CoFTI
Coalition for Food-Systems Transforma(c)tion in India

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WORKING PAPER

ASSESSMENT OF PROTEIN-RICH PRODUCTS IN THE INDIAN CONSUMER-DRIVEN MARKET

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About CoFTI

The **Coalition for Food-Systems Transforma(c)tion in India (CoFTI)** was born out of the United Nations (UN) Food Systems Summit 2021 with a commitment to reshaping India's food system so that safe and nutritious food is accessible to all. Its mission addresses hunger and malnutrition while championing biodiversity, climate resilience, and the protection of livelihoods. By bringing together diverse stakeholders, CoFTI works to create sustainable and equitable solutions that balance the needs of people, planet, and economy. Grounded in the Sustainable Development Goals (SDGs), the Coalition drives positive change across seven key areas of work, ensuring that India's food systems remain resilient for both present and future generations.

CoFTI's approach is anchored in three core objectives.

1 THOUGHT LEADERSHIP	**USING RESEARCH, INNOVATION, AND EVIDENCE-BASED INSIGHTS TO SHAPE EFFECTIVE POLICIES AND GUIDE THEIR IMPLEMENTATION.**
2 COLLECTIVE ACTION	**OFFERING A COLLABORATIVE SPACE WHERE STAKEHOLDERS CAN UNITE, SHARE RESOURCES, AND WORK TOGETHER ACROSS ITS AREAS OF FOCUS.**
3 BUILDING CONNECTIONS	**FOSTERING STRONG LOCAL AND INTERNATIONAL NETWORKS TO ENABLE THE EXCHANGE OF KNOWLEDGE AND STRENGTHEN PARTNERSHIPS**

Through these objectives, CoFTI serves as both a catalyst and a convener, ensuring that India's journey towards a just, sustainable, and nourishing food future is grounded in shared purpose and actionable solutions.

CoFTI Core Group comprises of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Welthungerhilfe India (WHH), Food Future Foundation (FFF), and Watershed Support Services and Activities Network (WASSAN), which hosts the Secretariat of CoFTI.

The Core Group has evolved to CoFTI's Transformation Council (2025–26), a strategic advisory body driving high-potential initiatives through a cross-sector cohort. It unites civil society, government, academia, and private sector stakeholders to advance collaborative food systems transformation in India.

The CoFTI Fellowship Programme

The CoFTI Fellowship Programme (2025) was conceptualized to nurture early-career researchers in India by supporting them to explore and generate evidence on critical food systems issues. Designed as a structured three-month fellowship, it combined rigorous selection, thematic focus, and a mentorship model curated, hosted and implemented by CoFTI Secretariat with support from WASSAN and Welthungerhilfe (WHH) India. Through guided research and collaborative knowledge creation, the programme culminated in the Fellows producing six working papers, an Issue Brief, and a detailed survey-based analytical report.

The CoFTI Fellowship Programme was carried out from August to November 2025 followed by a rigorous process of review and finalisation of the outputs. Applications were invited from early career researchers for specific thematic areas identified through consultations with CoFTI members. The programme received nearly 500 applications from which eight fellows were selected by a panel including the CoFTI Core group members and other subject experts who are also members of the Coalition. A team of subject experts was invited to mentor the Fellows. The CoFTI Fellows received an honorarium to support their research during the Fellowship, and the final topics were decided jointly by the Fellows and their assigned mentors.

Of the eight fellows selected, seven successfully completed the CoFTI Fellowship programme. Five Fellows undertook original research projects from conceptualisation to manuscript preparation, while two contributed to the development of a CoFTI Issue Brief and a survey-based report.

Voluntary mentorship by CoFTI members: A defining feature of the fellowship was its mentorship model. Members of CoFTI, Core Group, and the Secretariat have voluntarily mentored the fellows throughout the programme.

The fellowship culminated in the presentation of findings, followed by review, revision, and publication as part of the CoFTI Working Paper Series, with opportunities for further research collaboration and publication.

The CoFTI Secretariat was responsible for the overall design and coordination of the fellowship programme. This included developing the fellowship framework, managing the selection process, facilitating mentor–fellow engagement, and coordinating the review, editing, design, publication, and communication of the fellows' outputs. As the institutional anchor of the Secretariat, WASSAN also played a significant role in the operational management and smooth implementation of the fellowship programme by providing administrative, human resource, and design support, which was instrumental in ensuring the effective delivery of the programme.

Acknowledgements

This working paper was developed as part of the CoFTI Fellowship Programme (August–November 2025). Through mentorship, financial support and opportunities to undertake empirical research, the Fellowship provided a foundation for the conceptualisation and development of this paper.

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The views expressed in this working paper are those of the authors and do not necessarily reflect the views of all contributors, participants, or partner organisations.

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LIST OF ABBREVIATIONS

CoFTI	Coalition for Food Systems Transforma(c)tion in India
FFF	Food Future Foundation
FSSAI	Food Safety and Standards Authority of India
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
ICMR	Indian Council of Medical Research
NIN	National Institute of Nutrition
RDA	Recommended Dietary Allowance
SDG	Sustainable Development Goal
UN	United Nations
WASSAN	Watershed Support Services and Activities Network
WHH	Welthungerhilfe

Executive Summary

The rising environmental and nutritional pressures of conventional protein production have intensified global interest in sustainable protein sources. India presents a unique case within this transition: despite being one of the world's largest producers of cereals and pulses, diets remain dominated by cereal proteins, while high-quality protein sources, including pulses, dairy, and novel plant proteins, are under-consumed across many socio-economic groups. At the same time, livestock systems, particularly dairy, contribute to greenhouse gas emissions through enteric fermentation, feed cultivation, and manure management, highlighting the role of protein diversification that align with socio-cultural and environmental sustainability and Sustainable Development Goals (SDGs 2, 3, 12, and 13).

This working paper analyses the Indian market landscape of protein-rich vegetarian and vegan products, drawing on a dataset of 106 retail products across categories such as protein powders, bars, shakes, plant-based alternatives, and fortified staples. Through nutrient profiling, cost-per-protein assessment, salt–sugar–fat analysis, and claim assessment (nutrition, sustainability, and marketing claims), the study evaluates how well current products meet consumer needs and sustainability targets. These results highlight a nutritional trade-off in India's rapidly expanding protein-rich and plant-based product space: consumers can access more convenient protein options, but may navigate variability in overall healthfulness.

Market positioning patterns revealed that high-protein supplements are primarily targeted at athletes and gym-goers, while fortified everyday foods, such as yogurts, paneer, premixes, and multigrain staples, are aimed at weight management and general wellness. Meanwhile, plant-protein foods such as tofu, tempeh, soy chunks, and multigrain mixes cater largely to vegetarians, vegans, and consumers reducing meat intake. Snack formats such as protein chips and puffs are positioned as convenient, higher-protein alternatives within an expanding "better-for-you" segment.

