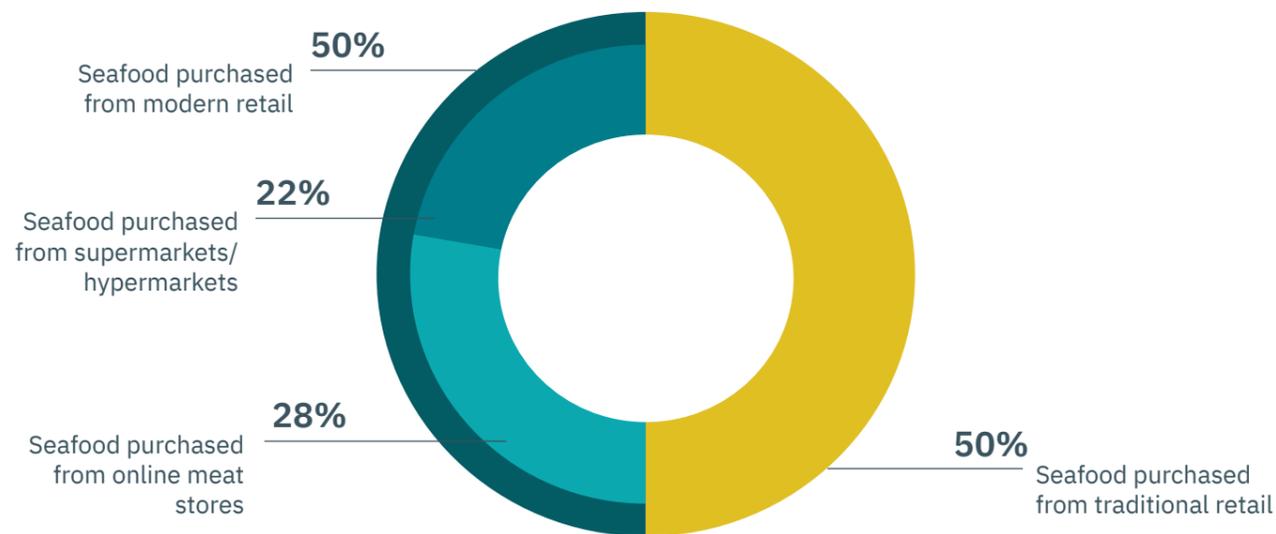
- The average, regular weekday meal (56%) is the biggest consumption occasion for seafood, followed by get-togethers with family (37%) and meals with friends (31%). Manufacturers can start by building their positioning around these occasions.
- Plant-based seafood has to evoke similar feelings that are experienced when conventional seafood is consumed. ‘Felt energetic’ (50%), ‘craving was satisfied’ (50%), ‘felt indulged’ (35%), ‘felt nourished/healthy’ (32%) are some of the top reactions associated with a seafood meal.



Image: Good Catch

## 4.5. DISTRIBUTION

- Plant-based meat as a category has created awareness and buzz through **food service outlets** globally, and then made its way to the consumer's kitchen through retail outlets.
- While high awareness is seen among global QSRs, awareness among other players in the industry is also encouraging. As per a qualitative survey conducted by GFI India with the stakeholders in the food service industry, 28% of them are aware of plant-based meats currently and 72% of them are likely to try retailing plant-based meats if the price and sensorial experience matches up to conventional meat. Tie ups with existing meat distributors via HORECA or online channels can help in exploring distribution synergies with the food service industry.
- Plant-based meat manufacturers also have to be competitive on the **credit period** offered by the conventional meat suppliers. A credit period of **30-60 days** minimum is ideal in order to be competitive with conventional meat suppliers.



- Early adopters buy conventional seafood from **traditional retail** for about **50%** of the occasions and from **modern retail** for the remaining **50%** of their occasions- **28% of times from online meat stores** like Licious, Zappfresh, Fresh To Home, etc. and **22% of times from supermarkets or hypermarkets**. Plant-based seafood could follow the same trend and explore synergies for distribution with modern retail, especially online retail.

- Food tech - online food delivery - has now made its presence in more than 500 cities in India, with Swiggy alone offering services in 500+ cities and Zomato in 300+ cities. Tie ups with these aggregators could be a good opportunity to reach the right audience across India. It's also worth noting that Swiggy Instamart is already stocking different plant-based products, which can be found under their regular 'meat and eggs' segment, and is delivering plant-based meat in key metros within 15-30 minutes of consumers placing their orders.



Image: GFI US, Ocean of Opportunities

## References

1. [A Deep Dive Into the Early Adopters of Plant-Based Meat in India](#): Understanding their profile, attitudes, and consumption occasions via quantitative data by GFI India
2. Plant-Based Meat in India: A Qualitative Study on Attitudes and Opportunities for Smart Protein by GFI India
3. Insights into Procurement, Operations, and NPD of the Food Service Industry by GFI India

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## ABOUT GFI INDIA

Since our establishment in 2017, GFI India serves as the central thought leader and convening body in the space of plant-based, cultivated, and fermentation-based meat, eggs, and dairy that are collectively known as the “alternative protein” or “smart protein” sector.

With unique insight across the scientific, policy, industry, and investment landscapes, we are using the power of food innovation and markets to accelerate the transition of the world’s food system toward smart proteins. In building the sector from the ground up in India, we’re aiming to establish a model for its growth all across the developing world. The Good Food Institute India (GFI India) is part of an international network of nonprofits with partners in Brazil, Israel, U.S., Europe, and the Asia Pacific, on a mission to build a healthy, sustainable, and just global food system.

To learn more about our work and the smart protein ecosystem in India, visit us at [www.gfi-india.org](http://www.gfi-india.org) or on social media.

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