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Research on the Development Problems and Strategies of Agricultural Products Logistics under the Background of Rural Revitalization—Taking Lianjiang Red Orange as a Case

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Abstract

Since 2014, the Report on the Work of the Government has mentioned “express delivery” for 10 consecutive years, which indicates the development direction of the express industry. In 2023, the Report on the Work of the Government also specifically mentioned the need to “improve the rural express logistics distribution system”. Improving the rural logistics system is an important measure to promote industrial upgrading, rural consumption, and rural revitalization.

China is a major agricultural country, with grain production, cotton production, and tea production ranking first in the world. In recent years, the agricultural product logistics industry has also experienced rapid development. However, the overall development level of the current agricultural product logistics industry is relatively low, manifested in outdated logistics concepts, insufficient application of advanced logistics technology, relatively backward cold chain logistics technology, and a lack of professional logistics talents. These factors constrain the development of agricultural product logistics. Therefore, this article takes the agricultural product of Lianjiang Red Orange as the research object, analyzes the

current development status and problems of agricultural product logistics, and proposes corresponding countermeasures and suggestions to improve the development of agricultural product logistics through analysis. The aim is to provide reference for the development of agricultural product logistics in Lianjiang City and provide strong impetus for comprehensively promoting rural revitalization.

Keywords: rural revitalization, agricultural product logistics, Lianjiang Red Orange

1. Introduction

Since the proposal of the rural revitalization strategy at the 19th National Congress in 2017, relevant national departments have issued many plans and notices on rural revitalization. This indicates that rural revitalization is a great project, which points out the direction for China's future agricultural and rural development. With the promotion of rural revitalization strategy, agricultural product logistics has attracted more and more attention. China has abundant agricultural product resources and a wide distribution area. However, due to the multiple circulation links and low delivery efficiency of agricultural products, the quality of agricultural products has decreased, operating costs have increased, and the prices of agricultural products lack competitiveness. How to quickly and efficiently transport agricultural products to customers is an urgent problem that needs to be solved. Therefore, the country and enterprises need to attach importance to the development of agricultural product logistics and promote the development of agriculture and rural economy through the scientific development of agricultural product logistics.

Lianjiang Red Orange is known as the "National Banquet Fruit" due to its thin skin, beautiful fruit, and delicious meat. In 2006, it was also rated as a "Chinese Famous Agricultural Product". Lianjiang Red Orange is a fresh fruit, and ensuring the quality and safety of this agricultural product is an important goal in the current circulation of agricultural products. Therefore, logistics enterprises and red orange planting enterprises need to strengthen cooperation, reduce logistics costs, expand the sales scope of red oranges, and achieve the goal of win-win between logistics companies and red orange planting enterprises by integrating resources from both sides. The logistics efficiency of agricultural products determines economic benefits, and safe and reliable agricultural product logistics is the key to improving agricultural economic benefits. Developing agricultural product logistics can effectively promote the development of rural economy, help agricultural products quickly reach the market, occupy market advantages, and ensure the freshness of products. In addition, the development of agricultural product logistics can also promote the development of the agricultural industry, increase employment opportunities and economic benefits, and further bring more benefits to rural areas.

2. Review of Studies

Among the existing research, there are many studies on the logistics of agricultural products, and the research results are fruitful. The summary can roughly divide into the following three research themes:

In terms of agricultural product logistics model. Omar and Villalobos (2011) constructed a planning model based on urban distribution in Mexico, which provided an effective basis for agricultural product logistics decision-making through the analysis of traditional factors and external factors in the logistics and transportation process of agricultural products. M Soysal (2014) argues that logistics costs and perishable characteristics of agricultural transportation must be fully taken into account, and the efficiency of agricultural product logistics can be improved by starting from the perspective of infrastructure and policies. Fang Lijun and Zhu Li (2015) took the agricultural product transportation organization in Chapchal County as an

example to compare and analyze the transportation optimization effect of agricultural product logistics in small and medium-sized cities. They summarized the current characteristics of agricultural logistics in the region and pointed out the problems. On the basis of drawing on the excellent experience of developed countries such as Europe, the United States and Japan, Fan Jing (2017) made a comparative analysis of agricultural product trading markets and supermarket agricultural product logistics, and put forward a series of effective suggestions to promote the circulation of agricultural products in China. Under the premise of considering high-speed rail transportation, Fu Xiaoting (2022) took the cold chain logistics center of fresh agricultural products as the object, studied its site selection and path planning, and elaborated on the technical conditions, site selection and path planning theory of cold chain logistics of fresh agricultural products and high-speed rail freight operation on the basis of existing research at home and abroad, laying a theoretical foundation for the next research.

