The Research on the New Model of Guangxi Featured Agricultural Products Supply Chain Under the Internet Environment

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\textbf{Abstract.} Although some achievements have been made in the study of supply chain management, the study of the supply chain model taking into account the characteristics of agricultural products and internet environment proves to be inadequate. Therefore, it is very meaningful to study the supply chain model of Guangxi featured agricultural products under the internet environment. This research investigates the current agricultural products supply chain in Guangxi. After the analysis of the needs of supply chain members and the convenience brought from the internet, a new supply chain model suitable for the Guangxi featured agricultural products based on supply chain management theory is constructed. The components of the new model include values, members and operational processes.

\textbf{Introduction}

The research of domestic agricultural product supply chain (hereafter, APSC) started late, most of research about the APSC in internet environment is limited to the application of e-commerce platform, and implementing the internet thinking fully on the APSC is often neglected. As a matter of fact, this ignorance could result in some serious consequences. Therefore, the study of it becomes very important.

Guangxi featured agricultural products mainly include mango, mangosteen, kumquat, navel orange, sericulture, shatian pomelo, litchi, longan, etc. It can be seen that most of these products are perishable fresh products. If the design of the supply chain model is unreasonable, the product will produce a certain amount of loss in the process of delivering them to the consumer and will seriously affect the interests of supply chain members.

The thesis investigates into several typical agricultural products with regional characteristics in Guangxi province. The aim is to build a more flat, efficient and practical new model of APSC driven by consumers and suited for the network infrastructure in Guangxi province.

The discussion is carried out in light with the theory of supply chain management, together with some investigations and comparative analysis method. The components of the new model include values, members and operational processes.

The study of the new model of ASPC will bring the following values. (1) it can inspire the application of internet thinking; (2), it can pull the sales of agricultural products; (3) it can reduce losses, reduce costs and increase profits for supply chain members.

\textbf{Literature References}

Since the end of last century, the competition among enterprises is increasing. The theory of Supply chain management (hereafter, SCM) has gradually been popular. SCM is a kind of system theory, which aims to meet the needs of consumers by uniting all the members of the supply chain. SCM has been widely used in manufacturing industry. With the development of modern agriculture, SCM is gradually expand to agriculture. Because of the variety of agricultural products, lack of standardization, and difficulty in storage, APSC is more complex than the supply chain in
Domestic Studies of the Model of APSC

The studies of APSC did not start in China until 2004. Tao Tan and Yi-hua Zhu are the first scholars to study APSC. They put forward two main organization models of ASPC in China. One model is putting the processing enterprise as the core, and another model is putting the logistics center as the core [2]. Their researches were soon challenged by Ning-bo Ling and Feng-rong Zhu. They proposed a new model of APSC based on the internet environment and illustrated the advantages of this model [3]. In 2008, witnessed another further research into APSC, Jing Yang etc. concluded that the e-business model of APSC was only be based on B2B (Business to Business) [4]. Recently, Kai-zhao Sun proposed that the current APSC should be adapt to the trend of "Internet+" and make full use of new technological innovation such as e-commerce and big data to develop the model of supply chain [5].

These researches are characterized with the following: (1), Each model proposed by scholars is adapted to the external environment as much as possible; (2), Every scholar in the area of APSC strives to optimize the allocation of resources in the supply chain, which will bring benefits to farmers, agricultural enterprises and other members of the supply chain.

From the above review at home, it can be seen that scholars have not built a product supply chain model for a specific region under the Internet environment based on the needs of supply chain members.

International Studies of the Model of APSC

The international studies of APSC were much earlier than that in China. In 1997, De Boer and Pandey proposed that the supply chain of agricultural products lacked effective demand forecasting. The stakeholders only pursue the maximization of their own interests, and there is no information sharing, which leads to the mismatch between supply and demand [6]. In the next three years, A more symbolic achievement was made. WJ Hofman (2000) indicated that information and communication technologies were important for the development of APSC, which could promote the sharing of information [7]. However, Krijn, J., Poppe etc. wrote that APSC would be greatly changed in the next few years by information and communication technology. More and more data are being generated in the supply chain, making the production process of agricultural products more accurate. However, data integration among supply chain members is still low. By improving the operability of these data, supply chain activities will be optimized and new business models will emerge [8].

Despite wide researches have been done by scholars abroad, their inadequacies are obvious in that, firstly, the theoretical research is more, but the empirical research is few; secondly, there is a few researches on supply chain model of some specific agricultural products in the internet Environment.

Contributions

All the above reviews indicate the following contributions of the present thesis. (1), the new supply chain model of Guangxi's special agricultural products under the Internet environment will be introduced; (2), the application of the new model in practice will be analyzed.

Methodology

Three kinds of agricultural products supply chains are chosen as the investigation objects. They are the kumquat supply chain, the mango supply chain and the mangosteen supply chain. They were selected for two reasons: (1) The main producing areas of kumquat, mango and mangosteen are distributed in Guangxi. They have a great reputation in China. (2) The supply chains of these agricultural products are greatly influenced by the internet environment. In order to adapt to environmental change, their supply chain models must be changed.
The main members of three kinds of supply chains was investigated mainly through interviews, including farmers, leading enterprises, cooperative organization of farmers, consumers and so on, and in the end, we got 62 interview records.

