

The Impact of COVID-19 on Agricultural Products Supply in Shanghai

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Abstract: In Shanghai new crown during the outbreak of agricultural supply problems, for example, for regional quarantine crowd increased demand for agricultural products and agricultural products unsalable status detailed analysis, agricultural products problems in sales channels, transportation channels. And we put forward the development of digital supply chain, narrow information, pay attention to cold chain logistics transportation, relevant departments should improve the relevant system and strengthen supervision implementation, open the green channel, realize agricultural products to the community.

Keywords: Shanghai epidemic, Agricultural products, Production and marketing docking, Transportation, sales.

1. The Impact of COVID-19 on Agricultural Products Supply in Shanghai

1.1. Agricultural Products Production and Marketing of The Mismatch Problem

During the period of COVID-19 prevention and control, all regions of Shanghai have strict control, shutdown, closed buildings and roads, having a serious impact on the supply of agricultural products. These result in the main contradiction in the circulation of agricultural products: the large demand in the agricultural products market, but the shortage of supply, and the large number of unsalable agricultural products in many regions.

There are two important reasons for this contradiction. One is the short-term imbalance of supply and demand information matching of agricultural products. According to the investigation, during the epidemic period, the panic of residents, the closed information between consumers and producers and the fragile network between supply chain nodes led to the sharp demand for agricultural products market in Shanghai. However, the farmers and farmers' markets failed to obtain accurate resident demand information in time, so the circulation of agricultural products market was blocked and a large number of agricultural products were unsalable. Second, many middle-aged and elderly farmers, residents and other vulnerable groups still use the elderly machine, slow to accept new things, are not familiar with, unable to obtain effective information; and buyers, wholesalers, retailers represented by the central enterprises use this natural information difference to seek their own interests, through trading and retain some information, the upstream and downstream information barriers of agricultural products supply chain, information can not timely and accurate transmission, resulting in some farmers of agricultural products unsalable, some residents face "hard to find" situation.

1.2. Agricultural Products Transportation Issues

1.2.1. Analysis of The Transportation Safety Problems of Agricultural Products During the Epidemic Period in Shanghai

1.2.1.1 Characteristics of the agricultural products themselves

Most agricultural products have the characteristics of short shelf life, perishable and not easy to preserve. Therefore, under normal circumstances, in the process of planting, harvesting, processing, procurement, transportation, storage and sales of agricultural products, a little careless problem is likely to cause potential food safety problems. Especially in the special period of epidemic prevention and control in Shanghai, in order to further prevent the epidemic, relevant departments have conducted nucleic acid testing in batches since March 28,2022, implementing static management, and the logistics is not smooth. In the transportation process of agricultural products, layer upon layer of check, more blocking points. The transportation time is longer than under normal circumstances, resulting in the transportation occupies a large amount of the shelf life of agricultural products, thus leading to the aggravation of decay and consumption to a certain extent. Coupled with the food shortages caused by the epidemic, people are likely to have food safety problems caused by eating food beyond their shelf life.

1.2.1.2 Agricultural products carry the virus

During the epidemic, the news of novel agricultural products carrying coronavirus is common. For example, on April 17,2022, Shenyang city monitored the packaging of a batch of cherry tomatoes in 'Bajiazhi fruit' wholesale market in 'Dadong District' as carrying novel coronavirus, and 11 new novel coronavirus positive infected persons were successively found. Therefore, when the epidemic situation in Shanghai is more urgent, local consumers still have an obvious concern about whether the agricultural products purchased have been carried with the virus during picking and transportation. If a certain batch of agricultural products due to a variety of reasons carried on the virus, but the relevant supervision departments are due to work negligence caused by agricultural products in the market for sales, the consequences can be imagined.

1.2.1.3 Transportation technology needs to be improved

In the traditional transportation process, due to the limited temperature control technology, the transportation refrigeration equipment needs to be improved, and the cold chain logistics has not been systematically formed. Agricultural products are affected by the inappropriate temperature and humidity in the transport carriage, which will not only cause a large loss, but also be easy to reduce the freshness of the products.

1.2.1.4 Agricultural products are contaminated by harmful substances

There is no lack of some illegal businesses on the market in order to seek personal gain, in the process of transportation abuse of food additives to extend the shelf life of agricultural products, excessive addition of food additives lead to consumer purchase of agricultural products have serious safety risks.