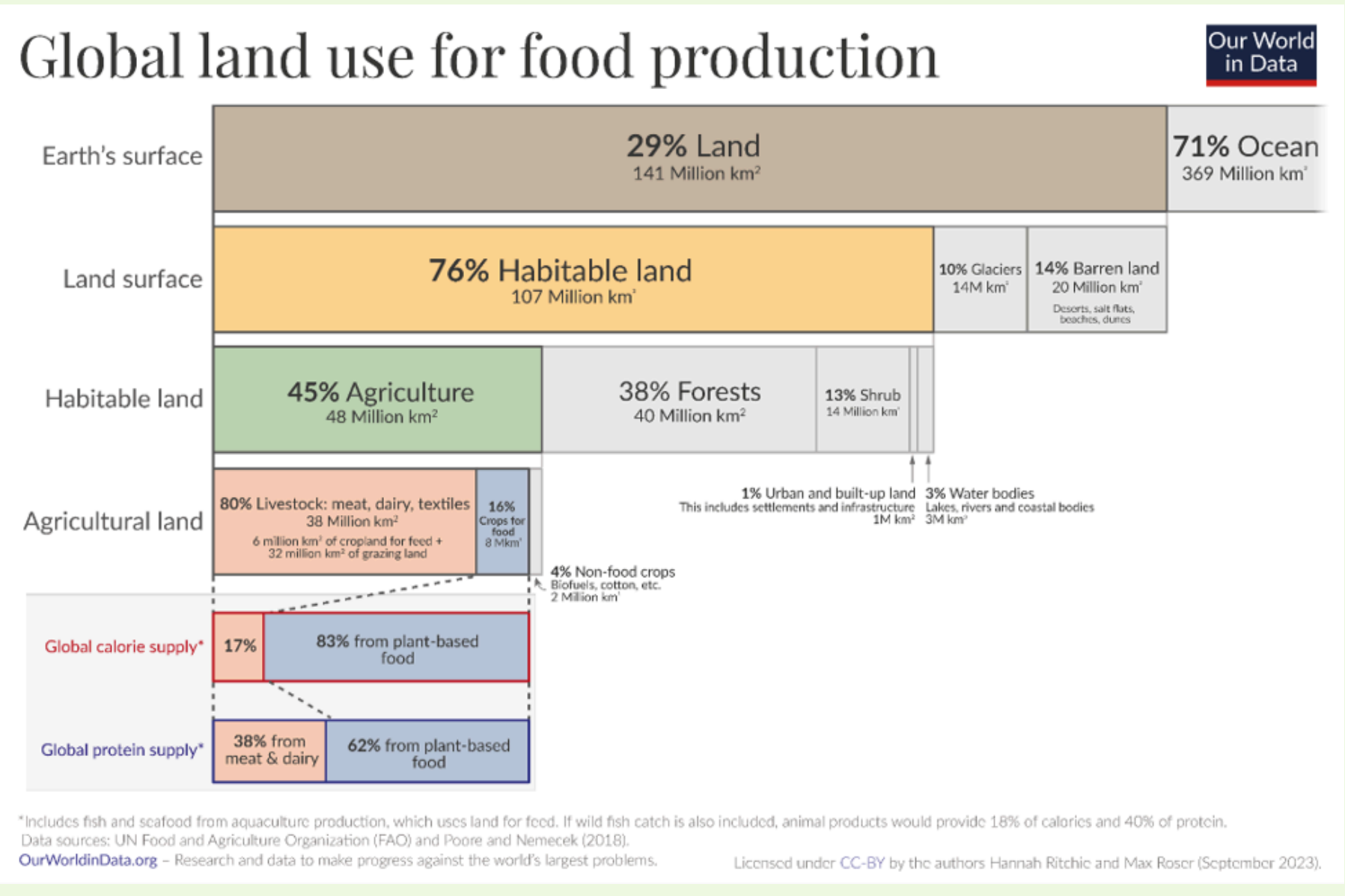
The working paper highlights opportunities for diversifying protein sources beyond whey, soy, and grains to meet future nutrition and climate goals. The findings can support policymakers, companies, and researchers in designing healthier, more sustainable, and better-regulated plant-protein foods for the Indian market.

1

INTRODUCTION

Nearly half (44%) of the world's habitable land is used for agriculture, and over 75% of that is dedicated to livestock production[1], yet livestock contributes only 17% of global calories and 38% of protein[2,3]. This imbalance highlights the resource inefficiency of global animal-based protein systems. Climate change further intensifies the pressure on livestock systems through rising temperatures, erratic rainfall, and extreme weather events. Intensive livestock systems also generate substantial greenhouse gases, contributing approximately 14.5% of human-caused emissions through methane from enteric fermentation, nitrous oxide from manure, and CO_2 from land-use change [4]. These combined environmental burdens and low nutritional returns are accelerating global interest in plant-based and novel protein alternatives.

In India, dairy production contributes a substantial share of food-system greenhouse gas emissions, primarily through enteric fermentation from its large livestock population, though many of these represent survival emissions associated with livelihood-oriented smallholder production. Studies such as Aleksandrowicz *et al.* (2019) identify dairy as the dominant contributor to diet-related emissions, primarily due to methane emissions from enteric fermentation and emissions from feed production[5]. Although livestock occupies less than 10% of agricultural land, according to BAHS 2024, its environmental footprint remains high because feed cultivation often competes with cropland used for human food[6]. Patra (2014) estimates that enteric methane from ruminants contributes more than 60% of livestock-related emissions in the country[7]. Intensification within constrained land resources elevates per-unit GHG emissions, even without physical expansion of grazing land. Dietary modelling further indicates that dairy-heavy diets exert higher GHG and land-pressure compared to plant-based alternatives[8].



SOURCE: OUR WORLD IN DATA, 2023

Indian diets are characterized by a heavy dependence on cereals such as rice, wheat, and millets, which account for 46–73% of total protein intake especially in rural and lower-income groups. Although cereals provide bulk protein, they are limited in essential amino acids such as lysine and have lower digestibility. Pulses and legumes contribute around 8–15% to protein intake making them the second largest source of protein in many regions, while milk and dairy contribute about 10–13%. Animal-source proteins form 12–14% primarily among wealthier and urban households[9,10].

Households with better access to diverse protein sources tend to have higher protein adequacy, but many rural and low-income households under-consume protein despite availability due to economic, educational, and cultural barriers[10,11,12].

India continues to face a “protein paradox”, with gaps in protein intake and quality persisting among sections of the population, particularly women and children. The dominance of lower-quality protein and the rising intake of ultra-processed foods displace higher-quality protein sources, worsening nutritional inadequacy and contributing to metabolic risks. Protein intake contributes only 6-8% of total calories, far below the EAT-Lancet recommended ~29%, demonstrating a dietary imbalance linked to health risks. Addressing these issues requires multi-sectoral interventions focusing on increasing affordable, diverse, and high-quality protein intake and improving education and awareness around protein nutrition[13,14].

Objectives

Given this complex nutritional landscape and the recent rise of processed vegetarian and vegan protein products, there is a growing interest to critically examine how emerging protein-rich foods are positioned in the Indian market.

- To identify and classify protein-rich products based on protein source and product type.
- To evaluate protein-related claims and labelling compliance in accordance with FSSAI nutrient claim guidelines, assessing accuracy, transparency, and regulatory adherence.
- To analyse the nutritional and economic value of these products by comparing protein content, nutritional balance, and price per gram of protein, and examining how they are positioned and marketed to consumers.

2
METHODOLOGY

2.1 RESEARCH DESIGN

This study adopts a descriptive and analytical research design to assess the nutritional labelling, protein-related claims, and market representation of protein-rich vegetarian and vegan products in India. The purpose is to evaluate the extent to which product labels comply with statutory requirements and to identify potential gaps or opportunities for making labelling more transparent and consumer-friendly. The analysis relies on secondary data collected from online grocery retail platforms that reflect real-world consumer interfaces in urban India.

