Research on the Problems and Countermeasures of the Development of SANQUAN Food Cold Chain Logistics

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Abstract: As a major agricultural province, Henan province is also a transportation hub of the country. Based on the development of cold chain logistics in Henan, Henan province can bring significant economic benefits. As the leading enterprise of quick-frozen food, SANQUAN Food has a certain scale in the development of cold chain logistics. Based on the state’s support for cold chain logistics and a series of logistics policies promulgated by Henan province, combined with the current development of cold chain logistics at home and abroad, SANQUAN the internal and external environment of food cold chain logistics is comprehensively analyzed, pointing out the development of SANQUAN Food cold chain logistics. It is proposed that the development of SANQUAN Food cold chain logistics should be based on enterprises, develop warehouse-type cold chain logistics, and create the “SANQUAN colds chain” features.

Keywords: SANQUAN Food, Frozen Foods, Cold Chain Logistics

1. Introduction

Foreign research on cold chain logistics is relatively complete. Relevant theoretical research mainly includes empirical research on examples of cold chain logistics, research on the relationship between upstream and downstream suppliers and horizontally identical enterprises, and simulation of agricultural cold chain logistics. And optimization studies, etc. The theoretical research on cold chain logistics is of great significance. Most of the cold chain logistics industry adopts foreign standards. The theoretical results of foreign research on cold chain logistics are shown in Table
Table 1. Development history of foreign cold chain logistics

<table>
<thead>
<tr>
<th>Scholar</th>
<th>Time</th>
<th>Theoretical achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albert Barrier QA. Ruddich</td>
<td>1894</td>
<td>The concept of cold chain was first proposed.</td>
</tr>
<tr>
<td>C. M Palner</td>
<td>1996</td>
<td>Study the British meat products processing industry and explore the necessity of establishing a strategy for the upstream and downstream industry management alliance of cold chain logistics.</td>
</tr>
<tr>
<td>Jill E Hobbs Linda M Young</td>
<td>2000</td>
<td>The necessity of vertical coordination and integration of cold chain agricultural products was analyzed in detail and a series of conceptual new ideas were put forward.</td>
</tr>
<tr>
<td>Ian Sader Peter Hnes</td>
<td>2002</td>
<td>Taking the Australian meat processing industry as an example, the treatise analyzes the strategic planning of cold chain logistics management.</td>
</tr>
<tr>
<td>J. GAJ. Vander Vorst</td>
<td>2012</td>
<td>For the cold chain logistics, a dynamic change based on discrete events to simulate the loss rate of fresh cold chain food was proposed and the corresponding supply chain scheme was proposed.</td>
</tr>
<tr>
<td>M. F. Stringer MN Hall</td>
<td>2014</td>
<td>According to a project funded by the British Food Standards Agency, a new food logistics supply chain model was proposed, which used hierarchical decomposition to analyze possible failures at various stages in the food logistics supply chain.</td>
</tr>
<tr>
<td>S. Kunar E. M Budin</td>
<td>2014</td>
<td>Exploring the use of employee training, HACCP and RFID methods to reduce the cold chain logistics loss rate.</td>
</tr>
<tr>
<td>Hajnal</td>
<td>2015</td>
<td>Discussed how to ensure the safety of cold chain logistics circulation and build a food information traceability network through HACCP and ISO 2000.</td>
</tr>
<tr>
<td>A M Beulens</td>
<td>2015</td>
<td>Many solutions have been proposed on how to improve the transparency of the fresh frozen and frozen food supply chain. The use of supply chain management to establish cooperation among enterprises to achieve food safety and transparency.</td>
</tr>
</tbody>
</table>