In terms of agricultural product logistics operation. Brian (2017) studied multiple aspects of logistics, starting from lean logistics, and optimizing logistics efficiency through structural models. Kristina (2017) studies the logistics efficiency of agricultural products through different schemes, and finally concludes that the method of synergizing logistics activities and logistics purposes can effectively improve the logistics efficiency of agricultural products. Wei Guochen and Liu Shenyan (2013) believe that at present, agricultural product logistics faces the problem of complex process and high cost, and can adopt a logistics model combining the government, agricultural cooperatives, farmer alliances and enterprises. The research of Pu Xujin and Jin Delong (2017) shows that joining cooperatives can significantly improve supply chain profits when the cooperatives have weak bargaining power and high design scale, compared with the general “super-farmer matchmaking” method. Wang Hong and Sun Yuling (2019) focus on improving the circulation efficiency of agricultural products, and achieving revenue sharing by exploring the “agricultural supermarket docking” model platform between cooperatives and supermarkets to achieve better results. Huang Xiao (2020) conducted an in-depth study of the current situation of agricultural logistics operation in Weifang, Shandong, used supply chain management theory and information technology such as the Internet to build a functional framework structure of intelligent logistics operation mode, and took a series of measures to ensure its successful implementation.

In terms of agricultural product logistics supply chain model. Batista et al. (2019) studied the connection between agricultural supply chain and agricultural product logistics, and believed that it is effective to study agricultural product logistics from the perspective of supply chain. Zuo Hao (2020) focuses on promoting the modernization of agricultural product circulation and the vertical development of agricultural and rural industries in Guizhou, and realizes the seamless connection of agricultural product supply chains by establishing a modern agricultural product cold chain storage and logistics system to solve outstanding problems in the sales process. Sun Xu (2021) conducted research on the cold chain logistics industry of fresh agricultural products in Henan Province and established a cold chain logistics service supply chain system for fresh agricultural products, including service supply chain construction, operation and performance evaluation, which theoretically provided a reference for the development of cold chain logistics of fresh agricultural products in Henan Province.

These research results have certain reference value for the modernization of agricultural product circulation, the sound production and marketing mechanism, the vertical development of agricultural and rural industries, and the practical application of cold chain logistics of fresh agricultural products. An Yongfeng (2022) based on the relevant theories of agricultural product logistics service supply chain, using literature induction analysis, mathematical modeling, numerical simulation and other methods to study the supplier selection and task allocation in the agricultural product logistics service supply chain.

3. Analysis of the Current Situation and Existing Problems of Lianjiang Red Orange Logistics

3.1 The Development History of Lianjiang Red Orange

Lianjiang Red Orange is a characteristic fruit of Lianjiang City, Guangdong Province, named after its bright red orange color. Lianjiang Red Oranges are mainly concentrated in the southern mountainous areas of Lianjiang City, where the soil is fertile, the water source is sufficient, and the climate conditions are suitable for the growth of red oranges. With the development of economy and the increase of market demand, Lianjiang red orange has gradually become one of the main cash crop in the region.

In the 1980s, the Lianjiang Municipal Government began to vigorously support the agricultural industry and encourage farmers to develop characteristic agricultural products. Against this background, Lianjiang red orange gradually entered the market and its sales mainly rely on local farmers' markets or some small supermarkets. But due to the limited sales channels, the price of the orange had been relatively low.

With the increase of market demand, the sales channels of Lianjiang Red Orange are gradually expanding. In the early 1990s, Lianjiang City began to promote Lianjiang Red Orange to other markets. At that time, the Lianjiang Municipal Government organized some farmers' representatives to participate in agricultural product exhibitions in Guangzhou, Shenzhen, and other places, showcasing the quality and characteristics of Lianjiang red oranges to foreign merchants. These efforts gradually achieved results, and Lianjiang Red Orange began to enter some large supermarkets and wholesale markets in Guangdong Province. At the beginning of 2000, the sales of Lianjiang Red Orange further expanded. The Lianjiang Municipal Government has begun to vigorously promote agricultural industrialization and encourage farmers to develop large-scale and standardized agricultural production. In this context, Lianjiang Red Orange has gradually achieved industrial production. The Lianjiang Municipal Government has invested tens of millions of yuan to build a number of modern orchards and processing plants, providing strong support for the production and sales of Lianjiang red oranges. At the same time, the Lianjiang Municipal Government has also increased its technical support and training efforts for Lianjiang red oranges, improving farmers' planting techniques and management levels, and ensuring the quality and yield of Lianjiang red oranges.