2.2 DATA COLLECTION

Data were collected from three leading Indian e-commerce grocery platforms, Zepto, Blinkit, and BigBasket, which are widely used for food retail in urban markets. The selection focused exclusively on vegetarian and vegan products marketed as high-protein or protein-rich, explicitly excluding meat and egg-based items. Search terms included “protein-rich snacks,” “protein drinks,” “protein products,” “vegan protein,” and “plant protein.” Product inclusion was guided by popularity and visibility criteria, such as items listed in top search results or tagged as “most bought” or “best-selling.”

2.3 DATA DOCUMENTATION

For each product, detailed information was recorded using data available on the product web pages, including packaging visuals and manufacturer-provided descriptions. The following parameters were extracted:

Product Name	**Product Type and Format** *(e.g., snack, drink, powder, bar)*	**Brand and Company**	**Country of Origin**
Shelf Life	**Storage Instructions**	**Product Web Page Link**	**Pack Size and Serving Size**
Number of Servings per Pack	**Price or MRP**	**Ingredient List**	**Nutritional Information**
Nutritional and Health Claims			

This standardized documentation facilitated comparability across brands and product types. Each identified product was systematically documented in a structured database of 106 products, created in Google Sheets.

3

ANALYSIS

3.1 UNDERSTANDING THE NUTRITION LABELS OF THE PRODUCTS

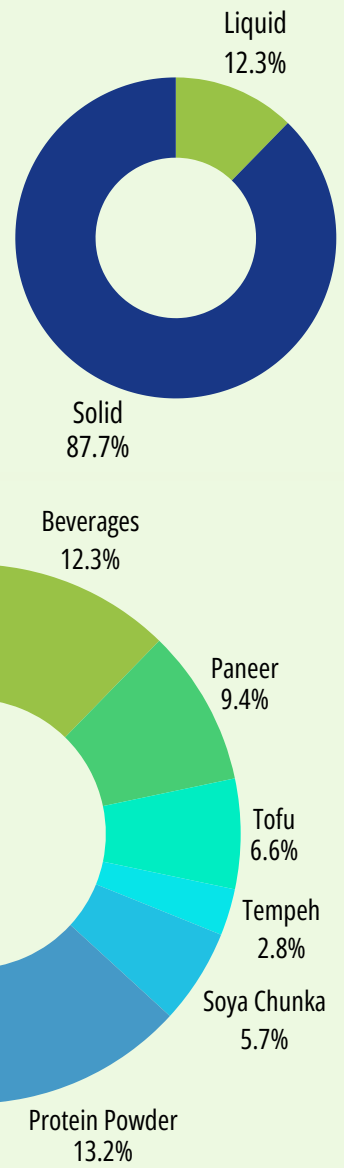
According to the Food Safety and Standards Authority of India (FSSAI), nutritional information is provided to inform consumers about the nutritional characteristics of food products[16]. A nutrient is defined as a component of food that provides energy, supports metabolic or physiological functions, or is essential for growth, development, and maintaining health. All packaged foods must display numerical details on the nutritional content, including energy (calories), protein, carbohydrates, total and added sugar, total, saturated, and trans fats, cholesterol, and sodium on their back labels. If a product claims to be enriched with nutrients such as minerals, proteins, vitamins, amino acids, or enzymes, the quantities of these added nutrients must also be declared on the label. However, more detailed quality measures like amino acid profiles, protein digestibility, fatty acid composition, nutrient bioavailability, levels of bioactive compounds, and anti-nutrients are typically not included on nutrition labels [16]. Energy values are expressed in calories, macronutrients are measured per 100 grams or millilitres (or per serving), while cholesterol, sodium, calcium, potassium are stated in milligrams per 100 grams or serving, and micronutrients are shown in micrograms per 100 grams or serving. This standardized labelling helps consumers understand the basic nutritional makeup of foods but does not cover in-depth nutritional quality parameters.

The Indian market offers a wide variety of protein-rich vegetarian and vegan products, ranging from traditional options like paneer, tofu, soya chunks, and yogurts to supplements such as protein powders, shakes, energy bars, and snacks including wafers, cookies, and chips. Emerging items like tempeh, protein-enriched premixes for idli, dosa, and upma, as well as cereals such as oats, muesli, and quinoa, are also featured in the database. Plant-based meat alternatives appear in both local styles like kebabs, tikka, keema, biryani, bhurji, and Western forms like patties, sausages, nuggets, and scrambled eggs.

Among the 106 products analysed, 87.7% were solid items such as paneer, tofu, tempeh, soya chunks, yogurts, protein snacks, powders, and bars, while 12.3% were liquids, primarily beverages like milkshakes, protein shakes, and lassi. Nutrition labels on these products indicate the percentage contribution of a single serving to the Recommended Dietary Allowance (RDA) for Indians, as outlined by the Indian Council of Medical Research (ICMR) and National Institute of Nutrition (NIN)[17]. Few labels specify 'calories from fat' in kcal; ICMR-NIN guidelines recommend that a balanced diet derives 50-55% of calories from carbohydrates, 10-15% from proteins, and 20-30% from fats, whereas the EAT-Lancet reference diet suggests 29% from protein sources [18].

Certain plant-based meat substitutes include back-of-pack comparisons of their nutritional profiles against animal products like chicken eggs, goat meat, buffalo milk, and raw chicken, aiding consumers transitioning to plant-based diets with informed decisions.

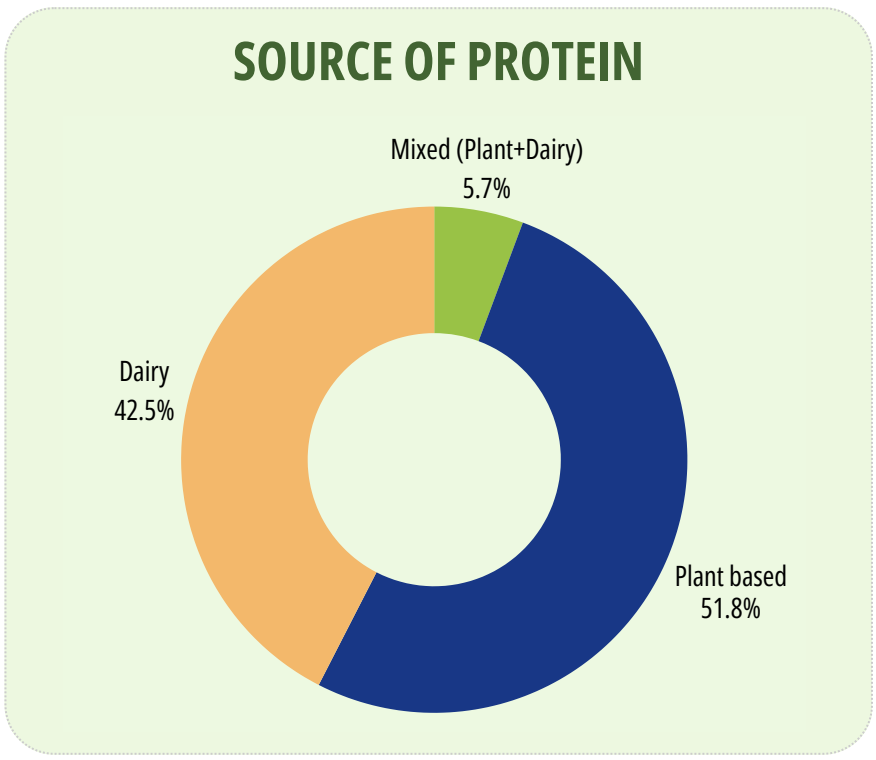
PRODUCT IDENTIFICATION AND CLASSIFICATION



SOURCE: AUTHOR

3.2 DECODING THE INGREDIENT LISTS OF PRODUCTS

The ingredients section on back-of-pack labels provides essential insights into the composition of plant-based meat and egg products. In accordance with labelling regulations, ingredients are listed in descending order of their proportion (by weight or volume) at the time of manufacture, offering a clear indication of the dominant components used in each product. Analysis of the ingredient lists in the dataset shows considerable variation in protein sources

