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Research on Optimization of Meat Food Supply Chain Process

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ABSTRACT.*Based on the analysis of the current status of China's meat food supply chain logistics process, this paper analyzes the five links of prenatal, mid-production, post-production, circulation and consumption links in the supply chain process of Chinese meat products. According to this, some suggestions for integrating the meat food supply chain and strengthening the contract cooperation mechanism among the supply chain enterprises are proposed for the optimization of the Chinese meat food supply chain process, in order to realize the current Chinese meat food supply chain. Process optimization.*

KEYWORDS: *Process optimization, Meat food, Supply chain*

1. Introduction

People eat food for the sky, food for the first, the current, frequent meat food safety issues have sounded the alarm for us. In the past ten years, large-scale food safety incidents have occurred frequently, Fuxi company uses expired meat, “lean meat Fine, etc., so the safety of meat food is already a big problem that cannot be ignored. The root cause of many food safety problems is not the lack of supervision, but the defects of the food supply chain itself. As a special food, the meat food supply chain includes breeding, slaughtering, processing, decomposition and testing. The process is complicated and complicated. In addition, since most of China's food logistics supply chain is still a traditional logistics method, there are more problems in China's meat food supply chain, and it is urgent to integrate the Chinese meat food supply chain process to optimize the supply chain process.

2. Literature Review

At present, there are many researches on food supply chain by domestic and foreign scholars. Most of them study the characteristics of food supply chain and corresponding regulatory mechanisms from a qualitative perspective. For example, Changning Zhu (2013) talks about the supply of food supply chain and manufacturing. The chain is compared, and the food supply chain is different from the ordinary supply chain in terms of organization carrier and logistics. He

summarized two characteristics of the food supply chain: First, the logistics chain involved in the food supply chain and many industries. As a result, it has another characteristic of the food supply chain: the potential for natural risks, market risks and policy risks is large, leading to great instability in the food supply chain [1]. De Waal's research on the main body of the food safety monitoring system is mainly from the perspective of consumers. He pointed out that the establishment of a single food safety management department can promote the optimal allocation of resources, and will bring more reasonable and rational food. Safety supervision system. The key to the role of the food safety regulatory system is to see if it has sufficient transparency [2]. Martin et al believe that the control of food infectious diseases should be strictly in accordance with food safety standards and HACCP. Risk analysis is an important tool for evaluating food hazards in the food supply chain [3].

At present, there are many research methods for food supply chain optimization: Sai Tang(2014) based on game analysis to study the related issues of establishing traceability system in food supply chain [4]; Jing Mu, Lili Ma(2015) using evolutionary game analysis method Based on system dynamics and simulation methods, the food supply chain information sharing was studied [5]. Linhai Wu , Lingling Xu, Xiaoli Wang (2010) used logistic regression analysis to study the main factors affecting the extra price of traceable food, consumers' willingness to pay and the level of payment [6]. Some scholars have applied the extenics method to study the supply chain. For example, Jing Mu, Wenxin Jia(2015) established a food supply chain security level extension evaluation model, and proved the feasibility of the model through empirical research [7]. Guihua Wangapplied the extenics method to supply chain flexibility research, constructed a material element model of supply chain flexibility, and verified the validity of the model [8]. Conguo Ma and others used fuzzy analysis and extension tomography to establish an index evaluation system and mathematical model that affect the safety of pork supply chain [9].

3. Current Situation of China's Meat Supply Chain

3.1 Large Logistics Demand for Meat Food

Chinese meat food demand is increasing, so the requirement for the amount of food supply chain will increase, and as China's urbanization process accelerated, makes the demand for meat will increase, and because food is perishable and relative regional, therefore the food supply chain in a timely manner a higher demand, high efficiency and low cost.

3.2 Food Supply Chain to Be Integrated

Compared with other countries, the country of origin of the Chinese meat food is more dispersed, which leads to the relatively small size of a single food supply chain

in China, but also resulted in the branch of food supply chain is more, this led to on the one hand can't form scale effect, reduce the cost, but also makes some logistics facilities reset, caused the waste of resources, and a lot of meat food processing enterprises have their own raw material supply chain, food sales supply chain, it also led to the waste of resources, based on the core competence theory of prahalad, actually meat food processing companies, logistics outsourcing can be concentrated and food production. The sales link of meat food is also decentralized, and logistics resources are not fully utilized, resulting in a certain amount of waste. Therefore, to optimize the whole logistics supply chain, its integration is imperative.

3.3 New Marketing Models Such as "Connection between Farmers and Supermarkets" Are Gradually Formed

The rise of rural cooperatives to promote the development of the farmers and mode, the other is based on the "+" Internet network and a new mode of agriculture and animal husbandry direct docking appear constantly, it also makes the meat food supply in the middle of the logistics link to reduce, reduce logistics cost and transaction cost, reduce the probability of meat food safety problems, also is advantageous to the food safety supervision at the same time, make the meat more safe and efficient supply chain.

