

## Research on Building and Improving E-commerce Supply Chain of Fresh Agricultural Products under the Background of New Retail 2.0

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### *Abstract:*

In the context of new retail 2.0, the e-commerce core of fresh agricultural products is to build a reliable and efficient supply chain system. This paper analyzes the problems of the current e-commerce supply chain of fresh agricultural products and reasons, builds the supply chain in terms of supply organization, warehousing and transportation, and end transaction, and puts forward the strategy for improving the e-commerce supply chain of fresh agricultural products under the background of new retail 2.0.

*Keywords:* New retail 2.0, Fresh agricultural products, E-commerce, Supply chain.

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### I. INTRODUCTION

In 2016, Ma Yun, Chairman of Alibaba Group, put forward the concept of "new retail" at the Computing Conference: The age of pure e-commerce will soon come to an end. There will be only new retail, offline and online retail must be combined with the modern logistics. After several years of practice, the O2O model combining online retail and offline retail has been applied to all walks of life and gradually matured. In 2020, some platforms such as Meituan, Hema, Koubei, Eleme, Suning Store launched grocery shopping business, which drove the new retail into a new stage, and the era has been changed to "New Retail 2.0"[1] era. The flow is the core in the era of pure e-commerce, and the core of new retail is still flow, which is a combination of online retail with offline retail, attracting consumers through online platforms to buy in the offline store and in turn, attracting consumers to online platforms. While the new retail 2.0 takes the supply chain as its core, and supports online and offline omni-channel operation and sales, reducing operating costs and better serving target customers through an efficient and stable supply chain system.

## II. PROBLEMS IN E-COMMERCE SUPPLY CHAIN OF FRESH AGRICULTURAL PRODUCTS

### 2.1 Unclear Positioning and Lack of Competitiveness

At present, some e-commerce platforms or enterprises of fresh agricultural products still stay in the pure e-commerce era or maintain the new retail thinking, still regarding the flow as the top priority for their operation, and invest considerable costs to attract consumers through various marketing promotion methods, even compete at the expense of price wars. In the building of supply chain system, most of them focus on the terminal delivery system. Compared with traditional supermarkets and community stores of fresh agricultural products, they lack obvious competitive advantages and core competitiveness.

### 2.2 Scattered Supply Chains and the Poor Connection between Supply and Demand

At one end of the e-commerce supply chain of fresh agricultural products, farmers or agricultural product production bases are scattered, and the large number of consumers or businesses at the other end are also scattered, resulting in scattered procurement and delivery ends of the e-commerce supply chain of fresh agricultural products. It fails to form scale effects due to many channel intermediaries, making it more difficult to manage the supply chain. In addition, for the asymmetry of supply and demand information of fresh agricultural products, it is more difficult for e-commerce of fresh agricultural products to connect logistics, information flow and capital flow between supply and demand.

### 2.3 High Circulation Cost is and Large Product Loss

Fresh agricultural products have special requirements for circulation conditions due to their characteristics that they are easy to rot and expire, so the circulation cost of fresh agricultural products is higher with larger loss of products. Compared with developed countries in Europe and America, China has a lower transportation ratio for freshness of fresh agricultural products and a higher overall loss level. While their transportation ratios over 60%, with a loss rate of about 5%, while domestic transportation ratio is about 30%, with a loss rate of more than 10% [2].

### 2.4 Many Circulation Links and Slow Response Speed

At present, few e-commerce platforms or enterprises of fresh agricultural products in China can realize the whole industry chain circulation mode of direct picking and direct operation, and most of supply chains are in the mode of multi-level procurement and distribution, with many circulation links from the origin to the retail end. On the one hand, it makes the price increase rate at the channel end higher with a big difference between the purchase price and the market sales price; on the other hand, it also leads to asymmetric information between the supply and demand sides and slower response to the market.

## III. REASONS FOR E-COMMERCE SUPPLY CHAIN PROBLEMS OF FRESH AGRICULTURAL PRODUCTS

### 3.1 Unconcentrated Traditional Small-Scale Agricultural Production

The resources status of a large population with relatively little land underlies the limited arable land per capita in China, while the population is larger than that of mature countries, and the agricultural production system based on household contract responsibility system has been implemented for a long time in rural areas. This results in the current situation of agricultural production of decentralized management, low concentration of agricultural products and commercialization as well as different product quality, not meeting the demand of the consumer market for mass-produced and standardized products, thus increasing the difficulty for e-commerce in purchasing, circulation and quality control of fresh agricultural products.