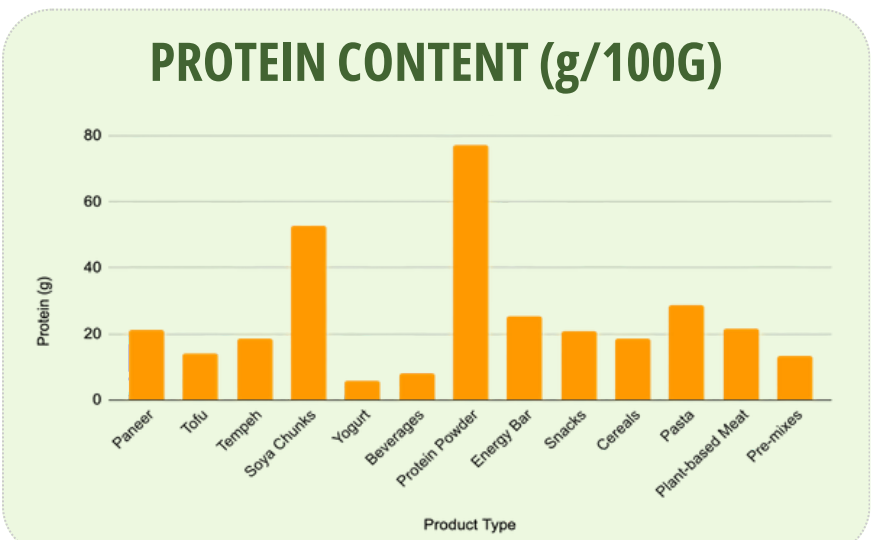


SOURCE: AUTHOR

Dairy-based formulations accounted for 42% of all products, with whey being the most commonly used primary protein ingredient. In contrast, 52% of products relied exclusively on plant-based proteins, predominantly soy, but also incorporating combinations of lentils (moong, masoor), legumes, wheat, millets, chickpeas, gram flour/chickpea flour, and pea protein. The remaining 5% of products used hybrid formulations that combined both dairy-derived and plant-derived protein sources. This distribution highlights the diversity of protein bases used in the Indian plant-based meat and egg sector, as well as the growing prominence of multi-ingredient plant protein blends.

Most of the protein-rich vegetarian and vegan products included in the database show substantial variability in their protein content across different product types.

Traditional protein sources such as paneer, tofu, and tempeh provide moderate protein levels (ranging approximately from 13 to 19 g/100 g), while soya chunka stand out with a significantly higher protein density of around 52 g/100 g, making them one of the most concentrated plant-based protein sources in the dataset. In comparison, commonly consumed categories such as snacks, cereals, pasta, and premixes offer lower protein levels (between 12 and 20 g/100 g). Products formulated specifically for protein supplementation show the highest values, with protein powders reaching close to 78 g/100g, highlighting their role as concentrated protein products. Similarly, energy bars present a relatively high average protein content (around 25 g/100 g), situating them well within the 'high-protein' category. Yogurt and beverage products show comparatively lower protein values (approximately 5–10 g/100 g), reflecting their lighter composition but still contributing meaningfully to daily protein intake when consumed regularly. Overall, the protein distribution across product types illustrates the wide functional and nutritional diversity of plant-based products available in the Indian market.



SOURCE: AUTHOR

According to the nutrient claim conditions specified by FSSAI [16], products containing ≥ 6 g protein per 100 g (solids) or ≥ 3 g per 100 g (liquids) can be labelled as a "source of protein," while those containing ≥ 12 g per 100 g (solids) or ≥ 6 g per 100 g (liquids) qualify as "rich/high in protein." Among the 106 products assessed, 79% products met the criteria for a high-protein claim, 14% products qualified only as a source of protein, and 7% products did not meet either specification, despite being marketed as protein-rich. An interesting pattern emerged in this analysis: several products positioned as high-protein, particularly snack items such as cookies, chips, and wafers, contained protein levels that only met the threshold for a "source of protein."

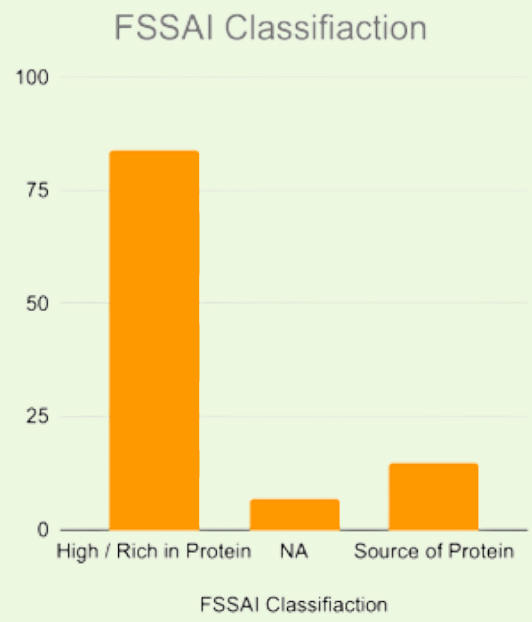
Similarly, many beverages and yogurt products, though advertised as high-protein, fell into lower protein categories upon closer examination of their nutritional labels. Additionally, tofu products made from alternative legumes (other than soy) frequently did not meet to achieve the protein content required to substantiate their high-protein claims. This mismatch between marketing language and actual nutrient values highlights inconsistencies in protein-based labelling within the Indian plant-based food sector.

FAT

Dietary fats and fatty acids contribute significantly to immune function, absorption of fat-soluble vitamins, and enhancing food flavour. Excessive saturated fatty acids (SFA) and trans fats are associated with heightened risks of cardiovascular disease, allergies, diabetes, obesity, and neurological disorders.

The comparison of total fat, saturated fat, and trans-fat per gram of protein across product categories reveals substantial variability in the lipid–protein composition of vegetarian and vegan protein sources. Paneer, tofu, and tempeh exhibit higher fat-to-protein ratios, with paneer showing the highest total and saturated fat per gram of protein among all categories—reflecting its dairy-based composition and naturally higher milk-fat content. Plant-based alternatives such as soya chunks, protein powder, and beverages demonstrate comparatively low fat per gram of protein, indicating their efficiency as lean protein sources.

