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**Report Name:** Market Overview of Plant-Based Meat Alternative Products in China

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**Report Highlights:**

While China remains the world's leading consumer of meat and poultry, demand for plant-based meat alternatives is on the rise. With plant-based meat alternatives currently meeting or exceeding the cost of similar meat and poultry portions, leading plant-based meat alternative companies are focused on products that are alternatives for beef and pork, which tend to command a higher market price. Along with the relatively high price of plant-based meat alternatives, the main challenges facing the sector are taste, labeling, and consumer awareness, understanding, and acceptance. This report provides an overview of China's plant-based meat alternative product sector, including the major products, industry leaders, marketing considerations, and relevant regulations.

## **Definitions and Scope**

In this report, the term “plant-based meat alternatives” is used to describe relatively new foods produced with plant-based (including fungi) ingredients which share organoleptic and other characteristics with animal-based products. The term does not refer to more traditional meat substitutes. When referring to traditional plant-based meat alternatives long consumed in China, such as tofu, this report will use the term “traditional meat alternative.” For the purposes of this report, “plant-based meat alternatives” is used to describe a broad range of products including, but not limited to alternatives for beef, pork, poultry, and seafood. The scope of this report does not include any products made from lab-grown, cultured meat from the cells of animals, or plant-based beverages that are alternatives for dairy.

### *Definitions in China*

The Chinese government has no official definition of plant-based meat alternatives. The Chinese Institute of Food Science and Technology (CIFST), an influential industry group, drafted China’s first and only [Standard for Plant-Based Meat Products](#). It is currently a draft voluntary standard under review. The draft notes that plant-based meat alternatives are “foods using plant materials or their processed products as the sole or major source of protein or fat, adding or not adding other ingredients or food additives (including nutrition fortification substances), which are processed to be foods with similar flavor, texture and appearance as animal meat products.” In addition to this proposed definition of plant-based meat alternatives, the draft voluntary standard proposes classification, technical, and marketing requirements for these products.

## **Production**

China has a long history of producing traditional meat alternatives stretching back thousands of years. After the founding of the People’s Republic of China in 1949, the government discouraged meat consumption due to persistent food insecurity. Meat became more widely available after China’s economic reforms of the 1980s. Since the 2000s, consumers have increasingly replaced small meat portions with larger portions and Western style meat dishes. In the past few years, driven by novelty and perceived health benefits, consumers have become interested in plant-based meat alternatives, which has caused food processors to develop more options for sale in retail and restaurant, hotel, and institutional (HRI) sectors.

### *Ingredients*

Plant-based meat alternatives differ from traditional meat alternatives primarily in the new ingredients and the innovative processing technologies allowing these ingredients to be combined in ways that were not previously possible to closely simulate the texture, flavor and appearance of meat products. Plant-based meat alternative producers are hesitant to disclose ingredients used in the production process. By volume, most Chinese plant-based meat alternative products consist primarily of soy, legume, and rice-based products. In addition, a wide selection of soy protein isolates, textured soy protein, soy protein concentrates, mushrooms and other fungi, legume proteins, algae, and specialty plants, such as konjac,

are also used in the manufacturing process. Some international processors report using enzymes produced from microbial biotechnology to synthesize substances for plant-based meat alternatives, including soy leghemoglobin (heme)). According to contacts, most domestically produced plant-based meat alternatives uses domestically sourced ingredients.

### *Production process*

Plant-based meat alternative producers are hesitant to disclose their production processes. These advanced food processing technologies attempt to achieve a biochemical composition that replicates the organoleptic as well as other characteristics of meat. Chinese processors report using protein extrusion, fibrous protein, and heat induced gel protein to produce plant-based meat alternatives.

### *Products*

Most plant-based meat alternatives are distributed to the HRI sector. The most popular products are patties, nuggets, and plant-based meatballs. Multiple contacts within the production companies have expressed the belief that to win the heart of repeat consumers, taste and texture are key. At this early stage of consumer penetration, customers can try these products without worrying about how to prepare them. In grocery stores, plant-based meat alternatives are typically sold alongside tofu and other soy-based products. They are sold in packages where customers can see their resemblance to beef, pork, seafood, and poultry. These products typically come in neutral or light flavors simulating meat so they can be more widely used in common dishes, although some products are pre-seasoned using common savory or spicy Chinese seasonings. Contacts note that with some plant-based meat alternatives matching or even exceeding the cost of meat, companies are focused primarily on producing plant-based meat alternatives to simulate beef and pork, which tend to command a higher market price than poultry and seafood.