With the advancement of industrial production, the quality and output of Lianjiang red orange havd gradually improved, and the sales channels have gradually expanded. At present,

Lianjiang red orange has entered large supermarkets and wholesale markets across the country, and has become a well-known characteristic agricultural product in China. According to statistics, the red orange planting area in Lianjiang City has reached more than 100,000 acres, and the annual output has exceeded 200,000 tons. The quality of Lianjiang Red Orange has also been widely recognized, winning multiple national, provincial, and municipal agricultural product quality awards. The Lianjiang Municipal Government has also listed Lianjiang Red Orange as a key local agricultural product to promote its development through policy and technical support. At present, Lianjiang Red Orange has formed a relatively complete industrial chain and made important contributions to the local economic development.

3.2 The Development Status of Lianjiang Red Orange Logistics Based on SWOT Analysis

3.2.1 Strengths

Economic development

According to the comprehensive accounting of the Zhanjiang Municipal Bureau of Statistics, the city's GDP reached 53.314 billion yuan in 2022, an increase of 2.0% compared to the same period last year. The added value of the primary industry was 13.882 billion yuan, an increase of 2.9% compared to the same period last year; The value-added scale of the secondary industry reached 18.033 billion yuan, an increase of 2.5% compared to the same period last year; The total value-added of the tertiary industry reached 21.399 billion yuan, an increase of 0.8% compared to the same period last year. The per capita gross domestic product of the region reached 38998 yuan, an increase of 3.1% compared to last year.

Geo-economic advantages

With the advancement of key projects such as the Guangdong Hong Kong Macao Greater Bay Area, the Shenzhen Demonstration Zone of Socialism with Chinese Characteristics, the Hainan Free Trade Port, and the Western Land Sea New Channel, Lianjiang City, as the intersection of Guangdong, Hainan, and Guangxi provinces (regions), has unique geographical advantages and is striving to become an important development pole of the modern coastal economic belt and a sub central city in Guangdong Province. As a transportation gateway between Zhanjiang City and the southwestern region, Lianjiang City has gathered advantageous resources from Guangdong and Guangxi, and has unique geopolitical and economic advantages. During the next 14th Five Year Plan period, Lianjiang City will seize the current opportunity, rely on the opportunity of "double circulation", give full play to local advantageous industries, capital and human resources, gather industrial and technological resources in the Guangdong Hong Kong Macao Greater Bay Area, radiate the Beibu Gulf city cluster, strengthen trade exchanges with Hainan Free Trade Port, and seize the opportunity of the "the Belt and Road" construction.

Agricultural output increased

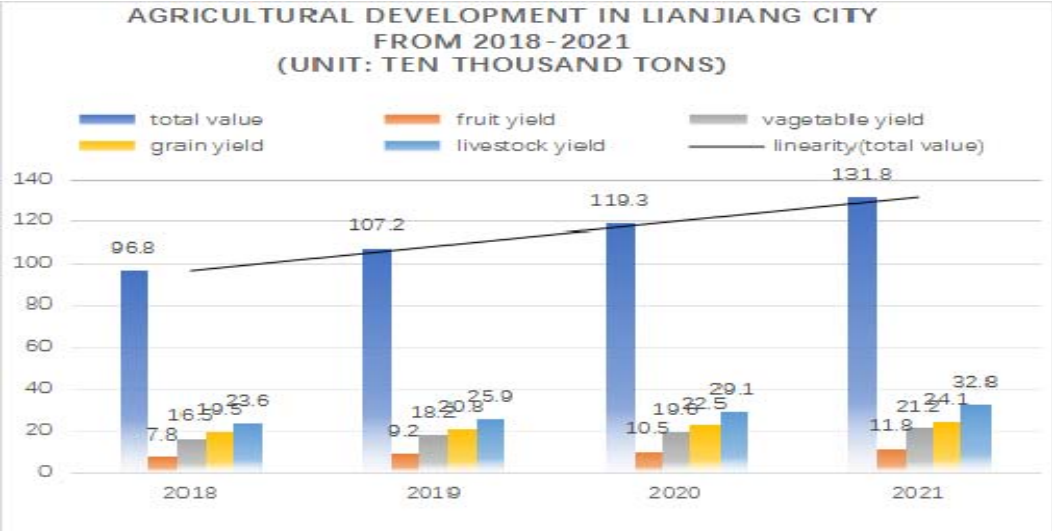

Figure 1. Agricultural development in Lianjiang City form 2018–2021

Sources: Lianjiang City 2021 Statistical Yearbook.