The development of China's logistics is later than that of western developed countries.
In 2001, the establishment of China Federation of Logistics & Purchasing (CFLP) began to pay attention to the standardization and informationization of logistics, and gradually conducted in-depth research on cold chain logistics. In the academic theory of cold chain logistics, many scholars use different methods to conduct research. Li Xuegong (2014) pointed out that the gap between China’s cold chain logistics standardization and developed countries is based on the experience of cold chain logistics standardization in developed countries. According to China’s current logistics development, it helps to strengthen cold chain logistics. With the recommendations of perfect standards. Wang Wenzhong (2015) started from the huge market space in which China’s cold chain logistics development is located, explored the new ideas of cold chain logistics development in information systems, and explored the development trend of frozen chain logistics technology and ideas. Gu Zhen (2016) based on SWOT analysis method to investigate the status quo of China’s cold chain logistics, analyzes the advantages, disadvantages, opportunities and threats in the development of cold chain logistics, and puts forward the problems of existing problems. The corresponding suggestions and solutions provide a constructive view for the development of China’s cold chain logistics. Wang Lei (2016) combined the current situation of cold chain logistics in Henan province with the SWOT analysis method, and comprehensively analyzed the internal and external environment of the cold chain logistics of agricultural products in Henan province, and proposed that the province must regard the cold chain logistics of agricultural products as a key development industry. To vigorously develop the viewpoint of cold chain logistics of agricultural products, and put forward the reference countermeasures for the problems encountered by Henan Province in solving the development of cold chain logistics of agricultural products.

2. The status quo of SANQUAN Food cold chain logistics
   2.1 External environment
   2.1.1 Policy environment.

In October 2014, the State Council promulgated the “Medium and Long-term Planning for the Development of the Logistics Industry (2014-2020)”, which proposes to build a modern logistics operation system with complete functions, advanced technology and complete facilities by 2020. In view of the current development of cold chain logistics, it is necessary to strengthen the construction of cold chain logistics facilities and equipment for agricultural products. It is necessary to continuously strengthen the network system planning of cold chain logistics, and focus on accelerating the improvement of the network system for cold chain distribution. On March 16, 2016, The Fourth Session of the 12th National People's Congress
adopted the Outline of the Thirteenth Five-Year Plan for National Economic and Social Development, and proposed to provide strong support for the steady development of the logistics industry. And guarantee, we must vigorously develop cold chain logistics, aim to improve the infrastructure equipment of China’s current cold chain logistics, promote the leading enterprises in the cold chain logistics industry to establish a sound information management system, and promote the construction of logistics information platform.

In 2017, the “Henan Province Logistics Industry Transformation and Development Plan (2018-2020)” issued by the People’s Government of Henan Province put forward relevant goals and action guides for the development and construction of cold chain logistics, strengthen the construction of cold chain logistics, and rapidly build one. Leading cold chain logistics leading enterprises, among them three food enterprises, is a major advantage for SANQUAN Food development.

2.1.2 The economic environment.

In 2018, China’s reform and opening up entered the fourth decade, and the proportion of poor people continued to decrease. China’s GDP ranked second in the world. The state continued to increase regulation and control, maintain rapid economic growth, accelerate urbanization, and increase household consumption levels year by year. The people have higher requirements for the quality of life, especially the fast pace of citizens living in big cities, which makes the demand for quick-frozen foods increase, and the consumption of quick-frozen foods increases by about 20% every year. Consumer demand continues to diversify, market uncertainties increase, and enterprise development is difficult. SANQUAN Food is the leading company in the frozen food industry. With its brand advantage, its annual economic income is maintained at around 12%, 2017 Operating income reached more than 2.8 billion yuan, but in recent years, SANQUAN Foods has invested nearly 100 billion yuan in infrastructure equipment. The uncertainty of the future market is full of opportunities and risks for enterprises.

2.1.3 Competitive environment.

According to the statistics of the relevant organizations on the brand awareness of the frozen food industry, the scale of assets and the operation of the company, the top ten enterprises of the frozen food brands in 2017-2018 are SANQUAN Food, Synear Food, Wufeng Cold Food , Wanchai Ferry, Hai Pa Wang, Anjoy, Haixin Foods, Haiwang Food, Laurel Food and KEDI, and each has its own characteristics in cold chain logistics. Synear Food the development of the cold chain logistics supply chain in recent years, and built my own cold chain warehouse. The production scale has gradually expanded and the market scale has also increased. It is comparable to SANQUAN Food and is a strong opponent of SANQUAN Food. A survey of consumers who frequently purchase
frozen food brands is shown in Figure 1.

