



Ministry of Foreign Affairs

# *Innovative Plant-based Food Market Insight in China*

*July 2023*

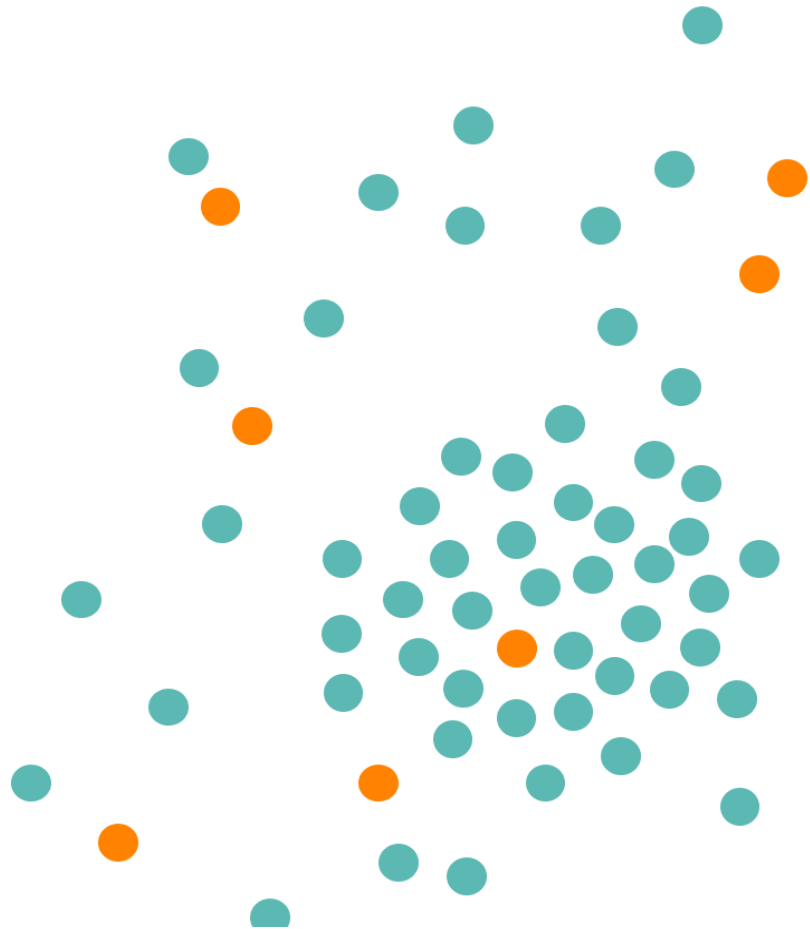
*Commissioned by the Netherlands Enterprise Agency*

*>> Sustainable. Agricultural. Innovative.  
International.*

# Market Research Study for Dutch Consulate

Innovative Plant-based Food Market Insight in China

July 2023



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# **1. Introduction**

## **1.1 Assignment**

The Netherlands Enterprise Agency (RVO) helps entrepreneurs and organisations invest, develop, and expand their businesses and projects in the Netherlands and abroad. RVO is a government agency in the Dutch Ministry of Economic Affairs and Climate Policy.

The RVO and the Agriculture Department of the Consulate General of the Kingdom of the Netherlands represent plant-based protein foods companies in the Netherlands; Acclime was assigned to conduct a market research study on the plant-based protein industry in China. The assignment aims to facilitate the Dutch Small and Medium Enterprises (SMEs) in the innovative plant-based foods sector to position themselves and their products in the Chinese market. It examines consumer characteristics, market product presence, opportunities and challenges of each category, and policies and regulations towards the plant-based food industry. The report also discusses the possibilities of fine Dutch plant-based products to be sold into the Chinese market and advice on selling into the Chinese market.

## **1.2 Acclime**

Acclime is a regional expert provider of accounting, tax, consulting, and corporate services and assists clients in advancing their businesses and interests in Asia seamlessly. We are unique in accounting, tax & corporate because we have a genuine, on-the-ground presence in Asia's hardest-to-navigate markets. By staying on top of regulatory changes, we will help you quickly manage local governmental and administrative compliance issues with minimal fuss. Furthermore, Acclime has an in-house consulting department, providing detailed advice to our clients looking for a local market entry. Our in-country experts have a deep understanding of local markets. We are committed to the growth and success of the region.

With over 1,200 staff and 20 regional offices in 10 jurisdictions, we can confidently assist our clients in Asia. We have three business developing offices in the Netherlands, the UK, and the USA, ensuring we are close to our (potential) clients.

## 2. Executive summary

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### **Market Highlights:**

- COVID-19 changes people's eating habits:
    - o Increasing awareness of **health and wellness**, as well as weight and appearance, has continued the growth of health-fitness-related food.
    - o It has accelerated consumers' demand for **convenience foods, ready-to-eat** prepared dishes or meal kits at home, which can be quick and easy to duplicate the taste of the restaurant.
  - **Packaging** matters. Packaging means not only the interpretation and the conception of the brands but also reflects the consumer's tastes, which are also associated with social identity.
  - **Personalisation** & diversification are important to younger generations.
  - On top of food safety, which is an essential requirement, consumers also expect **added value** and **quality** (in terms of taste, ingredients, and production processes) of the products; When selecting healthy-related products, consumers focus on the effect and components, as well as third-party certification.
- 

This report aims to facilitate the Dutch Small and Medium Enterprises (SMEs) in the innovative plant-based foods sector to position themselves and their products in the Chinese market. The report distils several practical market-entry strategies after looking at consumer insights and trends while analysing local and international competition. It breaks them into actionable items for Dutch companies.

China's plant-based protein food market is estimated to reach EUR 10.7 billion, with a compound annual growth rate (CAGR) of 14.1% from 2019 to 2023. Considering the fierce competition in the plant-based beverage market, this report offers market analysis and forecasts for plant-based meat, yoghurt, snacks, and functional food. These are defined as commercially processed, finished food; the term does not refer to simple traditional meat substitutes long consumed in China, such as tofu and wheat gluten.

Factors contributing to the development of China's plant-based industry include upgrading dietary structure and health awareness, sustainable development of the agriculture system, and concerns from a food safety perspective. This is fused with the target audience: relatively young and predominantly female middle-class Chinese citizens open to experimentation with innovative plant-based protein food and buying through online and offline channels.

Compared with the US and European markets, China has more recognised manufacturers and suppliers of traditional plant-based meat products due to the vast consumption of plant-based diets for around 2000 years. Products made from non-GMO soybeans, high in protein and dietary fibre, low in cholesterol, saturated fat and low in calories are marketing highlights for Chinese plant-based meat companies. Taste, price, and less processed products are the main challenges of the plant-based meat market. Dutch plant-based meat suppliers may create foods that are easy to prepare or consume on the go.

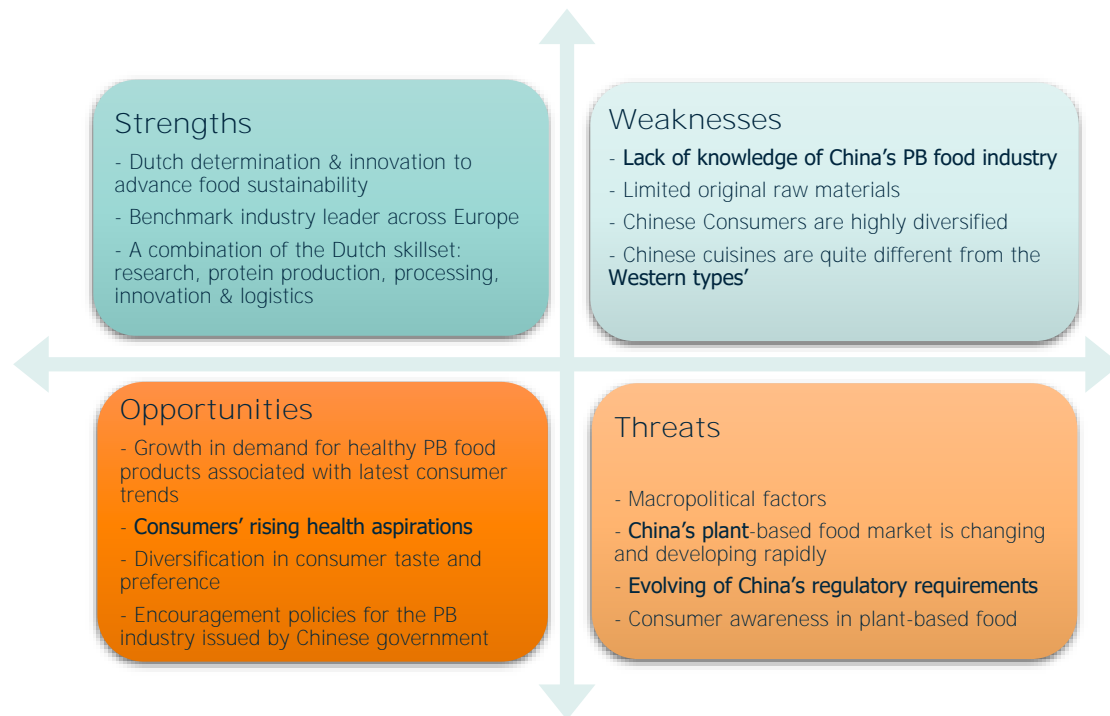
Plant-based yoghurt market is niche. Nutritional benefits, flavours and supply chain are the critical challenges for low-temperature plant-based yoghurt. Dutch players may develop organic, innovative plant-based yoghurt with different flavours and styles and promote them as snacks or meal replacements. Lactose-free is also a key advantage over traditional yoghurt products, as around 190 million Chinese are lactose intolerant.

Plant-based snacks are highly diversified in China, including plant-based meat snacks and non-meat snacks. Plant-based snacks are usually described as high protein, low saturated and calorie products that taste similar (or even better) to standard snacks (chips/biscuits/cookies). Plant-based meat snacks face the same challenges as plant-based meat products. It is worth noting that plant-based meat snacks with spicy flavours are welcomed by consumers in China because of the popularity of “spicy culture” in China. There is no “one-size-fits-all” for plant-based non-meat snacks, as the consumers’ preferences are highly diversified. However, many consumers care about weight management, so less processed snacks with even preservatives-free functionality can be unique selling points for Dutch players. It is also crucial to trigger consumers’ curiosities so that they can also share in social activities.

Plant-based functional food market emerged due to the increased health awareness after COVID-19. Plant-based protein powder and plant-based protein bars are the two main categories of available plant-based functional food sectors. Except for Chinese brands, most plant-based protein powder brands come from overseas. Except for taste and appearance, the biggest challenge is that most products sold via cross-border e-commerce (CBEC) sales channels belong to the “solid beverages” category instead of health food. It is time-consuming and expensive to gain the “Blue Hat” logo – which health foods would gain when successfully registered and filed under the State Food and Drug Administration. Besides the inherent strengths of BFY (Better for you) features for health food brands, Dutch companies can offer products and services with more added value to increase consumer loyalty.

To differentiate from plant-based foods being sold in the Chinese market, Dutch plant-based food companies should provide premium plant-based protein foods and protein food supplements with unique selling points of both functionality and palatability. Packaging and the right marketing strategy are crucial for the first purchase, but taste is the key to repeated purchases. Products should be focused on health with functional ingredients that possess excellent all-natural formulation claims, nutritional components, and care for health to consumers’ needs. At the same time, Dutch plant-based food companies should understand Chinese consumers’ preferences, provide related innovative products with novel ingredients

and flavours, develop unique recipes and design appealing packages in different plant-based food categories. Dutch players may offer technologies, machines, and innovative strategies for Chinese plant-based food companies or manufacturers. A SWOT analysis is created to help Dutch companies evaluate themselves and develop strategic planning in the Chinese market.



Finally, the report elaborates on the different market-entry strategies. In general, there are two main sell channels for plant-based protein products: online and offline sales channel. Plant-based protein food market players often conduct omni-sales channels for plant-based protein products through Hotel-Restaurant-Institutional (HRI) sectors or supermarkets in Tier-1 cities (Beijing, Shanghai, Guangzhou and Shenzhen) and online e-commerce, social media, and live-streaming platforms. For Dutch companies, short-term cross-border e-commerce strategies are a good initial step, as no formal registration is needed in China Customs. It is a good idea for Dutch companies to implement a trial-and-error mode by testing consumer interest without significant investments in incorporations or warehouses through CBEC. The downside of this approach is that sales can only be made towards individuals. For a more localised approach to registering a China entity, a joint venture (JV) or a wholly foreign-owned enterprise (WFOE) becomes an option for signing agreements with local distributors or partners.

#### *Reading Guide*

**Chapter 3** introduces the drivers for developing the plant-based protein food industry and the Chinese footprint on the plant-based food supply chain based on an ingredient. **Chapter 4** shares the Chinese consumers' characteristics and trends. The drivers for Chinese consumers to purchase plant-based protein food differ from Western consumers', which is essential for Dutch companies to deduce what kind of products suit the market from consumers' point of view. **Chapter 5** mainly focuses on the Chinese plant-based food industry itself. This chapter

elaborates on market players, sales channels, challenges, and opportunities for each sector, including plant-based meat, yoghurt, snacks and functional foods. By sharing several examples for each category and analysing the market challenges, Dutch market players need to understand what the Chinese plant-based food market looks like in the current stage. **Chapter 6** conducts a SWOT analysis to help Dutch companies position themselves in the Chinese market. **Chapter 7** includes several leading Chinese companies in each plant-based food category and introduces several trends and innovations for fermentation technologies and the development of cultured meat in China. Policy and regulations for imports and food safety are presented in **Chapter 8**. The report provides several feasible market strategies, including examples for Dutch companies, in **Chapter 9**. Conclusions and recommendations are shared in the last Chapter, **Chapter 10**.

Note:

- This report, “Plant-based protein food”, describes innovative foods produced with plant-based ingredients.
- The exchange rate EUR 1 = CNY 7.62, EUR 1 = USD 1.07 (June 2023) is used in this report unless otherwise mentioned.



## 3. Plant-based Protein Food Industry Development Overview

### 3.1 Macro-economic Overview

China has undergone impressive social and economic growth over the past few decades, becoming the world's second-largest economy. This resulted in an economic transformation, leading to an urbanisation rate of over 60 percent. This is a remarkable achievement because the urban population was almost 38 percent in 2001 and exceeded 50 percent for the first time in 2011. The quality of food consumption by Chinese residents has improved dramatically, and there is a notable trend toward upgrading food consumption, manifested by the increase in animal-based food consumption (meat, poultry, eggs, and dairy products)<sup>1</sup>. The rural–urban immigrants have experienced access to protein-rich and diverse, and healthier diets. The consumption proportion of animal-based foods, such as pork meat, poultry, milk, and eggs, increased significantly from around 27 percent in 1990 to 49.2 percent in 2019<sup>2</sup>. Furthermore, per capita disposable income and per capita consumption of residents has doubled over the past decade. From a perspective of demographic structure, the average per capita GDP of China reached the amount of EUR 9,346 in 2020 and reached USD 12,750 (equivalent to EUR 11,916) in 2022<sup>3</sup>. With the steady progress of urbanisation, increasing affluence, and rising living standards, the dietary structure of Chinese urban and rural residents has continued to upgrade. The existing protein production system will be unable to keep up with the increasing demand.

Although United Nations projected a decrease in the Chinese population in the next three decades, the large population base decided that a significant increase in animal- and plant-based protein food consumption in China is expected for the next decades. China is the world's largest meat consumer, expecting citizens to eat more than 55 million tonnes of pork and 8.8 million tonnes of beef and veal in 2022<sup>4</sup>. According to the data from China Meat Association, China has a domestic supply of over 90 million tons of poultry, pork, beef, and mutton, and the country imported 7.4 million tons of meat in total in 2022. Except for the fluctuated pig meat consumption, the consumption of other animal-based proteins has shown an upward trend. It is estimated that the gap in China's meat supply (beef & veal, pig, poultry, and sheep meat) will exceed 53 million tonnes over the ten years between 2021 and 2030<sup>5</sup>.

The country relies on two traditional paths for meeting the demand for meat consumption: increasing import trade while developing the livestock and poultry industry to meet the

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<sup>1</sup> [Changes in China's food security driven by nutrition security and resource constraints](#), National Library of Medicine, NCBI, Feb25, 2023.

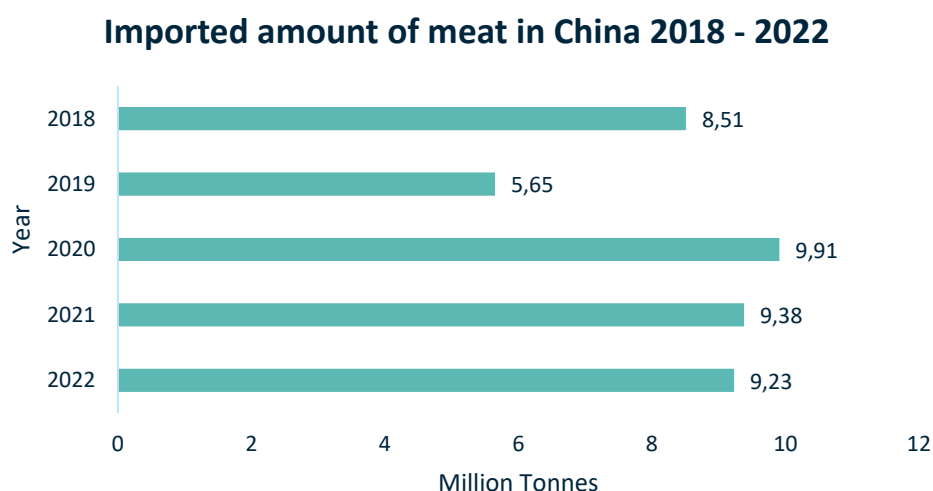
<sup>2</sup> Ibid.

<sup>3</sup> [中华人民共和国 2022 年国民经济和社会发展统计公报](#), National Bureau of Statistics, Feb 28, 2023.

<sup>4</sup> [Livestock and Poultry: World Markets and Trade](#), USDA, Oct 12, 2022.

<sup>5</sup> [OECD-FAO Agricultural Outlook, 2021-2030](#).

residents' animal-based protein consumption demand. According to the General Administration of Customs, the import number of meat products has been growing on average in the past five years:



Graph 1. Source: GACC.

Even with continued growth prospects, the meat industry routinely confronts several challenges. First, producing all kinds of meats and offal from livestock and poultry involves increasing risks of animal diseases' wide spreading, therefore, increasing the risk for zoonosis and food safety issues. In addition, the scarcity of water, soil, and environmental pressures also constrain the expansion scale of the livestock and poultry industry in China. As a result, the two traditional paths relying on international import trade and domestic livestock and poultry industry development to solve China's meat supply shortage are unsustainable and create challenges in both the volume and sustainability of production.

As food security is one of the critical priorities of the Chinese government at present, there is a need to diversify protein sources from plants and fermented microorganisms and acquire biological resources in innovative ways. At the joint meeting with the agriculture, social security, and social welfare political advisors from the 13<sup>th</sup> National Committee of the Chinese People's Political Consultative Conference in March 2022<sup>6</sup>, President Xi Jinping embraced new thinking not constrained by conventional protein sources. He highlighted a 'big food concept', and China must ask for food from forests, rivers, lakes, seas, and facility agriculture. At the same time, it is necessary to expand from traditional crops and livestock and poultry resources to more abundant biological resources, develop biotechnology and bio-industry, and seek energy and protein from plants, animals, and microorganisms. This declaration signifies government engagement and will significantly impact legislation and policies for the alternative protein sector.

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<sup>6</sup> [习近平看望参加政协会议的农业界社会福利和社会保障界委员](#), Gov.cn., Mar 6, 2022.

## 3.2 Drivers

- **The carbon intensity of agricultural production is on track to decrease.**

In September 2020, President Xi announced the “30/60 goal” at the United Nations General Assembly<sup>7</sup>, which aims to peak carbon emissions by 2030 and reach carbon neutrality by 2060. More specifically, the goal is that by 2030, China’s carbon dioxide emission per unit of GDP will be lowered by over 65 percent compared to 2005. Under the “30-60” target, China’s green development has entered a new stage with carbon reduction as a key strategic direction. The importance of green, low-carbon development and addressing climate change has increased significantly in the face of enormous pressure to reduce emissions.

Zooming in on the agriculture industry, the total emissions from global animal husbandry reach 7.1 gigatons of Co<sub>2</sub>-equiv per year, representing 14.5 percent of all anthropogenic Greenhouse Gas (GHG) emissions<sup>8</sup>. A study from the University of Bath mentioned that plant-based dietary alternatives to animal products are better for the environment and human health than those they are designed to replace<sup>9</sup>. On average, 10 grams of plant-based protein are needed to generate 1 gram of animal protein<sup>10</sup>. According to a study conducted by Blue Horizon in 2020<sup>11</sup>, a 10 percent switch to plant-based alternatives from meat products consumption can save 176 million tonnes of CO<sub>2</sub> emission, free 38 million hectares of land, and save around 8.6 billion m<sup>3</sup> water per year. To be concluded, along with increasing sustainability awareness worldwide, seeking alternative animal-based protein sources is necessary and expected in the Chinese market.

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<sup>7</sup> [Xi Jinping Attends the General Debate of the 76<sup>th</sup> Session of the United Nations General Assembly and Delivers an Import Speech](#), Ministry of Foreign Affairs of the People’s Republic of China, Sep 22, 2021.

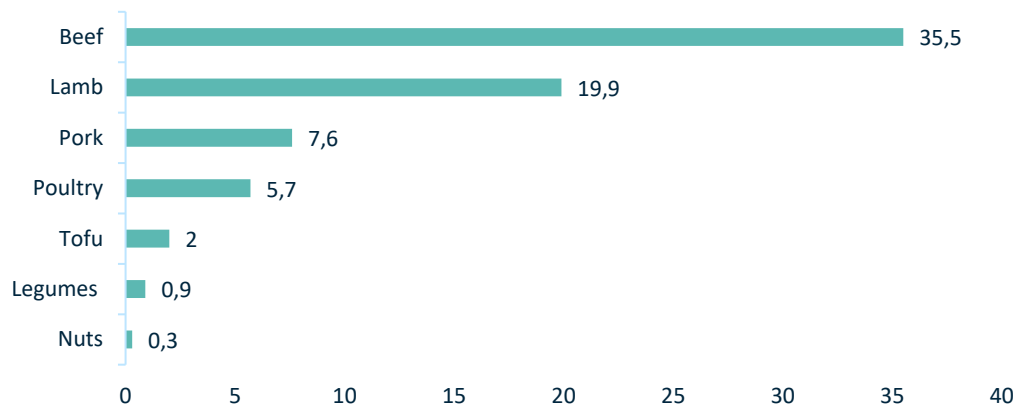
<sup>8</sup> [Key facts and findings](#), Food and Agriculture Organization of the United Nations, United Nations.

<sup>9</sup> [Plant-based ‘meat’ ‘healthier and more sustainable than animal products’](#), University of Bath, July 29, 2022.

<sup>10</sup> Reijnders L. Soret: [Quantification of the environmental impact of different dietary protein choices. The American Journal of Clinical Nutrition](#), 2003,78(3).

<sup>11</sup> [Environmental impacts of animal and plant-based food](#), Blue Horizon, Oct 22, 2020.

## Kilograms of greenhouse gas emissions per 100 grams of protein



Graph 2. Source: *United Nations*

- **Contagious animal diseases**

According to the UN Environment Programme (UNEP)<sup>12</sup>, 60 percent of emerging human infectious diseases reported globally are zoonoses, and 75% of the 30 new human pathogens detected in the last three decades have originated in animals. Regarding the development of the livestock and poultry industry, animal epidemics such as African swine fever and avian influenza have considerably impacted livestock and poultry industry breeding, meat processing and distribution.

The highly pathogenic avian influenza virus outbreak in 2004 caused enormous losses for poultry industry farmers; the small ruminant veterinary disease in livestock in 2014 became a direct cause of domestic sheep price fluctuations and losses for farmers in subsequent years—bird flu, such as H7N9 in 2017 affected chicken stocks. The outbreak of African swine fever from 2018 to 2019 led to a reduction in domestic hog breeding of over thirty percent and a halving of pork production. This caused direct economic losses of EUR 131 billion<sup>13</sup>. Experts suggested that the ASF outbreak caused a 125 percent increase in cost for pork producers in China. OECD-FAO projects that ASF outbreaks will keep global pig meat output below previous peak levels until 2022, which is only expected to increase steadily until 2031<sup>14</sup>.

Apart from biological hazards that can compromise the safety of meat and animal products, another challenging issue is the resistance to antibiotics used in animal production or to

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<sup>12</sup> [Preventing the next pandemic - Zoonotic diseases and how to break the chain of transmission](#), UN Environment Programme, Jul 06, 2020.

<sup>13</sup> [Evaluating Losses Associated with African Swine Fever in the People's Republic of China and Neighboring Countries](#), Asian Development Bank, Oct 2020.

<sup>14</sup> [OECD-FAO Agriculture Outlook 2022-2031](#), OECD iLibrary, June 29, 2022.

antimicrobial additives used in meat processing can be another consideration. Plant-based protein alternatives can be considered a safer choice for consumers.

