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**RESEARCH ARTICLE**

# Research on the High-Quality Development of Cross-border E-commerce for Agricultural Products in China and Mongolia under the Perspective of Digital Empowerment

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**ABSTRACT**

During the 14th Five-Year Plan period, China's economy is gradually turning to the high-quality development stage, and the evolution of agricultural trade, as an important pillar of economic growth, needs to follow the global economic trend and turn to the path of high-quality development. 'As one of the six international economic co-operation hallways under the framework of the Belt and Road Initiative, China and Mongolia are important members of the "China-Mongolia-Russia Economic Corridor," and it is crucial to realize the high-quality development of agricultural products trade between the two countries. Cross-border e-commerce for agricultural products has established an effective connection to promote trade in agricultural products between China and Mongolia due to its flexibility, efficiency, and decentralization. However, the current uneven quality of agricultural products and insufficient cross-border logistics service capacity are constraining the development of high-quality cross-border e-commerce in agricultural products between China and Mongolia. To address these challenges, we should start from the agricultural product quality traceability system and cross-border logistics service system, focus on making up for the existing shortcomings, and make full use of the enabling role of digital technology to promote the high-quality growth of cross-border e-commerce of agricultural products between China and Mongolia.

## INTRODUCTION

The 19th CPC National Congress identified China's current stage of development as a 'period of high-quality development' from both international and domestic perspectives and enhanced the quality and effectiveness of development, the core theme of the 14th Five-Year Plan. Agricultural economic and trade cooperation has gradually become a new highlight of international economic cooperation. Mongolia is closely connected with China, and the historical Zhangku Avenue is an important trade route in the East. China and Mongolia reached a guiding opinion during their state visit in 2014 to promote the in-depth development of economic and trade cooperation. The rise of geo-economics and General Secretary Xi Jinping's Belt and Road Initiative have boosted the construction of the China-Mongolia-Russia Economic Corridor, injecting new impetus into China-Mongolia economic and trade cooperation. In April 2019, Mongolian President Batuolga attended the second session of the Belt and Road Initiative. "Belt and Road" International Cooperation Summit Forum, marking a new stage in economic and trade cooperation between the two countries, and the two sides reached several consensus in the areas of infrastructure, energy, minerals, and agriculture. In 2021, China

released the Outline of the 14th Five-Year Plan and 2035 Vision, which proposes to actively carry out international cooperation on important agricultural products, improve the import management mechanism, promote the diversification of import sources, and cultivate large international grain traders. The above policies emphasize the importance China attaches to the safety of agricultural products as well as trade in agricultural products, bringing new opportunities for cross-border e-commerce in agricultural products between China and Mongolia.

In 2022, the total trade volume between China and Mongolia will reach US$12.225 billion, of which the import and export volume of agricultural products will be US$1.2 billion, which is a significant increase [ The data comes from the Chinese Ministry of Commerce and the Chinese Customs and Excise Department's publicly released information.]. The swift development of digital technology has injected new vitality into China-Mongolia agricultural trade and provided opportunities for diversification while promoting the expansion of agricultural e-commerce into the international market and facilitating the introduction of high-quality overseas agricultural products. However, cross-border e-commerce faces several challenges in the field of agricultural products, such as the lack of a quality traceability system and insufficient logistics capacity. To this end, this paper will comprehensively analyze the current situation of agricultural trade and cross-border e-commerce in China and Mongolia, deeply discuss the influencing factors, and explore the new path to push forward high-quality development from the perspective of digital empowerment.

## 1. Core concepts and theoretical foundation

### 1.1 Scope of agricultural products and data selection

Different statistical calibers of trade in agricultural products will lead to differences in the final trade volume, and a precise definition of the range of agricultural products is the basis of the study, but there is currently no uniform standard, and agencies and experts often differ in their classification. In this paper, we will introduce three classification standards for international commodities, analyze the advantages and disadvantages of four commonly used statistical calibers for agricultural products, and finally define the scope of agricultural products traded between China and Mongolia according to actual needs.

Currently, there are three main classification standards for agricultural products: the Standard International Trade Classification (SITC), Harmonized Commodity Description and Coding System (HS), and Classification by Economic Categories (BEC).SITC focuses on commodity attributes, and the code consists of five digits; HS builds on this with further refinement, and the code consists of six digits; and BEC focuses on the use of the product and has a broader categorization. The SITC focuses on the attributes of commodities, and the code consists of five digits; the HS is further refined on this basis, and the code consists of six digits; and the BEC focuses on the use of the product and has a broader classification. Each standard differs in defining the scope of agricultural products, with SITC having a large statistical caliber, BEC having a broad classification, and HS being more suitable for trade analysis.