Overall, the agricultural output value of Lianjiang City showed a trend of increasing year by year from 2018 to 2021. Among them, the output of major agricultural products such as grain, vegetables, fruits and livestock and poultry breeding has increased with an average annual growth rate of about 11.7%. This development trend is mainly due to the support policies of the government and the improvement of agricultural modernization, as well as the active participation and efforts of farmers. In the future, Lianjiang City will continue to increase its support for agriculture, promote the industrialization, marketization and brand development of agriculture to further improve the efficiency of agricultural production and the income level of farmers.

3.2.2 Weakness

Low logistics technology level and distribution efficiency

The infrastructure construction of agricultural product logistics in China is relatively weak, and the level of professional technology is not high. Currently, it is still in an extensive operation state. The transportation in rural areas of Lianjiang City is inconvenient, and large logistics companies are mainly concentrated in the urban area, while only a few logistics companies have independent service stations within towns. In addition, the production locations of Lianjiang Red Orange and other agricultural products are relatively scattered, which limits the smoothness and efficiency of logistics and increases the difficulty of logistics management.

High logistics costs

In the entire process of agricultural product logistics, the total cost of logistics includes circulation and processing costs, loading and unloading and handling costs, transportation costs, warehousing costs, distribution costs, and packaging costs. Due to the scattered

planting of red oranges in Lianjiang, farmers have not yet formed large-scale planting of red oranges, which makes it impossible to form a scale effect and increases the overall logistics cost.

Lack of logistics talents

With the development of the economy, the logistics industry has become an important industry. The logistics industry in Lianjiang City has begun to take shape, but there are still certain bottlenecks in terms of logistics talents. Overall, the development of the logistics industry in Lianjiang City is not yet mature enough, with a small number of logistics enterprises and a small scale, which makes it difficult to attract more outstanding logistics talents to join the logistics services in Lianjiang City. In addition, the talent structure of logistics enterprises in Lianjiang City is relatively single, with most of the talents engaged in frontline operational work and relatively few high-level logistics management talents.

3.2.3 Opportunities

Government support

The 14th Five Year Plan of Lianjiang City proposes to vigorously develop the modern logistics industry. The Lianjiang Municipal Government attaches great importance to the construction and renovation of urban logistics distribution facilities, and encourages commercial circulation enterprises and chain supermarkets to carry out joint distribution. In addition, the government has proposed to accelerate the construction of the land port logistics industry project, Longjian Bonded Logistics Park, and Liangdong Agricultural Products Industrial Park. At the same time, in conjunction with the planning of the Zhanjiang Airport Economic Zone, actively promote the development of port logistics and cold chain logistics, accelerate the development of new logistics formats such as cross-border logistics, supply chain logistics, and smart logistics, aiming to improve the efficiency and service level of logistics transportation. The Lianjiang Municipal Government will also promote the pilot construction of logistics standardization, strengthen the upgrading and promotion of logistics infrastructure standardization, and comprehensively improve the public service level of the logistics industry. Improve the distinctive urban and rural distribution network, establish community service stations, and optimize the last mile distribution service in urban and rural areas.

The construction of the Red Orange Industrial Park has a considerable scale

Lianjiang Red Orange Industrial Park is the first batch of industrial parks in Guangdong Province. The construction of Lianjiang Red Orange Industrial Park began in July 2018, and the entire industrial park construction task was completed by the end of 2019. It successfully passed third-party acceptance in July 2020. The Lianjiang Municipal Government has vigorously promoted the construction of a national level modern agriculture demonstration zone and successfully applied for two provincial-level industrial parks - the Red Orange Industrial Park and the Tea Industrial Park. The total area of industrial parks in the city has reached 22400 acres, with 217 settled enterprises and 113 enterprises above designated size, an increase of 72 and 50 respectively compared to 2015. In addition, the municipal

government has optimized the industrial spatial layout and formed an industrial platform pattern of "one park, two zones" in Foshan Shunde (Lianjiang) Industrial Transfer Industrial Park, Jinshan Industrial Cluster Zone, and Shatang Industrial Cluster Zone. The construction of the industrial park has promoted the development of the red orange planting industry and also promoted the development of ecological tourism with the theme of red orange.