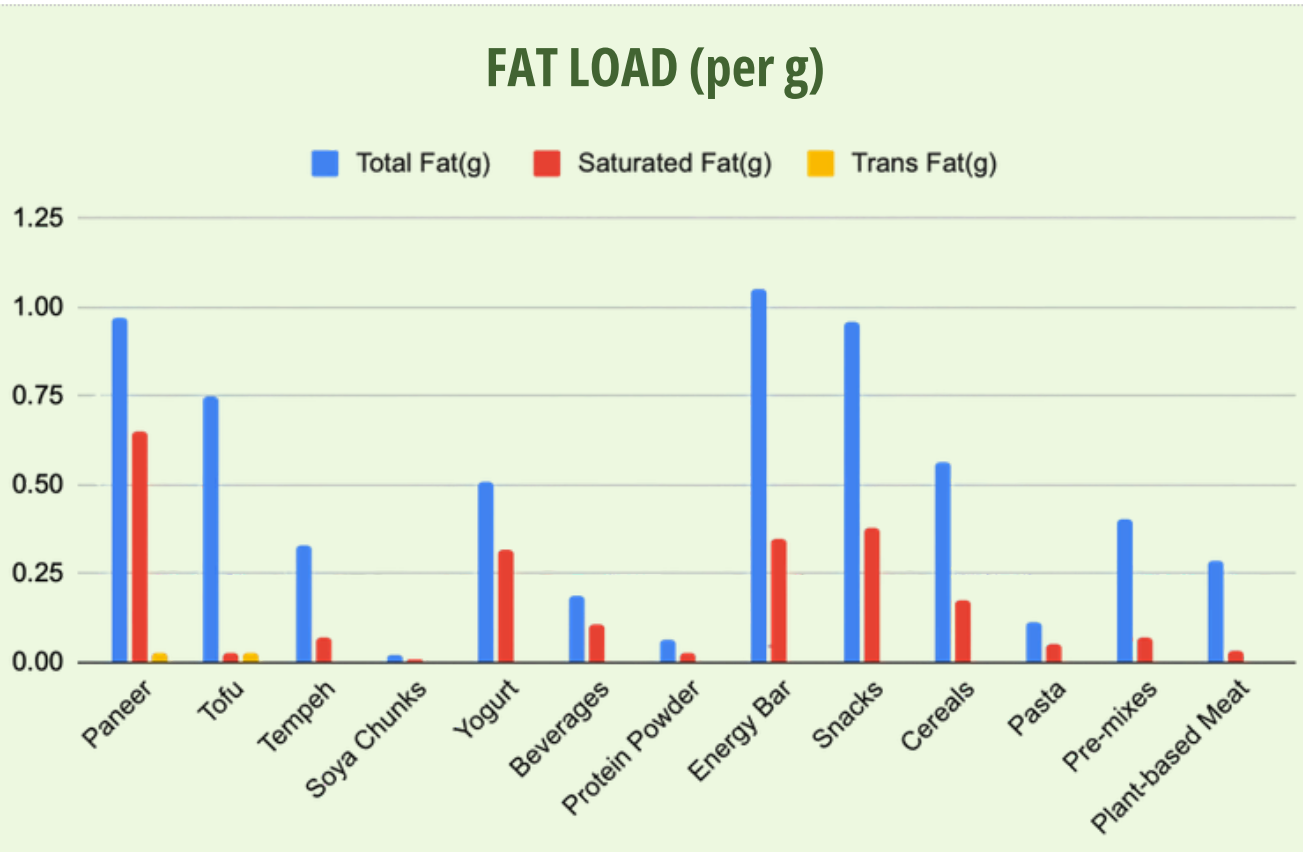
EVALUATION OF PROTEIN CLAIMS AND LABELLING COMPLIANCE



SOURCE: AUTHOR

Products such as energy bars, snacks, and cereals show moderate to high fat-to-protein ratios, driven largely by added fats used in processing, flavouring, or texture enhancement. These categories also show notable levels of saturated fat relative to their protein content, suggesting that although they may contribute meaningful protein, they also add higher lipid loads. Pasta, premixes, and plant-based meat products fall within moderate ranges, neither as low-fat as isolated protein ingredients nor as lipid-dense as dairy-based items.

FAT LOAD (per g)