### *Main Producers*

Though no one company dominates, there are three key types of products active in the Chinese plant-based meat alternative industry. These producers include large international companies (e.g., DuPont, Cargill, Nestle, Beyond Meat), modern plant-based meat alternative companies (e.g., Starfield, Vesta, PFI), and traditional meat alternative companies. Most domestic plant-based meat alternative companies are start-up businesses that are using venture capital funding to innovate and expand revenue. Since 2019, at least one dozen plant-based meat alternative companies have emerged. Most domestic companies are focused on reaching consumers first through the restaurant industry, while a few are exploring direct-to-consumer sales models, especially growing e-commerce sales for at-home consumption and snack foods.

### *Company profiles*

The following table provides an overview of the most active and advanced players in China's plant-based meat alternative sector. The list is not exhaustive but intended to serve as a reference for current developments and trends.

**Table 1. International and Domestic Plant-Based Meat Alternative Companies***This list is for reference only and does not imply an endorsement.*

Company	Products	Production	Distribution Channels	Main Ingredients
Bee & Cheery	Beef jerky Pork stuffing	Domestic	Own retail on-line stores	
Beyond Meat	Minced beef Meatball Sausage Beef patty	Imported from the United States; in 2020, announced it will open a production factory in China	HRI sector: Starbucks	Pea, mung bean, fava bean, brown rice
Cargill (PlantEver™)	Chicken nugget Beef patty Minced scallop meat Chicken strips	Domestic	HRI sector: KFC Retail: TMall on-line store	Soybean protein, wheat protein
DuPont	Supplies raw materials including soy protein and food additives	Domestic	Food ingredients supplier	Soybean protein
Hey Maet	Chinese style minced pork Beef patty Sausage Minced beef Beef cube Chicken nugget	Domestic	HRI sector	Soybean protein, pea protein, corn
PFI Foods Brand: 植爱	Chinese style minced pork Others	Domestic	Tmall and JD.com on-line stores HRI sector	Soy protein, pea protein
Omnipork	Pork belly Pork stuffing ham	Imported from Thailand	HRI sector: Starbucks	Pea, non-GMO soybean, shiitake mushroom and rice
星期零 Starfield	Beef meat ball Beef patty Minced beef	Domestic	HRI sector: Papa Johns, Elementfresh, Sizzler, Jin Ding Xuan, Gaga, Dicos, etc.	Soy protein, beetroot (for coloring)

Company	Products	Production	Distribution Channels	Main Ingredients
Vesta	Beef	Domestic (still undergoing internal testing)		Pea protein
Whole Perfect Food	Chinese style cuisine, steak, seafood, bacon, sausage	Domestic	Retail sector: own on-line stores at JD.com	Soy protein, wheat protein, pea protein, Araceae, fungus
Zhen Meat	Dimsum, minced pork, mooncakes	Domestic	Retail sector HRI sector	Pea protein, fungus
Youkuai Z-Rou	Minced pork	Domestic	HRI sector Selected e-commerce platforms	Soy protein, Konjac, coconut oil, mushroom

### Consumer Preferences and Trends

Traditional meat alternatives, including tofu, soy protein, wheat gluten, mushrooms, and legumes, have long histories in Chinese cooking that continue to shape culinary traditions and consumer preferences. More recently, rising incomes led consumers across the wealth spectrum to include meat as an important component of each meal. Many middle-aged Chinese consumers, who began families of their own after the government's 1979 Reform and Opening, remark at how their ability to afford (or even find) meat increased from perhaps once per week to nearly every meal. Meat used to be considered a luxury that could be enjoyed sparingly in normal times and most often reserved for holidays and celebrations through the 1980s. In addition to political and economic considerations limiting meat consumption, China has a long history of consuming traditional meat alternatives due to religious reasons.