Effective branding construction of agricultural products

The development of agricultural product brands in Lianjiang City is relatively good. In the third "Top Ten Famous Brands" selection of Guangdong Province in 2020, five well-known brands from Lianjiang City were successfully selected. Among the agricultural branded products in Guangdong Province, 14 come from Lianjiang City; Eight of the famous agricultural products in Zhanjiang City come from Lianjiang City, among which Lianjiang Red Orange is a highly favored boutique. In addition, the Lianjiang Municipal Government actively organizes enterprises to participate in the China International Agricultural Products Fair, creating the Lianjiang Red Orange brand of "One Orange, One City". Through the joint efforts of the government and enterprises, Lianjiang Red Orange has been successfully selected into the national list of famous, special, and high-quality new agricultural products, laying the foundation for building a regional public brand of "Lianjiang Red Orange" and integrating and enhancing the "Lian Zi Hao" agricultural product brand.

3.2.4 Threats

The threat of market competition

There are many types of oranges on the market, including sweet oranges, navel oranges, blood oranges, rock sugar oranges, red oranges, etc. Oranges usually mature in winter and are one of the world's four famous fruits. Given the high degree of commercialization of oranges, many distinctive cultivation varieties have emerged in response to market demand, such as late maturing summer oranges (Menaixia oranges, Olinda oranges) that fill the market gap, and geographical protected varieties such as seedless oranges and Gannan navel oranges that are beneficial for fresh consumption. It can be seen that the competition in the orange market is very fierce.

In addition, with the development of the Internet, the development of e-commerce sales channels is in full swing. However, due to the small number and scale of logistics enterprises in Lianjiang City, the efficiency of logistics distribution is not high, which seriously affects the expansion and development of the Lianjiang Red Orange market, and is not conducive to improving the market share and competitiveness of Lianjiang Red Orange.

High logistics delivery requirements

Lianjiang Red Orange is a fresh commodity with strong seasonal variability. It also has characteristics such as short shelf life, perishability, and high technical requirements for transportation and storage. Therefore, the requirements for logistics and distribution of Lianjiang Red Orange are very high, manifested in: to enter the market with the least circulation links and the fastest time; Ensure the stability of quality during the circulation

process; The products provided to consumers are safe and diverse; Reduce the cost of logistics delivery and improve delivery efficiency. These logistics delivery requirements pose significant challenges to the current logistics capacity and level of Lianjiang City. From picking to reaching consumers, Lianjiang Red Orange needs to go through various stages such as processing, packaging, storage, transportation, and distribution. If there is a problem in any one stage, it may lead to customer dissatisfaction and complaints, which will have a negative impact on the reputation and industry of Lianjiang Red Orange brand and logistics. It can be seen that the current quality and level of logistics pose significant threats and challenges to the Lianjiang Red Orange brand.

The increase in consumer demand

With the improvement of people's living standards and the upgrading of dietary consumption, consumers' demand for high-quality fruits is increasing day by day. Consumers are no longer solely concerned about fruit prices, but also about the freshness, safety, green, organic and other characteristics of fruits. In addition, with the diversification of fruit retail business models, the fruit consumption market is becoming broader. The origin of fruits continues to achieve vertical regional expansion and horizontal innovation in variety. This has brought more choice space for consumption, and consumers' demands have also become higher. Therefore, Lianjiang red orange planting enterprises need to control the quality of red oranges, and logistics enterprises should try their best to allow high-quality fresh fruits to enter the consumer market at a faster speed and lower price, and deliver them to consumers. Therefore, the increase in consumer demand has brought huge challenges to planting enterprises and logistics companies.

3.3 The Main Problem of Lianjiang Red Orange Logistics

With the acceleration of agricultural modernization, the production and sales of agricultural products have become increasingly complex and refined. The importance of agricultural product logistics is increasingly prominent, and logistics support is indispensable for the production, processing, storage, and sales of agricultural products. After conducting research and SWOT analysis, it can be concluded that there are still some problems in the logistics of Lianjiang Red Orange, manifested in the following aspects:

3.3.1 Distribution and Warehousing Problems

The efficiency of logistics is closely related to infrastructure, logistics technology and equipment, industrial policies, transportation standards, and other aspects (Peng, 2022). Due to the lack of sufficient understanding and unified strategic thinking of modern logistics by relevant government functional departments, there has been a situation of implementing multi management for logistics enterprises, which hinders the healthy, rapid, and orderly development of the logistics industry. In addition, the logistics enterprises in Lianjiang City have a small scale and low level of technical equipment, which to some extent affects the efficiency of Lianjiang Red Orange logistics distribution and cannot meet the standards of logistics transportation and distribution.

