

# Research on optimization and improvement of agricultural supply chain model under the background of “Internet Plus”

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**Abstract:** “Internet +” technology brings new opportunities for the optimization of agricultural product supply chain model, and constantly promotes the transformation and upgrading of agricultural product production, processing, sales, transportation and other links. With the development of intelligent and digital technology, the online sales of agricultural products have been more optimized and developed. Under the background of “Internet +”, the supply chain of agricultural products should make use of new technologies on the basis of traditional, provide a good environment for the modernization of agricultural product sales, and form an efficient supply chain system. Based on this, this paper will focus on the optimization and improvement of agricultural product supply chain model under the background of “Internet +”.

**Key words:** “Internet +”; Agricultural supply chain model; Optimization and promotion; Research

The model optimization of agricultural product supply chain under the background of “Internet plus” is not simply to add information technology, but to reshape the supply chain through new technology. Therefore, we need to analyze each main body of the supply chain and their mutual relations, explore the shortcomings in the existing model, and use Internet technology to optimize and upgrade, so as to improve the overall efficiency of agricultural product sales.

## 1. Connotation and characteristics of agricultural product supply chain

The supply chain of agricultural products is the whole process from the production, processing and circulation of agricultural products, which requires the coordination and cooperation among various subjects to achieve the coordination and stability of the supply chain system. Compared with other supply chains, the supply chain of agricultural products has certain characteristics, such as seasonality and short shelf life of agricultural products themselves. Therefore, the supply chain of agricultural products is a unique supply chain. Agricultural product supply chain can link production, processing, sales, logistics, information, capital and other links and elements to form a dynamic system.

The supply chain itself is a network chain structure connecting suppliers and users. The supply chain revolves around the core enterprises, respectively, up and down. The supply chain system is also an important value chain that maintains the cooperative relationship between enterprises. Compared with other commodities, agricultural products have the characteristics of dependence on natural conditions, short shelf life, production periodicity, and requirements for effective consumption and price restrictions. Therefore, the supply chain of agricultural products also has different characteristics from that of other products. To be specific, first of all, the supply chain of agricultural products is more complex, with more subjects and more complex structure. Producers, processors, enterprises, retailers and consumers are all the subjects that need to participate. The participants of the supply chain have a complicated transaction and circulation process in the operation of the industrial chain of agricultural products. At the same time, there are many kinds of agricultural products in the market, the difference of products is large, and the transaction process is more complicated. Secondly, the supply chain of agricultural products has high requirements for agricultural products in the logistics link, with certain seasonal and regional requirements. Users have diversified demands for products, and sometimes need to arrange trans-regional transactions and circulation, which requires the improvement of logistics timeliness. It restricts the choice of agricultural product circulation. In the process of agricultural products circulation, information, capital and logistics need stronger coordination, the demand for logistics, warehousing and distribution is higher, and the cost is higher in the process of circulation. Moreover, it is difficult to coordinate the circulation of agricultural products supply chain. Due to the decentralization of production and sales links, information transmission has a certain lag, which makes it difficult to accurately grasp the relevant information of supply and demand and market, and even affects the entire supply chain, resulting in structural contradictions between supply and sales of agricultural products.

## 2. Analysis of the current situation of agricultural product supply chain model

The supply of agricultural products roughly has three links, namely, the production and processing side of agricultural products is responsible for providing, wholesalers or secondary wholesalers and retailers for sales, and consumers for purchasing. In general, we will equate the supply chain model of agricultural products with the sales model dominated by the wholesale market. The wholesale market will complete the upstream procurement of goods and implement the quick contact between production, intermediary and consumer. The supply chain model solves the problems of scattered production, difficult to form scale and difficult to sell in the sale of agricultural products in China, and can reduce the problems of unsalable agricultural products. However, the lack of market system in our country, the management measures are not perfect, and the personnel allocation of sales supply also has certain defects, and the quality of the product is difficult to be guaranteed. For the sales of agricultural products, due to fresh-keeping problems, fragile, inconvenient transportation, long distance transportation and other factors, the cost of agricultural product transportation further increases, and new requirements are put forward for the transportation and development of agricultural products. At the same time, the supply chain of agricultural products has not yet established

its perfect spatial pattern, most of the supply chain of agricultural products has the problem of scattered spatial distribution and messy sales layout, the relatively scattered distribution of producers leads to the more difficult problem of cooperation, but also increases the difficulty of sales and supply links, reduces the efficiency of cooperation and communication between producers, and increases the procurement cost. The increase in cost will also lead to the rise in price and the decrease in consumer enthusiasm. The economic environment in rural areas restricts the development of agricultural products. For example, the high cost of transportation will reduce the efficiency of buyers, and the insufficient introduction of technology will lead to the increase of the cost of agricultural products in storage and heat preservation, and the increase of loss in the transportation process. In the supply chain mode, manufacturers, middlemen and consumers are generally involved, but in actual operation, it is difficult for the three parties to communicate directly. Wholesalers may have secondary wholesalers and tertiary wholesalers, as well as agricultural products enterprises, cooperatives and other subjects. Due to too many participants, market information is not transmitted in a timely manner, which will cause the freshness of products to decline and other problems. It is difficult to realize the stability of the supply chain model.