1.2.2. Agricultural Products Transportation Channel Problem

In the past two years, many places have blocked the epidemic and prevented the spread of the virus, leading to the almost stagnation of the circulation channels of agricultural products. Traditional sales channels have been blocked, and the supply and market have been severely affected, making the current sales difficulties of agricultural products is even worse. Taking Shanghai as an example, the "online + offline" sales model still cannot even meet the most basic living needs of the citizens. The reason is briefly summarized as the problem of agricultural products transportation channels, that is, the lack of transport capacity, which will be elaborated from two aspects.

1.2.2.1 Insufficient storage leads to high transportation costs

Shanghai has a large permanent population base, and a large land area for agricultural products, and a high cost, so a large number of storage is far away from the center of Shanghai, resulting in the original shortage of inventory, most of the agricultural products mainly come from Jiangsu, Anhui, Shandong and other places, thus forming a shortage of materials. In order to cut off the spread of the epidemic, the goods had to pass through the checkpoints in each region and have a series of additional inspection procedures. Therefore, significantly fewer drivers and vehicles met the delivery standards and higher costs to hire trucks, which were eventually transferred to the consumers in Shanghai.

1.2.2.2 Insufficient distribution capacity

When the goods arrive in Shanghai smoothly, there are also many problems with the transportation channels within the city.

The first is the lack of storage facilities. Affected by the epidemic, some warehouses have been closed and managed, and the storage facilities for storing agricultural products are in strict conditions, which need to meet the requirements of the storage, disinfection and disinfection of the surrounding environment of agricultural products, thus greatly reducing the qualified storage points.

Second, during the epidemic period, Shanghai terminal delivery shortage of personnel. Restricted by the requirements of permits, nucleic acid test reports, and the new coronavirus vaccine issued by the district government, very few drivers are qualified for the final goods delivery, resulting in insufficient transport capacity.

Young people in Shanghai rely heavily on delivery, but every community has almost agricultural stocks of zero. However, the front desk warehouses of all major platforms

are basically two or three days of inventory, which cannot achieve full coverage under the epidemic. In addition, the distribution capacity is urgently needed under the epidemic, but due to the prevention and control reasons, the terminal transportation capacity is blocked, and the capacity of the supply chain cannot be fully played.

Therefore, under the influence of the epidemic, the major supermarkets have played the most role. The supermarket has front and rear warehouses, and its inventory can support the food security of the surrounding communities within three kilometers within a certain period of time. The supermarket will have a pass and its own logistics, and it can deploy and control the transportation of the delivery terminals.

Even so, fresh food, e-commerce platforms, supermarkets and other distribution logistics only to the corresponding gate of the community, the last few hundred meters of the distribution task came to the community volunteers there. The biggest challenge in the last few hundred meters is that the number of volunteers is very small and the delivery work is very tiring, and the lack of division of labor makes it difficult to transport the agricultural products to the residents.

1.3. Agricultural Products Sales Channel Problem

Agricultural products sales channels are mainly divided into three categories: traditional sales channels with the wholesale of agricultural products as the core, mainstream sales channels with supermarket retail as the core, and online sales channels with e-commerce as the core.

The traditional sales channel with agricultural trade wholesale as the core is mainly direct sales by farmers. During the epidemic in Shanghai, the implementation of home quarantine and traffic control policies has exposed the regional limitations of agricultural products more significantly. At the same time, the control measures of the wholesale farmers 'markets have also become more stringent, and a large number of freight drivers' infections have caused the temporary closure of the farmers' markets, narrowing the traditional sales channels of agricultural products. Agricultural products can not enter the market, Shanghai citizens can not go out of their homes, so a large number of agricultural products are unsalable, farmers are helpless phenomenon.

Super retail as the core of the mainstream sales channels using multi-layer middlemen sales model, the chain of sales model is vulnerable under the outbreak, once one link is affected by the outbreak, for example, the circulation in the process of agricultural products virus contamination, supply and marketing at both ends of the buying and selling personnel, will eventually lead to the rupture of sales channels. Once the sales chain is broken, it will certainly bring about the rise of cost and sales price increase, and finally it is doomed to damage the interests of farmers and consumers.

Online sales channels with e-commerce as the core originally relied on the advantages of the Internet, and built an information bridge between supply and sales, and greatly unblocked the sales channels. But under the outbreak of offline purchasing channels blocked, Shanghai residents life supplies have turned to online, use all kinds of food APP, regular hoarding in emergency, orders rapidly increase in the supply and transportation pressure greatly increased, also lead to internal sales channels overwhelmed, daily can grab food family few, agricultural products in short supply, also exacerbated the public panic of the epidemic.