Fruits are perishable foods that need to be kept fresh and comply with relevant hygiene and

safety regulations. Lianjiang Red Orange is a fresh fruit that also has high requirements for storage. Due to limited funds and technology, there are still many shortcomings in the warehouse management of Lianjiang Red Orange, manifested in the instability of the temperature control system; The shelf layout is chaotic; Poor environmental hygiene, insufficient sorting equipment, etc. These issues affect the quality of Lianjiang Red Orange and also affect customer perception.

3.3.2 Shortage of Logistics Talent

The efficient operation of logistics relies on a large number of professional talents with a certain level of logistics knowledge and practical experience (Zhang, 2018). From the current actual situation, less than 10% of the personnel engaged in logistics activities in Lianjiang City are logistics professionals, and the majority of the employees have a high school education or below and have not studied relevant logistics knowledge. In addition, the salary level of logistics professionals in Lianjiang City is relatively low, making it difficult to attract more logistics professionals. It can be seen that the overall quality of logistics practitioners in Lianjiang City is not high, which greatly affects the survival and development of enterprises.

3.3.3 Information Management Problems

Information flow runs through the whole process of logistics, and logistics information system directly affects the operation efficiency and customer service level of enterprises. The informationization level of agricultural product logistics in Lianjiang City is relatively low, lacking modern logistics management systems and information platforms, which cannot achieve real-time monitoring and management of logistics information, affecting logistics efficiency and quality. First of all, there are deficiencies and lags in the construction of logistics informatization of Lianjiang Red Orange. There is no perfect logistics information system, which leads to opaque and untimely logistics information, and no integration and sharing of information resources, leading to information silo and information barriers. In terms of information management, there has been no employee information training and assessment, resulting in uneven information literacy and skill levels, inadequate information security protection and risk management, leading to information leakage and information security accidents. These issues not only affect the informatization level and operational efficiency of Lianjiang Red Orange agricultural product logistics, but also affect its long-term development and competitiveness.

4. Logistics Improvement Strategy for Lianjiang Red Orange

Through the previous analysis, it was found that there are problems in the logistics distribution and warehousing process, logistics professionals, and information management of Lianjiang Red Orange Logistics. In response to these issues, this section will propose corresponding logistics improvement strategies, in order to provide reference for the development of Lianjiang Red Orange logistics and the implementation of rural revitalization strategy.

4.1 Optimize the Logistics and Distribution Process of Lianjiang Red Orange and Manage the Storage of Agricultural Products

The implementation of the rural revitalization policy has promoted the development of the agricultural product market, and has put forward higher requirements for the logistics distribution and storage management of agricultural products such as red oranges. In terms of the logistics and distribution process of Lianjiang Red Orange, it is necessary to clarify the various links and responsibilities of logistics and distribution, strengthen supervision and management of logistics and distribution, and improve the timeliness and accuracy of logistics and distribution. In addition, strengthen the preservation and transportation management of agricultural products, and improve the quality and safety of agricultural products. In terms of warehouse management, it is mainly necessary to strengthen storage management, establish a sound storage record and traceability system, select equipment suitable for the storage of red oranges and other agricultural products, such as cold storage, refrigerated trucks, etc., to ensure that the storage environment meets the storage requirements of agricultural products. Packaging materials with good air permeability, moisture-proof, shock proof and pressure proof, such as foam boxes and cartons, shall be used to protect the red orange from the impact of the external environment. Regularly inspect the storage environment, adjust storage conditions in a timely manner, ensure the quality and taste of red oranges, as well as the quality and safety of red oranges (Cao, Deng, & He, 2018)

4.2 Improving the Quality and Ability of Logistics Practitioners

Logistics is a management work that includes functions such as procurement, warehousing, transportation, packaging, international trade, computers, etc. Therefore, logistics talents not only need to understand logistics professional knowledge, but also need to flexibly apply other professional skills involved. Logistics talents are an important guarantee for promoting the development of the logistics industry and promoting the implementation of rural revitalization strategies (Guan & Zhang, 2019)

4.2.1 Strengthen the Education and Training of Logistics Talents

The education and training of logistics talents is a prerequisite for improving the quality of logistics talents. Lianjiang City should strengthen the education and training of logistics talents, and cultivate more high-quality logistics talents. Specifically, government departments can lead logistics enterprises to carry out training for logistics practitioners. Improve the quality and abilities of logistics practitioners at all levels through training. In addition, logistics enterprises can collaborate with universities to cultivate targeted talents through joint training, emphasizing the practicality and effectiveness of talents.