- **Healthier eating habits**

*Low fat, low sugar, low calories.*

Plant-based proteins diet has become popular in recent years because many have realised that plants are good protein sources and offer substantial health benefits. Wider use of plant-based proteins in the diet can help to supply adequate high-quality protein for the population. According to a study published in the National Library of Medicine NCBI<sup>15</sup>, the significant benefits of consuming a plant-based diet are effective in treating various chronic conditions, lower body weight, decreasing the risk of cancer, and reducing the risk of death from ischemic heart disease. The International Agency for Research on Cancer (IARC)<sup>16</sup> classified the consumption of red meat (pork, beef, lamb, etc.), mainly processed meat, as a risk of carcinogenicity in humans (Group 2A). The European Prospective Investigation into Cancer and Nutrition (EPIC) Oxford study<sup>17</sup> also showed that individuals classified as non-meat eaters scored higher than their meat-eaters when comparing the food quality index and overall dietary quality profiles. This means that non-meat eaters have higher diet quality compared with meat consumers.

*Fit for vegetarians, vegans, and “flexitarians”.*

Chinese people who follow a “flexitarian diet” are rising due to health and environmental protection awareness. There is a firmly established eating culture in China whereby plant-based and animal-based dishes are essential to any meal. They do not substitute for each other; they are complementary. However, the “flexitarian diet” concept emphasises the acquisition of plant or plant-based foods and beverages and encourages meat to be consumed less frequently or in smaller portions. “Flexitarian” is a preferred concept to describe non-vegans or vegetarians open to innovative plant-based protein products due to health concerns.

Vegetarianism is eating food obtained from plants and abstaining from animal protein and meat products. A vegan diet refrains from consuming all animal protein products, including dairy, honey, milk, cheese, and eggs. China's vegetarian population is estimated at around 50 million, accounting only for 3.5 percent of the country's total population<sup>18</sup>. Specifically, Taiwan has the highest rate of reported vegetarianism, with 12 percent of its population observing a vegetarian diet, and over 6,000 establishments catering to vegetarians are operational. People may be drawn to vegetarianism because of religious beliefs, ethical motivation, environmental conservation, wildlife protection campaigns, health, and culture. The idea of plant-based protein foods is ideally in line with this group.

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<sup>15</sup> [Nutritional Update for Physicians: Plant-Based Diets](#), National Library of Medicine, 2013 Spring.

<sup>16</sup> [IARC Monographs evaluate consumption of red meat and processed meat](#), World Health Organization, Oct 26, 2015.

<sup>17</sup> [The EPIC-Oxford study and its contribution to the study of vegetarian health](#), Vegetarian Society.

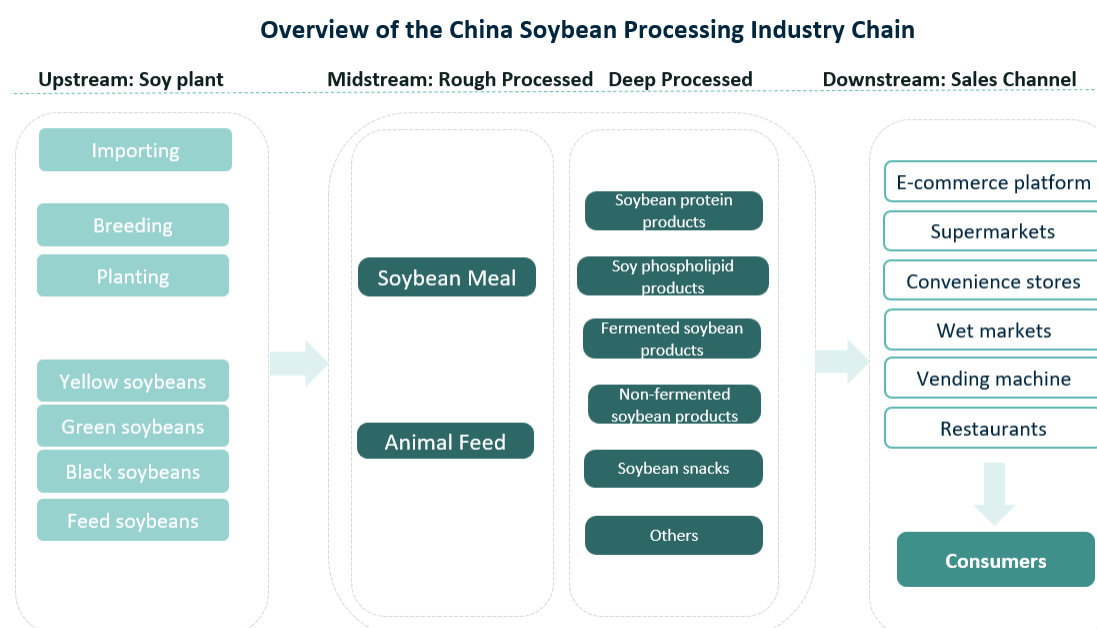
<sup>18</sup> [Vegan Lunch: Going meatless in Beijing](#), The World, Jun 27, 2013.

### 3.3 Chinese Footprint on the Global Supply Chain of Plant-based Foods

#### Plant-based protein ingredients

Many protein-rich crops exist in today's plant-based ecosystem, including soy, peas, chickpeas, fava beans, mung beans, buckwheat, chia, hemp, and quinoa. Some of the leading sources of plant protein today include soy (tofu, tempeh, edamame), peas, beans, and lentils. Due to soybeans' low-cost, desirable textures, and high-quality protein nature, soy proteins dominate the plant-based protein ingredient market globally. They are expected to continue despite growing scepticism around genetically modified crops, estrogenic effects, and allergies.

- Soy protein

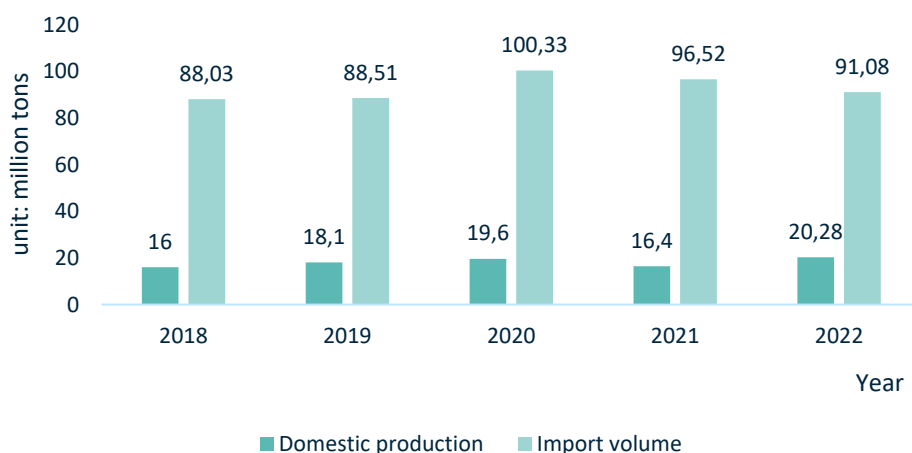


Graph 3.

Zooming in on the Chinese soybean ingredient, the market is divided into the domestic edible non-GMO and the imported soybean market for animal feed. In 2022, China's soybean production was about 20.28 million tons, and its import volume was about 91.08 million tons. Around 85 percent of the total is used for animal feed and soybean oil production; the rest is used for food processing, soybean products, and consumption. According to an article by the Ministry of Agriculture and Rural Affairs of the PRC<sup>19</sup>, China's edible soybeans are self-sufficient, with perennial consumption between 14 million and 16 million tons.

<sup>19</sup> [拓宽国产大豆市场空间](#), 中华人民共和国农业农村部, Feb 23, 2023.

## China Soy Bean Consumption Volume 2018 - 2022



Graph 4.

Although China's non-GMO soybeans are mainly produced in the northeast, Shandong Province has the most extensive soybean protein processing aggregation base. Research data from the China Chamber of Commerce for Import and Export of Foodstuffs, Native Produce, and Livestock show that by the end of 2020, there were nearly 20 significant producers of soy protein in China, with an actual production capacity of about 600,000 tons, and more than 80 percent of that capacity was in Shandong Province. Leading ingredient manufacturers include [YUWANG Eco](#), [Sino Glory Group](#), [Shansong Biological](#), and [Yuxin Biotech](#), occupying a market share of more than 60 percent.

- Pea protein

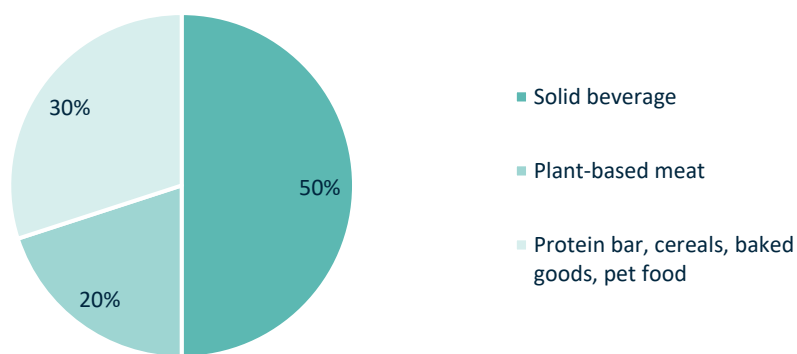
Pea protein is expected to become the next boom in plant-based protein ingredients. The leading pea protein suppliers are Roquette, Cargill, and Cosucra. Other pea protein players include plant-based protein manufacturer Merit Functional Foods, leading ingredient manufacturer Friesland Campina Ingredients, and Israel Food Tech Company Equinom, which has recently developed pea protein extracts.

The leading Chinese pea protein processing players are [Shuangta Food](#), [Shan Dong Jianyuan Biotechnology](#), and [Yantai Oriental Protein Tech](#). Shuangta is the largest producer of protein and starch derived from legumes used in delicacies such as glass noodles. The leading global clients of Shuangta include Beyond Meat, Cargill, Du Point, Mars, and Nestle. Capable of making 70 000 tonnes of pea protein every year, Shuangta accounts for 40 percent of global production capacity.<sup>20</sup> According to the estimation of East Asia Qianhai Securities, the capacity of high-end pea protein isolates has been estimated to increase to 100,000 tons by 2022. The company's food-grade pea protein applications in the solid beverage sector in 2021 accounted for 50 percent of food-grade pea protein and approximately 20 percent in the plant-based

<sup>20</sup> [Yantai Shuangta Food Co., Ltd 2021 annual report](#), Apr 2022.

meat sector. Shuangta has collaborated with Beyond Meat, Cargill, Du Pont, Mars, Nestlé and Sojitz (Japan) on pea extracts. Shuangta & Unilever jointly invest in a production line with complete digital production management, automatic subcontracting, and canning.

### The Application Percentage for Shuangta Pea Protein 2021



Graph 5. Source: [Yantai Shuangta Food Co., Ltd 2021 annual report](#), 2022

## 4. Consumer Insights

### 4.1 Consumer Characteristics

China has the most complex and dynamic consumption market in the world. As China's consumers become more affluent, the younger generations are advancing into new life stages. Consumers' needs are shifting from functional elements of value (EoV) to emotional EoV. Consumers, especially the young, are becoming less price sensitive and willing to spend more on enjoyment, social status, self-identity, and societal contribution. Meanwhile, consumers develop higher standards for the convenience and quality of products and services.

Zooming in on the plant-based protein food industry, the appetite for protein products in China has continued to grow as the increasing urbanisation and lifestyle changes have rewritten the diet of Chinese citizens. Chinese consumers attribute various benefits to protein, from providing energy and aiding in growth and repair to assisting in health and weight management.

As mentioned in the previous chapters, China's vegetarian and vegan population is small, accounting for 3.5 percent of the country's total population. Therefore, the Chinese plant-based protein market is aimed more at flexitarians. As plant-based protein products are usually more expensive than their meat counterparts, typical consumers are white-collar workers who are health and environmentally conscious, as well as food enthusiasts and fitness fans, mainly



in Tier-1 cities. According to a public interview<sup>21</sup> with Jooma's COO, it is also confirmed that the target group for its plant-based yoghurt in China is more than 70 percent females in their 20s to 40s and children. The founder of Starfield has also shared insights that their consumers are mainly family groups aged from the 30s to 40s, as they pay attention to not only their own nutrition needs but their children's. Besides, it is also worth mentioning the characteristics of the following consumer groups, "Digital Natives", "Womenomics", keeping good health in a punk way and allergy status of Chinese consumers.

### *"Digital Natives"*

Digital technology has been part of everyday life for decades now, so logically, there's a whole generation of individuals for whom concepts such as the Internet and wireless technology are just humdrum because they've never lived in a world where they didn't exist. These are the so-called digital natives, or technological generations, generally anyone born from 1980 onwards. Their consumption characteristics include convenience, willingness to explore new things and personalisation. These younger generations are good at socialising with their interests, forming a rich cultural circle and are glad to pay for it. If a brand resonates with them, in other words, the tone and style of the brand match their preferences; they are willing to try and pay. At the same time, these young people are more individualistic and like to express themselves, favouring personalised and in-depth experiences. They are more attracted to brands that are both creative and quality.

In terms of their purchasing habits, as these digital natives are the primary driving force of society, they are often under pressure with working long shifts, so they have little to no time to do shopping offline. As a result, they tend to rely on the Internet to purchase food, beverage, and other stuff. They are more interested in fast food and ready-to-eat products because no extra time is needed for preparation. According to Jingdong's "Post-90s Generation Consumption White Paper"<sup>22</sup>, the consumers born after 1995 (the Post-95s Generation) have the highest growth rate of users browsing for convenience food. The keywords they search for on JD. Com includes "self-heating hotpot, casual snacks, instant food and fast food."

### *The "She economy" is taking off.*

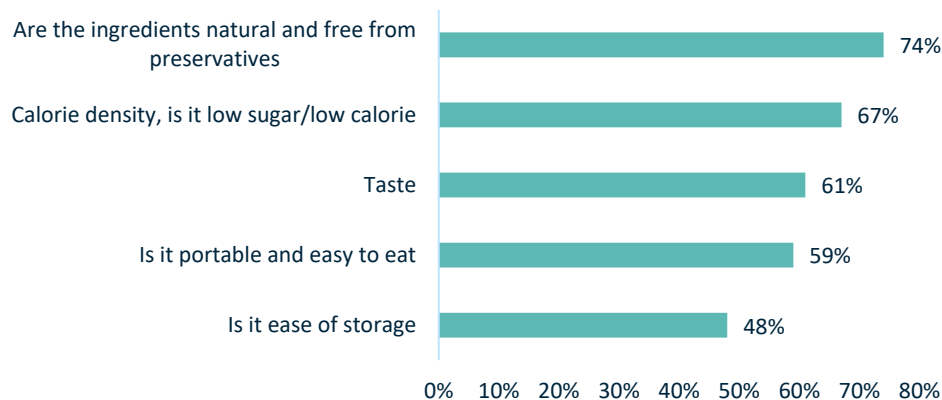
First released as a new phase in the Chinese language in 2007, "she economy" (她经济), or "womenomics", refers to the trend that more businesses are approaching their consumers and developing products from the female perspective. According to Accenture's statistics, the number of female consumers aged 20-60 is approaching 400 million in China. Women's consumption demands and buying power are surging as they become better educated, more self-conscious, and more financially independent.

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<sup>21</sup> [Pivoting into China's up-and-coming plant-based food market – an interview with Kamil Gajewski](#), Dao insights, Nov 10, 2022.

<sup>22</sup> [90 后人群消费白皮书](#), JD Big Data Institute, Sept 2020.

## Factors in the consumption of functional snacks for women



Graph 6. Source: [CBNData](#)

Body image and age are popular topics for Chinese women. According to CBNData 2022 research on Women's Quality Life Consumer Trends Report, nearly 30 percent of women "exercise and regulate their diet accordingly" to cope with body image anxiety. Driven by this attitude, they focus on their daily diet's health and wellness functions in a lightweight way to keep their beauty.

Compared with traditional Chinese meals, the "lightness" of diet is firstly reflected in the "pickiness" of food ingredients, "low salt and low oil", and "zero sugar, zero fat and zero calories" have become the mainstream of women's diet consumption. This diet has become the mainstream of women's dietary consumption and is constantly generating advanced demand. Take sugar substitutes as an example; the popular related content on RED (Xiaohongshu) involves seasoning, baking, drinks, and snacks, covering different scenarios such as formal meals and leisure snacks. 110,000 notes related to "sugar substitutes" include basic functional knowledge and more detailed science on the advantages and disadvantages of different sugar substitutes. This means that women are taking their pockets of time more seriously. For plant-based protein food brands, it is not only necessary to consider whether to add a particular ingredient but also to consider consumers' preferences and acceptability of different ingredient segments to meet the needs of their bland diet.

### *Keeping good health in a punk way (朋克养生)*

The appetite for plant-based foods in China has been emerging since 2020, and many Chinese millennials and Gen-Z's showing enthusiasm for consuming plant-based foods. Besides chasing a sense of freshness and being open to new things, one of the main reasons is that health management (in Chinese "养生") has become the latest fad among Chinese millennials in recent years. According to a health life consumption trend report<sup>23</sup> jointly issued by CBNData

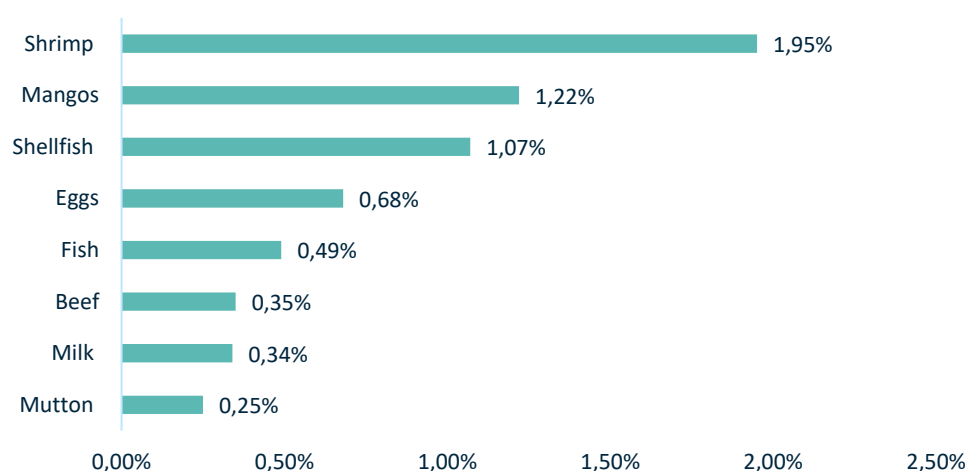
<sup>23</sup> [健康生活消费趋势报告](#), CBNData, 24 Dec, 2019.

and Johnson & Johnson, over 50 percent of health product buyers are under 30. The report found that young buyers tended to search for convenient, healthy foods, with little to no preparation, such as local healthy foods representative's instant goji berries and donkey-hide gelatin, reflecting their desire to stay fit without making too much effort. The erratic schedule and intense work pressure of young Chinese people prompted many to seek an effortless way to pursue a healthy lifestyle. Plus, as Chinese consumers rely very much on user reviews and recommendations when shopping online, many Gen Z and Millennial consumers are likely to follow online celebrities' movements to eat more food they recommended.

### Allergy

According to the non-profit European Centre for Allergy Research Foundation (ECARF)<sup>24</sup>, around 0.3 percent of the European population is allergic to soya. However, compared with European people, Chinese are more likely to be allergic to seafood and red meat products and less likely to be allergic to peanuts and soy. According to an allergy study conducted by CCDC in 2020<sup>25</sup>, shrimp, mangos and shellfish are the top three common food allergens in China's Jiangxi province, followed by eggs, fish, beef, milk, and mutton. Chinese people may underestimate dairy as allergy symptoms could be mild. With many people allergic to red meat, seafood and dairy products, there is a demand for plant-based meat and milk alternatives in China.

### Common Causative Foods in China



Graph 7. Source: [CCDC Weekly](#)

## 4.2 Consumer Trends

Consumers are highly diversified in China. Different groups of consumers have different motivations and scenarios to try different types of plant-based protein foods. Young females

<sup>24</sup> [Soy allergy](#), ECARF, Jul 2016.

<sup>25</sup> [A methodology of Epidemiologic Study in the General Population Focusing on Food Allergy](#), CCDC Weekly, Aug 26, 2022.

have specific targets such as weight loss and keeping fit; Sports lovers have nutritional needs for their training efficiencies; The ageing population cares about longevity and quality of life. However, multiple factors drive the growth of the plant-based protein food market in China. These include health and wellness, flexitarians, and concerns for animal welfare and climate change.

### Health and Wellness

An increasing number of consumers are becoming widely aware of the side effects of various food intolerances and unhealthy diets that can lead to malignant diseases. In China, obesity and “The Three-Highs Diseases” (high blood pressure, high blood glucose, and high blood lipid) are severe threats to the population’s health. According to the Report on the Status of Nutrition and Chronic Diseases in China (2020), 350 million people are suffering from "The Three Highs", and over half of the population over 18 is overweight or obese in China.

	Age 18 - 25	Age 26-45	Age 45-60	Age 60+
<b>Main health problems</b>	Vision problems Oral problems Weight management	Under pressure Skincare Insomnia problems	Mental stress Gut health problems Hair problems	Gut health problems Stomach health Bone & joint issues
<b>Health management characteristics</b>	Love functional food and tend to choose fun and easy ways to conduct health management, such as functional foods in snack form	Pursuing a scientific approach to fitness, focusing on the health industry and concentrating on comfort and pleasure	Utilitarian and practical, these are the main buyers of food supplement products. A passion for "hobby supplements" and wanting products that are effective enough and can be differentiated from pharmaceuticals	They are more willing to pay for health and wellness, give up bad habits and value natural, safe, organic products
<b>Health management trends</b>	Snacks Ready-to-eat products	Story-telling Beautifying	Fine-tuning Specialisation	Rigid demand Diversification

Table 1. Source: [China Import Consumer Market Report 2022](#), Deloitte; Acclime

Besides the above diseases, many Chinese people are under suboptimal health status. For example, nearly 60 percent of students aged 6 to 18 across China are near-sightedness. White-collar workers may be under mental stress due to long working hours<sup>26</sup>. According to the 2022 Chinese adult health management report issued by Ipsos<sup>27</sup>, digestive and gut health is growing in popularity among different ages of Chinese customers compared with 2021. Immunity accounts for 18 percent of the top two concerns, with consumers aged 25 – 45 most caring about immunity. There are more people with mental, emotional and body image problems than in 2021, with a particular need to focus on emotional health in younger age groups. Regarding health choices, 82 percent of consumers implement dietary modification, and 74 percent adopt exercise and fitness to improve their daily regimen. 82 percent of consumers report enhancing their health through dietary change, and 61 percent claim to spend more on

<sup>26</sup> [Impact of Long Working Hours on Mental Health: Evidence from China](#), NCBI. Jan 16, 2023.

<sup>27</sup> [2022 健康洞察报告](#), Ipsos.

dietary modification in the future. As a result, along with awakening consumer awareness of health, daily diets are gradually being restructured to “high protein, zero sucrose, low fat and low calories.”

### ***Sustainability and climate change***

In the post-epidemic era, global consumers have reached an unprecedented new level of health awareness. They are beginning to expand their health concerns from humans to the entire ecology, exploring how to build a sustainable and dynamic balance between people and the planet.

ADM research found that 49 percent of consumers worldwide said they had changed many of their eating habits in the past two years to live a greener life<sup>28</sup>. At the same time, consumers are mainly focused on reducing their food waste in daily life, so they expect the same from food companies and want companies to make relevant improvements in environmental awareness. According to the Innova survey, more than three-fifths of consumers worldwide say their trust in brands increases when they communicate more honestly about the challenges and efforts they face to protect the environment.

Consumer awareness of the environment in China is gradually growing; According to Deloitte's 2023 China Consumer Insights and Market Outlook White Paper<sup>29</sup> on consumer willingness to go green, nearly 70 percent of consumers are willing to pay a premium for green food and beverage consumption. Still, most consumers (58 percent of the total population) are willing to pay a premium of less than 10 percent. In other words, while these consumers recognise the socially responsible value proposition of green, sustainable, and so on, they are also rational. They want to purchase food products with brand value and, at the same time, get value for money. Compared with the West, sustainability is still not the most crucial reason Chinese consumers purchase plant-based protein food<sup>30</sup>.