![Figure 1. Consumers buy frozen food brand ratio map](image)

2.2 Internal environment

2.2.1 Cold storage scale

Since the establishment of SANQUAN Foods Co., Ltd., it has adopted the development model of self-built cold chain channel and implemented the Just-In-Time (JIT) system to drive SANQUAN Food into a benign development track. It has developed into a base covering an area of more than 80,000 square meters for production. With the world's most advanced production lines, there are dozens of large-scale frozen foods that can hold tens of thousands of tons of refrigerated warehouses. More than 70 million yuan in logistics investment, the establishment of a three-dimensional warehouse that can store 3,840 pallets, can automatically store about 750,000 pieces of goods, has the world's largest daily throughput of automatic cold storage; the company now has a certain amount of cold storage Capacity, but due to the excessive investment of funds, the lack of cold chain logistics talents, the related maintenance follow-up does not match, and is not willing to make a large amount of investment, the company has some facilities and equipment can't keep up with the development needs, the development of the enterprise has certain obstacles.

2.2.2 Information system

The efficient operation of cold chain logistics is different from general logistics, which requires specific facilities, expertise and information systems to ensure the smooth operation of the entire logistics system. The automatic control system of SANQUAN Food Company's three-dimensional warehouse is an integrated logistics monitoring and management system, which adopts information management-process monitoring-real-time control online three-level network management system. The data communication between the levels is connected by the wireless network, which can
realize the real-time monitoring of the running state of the equipment and ensure the orderly circulation of the food throughout. Secondly, the automatic three-dimensional cold storage established by SANQUAN Food has realized the automation, advanced and modern management of the access goods, and has made a major breakthrough in the management of cold chain logistics in the frozen food industry. Third, the efficient cold source control system, the temperature in the stereo library, the buffer temperature in the warehouse door, and the temperature in the working area are all kept within a certain range, which guarantees the quality and safety of SANQUAN food and the normal operation of facilities and equipment. Fourth, the platform and the vehicle are seamlessly connected to ensure that the working area is completely closed, and a temperature-controlled warning line is set. Once the warning value is reached, the cooling fan automatically turns on the cooling. Fifth, the distribution vehicle is equipped with temperature monitoring equipment, and the change of the temperature of the goods is recorded throughout.

2.2.3 Distribution channels
The company integrates cold chain transportation and distribution resources in the society, establishes public railway transportation logistics, and builds a distribution system with company characteristics. It can deliver related products to various outlets throughout the country within one week. The logistics transportation system is divided into trunk logistics transportation and branch logistics transportation. The trunk logistics mainly relies on third-party operation, while the branch logistics relies on its own fleet for distribution. SANQUAN Food also pays attention to the use of cold chain logistics resources in the society. The logistics company carries out the distribution. In terms of channel construction, the company has built a channel for secondary control and four-level distribution, covering more than 90% of the prefecture-level cities nationwide, ensuring smooth circulation of production capacity and smooth conversion into profit.

3. Analysis of problems in cold chain logistics of SANQUAN Food
3.1 High logistics costs
Cold chain logistics management is to control the whole process of food from processing to sales to ensure that consumers purchase high quality, safe and convenient food and obtain a satisfactory consumer experience. At present, SANQUAN Food has its own self-built cold chain warehouse, which occupies a large amount of cost for the enterprise, and it takes a certain fee for daily maintenance. Most of SANQUAN Food's current trunk logistics transportation also adopts an outsourcing model, which requires certain expenses for enterprises. According to the company's annual report, the company's management expenses in 2016 was 1983.27 million
yuan, an increase of 11.80% in the same year, accounting for 57.62% of the net cash flow from production and operation, and the company's scale was further expanded.

3.2 Imperfect information technology equipment
Although SANQUAN Food has a cold chain warehouse and is equipped with certain facilities and equipment, the supervision of the goods still cannot grasp the relevant information well. The application of advanced Internet of Things technology, EDI technology, RFID and other technologies is insufficient, and it cannot be effectively guaranteed. The quality of food causes the company to waste a lot of time in the actual operation process and increase the operating cost of the enterprise; even if it has the relevant facilities and equipment, the utilization rate is extremely low, resulting in extremely low efficiency of logistics information transmission.

3.3 Unreasonable warehousing planning
SANQUAN Food has built its own large-scale cold storage in five major bases, which can realize cold chain transportation in small and medium-sized cities across the country. However, many warehouse facilities and equipment systems can't keep up with modern development. In recent years, the living standards of residents have increased the demand for quick-frozen foods. The production capacity of SANQUAN Foods is also growing, but the company's warehouses cannot be scaled. The effect on the current needs. The core problem encountered in the development of SANQUAN Food Cold Chain Logistics is that planning and control can't effectively deal with a series of problems in development. Due to the low material turnover rate in the entire supply chain, the storage space of the warehouse is insufficient to meet the demand and warehouse management. Improper storage of raw materials and finished products that are too much for production and market.