The relatively recent economic expansion allowing for increased meat consumption across all income levels plays a key role in how meat is now viewed in China. Meat consumption frequently signals financial success and prestige. To be able to provide meat within the family shows financial stability, while serving it to guests at celebrations is an act of generosity. At the same time, Chinese consumer preferences are rapidly changing, especially among urban and younger consumers. They grew up frequently eating meat during China's economic expansion, and do not hold the same importance to meat as a symbol of financial success and stability. These consumers tend to mirror peers elsewhere in the world who believe eating less meat is healthier, and better for the environment or animal welfare. Consumers interested in natural, organic, and healthy foods tend to be interested in plant-based meat alternatives. While eating a plant-based diet might signal economic struggle a mere 20 years ago, today plant-based meat alternatives are viewed by many urban younger consumers as novel and trendy.

Much like in other markets, plant-based meat alternatives in China do not necessarily target vegetarian consumers. Plant-based meat alternatives similarity to meat aims to attract flexitarians, a term used to refer to people who mostly adhere to a plant-based diet but eat some meat and animal products in moderation. They also seek to be an alternative for those people who follow a strict vegetarian diet for environmental, health, or religious reasons, but enjoy the taste and texture of meat. According to one industry survey, about fourteen percent of Chinese consumers self-identify as vegetarians and eight percent follow a flexitarian diet (surveys in the United States frequently estimate that up to five percent of Americans self-identify as vegetarians). Although the plant-based meat alternative industry is still in its early stages in China, companies are optimistic about prospects for the sector, and increasing investment indicates that this sentiment is shared.

Plant-based meat alternatives are a novel trend in restaurants, especially fast-casual and fast-food outlets. One U.S. plant-based meat alternative company recently announced a limited-time launch of their signature plant-based burger and plant-based nuggets in over 200 KFC locations in China. Over 3,000 Starbucks outlets in China are also offering up to four plant-based meat alternative menu options including a lasagna, a curry, and two sandwiches. While COVID-19 may have helped drive some increased interest in plant-based meat alternatives by furthering consumer preoccupation with health and ‘food as medicine’, plant-based meat alternative offerings at fast-casual and fast-food chains are carried as novelty items to entice consumers searching for something new.

### **Standards and Regulations**

While China does not have specific government regulations for plant-based meat alternatives, as food products, these products must follow general regulatory requirements (the second two items below only apply to new products/materials/additives):

1. Food production licensing through the local market regulations authority, as established by the State Administration for Market Regulation (SAMR) through the Administrative Measures for Food Production Licensing<sup>1</sup>.
2. Approval of new food materials by the National Health Commission (NHC) as specified in the Provisions for Application and Acceptance for New Food Materials and the Standard Procedures for Safety Review of New Food Materials<sup>2</sup>.
3. Approval of new food additives, as established by the former Ministry of Health (now NHC) through the Administrative Measures for New Variety of Food Additives and the Provisions for Application Submission and Acceptance of New Variety of Food Additives<sup>3</sup>.
4. Labeling (see details below)

### *Product Categorization and Applicable Standards*

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<sup>1</sup> The full text of the SAMR Decree is available at [http://gkml.samr.gov.cn/nsjg/fgs/202001/t20200103\\_310238.html](http://gkml.samr.gov.cn/nsjg/fgs/202001/t20200103_310238.html)

<sup>2</sup> The full text of the NHFPC notice is available at <http://www.nhfpc.gov.cn/sps/s3585/201311/e8dc7f4ec58444f8bbf32ec079d7e905.shtml>

<sup>3</sup> The full text of the Administrative Measures is available at <http://www.nhc.gov.cn/fzs/s3576/201808/94cd77df782a418c9ff96ad5ad5789ee.shtml>

To apply for food production licensing through SAMR, plant-based meat alternatives, whether domestically produced or imported, are considered either “Bean Products”, because of their use of soy as the primary ingredient, or “Quick-Frozen Food” and “quick-frozen prepared foods.”