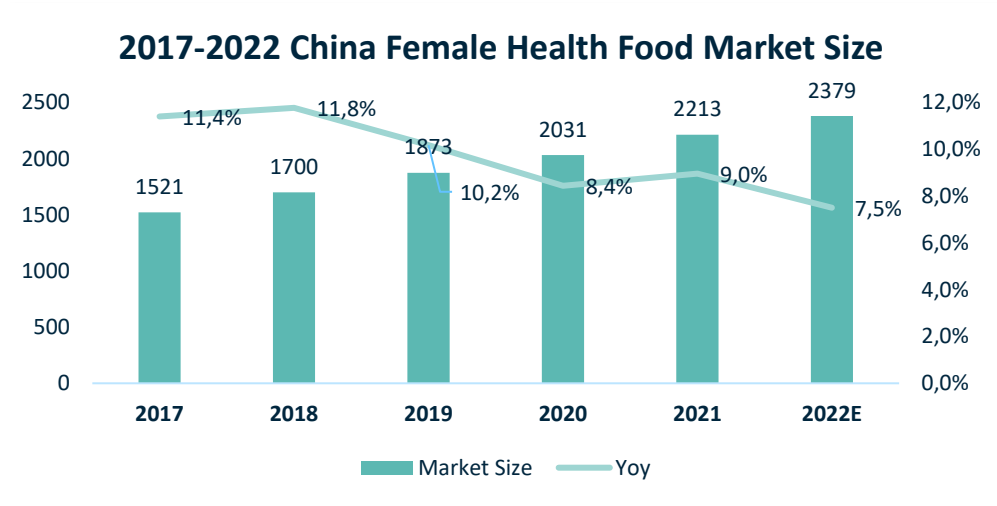
### ***Female consumers are the key to the market.***

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<sup>28</sup> [ADM Announces Global Trends Set to Drive Nutrition Innovation for 2023](#), ADM.com, Nov 01, 2022.

<sup>29</sup> [2023 中国消费者洞察与市场展望白皮书](#), Deloitte, Jan 18, 2023.

<sup>30</sup> [2022 植物基食品行业研究报告](#), TIMON, Jun 10, 2021.



Graph 8. Source: [2021 年中国女性健康市场洞察报告](#), LeadLeo

Over 60 percent of Chinese family consumption is driven by females<sup>31</sup>. The young female generation will be single-handedly responsible for growing the market towards their surroundings: friends, boyfriends, husbands, parents, etc. They are the decision-makers in families.

Female consumers have three primary health food needs: nutritional ingredients, emotional appeal, and product innovation. First, female consumers believe adding specific elements to food and beverages can improve their health. According to CBNDATA, female consumers account for more than 65 percent of health food consumers by gender. According to sales data from Tmall, food and beverage products containing ingredients such as probiotics, chia seeds, and collagen are popular among female consumers. Secondly, healthy foods, mainly for white-collar workers, can satisfy female consumers' emotional appeal. Female white-collar workers would like to have food and drinks that can relieve anxiety and release stress during office hours. Finally, product packaging design is essential to food and beverage product innovation. There is an upcoming trend towards brands that are entertaining and committed to the consumer.

## 5. Market Size and Segmentation for Plant-based Protein Food in

### China

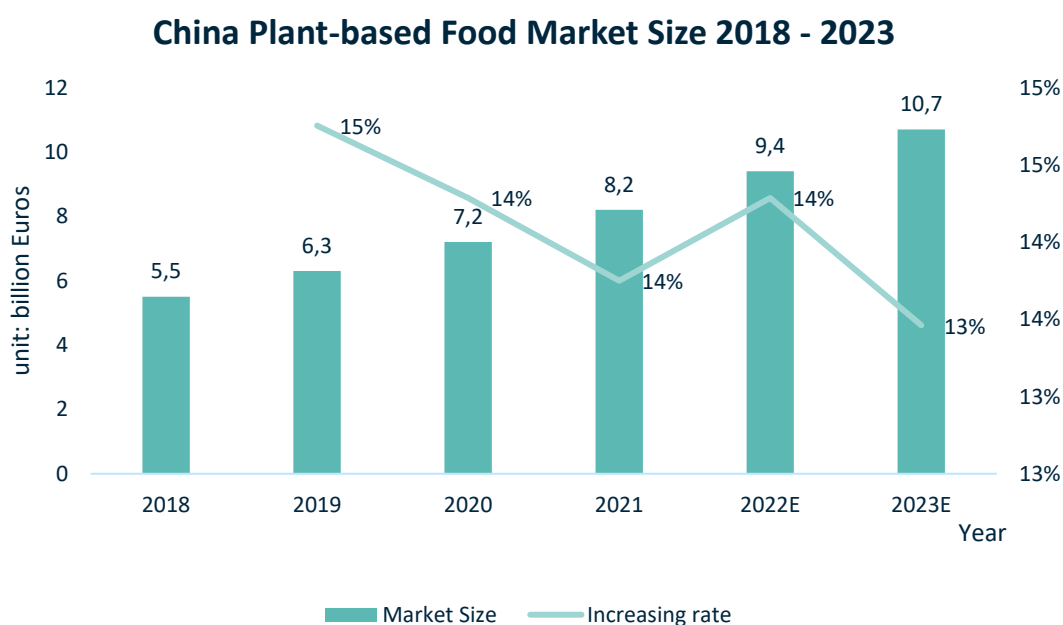
Dated back to the Tang Dynasty, China has a long history of “mock meats” and meat-replacement products made from soy or gluten due to religious reasons. However, traditional meat analogues usually heavily rely on a complicated cooking process and flavour additives to

<sup>31</sup> [解锁“她经济”](#), Avic Securities, Jan 30, 2021.

mimic the taste of meat. In recent years, modern plant-based protein products have been differentiated from traditional ones in their ingredients, production process, flavour, and nutrition. Therefore, it is essential to describe the source and sourcing of plant protein for innovative plant-based protein foods in China instead of traditional “mock meats” products.

The Chinese government has no official definition of plant-based protein food. The Chinese Society of Food Science and Technology (CIFST) released the "general rules of plant-based food" group standard in August 2021; it clearly defines plant-based food as “plant materials (including algae and fungi) or their products as a source of protein, fat, etc., with or without adding other ingredients, which are processed to be foods with similar texture, flavour, and appearance as animal meat products.

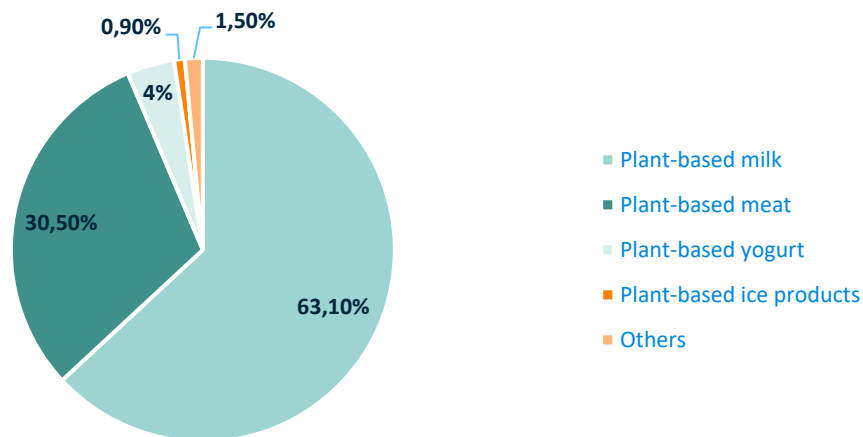
### 5.1 Market Size



Graph 9.

China’s plant-based protein food market is estimated to reach EUR10.7 billion, with a compound annual growth rate (CAGR) of 14.1% from 2019 to 2023. As the plant-based protein food market is a relatively niche market with specific standards for each category (e.g., plant-based yoghurt and snacks), there are no comprehensive market size forecasts.

## Market share of Chinese plant-based food in 2020



Graph 10.

According to the data from LeadLeo<sup>32</sup>, the plant-based beverage market is by far the largest segment of the plant-based protein market, with an estimated market share of over 60%. This is followed by the plant-based protein meat market, accounting for around 30%. Plant-based yoghurt, ice cream, and functional protein products account for less than 10%. Plant-based beverages have a long history in China, where many established market players exist in this sector, such as Vitasoy, Coconut Palm Group, Yang Yuan Group and Lolo. There are also plenty of local start-ups since the Swedish brand Oatly has a thriving market entry by the end of 2018. According to the latest data from QCC, there are over 5,000 plant-based beverage companies in China in 2023. Due to the fierce competition in the plant-based beverage sector, Dutch plant-based protein companies should look at other plant-based protein categories. The plant-based protein meat industry has taken off since 2020. According to the news<sup>33</sup>, 21 investments from the China-focused plant-based meat industry from December 2019 to December 2020 represent a 500 percent year-on-year increase, accounting for 10 percent of the total food, beverage, and functional food industry. Plant-based protein meat market sales are estimated at a compound annual growth rate (CAGR) of 12.6% from 2022 to 2027<sup>34</sup>.

### 5.2 Market Outlook

As elaborated in this report, the plant-based protein food market is divided into plant-based milk products, meat cuisines and snacks, plant-based yoghurt products, and plant-based protein functional foods. According to Industrial Securities, plant-based milk and meat products occupy over 90 percent of the Chinese plant-based food market.

<sup>32</sup> [2021 年中国植物奶行业: 植物基风潮下的又一千亿赛道](#), LeadLeo, Sept 2021.

<sup>33</sup> [植物基成主流食品消费热宠, 下一个打开“中国胃”的爆款产品会是啥?](#) FoodTalks, Jan 07, 2022.

<sup>34</sup> [China meat substitutes market at inflection point, gearing up to surge by 12.6% CAGR over 2022–27](#), GlobalData, Apr17, 2023.



The 2022 China Plant-Based Diet Industry Report (hereinafter "the Report") was released at Beijing's 3rd China Plant-Based Diet Industry Conference in May 2023. The report shows that, at present, the annual output value of China's plant-based diet industry has exceeded EUR 5.59 billion, and the plant-based supply chain has reached 100,000 caterers and retail stores. The industry chain's upstream, midstream, and downstream are effectively linked, the supply and demand have entered a period of prosperity, and the industry has entered a prime period of healthy development.

An increasing number of large-scale food manufacturers are entering the plant-based industry. According to the Report, currently, there are around 100 plant-based enterprises in China, and the number is estimated to hit about 1,000 within 3-5 years. Currently, the plant-based supply chain touches 100,000 restaurants and retail stores, and it is predicted that 500,000 can be reached in nearly three years.

The report recommends that the share of plant-based diets should be increased proportionally in large chain restaurants, high-end hotels, and restaurants in scenic attractions to meet the needs of different consumer tastes. It is also suggested that large group meals, fast food, institutions, colleges and universities and other large-scale chain enterprises and canteens lead in setting up pilot plant-based green restaurants.

### ***The bright future of plant-based prepared dishes***

The prepared dishes, or ready-to-heat food industry, have witnessed a significant boom in recent years in response to growing consumer demand for healthy and convenient meals and the COVID-19 pandemic. According to the report "2022 Ready-to-Eat Food Consumption Trends" released by Jingdong, the turnover of prepared dishes in China increased by 156 percent year-on-year in 2021. Prepared dishes are divided into two categories, animal-based and plant-based prepared dishes. Animal-based dishes have a larger market share because of time-saving and quick-freezing technology. However, there is a firmly established eating culture whereby plant- and animal-based dishes are considered the complementary elements of any meal in China. As a result, from a nutrition and health perspective, consumers prefer a more balanced diet, which means plant-based prepared dishes are also essential.

The stock market of China's prepared food industry is estimated to be EUR 52.5 billion in 2022. According to the estimation of the Plant-based Cooking Committee of China Cuisine Association, plant-based prepared food has an annual production value between EUR 39.3 billion and EUR 65.6 billion. Plant-based prepared dishes can be divided into ten major tracks, including domestic and international plant-based food, traditional vegetarian food, monastic vegetarian food, plant-based condiments, mushrooms, grains and cereals, fruits and vegetables, functional food, local specialities, and snacks.

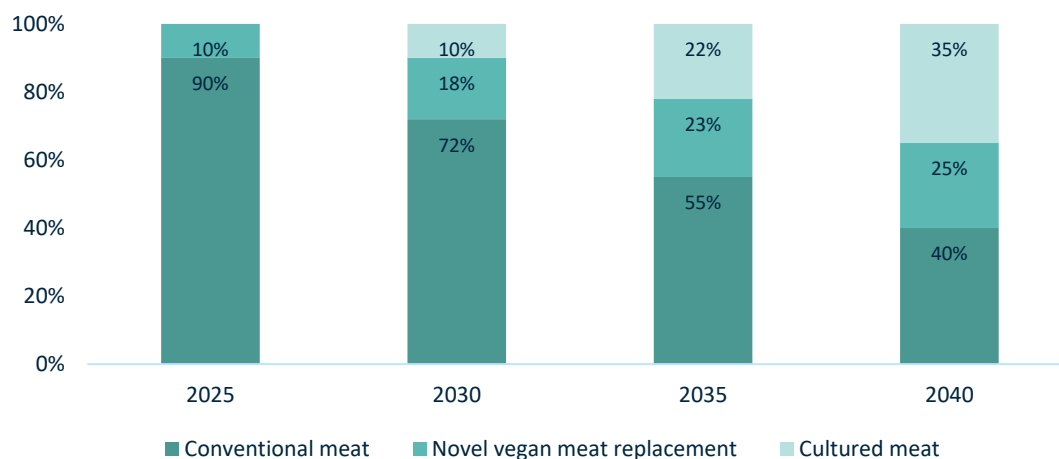
## **5.3 Market Segmentation Breakdown**

### **5.3.1 Plant-based meat cuisines**

Intern gebruik

According to the data from Statista, the structure of global meat consumption will change completely. Currently, most people depend on conventional animal-based meat to gain protein. However, it is estimated that between 2025 to 2040, novel plant-based meat replacement will have a compound annual growth rate (CAGR) of 9 percent, whilst conventional meat will have a declining CAGR of -3 percent<sup>35</sup>. Zooming in on the Chinese market, 2020 is when plant-based meat began to take off in mainland China. China's plant-based food market is forecast to be worth nearly EUR 11.3 billion by 2023, up from EUR 9.42 billion in 2018, according to the prediction of Euromonitor International<sup>36</sup>. A study from DuPont Nutrition & Bioscience in 2020 predicted that demand for plant-based meat would increase by 200 percent over the next five years, leading China to be one of the fastest-growing global markets for plant-based proteins<sup>37</sup>.

### Forecast Breakdown of Global Meat Consumption from 2025 to 2040



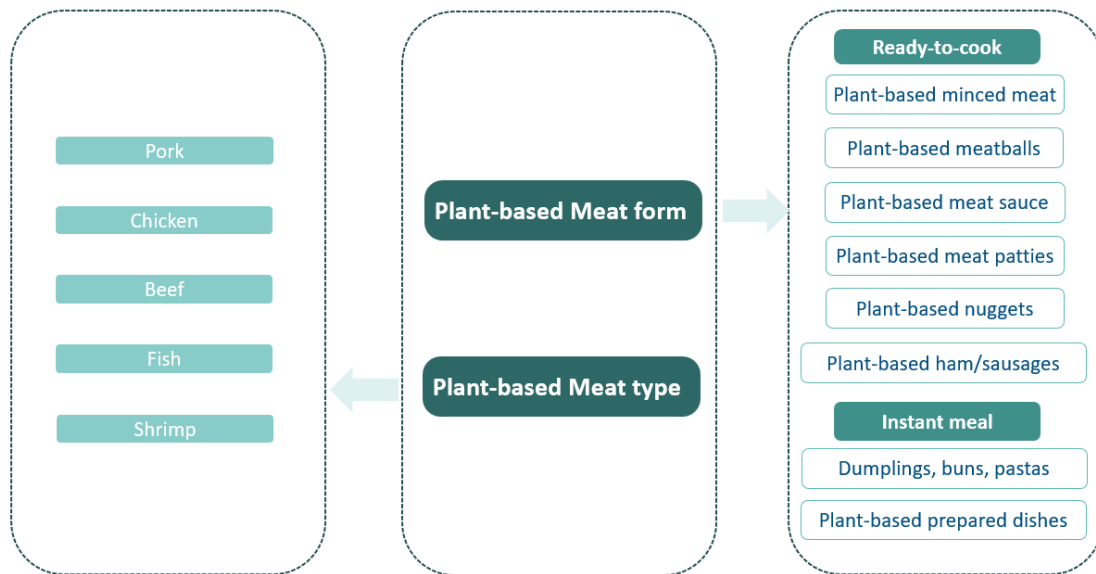
Graph 11. Source: [Statista](#), [Acclime](#)

#### Classification

<sup>35</sup> [When consumers go vegan, how much meat will be left on the table for agribusiness?](#) Kearney, Jan 08, 2020.

<sup>36</sup> [Meat in China](#), Euromonitor, Dec 2022.

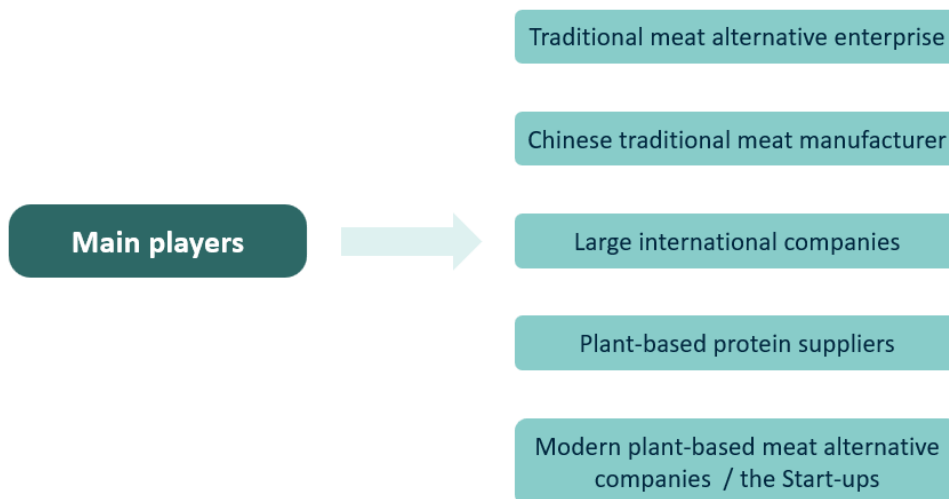
<sup>37</sup> [Plant-based meat alternatives set to thrive in the next five years](#), Asia Pacific Food Industry, Jan 29, 2021.



Graph 12. Source: Acclime

Plant-based meat products are made to resemble meat products in texture, flavour, and appearance and are considered meat substitutes. The plant-based meat products in the Chinese market are mainly made to mimic the taste of pork, chicken, beef, and seafood by using primary ingredients such as soybeans, legumes, wheat glutens, and rice-based products. In addition, a wide selection of textured soy protein, soy protein isolates, soy protein concentrates, and speciality plants, such as konjac, is also used in the manufacturing process.

### Main producers



Graph 13.

Compared with the US and European markets, China has more recognised manufacturers and suppliers of traditional plant-based products due to the vast consumption of plant-based diets for around 2000 years. These traditional manufacturers have become part of the support specialists and diversified product line expanders as part of the production base for OEM

relationships for start-up businesses. This explains the brand dynamism of the market and the need for brands to create longer-term proprietary values and innovative products. Usually, these start-up companies use venture capital funding to innovate and expand revenue. For example, Starfield, Protein Meat, Zhen Meat, and Hero Protein are local start-ups that have invested in their production facilities or access to shareholders' production facilities. The leading start-up companies will be introduced thoroughly in the following chapters.

Company types	Company name	Introduction
Star-ups	<b>Green Monday</b>	Green Monday Holdings, which operates OmniFoods, a food research company, and Green Common, a plant-based lifestyle platform, is dedicated to promoting the leading plant-based eating model. OmniFoods develops innovative plant-based protein products including OmniPork (新膳肉), OmniPork Luncheon (新餐肉), OmniPork Strip (新肉丝) and Omnipork healthy fastfood series, while Green Common is a one-stop, full-service food platform for retail, distribution and catering of plant-based products.
Star-ups	<b>Starfield</b>	Established in 2017, Starfield Food Science & Technology is a Shenzhen-based plant-based protein start-up. Starfield produces self-branded items that are sold commercially through third-party retailers. The company describes this as a B2B2C model. According to its official website, Starfield has partnered with more than 40,000 stores within China and has over 300 use cases from its R&D in the field of plant protein food.
Star-ups	<b>Hero Protein</b>	Established in 2020, HERO Protein (植物家) is a China plant-based meat brand which produces chicken, beef & fish analogues. The company aims to become the leading brand delivering a tasty and accessible range of plant – based meat products. HERO Protein claims to be the first Chinese company to use high moisture extrusion technology, with the support of a Germany manufacture,
Star-ups	<b>Protein-Meat</b>	Protein-meat (庖丁造肉) is a plant-based meat protein brand of Shenzhen Wenma. The research technology is jointly developed by Jiangnan University, the world's top-ranked university in the field of biotechnology and food science. It is composed of a number of professorial scientists and PhD researchers.
Star-ups	<b>Zhen Meat</b>	Established in 2019, Zhen Meat is a Beijing-based plant-based meat company. 20% of its shares are acquired by OrientGroup, and the two companies planed to promote a high moisture plant-based meat brand "East Zhen Meat"(东方珍肉). In December 2020, Oriental Group signed a cooperation agreement with one County of Heilongjiang Province on a high-moisture plant-based meat production project, with a planned investment of CNY157 million and construction in two phases.

Table 2.

Like the global trend of multinational animal protein companies entering the alternative protein segment through M&A and internal capacity investments, several Chinese meat groups have created or acquired plant-based brands. For example, Shuanghui, the largest meat processing company in China, launched its plant-based meat brand, “Future Model” and “Su Shi Jie” (素食界) in 2021. Besides, large international companies, such as Nestlé, Cargill, Unilever, and Beyond Meat, have built their local plant-based meat alternative brands using their production lines.

Company types	Company name	Introduction
Traditional plant-based meat enterprise	<b>Qishan Food</b>	Qishan Food, a 26-year-old brand, has been the most popular among other Chinese plant-based meat brands. The brand has developed over 300 plant-based products with a focus on Chinese cuisines, such as plant-meat rice balls and plant-oyster sauce. The brand runs over 200 direct storefronts and 34 distributors across China. Its mature distribution channel and Chinese cuisine products have allowed Qishan Food to stand out from the rest.
Traditional meat manufacture	<b>Shuanghui</b>	The largest meat processing company, Shuanghui, launched its plant-based meat brand "Future Model" & "Sushijie" (素食界) in 2021. In May 2020, Shuanghui Development acquired DuPont Protein and DuPont Food, which can be seen as a signal entering the alternative protein market. DuPont Protein and DuPont Food are both mainly engaged in the production and sales of soybean products.
Traditional meat manufacture	<b>Jinzi Ham</b>	Established in 1992, Jinzi Ham is a traditional ham manufacture, announced its "Plant Meat" initiative in October 2019, partnered with DuPont to produce the first plant-based meat patties in China and launched different types of plant-based meat products including plant-based "Lion's head" (stewed meatballs), a traditional Chinese cuisine.
Traditional meat manufacture	<b>Jinluo</b>	Jinluo, a traditional meat manufacture, has launched its plant-based meat products "Vegetarian Meat Pie" series on 27 May 2020, officially entered the plant-based meat market.
Plant-based protein suppliers	<b>Shuangta</b>	Shuangta is the leading pea protein supplier with 40% of the world's pea protein production capacity (2021) and partnerships with plant-based meat suppliers such as DuPont, Mars, Nestle Switzerland, Sojitz, Beyond Meat, Unilever, and Cargill, which launched its plant-based meat product line "Whole Bean Star Chef" on 26 November 2020.
International companies	<b>PFI Foods Co., Ltd</b>	PFI Plant protein supplier is a joint-venture food manufacturing company in Anhui Province. In September 2019, PFI started its plant-based protein meat project from scratch with a brand of "Zhi Ai Life" (植爱生活) and launched its plant protein dumplings and spring rolls on its official online store in May 2020.
International companies	<b>Beyond Meat</b>	Imported from the United States, in 2020, announced its first production factory situated in Jiaxing. The Beyond launched online stores on Tmall, and Pinduoduo for retail sales channels. Other distribution channels include Jing Ding Xuan, Starbucks and Taco Bell.

Table 3.

### Sales channels

Most plant-based meat alternative producers have established an omnichannel business model. Products are distributed to different Hotel-Restaurant-Institutional (HRI) sectors via business-to-business sales channels. Some brands collaborate with restaurants and hotels first to promote their plant-based meat cuisines to provide consumers with another food option. Changing consumers' traditional knowledge when they see and try plant-based products is more accessible. The plant-based meat dishes correspond to the style of food that the restaurants provide. Currently, most options have been confined to international fast-food chains and cafes, such as Burger King, KFC, Starbucks, and Tim's, bolstered by a few Western and fusion establishments, such as WAGAS. Some brands also choose to collaborate with Chinese chain restaurants. For instance, the Cantonese restaurant Jin Ding Xuan (金鼎轩) has collaborated with US-based alternative meat producer, Beyond Meat, adding plant-based beef products to the menu at all their 18 Beijing locations in 2021.

Another option is to collaborate with diverse types of supermarkets in Tier-1 cities. The supermarkets can be categorised into different types:

- Wholesale/warehouse stores: Sam's Club, ALDI, and Metro AG
- New retail supermarkets: Fresh Hippo and T11
- Imported grocery stores: Jenny Lou's Shop and April Gourmet
- Boutique supermarkets: Ole, blt, G-Super, City Shop, City Super
- Convenience stores: FamilyMart, LAWSON, 7-ELEVEN

For example, Starfield has collaborated with Sam's Club to promote its plant-based meat breakfast in 2022. The insights include bagels, Danish bread, and soft bread with plant-based bacon or beef. The products are sold in a large package of eight in the freezer, which can last longer than fresh bread.