There are four commonly used statistical calibers for agricultural products: the first is the agricultural caliber of the WTO Agreement on Agriculture, which is based on the HS standard and mainly covers the first 24 chapters of HS (excluding aquatic products). The advantage applies to WTO negotiations; the disadvantage is that the exclusion of aquatic products is more cumbersome. The second is the WTO caliber plus aquatic products, including all agricultural products and related aquatic products, the classification is more detailed and can cover most of the agricultural products but does not cover all products of the fishery industry. The third is the caliber of the International Trade Center and the United Nations Conference on Trade and Development, based on the SITC,

focusing on agricultural production, with the advantage of easy statistics, but the definition of the scope is rougher. The fourth is the FAO caliber, which integrates SITC and HS standards and covers 23 chapters, with the advantage of a longer time series, but non-agricultural products are not excluded.

Considering the four statistical calibers, their advantages and disadvantages, and the actual needs of agricultural trade between China and Mongolia, this study adopts the "caliber of agricultural products of the WTO Agreement on Agriculture + aquatic products" as the defining standard. This choice takes into account the relatively small amount of fishery resources in Mongolia and, at the same time, is in line with the statistical guidance of the Ministry of Commerce of the People's Republic of China, which ensures the completeness of the data on trade in agricultural products and truly reflects the situation of trade between China and Mongolia.

## 2 THEORETICAL FOUNDATIONS

### 2.1 Xi Jinping's Discourse on Opening Up and High-Quality Development of Trade

Xi Jinping's concept of opening-up strategy in the new era is an important part of socialism with Chinese characteristics and is the basic theory for promoting the high-quality development of Chinese agriculture. The concept is closely related to the promotion of high-quality development of openness to the outside world, which can be summarized in three aspects. First, a new development pattern of comprehensive opening-up must be established. In the face of the challenges of the times, China has firmly promoted opening up to the outside world, aiming to build an open economic system, reduce market costs, improve operational efficiency, and enhance international competitiveness by improving the legal and institutional environment. Xi Jinping has emphasized that the global economy faces the major problem of insufficient growth momentum, and innovation is the key to solving this problem. Only by daring to innovate and change can we break through the barriers to global economic growth. Finally, it is necessary to further expand opening up to the outside world and cultivate new trade competitiveness. General Secretary Xi Jinping pointed out that accurately grasping the international situation and domestic development guidelines is an effective way to maintain China's traditional advantages in trade and cultivate new advantages in global market competitiveness.

### 2.2 Classical Trade Theory

Based on Adam Smith's theory of absolute advantage, British classical economist Ricardo pointed out that international trade can help countries identify their advantages. The theory of comparative advantage arises from the fact that countries seek to maximize profits to produce suitable goods, thus enhancing trade efficiency. The analytical premise of the theory is that A and B exist in an interactive relationship and co-produce two products, A and B. Assuming that country A outperforms country B in productivity in both products, according to the theory of absolute advantage, country A can manufacture either product while country B cannot produce either of the two goods. If Country B has a greater advantage in producing good A than good B, it should choose to focus on international trade in good A. At the same time, Country A should choose to produce Commodity B, which has a greater relative advantage, which will help maximize benefits and welfare and enhance economic efficiency.

### 2.3 Theory of Competitive Advantage

The theory of comparative advantage suggests that a country's trade advantages are not only dependent on natural resources, labor, interest rates, and the exchange rate but are also influenced by multiple factors such as social systems, technological innovation, and industrial development.

According to Porter's theory, a company's ability to have a significant comparative advantage is directly related to its ability to profit from global trade. According to Porter's theory, whether a company can have a significant comparative advantage is directly related to its profitability in global trade. Therefore, countries, especially developed countries, should go beyond the single concept of competitive advantage and promote industrial structure optimization, technological progress, and institutional reform through comparative advantage to enhance the global competitiveness of domestic enterprises and share the benefits of international trade. Porter's theory of international competitive advantage points out that international competitive advantage is dynamic development, and its classic diamond model emphasizes that a developing country's global competitiveness in a certain field depends on six elements: output elements (human, natural resources, knowledge, capital, infrastructure), market elements, related industries, enterprise elements (strategy, structure, industry competition), opportunities and government. The combination of these six factors forms a more complete theoretical framework that provides the basis for research on the competitiveness of export commodities.