### 3.2 Many Categories of Fresh Agricultural Products with Low Standardization

Fresh agricultural products have many categories, including meat, vegetables, fruits, frozen products, aquatic products, etc. Most of the sales platforms or enterprises of fresh agricultural products, such as Yiguo, Meicai, Songxiaocai, etc., have more than 4,000 SKUs [4], and different categories of products have different requirements for production, procurement, warehousing, transportation and sales management. In addition, the current standardization of fresh agricultural products in China is low with poor stability of different batches of products, which makes it difficult to manage fresh agricultural products in the circulation process and causes higher product losses.

### 3.3 Big Investment in the Logistics System and Long Return Period

A cold chain logistics system is essential to improve the circulation efficiency of fresh agricultural products and reduce losses, but it is relatively expensive to build the cold chain logistics system including cold chain transportation and cold chain storage or rent, and the return period is long. The rent of frozen warehouses is often 5-8 times that of ordinary warehouses. Even if the expensive costs are paid, the problem of high losses still exists. Most e-commerce platforms or enterprises of fresh agricultural products pursue the operation mode of light assets, unable or unwilling to spend huge sums of money on the cold chain logistics system.

## **IV. BUILDING E-COMMERCE SUPPLY CHAIN OF FRESH AGRICULTURAL PRODUCTS IN THE ERA OF NEW RETAIL 2.0**

### 4.1 Supply Organizations

At present, there are many modes in the e-commerce supply of fresh agricultural products, including procurement by intermediaries, procurement by brand suppliers, direct purchasing from the place of origin and self-planting and self-selling. The procurement by intermediaries can reduce the procurement and supply chain management of e-commerce operators of fresh agricultural products, but the price advantage is not obvious and it is not easy to control the product quality. The product quality can be guaranteed through procurement by brand suppliers and the supply of goods is relatively stable, but the price is relatively high with few brand suppliers. The direct purchasing from the place of origin has a price advantage and the product quality can be controlled, but it has higher requirements for the supply organizations and supply

chain management ability of operators. The self-planting and self-selling mode has a guarantee of the price and quality, but the investment is large and planting technology and experience of fresh agricultural products are needed. The main value of e-commerce is to reduce intermediate links and make products directly be brought to consumers from producers. Therefore, when it comes to the supply organization, combining with their own advantages and business focus, e-commerce enterprises should give priority to the direct purchasing from the place of origin, taking procurement by brand suppliers and procurement by intermediaries as supplements, and they may consider the self-planting and self-selling mode if they have the ability.

#### 4.2 Warehousing and Transportation

The origin warehouse mode is often applied in the e-commerce supply chain of fresh agricultural products to solve the scattered supply organization on the supply side. The organized goods are transported in a unified container by self-building or cooperating to build an origin warehouse near the origin to make full use of the scale effect to reduce the logistics transportation cost. At the same time, fresh agricultural products can be primarily processed in the origin warehouse to standardize the fresh agricultural products and reduce the loss in the subsequent circulation process. When it comes to transportation, e-commerce enterprises of fresh agricultural products can transport the products through self-run logistics and third-party logistics. Self-run logistics requires enterprises to invest large amounts of funds and technology, especially in cold chain logistics, which is more professional with the large investment in funds, technology and talents. It is very difficult for ordinary e-commerce enterprises to do this. For the third-party logistics, they need to strictly screen third-party logistics enterprises, and fully connect with third-party logistics enterprises, coordinating the supply-chain work. With the extensive building of domestic cold chain logistics systems, the cold chain logistics technology gradually matures with the cost gradually decreasing, and the third-party cold chain logistics mode will be applied more extensively[6].

#### 4.3 End Trading

Since the new retail era, e-commerce has gradually changed from traditional pure e-commerce to O2O combining the online retail and offline retail. At present, the O2O mode includes: First, taking the self-built site in the corresponding area as the front warehouse, the products are uniformly distributed to the front warehouse, and then the products are directly delivered from the front warehouse after consumers place orders. Second, cooperate with supermarkets and community convenience stores in the region to make the delivery. Third, adopt a model of "retail+catering" represented by Hema and Super Species, in which the front is a store and the back is a warehouse. Fourth, the community group buying, namely finding a "group leader" in the community, and the products are uniformly distributed to him, and then the "group leader" delivers the products to consumers in the community [7]. For the self-built sites and "retail+catering" model, e-commerce enterprises of fresh agricultural products need to make the large investment, with better control of marketing promotion and customer service. For the model of cooperation with supermarkets and community convenience stores, they make

the low investment, but the profit is low and it is difficult to control the marketing promotion and after-sales service. In terms of the community group buying, it has less investment but the marketing promotion ability is limited[8].