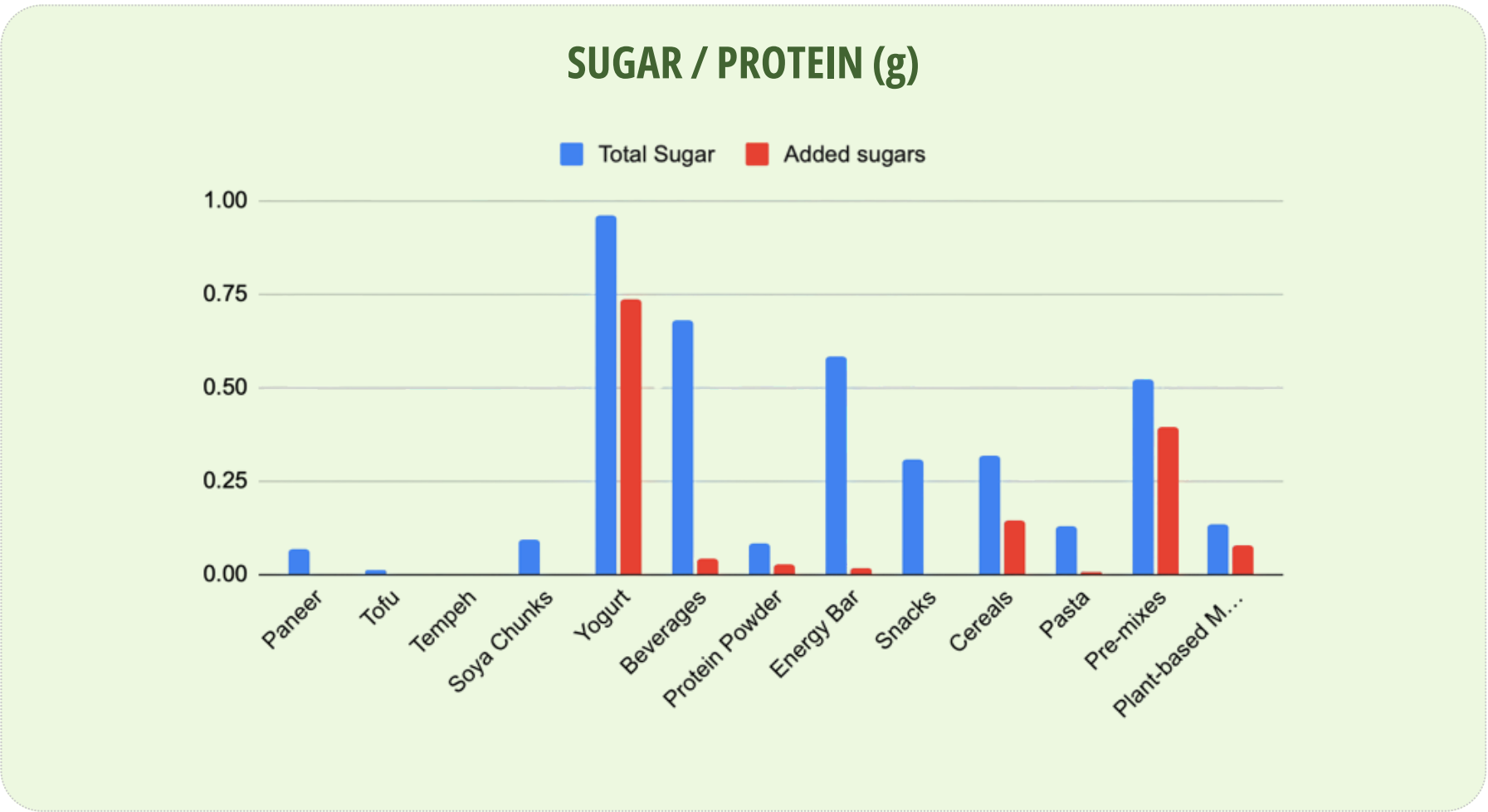


SOURCE: AUTHOR

When assessed in relation to FSSAI's nutrient claim conditions for fat and saturated fat, the fat-per-gram-protein analysis provides an additional layer of nutritional interpretation. According to FSSAI, products may qualify as "low fat" only if they contain not more than 3 g of fat per 100 g, and may be labelled "free from fat" if their fat content does not exceed 0.5 g per 100 g. Similarly, saturated fat must be ≤ 1.5 g per 100 g to qualify as "low," and ≤ 0.1 g per 100 g to qualify as "free." Although the present analysis evaluates fat relative to protein content rather than per 100 g of product, the patterns observed still reflect alignment with, or deviation from, the FSSAI thresholds. Categories such as soya chunks, protein powders, and beverages, which show very low fat-to-protein ratios, are generally consistent with the profile of low-fat or lean protein sources. In contrast, products like paneer, tofu, energy bars, and snacks demonstrate higher fat-per-protein values, indicating that they are less likely to meet FSSAI's low-fat criteria despite being positioned as protein-rich. Notably, saturated-fat ratios mirror this pattern, with dairy-based and snack-type products contributing proportionally higher saturated fat per gram of protein. This comparison highlights the importance of evaluating plant-based and protein-focused products not only for their protein density but also for the accompanying fat profile in the context of regulatory nutrient claims.

SUGAR

Added sugars in processed foods are sugars that are incorporated during manufacturing, such as sucrose, dextrose, syrups, and concentrates from fruit or vegetable juices. These added sugars are distinct from naturally occurring sugars found in whole foods like fruits and milk. Processed foods with high levels of added sugars include sugary beverages, sweets, baked goods, and desserts. Excessive intake of added sugars is linked to health issues such as weight gain, obesity, type 2 diabetes, inflammation, cardiovascular disease, and dental cavities. The analysis showed that minimally processed protein sources such as paneer, tofu, tempeh, and soya chunks contain very little sugar relative to their protein content, making them efficient, low-sugar options for meeting protein needs. Yogurt and ready-to-drink beverages have the highest sugar per gram of protein, driven largely by added sugars in flavored and sweetened variants. Processed categories like energy bars, snacks, cereals, pasta, premixes, and plant-based meat alternatives fall in a moderate range, but still contribute substantially more sugar per unit of protein than traditional whole-food protein sources.



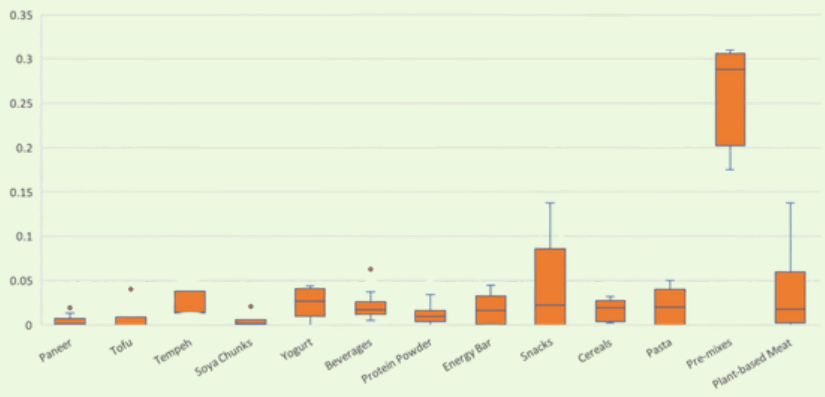
SOURCE: AUTHOR

SALT

High salt content is a frequent issue in processed foods, often linked to elevated blood pressure, hypertension, heart disease, and stroke risk. While excess sodium poses health risks, moderate intake is crucial for maintaining fluid balance, electrolyte levels, and nerve signalling. It was observed that whole-food protein sources like paneer, tofu, tempeh, soy chunks, yogurt, beverages, and protein powders generally offer very low sodium per gram of protein, positioning them as effective low-sodium options for boosting protein intake.

In contrast, snacks, cereals, and premixes exhibit higher and more variable salt levels due to diverse processing and seasoning methods. Plant-based meat alternatives particularly stand out for their elevated sodium content, consistent with studies on Indian market products.

SALT CONTENT (salt per g / per g protein)



