

Research on Supply Chain of Livestock Products Mode based on Third-Party Logistics

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Abstract—With the constant improvement of the degree of livestock products trade liberalization, the market operation mode and structure of livestock products are also transformed, which is no longer a “single entity” competition of production, processing, sales, etc. The survival and development of livestock products are more and more dependent on the overall quality and comprehensive strength of the whole industry chain, therefore, the study of the supply chain of livestock products is extremely urgent. In the basis of this, the supply chain model of the combination of third-party logistics and livestock products is used in this paper, which improves the whole efficiency of livestock products supply chain, and enhances international competitiveness.

Keywords- livestock products; supply chain; the third-party logistics; efficiency

1. Introduction

Since reform and opening, the sustained and stable development of China’s livestock industry makes the comprehensive productivity of livestock industry improves constantly, the production of livestock products rise to a new step, and the production of meat and egg still rank the first place in the world over the past many years. As the big country of livestock industry production, the production of the products of meat and egg ranks in the first place in the world, but it has no advantage in the international livestock production trade. With the accelerating of world economic integration and trade liberalization process, as a WTO member, the influence and impact of China’s livestock products are stronger and stronger. Therefore, the competition of livestock products market has reflected in the competition of the supply chain of livestock products, so how to perfect and develop the supply chain of national livestock products becomes a top priority. In this paper, based on the full consideration of the development status of national livestock products, and combine the own characteristics of livestock products supply chain, the livestock products supply chain mode that conforms to national livestock products industrialization management --- the third-party logistics-based livestock products supply chain mode.

2. The status and existing problems of China’s livestock products supply chain

2.1 The definition of supply chain

Stevens of the United States in 1989 published 19 articles in *Int. J. Of Physical Distribution and Management*, the concept of integrated supply chain is introduced. Such ideas include functional integration, internal integration and external enterprise integration, aiming to eliminate barriers between enterprises and sections. He believed that “the supply chain is to control the flow from supplier’s supplier to customer’s customer through value-added processes and distribution channels, which begins in the source of supply and ends at the end of consumption”; “supply chain is to link the suppliers, manufacturers, distributors, retailers, and the ultimate users to a integrated structure model through the feedback information flow and feedback materials and information flow”. All these definitions noted the integrity of the supply chain, and the consistency of all the member operators in supply chain is taken into account.^[1]

Different from the other supply chains, livestock products supply chain is based on the special product form of livestock products to form supply chain. The object of livestock product supply chain is livestock products, and it centers on core business, through the control of information flow, logistics and capital flow, it

coordinates the interest demand between the capital goods supplier of livestock products, farmers, livestock slaughtering and processing enterprises, livestock product brokers and consumers. It begins from the purchase of feed, veterinary medicine and breeding livestock and poultry to finish a series of process of the livestock product production, processing and distribution. The livestock products supply chain is not only a product chain that links the supplier and producer to consumer, but also a value-added chain that increase its value during the process of processing, packaging and transportation of livestock product in supply chain.^[2]

2.2 Two national existing livestock product supply chain modes

There exists two national existing livestock product supply chain modes: One is the relatively primitive vertical integration mode, it is completed by company from the raw materials production to the final production, and the cost of the production process will be internalized; the other is a more advanced supply chain business model, the network chain model of “company + base (intermediary) + farmer”, that is the cooperation relation between large-scale production enterprises and form partnerships farmers.

2.3 Problems to be solved in current livestock supply chain

There are some problems to be solved in current livestock supply chain: the cost of transportation and herds, serious waste of the middle part, shortage of professional logistics talents, lack of financial support, no use of the concept of total cost (the price cost of enterprises is paid more attention, but how to reduce the loss of goods through qualified and quality logistics service is not taken into account).^[3] The third-party logistics has many advantages with specialization, economies of scale, business channels, management mode, operation methods, etc. which can reduce the logistics costs, improve efficiency and achieve overall benefit maximum.

3. Case analysis of livestock supply chain— A case study of the Great Northern Wilderness Meat Industry Co., Ltd. of Heilongjiang Province

In this paper, the Great Northern Wilderness Meat Industry Co., Ltd. in Heilongjiang Province is taken as an example, the supply chain status of the Great Northern Wilderness Meat Industry Co., Ltd. in Heilongjiang Province is analyzed, and the existing problems of its supply chain is pointed out and the countermeasures and suggestions are proposed as follows.

3.1 The supply chain mode of Meat Industry Co., Ltd. of Heilongjiang Province, the Great Northern Wilderness

The Great Northern Wilderness Meat Industry Co., Ltd. in Heilongjiang Province is a large integrated meat processing company which integrated feed processing, pig breeding, pig slaughtering, cold meat processing, meat products, irrigation and commercial operating as a whole, and which is the largest pig slaughtering and meat production base in Northeast China. The operation mode of “company + base + farmer” is used in the Great Northern Wilderness Meat Industry Co., Ltd., It controls branch company of Baoquanling, wangkui Great Northern Wilderness Meat Industry Co., Ltd., Harbin meat processing branch company, Great Northern Wilderness Meat and Feed Co., Ltd. Baoquanling Farm Xinyuan of pig breeding Co., Ltd.. As the live pigs of companies mainly rely on the market, the main mode of the pork products supply chain is farmers + butcher / market + manufacturer + dealer / agent + retailers + final consumers. As figure one shows behind.