4.2.2 Optimizing the Work Environment for Logistics Talents

A good work environment can attract more outstanding talents to join. Talent resources are the primary resource and a key issue that affects whether a region’s economy can achieve rapid development. Both the government and enterprises should strive to provide a better environment for talent development. The shortage of logistics talents in Lianjiang City is constraining the economic development of Lianjiang City. Therefore, Lianjiang City can stimulate the creativity and work enthusiasm of talents through measures such as increasing the salary and benefits of logistics practitioners, creating a fair competitive environment, and

improving diversified talent policies.

4.2.3 Strengthen the Cultivation of Innovative Abilities for Logistics Talents

The innovation ability of logistics talents is the key to improving the competitiveness of the logistics industry. Specifically, strengthening the cultivation of scientific research capabilities for logistics talents and improving their innovation and research level can effectively promote the technological innovation and development of the Lianjiang Red Orange agricultural product logistics industry. Encourage logistics talents to innovate and start businesses, provide entrepreneurial support and services, stimulate the innovation enthusiasm of logistics talents, and promote the innovative development of the logistics industry. In addition, it is necessary to establish a logistics talent innovation platform, promote communication and cooperation among logistics talents, and promote the innovative development of the Lianjiang Red Orange logistics industry.

4.3 Establishing a Logistics Information Platform

The implementation of rural revitalization policies has improved the competitiveness of the agricultural product market, while also placing higher demands on logistics information management. The informatization level of the Lianjiang Red Orange logistics system is relatively low, and it is necessary to establish a logistics information platform to achieve transparency and sharing of logistics information, thereby improving the efficiency and quality of logistics services and promoting the sales and transportation management level of agricultural products. Through the supervision and feedback mechanism of logistics information platforms, the quality and safety supervision of agricultural products can be strengthened; Timely collection and feedback of logistics information can help improve consumer trust and satisfaction, and assist in the development of Lianjiang Red Orange Logistics. In addition, the establishment of a logistics information platform can also promote cooperation and win-win situation among logistics enterprises, achieve coordinated development of the logistics industry, and promote the development of rural economy (Xu, 2021).

4.4 Strengthen the Construction of Logistics Facilities

Modern logistics equipment and technology are the key to improving logistics efficiency and reducing logistics costs. Firstly, it is necessary to increase investment in rural transportation facilities, improve infrastructure and logistics networks such as roads, bridges, and docks, in order to improve the convenience and safety of logistics transportation, improve transportation efficiency, and reduce transportation costs. Secondly, advanced transportation equipment such as cold chain transport vehicles and insulation vehicles should be equipped to ensure the temperature and humidity of agricultural products during transportation and reduce the loss of Lianjiang Red Orange during transportation. Finally, create a comprehensive logistics park that integrates logistics, warehousing, distribution, processing and other functions to improve the service level of Lianjiang Red Orange logistics, increase the added value of Lianjiang Red Orange, and further promote rural revitalization.

5. Summary

With the continuous improvement of people's living standards and the rapid development of agricultural e-commerce, the demand for fresh agricultural products is constantly increasing. Improving agricultural product logistics and accelerating the development of agricultural product logistics have become important means to promote current economic development. Lianjiang Red Orange is listed as a national banquet fruit, renowned both domestically and internationally, and enjoys the reputation of "Queen of Oranges", deeply loved by consumers. However, there are many problems in logistics, manifested in low efficiency of logistics distribution, high storage costs, shortage of logistics talents, outdated logistics informatization and logistics systems, etc. These logistics problems affect the development of Lianjiang Red Orange. Therefore, this article proposes countermeasures and suggestions from different perspectives such as distribution and warehousing, talent cultivation, information management, and agricultural product logistics infrastructure construction, in order to solve the problems in the logistics of Lianjiang Red Orange and assist in the high-quality and efficient development of Lianjiang Red Orange. The discussion on Lianjiang Red Orange logistics in this paper will help to improve the level of Lianjiang logistics, promote the further research on the driving mechanism of agricultural product logistics and stakeholder cognition driving mechanism, and provide an important theoretical basis for the innovation and development of agricultural product logistics.