## 3. The Current Situation of Agricultural Products Trade and Cross-border E-commerce Trade of Agricultural Products between China and Mongolia

### 3.1 Current Situation of Agricultural Products Trade between China and Mongolia

#### 3.1.1 China's foreign trade in agricultural products

During the period 2014-2023, China's agricultural trade total continued to grow steadily, from $194.499 billion in 2014 to $336.062 billion in 2023, an increase of 72.78%; the proportion of total agricultural import and export in China's total import and export continued to climb, and its trade deficit in agricultural products continued to increase, demonstrating China's strong agricultural import demand, the See Table 3.1 shows.

**Table 3.1 Changes in China's Foreign Trade in Agricultural Products from 2014-2023**

| Year | Total import and export volume (Billion USD) | Proportion in all products (%) | Export value (Billion USD) | Import amount (Billion USD) | Export minus import (Billion USD) |
|---|---|---|---|---|---|
| 2014 | 1944.99 | 4.52 | 719.60 | 1225.38 | -505.78 |
| 2015 | 1875.62 | 4.74 | 706.82 | 1168.81 | -461.99 |
| 2016 | 1845.55 | 5.01 | 729.86 | 1115.69 | -385.83 |
| 2017 | 2013.88 | 4.90 | 755.32 | 1258.56 | -503.24 |
| 2018 | 2177.88 | 4.71 | 804.48 | 1372.60 | -568.12 |
| 2019 | 2300.68 | 5.03 | 790.98 | 1509.70 | -718.72 |
| 2020 | 2485.43 | 4.31 | 765.31 | 1720.11 | -954.80 |
| 2021 | 3064.67 | 5.08 | 850.05 | 2214.61 | -1364.56 |
| 2022 | 3372.38 | 5.72 | 993.18 | 2379.20 | -1386.03 |
| 2023 | 3360.62 | 5.79 | 1001.45 | 2359.18 | -1357.73 |

Source: General Administration of Customs, China

The main varieties of agricultural products traded in China include edible oilseeds, soybeans, livestock products, aquatic products, fruits, grains, and vegetables, and the import and export trade

in all of the above varieties totals more than $10 billion; exports ranked in the top five are aquatic products (19.671 billion U.S. dollars), vegetables (18.547 billion U.S. dollars), rice (9.984 billion U.S. dollars), fruits (7.059 billion U.S. dollars), Livestock products (6.082 billion U.S. dollars); imports ranked in the top five are edible oilseeds (66.861 billion U.S. dollars), soybeans (59.755 billion U.S. dollars), livestock products (45.192 billion U.S. dollars), aquaculture products (23.383 billion U.S. dollars), cereals (20.799 billion U.S. dollars) as shown in Figure 3.1.

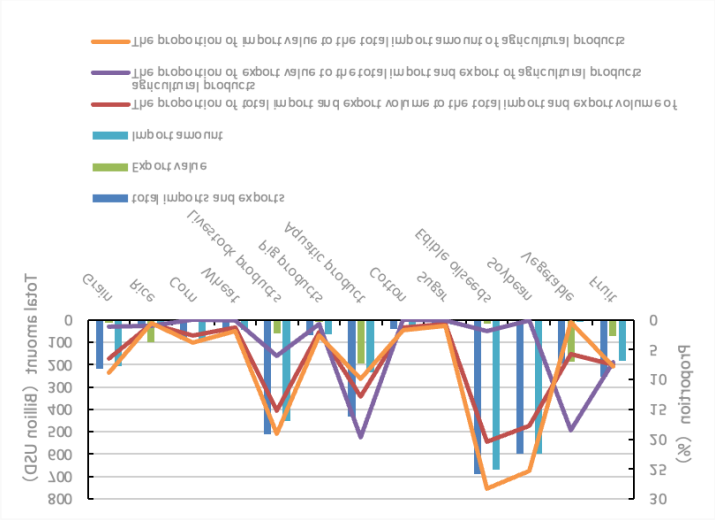

**Figure 3.1 Import and Export of Key Agricultural Products in China, 2023**
**Data source: General Administration of Customs of China**

Hong Kong, China, the United States, Japan, and South Korea are China's major export markets for agricultural products, and Brazil, the United States, and Thailand are China's major import markets for agricultural products, as shown in Figure 3.2.