The problems in the above three sales channels have jointly caused the short supply of agricultural products in Shanghai, and the situation of "difficult to grab vegetables", which has seriously affected the normal production and life of Shanghai citizens, and even worsened the agriculture that was already depressed during the epidemic.

2. COVID-19 Countermeasures on The Supply of Agricultural Products in Shanghai

2.1. Develop the Digital Supply Chain to Reduce the Information Gap

Blockchain technology has the decentralized characteristics, which can ensure the security and transparency of data at all levels, and solve the problems such as information asymmetry to a certain extent. Therefore, the blockchain technology is applied to the agricultural products supply chain, to ensure the transparency, timeliness and authority of information communication, and to break the information barriers between the production and marketing of agricultural products.

2.1.1. Establish A Unified Digital Information Platform to Realize Synchronous Information Update

The farmers, agricultural market information input unified digital platform, using block chain, cloud computing and other modern technology, give full play to the role of market intelligence, consumers, farmers can obtain the most authoritative and most timely news from the platform, through the change of consumer demand for agricultural products fluctuations timely adjust agricultural supply, maintain the balance between supply and demand from the source.

2.1.2. Community Assistance Teams Will Be Set Up to Help Middle-Aged and Elderly Farmers, Residents and Other Vulnerable Groups Sell and Group Purchase

Volunteers of the community support team collect information about vulnerable groups, and help farmers sell unsalable agricultural products through online media and other platforms. Meanwhile, timely count the demand of middle-aged and elderly vulnerable groups for agricultural products, and help to group purchase dishes.

2.1.3. Make Full Use of Traditional Media and Emerging E-Commerce Platforms to Accurately and Timely Release Agricultural Products Information to The Public

Based on the development trend of emerging information communication media, reduce the information gap, and solve the problem that central enterprises take advantage of the information gap to seek their own interests.

2.2. Relevant Countermeasures to Guarantee Agricultural Products Transportation

2.2.1. Related Countermeasures for The Safety Problem of Agricultural Products Transportation

Pay attention to cold-chain logistics and transportation

Because agricultural products have the characteristics of perishable and not easy to preserve, so the construction of cold chain logistics is very important. When the transportation process adopts appropriate refrigeration technology, can maintain the freshness of agricultural products, extend the shelf life, is conducive to ensure the

safety of agricultural products in the process of transportation, but also can reduce the loss to a certain extent.

a. We will promote the standardization of cold-chain logistics construction

Based on the standardization, conservation and scale of upstream operations of fresh agricultural products, the unification of cold chain standards promotes the unified [1] of humidity and temperature standards in the supply chain links such as picking, processing, packaging, transportation, storage, loading, unloading, handling, and distribution of various categories of fresh agricultural products. During the epidemic prevention and control period in Shanghai, more emphasis should be paid to the construction of cold chain logistics of agricultural products, standardizing them, and strengthening the unification of relevant standards in the process of cold chain transportation of agricultural products. The standardization of cold chain logistics helps to stabilize the control of temperature, humidity, wind speed and other parties in the process of transportation, and promote standardized operations, so as to reduce the safety risks and losses caused by transportation to agricultural products, improve the freshness of products, and extend their shelf life. It can also reduce the abuse of illegal businesses in order to extend the expiration date of food additives to a certain extent.

b. We will improve the level of information management

China has not yet established a complete cold chain information disclosure service platform, which not only fails to realize the real-time monitoring of the transportation link and the accurate traceability of the logistics information, but also fails to ensure the integrity, accuracy and traceability of its data to effectively guarantee the [2]. Improving the level of information management is mainly reflected in the traceability and detectability. In the current epidemic era, it is very important to improve the information level of the cold chain transportation of agricultural products. On the one hand, information management can enable agricultural products to be accurately traced, improving consumers' understanding of their own food purchases, so as to reduce the occurrence of food safety problems during the epidemic prevention and control period. On the other hand, improving the level of information management is helpful to implement the precise control of the temperature, humidity, wind speed and other factors affecting the quality of agricultural products.