## **V.IMPROVEMENT STRATEGY OF E-COMMERCE SUPPLY CHAIN OF FRESH AGRICULTURAL PRODUCTS IN THE ERA OF NEW RETAIL 2.0**

### **5.1 Supply from the Origin**

One of the core values of e-commerce is to reduce the intermediate links, realizing the direct delivery of products from the origin to consumers. Therefore, in terms of supply source, enterprises first choose the primary source from the origin to reduce the intermediate links of procurement. On the one hand, the purchase price can be reduced; on the other hand, it can also reduce the loss of goods in the intermediate links. Secondly, the supply sources should be scaled as much as possible. For smaller e-commerce operators, enterprises can purchase products from them together with other operators or adopt outsource procurement to achieve the scale effect of supply sources, thus reducing the procurement cost of individual products.

### **5.2 Moderately Standardized Packaging**

At present, the standardization of agricultural product packaging in China is still in the primary stage, and even some bulk fresh agricultural products still circulate in the e-commerce supply chain, not only reducing the circulation efficiency and increasing the product loss, but also bringing inconvenience to the sales based on the e-commerce mode. In the circulation process of fresh agricultural products from the origin to the place of consumption, e-commerce enterprises should choose suitable supply chain depots according to their own conditions, and package fresh agricultural products appropriately through self-marketing or outsourcing, forming a number of standardized specifications, thus improving circulation efficiency and increasing added value of products.

### **5.3 Optimize Category of Agricultural Products**

In the new retail era, the e-commerce enterprises of fresh agricultural products basically adopting an "overall" category coverage strategy, bring in some niche products to meet the potential needs of consumers, in addition to the just-needed products in the target market. In the era of new retail 2.0, the category scale is changed. The number of category of fresh agricultural products is reduced by optimizing, leaving the most valuable consumption categories, with more concentrated commodity categories and more accurate category positioning. On the one hand, it is much easier to coordinate and manage the supply chain; on the other hand, it can also speed up the turnover, reducing losses and the overstocked funds.

### **5.4 Improve Market Predictability**

One of the difficulties in the management of e-commerce supply chain of fresh agricultural products is the asymmetry between the market demand and supply information. Due to the short shelf life of fresh agricultural products, it is impossible to stock up in advance, thus leading to the contradiction between supply and demand, failing to respond to market demand in time.

Operators of fresh agricultural products should analyze and sort out daily sales data and accurately predict market demand. At the same time, they should adopt various methods to accurately understand the market demand in advance, such as pre-sale mode, crowdfunding mode, member customization, periodic purchase, etc., to accurately grasp the market demand and balance supply and demand.

## 5.5 Innovate the Supply Chain System

Based on the characteristics and market demand of different categories of fresh agricultural products, e-commerce enterprises need to adopt a variety of different supply chain systems. The products with large demand and relatively long storage period can be stocked at the front warehouse in moderation, which can be delivered immediately after consumers place an order. The products with large demand and shorter storage period can be sold in advance; for the products with small demand and relatively long storage period, they can be early stocked in moderation; for the products with small demand and shorter storage period, they can be directly delivered to consumers from the origin through express delivery after consumers place an order [9-10].

## VI.CONCLUSION

Under the background of new retail 2.0, managing the supply chain has become the key for e-commerce enterprises to reduce costs, improve efficiency and ensure the quality of goods. While carrying out marketing and promotion, e-commerce enterprises need to combine their own characteristics and strengths to build an integrated supply chain system from supply sources, warehousing and transportation to terminal distribution through the methods of self-construction, co-construction or outsourcing. They should scale the supply sources from the origin, moderately standardize product packaging, optimize categories of fresh agricultural products, improve market demand forecasting ability, and further innovate the supply chain system. By doing this, these enterprises can meet consumers' response in time with lower cost and improve their lasting existence and profitability.

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