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References

Ahumada, O., & Villalobos, J. R. (2011). A tactical model for planning the production and distribution of fresh produce. *Annals of Operations Research*, *190*(1), 339–358 https://doi.org/10.1007/s10479-009-0614-4

Ammar, H., & Chrétien, F. (2018). Analyzing the impact of information and communication technology on logistics performance in the agriculture sector. *Computers and Electronics in Agriculture*, *152*, 278–291.

An, Y. F. (2022). *Research on supplier selection and task allocation in agricultural product logistics service supply chain*. Jiangsu University.

Batista, L. et al. (2019). Knowledge management for food supply chain synergies – a maturity level analysis of SME companies. *Production Planning & Control*, *30*(10–12), 995–1004. https://doi.org/10.1080/09537287.2019.1582104

Brian, F. (2017). Christopher Wright. Cold chain Concerns. *Pharmaceutical Technology*, *29*(4), 44.

Cao, G. X., Deng, Z. H., & He, L. H. (2018). Analysis on the development status and

direction of cold chain logistics of agricultural products based on RFID technology. *Food Science and Technology and Economy*, *43*(07), 66–71.

Engida, T., Ndegwa, W., Wafula, A., & Wakhusama, S. (2019). Evaluation of the effectiveness of information and communication technology in improving agricultural logistics: A case study of Ethiopia. *International Journal of Supply Chain Management*, *8*(5), 593–603.

Fang, L. J., & Zhu, L. (2015). Optimization of agricultural product transportation organization mode in small and medium-sized cities. *Modern Transportation Technology*, *12*(06), 92–96.

Fu, X. T. (2022). *Research on site selection and path planning of cold chain logistics distribution center for fresh agricultural products considering high-speed rail transportation*. Chongqing Jiaotong University.

Guan, C., & Zhang, Y. (2019). Research on countermeasures for the development of agricultural and sideline products logistics park in Xinfadi, Hebei Province based on SWOT analysis. *China Market*, *26*, 165–166.

Huang, X. (2020). *Research on intelligent logistics operation mode of Dyke strengthening Agricultural Demonstration Zone in Weifang, Shandong Province*. Shandong University of Technology.

Kristina, L. (2017). Logistics solutions for reducing food waste. *International Journal of physical Distribution & Logistics Management*, *47*(4), 318–339. https://doi.org/10.1108/IJPDLM-03-2016-0085

Lianjiang Statistical Yearbook. 2018–2021 data.

Peng, S. Y. (2022). Logistics cost accounting and control strategy of agricultural products. *China Logistics and Procurement*, *8*, 85–86.

Pu, X. J., & Jin, D. L. (2017). Comparison of operational efficiency of fresh agricultural product supply chain: single “agricultural & super docking” vs. double-channel. *China Management Science*, *25*(01), 98–105.

Shi, S. C., & Fan, J. (2017). The experience and enlightenment of foreign agricultural product logistics mode. *Journal of Business Economics*, *3*, 120–122.

Soysal, M., & Blocmhof-Ruwaard, J. M. J. G. A. J. van der Vorst. (2014). Modelling food logistics networks with emission considerations: The case of an international beef supply chain. *International Journal of Production Economics*, *152*(2), 57–70. https://doi.org/10.1016/j.ijpe.2013.12.012

Sun, X. (2021). *Research on supply chain of cold chain logistics service of fresh agricultural products in Henan Province*. Taiyuan University of Science and Technology.

Wang, H., & Sun, Y. L. (2019). Analysis of Omni-channel Operation Mode of Fresh Agricultural Products Supply Chain. *Industrial Engineering*, *22*(06), 74–79.

Wei, G. C., & Liu, S. Y. (2013). Research on Operation Mode of Agricultural Products Logistics. *Logistics Technology*, *32*(05), 4–8.

Xu, X. H. (2021). Construction of intelligent logistics information platform for cold chain of agricultural products based on big data technology. *Heilongjiang Grain*, *221*(10), 123–124.

Zhang, X., & Wu, L. (2018). A new model of a logistics management system for Chinese agriculture. *Journal of Cleaner Production*, *171*, 998–1009.

Zhang, Y. (2018). Research on optimization of rural logistics distribution system based on e-commerce. *Agricultural Economics*, *08*, 143–144.

Zuo, H. (2020). *Research on the development strategy of cold chain logistics of supply chain agricultural products of XDWL Group*. Xiangtan University.

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