3.4 Lack of specialized cold chain logistics talents
Henan cold chain logistics development is relatively fast, but it is still not large, and the corresponding education is also very poor. The core of competition in all walks of life lies in the competition of talents. Since the logistics industry in China started relatively late, there are very few scholars on the research of cold chain logistics. There are not many schools that offer cold chain logistics in colleges and universities, resulting in a cold chain. Insufficient supply of logistics talent. Because SANQUAN Food is not a specialized cold chain logistics enterprise, the attraction of cold chain logistics talents is greatly weakened. The staff of SANQUAN Food Cold Chain Logistics also lacks high-tech talents as most enterprises. According to the current employee education survey of SANQUAN Food, as shown in Figure 2, most of the employees'
qualifications are junior college level, lack of highly educated employees, and employees lack of cold. The understanding of chain logistics often leads to the “broken chain” of transportation.

Fig. 2. SANQUAN Food Employees' Educational Distribution

3.5 Low degree of specialization in cold chain logistics

Although there are relevant national standards in the field of cold chain logistics, enterprises are still not well promoted and implemented. Similarly, SANQUAN Food Cold Chain Logistics has its own relevant management standards. Due to the different scales of different branches, the implementation of cold. When loading, unloading and packing standards of chain logistics, each department will change the corresponding standards according to the actual situation. The company does not have a special logistics supervision department, and there is insufficient strength in the implementation of the policy system to achieve the company's established goals. Enterprises rely heavily on third-party logistics in transportation and distribution. Different companies have difficulty in reaching agreement on some issues, especially for transporting refrigerated vehicle companies.

The different logistics related standards adopted by different companies make the transportation efficiency of the enterprise greatly reduced. For example, the size of the pallets is different in different warehouses, and the different store specifications are different. It is difficult to achieve high-efficiency turnover; the standard of warehouse shelves cannot be used together. The utilization rate of warehousing is greatly reduced; the company does not have a specialized cold chain logistics operation team. When the company makes logistics decisions, it often needs to hire foreign teams to make decisions, which brings additional costs to the company, which reduces the speed of logistics and extends the overall. The time of the entire logistics
is undoubtedly a great blow to the cold chain goods with high requirements. It not only caused the continuous increase of the cost of SANQUAN food cold chain logistics and the serious waste of resources, but also affected the quality of the company's products throughout the transportation process, and there were hidden dangers to consumers' health.

4. Development Countermeasures of SANQUAN Food Cold Chain Logistics

4.1 Non-core business outsourcing
SANQUAN Food Company should comprehensively and systematically analyze the company's business, systematically integrate various departments of the company, establish the position of cold chain logistics in the company's development, and develop cold chain logistics into a modern and standardized operation system. SANQUAN Food can position cold chain logistics as warehouse-type cold chain logistics, mainly engaged in warehousing, comprehensive management of warehouses, outsourcing non-core business to professional TPL companies, such as trunk transportation and terminal logistics distribution, will do to the tiered management of business flow and logistics. Through the professional operation of third-party logistics companies to improve the quality of customer service, the company's operating costs can be significantly reduced, and the company's cold chain logistics in the warehousing competition.

4.2 Establishing an intelligent logistics information system
4.2.1 Relying on the Internet development information platform
In the era of Big Data and the interconnection of all things, SANQUAN Food should build a modern logistics operation system within the enterprise based on the development foundation of the Internet and the policy of cold chain logistics development in the construction of the cold chain logistics information platform. The system is transformed into an electronic operation. It is also possible to use the enterprise resource planning management system to integrate resource information in the supply chain, and to quickly respond effectively to every change in the market from producer to supplier. SANQUAN Food should realize the whole process temperature control of the transportation vehicle according to the Internet, real-time monitoring of the temperature inside the transportation vehicle, and correcting the timely feedback and feedback of the unqualified requirements.
4.2.2 Accelerate the infrastructure of information networks
SANQUAN Food should strengthen the application of modern information technology such as Internet of Things and mobile Internet in cold chain logistics. Actively use the whole process temperature automatic monitoring, recording and control system, WMS,
TMS, GIS and other information according to certain standardization and standardization requirements. Management system, according to the temperature and time requirements of quick-frozen food transportation and storage, standardize the logistics operation, establish a branch system for the collection and processing of cold chain logistics information data, and realize the whole process of product cold chain logistics from production to customers. Information visualization, full monitoring of product logistics. Using Big Data analysis to systematically integrate products, cold storage, transportation vehicles, etc., and strive to build a "company product + cold chain facilities + services" model to achieve a perfect connection between market demand and cold chain logistics resources supply, improve cold chain logistics High efficiency operation.