Source: Red

Besides offline sales channels, another crucial sales channel is selling via e-commerce stores. Domestic and international companies have their official online store in umbrella e-commerce websites such as Jingdong.com, Taobao and T-mall to reach a broader range of customers outside Tier-1 cities.

### Challenges

First, taste is the overall priority. Further research and development into optimising the texture and taste are also crucial, particularly regarding plant-based alternatives to structured meat products and cuisines. Consumers have complained that plant-based meat fails at simulating the organoleptic properties of meat. There are several pinpoints that the plant-based meat industry in China is facing:

- Plant-based meat lacks heme, a molecule responsible for generating the craveable flavour of cooked meat. As a result, the meat could taste dry and less “meaty”.
- Plant-based meat may have off-flavour, commonly described as beany flavour.
- Plant-based meat has no chewing taste of real meat.
- Compared with cooking meat, which involves a series of reactions resulting in the development of various volatile compounds, including Maillard reactions<sup>38</sup>, plant-based meat has no such reactions after frying.

<sup>38</sup> [Improving the Aromatic Profile of Plant-Based Meat Alternatives: Effect of Myoglobin Addition on Volatiles](#), National Library of Medicine, Jul 2022.

Plus, due to China's sophisticated and diversified culinary landscape, it is much more challenging to pick a well-established food item or meal context in China that plant-based meat products could fit into. Plant-based companies need to create different meat-like flavours to satisfy and surprise Chinese consumers.

Second, plant-based meat products remain more expensive than their conventional counterparts because of significant research and development costs. Cost reduction is not considered to be a priority for the industry. This is because not only do the companies still focus on improving the taste, which requires advanced technology and more expensive machines, but also a smaller market compared with the meat industry, which means it is more difficult to control the cost by increasing sales volume. Over time, increasing competition and scaled production will likely reduce plant-based meat products' overall costs. Many companies prioritise the development of innovative plant-based proteins for pork or beef, given the eating habits of the Chinese as well as the relatively higher market prices.

Lastly, except for soybeans, one crucial challenge for plant-based protein ingredients isolated from single crops remains their "incomplete" essential amino acid content<sup>39</sup>. To mimic the texture of meat, plant-based meat alternatives are usually deeply processed with several food additives, which many consumers associate with weight gain and health problems. Excessive salt levels found in plant-based meat products compared with their meat equivalents are another concern<sup>40</sup>. As an increasing salt intake causes a rise in blood pressure, this contradicts the perceived health benefits consumers opt for. How to produce an alternative meat product with a simple and shorter list of ingredients and low in salt should be an essential issue for highly processed plant-based companies.

### ***Possibilities & Opportunities***

Innovative plant-based meat products have opportunities in China. With the long-established use of plant protein products, mainly derived from soy, tofu, mushrooms, and seitan, innovative plant-based meat products could be more welcomed in terms of their taste and texture for Chinese consumers.

There are several challenges for taste, texture, and appearance of plant-based meat products, so Dutch companies may provide techniques and solutions to solve them. For example, many Chinese companies still use standard extrusion technology, which involves texturised vegetable protein (TVP) to form a filamentous structure for plant-based meat products<sup>41</sup>. However, the high moisture extrusion technology is commonly used among European and

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<sup>39</sup> [Comparison of biological value and technological properties of oil seed proteins](#), Ukrainian Food Journal, 2017. Volume 6. Issue 2.

<sup>40</sup> [Salt content for plant-based meat products "unnecessarily high"](#), Food Navigator, 25 Nov 2021.

<sup>41</sup> [植物基食品引领健康浪潮 技术与配方构筑发展的护城河](#), Chinabaogao.com, Oct 27, 2022.

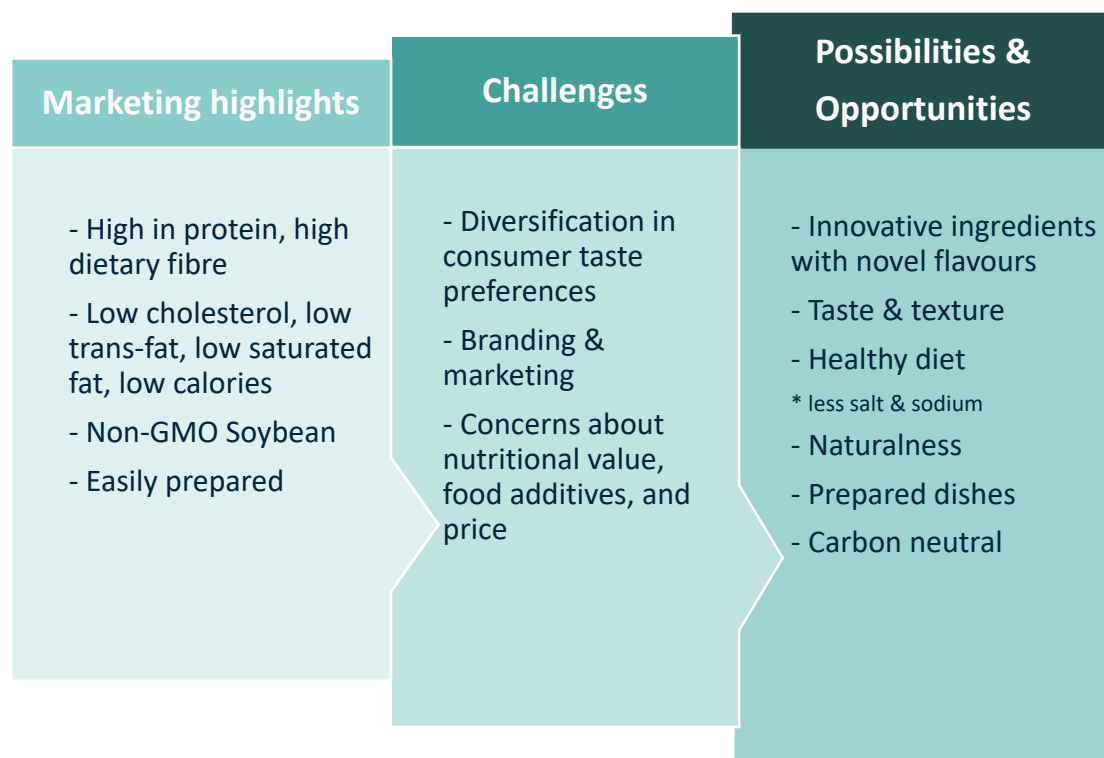


North American plant-based companies. This is the next generation of technology<sup>42</sup>, considered one of the best choices for producing plant-based meat substitutes with the rich fibrous structure offered by authentic animal meat products.

With the trend of developing prepared dishes, convenience is essential. Dutch plant-based meat suppliers may create foods that are easy to prepare or consume on the go.

Regarding marketing and sales, companies should identify the most promising examples of plant-based meat products that fit different scenarios. For example, producers may collaborate with cafes, bakery stores and Western cuisine restaurants to promote Western-type plant-based meat pastes and patties to serve for breakfast or brunch. It is worth noting that some consumers also care about adding too many food additives, so suppliers should create products with a shorter ingredient list as long as they are packed with protein and have a good amount of essential amino acids and fibre.

The plant-based meat suppliers also play a crucial role in cost reduction to attract not only business-to-business clients but also price-sensitive consumers. As clients from HRI sectors highlight the acquisition of new consumers, cost-saving and profit-increasing, plant-based meat producers can focus on scale-up production, achieve economies of scale, and seek price parity with their conventional competitors.



### 5.3.2 Plant-based yoghurt

<sup>42</sup>[Plant-based meat substitutes by high-moisture extrusion: Visualizing the whole process in data systematically from raw material to the products](#), ScienceDirect, Aug 2022.



Yoghurt is considered a healthy, tasty, and nutritious product made by fermentation of milk, supplying some essential minerals and vitamins. The latest Chinese Dietary Guidelines 2022 suggested consuming 300 – 500 grams of dairy and dairy-related products/day. Since the COVID-19 pandemic, more Chinese consumers are showing awareness about consuming more dairy products to enhance their immunity. The Milk Quotient, a metric that measures the receptiveness, acceptance, and understanding of the Chinese public to dairy and dairy products, indicating a potential corresponding rise in demand, has been launched by the China Dairy Industry Association (CDIA) and Royal Friesland Campina since 2018. According to the report released in 2021, around 190 million Chinese are lactose intolerant<sup>43</sup>.

Individuals concerned about following a more sustainable diet, those being dairy intolerant or who desire a non-dairy alternative due to dietary preferences, such as vegetarians, vegans, or flexitarians, will select a lactose-free plant-based yoghurt alternative. The growing interest in non-dairy yoghurts and the surge in plant-based milk alternatives have fuelled the plant-based milk industry to a value of EUR 6.6 billion<sup>44</sup>.

Company	Product name	Ingredient	Unit Price (CNY)/100g	Sales channel	Photo
Noix China	JOOMA Meiren	Coconut, almond	9.9-13.5	Online & offline	
Marvelous Foods	Yeyo	Coconut	12.7	Online & offline	
Dou Fei	Dou Fei	Soybean	4.2	Online	
Dou Fei	Xue San San	Black Soybean	1.9	Online	
Dali Group	Dou Ben Dou Flogurt	Soybean	2.4	Online	

Table 4.

Currently, there are limited plant-based yoghurt players on the market. The above table shows the brands that are present on the market. Noix China, a German plant-based yoghurt company Noix AG subsidiary, built its factory in Tianjin and developed online and offline sales channels in 2019. (The detailed information can be found in sector 9.3.) Marvelous Food, established in 2019, was created by Christiana, a New Zealand-born Chinese lady. The company only focus on coconut-based yoghurt with different flavours, branding their products as either snack or meal replacement. Marvellous Food recently launched coconut-based ice cream and hydrating coconut water electrolyte drinks. Marvelous Food collaborates with many lifestyle communities, including yoga brands, fitness groups, pet events, etc. Doufei is a

<sup>43</sup> [2021 年中国奶商指数 62.7 分，饮奶知识及行为亟待提升](#), Xinhuanet, May 28, 2021

<sup>44</sup> [2022 年中国植物奶市场分析报告-行业发展格局与投资潜力分析](#)

plant-based yoghurt company based in Henan Province. The portfolio of Doufei is plant-based yoghurt made from soybean and black soybean and plant-based ice cream. (Detailed information on Don Fei can be found in sector 7.1.) Dali foods group has been established for 30 years since 1989. It implements a multi-brand strategy, including bakery, snacks, and beverages. Dou Ben Dou is a sub-brand under the Dali Group, focusing on room-temperature plant-based milk and yoghurt products.

### ***Sales channels***

Currently, the plant-based yoghurt market can be seen as a niche segment in the plant-based beverage industry in China, and limited products are sold on the market. According to an interview with Jooma<sup>45</sup>, the biggest markets in China are Tier-1 cities: Beijing, Shanghai, Shenzhen, Guangzhou, Hangzhou, Wuhan, and Tianjin. The distribution channels for boutique plant-based yoghurt brands such as Jooma and Yeyo are high-end supermarkets or imported supermarkets in Tier-1 cities. Except for offline sales channels, all the plant-based brands go through online sales channels for delivery because they can reach out to more customers.



*Yeyo, the coconut-based yoghurt, sells in City Super, Shanghai.*

### ***Challenges***

There are several challenges in the plant-based yoghurt industry. First, consumers are concerned about nutritional benefits when purchasing plant-based yoghurt instead of dairy. Low sugar content in plant-based milk embarrasses acid production by carboxylic acid bacteria, which requires sucrose addition.<sup>46</sup> As a result, there may be less protein (with ingredients of coconut or almond) and more sugar added for plant-based yoghurt than the dairy option.

Moreover, plant proteins cannot gel during fermentation, unlike dairy-based yoghurt, as there is no casein gel with whey protein dispersed throughout the gel. The performance attributes of plant proteins determine that the addition of stabilisers and gelling agents such as pectin, starches and gelatine are used to create a yoghurt-like texture and creaminess.<sup>47</sup> As a result, non-dairy yoghurt may contain extra food additives.

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<sup>45</sup> [Pivoting into China's up-and-coming plant-based food market](#), DaoInsights, Nov 10, 2022.

<sup>46</sup> [Development of plant-based yoghurt](#), Foods and Raw Materials, Sep 2022.

<sup>47</sup> Ibid.

Other performance issues with plant-based yoghurt are related to flavour. Plant proteins have their characteristics and flavours associated with their plant source. For example, some customers need to get used to the beany soy taste of soy yoghurt due to its nature and fermentation process.

Furthermore, plant-based yoghurt products with active bacteria are mostly refrigerated, which requires cold chain logistics for transportation. As a niche market, the sales volume of low-temperature plant-based yoghurt products might be low; its short-shelf-life characteristic means un-avoided supplier losses. This makes some plant-based yoghurt products more expensive compared with dairy options. On the other hand, some plant-based yoghurt brands only sell through online channels to avoid losses.

### ***Possibilities & Opportunities***

Chinese people are very experienced with fermented products. Plant-based yoghurt market players can provide products with organic and clean labels targeting health-conscious families, vegans, lactose intolerant groups, and those looking for a healthy, low-fat alternative. To tap into China's plant-based market, plant-based yoghurt players can focus on snacks, in-between meals, and desserts that are dairy-like and non-dairy based, such as Greek styles, smoothies, or parfaits. To fit in different consumption scenarios, such as travelling, leisure time, and after work or school, plant-based yoghurt topped with fruit driers, granola, crunchy mix-ins (almonds, toasted coconut, chocolate bites), plant-based yoghurt could fit into different consumption scenarios including travelling, leisure time and off-work/off-school hours.

Taste and flavours are the priority of plant-based yoghurt products. Innovative flavours can always attract the heart of millennials to try. Sea salt chocolate, matcha tea and berry flavours are worth promoting. Still, it is also crucial that Dutch brands invest in flavours with local Chinese sources of ingredients, such as black sesame, lotus seed, dates, and red beans (these ingredients are also considered good for health in China). For example, St. Hubert promotes a lotus seed oat drink in its official store using the famous "Lotus Village" white locus, Guang Chang, Jiangxi Province. The product receives positive feedback from Chinese consumers.

Sucrose content is vital for customers who care about fitness and weight management. Unsweetened plant-based yoghurt is a perfect choice for this group of people. It can be promoted as an ideal topping for fruits or chopped nuts to avoid the plain flavour of plant-based yoghurt with zero sucrose. Plus, to fulfil the demand for health management, additional probiotics can be added to maintain the balance of bacteria needed to boost the immune system and promote a healthy digestive tract.

Marketing highlights	Challenges	Possibilities & opportunities
<ul style="list-style-type: none"> <li>- "No burden"</li> <li>- Lactose free &amp; dairy free</li> <li>- High in protein, high dietary fibre</li> <li>- Low cholesterol, low trans-fat, zero-gluten</li> <li>- Zero sucrose, zero colourings, zero added preservatives</li> <li>- Quality of ingredients &amp; ferments</li> <li>- Imported probiotics and prebiotics</li> </ul>	<ul style="list-style-type: none"> <li>- Limited penetration resources in the offline channel</li> <li>- High-end yoghurt products are mostly refrigerated yoghurt, which requires cold chain logistics</li> <li>- Innovative ingredients (pea-based, chickpea-based protein) have exited the market</li> </ul>	<ul style="list-style-type: none"> <li>- Organic, creamy, Greek-style</li> <li>- Increasing awareness of health, fitness, and sustainability <ul style="list-style-type: none"> <li>* Sucrose-free (probiotics, omega - 3)</li> <li>* Fermented by probiotic bacteria</li> <li>* Innovative flavours (cold brew, matcha tea, muesli)</li> </ul> </li> <li>- Snack/meal replacement <ul style="list-style-type: none"> <li>* Topped with fruit driers, granola, crunchy mix-ins (almonds, toasted coconut, chocolate bites)</li> <li>* Parfaits &amp; smoothies</li> </ul> </li> </ul>

### 5.3.3 Plant-based snacks

Snacks are usually small portions of foods generally eaten between meals. The snack food segment contains a wide range of food categories, and many snack foods are high in salt, sugar and fat, such as potato chips, cookies, cakes, crackers, and meat-based snacks. Nowadays, many plant-based snacks are created to substitute the unhealthy ones as they are claimed to contain nutrients that are inherently in the plant itself – phytonutrients, fibre and antioxidants that make them healthier. This report includes innovative plant-based snacks with higher proteins, such as plant-based meat protein snacks, plant-based crisps, puffs and chips, plant-based biscuits and cookies, and plant-based energy bars.

Besides ready-to-cook plant-based meat products mentioned in sector 4.2.1, some plant-based meat suppliers also develop substitute snacks such as plant-based sausages and meat jerky for the office or leisure time. The ingredients for most snacks are made from different soybean protein and wheat protein; others use konjac, a root vegetable, to mimic the taste of tripes. The below table shows a list of plant-based meat snacks that are popular among Chinese customers:







Company	Brand	Product	Ingredient	Sales Channel	Unit Price (CNY)/100g	Photo
Suzhou Hong Chang Bio-Tech Co., Ltd	Zhi De Future	Oatmeal Chia Seed Grain Sausage	Soybean separate protein, oat, chia seed, konjac powder	Online flag store	26.0	
Whole Perfect Food	Plant Diary	Plant-based preserved pork slice (honey, spicy & black pepper flavour)	Soybean tissue protein products (Soybean Separate Protein, wheat powder, wheat protein)	Online flag store	21.1	
Sichuan Dorje Technology Co., Ltd	Dorje	Plant-based beef jerky (spicy & barbecue flavour)	Soybean protein (Soybean Separate Protein, wheat protein, soy protein powder)	Online flag store & Offline supermarket	19.9	
Whole Perfect Food	Qishan Food	Soy protein sausage	Soybean separate protein (18%), starch, carrot, beccoli	Online flag store	19.2	
Bestore Co., Ltd	BESTORE	Plant-based spicy beef cubes/ shredded beef	Soybean Separate Protein, wheat protein, soy protein powder	Online flag store & Offline supermarket	13.9	
Shenzhen Xingqiling Food Technology Co., Ltd.	Starfield	Konjac Tripe (Spicy/sour)	Konjac	Online flag store, Tik tok livestreaming	6.2	

Table 5.

Except for plant-based meat snacks produced from soybean protein, some innovative snacks are made from peas, chickpeas, coconut, and oatmeal. As a rich source of vitamins, minerals and fibre, chickpeas naturally offer a variety of health benefits, such as assisting in weight management, improving digestion, and protecting against certain diseases. These characteristics make producers promote chickpea snacks ideal for consumers of all ages who are either vegan, lactose intolerant or aiding in growth and repair.









Company	Brand	Product	Ingredient	Sales Channel	Unit Price (CNY)/100g	Photo
A Chuang Technology (Shanghai)	Joliyoyo	High protein pea crisp	Pea powder (70%)	Online	37.8	
Yuandou Juexing Food Tehnology(Chengdu)	Peasup	Chickpea puffs	Chickpea powder (50%)	Online	31.8	
Yuandou Juexing Food Tehnology(Chengdu)	Peasup	Roasted chickpea	Chickpea	Online	17.5	
Hedi Food Technology (Shanghai)	Hardtii	Chlamydomonas Reinhardtii graincrisp	Whole grain powder, Soy protein isolate, oatmeal, Chlamydomonas Reinhardtii (3%)	Online	16.6	
Shanyong Trade Company (Shanghai)	LIXCHEN	Gluten Free Chick peas dim-sum biscuits	Chickpea (40%), rice, fucose	Online	14.9	
Shanyong Trade Company (Shanghai)	LIXCHEN	Roasted coconut bites	Coconut pulp (Malaysia)	Online	19.9	
Shanyong Trade Company (Shanghai)	LIXCHEN	Steamed chickpeas	Chickpea, water, xylitol	Online	9.8	
Nestle	Ran Hun Tofu	Freeze-dried Tofu with chocolate	Cocoa, Freeze-dried tofu	Online	53	

Table 6.

International food manufacturers also implement a multi-category strategy. Nestle's Chinese plant-based food team has created a freeze-dried tofu snack coated with chocolate and began to sell on its online stores at Taobao in the first quarter of 2023. Although the main ingredient came from the traditional Chinese vegetarian product tofu, the taste is not related to tofu but more like a chocolate-flavour cookie.

Intern gebruik



Source: Ran Hun Tofu Taobao online flag store

According to the news from China Soy Foods<sup>48</sup>, the freeze-dried tofu is made from Beidahuang non-GMO soybeans, using vacuum freeze-drying and low-temperature sublimation technology to make its high-protein freeze-dried tofu fillers, with a customised maltitol dark/white chocolate shell. The main selling point of this product is "high protein" and "no extra added sucrose", which intends to meet the demand of young people born after 1995 for consuming healthy and tasty snacks. According to the manager of Nestle's plant-based food team<sup>49</sup>, the target group of this snack are students or white-collar workers. And consumption scenarios are scattered in various parts of life, such as work, study, travel, outdoor activities, and sharing with friends and family. Therefore, the new products are designed as small packages, which are easy to carry and share.

### Challenges

For plant-based meat snacks, the challenges remain the same with plant-based meat cuisines. As taste is a significant driver in favour of meat, it is challenging to match the flavour of alternative meat snacks with regular meat snacks. Plant-based meat snacks are similar in taste and shape, and they often collaborate with local OEMs to produce the products. Moreover, people eat snacks because it decreases hunger and prevents people from overeating at mealtime and soothes negative emotions. Therefore, plant-based snacks must be delicious. Another challenge for innovative plant-based snack producers is that it is hard for Chinese consumers to correctly identify plant-based meat snacks, as traditional vegetarian products are deeply rooted. According to a survey conducted by Data 100<sup>50</sup>, only 39 percent of the interviewees understand the definition of plant-based meat products. Over 60 percent of people think of plant-based meat as "a mixed process of vegetables and meat products" or "the pulp of vegetables". As a result, it still needs time for Chinese consumers to understand plant-based meat products, including plant-based meat snacks.

<sup>48</sup> [雀巢推出“燃魂豆腐”冻干豆腐巧克力](https://www.cbpanet.com), cbpanet.com, Mar 13, 2023.

<sup>49</sup> [雀巢中国组建全新植物基食品团队，还做了款脑洞大开的零食!](https://www.fooddaily.com), fooddaily.com, Mar 12, 2023.

<sup>50</sup> [巨头偏爱的“植物肉”，能上中国人的餐桌吗？](https://www.data100.com), Data100.

### ***Possibilities & Opportunities***

With the improvement of Chinese people's living standards, the change in consumer attitudes, and an increase in consumer health awareness, "health and wellness" has become a contemporary popular topic. According to the 2022 China Snack Food Market Research Report, the core consumer group of snack food consumption is young people aged 18 to 38, with labels such as students, white-collar workers, young mothers, and small-town youth. These people will also be the core consumer groups of the snack food industry in the next 5 to 10 years. The commonality of this group of consumers shows consumption needs for high-quality, delicate and socialisation. However, personalised and diversified consumption has also become their mainstream consumption trend of them. In other words, young people are willing to purchase innovative snacks at a higher price for different purposes and perspectives.

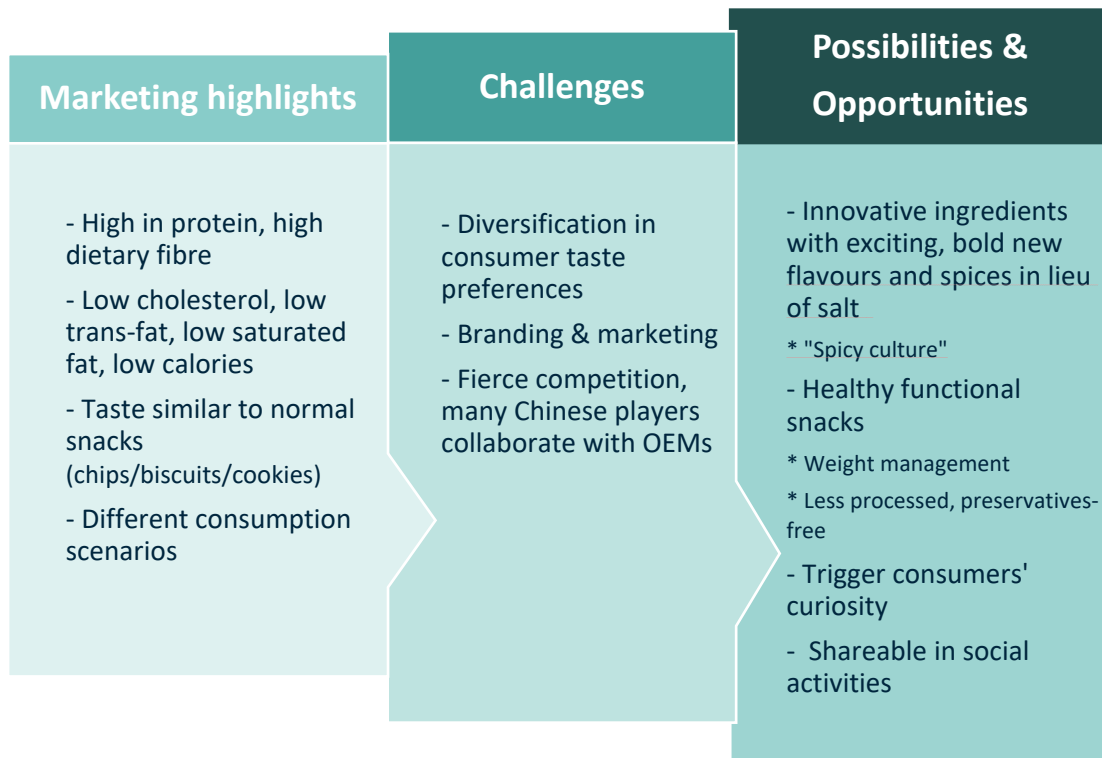
Zooming in on the plant-based meat snacks, according to the survey<sup>51</sup>, consumers are not willing to purchase plant-based meat products because they are worried about unhealthy food additives added during the process. Therefore, Dutch plant-based snacks could highlight their products as less processed and preservative-free. If the ingredient is soy protein, using non-GMO soy shall be a must, as Chinese customers greatly emphasise this. Next, consumers value the taste and flavour of the product. Plant-based meat snacks with spicy flavours are welcomed by consumers in China because of the popularity of "spicy culture" in China. According to consumer data from Alibaba's Tmall e-commerce platform, 40.5 percent of Chinese consumers love spicy flavours. The spicy and night snack culture has gradually become a way for people to relieve stress and emotion due to the faster pace of social life. Apart from the addictive taste of spicy, Dutch companies may also develop plant-based meat snacks with local characteristics.