3.2 The existing problems in the supply chain of the Great Northern Wilderness Meat Industry Co., Ltd

Supply chain can't achieve overall effectiveness maximization. Currently, the total investment of company projects is 18,144 million Yuan, in which, the basic construction investment is 9,930 million Yuan, the equipment investment 8,214 million Yuan. As the company is too large and management efficiency is low, the brand, market, technology, and human resources of the Great Northern Wilderness Meat Industry has clear competitive disadvantage compared with mature companies, and market development cost of meat products has higher fixed asset investment, which need to invest year by year. If the funds are not available, it will lead to make slow market development, sluggish sales, underemployment, business losses and business in trouble.

Distribution of the benefits is unreasonable. As the central position of the company in the whole industry chain, the farmers has always been in a weak position when they negotiate with farmers, and the farmers' benefits are easy to be suffered; the company directly face the scattered farmers, they distribute in the upstream with high transaction costs; the benefit relationship of company and farmers are vey loose with high execution cost of contract, there will always be defaults; in addition, the soaring of the feed price in recent years and the monopoly of purchase price seriously affected the income of farmers. ^[4]

The continuous expansion of company's pig base will inevitably lead to land acquisition problems. To sublet the land of farmers, although it can provide some financial compensation for farmers, it will also bring some potential social problems; the surplus labor will undoubtedly increase the burden on society.

There is no organization for farmers. Although the "Property Law" has been announced, the awareness of keeping farmers' rights is still very weak; there is no organization to represent their interests, and no discourse power. In most time, the rural cooperatives work for investors, which do not really protect the interests of farmers.

3.3 The ideal supply chain model of the Great Northern Wilderness Meat Industry Co., Ltd.

The livestock products supply chain mode of the Great Northern Wilderness Meat Industry based on the third party logistics is: farmers, butchers → the third party logistics company → the Great Northern Wilderness Meat Industry Co., Ltd. → dealer → retailer → consumer. The result is the Great Northern Wilderness company gives part of the business (procurement, transportation, storage, etc.) to the third party logistics companies, which can reduce operating links, rational use the existing funds, and then to achieve overall benefit maximum. As figure two shows behind.

Reduce the transaction link, and reduce the transaction costs. Meat Industry Company and the third party logistics companies promote mutually beneficial cooperation of the supply chain model, which makes company improve its scattered business risk, reduce the fluid capital and increase its economic efficiency. The third-party logistics companies provide professional guidance, market information, financial support and risk sharing for farmers, which effectively protect the reasonable profit of farmers.

Avoid land acquisition. The third-party logistics company provides adequate raw material for Great Northern Wilderness Meat Industry, the fund of the expansion of the base is saved by the meat industry to process and product. Meanwhile, it protects the land property safety of farmers.

The cooperation of each members of the supply chain can reduce the logistics operational risk, significantly improve efficiency. In order to ensure the effective cooperation, the main members of the supply chain have to share information, it not only includes transaction data, but also the strategic data, which is to use this information to plan jointly to meet the logistics' demand and improve efficiency. For the success of supply chain company operations, the mutual support of supply chain link is necessary, the supply chain management needs high coordination of all participants in the whole chain, in turn, the implementation of supply chain management will also affect the performance of all aspects. ^[5]

Achieve maximum overall benefit. Achieve maximum overall benefit. The computer network technology and database technology are used by the third-party logistics to do vertical and horizontal integration and collaboration integration, through warehousing and distribution services to establish credibility, capture market, and then to improve the whole social benefits and economic benefits. ^[6]

4. The countermeasure and suggestions of the development of livestock supply chain

4.1 Increasing logistics infrastructure construction and strengthening the professional logistics personnel training

Through building a more rational logistics system, it makes the domestic and foreign trade more targeted, more in line with the demand and developing trend of the market and technology. The organization efficiency should be improved, and it greatly improves customers' satisfaction.

4.2 To establish multi-stakeholder associations

To establish multi-stakeholder associations / cooperatives, it is based on the contribution rate of each element in market economy rule, in order to coordinate the rational allocation of the departmental interests of each supply chain.

4.3 Coordinate the interest relationship, increase the market competitive power

Member cooperation is good to help eliminate waste and repetitive work. There are many stocks in the traditional logistics channels, which forms a big risk for the members of supply chain. Through information sharing and strategic cooperation, the members of supply chain can eliminate or reduce the risks stocks bring under traditional situation, and some middle stocks can be members of the supply chain strategy through information sharing and collaboration can be optimized and removed from the logistics activities.

4.4 Strengthen the legislation of compensation mechanism.

The input cost of farmers is large, once the price of feed is increased, and the interests and safety of farmers will be threatened. Meanwhile, to establish the interest consultation mechanism, the feed prices rise, farmers, the third party logistics and production and processing enterprises should set up consultation, coordination, mutual trust mechanism, in order to ensure the interests of each party will not lose.

5. Conclusions

The application of the third-party logistics in the supply chain of livestock products reduces distribution costs, improve circulation efficiency and achieve maximum efficiency of the supply chain, which is conducive to achieve the logistics standardization. This mode is the logistics development direction of national livestock products.

The market analysis and technical guidance of professional logistics team is used to protect the economic interests and production safety of farmers.

The third-party logistics companies reduce the operating cost of processing companies, which makes each link data allocation of livestock supply chain more reasonable.

To realize the resource sharing, risk sharing, complementary and other strategic objectives through perfect supply chain management, under their independence condition, to establish a more stable partnership. The logistics supply chain mode based on the third party makes national livestock products trade more competitive in face of the challenges of the international market.

6. References

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