Optimization Analysis of Agricultural Product Supply Chain
From the Perspective of Internet

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With the development of our agricultural modernization process accelerated, the agricultural products supply chain is also facing the demand of further optimization and improvement. And the development of the Internet makes it become an important means to optimize the agricultural products supply chain. Firstly, it is based on the concept explanation of “Internet +”. Secondly, according to the present situation which includes traditional models dominated, the main bodies on the chain are diversified, farmers’ position is lower and the problems which include the chain is too long, logistics nodes are scattered, infrastructure lags behind, circulation of information is poor, and risk monitoring is difficult of the supply chain of agricultural products are facing in China, clarifying the role of the Internet in the agricultural products supply chain which includes making the agricultural information network more perfect, adjusting and optimizing the supply chain of agricultural products. Finally, authors put forward some measures to optimize the supply chain of agricultural products and make conclusions.

Keywords: agricultural products supply chain, “Internet +”, optimization, countermeasures

Introduction

The areas of agricultural production in China are scattered, and have poor information, resulting in a phenomenon that a large number of products are expensive to buy and difficult to sell, making the supply and demand of agricultural products imbalance in all parts, “Bullwhip effect” is very serious. In 2015, the State Council on the action of promoting “Internet +” (the [2015] 40) pointed out that in order to make full use of the Internet to improve agricultural production, operation, management, and service level, researchers cultivated a batch of network, intelligent, fine, and new model of modern ecological agriculture, improving the agricultural modernization level significantly. Therefore, it depends on the current development of the Internet technology to make full use of information technology and management. So each node enterprise can communicate effectively about the supply and demand information of the products, optimizing the supply chain of the agricultural products to improve the circulation of products efficiently.

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The General Concept of “Internet +”

“Internet +” is the deep integration of Internet innovation with economic and social fields, promoting the technological progressed, improving the efficiency, and changing the organization, enhancing the innovation and productivity of the real economy, widely used in various fields in production and service to realize the intelligence of production and service which can provide personalized and humanization products and services for consumers. Forming a more broadly new form of economic and social development is taking the Internet as infrastructure and innovation elements.

The Connotation of “Internet + Supply Chain of Agricultural Products”

“Internet + supply chain of agricultural products” refers to optimize and reform the existing agricultural products supply chain in China by using Internet technology, which can improve the efficiency of agricultural products supply chain and reduce transaction costs (Li, 2011). It is a holistic concept, not only as the formation of supply chain about “Internet + agricultural products”, it should be taking the Internet as a supplementary tool to coordinate and optimize the agricultural products supply chain through the use of the endogenous strength of the “Internet +” (Liu & Gong, 2015).

In the actual situation, we need to pay attention to two issues: first, the supply chain of agricultural products is always the core of the whole fusion system, and the Internet is just an effective auxiliary tool; second, the use of the Internet is to eliminate the problems and obstacles that traditional agricultural product supply chain has encountered in the development, so as to form a modern agricultural product supply chain system with more perfect structure, higher circulation efficiency, and integrated level.

Research Results

Present Situation of Agricultural Product Supply Chain

Dominated by traditional models. Most of China’s agricultural products in circulation are in accordance with the traditional supply chain model which includes the “producer—origin wholesale market—marketing wholesalers—sales market—retailers—consumers”, and with low degree of scale and intensification. Although this model adapts to the small production and management of the scattered farmers in the basic production units, it also can meet the shortage of facilities in the circulation field and alleviate the bottleneck of the lack of cold chain logistics technology. But the traditional mode is not conducive to the protection of food safety, organization, standardization, and specialization of agricultural products supply chain, and still can not reduce the costs of flow and transaction.

Diversification of main body on agricultural products supply chain. At present, the main model of agricultural products supply chain in China takes the wholesale market as the core, the leading processing enterprises as the core, the supermarket retail enterprises as the core, the farmer professional cooperatives as the core and so on (Jia, 2017). No matter what kind of enterprises works as the core business on the supply chain, there exist some problems. They can not leave the entire agricultural products supply chain and exist alone, showing a diversified development.

Farmers have a lower position in the supply chain. Farmers are more flexible participants in the supply chain of agricultural products, but in the whole of the agricultural products supply chain and from the aspects of scale, status, interests and so on, the farmers are not the main participants. In rural areas of our country, it has always been mainly for the extensive production and operation. In order to obtain economic benefits in the
short term, farmers always focus their own interests on the production of inputs and sales, go it alone. They can
not form the awareness of integration and coordination in the supply chain, resulting in a lot of “Valley cheap
farmer” problems. This situation is not conducive to the further improvement of agricultural products supply
chain. Therefore, to improve the status and negotiation ability of farmers in the supply chain will be conducive
to optimize the supply chain of agricultural products from the source, shorten the supply chain links, and
improve the efficiency of supply chain.

The Problems of Agricultural Products Supply Chain

Chain of agricultural products supply chain is lengthy. Too much middle part of the agricultural
products supply chain will make the randomness and stability of transaction increased, resulting in the
uncertainty of transaction increased. Between the different subjects, repeated negotiations are involved that
may increase the difficulty to search the market subject information. At the same time, the interests of the
farmers and the consumers at the very beginning and the end of the agricultural supply chain are not guaranteed.
Moreover, the chain of the agricultural products supply chain is too long, causing the high transaction costs and
large agricultural losses, making the overall efficiency of the agricultural products supply chain declined and
lack of market competitiveness.

Logistics nodes are scattered and infrastructure lags behind. The traditional family mode of the
production of agricultural products in rural areas in our country has decided that the logistics nodes are many
and scattered. The “fresh” is the life and value of the agricultural product. The shortage of transport capacity,
transportation infrastructure, logistics storage, and preservation technology of agricultural products in rural
areas, leads to loss seriously the value of agricultural products.

