

Original Research Article

Research on Agility Improvement Strategies of Agricultural Supply Chain in the Context of Community Group Purchasing

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Abstract: In recent years, with the popularity of community group purchasing, agricultural products gradually have more possibilities to consumers to realize the vitality at the same time, its supply chain is also facing certain challenges. Inadequate traceability mechanisms, low digitalization and other issues have affected the agility of the agricultural supply chain, hindering the continuous improvement of its supply chain efficiency, and need to be overcome.

Keywords: Community group buying; Agricultural supply chain; Development dilemma and solutions

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1. Agricultural supply chains under community group purchasing

1.1. Community group purchasing

Community group buying sprouted around 2010 and first emerged in southern Chinese cities. Initially, the platforms were mostly founded by people with entrepreneurial dreams who saw the potential of community group purchasing, on the basis of which, by trying to integrate online and offline resources and platforms, they aimed to provide consumers with a more convenient shopping experience. The budding stage of community group-buying is relatively limited in coverage and variety of goods, and mostly relies on social platforms such as WeChat for promotion, making community group-buying quickly come to prominence in a short period of time.

After 2016, with the rapid development of the Internet and mobile payment, community group buying ushered in a golden development period. At this stage, community group buying came into the public's view. The main manifestations are: the proliferation of the number of platforms; the increasingly fierce competition; and the rapid expansion of the coverage from urban to rural areas, from first-tier cities to second- and third-tier cities. In addition, community group-buying began to deeply integrate with online retail, logistics and other industries, forming a more complete ecosystem.

Since 2020, the community group-buying market has entered in a mature stage. Especially with the outbreak of the epidemic, the reduced contact community group buying model based on the "network order - the head of the collection of goods - the customer self-collection" has become the first choice of people's daily shopping, which further promotes the development of the community group buying and gradually formed the consumer's community group buying consumption habits.

1.2. Agricultural supply chain

Agricultural supply chain refers to a business system that manages and coordinates the whole process of agricultural products from production, processing, distribution to final sales. It includes agricultural production, primary processing of agricultural products, wholesale and retail of agricultural products, covering planting, breeding, preservation and processing, logistics and sales.

1.3. Agricultural supply chain under community group purchasing

The design of agricultural supply chain under community group purchase focuses on the optimization and reshaping of the logistics, information flow and capital flow of agricultural products. It covers the whole process of the net-chain structure starting from the direct picking base at the source of agricultural products, through a series of activities such as transportation, warehousing, loading and unloading, handling, circulation and processing, and finally to the delivery of agricultural products. By efficiently integrating supply and demand information and reducing intermediate links, the platform makes the matching of supply and demand of agricultural products more accurate, and at the same time, it also strives for more preferential possibilities for both supply and demand sides.

In view of the existing community group-buying platform, agricultural products occupy a considerable share and volume. Based on this, it is of great theoretical and practical significance to decipher the problems of agricultural supply chain under community group purchase and give effective solutions.

2. Limitations of Agility Improvement in Agricultural Supply Chain under Community Group Buying

The efficient operation of the agricultural supply chain in the context of community group purchasing cannot be separated from the effective connection and cooperation of the nodal enterprises and links in the supply chain. The improvement of supply chain agility can undoubtedly greatly enhance the efficiency of supply chain operation, and ultimately help the realization of good economic benefits and promote the healthy and sustainable development of community group purchasing. However, in the practical operation of agricultural supply chain agility, there are still some problems and obstacles, which greatly hinder the virtuous cycle of agricultural products trading under community group purchase.

2.1. Shortage of human resources and generally low level of knowledge and education among practitioners

The average age of agricultural workers is high, so it takes longer for them to accept new technologies and for them to be cultivated in the market. In addition, there are fewer people with new technologies. This is mainly manifested in the lack of high-quality agricultural production management personnel and the fact that the education system for professional farmers has not yet been established. At present, there is a serious loss of high-quality human resources in China's rural areas. The age, culture and gender structure of existing farmers are not coordinated, with high age, generally low cultural level and mainly female, less understanding and application of Internet information technology, and a relatively weak awareness of modern agricultural production. And China's current vocational farmers' education system has not yet been established, the new farmers training institutions are few, the training process is a formality, which ultimately results in making it difficult to cultivate modern vocational farmers in China. And the lack of high-quality agricultural production management personnel

will lead to the wisdom of agriculture in rural villages with fewer initiators and supporters, resulting in a serious lack of endogenous momentum in the development of wisdom of agricultural construction. Obviously, the lack of high-quality agricultural production management personnel has become a major problem plaguing China's smart agriculture agricultural supply chain agility enhancement, and urgently needs to be overcome.