Plant-based non-meat snack is another segmentation in the plant-based snack market. As consumers become increasingly subdivided, providing the most popular option for all is hard. However, it is essential to understand that many consumers care about fitness and do not want to feel guilty when consuming snacks, especially plant-based ones. For example, Peasup has promoted a chickpea puff with 50 percent of chickpeas ingredients and marketed it as "chips-free" for weight management customers. Parents also purchase the product for their children due to its healthy characteristic.

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<sup>51</sup> Ibid.





#### 5.3.4 Plant-based protein functional food

Functional foods are made of natural products with health benefits beyond necessary nutrition. Chinese consumers' health awareness improved significantly during COVID-19, contributing to higher health spending and more attention to functional food. An increasing number of people realise that it is necessary to consume enough nutritional supplements like protein powder and protein bars for a healthy immune system required for organs to function correctly. Fitness and sports enthusiasts also understand that adequately refuelling with enough protein after exercise is critical to optimise their training and recover as quickly as possible.

Based on online and offline market research, many brands have emerged. Some of them from other sub-sectors, such as milk powder companies, pharmaceutical companies, and health management software providers, have also begun to cross the border to enter the functional food sector. The two main categories of the functional food sectors are plant-based protein powder and plant-based protein bars.

Currently, most of the ingredients for plant-based protein powder products are soy and pea protein. Soy-protein powder manufacturers often highlight their products made from domestic non-GMO soy blends. Instead, pea-protein powder market players promote protein powder made from peas as soy, gluten and dairy free. Besides soy and peas, plant-based protein bar products are made from decadent ingredients such as oat, pumpkin seeds, chia, and rice.












Company	Country of Origin	Brand	Product	Ingredient	Sales Channel	Unit Price (CNY)/100g	Photo
Tone It Up	USA	Tone It Up	Plant-based protein	Protein Blend (Pea protein, chia protein, oatmilk), chicory root fiber, coconut creamer	Online	70.9	
Amway	USA (Produced in China)	nutrilite	all-plant protein powder	Soy protein isolate, lecithin, whey protein, pea protein	Online	67.5	
BetterBody Foods	USA	BetterBody Foods	Organic plant protein	Organic pea protein, organic quinoa powder	Online (CBEC)	49.7	
ORGAN LLC	USA	Organic Protein	Organic Protein Powder	Orgain organic protein blend (Organic pea protein, organic brown rice protein, organic chia seed) Orgain organic creamer base	Online (CBEC)	48.2	
Nutrasumma	USA	Nutrasumma	Fermented Pea Protein	Fermented pea protein isolate	Online	46.4	
By-Health Co., Ltd	China	Yep	Plant Protein Powder	Soy protein isolate, Whey protein concentrate	Online	41.0	
MYPROTEIN	British	MYVEGAN	Vegan Protein Blend	Soy/Pea protein isolate	Online	20.0	
Meiji	Japan	SAVAS	Soy Protein	Defatted soy protein (Vitamin B1, B2, B6, VC, VD, niacin)	Online (CBEC)	18.5	
COFCO	China	KeYiKang	Plant Protein Powder Solid Drink	Pea protein isolate, Soy protein isolate, wheat protein	Online	17.3	

Table 7.

As plant-based protein functional food is still a niche market in China, a few Chinese brands have recently released plant-based protein-applicable food products. Among the overseas brands for plant-based powder products, the Japanese brand SAVAS from Meiji has been active in the Chinese market lately. Meiji has been selling whey protein powder in China since 2020 through its SAVAS series. According to the news<sup>52</sup>, Meiji conducted test marketing to evaluate the viability of their soy protein products in 2022 and officially released the products at the beginning of 2023. Meiji offers a trial package of 63 grams, with six packs costing EUR 1.3 for potential consumers.



Source: Tmall.com Meiji Overseas Flagship Store

Targeted the sports enthusiasts in their 30s and 40s who enjoy jogging and long-distance race

<sup>52</sup> 明治在中国市场推出大豆蛋白粉, NIKKEI.CN, 1 Feb, 2023.

marathons, Meiji believes that Chinese consumers are becoming more health conscious, and there is demand for plant-based protein functional food. The company aims to achieve sales of approximately 6 billion Japanese Yen (EUR 0.04 billion) by the fiscal year 2026, equivalent to 5 percent of the Chinese protein powder market<sup>53</sup>. By the end of 2022, Meiji's Tmall flagship store launched two flavours of its soy protein powder products, milk tea and cocoa, as a limited edition, with a price of EUR 26 for a 1.05-kilogram pack. The products are manufactured domestically in Japan and exported to China. Compared to the soy protein powder sold in Japan, the essential ingredients and taste are the same, but some raw materials have been changed to comply with Chinese legal requirements.







Company	Country of Origin	Brand	Product	Ingredient	Sales Channel	Unit Price (CNY)/100g	Photo
Organic Protein	USA	Organic Protein	Plant-based bar	Organic brown rice protein, organic protein crisps (Organic pea protein, organic rice flour), Organic ground chia seeds	Online	53.8	
MEIJI	Japan	SAVAS	Soy protein bar	Skim Soy Protein, Puffed soybean (soy protein, starch, algal sugar, calcium carbonate, hydrogenated oils)	Online	30.9	
Shanghai Boohee Health Technology Co.	China	Boohee	Plant-based protein bar	Blend protein (Soy protein isolate, soybean milk powder, Instant soybean powder, Oat protein powder, Soybean peptide powder, Rice Oligopeptide, Pea protein isolate, Almond protein powder)	Online	28.8	
ffit8	China	ffit8	Oat Protein Cereal Bar	Oat protein granules (soybean isolate protein powder, pea isolate protein powder, oat protein powder, oats, barley, whole wheat, quinoa)	Online & Offline	26.0	
fiboo	China	fiboo	Plant protein bar	Composite protein powder (Soy protein isolate powder, Rice protein powder, Pea protein powder)	Online	26.0	
PhD	UK	Smart Plant	Smart Plant protein bar	Blend protein (Soy protein isolate, Pea protein isolate, Pumpkin seed protein)	Online	24.2	

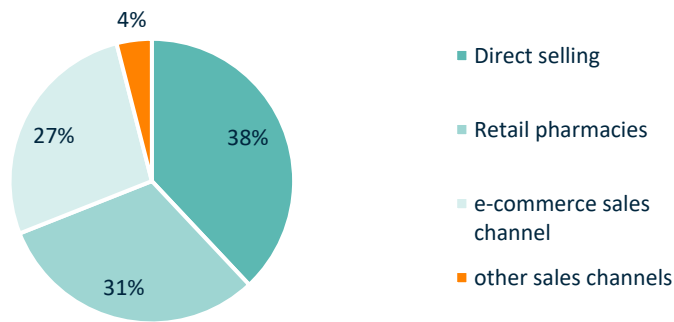
Table 8.

Regarding plant-based protein bars, except for Meiji, other overseas brands listed in the above table have yet to have official sales channels online. Most of the products are sold by small business owners who operate in Taobao.

### Sales Channels

<sup>53</sup> Ibid.

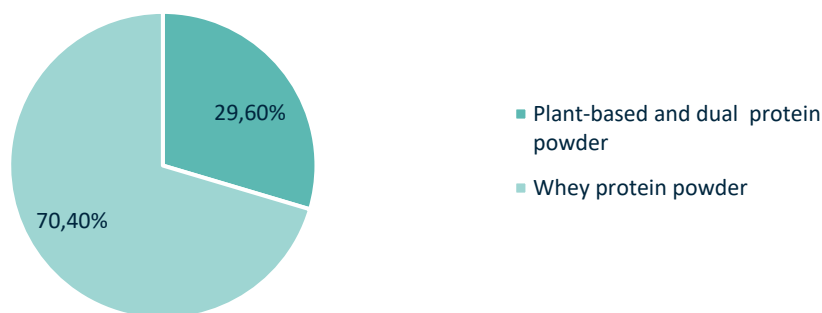
### China Protein Powder Sales Channel Percentages



Graph 14.

As plant-based protein powder is a niche market in China, no detailed open sales data is available. Therefore, looking at the sales channels for the protein powder industry is valuable. According to the data<sup>54</sup>, the main sales channels for China's protein powder are direct selling and retail pharmacies, accounting for 38 percent and 31 percent, respectively. E-commerce channels account for around 27 percent. According to a consumption trend report of proteins jointly published by iResearch and Tmall Health<sup>55</sup>, protein powder products are categorised as health food/dietary supplements, accounted for 7.4 percent of the Tmall turnover, which is the most significant turnover category in the "dietary supplements" sub-category. The market share of plant-based and dual protein powder<sup>56</sup> accounted for nearly 30 percent.

### Market Share of Protein Powder Products on Tmall



Graph 15.

Zooming in on the plant-based protein powder market, most overseas plant-based protein powder brands are selling their products as solid beverages (instead of functional food

<sup>54</sup> [2022 年中国蛋白粉行业现状分析, 国内产品主要来源进口, 国产替代进口还未完成](#), Huaon.com, Oct 20 2022.

<sup>55</sup> [蛋白粉: 乳清蛋白消费趋势报告](#), iResearch, Aug10, 2022.

<sup>56</sup> Dual protein powder contains both plant-based protein and whey protein.

category) via cross-border e-commerce (CBEC) sales channels, popular CBEC retail marketplaces, including Tmall Global, JD Worldwide, Kaola and Red. Plant-based food is an eligible and approved category for cross-border e-commerce in China. This is an overall short-term sales strategy for many foreign plant-based protein powder companies, as it is a wise choice to implement a trial-and-error mode by testing consumer interest without significant investments in incorporations or warehouses.

### **Challenges**

One of the challenges for plant-based protein powder products comes from taste and appearance. Some consumers fear the beany flavour or the fake flavours it mimics. A common issue with protein powder is that it often needs help to mix with water and quickly becomes clumpy. Second, some protein powders have packaging that cannot be sealed, resulting in spilt or spoilage; packaging that is too large to carry; and some protein products that do not provide a spoon or stirrer inside. Another challenge is the types of products for sale. Usually, the standard practice for overseas protein powder products via CBEC sales channels is sold as solid beverages instead of healthy food. Because healthy food in China should be registered and filed under the State Food and Drug Administration (SFDA), with a “Blue Hat” Logo on the packaging. The process usually takes it is time- and money-consuming.



*The "Blue Hat" Logo for health products*

### **Possibilities & Opportunities**

Besides vegans or vegetarians, many consumers who consume plant-based protein powder have gut problems such as dairy allergy or lactose intolerance. Other consumers plan to consume plant-based protein to manage their weight and keep fit. Female consumers who purchase plant-based protein powders usually have exercise habits and want to supplement protein with plant-based protein powders after working out.

#### *Taste*

The taste of plant-based protein functional food is a critical consumer decision-making factor. Some customers will ask others for advice on the bite when shopping online. Traditional protein bars have the disadvantages of being sticky, hard to chew and having an unpleasant taste. As a result, technology is the key to developing delicious plant-based protein ingredients and trying to avoid the beany taste. Dutch functional food players may also experience valuable taste development from innovative milk-tea drinks and low-temperature dairy products. Some companies are good at breaking the category boundary and bringing creative

tastes with new elements/forms; for example, the creative bubble milk tea flavours for the soy protein products of SAVAS, Meiji are welcomed by Chinese consumers due to their indulgence in bubble tea beverages.

### *Convenience*

A faster-paced lifestyle makes people pay more attention to efficiency. Protein bars and portable powder packs are more accessible for consumers to store and carry. Dutch functional food players can provide plant-based protein bars, protein shakes, or portable powder packs for customers to get added protein during the day. Such designs are easier to store and carry on the go. As a result, it will increase the willingness and frequency of use, promote consumption, and expand the market. For example, ffit8, a start-up Chinese meal replacement brand with protein bars and protein powder as the signature products, has promoted a portable capsule bottle probiotic protein powder product targeting female customers. The eye-catching red design differs from traditional protein powder's heavy sense of muscularity. The stylish design also has the social attribute of sharing.



*Source: consumer feedback for ffit8 protein powder products on Tmall.*

### *Unique Selling Point*

As vegans sometimes are struggled to obtain enough essential substances, Dutch players may consider adding the daily value of vitamins and minerals such as calcium, zinc, and iron. A product such as ffit8's probiotic protein powder contains Lactospore probiotic, which claims to be good for the gut. Organic, non-GMO, free from gluten, and artificial flavours are also unique selling points for functional protein products.

Besides, providing more instructions and insights on using the products is essential, which will enhance consumer experience and pleasure. For example, protein powder products can make delicious milkshakes, oat bowls and healthy desserts. Besides the inherent strengths of BFY (Better for you) features for supplement brands, they can offer products and services with more added value to increase consumer loyalty.

Compared with protein powder products, the protein bar market is even smaller. However, the eating habits of catering to the convenient, fast, and fashionable young people today have made it a growing demand.

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## 5.4 Purchasing Channels

Most consumers in China rely on two different main channels to purchase plant-based protein products: online and offline purchase channels. Different plant-based food categories are sold through various channels.

### Offline purchase channels

Consumers can consume plant-based protein products through HRI sectors or supermarkets in Tier-1 cities.

Plant-based meat products can be purchased via HRI sectors. Compared with other categories of plant-based protein products, meat alternatives as semi-finished products can be easily combined with other food ingredients to make cuisines, whether in Chinese or Western. This is introduced in the previous chapters.

Vanguard, RT-mart, and Yonghui are among the largest supermarket chains in China. Market share of supermarket chains varied significantly in recent years as a traditional retailing business is suffering from the development of new retail (different types of fresh food e-commerce platforms), lower profit margins, and changes in the consumption habits of the consumers due to COVID. Vanguard and Yonghui now focus on high-end supermarket chain with high-quality imported products. Olé & blt, two of the high-end lifestyle supermarkets owned by Vanguard, have around 100 stores in high-end retail locations in China's biggest cities. It is worth mentioning that Olé low-carbon experimental store opened in Shenzhen in

April 2023. It is a new type of Olé store that integrates environmental protection, nature, and health. It is also the first green store of Vanguard Group in China that focuses on environmental protection and low carbon. Olé has launched the plant-based meat products from PFI Foods in 2022, from Protein-Meat and Starfield in 2023<sup>57</sup>. Plant-based yoghurt brand Jooma has collaborated with Olé since 2022.



Source: [ChinaDaily.com.cn](http://ChinaDaily.com.cn)

Besides Chinese boutique supermarket brands, consumers can purchase plant-based protein food products in foreign-owned supermarkets such as membership-only retail warehouse club Costco, Sam's Club and Metro, Germany's Aldi, Jenny Lou's and April Gourmet. These high-end supermarkets have promoted their imported products with global supply and marketing quality products based on their origins since Chinese customers often pay attention to products' origins with concerns about domestic food quality. Supermarkets like Aldi implement innovative retail strategies in China, from which they can quickly improve based on customers' feedback.

Although all the supermarkets mentioned above also provide online delivery services, it is still considered an offline purchase channel for consumers.

### **Online purchase channel**

China has been the world's most significant online retail market since 2013. online retail sales revenue reached EUR 1.81 trillion, an increase of 4 percent compared to 2021. Compared with 2021, online goods sales accounted for 27.2 percent of the total retail sales of consumer goods in 2022.

### *E-commerce platforms*

Although community stores, high-end supermarkets and convenience stores are evolving to appeal to various groups of consumers, e-commerce plant-based protein food retailing stores

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<sup>57</sup> [美盈森年度收入突破 40 亿元 旗下植物肉上架 OLE'精品超市](http://www.npd.com), NPD.com, Apr 23, 2023.



are blooming at an unmatched speed. Due to the COVID-19 pandemic outbreak over the past three years, most of China's brick-and-mortar stores temporarily were under lockdown and consumers sheltered in place. This accelerated the transformation of purchasing habits for many people who buy foods online, either on e-commerce platforms or mini apps created by local communities. As a result, many innovative plant-based protein brands release their products online first to reach broader consumers. Moreover, some overseas plant-based protein brands conduct their market entry strategies through CBEC sales channels. Platforms such as Tmall Global will take charge of branding and marketing on and off the platforms selling the products on its online store and handling deliveries to end consumers.

### *Social media and live-streaming platforms*

Consumers who are in different cities show different consumption habits online. According to FoodTalks<sup>58</sup>, consumers in lower-tier cities are inclined to purchase on e-commerce platforms that combine social interaction with shopping, such as Douyin and Kuaishou. Pinduoduo, the third largest e-commerce platform (Alibaba and JD are the largest and second largest, respectively), is more welcomed by consumers in lower-tier cities due to its group-buying service. NPD<sup>59</sup> said that 57 percent of Chinese consumers receive plant-based protein information from domestic news sources, and 48 percent learn about plant-based protein from social media sites like Tiktok and Kuaishou. Advertising also played a significant role in Chinese consumer perception and acceptance of plant-based protein in 2020, with 41 percent agreeing that advertisements focusing on health and wellness were a driving factor in r of these foods.

Another essential purchase channel for Chinese consumers is live commerce, which has transformed the retail industry and established itself as a significant purchase channel within several years. Livestreaming e-commerce is a market-like online shopping experience that combines talk shows, auctions and a home shopping network. Usually, it consists of an influencer presenting several types of products on live streams and interacting with viewers in real-time. The leading platforms for this model of purchasing channel include Douyin, Taobao Live, Kuaishou and RED. According to a 2022 market report by Qianzhan Industrial Research Institute<sup>60</sup>, China's livestream market grew to just under EUR315 billion in 2021, almost doubling from 2020. Live streaming benefits are convenience and the feeling of being catered to. Consumers can type comments and send real-time questions about how the taste is or which flavour is the best. During the several-hours session, influencers serve as customer service representatives, building audience loyalty and liaising between brands and consumers. Ffit 8, the health food brand, has collaborated with Luo Yonghao, one of the most famous Chinese entrepreneurs and internet celebrities, launching one of its protein bars as a meal replacement in April 2020. The product sold over 45,000 boxes in less than four hours,

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<sup>58</sup> [Consumption potential comparison: Tier1&2 vs lower-tier cities in China](#), food talks.cn, Aug 3, 2020.

<sup>59</sup> [Awareness and retention rate for plant-based protein on the rise in China](#), NPD.com, Jun 23, 2021.

<sup>60</sup> [2021 年中国网络直播行业市场现状及发展趋势分析](#), Qianzhan baijiahao, Jul 20, 2021.



contributing EUR 0.44 million in sales revenue<sup>61</sup>. However, it is also worth noting that it may be hard for Dutch companies to tap into the Chinese live-streaming e-commerce market due to language, culture, and social media mechanism barriers without the help of Chinese agencies.

## 6. Overview of Plant-based Food in the Netherlands

### 6.1 Overview of Plant-based Food in the Netherlands

The Netherlands is the world's second-largest exporter of agricultural products, second only to the U.S. With over 150 years of protein-rich history, the Netherlands has a skillset including protein production, processing and marketing, innovation, technology, and logistics. Zooming in on the alternative protein ecosystem, over 250 companies and many public and not-for-profit stakeholders are active<sup>62</sup>.

Although a small country (equal to two and a half size of Beijing), the Netherlands implements the Triple Helix approach, whereby entrepreneurs, research institutes, governments and societal organisations work together with a common interest to advance the market further and meet global societal challenges. This year, the Dutch agri-food sector is spearheading a “master plan” to accelerate the protein transition in the country and beyond. Five initiators, including the Dutch Ministry of Agriculture, Nature, and Food Quality; Wageningen University and Research; the Southern Agriculture and Horticulture Organisation; Larive International B.V.; and Next Food Collective are made up of the Economically Powered Protein Transition through Innovation in Chains (EPPIC)<sup>63</sup>. The initiative is centred on ensuring farmers achieve greater plant yields, grow plant-based on a large scale and double the consumption of legumes in the Netherlands by 2030.

#### ***SWOT Analysis of Dutch plant-based food Companies***

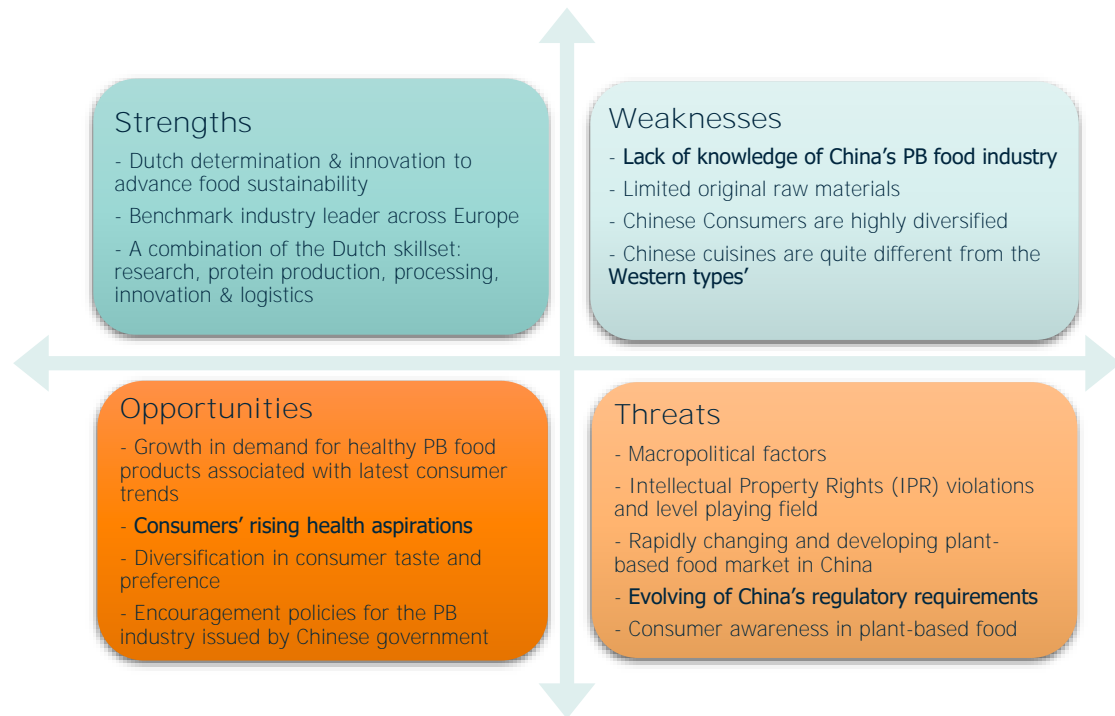
A SWOT analysis identifies clear challenges and opportunities that must be addressed and supported to enhance strengths and create the environment for the Dutch plant-based food players to thrive.

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<sup>61</sup> [代餐品牌ffit 8 获数千万首轮融资, 618 销量曾破千万](#), foodtalks.cn, Jul 27, 2020.

<sup>62</sup> [Future Protein NL](#), Larive.com.

<sup>63</sup> [Five major players launch masterplan for protein transition as economic engine in the Netherlands](#), wur.nl, Feb 20, 2023.



### Advantages

The Netherlands has an excellent reputation in food and agriculture and is determined to develop plant-based protein food for sustainability. The country closely links its food system to the prospects of a circular economy. As the benchmark leader across Europe, the Netherlands implements the National Protein Strategy, which includes ambitions of working towards a more circular model whereby proteins are reused. Such supportive national policies will promote protein-shift innovations from a top-down approach. The Netherlands also has a competitive advantage in its sustainable, grass-fed production system, favourable business environment, and solid foundation and reputation in science-based innovation and product development.

These advantages can be used as unique selling points to ensure the international competitiveness of the innovative plant-based protein food industry is maintained and improved.