3.4 Imperfect Traceability System

This year, the traceability system of supply chain has been paid attention to, which is mainly reflected in two aspects: first, a large number of papers on traceability system have appeared, which provides theoretical support for the continuous improvement of the traceability system. For example, in the construction of traceability system, some new technologies can be used, such as barcode, GPS, RFID, etc., and some new logistics management ideas can be applied, such as vertical integration management idea based on supply chain, food safety quality management based on supply chain, etc. However, the traceability system of China's meat food is still in the initial stage, and many new technologies have not been used in the food traceability system, and some foods even do not have a complete traceability system.

4. Process System Analysis of China's Meat Supply Chain

Compared with manufacturing, meat perishable, the influence of environment characteristics, thus not only makes meat processing is different from other services, because meat processing largely dependent on life, a lot of food itself is present, various food processing program is different, which lead to the food supply chain has a strong professional. Meat food supply chain is the feature of long length, much branched, links, regulation is difficult to wait for a characteristic, which makes want to monitor food logistics process, must be conducted from the perspective of the whole supply chain process optimization, meat food supply chain process can be

divided into antenatal links, during link, postpartum link link five links, circulation and consumption. According to the specific logistics links, the meat food supply chain mainly involves the production and supply of feed, pig breeding and breeding farms, pig slaughtering plants, meat processing enterprises, storage and transporters, dealers, wholesalers, retailers and other main bodies, and thus forms an interdependent industrial chain.

4.1 Pre Production Link

Pre production is the supply of raw materials for food production. The main problem is the supply of production materials. At present, China's meat and food production is distributed in the vast countryside, which also makes the supply of production materials (feed, etc.) unable to form a scale effect, making the logistics cost of production materials high. In addition, it also makes the monitoring of production materials very difficult. For example, for animal husbandry, the supply of veterinary drugs, feed, etc. is decentralized, which can not form a scale, but also increases the difficulty of risk monitoring of the source food in the supply chain. These are the important reasons for the confusion and low efficiency of the current food supply chain management in China.

4.2 Ring Section in Production

This link refers to the production link of food, which is mainly affected by production technology and natural environment. In terms of relevant production technologies, such as the technical training received by aquaculture and animal husbandry, these trainings can increase the utilization rate of new technologies and increase the output of meat food production. On the other hand, they can improve the selection of new marketing channels, such as "agricultural supermarket docking" mode, B2C and other marketing modes. Similarly, relevant training can reduce the use of illegal food production materials, reduce the risk of food safety, and correspondingly improve the efficiency of the food supply chain. In general, meat products will go through inspection and quarantine in this link, which is the earliest and most comprehensive inspection of the whole meat products, greatly reducing the risk of food safety. This process is the link closest to the source of the whole food supply chain, which is very important. However, due to the dispersion of natural resources such as land in China, which leads to the dispersion of the origin of meat food, it is very difficult to optimize this link, but the promotion space of this link is still very large.

4.3 Postpartum Processing

This link is mainly for the reprocessing of some meat products. Many food processing plants are in this link. With the improvement of people's living standards, people have more and more requirements for food diversity, so more and more food needs to be processed, rather than directly into the circulation field, which increases

the difficulty of supervision. On the other hand, for the whole production process, because the whole process is generally complex, there are many factors that may affect food safety, such as whether the operators are standardized, whether the production environment is up to standard, processing technology, food additives and other factors. This increases the difficulty of safety monitoring of the whole food production process, and the food safety is not well guaranteed. In addition, most food production enterprises still adopt the traditional push production mode, so there will be a lot of inventory due to the "bullwhip effect", and the general meat food needs to be frozen, which increases the inventory and increases the The cost of inventory, on the other hand, because of large inventory, also takes up a lot of money, resulting in idle and waste of resources, but also because of long-term preservation, food safety is not guaranteed, and some enterprises in order to save costs or reduce losses, will use or sell expired food, such as Fuxi company's use of expired meat event. Therefore, in the whole process, the process has the most room for improvement.

4.4 Circulation

That is, warehousing and distribution. The storage and distribution of meat products include distributors and retailers. Meat products are highly life dependent and perishable. Therefore, in the process of storage and transportation, attention should be paid to the safety of packaging materials and the need for cold storage and light avoidance. The distribution and retail of food products are mainly through supermarket chains, restaurants / canteens and retailers Sales to the final consumers is also a link in the food supply chain that needs to be optimized. There are three major problems in this link: first, the organization is very scattered, so the logistics process of the whole process is relatively scattered, which also causes the link can not form scale effect; second, according to the "last kilometer of logistics" theory, this link is also a high cost in the logistics link. , and it takes the longest time. Third, due to the "bullwhip effect", too much inventory will be formed in the circulation link. In addition, due to the decentralization of the organization, it will lead to poor supervision. Therefore, it is an urgent link to be optimized, and it is also a link to improve the space of meat supply chain through optimization.