4.3 Strengthening the design of the warehouse
In the face of the problem that warehousing cannot effectively respond to demand, SANQUAN Food Company should conduct business training for employees of the cold chain logistics department, formulate relevant assessment indicators, link performance with wages, improve warehousing efficiency, reduce storage risks, and the company. It should also assess the current operating conditions, plan and design the future, invest in building warehouses to meet the company's needs, make systematic plans for future development, and regularly check and update the facilities and equipment of the warehouse.

4.4 Accelerate the training and introduction of cold chain logistics personnel
4.4.1 Strengthen internal training in enterprise logistics
In the face of the talent market, the supply of cold chain logistics personnel is in short supply. SANQUAN Food Company should cultivate self-cultivation from the internal employees of the company in combination with its own status, and regularly organize training on cold chain logistics, which enables the company to effectively solve the problem of cold chain logistics. Managers, organize the staff of the cold chain logistics department to exchange and learn from other companies in the same industry, discuss management experience, and develop a set of talent training mode suitable for the company for the SANQUAN cold chain logistics management team. People trained from within the company can effectively solve the problems faced by the company and reduce risks.

4.4.2 Establish employee incentives
The company should establish a staff incentive mechanism based on the existing knowledge level of the employees and the needs of the company through regular activities such as “care for employees”, and maintain the technical skills of the
employees and the interests of the company, and establish a reward and punishment mechanism. The company has added vitality and vitality to accelerate the construction of cold chain logistics.

4.4.3 Strengthen school-enterprise cooperation
Enterprises and schools sign agreements to jointly train cold chain logistics talents, and open some order classes in schools, which can not only solve the employment problems of college students, but also cultivate high-quality talents for enterprises. Moreover, students can not only learn the professional theory of the system, but also the actual operation experience of the enterprise. The enterprise can also carry out the specified off-campus classroom content for the activities of the cold chain logistics, so that the combination of theory and practice can be achieved. Let students understand the difference between theory and practice, and cultivate and build a group of high-end applied talents in the 21st century, which is beneficial to both enterprises and schools. SANQUAN Food should cooperate with the lack of cold chain logistics talents and cooperate with local schools that open cold chain logistics to improve the cultivation of logistics talents.

Formulating corresponding standards and increasing supervision
SANQUAN Food Company should improve the cold chain logistics standards in light of the actual development of cold chain logistics in our province. The company actively promotes the standard operating specifications and technical standards of cold chain logistics, and creates a unique cold chain logistics management model to form the industry. "SANQUAN Standards", and promote the establishment of a standard system for the quality of quick-frozen food. SANQUAN Foods should learn from the standardized operation of excellent cold chain logistics enterprises at home and abroad, and establish standard automated warehouses and corresponding standard operations according to the company's own situation.

Formulate relevant document systems and relevant regulatory systems to ensure effective and smooth implementation of policies, establish an effective early warning mechanism for the whole process of cold chain logistics for quick-frozen food, and increase employees' attention to cold chain logistics. In the process of cold logistics distribution, it is necessary to establish a unified distribution standard and early warning mechanism to reduce the breakage rate of frozen food during the distribution process, so as to provide frozen food to target customers quickly and safely. Through this early warning mechanism of synergy, when the market changes drastically, a series of alarm mechanisms and communication coordination mechanisms will emerge between frozen food logistics companies to cope with market uncertainty. The company's advantages can indicate that they have achieved Effective prevention of dangerous mechanisms.
5. Conclusion

SANQUAN Foods should be based on the company's positioning of cold chain logistics as a warehouse-type cold chain logistics, optimize internal facilities and equipment, make reasonable planning and layout of the warehouse, and make SANQUAN food cold chain logistics a new highlight of SANQUAN food development. To provide new growth drivers for the development of SANQUAN Food Company.

References