

Upgrading Path of Agricultural Products Logistics under the Internet Background

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Abstract: The impact of agriculture on China cannot be matched by any other countries in the world. As a large country with considerable agricultural land resources, agricultural human resources, and agricultural product resources, the efficiency of agricultural product circulation plays a vital role in the national economy. With the help of Internet technologies, this article has analyzed current causes for logistics pressure of agricultural products. It has also studied new ideas for the development of agricultural products logistics and the upgrading path of the logistics system of agricultural products.

Under the background of Internet, this article has formulated a more suitable plan for the development of agricultural products logistics based on the original industrial upgrading of the production and distribution chains of agricultural products. According to the concept of sustainable development, this article has solved plenty of existing challenges in agricultural products logistics. Moreover, taking into consideration of technical difficulties and institutional constraints, this article has proposed transformation ideas for agricultural products logistics, which aims to break through the bottleneck that hinders the development of agricultural products logistics.

1. Introduction

The development of agricultural industry has a profound influence in solving the feeding, housing and living problems of numerous people in China, and plays a significant role in the growth of the country's total economic output.

(1) Agricultural Production and Supply

One of the characteristics of agricultural industry is that agricultural industry includes both natural production and economic reprocessing. This essential attribute of production has led to the obvious difference between the way of agricultural production and supply and the traditional manufacturing and supply mode. If natural agricultural production relies on the right time, the right place, the right people, as well as the support of agricultural science and technology to increase output, then the factors that affect the economic reprocessing of agriculture will increase a lot. The improvement of circulation efficiency of agricultural products mainly depends on the centripetal force to develop together of each node enterprise in the supply chain^[1]. The original supply chain of agricultural products is only limited to the production and marketing of a single enterprise. However, the current agricultural economic reprocessing breaks the original boundary. It integrates the logistics, information flow, and capital flow of all nodes in the supply chain, achieves information sharing and cooperation, and builds up long-term strategic partnerships. The synergy between product supply chain and market environment improves the efficiency of the product supply. Through the mutual cooperation of sub-departments in the supply chain, the process from chaos to clarity, from disorder to order, and from illogical to logical are all achieved through actual operation and analysis of the effects of various influencing factors. If there is no analysis of the influencing factors, unfavorable factors will restrict the operation and upgrading path of the supply system of agricultural products.

The evolution of the supply chain of agricultural products from the beginning to the end shows obvious non-linear characteristics^[2]. In this process, both producers and consumers of agricultural products jointly act on the agricultural industry.

(2) Green Agricultural Industry Chain

The green agricultural industry chain is a new model for strengthening green management in the production, processing, transportation, circulation, supply, consumption, recycling and other links of agricultural industry based on the requirements of recyclable development. Corresponding evaluations will be made for different links to ensure the green development of agricultural industry. It is of great significance to promote the development of green agricultural industry chain. For research on this topic that is still in infancy, it should take the environmental protection, quality and safety assurance, and improvement of economic benefits as the organizational goals based on the management theories of green agricultural industry chain and the concept of sustainable development. The green agricultural industry chain carries out the integrated development in the procurement, production, classification, and sales of agricultural products, and includes the links of processing, packaging, distribution, transportation, storage, consumption and recycling of agricultural products. In the case of incomplete information equivalence, some operating rules and supervision procedures need to be designed^[3]. The internal cooperation and competition of the operating system should be orderly, and the external environment should be well integrated. Therefore, it can ensure the quality and safety of agricultural products and reduce the operating costs of the supply chain. It will also reduce the negative impact on the environment and maximize the benefits of the agricultural system. With the strong support of the government, the organization system of the green agricultural industry chain will provide steady impetus to the future development of the agricultural industry.

2. Exploring the Upgrading of Agricultural Products Logistics

(1) Development Pressure of Agricultural Products Logistics

The natural attribute of agricultural products has decided that agricultural logistics and general logistics cannot adapt to each other. There are five characteristics of agricultural products that lead to this inability. First, timeliness. The production, supply and transportation of agricultural products have higher requirements for timeliness. The life cycle of various agricultural products is different. Moreover, people like to eat agricultural products in current seasons, which is the consumption habit of agricultural products and also the laws of nature. Even for the supply and transportation of the agricultural products that can be produced throughout the year in greenhouses, the higher level of logistics is required. Second, territoriality. For China with a vast territory, many crops can be planted and produced in different regions, and there are obvious differences in logistics for crops in various regions. Third, high requirements for facilities. When fresh agricultural products are transported and distributed, procedures such as preservation, refrigeration, sterilization, anti-epidemic, and disease prevention are required. Fourth, high costs. Under the current development of the logistics industry, the capital required to invest in the transportation and distribution of agricultural products is extremely high. There is a clear gap of the cost control of third-party logistics between developing countries and developed countries. Fifth, low economic added value. An advanced development model for agricultural industry should control the cost, insurance and freight (C.I.F.) price of agricultural products at the bottom line, so as to achieve stable production prices and constantly shrinking costs. For other manufacturing industries, the cost of logistics can be controlled, and meanwhile, economic added value growth can be achieved. However, for agricultural products, even if the cost can be effectively controlled, the economic added value is low, so the agricultural industry cannot be developed sufficiently.