4.5 Consumption

With the continuous improvement of people's living standards, the lifestyle is also changing. Modern people's consumption is more diverse and convenient, and food consumption is growing. As a result, the traditional push mode of production can no longer meet people's diversified needs, so to optimize the whole supply chain process, we must pull the production mode of "yes" to consumer demand. In addition, we can guide consumers to have a correct view of consumption. In addition, with the rapid development of "big data", we can use big data technology to collect consumers' consumption habits, and use relevant technology to accurately predict consumer consumption demand and quantity, so as to make meat food

logistics more accurate and efficient. In addition, the emergence of "Internet plus" mode will also change the consumption habits, so that food suppliers or producers can understand the consumption demand earlier and more directly, avoid blind production, and reduce the excessive inventory caused by "bullwhip effect".

5. Process Optimization of China's Meat Supply Chain

5.1 Integrate the Meat Supply Chain to Form the Integration of Meat Supply Chain

The integration of supply chain includes two aspects: vertical integration and horizontal integration. At present, many people pay attention to the vertical integration of meat food supply chain. Now, based on the rural cooperatives, we can integrate the source of meat food supply chain and build the mode of "agricultural super connection", which can not only reduce the intermediate links, reduce the logistics cost, increase the income of farmers, but also integrate them It is convenient for comprehensive management. On the other hand, it is necessary to carry out horizontal integration of the meat food supply chain. Due to the scattered food production places in China, the organization of the food supply chain in China is relatively scattered. Therefore, in order to integrate the food supply chain, in addition to vertical integration, it is necessary to integrate the enterprises in the same logistics link, which is the so-called horizontal supply chain Towards integration. In the process of food processing and raw processing, it is necessary to integrate the production enterprises and eliminate those small workshops that do not meet the standards. On the one hand, it can improve the scale effect and reduce the cost in the process of meat food logistics and processing; on the other hand, it can reduce the difficulty of the relevant departments in monitoring the food production process, which can greatly improve the safety of the food supply chain The evaluation and optimization of logistics process by the comprehensive evaluation system of convenient meat food supply chain.

5.2 Strengthen the Contractual Cooperation Mechanism among Enterprises in the Supply Chain to Form a Stable and Optimal Supply Chain

The so-called contractual cooperation refers to the economic union between the upper, middle and lower enterprises and farmers in the whole supply chain. Through this stable contractual form, transaction costs can be reduced, and a stable meat food supply chain can be built at the same time, which will greatly help the safety monitoring of the whole supply chain. The proportion of contractual products in the total agricultural products in the United States and Europe is more than 30%. In this cooperation mechanism, it can gradually develop into VMI or JMI, which can greatly reduce inventory and simplify the difficulty of comprehensive evaluation of meat supply chain process.

5.3 Establish a Traceability System to Facilitate the Identification of Responsible Persons for Food Safety Issues

The information asymmetry among producers, consumers and regulators of meat food is an important factor to induce food safety accidents. The same information asymmetry between upstream and downstream enterprises of modern meat food supply chain will also greatly affect the production behavior of enterprises, and then affect food safety. First of all, since the responsibility of food safety accidents is difficult to be defined scientifically after the event, the economic losses caused will be shared by the whole industry, so the information recorded in the traceability system can help determine the responsibility of each accident subject enterprise. In addition, because the traceability system exists, it can also restrict the safety production of food production enterprises, and the traceability system can reduce costs, Improve the safety level of food production, improve the efficiency of food trading, and reduce the accident rate of food.

5.4Develop a comprehensive evaluation system for the process of meat food supply chain, monitor the operation of the whole food supply chain in real time, and use PDCA cycle to continuously optimize the whole process

Through the vertical integration and horizontal integration of the meat food supply chain, through the contractual cooperation mechanism between enterprises in the supply chain, a stable supply chain is formed. Based on the establishment of the supplier management inventory or joint management inventory system, and the construction of the traceability system, the meat food is constructed by the methods of extension evaluation, AHP, game theory, etc The comprehensive evaluation system of the product supply chain process can monitor the whole supply chain in real time and optimize it continuously. The traceability system can be used to track the responsibility of food safety problems. This can form a closed evaluation and optimization system of meat food supply chain, scientific optimization of food supply chain, has a very important role.

6. Conclusion

Food safety is an important matter related to the national economy and people's livelihood, and the root cause of many food safety problems is not the lack of supervision, but the defect of the food supply chain itself. As a special commodity, meat products have the characteristics of cross industry and cross region. Because of this, meat products have higher requirements on the supply chain. But at the same time, due to the current situation of China's logistics supply chain, the hidden danger of meat food safety is greater, so it is urgent to integrate the process of China's food supply chain, realize the vertical integration of the supply chain, optimize the process of the whole food supply chain, shorten the supply time, and reduce the excessive inventory caused by “bullwhip response”. We need to optimize the meat supply chain scientifically, build a comprehensive evaluation system based on the whole food supply chain process, evaluate the operation effect of the supply chain process on the basis of vertical integration, and guide the optimization of the supply

chain process.

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