### Drawbacks

Apart from several advantages, Dutch plant-based food companies may need help entering the Chinese market. It must also be noted that Dutch companies may need more knowledge of the China plant-based protein food industry, which will lead to companies not implementing a correct localised marketing strategy. At the same time, Chinese consumers are unfamiliar with Dutch plant-based food brands because only a few Dutch brands are active in the market. It also admitted that Dutch has limited resources in original raw materials due to its national

size. Another drawback comes from cultural reasons. The Chinese consumers' tastes are highly diversified; as a result, Dutch players need to target their consumer groups.

## Opportunities

China has the root for plant-based food. As the established eating culture considers both plant and animal-based dishes the essential elements of meals, Chinese consumers are more receptive to plant-based food than Western consumers. However, the plant-based food market in China needs to be more mature. Plant-based food still needs to improve its taste, flavour, and additives. This opens an opportunity for problem solvers. For example, Dutch plant-based players with advanced technologies could help simulate meat organoleptic properties for Chinese plant-based meat players. Chinese consumers prefer imported brands that enable clear traceability of ingredients and proof of origin. "Organic" is perceived to signal food safety to Chinese consumers, as they are aware of the rigour involved in gaining this accreditation. Moreover, the plant-based food market is still developing, and the purchasing habits of Chinese consumers are changing rapidly. Chinese consumers, especially young people, focus on the product's health benefits and added value. Dutch companies need to identify the changes in young people's consumption habits and what influences younger generations' decision-making. These facts and statistics indicate the numerous commercial opportunities awaiting premium Dutch plant-based food exports to China.

## Threats

There are some threats for Dutch companies which cannot be ignored. The business environment is more challenging and unpredictable, resulting in European companies adjusting their operations through localisation or diversification of the supply chain, according to [a business confidence survey by the EU-China Chamber of Commerce](#) (June 2023).

Second, the ease of doing business in China seems to be in balance, with some progress made in some areas and some steps taken backwards. Longstanding challenges such as intellectual property rights violations and an uneven playing field continue to impact European companies.

The 'China business tool - be aware and prepare' is a useful starting tool to prepare for doing business in China and take the necessary steps to mitigate risks. (China business tool- be aware and prepare ([regelhulpenvoorbedrijven.nl](https://regelhulpenvoorbedrijven.nl)); only in Dutch.) In addition, the China IP SME Helpdesk, a first-line IP assistance service, benefits European SMEs that operate or intend to access the China market and aim to improve their global competitiveness ([China IP SME Helpdesk \(Europa. eu\)](https://china-ip-sme-helpdesk.europa.eu)).

Third, the competition in the plant-based food industry is fierce, as there are plenty of local market players. There is a growing trend that Chinese consumers are more willing to try cost-

effective and quality-proved local brands than before. Several Chinese original equipment manufacturers (OEMs) can produce the product.

Furthermore, although China customs (GACC) encourages importing plant-based food products, evolving China's regulatory requirements could be an unstable factor. Plus, most overseas plant-based protein powder products are sold as solid beverages. Suppose the Dutch players want to sell their products in the "health food" category. In that case, the "health food" registration process can last over the years, leading to a potential risk that Dutch companies miss market opportunities during the application process.

Last, it takes time for Chinese consumers to embrace plant-based food, especially plant-based meat products. Compared with Western consumers, promoting plant-based diets with low carbon footprints may not be widely accepted by Chinese consumers. Although "mock meat" has a long history in Chinese cuisine, modern plant-based meat has primarily been discussed in the context of Western consumers to date. As a result, there remains a knowledge gap concerning the characteristics of Chinese consumers.

## **6.2 Dutch Footprint on the Chinese Supply Chain of Plant-based Foods**

- **The Vegetarian Butcher (植卓肉匠)**

On December 2020, Unilever, one of the world's largest FMCG companies, announced that its renowned plant-based meat brand, "The Vegetarian Butcher", has been launched in China. Benchmarking against Oatly, the brand aims to bring novel and trendy healthy eating options to Chinese consumers and lead the development of the plant-based meat industry. After the company's trial-and-error over the past three years, The Vegetarian Butcher plans to focus on specific scenarios instead of omni-sales channels to promote their products. In the first half of 2023, The Vegetarian Butcher collaborates with Double Win Café to promote its plant-based meat products as breakfast options. Double Win Café is a coffee chain known for its creative speciality coffee. The café was established in 2015 and had 35 directly managed chain stores in the Yangtze River Delta Region's eight Tier-1 and Tier-2 cities. The company plans to work with more cafés, including boutique ones and chain coffee shops.



Source: <https://mma.prnasia.com/media2/2032199/1.jpg?p=publish>

The Vegetarian Butcher targeted their current consumers into four groups:

- Flexitarians
- Young people who are “Keeping good health in a punk way.”
- Young people with a sense of freshness
- Families

Instead of educating its consumers, The Vegetarian Butcher creates more fun products with good taste. For example, when the company launched its products in Double Win Café, they would also send customers seed papers as a gift. The eco-friendly plantable greeting cards can grow beautiful flowers when planted in soil. Targeted consumers will first be curious about their products, then consume the food and share it with their friends and families or on social media platforms.

## 7. Overview of Plant-based Food in China

### 7.1 Overview of Leading Plant-based Food Players

According to [QCC](#), as of May 2023, the total number of existing plant-based protein-related enterprises in China was 14,049. Several leading plant-based food players in this sector are included in various categories. These companies have the most presence from a market point of view. Some companies have their own factories, and some collaborate with OEMs. They possess advanced technologies and innovative formulas and understand their consumers well.

- **Starfield**

Established in 2017, Starfield Food Science & Technology is a Shenzhen-based plant-based protein start-up. Starfield produces self-branded items that are sold commercially through third-party retailers. The company describes this as a B2B2C model. According to its official website, Starfield has partnered with more than 40,000 stores within China and has over 300 use cases from its R&D in plant protein food.

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Starfield has chosen to collaborate with renowned food institutions such as Beijing University of Technology and Business, Jiangnan University and Wageningen University in the Netherlands to enhance the depth of product development. Over 30 intellectual property rights in protein extraction, separation, texture, and flavour are granted, examined as to be substance, or disclosed, according to Tianyancha.com<sup>64</sup>.



Source: Consumer posts on RED

In January 2022, the company made history with a USD 100 million (equivalent to EUR 93.5 million) Series B investment round, the country's largest ever for a vegan protein brand<sup>65</sup>. Starfield has collaborated with restaurant chain brands such as Tims, KFC, HEYTEA, DISCOS, and Luckin coffee, convenience stores such as FamilyMart, 711, Lawson, New retailer supermarkets such as OLE, HEMA, 7fresh, food enterprises such as Bibigo, Guangzhou Restaurant, Pulmuone and boutique restaurant such as gaga, Tomacado.

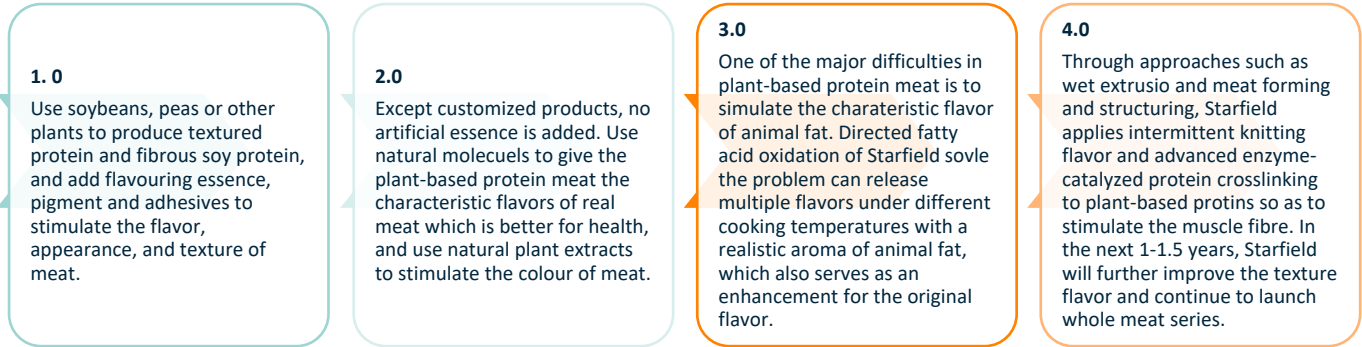


Source: [China plant-based meat carbon reduction report](#)

<sup>64</sup> [Shenzhen Starfield Food Technology Co., Ltd.](#), Tianyancha.com.

<sup>65</sup> [Starfield Scoops \\$100 Million in China's Biggest Ever Vegan Protein Funding Round](#), Green Queen, Jan 18, 2022.

Starfield indicated that its technique has been in stage 4.0.



Source: Starfield

Starfield applied the first Product Carbon Footprint Certificate to plant-based sliced beef with black pepper. According to a joint-published report among Starfield, the Institute of Agricultural Environment and Sustainable Development, the Chinese Academy of Agricultural Sciences, and Xinhuanet, compared with 46.2 kilograms of carbon dioxide equivalents per kilogram for beef production, the same amount of Starfield’s plant-based sliced beef will only cause 1.0 kilogram of carbon dioxide equivalents, which will decrease around 45.2 kilograms of carbon dioxide<sup>66</sup>.



Source: Starfield

<sup>66</sup> 2022 China Plant-based meat carbon insight report, Xinhuanet.



- Protein-meat

Protein-meat (庖丁造肉) is a plant-based meat protein brand of Shenzhen Wenma. The company is the world's first brand to use hemp kernel protein extracted from industrial hemp seeds as a protein ingredient. Wenma is a subsidiary of MYS. MYS listed on the Shenzhen Stock Exchange on November 2009. It mainly works on developing, producing, and selling environmentally friendly packaging products, providing customers with comprehensive total packaging solutions. The research technology is jointly developed by Jiangnan University, the world's top-ranked biotechnology and food science university. It is composed of several professorial scientists and PhD researchers. It also collaborates with the Culinary Institute of America (CIA), a reputable cooking school.



Source: [protein-meat.com](http://protein-meat.com)

To meet the taste needs of various consumer groups, Protein Meat has launched a range of products, including fresh and frozen products on Cantonese desserts, snacks, prepared products and condiments, and bespoke high-end gift sets.



Source: JD flag store

In terms of sales channels, the company formulates an omni-sales strategy, covering traditional e-commerce and new retail channels, both online and offline, to promote the company's plant-based meat products to the market.

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At the same time, the company has set up -15°C to -18°C cold storage in Beijing, Shanghai, Guangzhou, Shenzhen, Wuhan, Chengdu and other cities, respectively, to ensure the quality of the products thoroughly. By cooperating with Shunfeng cold chain and strictly controlling the whole distribution process, the company can ensure the safety and nutrition of the products with fast delivery.

- **Origins Foods (Shanghai) Limited**

Established in 2020, HERO Protein (植物家) is a China plant-based meat brand which produces chicken, beef & fish analogues. The company aims to become the leading brand delivering a tasty and accessible range of plant-based meat products. HERO Protein claims to be the first Chinese company to use high moisture extrusion technology, with the support of a German manufacturer, [Cremer](#).



Source: Tmall flag store

Quoted by Edward Weng, CEO of HERO Protein:

*“Plant-based meat is a rising and unstoppable trend in China. HERO Protein aims to bring together the advanced food technology used by top international players such as Beyond Meat and Impossible Foods and the domestic know-how to curate delicious products specifically catered to the Chinese palate at prices affordable for a broader range of Chinese consumers. We are pleased to receive support from investors and partners who share our mission.”*

The company promotes its products with the following techniques:

- Defat & extract separation of Ingredients (Soybean, Pea, Grain)
- Textured protein + texture remodel
- High moisture extrusion
- Fat construction, add flavour & colour
- Shape & freeze
- Execution standard: SB/T 10379

HERO Protein’s portfolio ranges from plant-based beef, chicken, and alternative fish products to dumplings and pasta with plant-based fillings. According to Green Queen's news, HERO Protein's management team comprises former senior R&D executives from Beyond Meat, Impossible Foods, Lightlife, Morningstar and Gardein, the five giants of North American plant-

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based meat brands.



Source: [zqswcn.com](http://zqswcn.com)

The company has collaborated with Carrefour, Bund Foodie Company, Fresh Mart, DeliLife, BANYAN Tree, Butler & White's, Beef & Liberty, CHARLIE'S, Club Med, HA TIEN (Vietnam Noodles), COMPASS Group, Green Table, CITY SUPER, GRINDER (绞肉机汉堡), FAT COW, and SODEXO food service.

- **Doufei**

Established in 2020, Doufei is a plant-based yoghurt company in Henan Province. The portfolio of Doufei is plant-based yoghurt made from soybean and black soybean and plant-based ice cream. According to its company brochure, the company collaborates with CHR HANSEN, the Denmark bioscience company, by using the high purity of plant-based fermentation strains in isolation, purification, expansion, and value-adding. The ingredients, including soybean and black soybean, are produced in the Heilongjiang Province, the Northeast region of China.

According to the Environmental impact assessment document issued by Kaifeng Municipal Ecological Environment Bureau<sup>67</sup>, the company has constructed one production line for plant-based protein drinks and one production line for fruit and vegetable juice drinks, with a production scale of 300 tons of plant-based protein drinks and 300 tons of fruit and vegetable juice drinks per year.

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<sup>67</sup> [开封市生态环境局祥符分局关于批复河南豆妃食品科技有限公司年产植物蛋白饮料 300 吨、果蔬汁饮料 300 吨项目环境影响评价文件的公告](#), Kaifeng Municipal Ecological Environment Bureau, Jul 8, 2020.



Source: Tmall.com

Currently, the company sells soybean and black soybean products with various flavours only via e-commerce platforms. Because the product unit price is relatively low, the company has decided not to keep its product offline while considering controlling its cost and freshness.

- **Dorje Technology**

Dorje Technology Co., Ltd. was officially established in 2016 Chengdu, Sichuan Province. The company integrates R&D, production, branding, and sales, providing consumers with high-quality, healthy, and environmentally friendly plant-based foods. The founder of Dorje is originally from Sichuan, and she is an authentic vegetarian. She started her brand in Chengdu after conducting consumer market research, where the catering industry is relatively developed.<sup>68</sup>

Dorje's plant-based meat products combine the advantages of meat products and traditional vegetarian products to ensure that the food is nutritious while retaining the maximum plant-based characteristics of the ingredients. Therefore, in terms of pricing, Dorje's plant-based meat products are also between the two.

Feng Zhang mentioned that in the initial development stage of plant-based meat products, the brand must first change consumers' traditional perceptions. "It is necessary to let consumers see the product as well as to let them consume it." Based on such considerations, the brand chose to start from the food and beverage market, and the hot pot meatballs were the first product launched by Dorje.

To break the inherent concept of "no meat, no joy", in 2015, Feng Zhang and Sichuan famous hot pot restaurants such as Chuan His Pa Tzu, Yuanli Hot Pot, Tibetan Tea Vegan Hot Pot and other docking and cooperation by providing the store guests with Taiwan's unique ingredients menu to promote and publicise the brand's plant-based meatballs.

With the outbreak of COVID-19 in 2020, online shopping and at-home casual dining became

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<sup>68</sup> [对话德吉多歌：深耕素食研发 30 年，瞄准素食新风口，打造植物肉本土品牌](https://vcearth.com), vcearth.com, Apr 3, 2023.

breakthroughs in food consumption. Dorje also followed the trend and launched plant-based beef jerky to meet the latest consumer demand of the younger group. Compared with 2021, the sales growth rate of this product has reached 50 percent.

The founder said that product development should take consumer preferences as a starting point and focus on market demand. The brand will continue to launch different new products, including home cooking categories and casual food categories, to meet diversified consumption scenarios.



Source: Dorje's Taobao Official Store

In terms of sales model, Dorje has conducted an omni-sales channel network. Dorje has agents and distributors for online e-commerce platforms such as Jingdong, Taobao, Tik Tok, Kuaishou Tech, and Bilibili. The brand has cooperated with supermarkets, such as China Resources Vanguard, Yonghui Superstores, Ito-Yokado and Ole), food and beverage stores (such as hot pot restaurants and traditional Chinese, vegetarian restaurants) and small community stores in Tier-1 cities for offline sales channels.

- **ffit 8**

ffit8 is a developer and retailer of meal replacement products based in Beijing, China. The company develops protein products that can replace a meal, enabling customers to pursue a healthier lifestyle by using technological innovation. Their portfolio has three categories of products: protein bars, protein powder and protein cookies (including wafers and sandwich rolls). The brand promotes its development as healthy snacks/meal replacements with “no extra sugar, no trans fatty acids, no coca butter substitute, and no hydrogenated vegetable oil”. Consumption scenarios include office afternoon tea, greedy snacks, and sharable snacks when travelling.



*ffit8 protein wafers & rolls are sold with cookies from other brands in Bianlifeng, Beijing. The photo was taken in May 2023.*

Currently, there are two sources of ingredients for their protein products, animal-based protein such as MPC (Milk protein concentrate) and WPI (Whey protein isolate) and plant-based protein such as soybean isolate protein powder, oat protein powder, and pea protein powder. The brand has developed black chocolate, sea salt, cheese, soybean milk, lemon, and other flavours to enrich the edible scene of protein bars and cookie products and make them more delicious and healthier.



*Source: Tmall.com*

Cooperated with MSG, a US company to develop WPI (whey protein isolate), ffit8 is also the first brand in China to bring the concept of probiotic protein powder to the public in China. The aim is not only to boost immunity and mood but to reduce the occurrence of lactose intolerance more effectively. The unique design and portability of the product packaging have made many young people willing to share it on social media platforms.

The company conducts omni-sales channels:

- Online: JD.com, Tmall, RED (Xiaohongshu), Douyin (TikTok), Live-Streaming
- Offline: Supermarkets and convenience stores.

## 7.2 Trends & Innovations

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### ***Implementing fermentation technologies to plant-based products***

Except for developing plant-based ingredients and technologies, there is a trend for Chinese plant-based companies to use fermentation technologies and synthesise functional components to build their plant-based products. The traditional fermentation process is no stranger to the Chinese people. Conventional fermented food products such as alcoholic beverages, soy sauce, vinegar, and fermented bean curd have centuries-long history. According to GFIC China Fermentation Industry Report 2022<sup>69</sup>, four types of fermentation companies are working on alternative protein in China: biomass fermentation of yeast, mycelium or microalgae, and precision fermentation. These technologies can improve the quality, nutritional value, and functionality of the final products, solve essential issues in the value chain, and diversify raw ingredients. Chinese universities and research institutes have also shown increasing interest in this topic. For example, Jiangnan University established its Science Centre for Future Food in 2019 with a patent on precision fermentation (myoglobin, lactoferrin, functional ingredient and flavouring).

### ***The development of cultured meat production***

On 29 December 2021, China's Ministry of Agriculture and Rural Affairs (MARA) released its official five-year agricultural plan, which for the first time includes cell-cultured meat and other synthetic proteins and molecular foods in its blueprint for future food manufacturing. MARA has also identified the development of synthetic biotechnology as key to its goal of "upgrading the food industry and reducing the pressure on environmental resources caused by traditional aquaculture".

The favourable policies and the progressive opening of the market environment attract more players to enter the cell-cultured meat industry. The leading players in the Chinese cell meat industry are [JOES Future Food](#), [CellX](#), [Jimi Biology](#), and [Supertech Liangshi](#), all of which have completed multi-million-dollar financing<sup>70</sup>.

Although the cellular meat industry is growing incredibly, many problems must be solved before emerging from the lab and becoming commercialised. Technology and cost, market entry access, and consumer barriers are the biggest challenges faced by the industry. For instance, one of the challenges of creating cell-culture meat involves its texture. Most cell-cultured companies use scaffolds made from experimental synthetic materials to speed up the growth of meat<sup>71</sup>, which is expensive and inedible. Singaporean scientists have recently invented plant-based scaffolds made from prolamins extracted from corn, barley and rye flour which are less costly and edible<sup>72</sup>. Chinese cell-cultured meat player Jimi Biology indicated that

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<sup>69</sup> [Driving the Future of Alternative Proteins: China Fermentation Industry Report \(2022\)](#), GFICConsultancy.com, Jun 21, 2022.

<sup>70</sup> [未来食品新革命，细胞培养肉如何挑战万亿级传统肉类市场？](#) 36kr.com, May16, 2023.

<sup>71</sup> [Plant-based scaffold may boost the production of cultured meat](#), newatlas.com, May 01, 2023.

<sup>72</sup> Ibid.



they developed China's first 100 percent cell-based meat without any plant-based scaffolds, which can significantly improve the product taste and consumers' acceptance.

## 8. Policy & Regulations in China

### 8.1 Rules & Regulations for Imports

Importing food products to China can be challenging to wrap one's head around. Specific pre-documentation and labelling requirements might differ from what a global exporter is used to preparing when sending products to other countries. In this section, there will be an overview of the regulations and four steps to import food products in China.

#### Order of the General Administration of Customs (GACC) No. 248

The [Regulations of the People's Republic of China on the Registration and Administration of Overseas Manufacturers of Imported Food](#) was issued by the General Administration of Customs of China (GACC) on Mar 12, 2021, and shall come into force on January 1, 2022. The regulation states that overseas food manufacturing, processing, and storage facilities are required to register and submit their company information online with the Bureau of Import and Export Food Safety of GACC to export food products to China.

#### *Scope*

The scope of implementation has broadened from the food manufacturers that were listed in the *Catalogue of Registered Overseas Food Manufacturers* to the full-category food manufacturers specified in Articles 2 and 4 of the [Food Safety Law of the People's Republic of China](#) to govern food safety in imports from the origin by total exertion. The product scope includes all food products except food additives and raw materials and does not include "food-related products" (which is not defined in the regulation).

#### *Method of Registration*

##### a. Competent authority registration process

If the product of the overseas company facility produces falls into the following 18 categories, GACC requires the company to register through a competent authority in accordance with [Article 8 of Decree 248](#).

Meat and meat products	Sausage casings	Aquatic products
Dairy products	Bird's nests and bird's nest products	Bee products

Eggs and egg products	Edible fats and oils, oilseeds	Stuffed wheaten products
<b>Edible grains</b>	<b>Milled grain industrial products and malt</b>	<b>Fresh and dehydrated vegetables and dried beans</b>
Condiments	<b>Nuts and seeds</b>	Dried fruits
Unroasted coffee beans and cocoa beans	<b>Foods for particular dietary purposes</b>	<b>Health foods</b>

Table 9.

b. Engage in an agent or Self-registration process

If the product does not fall into the 18 categories, GACC requires the overseas producers to self-register or by agents, in accordance with [Article 9 of Decree 248](#).

### The Four Steps to Import Food Products in China



#### Step 1: Complete the importers' and exporters' registration

Exporters often use one of two ways to get goods to China: general trade export or cross-border e-commerce (CBEC). In either model, all exporters and importers of foreign food products must be registered through the "Registration Systems of Imported Food and Cosmetic Importers and Exporters" (<http://ire.customs.gov.cn/#>) or the "Internet +customs platform" (<http://online.customs.gov.cn/>) of GACC. Suppose the foreign exporter wants to choose a Chinese importer on record to manage the customs clearance process. In that case, the exporter is advised to use China's credibility system to gather official information about the prospective importer or review the importer's performance via a public register maintained by the GACC. In addition, some food products with heightened safety requirements, such as meat and health products, require additional registration, as indicated in the online system.

If the foreign manufacturer meets the Chinese registration requirements, it will be publicly listed on the GACC website and receive a Chinese registration number. The registration will be valid for five years and is extendable. Furthermore, as of October 2012, it is mandatory for exporters to register each shipment of food products online with the GACC for tracking.

#### Step 2: Prepare documentation, pre-import licensing, and trademark registration

**Documentation is needed to clear customs.**

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China has strict documentation requirements to be met to successfully import food products into the country. Importers must submit documented information on quality, quarantine, origin, and import control, along with a detailed packaging list and a description of the packaging material, among other documents, before the import process begins. These documents will be reviewed after the shipment reaches China. The entity must ensure all documents are complete and authentic to avoid delays and storage costs upon arrival.

Harmonized System (HS) codes available on the China Customs' website can provide the product category, the associated import tax rates, documentation, licenses, and testing requirements (the HS nomenclature is the international system for categorising all products traded between countries). On top of the Chinese 8-digit HS code, China also adds a 2-digit customs supervision additional number and a 3-digit inspection and quarantine additional number. Although the documentation requirements vary between products and product categories, the exporter may prepare the following documents to import food products into China:

- Commercial invoice;
- A detailed packing list;
- Bill of lading;
- Certificate for export from country of origin;
- Hygiene/Health certificate;
- Certificate of free sale;
- Trade contract with the importer;
- Sample of the original label;
- Sample of Chinese label; and
- Inspection certificate issued by AQSIQ.

#### **Pre-import licensing**

In general, food products entering China do not require pre-import licensing. However, suppose the product is included in the [Goods Catalogue for Automatic Import License Management](#) (2023), such as soybean, soybean, and rapeseed products. In that case, importers should apply for an Automatic Import License issued by the Ministry of Commerce (MOFCOM).