Poor circulation of information. It is very difficult to share and communicate information among nodes
because of lack of information infrastructure and backward information technology in the vast rural areas (Sun,
2015). It is also difficult to obtain timely and accurate consumer’s real needs and market information. The blind
prediction and production of each node leading to the supply of the upstream node enterprise is far greater than
the actual demand of the downstream consumer directly, causing the supply capacity of supply chain
enterprises decreased, supply and demand disjoint, customer satisfaction decreased, resulting in collapse or
inefficient operation on the entire supply chain.

Risk monitoring is very difficult. Each link of agricultural products supply chain has risk problem, due
to the fact that the agricultural products supply chain is a network chain structured with upstream and
downstream enterprises to realize a goal of “from farm to table”, coupled with the agricultural product safety
incidents which frequently harm people’s physical safety, so people pay more attention to the safety problems
of agricultural products now. But because the nodes of Chinese agricultural products supply chain are many
and scattered, small scale and frequent transactions, and lack of sharing mechanism to supervise and control the
logistics information between different nodes, result that it is too difficult for downstream nodes to trace the
source information of upstream nodes. It also makes upstream nodes unable to track the whereabouts of
agricultural products, leading that the supply chain supervision is lack of systematicness and integration finally,
so it is very difficult to monitor the risk of supply chain.

The role of the Internet in the agricultural products supply chain. The introduction of the Internet will
make the agricultural information network more perfect, and make the varieties and quality of agricultural
products can meet the market demand as much as possible. The current status of supply chain is that the
farmers scattered, communication channels are blocked, much information of agricultural products can not be effectively collected and transmitted; Both agricultural funds and agricultural products logistics have blindness, which lead to agricultural products damaged in transit, and the value of agricultural products affected; Furthermore, there is no information sharing mechanism between agricultural products logistics enterprises and lack of integration of resources. So the introduction of the Internet in agricultural products will not only solve these problems to a certain extent, but also reduce the cost of the agricultural products supply chain in management to some extent.

Through the endogenous power of the Internet, the supply chain of agricultural products will be adjusted and optimized to eliminate the hindering factors and inherent resistance that encountered in the development of traditional agricultural products supply chain. Thus, a modern supply chain system of agricultural products with more complete structure, higher circulation efficiency and integrated level will be formed. And then, it will have a great role in improving the integration and efficiency by optimizing the supply chain of agricultural products.

Analysis or Discussion

The Countermeasures

Leading enterprises should play a leading role in agricultural products. As an essential strength in the supply chain of agricultural products, leading enterprises of agricultural products play an important role in the development of the whole supply chain (Yan, 2011). Therefore, intensive efforts should be made to cultivate and support leading agricultural enterprises, making a group of influential enterprises develop rapidly and healthily, constructing demonstration base with high standard production, to promote the improvement of the quality and safety of agricultural products in China comprehensively. The tax relief, policy support and other preferential policies give priority support for leading enterprises of agricultural exports with export capacity and potential, distinctive features.

Strengthen the construction of information system. Strengthening the construction of agricultural product supply chain information system, and improving information network of agricultural products that cover the whole supply chain system through cooperation among departments, make it work effectively and achieve the supply and demand, quality, price and other information of agricultural products released timely, so that the information of agricultural products becomes transparent. Moreover, market monitoring of agricultural products, market early warning and information release mechanism should be perfected. At the same time, by constructing the public information service platform for agricultural products to reinforce the efficiency of the sharing and utilization of various types of information resources, we will facilitate cooperation between agricultural circulation enterprises and suppliers of agricultural products and agricultural information service providers, strengthening the construction of agricultural product information platform, and raising the scientific management standard of agricultural products in warehousing, purchasing, transportation and orders.

Promoting the development of e-commerce of agricultural products. First of all, we should strengthen the construction of e-commerce infrastructure for agricultural products, which is the first element of the development of e-commerce for agricultural products, and the basic guarantee for the normal operation of the Internet e-commerce platform as well (Jiang, 2013). Secondly, we should strengthen the construction of relevant laws and regulations. At present, China’s e-commerce laws and regulations system is still under construction, there are still many problems, which need to be further consummated. Finally, we should attach
great importance to the cultivation of professionals in e-commerce platform, attracting professional talents through preferential and subsidy policies, and cooperating with higher education institutions to train practitioners in e-commerce industry regularly.

**Establish the cooperation organization of agricultural production with farmers as the core.** In the Internet era, the cooperation organization of agricultural production with farmers should be established as the core, so a large number of dispersed farmers can be effectively gathered, and unified standardization of information management makes the farmers can directly dock with the outside market, reducing the circulation of agricultural products, transportation costs, and loss of agricultural products, shortening the length of agricultural products supply chain, and expanding the scale of agricultural product. At the same time, it can reduce farmers’ logistics costs by purchasing, warehousing, and transportation of agricultural products unified, so that farmers can better grasp market information, formatting a large scale supply groups of agricultural products, reducing the costs of production, ensuring the sales channels of agricultural products, and even docking with the chain supermarket directly to protect farmers’ income.

**Conclusion**

China’s agricultural development model is still based on small-scale management, the supply chain of agricultural products still has great room for development. In the background of the “Internet plus”, agricultural informatization is developing gradually. This trend can greatly optimize the supply chain of agricultural products and the efficiency. But at the same time, we need to make full use of the opportunities of “Internet plus”, taking the initiative to adapt to and lead the new normal of economic development, constructing a new system of agricultural production and management, encouraging the Internet enterprises to establish agricultural service platform, strengthening production and marketing cohesion, realizing the transformation of agricultural production from production orientation to consumer orientation, to ensure that the “Internet plus supply chain of agricultural products” can play the maximum benefit.

**References**