Relevant departments should improve the relevant systems and strengthen the supervision and implementation

During the epidemic prevention and control period in Shanghai, the relevant government departments checked the transportation of agricultural products in the transportation process, extending the transportation time, resulting in a decline in freshness, and the quality of some agricultural products was not up to standard. Among them, there are inevitable inspection factors leading to a longer transportation time, but there is also no lack of some departments of low efficiency, the inspection of agricultural products quality caused unnecessary delay. In view of these conditions, the relevant government departments should strengthen the establishment of rules and regulations to promote the improvement of inspection efficiency.

a. Relevant departments should strengthen their supervision

First, promoting standardized information cold chain logistics can be gradually improved during the epidemic prevention and control period in Shanghai. Preventive disinfection of cold chain products packaging will prevent the

input of viruses and improve the safety of cold chain logistics in [3]. Therefore, we should strengthen the perfect supervision of cold chain logistics and transportation; second, the market supervision department should strengthen the disclosure and punishment of illegal businesses abusing food additives on the market to ensure the safety of food during transportation.

b . Improve the laws and regulations on the safety of agricultural products, and improve work efficiency

We will implement the responsibility system of local governments taking overall responsibility, and gradually enrich and improve the power [4] of food safety law enforcement and supervision teams. Improve the relevant laws and regulations, so that the safety problem of agricultural products can be better solved. In addition, while strengthening the quality inspection of agricultural products in the process of transportation, we should also investigate the work efficiency of the staff to avoid unnecessary loss of agricultural products.

2.2.2. Related Countermeasures for The Transportation Channel Problem of Agricultural Products

The Agriculture and Rural Affairs Committee immediately established a leading group for the prevention and guarantee of epidemic prevention and control, organized leading agricultural enterprises and cooperatives under its jurisdiction to increase the production and supply of fresh vegetables and agricultural products, adopted the "five distribution system" mode to ensure the "vegetable basket" of citizens, and comprehensively assisted the emergency supply of vegetables.

First is the area distribution system. By adopting the point-to-point, online and offline supply mode, the local and nearby distribution services are provided for the key sealed and control communities in the town where the production base is located and the nearby town.

Second, the online order system. Through the municipal media and other online publicity platforms are widely publicized, so that residents know in time, combined with the delivery requirements of the order.

Third, the government-enterprise cooperation system. Led by the district agriculture and rural affairs committee, under the strong support of the supply and marketing cooperatives, Shanghai yongda fungus industry, treasure fruit industry and other agricultural leading enterprises to guarantee, as a whole in high quality agricultural products and "vegetable basket" special vehicle distribution resources, launched "love help" high quality emergency agricultural vegetables and fruits package small program, for some prevention and control of key areas uninterrupted distribution services. Residents can also place orders by phone.

Fourth, the service of the large warehouse system. In view of the supply of goods for the e-commerce platforms within the jurisdiction, the District Agricultural Industry Development Association coordinated the resources of the production base in the whole district, adopting the point-to-point and 24-hour supply mode for emergency supply to the main large-scale e-commerce platforms in the city. At present, it delivers about 22 tons of vegetables and edible fungi for Hema Xiansheng, Meituan, Meicai, Daily Youxian, Ding Dong Buy vegetables, Qingmei, RT-Mart and Yonghui Supermarket every day.

Fifth, the worry-free system. For some specific groups, such as those who have long been on the frontline of epidemic prevention and emergency prevention and control, the District Agriculture and Rural Affairs Committee called on leading

agricultural enterprises and high-quality cooperatives to carry out activities. At the same time, the District Agricultural Industry Development Association and the front-line epidemic prevention units contact to open point-to-point normal service channels, so that the frontline epidemic prevention personnel carefree.

2.3. Open up A Green Channel to Achieve Agricultural Products Directly to The Community

For the problem of agricultural products sales channels are blocked, whether online or offline, not only to smooth the sales channels, but also to prevent the single tendency of sales channels. Faced with the problem of unsalable of many agricultural products, the government should formulate relevant dynamic management mechanism to solve this problem. Local governments should open up green channels to directly connect communities with farmers, put the problem of solving the sales of local agricultural products first, purchase the products at appropriate prices, and then supply [5] in Shanghai and its surrounding cities. On the basis of ensuring the quality of agricultural products, farmers have chartered buses to send them directly to the community through the green channel, eliminating complicated and redundant intermediate links, minimize the impact of COVID-19 on the transportation of agricultural products, and realize the balance between both ends of supply and marketing.

3. Conclusion

To sum up, in the supply of agricultural products under the current epidemic situation, Shanghai should trace back to the source, based on the development situation of modern society, effectively apply the blockchain technology to establish a virtual intelligent trading platform, and use the intelligent platform to better meet the information interaction needs of farmers, merchants and fees and other parties. Develop the digital supply chain, reduce the information gap; open up a green channel, realize the agricultural products directly to the community; in the agricultural products cold chain logistics management, accurately connect the blockchain and cold chain logistics management, build a standardized management system based on policy orientation, strengthen the training of compound talents, and provide impetus for the modernization of agricultural products supply.

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