Based on the ingredients, plant-based meat alternatives may be subject to one or more of the following required or voluntary national food safety standards:

- Quick Frozen Flour and Rice Products (GB 19295-2011) (required national standard)
- Bean Products (GB 2712-2014) (required national standard)
- Quick-Frozen Prepared Food (SB/T 10379-2012) (voluntary industry standard)
- Soy Protein Products (SB/T10649-2012) (voluntary industry standard)
- Extruded Soybean Product (SB/T10453-2007) (voluntary industry standard)

#### *Voluntary Industry Standards*

In June 2020, CIFST drafted China’s first and only [Standard for Plant-Based Meat Products](#). It is currently a draft voluntary standard under review. The non-mandatory draft standard provides a definition, classification, and technical and marketing requirements for plant-based meat products. Group standards, though voluntary, are usually developed to promote product innovation. CIFST intends for the voluntary standard to serve as a reasonable threshold to discourage the entry of unqualified producers and products into the market. CIFST is currently leading the development of another group standard, General Rules for Plant-based Food Products. The timeline for release of the standard has not been announced. CIFST and industry contacts have expressed keen interest in how plant-based meat alternatives are regulated in other countries, especially the United States.

#### *Microbial Biotechnology*

Among the different categories of food ingredients derived from microbial biotechnology, China currently only accepts food-use approval requests for enzymes. There is no clear path to regulatory approval for other food ingredients, such as vitamins, amino acids, steviol glycosides, and oligosaccharides, derived from microbial biotechnology. Once approved, enzymes derived from microbial biotechnology are regulated as normal food additives.

Some plant-based meat alternative products are made using microbial biotechnology, such as the genetically modified yeast, to produce soy leghemoglobin (heme) to simulate the “meaty” taste of meat. Requests for approval of the use of food enzymes produced in this manner must be submitted to the NHC, which transmits the applications to the National Biosafety Committee (NBC) of the Ministry of Agriculture and Rural Affairs (MARA). The NBC is a committee of experts responsible for reviewing applications for the biosafety certificates required for products of agricultural biotechnology. Following its review, MARA-NBC notifies its decision to the NHC, which in turn informs the applicant. If the application is approved, the applicant must then apply for use of the food enzyme as a new food additive following the process listed in the previous section.

### *Labeling*

The “Administrative Provisions on Food Labeling,” issued by the former State Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), specifies labeling requirements for “food made from animal or plant foodstuffs by a special processing technique and used for imitating the body, organ, tissue or other characteristics of other organisms.” The labeling provisions stipulate that such terms as “man-made,” “imitative,” or “vegetarian,” must precede the name of the food on the label, along with the name indicating the true nature of the food product.

In July 2020, SAMR published the [second draft “Measures on Supervision and Management of Food Labeling,”](#) which specifies the same acceptable adjectives for “foods made from plant-source materials that imitate animal-source foods” as the previous AQSIQ labeling provisions above (imitated, man-made, or vegetarian). The adjectives “shall be put before the name and label the name that reflects the real property of the food.”

## **Market Development Challenges**

### *Pricing*

Price is the biggest challenge faced by plant-based meat alternative manufacturers. Because of significant research and development costs, plant-based meat alternative product pricing is often comparable or even higher than meat, poultry, and seafood, making it difficult to make inroads into the restaurant sector which operates on tight margins. Most companies prioritize the development of alternatives for beef or pork, given their relatively higher market prices. Over time, increasing competition and scaled production will likely drive down the overall costs of plant-based meat alternatives.

### *Taste*

Producers and restaurant managers note that simulating the taste and texture of meat are the two most important factors for consumers to adopt plant-based meat alternatives. While processing technologies are much more successful at simulating the organoleptic properties of meat than their predecessors, additional research and development continues.

### *Consumer Awareness, Understanding, and Acceptance*

Some restaurant chains that have incorporated plant-based meat alternatives into their menu report that sales remain sluggish. They note the need for consumer education and marketing to promote plant-based meat alternatives trendiness. They are likely to communicate the perceived health benefits and environmental sustainability of plant-based meat alternatives. However, this contradicts longstanding Chinese perceptions that meat is a sign of wealth, luxury, and prestige. Consumers may also be turned off by the processed nature of plant-based meat alternatives compared to meat or traditional meat substitutes.

### *Labeling*

Some producers market and label their plant-based meat alternatives with words and pictures of meat, which may attract curious consumers or make some believe that the product contains meat. While China lacks a clear government definition of these products, industry has created draft voluntary standards. Consumers may still become confused about plant-based meat alternatives and labeling differences if these draft voluntary standards are not applied across the industry.

### **Attachments:**

No Attachments.