The Requirements of the Main Members of APSC

In the traditional supply chain model (Figure 1), farmers are only responsible for production. The intermediary organizations deliver products to external markets and shops. Consumers need to go to markets or fresh shops to purchase the goods they need. The requirements of many members have not been met. To better build a new model for the supply chain, first of all, their needs are presented as follows:

![Figure 1. Traditional supply chain model.](image)

**The Customers**

In the Internet age, customers have a fast pace of life and they hope conveniently and quickly get the goods they want. It is best not to go to the vegetable markets to buy agricultural products and they only need to order their want on the internet in the morning, which are sent to their hands in the afternoon. In addition, customers need fresh, delicious agricultural products, at least when they get them they are still not rotten.

**The Farmers**

The farmers want to be able to avoid market risk. When they harvest their agricultural products, the products can be sold quickly and they can get a reasonable profit.

**The Cooperative Organization of Farmers**

The cooperative organization of farmers is the product of market economy development, which sometimes perform some preliminary processing of agricultural products and organize farmers to grow and sell specific agricultural products. The farmers joining cooperative organization want to increase the market bargaining power, strengthen the ability to resist market risk.

**Agricultural Leading Enterprises**

Agricultural leading enterprises need to keep up with market trends, make full use of the capital and technology to process or package agricultural products from farmers, and then, send them to the market in time to meet the customer needs. They badly need to cut the cost such as logistics cost.

**The Convenience Brought from the Internet Environment**

**Getting More Information about the Customers Quickly**

In the Internet age, consumers' consumption behaviors are recorded when they go shopping online. Therefore, the consumers' consumption habits can be obtained. It is easier for farmers to know what kinds of produce consumers like, so they can produce agricultural products more purposefully and reduce market risk.
Cutting the Logistics Cost

If agribusiness companies directly obtain consumer orders through the Internet, they can directly pass products to consumers and shorten the supply chain process. Moreover, there are more and more third-party logistics enterprises in the Internet age. The agricultural enterprises do not have to transport goods by themselves and the logistics cost may be reduced.

Increasing the Sales Channels

As long as you have a computer and a network cable, you can open an online store, such as taobao store. Even if you just need to have a cell phone, you can also open a micro online store by weixin app. The online stores increase the sales channels of agricultural products. Furthermore, these online stores help create new supply chain models that are shorter and more convenient than traditional supply chains.

The New Model of Guangxi Featured APSC under the Internet Environment

Values

All the members of APSC must make full use of the advantages of the Internet environment and cooperate closely to let customers conveniently and quickly get fresh agricultural goods they need. At the same time, the needs of all supply chain members are met as far as possible.

Members

In addition to farmers, consumers, agricultural leading enterprises, cooperative organization, traditional markets and stores, the new model of supply chain adds new members such as online stores and third-party logistics companies. There are many kinds of online shops, such as Taobao, Jingdong, Wechat, etc.

Operational Processes

In the new supply chain model, the sales channels for agricultural products have been broadened. Agricultural products can be sold either from physical stores or from online stores. Some agricultural products that do not require the processing of farmer cooperatives and agricultural enterprises, such as mango and kumquat, can directly be sold to the customers if the farmers have mastered some of the techniques of operating online stores. They will get the most benefit. Figure 2 shows the operational processes of the new model of ASPC.

The Application of the new Model

Guangxi is an underdeveloped region in China. The level of education of the peasants is not high, and the construction of network infrastructure is not perfect. Therefore, it is unlikely that farmers will operate online stores to sell to users, unless their children have a high level of education and can help them. Network sales through agricultural leading enterprises and agricultural cooperatives may be widely used in Guangxi.

The Advantages of the new Model

The new model of APSC in this thesis may contain the following advantages. (1), This model meets
the consumer's shopping habits and needs in the internet age and can promote the sales of agricultural products in Guangxi; (2), Selling agricultural products directly through online stores can shorten the circulation time, reduce losses, cut down the logistics costs, and increase the employment of third-party logistics companies; (3), Consumers can get fresher products quickly by buying goods online, and the prices are cheaper, which increases consumer satisfaction; (4), In the new model, most of the requirements of the supply chain members are met and their profits have also been greatly improved.

**Summary and Conclusions**

Guangxi featured agricultural products are mostly fresh products and the new supply chain models need to be established to reduce losses. The new supply chain model should be based on the needs of supply chain members, and at the same time the convenience brought by the Internet should be fully utilized.

This paper starts from the previous review of APSC research and focuses on the analysis of APSCs related to the network environment. Based on the analysis of the needs of supply chain members, a new APSC model under the Internet environment is constructed. The new model has new values, new supply chain members and new operational processes.

The information flow in the new model is smoother and faster than the traditional information flow. The cost of the new supply chain model is lower, consumers are more satisfied, and supply chain members can obtain more profits.

The new model of Guangxi featured APSC under the internet environment is an emerging area. I am sure it is an interesting future research direction. Although this research meets the time for completion, some inadequacies are unavoidable. The lack of fund has greatly narrowed the scope of survey and reduced the efficiency of survey.

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**References**