#### **Trademark registration**

Since China only acknowledges trademarks registered within its own authority and follows the first-to-file system, registering the trademark in China is crucial for a foreign entity to protect its brand. This is necessary if the firm wishes to avoid trademark squatters and disputes with local counterfeiters, which can cause reputational damage, losing customers and revenue, and time-consuming and costly adjudication. Foreign companies are recommended to file trademark applications with the Trademark Office of the National Intellectual Property Administration (CNIPA) through a registered agent – if they do not have a residency or place of business in China.

### **Step 3: Labelling**

Every food product imported into China must be labelled in simplified Chinese characters to complete the Customs clearance. Several rules specify the labelling requirements for the layout and content of F&B in China. Some of these include:

- Label rules for pre-packaged food (GB7718-2011, [English](#) and [Chinese](#) versions available here);
- Label rules for pre-packaged food for special dietary uses ([GB 13432-2013](#));
- Label rules for pre-packaged food's nutritional labelling ([GB28050-2011](#)); and

In general, an outer label must be provided with the following information:

- Standard name of foodstuff;
- Country of origin;
- Registration number at AQSIQ;
- List of ingredients as a percentage;
- Name and address of manufacturers, local agent, or distributor;
- Production date, shelf life, and guidance for storage (including temperatures);
- Quality grade;
- Net weight;
- Batch number;
- Code of national standard/industry standard for the production; and
- Special contents, if any.

All labels must be approved by the Chinese Inspection and Quarantine (CIQ) under AQSIQ. As label standards in China are subject to change, Dutch companies are advised to consult experts to ensure compliance with the updated label requirements.

### **Step 4: CIQ, the sanitary food inspection, and customs clearance**

Once the products reach China, the food products are inspected by Customs officials for a review of relevant shipping documentation and labelling requirements.

The process is more complex for the first-time export. The procedure will be simplified in the future after the first successful export.

#### **Goods that pass customs clearance and inspection**

The imported foods that pass inspection will be issued a China Entry-Exit Inspection and Quarantine Bureau (CIQ) certificate by the GACC and allowed to enter China. This certificate is issued for every shipment of the product.

#### **Goods without complete documentation**

If the shipment misses any documents and Customs seizes them, the entity may either provide the missing documents or a CIQ declaration. To obtain a CIQ declaration, the entity must provide the following documents: a business license, importing license, quota certificate, safety compliance declaration, an introduction to the company, and product information in

detail.

### **Goods that fail customs clearance and inspection**

Imported food that fails to be cleared through Customs may undergo specialised treatment under GACC supervision and then be re-inspected or issued a Returns Handling Notice, meaning that the importer must return the product to the exporter, or the goods must be destroyed.

## **8.2 Food Safety Regulations**

First, all the food imported from overseas should comply with the Food Safety Law of the People's Republic of China and the Regulations on the Implementation of the Food Safety Law of the People's Republic of China.<sup>73</sup> In August 2022, the PRC's National Health Commission (NHC) released an updated [National Food Safety Standards Catalogue](#). The updated list features 1,455 standards covering food products, additives, quality specifications, testing methods, and production practices. The applicable General Standards can be found in the Appendix in detail.

Suppose the products are made from new food materials. In that case, the producer shall apply to license the new raw food materials according to the [Administrative Measures for the Safety Review of New Food Ingredients](#) issued by the National Health Commission (NHC). If the products contain new food additives, the producer shall apply to license the new food additives according to the [Administrative Measures on New Food Additives](#) and the [Provisions for Application Submission and Acceptance of New Variety of Food Additives](#).

### ***Processing protein***

Different types of plant-based proteins for processing can be distinguished according to [GB 20371-2016](#) National Food Safety Standard for Plant-based Proteins for Food Processing.

### ***Pre-packaged Products***

In August 2021, the Chinese Institute of Food Science and Technology released the Group Standard [T/CIFST 002-2021](#) "General Principle for plant-based foods". The document classifies plant-based foods, including plant-based meat products, plant-based dairy products, plant-based egg products, plant-based frozen beverages and preparations, and other foods. According to the notification released by CIFST in May 2023, the institute will establish a new general principle for plant-based food products.

In response to the need for national- or industry-wise standards to regulate the quality and safety of plant-based meat products, Chinese plant-based food producers implement different industry standards based on the basic categories of their products, which is introduced in

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<sup>73</sup> [中华人民共和国食品安全法实施条例（国令第 721 号）\\_政府信息公开专栏 \(www.gov.cn\)](#)

detail in Appendix 2. The Regulation of Genetically Modified Food in China can also be found in the Appendix.

### **8.3 Bio-economic Development Related Policies**

#### ***No.1 central document for 2023***

The Chinese government unveiled the [No. 1 central document for 2023](#) in February. The document focused on the ambitious blueprint of agricultural and rural construction and food safety development in the new year. The document's first section mentions that the country will develop a diversified food supply system with animal-based, plant-based, and microorganisms.

#### ***China's 14th Five-Year Plan for 2021-2025***

China proposed development targets for the 14<sup>th</sup> Five-Year Plan period, including making new strides in economic development and improving the well-being of the people to a higher level. It was mentioned that cell-cultured meat, synthetic egg cream, functional recombinant protein, and other nutritious foods are future research projects for the food industry.

In May 2022, the National Development and Reform Commission issued the "[Bio-economic Development Plan](#)" under China's 14<sup>th</sup> Five-Year Plan, which prioritises the research and development of synthetic biotechnology, artificial proteins and other new food products to upgrade industrial food production and reduce the environmental pressure caused by traditional animal husbandry.

#### ***Catalogue of Encouraged Industries for Foreign Investment***

On 28 October 2022, the National Development and Reform Commission and the Ministry of Commerce released the [Catalogue of Encouraged Industries for Foreign Investment \(2022 Edition\)](#). The Catalogue, which came into force on 1 January 2023, is an important foreign investment promotion policy in China and an essential foreign asset industry and regional policy, listing specific industries, fields, and regions where the government encourages and guides foreign investors to invest.

The following categories encourage the development of plant-based protein products:

- No.38 Encouraging the development and production of plant-based protein meat products under the "Food Manufacturing" category.
- No. 41 Encouraging the development and production of fruit and vegetable juices and beverages, protein drinks, tea drinks, coffee drinks and plant-based drinks under the Category of "Wine, beverage and refined tea manufacturing".

These encouraged policies indicate that the development of the new protein industry can address the challenge of protein supply in China and further promote the development of

future food, which is closely aligned with the national strategy.

## 9. Market Entry Strategies

### 9.1 Direct Export

#### *Short-term Strategy*

Regarding short-term strategies, The Netherlands plant-based protein companies could consider importing plant-based food products through cross-border e-commerce (CBEC). CBEC consist of importing certain products directly from foreign suppliers through an internet platform registered by GACC and only through specific CBEC pilot ports of entry. All products imported via CBEC must be included on the [Positive List](#) as published by the relevant authorities in China. Plant-based pre-packaged food is an eligible and approved category for cross-border e-commerce in China. Since The Netherlands' plant-based food companies currently lack knowledge of the Chinese plant-based food market, it is a good idea to implement a trial-and-error mode by testing consumer interest without significant investments in incorporations or warehouses through CBEC. Importing plant-based food products through CBEC offers several advantages over the traditional customer clearance process.

First, import registration will take over a year if Dutch companies plan to export through traditional trade. On the other hand, plant-based food imported through the CBEC is exempt from submitting an import license to MARA. So, importing plant-based food through CBEC can be the fastest sales channel for The Netherlands companies to enter the Chinese market. Second, product compliance inspections within CBEC pilot zones are shorter and less restrictive on average. Customs officials may use discretion to clear products with less than complete documentation. Plus, value-added taxes and import duties are waived, and the consumption tax is reduced by 30 percent. The current import tax for most product categories, including health supplements, food and beverage, is 9.1 percent. The downside of CBEC is that the products can only be sold to consumers online instead of to enterprises. This will restrict the sales channel from a B2B point as local distributors cannot be used.

Government policies support CBEC. In August 2018, E-commerce Law was adopted by the Chinese government. In 2019, the Ministry of Finance, the Ministry of Commerce and 13 other departments in China jointly released the "Cross-border E-commerce Retail Import Commodity List (2022 Version)"<sup>74</sup>, which added soy powder to the positive list. The purpose of this law was to regulate CBEC platforms in China further, enhance the protection of intellectual rights, and protect personal and consumer rights<sup>75</sup>.

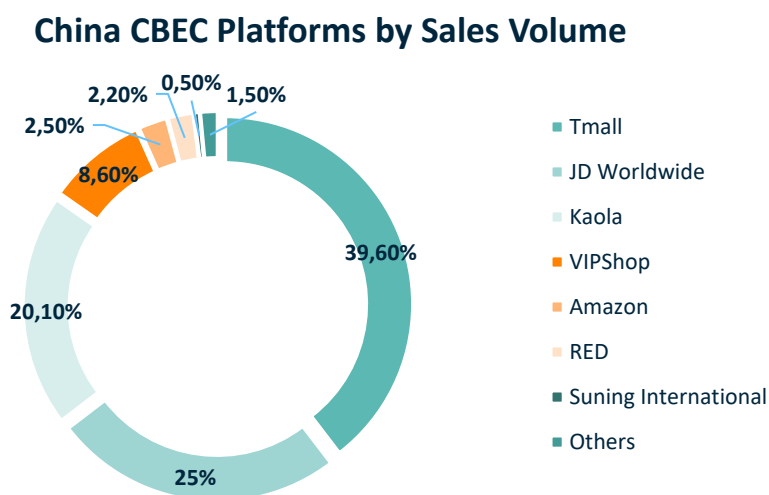
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<sup>74</sup> [Cross-boarder E-commerce Retail Import Commodity List](#), mofcom.gov.cn.

<sup>75</sup> [Using the Cross-border E-commerce Channel to Increase US Food Imports to China](#), USDA, Nov 07, 2019.

Due to Chinese consumer interest indirectly purchasing consumer-oriented imports, CBEC sales have seen an upward trend in recent years. As lockdown policies disrupted international trade during the COVID-19 pandemic in the past three years, consumer demand for imported products spiked as more global brands entered China via e-commerce platforms<sup>76</sup>. According to the data generated by the General Administration of Customs, China's cross-border e-commerce import and export transactions reached EUR 277 billion in 2022, with an increase of 9.8 percent year-on-year, accounting for 37.32 percent of the country's total import and export of goods trade. According to the forecast analysis<sup>77</sup> of Northeast Securities, the average annual growth rate of cross-border e-commerce in China will still maintain more than a growth rate of 10 percent during the upcoming five years. The pace of CBEC development makes importers and exporters confident about the future of China's online sales market.

China's most popular CBEC retail marketplaces include Tmall Global, JD Worldwide, Kaola, VipShop, Amazon and Red (Xiaohongshu). Tmall accounts for the highest transaction share of China's B2C online retail market platforms in the third quarter of 2022.<sup>78</sup>



Graph 16. Source: B2C online retail market platforms' transaction share in China in 3rd quarter 2022, Statista

**An example: Tmall Global business models:**

Tmall Global provides three primary business models for merchants in China: Tmall overseas fulfilment model (TOF), Tmall direct import model (TDI), and Tmall Global flagship store model. Depending on the existing brand awareness in China, products and categories, business goals and development stage, brands can choose differently or use several business models simultaneously.

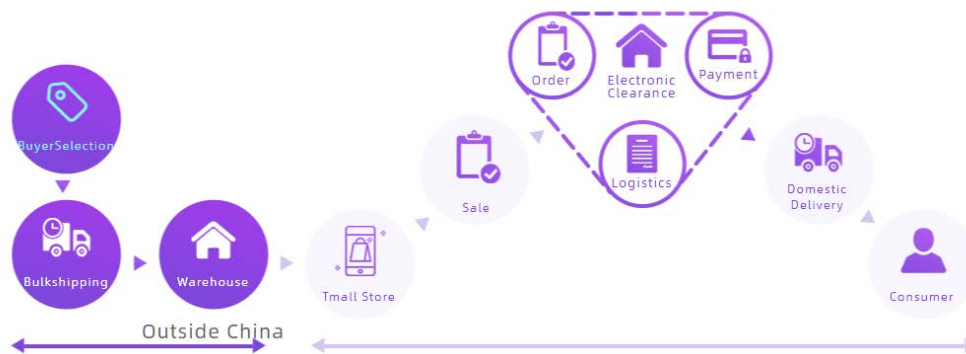
It is worth mentioning that Tmall's overseas fulfilment model (TOF) is a new cooperation model

<sup>76</sup> [Pandemic Feeds Chinese Consumers' Craving for Imported Goods](#), Research Shows. alizila, Nov 04, 2021.

<sup>77</sup> [EAL Logistics](#), Northeast Securities, Jun 2021.

<sup>78</sup> [B2C online retail market platforms' transaction share in China in 3rd quarter 2022](#), Statista

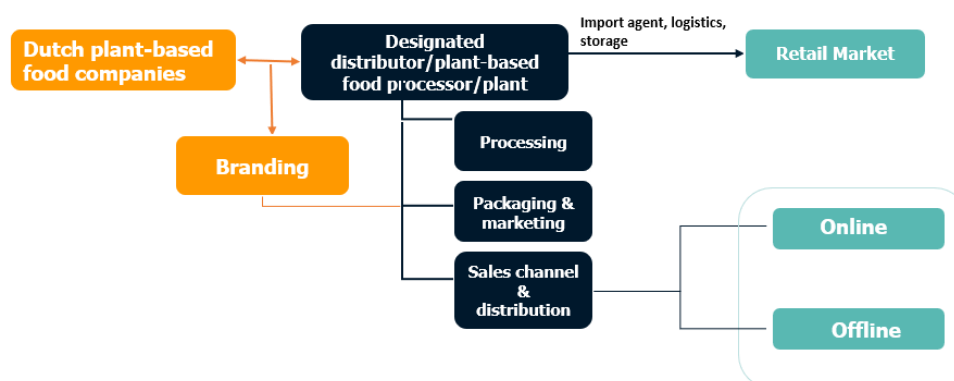
to help overseas brands and suppliers an opportunity to target the growing Chinese middle-class consumer base and test the market across Tmall Global<sup>79</sup>. Tmall’s overseas buyer team will assist the company in selecting the best-selling items. Merchants will ensure the delivery of goods to Alibaba’s overseas warehouses in various regions. After the products are prepared, Tmall Global will take charge of branding and marketing on and off the platform, selling the products on its online store and handling deliveries to end consumers. The below process flow shows the procedure of the overseas Fulfillment model (TOF):



Overseas Fulfillment Process, source: Tmall Global

## 9.2 Finding a Local Partner or Distributor

### Long-term Strategy: Doing business with a local partner or distributor



Dutch plant-based protein food companies could achieve a thriving retail market entry by collaborating with a local plant-based food processor. If a company pursues this strategy, it can handle the hassle of registering and managing its entity in China. Instead, it can find another company to represent them locally or distribute the goods.

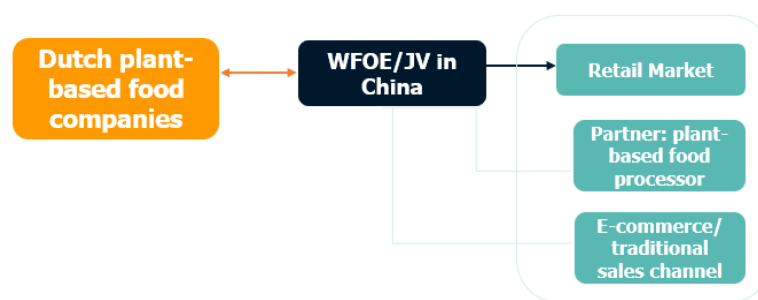
China is a vast market not only due to its 1.4 billion citizens but also its geographic size. Giving

<sup>79</sup> [Tmall Global](#).  
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a partner or distributor exclusivity for either the whole of China or a significant amount of time must be a carefully considered strategy. Instead, signing an agreement for a specific region and a fixed timeframe (although renewable) is advised to ensure the right partner is found. Developing stakeholder relationships is particularly important.

Next, it is advised to get to know the partner or distributor, familiarise oneself with their strategy and vision of the product and service and ensure they are adequately trained. Referring again to trademarks, it is recommended that the Dutch entity registers their trademarks themselves instead of partners and distributors on their behalf. On the other hand, RVO and the Dutch Embassy can help companies find a suitable business partner if necessary.

### 9.3 Setting up an entity



#### *Long-term Strategy: Setting up a Wholly Foreign-Owned Enterprise (WFOE)*

Setting up Dutch companies' structure is a direct marketing entry mode. A Wholly Foreign-Owned Enterprise (WFOE) in China is a Limited Liability Company (LLC) which is established exclusively by the foreign investor's capital ("wholly foreign-owned"). This implies that the WFOE is 100 percent owned by its foreign shareholders. This is possible if an industry is not on the negative list or there are no ministerial department special requirements. In the early days, the concept of WFOE was established to boost manufacturing and export activities in China. There were entry barriers for companies in the service industry. Once China officially became a part of the World Trade Organization in November of 2001, however, tariffs on agreed products were reduced, and market access was granted to foreign investments in many industries, including the technology and service industries. Registering a WFOE has become the preferred entry mode for many foreign investors seeking access to the Chinese market. A Representative Office (RO) used to be popular but is seen less in China as it can only represent the headquarters of a foreign company and is restricted only to marketing activities. This means no local invoicing to clients from Mainland China.

In general, there are three different types of WFOEs, which are the following:

- Standard/Consulting WFOE: Licensed as a consulting business within the service industry.
- Trading WFOE: Licensed to conduct trading, wholesaling, retailing and franchising activities in China. These types of companies must make an additional registration at Customs to import/export goods in/from China.



- Manufacturing WFOE: Licensed to manufacture products. Registering this WFOE is similar to other WFOE registrations, but an environmental impact assessment must be completed before submitting the business license application.

The business scope is listed on every company's business license. Choosing a business scope is done at the beginning of the registration process. It is a very delicate moment of choice when registering one's entity. The business scope defines which types of business a company can engage in and is approved by the Bureau of Industry and Commerce. In China, there are four types of business scope items: Common, Encouraged, Restricted and Forbidden. Research is needed before registration to ensure that a WFOE is not engaging in forbidden business scope items. Even restricted items can have consequences as several industries, such as media or education, are limited and can only be operated in a Joint Venture structure where a Chinese partner has a majority percentage of shares.

What companies usually do not know – or tend to forget – is that they can only pursue the items listed on the business scope. Failing to comply with the business scope can imply a fine of up to one year's revenue. Each type has different requirements to be set up. As a trading company is engaged in trading, it usually needs to apply for an import/export license and consequently will be registered at Customs. A manufacturing WFOE must have a factory space in an approved zone. For example, a manufacturing WFOE cannot register in the centre of (large) cities in China. There are many different decisions to make before setting up a local entity. Include geographic location, invested capital, additional licenses, and corporate structure. Local experts are advised to optimise a market entry during the registration process. Although markets in China can change very quickly, testing the market before rushing in is recommended.

**Example: [NOIX AG \(Germany\)](#)**

In 2017, the parent company NOIX AG was founded in Munich, Germany, with a shareholder structure consisting of German entrepreneurs. The company collaborates on plant-based food research and development with the German applied science research institute FRAUNHOFER. [Jooma Meiren Foods \(Tianjin\) Co., Ltd.](#) It was established in 2019 as a subsidiary of NOIX AG. Jooma has the know-how to produce and market different flavours of almond- and coconut-based yoghurt products in China. The company has its factory in Tianjin because they understand that more is needed to rely on the OEM for production. Although marketing is essential, in the long run, they believe that having the technique is more important. JOOBA's almond yoghurt is sold through over 100 retail and catering channels in Beijing, Tianjin, Shanghai, and Shenzhen. On the retail side, about 50 percent of sales come from online e-commerce channels, and the other half are from offline supermarkets. The company's primary target customers in China are women, white-collar workers, children, vegetarians, and expatriates. Hence, the company plans to launch its products in first - and second-tier cities with its primary customers.

**Long-term Strategy: [Setting up a Joint Venture](#)**

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Setting up a Joint Venture can be seen as a second option for entering the market. A Joint Venture (JV) is, like a WFOE, a Limited Liability Company, and the company structure is subject to the same rules and regulations as a WFOE in China. A JV has multiple shareholders. These shareholders can be foreign individuals, foreign entities, or locally registered entities such as a WFOE or a Chinese-owned company. In 2020, a new Foreign Investment Law was implemented that abolished the previous two types of JVs: equity JV and corporate JV. The main difference is the company's decision-making process; before, the board of directors was the de facto decision-maker, which has changed to the shareholders.

Joint Venture means joint management, which can be challenging for companies without significant international experience. Finding the right local partner, like local distributors or partners, to set up a JV is crucial. A thorough due diligence and background research of the proposed JV partner is needed. Especially in restricted industries where the foreign shareholder can only obtain a minority percentage of shares in the JV, investing time in building the relationship and trust needs to be the start of such a collaboration.

The advantage of a self-owned entity is that Dutch companies can legitimately control the subsidiary regarding its marketing strategy, branding, trademark, choosing a proper business partner, and other business activities. Moreover, Dutch companies can gradually build up a strong position in the plant-based food industry in the long run, as they can engage in retail chains and get more exposure to Chinese customers.

***Example: [PFI Foods \(China and Singapore\)](#)***

PFI Foods Co., Ltd is jointly invested by Singapore Huaxia Fengsheng Holdings and Purui Company from the USA. Also, another part of the equity of PFI China belongs to Anhui Provincial Agricultural Industrialization Development Fund Co., Ltd. The company implements a Business-to-Business mode, produces ready-to-eat and ready-cook products and provides catering customers, food industry customers and retail consumers.

In September 2019, PFI started its plant-based protein meat project with a brand of “Zhi Ai Life” (植爱生活) and launched its plant protein dumplings and spring rolls on its official online store in May 2020. According to the news<sup>80</sup>, Zhi Ai Life has different R&D teams in San Francisco, Singapore, and Anhui Province in China to conduct research. For example, the USA team is in charge of improving taste; the Singapore team is responsible for developing new plant-based ingredients. In contrast, the Chinese team focuses on localising the flavour of the products. The brand tries to reach a broader audience and not confine itself to health-oriented sports fans seeking weight management. Instead, it defines its consumers as people who are life explorers. They are enthusiastic about new things but are nothing to do with age, income, and region.

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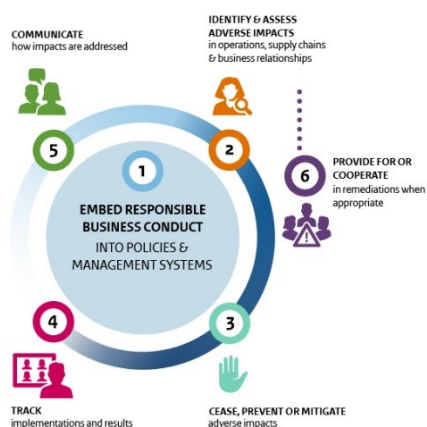
<sup>80</sup> [Plant-Based Meat in China: Local Brands Vying for a Share of this Fast Growing Market](#), Chinamktginsights.com, Apr17, 2021.

## 9.4 Responsible Business Conduct

Responsible business conduct (RBC) sets out an expectation that all businesses – regardless of their legal status, size, ownership or sector – avoid and address the negative impacts of their operations while contributing to sustainable development in the countries where they operate<sup>81</sup>.

### *Due diligence obligations in the Netherlands*

The Dutch government wants to ensure that Dutch companies engage in socially responsible business practices abroad. There are six steps of due diligence central to the OECD guidelines that help companies identify, prevent, and mitigate risks in their operations, conditions in their supply chains and their business relationships:



Overview of the new RBC policy. Source: [government.nl](https://www.government.nl)

- **Step 1: Integrate RBC into your company**

- Create an RBC policy and integrate it into your company
- Publish relevant RBC policy on your website, clarifying that it is incorporated into the management structure and business processes
- Organize RBC training for employees and stakeholders

- **Step 2: Identify and assess negative impacts & Control of Suppliers**

*Identify and assess negative impacts*

- Map the entire chain
- Conduct a risk analysis
- Implement CSR Risk checker ([Roadmap to CSR Risk Management](#))

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<sup>81</sup> [Responsible Business Conduct, the new normal for a sustainable future](#), OECD.org.