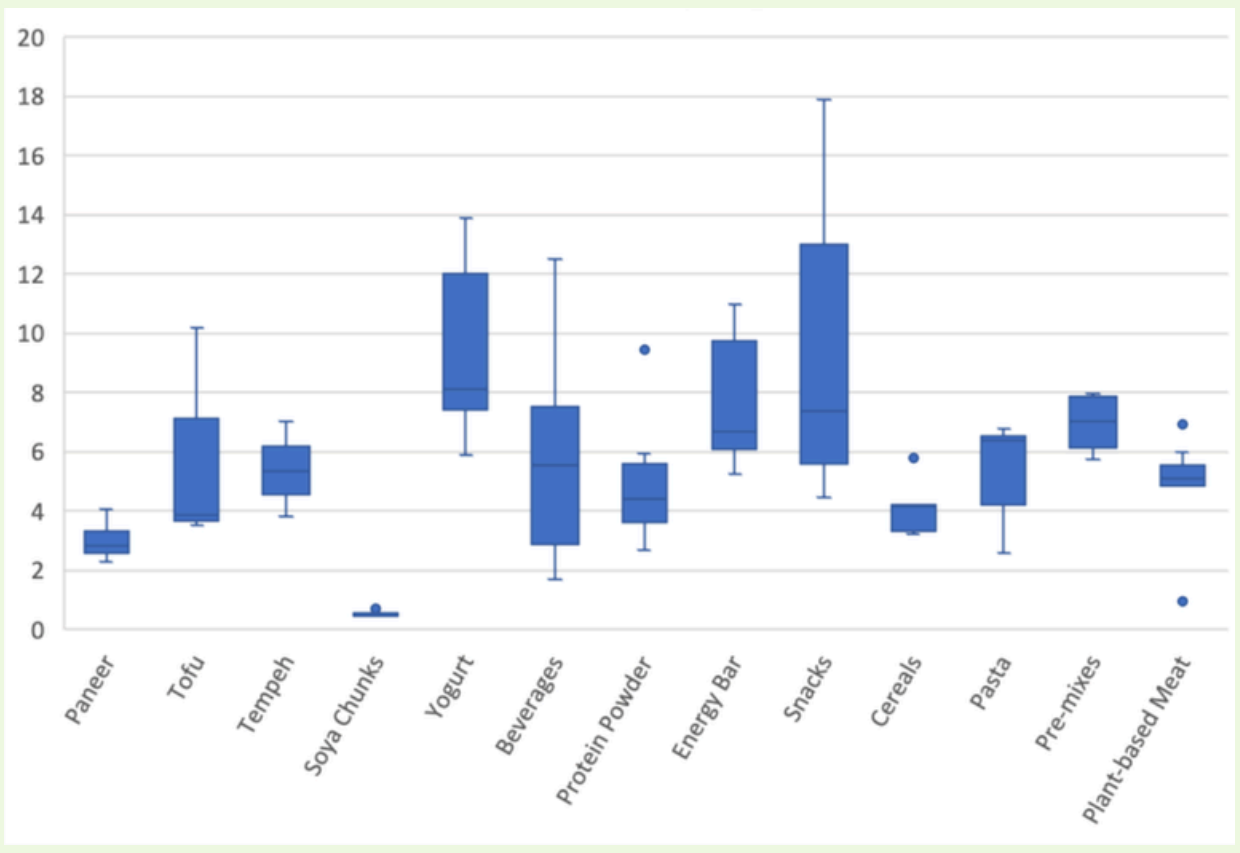
SOURCE: AUTHOR

AFFORDABILITY

In the Indian context, ensuring affordable access to diverse protein sources remains an important nutritional priority. Animal-based proteins like eggs and chicken are among the most accessible and cost-effective for many, while plant-based options such as pulses, soya chunks, and lentils provide affordable alternatives. However, the overall protein intake in India is still lower than global recommendations mainly due to economic constraints, dietary habits focused on carbohydrates, and lack of awareness about protein nutrition.

For this study, affordability was assessed by calculating the cost per gram of protein across different product categories. Soya chunks emerged as the most economical option, offering the lowest price per gram of protein, with paneer as the next most affordable choice. Tofu and tempeh followed these in terms of cost-effectiveness, making them relatively budget-friendly plant-based options. In contrast, highly processed protein products such as fortified beverages, yogurt, snacks, and energy bars were clustered at the higher end of the price range, indicating that they provide protein at a substantially greater cost compared with simpler, minimally processed vegetarian sources.

PRICE OF PROTEIN PER GRAM



SOURCE: AUTHOR

3.3 MARKET POSITIONING AND CONSUMER TARGETING

The Indian market for protein-rich vegetarian and vegan foods has evolved significantly in recent years. Within this landscape, distinct product segments employ different positioning strategies to appeal to specific consumer groups. One of the strongest trends that was observed is the targeted marketing of high-protein powders, shakes, and energy bars. These products overwhelmingly focus on gym-goers, athletes, and fitness-conscious consumers. Branding in this segment is built around performance enhancement, muscle recovery, high protein counts per serving, and scientific or "clinical" claims. The communication style is aspirational, prioritizing strength, physique development, and athletic output.

A second major cluster includes fortified yogurts, high-protein dairy beverages, high-protein paneer, muesli, and even high-protein instant premixes for traditional foods such as dosa, idli, and upma. This category positioned protein not solely as a fitness nutrient but as a component of everyday wellness. The products target busy urban households, young professionals, and individuals seeking convenient, nutritious breakfast or snack options. Claims typically revolve around weight management, sustained satiety, digestive health, and general vitality. Here, protein was framed as a "daily requirement" rather than a performance enhancer.

Plant-based products such as tofu, tempeh, soya chunks, pea-soy blends, and multigrain proteins form another important segment. These products cater to vegetarians, flexitarians, and increasingly, to vegan consumers. Market messaging focuses on plant-based nutrition, sustainability, and ethical food choices, often emphasizing "clean label" ingredients and cholesterol-free or low-fat benefits. This segment is also influenced by global trends in alternative proteins, with brands attempting to introduce Indian audiences to formats that provide functional protein similar to meat.

Finally, protein chips, puffs, crackers, and bars represent the growing "high-protein snacking" category. These items are marketed as guilt-free, on-the-go options for consumers seeking healthier alternatives to traditional snacks. The messaging blends convenience with nutrition, often highlighting calorie control, low sugar, and high satiety. These products appeal to students, working professionals, and fitness enthusiasts looking for quick energy sources or meal replacements.

Across all categories, protein is positioned as a desirable and essential nutrient, but the messaging shifts from performance to convenience to sustainability depending on the target audience. This segmentation reveals a dynamic market where protein-rich vegetarian and vegan products are being integrated into multiple eating occasions, breakfast, snacks, beverages, and ready meals, reflecting both the diversity of consumer needs and the growing commercial opportunity within India's plant-forward nutrition sector.

4

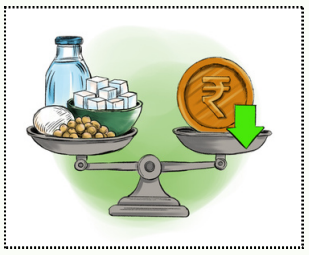
RECOMMENDATIONS

The findings of this study highlight several recommendations to strengthen the nutritional quality, transparency, and accessibility of protein-rich products in India.



PROMOTE CLEARER AND STANDARDISED FRONT-OF-PACK LABELLING FOR PROTEIN PRODUCTS

To improve market transparency and support informed consumer decision-making, consideration could be given to promoting simplified front-of-pack labelling systems, such as traffic-light labels or nutrient-scoring mechanisms, that clearly communicate salt, sugar, fat, and protein density. These systems can be complemented by QR-code–based extended labelling that provides additional information on ingredient composition, amino acid profiles, sourcing, and processing methods, particularly for protein supplements and functional foods.



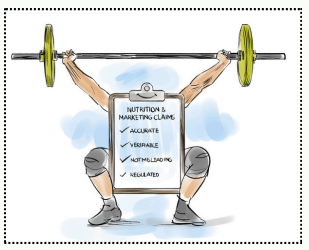
IMPROVE AFFORDABILITY AND ACCESS TO HIGH-QUALITY PROTEIN PRODUCTS

Addressing affordability remains central to closing India's protein gap. Policy measures may consider prioritising lowering the cost of high-quality plant-based proteins through local sourcing, improved supply chains, and economies of scale. Integrating diverse and affordable protein products into public nutrition programmes and food assistance schemes can help extend their benefits to low-income and nutritionally vulnerable populations.



DIVERSIFY INDIA'S PROTEIN INGREDIENT BASE

Strategic efforts could help expand the use of diverse protein sources. Emerging proteins such as mushrooms, spirulina, seaweed, microalgae, and other underutilised biomass resources offer promising nutritional and environmental advantages. At the same time, greater value addition to indigenous crops, including pulses, legumes, millets, and hemp, can strengthen domestic supply chains and support a more resilient protein ecosystem.



STRENGTHEN REGULATION OF NUTRITION AND MARKETING CLAIMS

Greater oversight could help ensure that claims such as "high protein," "clean label," or "natural" are supported by transparent and verifiable nutritional information. Clear guidelines and enforcement mechanisms can help prevent misleading claims and build consumer trust in the growing protein products market.



SUPPORT RESEARCH, INNOVATION, AND SCALING OF ALTERNATIVE PROTEIN VALUE CHAINS

Public-sector research institutions, startups, and food companies could be supported through pilot programmes, incubation initiatives, and public–private partnerships to improve processing technologies, reduce costs, and scale sustainable protein sources. Investments across the value chain are critical to making diverse protein options commercially viable and widely accessible.