The development pressure of agricultural products logistics does exist, which is embodied in the fact that a stable and long-term strategic relationship has not been established within the entire logistics chain. In the operation of the overall logistics chain, the coordination with environmental management is out of balance, and the internal environment has not reached the sustainable development of logistics, material management, packaging, transportation, and other branches. The cooperation between various departments is not enough, the links of raw material procurement, production, transportation, and waste recycling are not properly coordinated, and the ecological organicity of the whole process is low. The theory and practice are derailed. The higher goals of

integration with the ecological environment, product conversion, process optimization, and later monitoring and evaluation are not achieved.

(2) Upgrading Restrictions of Agricultural Products Logistics

It will take a long time to upgrade the agricultural products logistics. The restrictions mainly include the following aspects: first, huge costs; second, backwardness of the theories of green agricultural production chain; third, less supervision on the safety of cold chains.

Firstly, the logistics cost of agricultural products accounts for a high proportion of the total cost. In particular, the proportion of fresh agricultural products far exceeds that of national industries in the same period. In traditional agricultural logistics, producers, processors, and sellers (including retail or wholesale) are loosely connected, ignoring the importance of win-win cooperation. Based on different positions and identities, they only pursue the maximization of their own interests, lacking of long-term development vision and even turning the situation of cooperation to unfavorable competition. They believe that the increase in the costs is the infringement of their own interests by the other party, resulting in a high loss rate of agricultural logistics in the production, storage, and transportation links.

Secondly, the internal management theory system of the green agricultural industry chain is seriously insufficient. In terms of scientific theories, the establishment of scientific conceptual models is ignored, and the management of green agricultural industry chain according to the dynamic analysis of influencing factors is lacking. The internal and external information communication is not smooth, the self-interest pursuit of each branch of the logistics chain is serious, and the new strategic development model is out of balance.

Thirdly, the supervision on the safety of agricultural cold chains is not enough, which restricts the further upgrading of agricultural products logistics. On the basis of systematic analysis of the original logistics, a new type of safety supervision system of agricultural cold chain logistics should be established.

3. Favorable Measures Provided by Internet

(1) Developing a New Type of Green Agricultural Industry Chain

Based on scientific theories, a mathematical model of the new green agricultural industry chain should be established. A model should be established in accordance with agricultural production development factors, business management factors, Internet information technology factors, and other unpredictable influencing factors. According to different variables, the model should be adjusted effectively.

(2) Distributing the Interests of All Parties Reasonably

Scientific, reasonable and effective principles of benefit distribution should be established, which is not only conducive to maintaining the partnership between different nodes of the industrial chain and increasing the potential for industrial development, but also helps to ensure the stable development of the agricultural industry. However, the divisions of labor, status, contribution rates to overall industrial benefits of many participants in the green agricultural industry chain are different. The rapidly changing environmental factors, market factors, and internal changing factors also affect the realization of the overall benefits of the agricultural industry, causing great uncertainty. Due to different influencing factors such as environment, job division, culture, values, and information symmetry, participants have different expectations and awareness of benefit distribution^[5]. These characteristics determine that the benefit distribution of the green agricultural industry chain is very complicated, and the specific operation is difficult. The relationship between various participants needs to be well adjusted. The distribution principle should be determined according to the comprehensive contribution rate of different participants to the strategic objectives of the green agricultural industry chain, environmental protection, quality and safety, and economic benefit growth.

(3) Establishing Strict Access Standards and Traceability System

Improving market access standards is the core measure to ensure the organic development of the agricultural industry. Meanwhile, attention should be paid to the improvement of the traceability

system of quality control, so as to realize the traceability and accountability of information from the beginning to the end of the agricultural industry chain. In the agricultural production process, pollution to the ecological environment and original products should be reduced. In the implementation process, scientific evaluation, monitoring, and planning should be guaranteed to assist the electronic entry of file information, thereby ensuring that the information can be tracked throughout the follow-up process. The responsibilities of each link should be clearly assigned to the specific responsible person. Whether it is the production area, environmental monitoring management, or participant information archiving, it should be organically linked with product certification, code management, code information inquiry, etc. This measure can greatly make the participants in various links of the agricultural industry chain fundamentally change the concept of only pursuing their own interests.

(4) Promoting Appropriate Online Testing Platforms

Economical and convenient rapid detection technology for agricultural product quality and safety should be promoted, and the results of the combined effects of analysis technology, biotechnology and information technology should be applied throughout the logistics chain because of the advantages of short time, low cost, simple operation, and convenience of on-site operation. This measure is suitable for solving the most serious problems of pesticide residues and heavy metals in the soil environment in the current agricultural product quality and safety monitoring process^[6]. Due to the limitations of user qualifications and capabilities in the agricultural product industry, the complex testing platform cannot adapt to the basic national conditions. Therefore, Internet information technology should be used to solve this problem by sharing detection resources through scattered networks in various places, so as to monitor the product safety of the entire logistics process in real time.

(5) Developing Community Logistics

Through Internet online surveys, relevant data about community logistics of agricultural products over the years are obtained to forecast the community logistics needs. Based on the reference data provided by agricultural outlets near communities, the problems of matching supply and demand of community stores, meeting the needs of local consumers, and maximizing agricultural benefits are solved.

4. Conclusion

Through analyzing the causes of the logistics pressure of agricultural products, this article has provided theoretical support for reducing the logistics risk of agricultural products, and proposed new ideas to promote the development of logistics systems of agricultural products.

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