### *Control of Suppliers*

- European Business Social Compliance Initiative (BSCI)
- Includes a monitoring system for working conditions at suppliers
- Encourage suppliers to comply with International Labour Organization standards, among others

- **Step 3: Concrete actions that stop, prevent and mitigate negative consequences**

- Raising awareness of issues whining supply chains
- Building partnerships with NGOs and local partners
- Sharing knowledge and lessons learned with companies, NGOs and other stakeholders
- Implement long-term strategies to address the root causes of the issues

RVO has several funds that help companies map out risks within the supply chain, such as:

- [Labour](#) (FBK)
- [Fund for Responsible Business](#) (FVO)

- **Step 4: Track implementation and results**

- Track the result of your RBC policy
- Proper monitoring and evaluation are necessary
- Based on these results, where necessary, adjust and improve the policy

- **Step 5: Communicate how consequences are addressed**

- It is essential for entrepreneurs to communicate the RBC policy to the outside world and to inform consumers to make the right (sustainable) choice
- Publish RBC annual reports
- Report on Sustainability

- **Step 6: Provide or cooperate with remedial measures**

- Indicate in the RBC policy that the company complies with local laws and regulations and the OECD guidelines
- Address complaints, if applicable, as soon as possible

[The OECD Due Diligence Guidance for Responsible Business Conduct](#) (RBC) sets out principles and recommendations for multinational enterprises to address actual adverse impacts or potential adverse impacts (risks) on human rights, employment and industrial relations, environment, bribery and corruption, consumers interests, disclosure, and corporate governance. The [OECD Guidelines for Multinational Enterprises](#) on Responsible Business Conduct (the Guidelines) are recommendations jointly addressed by governments to multinational enterprises to enhance the business contribution to sustainable development

and address adverse impacts associated with business activities on people, planet, and society. The Guidelines are essential in the Netherlands because they are the starting point for the Dutch Corporate Social Responsibility policy. The scope of the OECD Due Diligence Guidance for RBC includes the following:

- All multinational enterprises (MNEs), regardless of ownership structure, in all sectors operating or based in countries adhering to the OECD guidelines for MNEs, including multinational, small, and medium-sized enterprises (SMEs).
- All the entities within the MNE group – parent and local entities, including subsidiaries.
- Multinational and domestic enterprises are subject to the exact expectations in respect of their conduct wherever the OECD Guidelines for MNEs are relevant to both.

All types of business relationships of the enterprise are covered by Due Diligence – suppliers, franchisees, licensees, joint ventures, investors, clients, contractors, customers, consultants, financial, legal, and other advisers, and other non-State or State entities linked to its business operations, products, or services.

### ***EU Legislation (2025-2027)***

In early 2022, the European Commission adopted the Corporate Sustainability Due Diligence Directive (CSDDD) proposal<sup>82</sup>. The Council Position is committed to better alignment with the practices and rules of [the OECD Guidelines for Multinational Enterprises](#) and [the UN Guiding Principles on Business and Human Rights](#). The aim is to foster sustainable and responsible corporate behaviour and to anchor human rights and environmental considerations in companies' operations and corporate governance. The new rules will ensure that businesses address the adverse impacts of their actions, including in their value chains inside and outside Europe.

The Directive establishes a corporate due diligence duty. The core elements are identifying, bringing to an end, preventing, mitigating, and accounting for adverse human rights and environmental impacts in the company's operations, subsidiaries, and value chains.

### ***Why should companies implement RBC?***

Apart from legislation (both national and international), companies should also contribute to a sustainable society from ethical, social, and environmental considerations. Dutch companies do not always identify potential risks when doing business globally. International Corporate Social Responsibility means companies try to identify risks in their supply chain and prevent or compensate for the adverse impact generated by their commercial activities. Except for threats, opportunities are highlighted when applying for RBC. RBC is future-oriented – not only

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<sup>82</sup> [Just and sustainable economy: Commission lays down rules for companies to respect human rights and environment in global value chains](#), European Commission, 23 Feb 2022.

seen as a driver for innovation but also allows companies to better prepare for future challenges and transitions. Moreover, increasing investors consider RBC criteria for investment when selecting and targeting.

### ***Corporate Social Responsibility in China***

China has a wide array of policies on responsible business practices, many requiring mandatory reporting of activities. This is partly due to the increasing awareness and the necessity of making growth more sustainable. Due to China's critical role in global supply chains, this is a positive development. The government is constantly working on laws and guidelines to increase the safety of products and people and stimulate the economy's greening. CSR is not only good for 'people, planet & profit'. Making clear how a company contributes to the development of China is also a way for Dutch companies to strengthen their market position<sup>83</sup>. RVO lists several potential CSR risks in China so that Dutch companies can identify, prevent and reduce CSR risks in their supply chain and production process. The Netherlands expects companies to comply with internationally agreed guidelines and principles for [International Corporate Social Responsibility \(IMVO\)](#).

- **Fair business practice**

#### *Corruption*

Despite a large-scale anti-corruption campaign, corruption affects businesses in China adversely. Maintaining personal relations to get things done seems indispensable and completely accepted in China. This business culture often blurs the line between helping one another and corruption. Often transparency and hard data also go against the Chinese passion for negotiation room and freedom of interpretation.

The activities of agents are challenging to control. Sectors that are heavily regulated by the government, such as banking, finance, and construction, are the most susceptible to corruption. Civil servants often need to pay more attention to mistakes made by befriended businesses, and official approvals are frequently for sale. For example, legislation in the Netherlands and Germany criminalises bribes paid anywhere in the world<sup>84</sup>.

#### *Global Compact*

More than 300 Chinese (private and state) companies have joined Global Compact. This initiative aims to fight corruption and improve human rights, working conditions and the environment.

- **Environment**

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<sup>83</sup> [CSR in China](#), rvo.nl, Feb 24, 2022.

<sup>84</sup> [CSR Risk Check](#), MVO.nl.

China's rapid economic growth has had a significant impact on the environment. This includes air quality, water and soil quality, and biodiversity. The Chinese government is paying increasing attention to these issues and is looking for a balance between sustainability and economic growth. In addition, China has committed itself to climate neutrality by 2060 and achieving a CO2 peak by 2030.

[The Ecological Threat Report 2022](#) analyses four ecological threats: food security, natural disasters, population growth and water stress. Regarding biodiversity and deforestation, China faces enormous threats due to habitat destruction, fragmentation, environmental contamination, over-exploitation of natural resources, and introduction of exotic species<sup>85</sup>.

- **Responsible supply chain management**

#### *CSR Organisations China*

The most relevant ministries for CSR in China are the Ministry of Human Resources and Social Security (MHRSS), the State Administration of Work Safety (SAWS), the Ministry of Environmental Protection (MEP) and the Ministry of Commerce (MOFCOM). They are also actively represented at provincial and lower administrative levels, such as through the provincial Environmental Protection bureaus (EPBs) and the Department of Commerce (DOFCOMS). International NGOs in China can be found via this [online directory](#).

CSR risks may occur at any stage in the supply chain; at the (indirect) suppliers, during transport, in its own business activities, and at the (indirect) customers. Customers, governments, civil society organisations and other stakeholders expect Dutch companies to make reasonable efforts to identify, prevent and mitigate these risks. This is responsible for supply chain management.

CSR risks can occur while transporting (semi-finished) products and raw materials. Consider, for example, pollution from ships or the labour conditions in that sector in certain countries. To gain insight, fill out the CSR Risk Check separately for the service 'Transport & Logistics' and your country of interest<sup>86</sup>.

More information on CSR risk management can be found in the [Roadmap CSR Risk Management](#). Dutch companies will also find links to other useful and free tools, such as the Step-by-Step Plan Sustainable Procurement and the Supply Chain Influence Checklist, which helps influence their suppliers' CSR performance. Dutch companies can also make use of the international [ISO 20400 guidelines](#) for sustainable procurement. Moreover, Dutch companies can get advice from [RVO](#) on the CSR risks for their business operations.

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<sup>85</sup> [Spatial variation in biodiversity loss across China under multiple environmental stressors](#), science.org, Nov 20, 2020.

<sup>86</sup> [CSR Risk Check](#), MVO.nl.

## 10. Conclusions & Recommendations

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### **Market Highlights:**

- COVID-19 changes people's eating habits:
    - o Increasing awareness of **health and wellness**, as well as weight and appearance, has continued the growth of health-fitness-related food.
    - o It has accelerated consumers' demand for **convenience foods, ready-to-eat** prepared dishes or meal kits at home, which can be quick and easy to duplicate the taste of the restaurant.
  
  - **Packaging** matters. Packaging means not only the interpretation and the conception of the brands but also reflects the consumer's tastes, which are also associated with social identity.
  
  - **Personalisation** & diversification are important to younger generations.
  
  - On top of food safety, which is an essential requirement, consumers also expect **added value** and **quality** (in terms of taste, ingredients, and production processes) of the products; When selecting healthy-related products, consumers focus on the effect and components, as well as third-party certification.
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With China's economic development and the impact of the COVID-19 pandemic over the past three years, Chinese consumers are acutely aware of the need for protein in their nutritional intake. To meet the demands of sustainable food for future generations, it is necessary to diversify protein sources and ensure stable and sustainable production.

Because of the long-established diet for Chinese consumers, many categories can be classified as plant-based food in China, such as grains and cereals, soy products, konjac products, mushrooms, and plant-based condiments. On the business-to-business side, Dutch plant-based protein players can collaborate with different sectors across the industry chains and offer products, services, and technologies with more added value. For example, plant-based yoghurt products require low-temperature transportation and storage; Dutch companies may consider strategically collaborating with local supply chain companies. Dutch companies with advanced technology and R&D capability ahead of the industry have opportunities in the plant-based meat industry. In terms of ingredients, soy-based food is still mainstream due to its low-cost and high-yield nature, and there is a growing trend for pea-based protein food to take off, especially in the plant-based functional food category; Dutch companies may consider other innovative ingredients to break through the market. Moreover, it is suggested that Dutch players may emphasise health benefits over ethics more when promoting their products, with



little moral stress for Chinese consumers.

On the business-to-consumer side, consumers are highly diversified in China. Different groups of consumers have different motivations and scenarios to try different types of plant-based protein foods. However, multiple factors drive the growth of the plant-based protein food market in China. These include health and wellness, food safety, concerns for animal welfare and climate change.

Taste, convenience, and health are the key drivers for plant-based protein products in China. Specifically, technology for improving plant-based protein products' taste, flavour and aroma is the key to the market. Products with higher protein and dietary fibre, low cholesterol and little to no sucrose are welcomed among consumers. Ready-to-eat products with convenience are a trend for the younger generation with a fast-paced lifestyle. Plant-based functional food is getting increasingly popular among fitness fans and health-oriented consumers. Moreover, the naming is also essential. For example, plant-based meat products are often called “mock meat” or “fake meat” in China; this could lead to potential consumer resistance. Dutch companies may redefine the concept of plant-based food in the Chinese market. It is also essential to release the product in a suitable channel/scenario and trigger the curiosities of Chinese consumers to purchase.

As China's consumption structure changes, the new generation of young people, especially females, is gradually becoming the main force of consumption growth, and their personalised, diversified, and high-quality consumption pursuit will become an essential direction for the plant-based protein food market development. The multi-sensory experience of innovative products and packaging encourages consumers' experimentation and repeat purchases, and it also facilitates them to share on social media platforms.

Although it is still a relatively niche market, the government's encouraged policies and Chinese consumers' health awareness have made the plant-based protein food market full of opportunities. Dutch companies should carefully position themselves in the Chinese market, entirely play their advantages, and continue to popularise the benefits of plant-based protein foods for Chinese consumers, which takes time, courage, and persistence.

## **Appendix 1. Policy & Regulations.**

According to the [National Food Safety Standards Catalogue](#), 13 General Standards apply to all food products:

1. **GB 2761-2017**: National Food Safety Standard - Maximum Levels of Mycotoxins in Foods
2. **GB 2762-2022**: National Food Safety Standard - Maximum Levels of Contaminants in Foods
3. **GB 2763-2021**: National Food Safety Standard - Maximum Residue Limits for Pesticides in Foods
4. **GB 31650-2019**: National Food Safety Standard - Maximum Residue Limits for Veterinary Drugs in Foods
5. **GB 29921-2021**: National Food Safety Standard - Pathogenic Microorganism Limits in Foods
6. **GB 31607-2021**: National Food Safety Standard - Maximum Limits for Pathogenic Bacteria in Bulk Instant Foods
7. **GB 2760-2014**: National Food Safety Standard - Standard for Uses of Food Additives
8. **GB 9685-2016**: National Food Safety Standard - Standard for the Use of Additives in Food Contact Materials and Articles
9. **GB 14880-2012**: National Food Safety Standard - Food nutrition reinforcement - Standard Intern gebruik

for the Use of Nutritional Fortification Substances in Foods

10. **GB 7718-2011**: National Food Safety Standard - General Rules for the Labelling of Pre-packaged Foods
11. **GB 28050-2011**: National Food Safety Standard - General Rules for Nutrition Labelling of Pre-packaged Foods
12. **GB 13432-2013**: National Food Safety Standard - Labelling of Pre-packaged Foods for Special Dietary Uses
13. **GB 29924-2013**: National Food Safety Standard -F General Rules for the Labelling of Food Additives

Suppose no National (GB) Standards apply to specific imported food products. In that case, they shall follow the relevant requirements or standards (voluntary industry standards published by the health administration under the State Council for provisional application. The following standards can be voluntarily complied with:

#### *Industry standards*

Industry standards are technical requirements that do not have a recommended national standard and must be standardised within a particular industry nationwide. Industry standards complement national standards and are unified within a specific industry at the national level.

#### *DB Local standards*

Local standards are adopted and publicly released in a particular country region.

#### *Group Standards*

A group standard is established by the group in accordance with the group's standard-setting procedures for the independent development and release of measures voluntarily adopted by society. Without national, industrial, and local standards, social groups can develop group standards to quickly respond to innovation and market demand for standards and existing standard gaps.

#### *Corporate standards*

Corporate standards are developed for technical, management, and work requirements that must be coordinated and unified within the enterprise.

#### *Plant-based meat products*

In response to the lack of national- or industry-wise standards to regulate the quality and safety of plant-based meat products, the Chinese Institute of Food Science and Technology (CIFST) has published the first Group Standard [T/CIFST 001-2020](#) "Plant-based Meat Products" by the end of 2020.

Currently, most Chinese plant-based meat producers implement the following industry standard for their plant-based meat products:

- [GB 2712-2014](#) – National Food Safety Standard: Bean Product  
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- [SB/T 10379 – 2021](#) Professional Standard of the PRC Quick – Frozen Prepared Food (Voluntary industry standard)
- [SB/T 10453 – 2007](#) Extruded Soybean Products (Voluntary industry standard)
- [SB/T 10649 – 2012](#) Soy Protein Products (Voluntary industry standard)

#### *Plant-based yoghurt products*

In response to the lack of a robust domestic standard to regulate the quality and safety of plant-based yoghurt, the China Health Supervision Association (CHSA) has developed a group standard, [T/WSJD 12 - 2020](#), for plant protein beverage – Plant-based yoghurt. The standard is based on the requirements of [GB19302 – 2010](#), "National Food Safety Standard for Fermented Milks", and [GB 7101 – 2015](#), "National Food Safety Standard for Beverages", combined with the technical indicators of international mainstream brands of plant yoghurt. The standard was published and implemented on January 1, 2021.

#### *Plant-based protein snacks*

At this moment, no specific standards fit this category. As a result, some of the Chinese plant-based snack brands conduct the following National Standards, which are implemented according to the characteristics of their products:

- [GB/T20980-2021](#) - Plant-based protein cookie products implement General Standards for biscuits;
- [GB/T 22699-2008](#) - Plant-based puffed products implement General Standards for puffed food;
- [GB/T22165-2008](#) - Plant-based seeds such as chickpeas implement General Standards for roasted seeds and nuts;
- [GB/T20977-2007](#) - Plant-based cakes implement General Standards for the pastry.

#### *Plant-based functional food*

Many Chinese plant-based protein powder producers implement standards such as [GB/T 29602-2013](#) Solid Beverages or [GB 7101-2015](#) Beverages for pre-packaged plant-based protein powders. As mentioned in the previous chapter, there is no uniform implementation standard for Chinese protein (quality) powder, solid drinks, sports nutrition, health food and other national standards, or the implementation of corporate standards at the moment. Health food products sold within China must be approved and registered with the State Food and Drug Administration (SFDA), which will assess and examine product security, effectiveness, quality control and labelling. SFDA-certified health foods must use a blue hat logo in the products to identify them as 'health foods', hence they are sometimes referred to as "blue hat products".

Currently, there are no specific standards for plant-based protein bars or cookies. As a result, Chinese plant-based protein cookie brands conduct the same National Standard as regular cookies, i.e., [GB/T 20980](#) for Biscuit.

## **Genetically Modified (GM) Food**

## ***The Regulation of Genetically Modified Food in China***

[The Ministry of Agriculture and Rural Affairs](#) is responsible for Genetically Modified-related regulation. It implements safety evaluation and management of Genetically Modified Organisms (GMOs) before approval can be granted for production activities. Those engaged in producing and processing GMOs are required to obtain Agricultural Genetically Modified Organism Processing Licenses. In addition, special area sales and operation of genetically modified foods are required in some provinces.

China has approved two types of safety certificates:

- Safety certificate for the production and application of seven types of self-developed insect-resistant cotton, virus-resistant papaya (transgenic papaya), insect-resistant rice, high phytase maize, petunia with altered flower colour, disease-resistant sweet pepper and delayed ripening disease-resistant tomato. Only genetically modified cotton and papaya are commercially grown; genetically modified rice and maize have not yet been approved for planting as they have not yet passed variety validation; and the Safety Certificates for genetically modified tomatoes, sweet peppers and petunias have expired and are not being planted.
- Safety certificates were approved for the import of five crops, including soybean, corn, oilseed rape, cotton, and sugar beet, which foreign companies developed. The imported agricultural GMOs were only approved for processing as raw materials and were not allowed to be grown in the country.

## ***Labelling Requirements of Genetically Modified Food in China***

The labelling of GM is mandatory in both Mainland China and Taiwan. China implements the voluntary labelling principle in Hong Kong, and China does not have explicit regulations in Macau.

For the mandatory labelling system, as long as the food contains or uses GM ingredients during production, it is regulated as GM food, with no specific content definition requirements.

The catalogue of agricultural GMOs under labelling management, all agricultural GMOs included in the labelling management catalogue and used for sale, must be labelled. At present, only the first batch of the catalogue of agricultural GMOs under labelling management has been released:

- Soybean seeds, soybeans, soybean flour, soybean oil and soybean meal;
- Maize seeds, maize, maize oil and maize meal (including maize meal with tax numbers 11022000, 11031300 and 11042300);
- Seeds of rape, rapeseed, rapeseed oil and rapeseed meal;
- Cotton seeds;
- Tomato seeds, fresh tomatoes, tomato paste. Although tomatoes are in the catalogue,

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there are no GM tomato products in China now.

According to the [Implementation Regulations on Labelling of Agricultural Genetically Modified Organisms](#), there are three methods of labelling genetically modified foods:

- a. Genetically modified plants and animals (including plant seeds, breeding livestock and poultry, aquatic fry, and seeds) and micro-organisms shall be directly labelled as "*genetically modified xx*". This provision also applies to the products derived from such GMOs and plant seeds, breeding livestock and poultry, aquatic fry and seeds, pesticides, veterinary medicine and biologics, fertilisers and additives containing such GMOs or products derived from them.
- b. The product directly processed by the agricultural GMOs shall be labelled as "*genetically modified xx processed products (finished products)*" or "*processed with genetically modified xx as raw material*".
- c. Concerning products that are made from GMOs or products containing GMO ingredients but are found to contain no genetically modified ingredients or show no traces of such ingredients when they are finally sold, the label shall be marked as "*This product is made from genetically modified xx but no longer contains genetically modified ingredients*" or marked as "*The raw materials of this product contains genetically modified raw materials xx, but the product itself no longer contains genetically modified ingredients*".

All agricultural GMOs included in the catalogue of labelling management catalogue and used for sale should be labelled. Those that are not included in the catalogue of agricultural GMOs shall not be advertised or labelled as "non-GMO".

The use of non-GMO labelling and advertising is prohibited for crops that have not been approved for import into China for processing or commercial cultivation in China and for which the GM crop and its processed products do not exist on the market.

## Appendix 2. Company Lists

Exhibitor company	Company Type	Country	Website
SHUANGTA FOOD CO.,	Ingredients	China	<a href="http://www.shuangtafood.com/">http://www.shuangtafood.com/</a>
SINOGLORY HEALTH FOOD CO., LTD	Ingredients	China	<a href="http://www.sinoglorygroup.com/">http://www.sinoglorygroup.com/</a>
YUWANG ECO	Ingredients	China	<a href="http://www.yuwangprotein.com/">http://www.yuwangprotein.com/</a>
SHANSONG BIOTECHNOLOGY	Ingredients	China	<a href="http://gb.shansong.com/">http://gb.shansong.com/</a>
SHANDONG YUXIN BIO-TECH	Ingredients	China	<a href="http://cn.soya-protein.com/">http://cn.soya-protein.com/</a>
SHANDONG JIANYUAN BIOENGINEERING CO., LTD	Ingredients	China	<a href="http://www.jianyuan.com/index.asp">http://www.jianyuan.com/index.asp</a>
YANTAI ORIENTAL PROTEIN TECH CO., LTD	Ingredients	China	<a href="http://www.pea-protein.com.cn/">http://www.pea-protein.com.cn/</a>
QISHAN FOOD	Traditional plant-based meat enterprise	China	<a href="http://www.qishanfoods.com/">http://www.qishanfoods.com/</a>
SHUANGHUI	Traditional meat manufacture	China	<a href="https://www.shuanghui.net/">https://www.shuanghui.net/</a>
JINZI CHINA	Traditional meat manufacture	China	<a href="http://www.jinzichina.com/">http://www.jinzichina.com/</a>
JINLUO	Traditional meat manufacture	China	<a href="http://www.jinluo.com.cn/">http://www.jinluo.com.cn/</a>

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<b>PFI FOODS CO., LTD</b>	Plant-based meat	China	<a href="http://www.pfifoods.com/m">http://www.pfifoods.com/m</a>
<b>BEYOND MEAT CHINA</b>	Plant-based meat	China	<a href="http://www.beyondmeatchina.com.cn/">http://www.beyondmeatchina.com.cn/</a>
<b>GREEN MONDAY</b>	Plant-based meat	China	<a href="https://greenmonday.org/en/">https://greenmonday.org/en/</a>
<b>STARFIELD</b>	Plant-based meat	China	<a href="https://www.starfield.cn/index.html">https://www.starfield.cn/index.html</a>
<b>HERO PROTEIN</b>	Plant-based meat	China	<a href="https://heroprotein.cn/">https://heroprotein.cn/</a>
<b>PROTEIN MEAT</b>	Plant-based meat	China	<a href="http://www.protein-meat.com/">http://www.protein-meat.com/</a>
<b>ZHEN MEAT</b>	Plant-based meat	China	<a href="https://zhenmeat.com/zh">https://zhenmeat.com/zh</a>
<b>HONG CHANG BIOTECH CO., LTD</b>	Plant-based meat	China	<a href="http://en.hongchangfood.cn/#page2">http://en.hongchangfood.cn/#page2</a>
<b>MARVELOUSFOODS</b>	Plant-based yoghurt	New Zealand	<a href="https://www.foodtalks.cn/company/Marvelous_Foods">https://www.foodtalks.cn/company/Marvelous_Foods</a>
<b>HENAN DOUFEI FOOD TECHNOLOGY CO., LTD</b>	Plant-based yoghurt	China	No official website
<b>NOIX FOODS (TIANJIN) CO., LTD</b>	Plant-based yoghurt	China	<a href="https://www.jooma.com/">https://www.jooma.com/</a>
<b>DALI FOOD GROUP</b>	Food & beverage	China	<a href="http://www.dali-group.com/#Page2">http://www.dali-group.com/#Page2</a>
<b>Nestlé China</b>	Food & beverage	Switzerland	<a href="https://www.nestle.com.cn/">https://www.nestle.com.cn/</a>
<b>HEDI FOOD TECHNOLOGY CO., LTD</b>	Algae-based protein	China	<a href="https://tritonai.com/">https://tritonai.com/</a>
<b>YUANDOU FOOD TECHNOLOGY CO., LTD</b>	Plant-based snacks	China	<a href="https://www.foodtalks.cn/company/yuandou_food">https://www.foodtalks.cn/company/yuandou_food</a>
<b>DORJE TECHNOLOGY</b>	Plant-based snacks	China	<a href="https://www.foodtalks.cn/company/chengdu_dejidooge">https://www.foodtalks.cn/company/chengdu_dejidooge</a>
<b>MEIJI FOOD CHINA</b>	Food & beverage	Japan	<a href="https://www.meiji.net.cn/">https://www.meiji.net.cn/</a>
<b>AMWAY CHINA</b>	Food supplement	USA	<a href="https://www.amway.com.cn/amwayChinaV2/index.html">https://www.amway.com.cn/amwayChinaV2/index.html</a>
<b>BY-HEALTH CO., LTD</b>	Food supplement	China	<a href="https://www.by-health.com/en/">https://www.by-health.com/en/</a>
<b>COFCO</b>	Food & beverage	China	<a href="https://www.cofco.com/en/">https://www.cofco.com/en/</a>
<b>BOOHEE HEALTH TECHNOLOGY</b>	Health management	China	<a href="https://www.boohee.com/">https://www.boohee.com/</a>
<b>FFIT8</b>	Health management	China	<a href="https://www.foodtalks.cn/company/ffit8">https://www.foodtalks.cn/company/ffit8</a>



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Netherlands Enterprise Agency  
Prinses Beatrixlaan 2  
PO Box 93144 | 2509 AC The Hague  
T +31 (0) 88 042 42 42  
[Contact](#)  
[www.rvo.nl](http://www.rvo.nl)

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