PROMOTE CONSUMER AWARENESS AND NUTRITION LITERACY AROUND PROTEIN CHOICES

Nutrition education initiatives may help consumers understand not only protein quantity but also protein quality, additive content, and overall dietary balance. Improved awareness can reduce the risk of overconsumption of salt and sugar through protein-labelled products and encourage healthier, more informed dietary choices.

ILLUSTRATION: M. SREEKANTH (WASSAN)

5 LIMITATIONS

While this study provides valuable insights into the nutritional landscape of vegetarian and vegan protein products available in the Indian market, several limitations should be acknowledged.

First, the analysis was limited to a database of 106 products available on select online platforms and therefore may not capture the full diversity of protein-rich products currently available across India's rapidly evolving food market. New products are continuously introduced, while existing products may undergo reformulation, potentially affecting the findings over time.

Second, the study relied primarily on information provided on product labels and company websites. As a result, the accuracy of nutritional values, ingredient lists, and marketing claims could not be independently verified through laboratory testing.

Third, the assessment focused on macronutrient composition, cost, and ingredient profiles, but did not evaluate protein quality through measures such as amino acid composition, digestibility, or bioavailability. Consequently, products with similar protein content may differ substantially in their nutritional value.

Finally, the cost analysis was based on listed retail prices at the time of data collection. Prices may vary across regions, sales channels, promotional periods, and package sizes, which could influence the affordability assessment.

6 CONCLUSION

This study provides a comprehensive assessment of vegetarian and vegan protein products available in the Indian market, examining their nutritional composition, affordability, ingredient diversity, and marketing practices. The findings reveal a growing but uneven protein products landscape characterised by a heavy reliance on whey, soy, and grain-based ingredients, substantial variation in salt, sugar, and fat content, and significant differences in affordability across product categories. While the market offers an expanding range of protein-rich options, concerns remain regarding nutrient density, transparency of nutrition claims, and accessibility for a broader consumer base.

The study identifies the opportunities to strengthen stronger labelling standards, greater diversification of protein sources, improved product formulations, and efforts to enhance affordability. As India seeks to address both nutritional challenges and sustainability goals, the protein products sector has an important role to play in supporting healthier and more resilient food systems. Continued innovation, evidence-based policymaking, and consumer awareness will be essential to ensuring that the growth of the protein market contributes meaningfully to nutrition security, public health, and sustainable development.

7

REFERENCES

1. Hannah Ritchie and Max Roser (2019) - "Half of the world's habitable land is used for agriculture" Published online at OurWorldinData.org. Retrieved from: 'https://archive.ourworldindata.org/20251125-173858/global-land-for-agriculture.html' [Online Resource] (archived on November 25, 2025).
2. Thornton PK. Livestock production: recent trends, future prospects. Philos Trans R Soc Lond B Biol Sci. 2010 Sep 27;365(1554):2853-67. doi: 10.1098/rstb.2010.0134. PMID: 20713389; PMCID: PMC2935116.
3. Rojas-Downing, M.M.; Nejadhashemi, A.P.; Harrigan, T.; Woznicki, S.A. Climate change and livestock: Impacts, adaptation, and mitigation. *Clim. Risk Manag*. 2017, 16, 145–163.
4. Gerber, P.J.; Steinfeld, H.; Henderson, B.; Mottet, A.; Opio, C.; Dijkman, J.; Falcucci, A.; Tempio, G. Tackling Climate Change through Livestock: A Global Assessment of Emissions and Mitigation Opportunities. 2013. Available online: **https://www.cabdirect.org/cabdirect/abstract/20133417883**
5. L. Aleksandrowicz, R. Green, E.J.M. Joy, F. Harris, J. Hillier, S.H. Vetter, P. Smith, B. Kulkarni, A.D. Dangour, A. Haines. Environmental impacts of dietary shifts in India: A modelling study using nationally-representative data. Environment International, Volume 126, 2019, Pages 207-215, ISSN 0160-4120, https://doi.org/10.1016/j.envint.2019.02.004.
6. BAHS / Animal Husbandry Statistics & DAHD Annual Report (Ministry of Fisheries, Animal Husbandry & Dairying) - BAHS 2024 & Annual Report 2023–24
7. Patra AK. Trends and Projected Estimates of GHG Emissions from Indian Livestock in Comparisons with GHG Emissions from World and Developing Countries. Asian-Australas J Anim Sci. 2014 Apr;27(4):592-9. doi: 10.5713/ajas.2013.13342. PMID: 25049993; PMCID: PMC4093536.
8. Rao, N. D., Min, J., DeFries, R., Ghosh-Jerath, S., Valin, H., & Fanzo, J. (2018). Healthy, affordable and climate-friendly diets in India. *Global Environmental Change, 49*, 154–165. https://doi.org/10.1016/j.gloenvcha.2018.02.013
9. Swaminathan S, Vaz M, Kurpad AV. Protein intakes in India. Br J Nutr. 2012 Aug;108 Suppl 2:S50-8. doi: 10.1017/S0007114512002413. PMID: 23107548.
10. Kumar, S., Pramanik, S., Reardon, T., & Revathi, E. (2025). Links between protein-source diversity, household behavior, and protein consumption inadequacy in the Indian rural semi-arid tropics. *Frontiers in Sustainable Food Systems, 9.* https://doi.org/10.3389/fsufs.2025.1490050
11. Rampal, Priya (2018). An Analysis of Protein Consumption in India Through Plant and Animal Sources. The Institute of Development Studies and Partner Organisations. Report. https://hdl.handle.net/20.500.12413/13569
12. Invisible malnutrition: protein deficiency plagues rural India despite availability and affordability. (2025, February 27). The International Crops Research Institute for the Semi-Arid Tropics. https://pressroom.icrisat.org/hidden-hunger-protein-deficiency-plagues-rural-india-despite-availability-and-affordability
13. R. Somashekhar et al. (eds.), Proceedings of the International Conference on Advances in Nano-Neuro-Bio-Quantum (ICAN 2023) , Advances in Intelligent Systems Research 69, https://doi.org/10.2991/978-94-6463-294-1_13
14. Sharma M, Kishore A, Roy D, Joshi K. A comparison of the Indian diet with the EAT-Lancet reference diet. BMC Public Health. 2020 May 29;20(1):812. doi: 10.1186/s12889-020-08951-8. PMID: 32471408; PMCID: PMC7260780.
15. Decoding smart protein nutrition - GFI India. (n.d.). GFI India. https://gfi-india.org/resource/decoding-smart-protein-nutrition/
16. FSSAI (2018). Food Safety and Standards (Advertising and Claims) Regulations. Available from: https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Advertising_Claims_Regulations_14_12_2022.pdf
17. Indian Council of Medical Research - National Institute of Nutrition (2024). Dietary guidelines. National Institute of Nutrition. Available from: https://main.icmr.nic.in/sites/default/files/upload_documents/DGI_07th_May_2024_fin.pdf.
18. EAT-Lancet Commission. (2019). Food in the Anthropocene: The EAT-Lancet Commission on healthy diets from sustainable food systems. The Lancet. https://www.thelancet.com/commissions/EAT.



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WORKING PAPER

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COALITION FOR FOOD SYSTEMS TRANSFORMA(C)TION IN INDIA

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