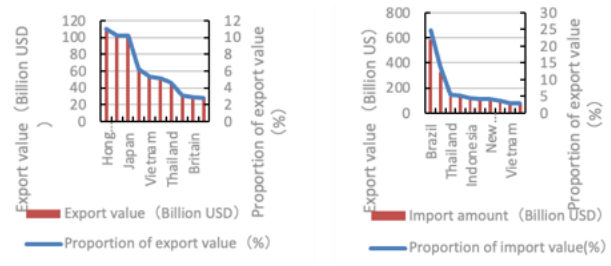


**Fig. 3.2 Trade Objects for Import and Export of China's Major Agricultural Products**

**Data source: General Administration of Customs of China**

### 3.1.2 Mongolia's foreign trade in agricultural products

Given that Mongolia's 2023 Statistical Yearbook has not yet been published, here, based on Mongolia's publicly disclosed data from 2014-2022, we utilize linear regression analysis to forecast Mongolia's foreign trade in agricultural products in 2023 to facilitate the advancement of comprehensive analysis. First, Mongolia's total foreign trade in agricultural products, exports, and imports shows an overall increasing trend, with trade imports significantly higher than trade exports and a trade deficit, as shown in Figure 3.3.

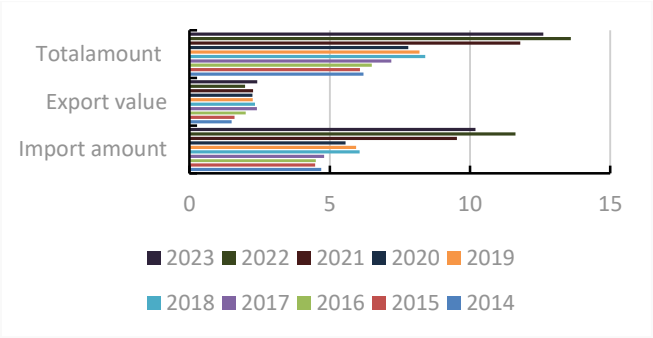


**Figure 3.3 Mongolia's Foreign Trade in Agricultural Products**
**Data source: Mongolian Statistical Yearbook**

Mongolia's agricultural imports are relatively concentrated in terms of the type of agricultural products, with the Shanghai Municipality, Mongolia's vegetable imports amounting to US$145 million in 2022, accounting for 12.75% of Mongolia's total agricultural imports; Mongolia's share of imports of live animals and products of animal origin climbed since 2020 and accounted for 12.49% in 2022. Analyzing from a historical perspective, Mongolia's agricultural import structure is dominated by food and vegetables. The structure of Mongolia's agricultural exports has undergone a significant change from being dominated by raw hides and skins to being dominated by products of vegetable origin as well as products of live animals and animal origin, as shown in Table 3.2.

**Table 3.2 Import and Export of Major Agricultural Products in Mongolia, 2014-2022 Unit：Billion USD**

| Year | Main imported agricultural products | | | | | Main export agricultural products | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Live animals, animal derived products | Vegetable based products | Vegetable oils and animal fats | Food | Raw hides, fur and their products | Live animals, animal derived products | Vegetable based products | Vegetable oils and animal fats | Food | Raw hides, fur and their products |
| 2014 | 0.67 | 0.88 | 0.32 | 3.83 | 0.07 | 0.17 | 0.22 | 0.00 | 0.12 | 0.36 |
| 2015 | 0.41 | 0.79 | 0.27 | 3.29 | 0.05 | 0.26 | 0.38 | 0.00 | 0.16 | 0.34 |
| 2016 | 0.41 | 1.09 | 0.28 | 3.29 | 0.05 | 0.29 | 0.55 | 0.01 | 0.12 | 0.30 |
| 2017 | 0.57 | 0.78 | 0.30 | 3.79 | 0.08 | 0.67 | 0.68 | 0.00 | 0.23 | 0.24 |
| 2018 | 0.69 | 1.34 | 0.34 | 4.37 | 0.08 | 1.02 | 0.22 | 0.01 | 0.91 | 0.17 |
| 2019 | 0.77 | 0.91 | 0.29 | 4.44 | 0.07 | 0.98 | 0.12 | 0.01 | 0.62 | 0.14 |
| 2020 | 0.8 | 1.20 | 0.36 | 4.34 | 0.05 | 0.53 | 0.11 | 0.01 | 0.70 | 0.07 |
| 2021 | 1.21 | 1.88 | 0.46 | 6.07 | 0.06 | 0.42 | 0.89 | 0.01 | 0.47 | 0.06 |
| 2022 | 1.42 | 1.45 | 0.60 | 7.81 | 0.09 | 0.65 | 1.01 | 0.03 | 0.24 | 0.05 |

Data source: Official website of the Mongolian Bureau of Statistics

### 3.1.3 China-Mongolia Bilateral Trade in Agricultural Products

According to the theory of geo-economics, countries with geographic proximity have more advantages in agricultural trade. China shares a 4,677-kilometer border with Mongolia, showing obvious geographic advantages. In addition, the two countries have obvious comparative advantages in agricultural products and have formed a good trade complementary relationship for a long time. However, the scale of trade between the two countries has not yet reached the expected maximum level and still faces many challenges.