### **3.The optimization and improvement of agricultural product supply chain mode under the background of “Internet Plus”**

Under the “Internet +” model, in the agricultural product supply chain model, each participant can exchange information in a timely manner through the Internet platform to ensure effective communication and improve the timeliness of information. With the support of Internet technology, market dynamics can be analyzed through big data to provide basis and program assistance for manufacturers’ production mode regulation, and improve the efficiency of the entire supply chain. The information platform can also be integrated into cloud computing technology to carry out data analysis on consumer groups and realize data sharing. The application of Internet technology can effectively meet the communication needs of various subjects and promote the diversification of agricultural product supply mode. Enterprises, farmers and other manufacturers can conduct direct product transactions with consumers, combine third-party logistics distribution, improve sales efficiency, improve consumers’ shopping experience and reduce intermediate links. Consumers with different consumption levels will have personalized demands for agricultural products. Under the “Internet +” mode, consumer demand can be predicted to a certain extent, guiding the production progress of agricultural products and improving the overall efficiency of sales.

### **4. Optimization and improvement strategy of agricultural product supply chain model under the background of “Internet +”**

#### **1.Improving the informationization level of supply chains**

The agricultural product supply chain under the background of “Internet +” is a new model, which can integrate cloud computing, big data and other technologies in the Internet, apply Internet technology to various development fields, and implement the promotion of social productivity and new economic forms. “Internet Plus” agricultural product supply chain can combine technology and concept models with traditional supply chains, promote integration and development, and promote the transformation and upgrading of the overall supply chain. In the agricultural product supply chain model under the background of “Internet +”, each participant should communicate in real time, share and analyze information resources in a timely manner, make good use of information technology to frame the data of producers, wholesalers and consumers, and form a systematic data chain. Therefore, it is necessary to build the “Internet +” platform, improve the informatization level of the agricultural product supply chain, flexibly use information technology to implement the analysis of consumer demand, and promote the development of the agricultural product supply chain. With the continuous expansion of the scale of e-commerce sales in the supply chain of agricultural products, the requirements of logistics information are also increasing. The convenience of e-commerce platform also reduces the cost of distribution and expands the market scale. Therefore, the electronic information service level of agricultural products needs to be improved, and the supply chain should be further optimized to optimize through information sharing and reduce the cost of transportation. In the information platform, users can query and feedback orders in real time, suppliers can establish the management of funds scheduling and other information, and consumers can also query warehousing and logistics information through electronic payment, which greatly improves the supply and sales efficiency.

#### **2. Promoting rural infrastructure construction**

In recent years, the rise of e-commerce services and related industries has greatly strengthened the industrial links between rural areas and cities, and the operation of rural e-commerce has also promoted the progress and development of China’s e-commerce industry. The development of rural e-commerce depends on the construction of rural infrastructure, promote the construction of rural transportation industry and logistics distribution, implement the centralized transportation of products, and reduce the increase in cost budget in the previous decentralized transportation process. Rural areas should also improve the construction of agricultural product transport mechanism, build warehousing and logistics distribution centers, develop towns with special agricultural products, and encourage farmers to participate in the construction of e-commerce platforms and logistics centers. Logistics and transportation work should implement the scale and industrialization of agricultural production, realize the integration of resources, contact various scattered farmers, and improve the problems caused by the dispersion of producers. At present, it can promote the development of leading enterprises, achieve cooperation with manufacturers, improve the market scale of rural enterprises, combined with the support and encouragement of the government, promote the coordinated development of surrounding areas, and improve the industrial scale. At the same time, government departments should also give more technical support, implement the intelligent construction and standardized production of production links and processing links, and

meet the needs of consumers for the quality and safety of agricultural products. At the same time, with the support of intelligent technology, the processing of agricultural products can achieve refinement and integration, reduce the operational costs of the supply chain, meet more personalized needs, and create higher production value.

### 3. Establish a traceability system for agricultural products

Traceability system can realize the guarantee of food safety, is an important means to provide quality management of agricultural products, "Internet +" technology into the background, the establishment of quality traceability system based on information technology, for agricultural products sales, logistics enterprises is of great significance. Through the construction of the traceability system, enterprises and suppliers can realize the connection and sharing of information, to achieve the quality control of agricultural products, the development and application of fresh agricultural products have a certain guarantee. In view of this problem, the specific practice of fresh agricultural products traceability needs to standardize the production process management, to achieve the improvement of operating efficiency and customer satisfaction. The traceability network should facilitate the communication of operation and management, establish a data sharing platform through information technology, promote the efficient operation of the system, and achieve good economic benefits.

### 4. Train Internet professionals

The application of "Internet +" technology and the optimization of supply chain mode require the support of professional talents, and the maintenance of various e-commerce platforms and information platforms also requires the operation of professional and technical talents. In order to promote the network and advanced development of "Internet +" agricultural product supply chain, professional talents in rural areas need to be trained. The government departments should take corresponding incentive measures, innovate the talent incentive work of the Internet, train outstanding talents, plan, publicize and cultivate the industrial chain of special agricultural products in rural areas, improve the efficiency of agricultural operation, and promote the progress and perfection of the agricultural product supply chain model.

In a word, the supply chain of agricultural products involves many subjects and a complex circulation environment, which will produce problems such as supply and demand imbalance and information asymmetry in the process of product circulation. Under the background of "Internet Plus", the supply chain of agricultural products has carried out targeted optimization and upgrading. By establishing an information network platform, sharing product and market information, promoting the infrastructure construction of production and processing links, and training specialized talents, the optimization of the supply chain model of agricultural products under the background of "Internet Plus" can be implemented and the quality of agricultural products sales and circulation can be improved.

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