2.2. Lack of core technology, the practicality of technology needs to be improved

Core equipment and sensors are still sourced from abroad, and most of China's core technologies are still in the laboratory stage, with little application. On the one hand, China has not yet established a top-level systematic organization of the national agricultural research system, many agricultural research institutions have not been unified system, there is no clear division of scientific research, cooperation and guidance and communication channels. Secondly, due to the lack of unified guidance and support of China's agricultural research institutions, the application and promotion of scientific research results are insufficient, which makes it difficult to optimize and amend the standard parameters of many of China's current agricultural science and technology systems based on large-scale production data. The lack of application testing of many scientific research results has led to the lack of accuracy of some intelligent agricultural research results system, and the operation fluctuations are too frequent.

2.3. Insufficient safety and security of agricultural products, traceability system still needs to be established

The information storage of the current traceability system often adopts a single database for centralized storage, which makes it easy for the counterfeiting party to tamper with the database so as to achieve the purpose of commodity traceability counterfeiting. And even if redundant database backups are used, counterfeiters can achieve their goal by tampering with the redundant database. At this stage, it is still difficult to completely solve the problem of counterfeit data identification, which limits the further improvement of the agility of agricultural supply chain.

3. A Preliminary Exploration of Agility Enhancement Strategies for Agricultural Supply Chain under Community Group Purchasing

3.1. Strengthen digital infrastructure and drive sales-based production based on consumer data

Facing the rapidly changing and complex market environment both at home and abroad, strengthening digitalization construction has become the most important way to solidly improve market competitiveness. Through digital technology, the information management of the supply chain can be realized, and the visualization and intelligence of the supply chain can be improved. Utilizing big data technology, data analysis is conducted on the consumption resources of community platform users, such as the consumption time, consumption type and consumption cycle of a certain community group purchase group, the transaction volume and turnover under various marketing activities, and information on users' consumption behavior, consumption preference and consumption trend is derived through data analysis. Using this information, we can effectively predict the varieties and quantities of fresh agricultural products demanded by each group point, so as to rationally allocate resources in advance in the selection, procurement, packaging, circulation, processing and other aspects of fresh agricultural products, effectively reduce the quality of fresh agricultural products, maximize the control of the rate of wastage, stock-out rate and cost, and promote the user demand-oriented

production based on sales. Therefore, consolidating digital infrastructure and carrying out big data management has a positive effect on strengthening the agility of the supply chain, alleviating the supply chain risk factors such as low production and processing efficiency, and more logistics congestion points for agricultural products.

3.2. Build an efficient supply chain and logistics system through multi-channel integration and optimization

Community group purchasing needs to integrate resources from different channels in order to optimize the supply chain and logistics system, and ultimately improve supply chain and logistics efficiency. While uniting local market resources and organizing supply chain and logistics, it should strengthen cooperation with local suppliers and logistics enterprises, and incorporate their mature supply chain and logistics into the platform supply chain and logistics system to form the operation management system of the "headquarters of the ten zones". At the same time, through cooperation with counterparts, the respective supply chain and logistics system will be integrated across regions and platforms, thus forming an enabling supply chain and logistics system. The integration and optimization of multiple channels can not only improve the agility of the agricultural supply chain, but also has a positive significance on supply chain risk factors such as insufficient upgrading of agriculture 4.0 and low production and processing efficiency.

3.3. Improve the traceability and quality monitoring system for agricultural products and optimize logistics and distribution

First of all, in the supplier selection process should choose suppliers with large-scale production capacity and reliable product quality control. In distribution and transportation, it is necessary to consider the special characteristics of different products and choose appropriate packaging for protection, so as to minimize the loss of commodities. Furthermore, the Internet of Things, blockchain and other technologies are used to trace the quality and safety of fresh agricultural products from the source, and the equipment information, personnel information and other relevant information involved in the entire process from field to table are entered, so as to maximize the control of the quality and safety of the products in the whole process, and to realize the traceability of the whole process of the various links in the circulation.

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