### (1) The total scale of agricultural trade is limited

Bilateral agricultural trade between China and Mongolia is relatively small and almost negligible. However, when trade with other countries similar to Mongolia is aggregated, the phenomenon becomes striking, as highlighted by Li and Zu (2020). Although the scale of agricultural trade between China and Mongolia is gradually expanding, the overall total is still insufficient. Mongolia's limited processing capacity, coupled with China's standards for importing meat products, has restricted the further development of bilateral trade. Although the two sides have a broad space for cooperation, the actual cooperation is slow, the level is low, and the potential has not been effectively released (Zhang et al., 2020). According to the data released by the Statistical Office of Mongolia, in 2021, the total number of livestock in Mongolia exceeds 67 million heads, and the meat production exceeds 510,000 tons, but the meat export to China is only about 812 tons. If the export level can be enhanced, Mongolia will have the opportunity to become an important meat exporter.

### (2) Limited areas of trade cooperation and investment

Sino-Mongolian cooperation in the trade of agricultural and livestock products is mainly focused on the processing of livestock products (Chen, 2020). According to the 2021 Mongolia Investment Guide issued by the Ministry of Commerce, the number of Chinese enterprises in Mongolia in 2020 is 148, with less than ten enterprises engaged in the agricultural and livestock industry, and these enterprises are generally smaller and weaker, mainly focusing on the processing of cashmere and meat products. According to the Doing Business report, Mongolia will be ranked 81st in Doing Business globally in 2020. Due to Mongolia's protective measures for its own agriculture and livestock industry, foreign capital is more difficult to enter, and the business environment needs to be improved. In addition, the traditional herding model has limited Mongolia's modernization and development level, coupled with its low awareness of participation in cooperation, resulting in constraints on the space for trade and investment cooperation between China and Mongolia.

## 3.2 Prospect Analysis of Cross-border E-commerce Development of Agricultural Products in China and Mongolia

### 3.2.1 China has huge potential for cross-border e-commerce

China is among the world's largest markets for the production and consumption of agricultural products, with significant cross-border e-commerce potential. From 2014 to 2022, China's cross-border e-commerce turnover of agricultural products has steadily risen, reaching US$8.1 billion in 2022, a year-on-year increase of 25.9%, according to the Ministry of Agriculture and Rural Affairs (MARA).2021 The National Report on Cross-Border E-Commerce Development of Agricultural Products (2021-2022), released by the MARA and the China International Center for Electronic Commerce (CICEC) in December 2021, shows that the industry's development is gaining momentum and the market vitality is remarkable. In 2021, China's cross-border e-tailing imports of agricultural products reached 4.182 billion yuan, a year-on-year increase of 28.1%.2021 The growth of meat, poultry and eggs, aquatic products, and dairy products was particularly pronounced, reflecting consumers' demand for high-quality and diversified food products. In addition, live cross-border e-commerce has brought new momentum to the industry, enhancing the market exposure of agricultural products and facilitating brand building and market expansion. In general, China's cross-border e-commerce for agricultural products is growing rapidly and is expected to occupy a more important position in the global market in the future. For example, Tmall International's “New Year's Goods Festival” launched in January 2022 and BoxMart's “SCO Ambassadors' Live Streaming of Goods” launched in January 2022 have both generated impressive sales results, providing new impetus for overseas agricultural products to enter the Chinese market. This has provided a new

impetus for overseas agricultural products to enter the Chinese market. Combined with the previous analysis of the structure of agricultural trade between China and Mongolia, livestock products, vegetables, animal and plant fats, and oils may become the mainstream products of cross-border e-commerce of agricultural products between China and Mongolia, further expanding the trade space between the two countries.

### 3.3.2 Cross-border e-commerce of agricultural products in geo-neighboring countries has convenience

The distribution of cross-border e-commerce in agricultural products mainly includes both production and consumption. The production side is mainly concentrated in large agricultural products countries, such as China, the United States, Brazil, Argentina, Australia, and Canada. The main markets on the consumption side cover Europe, America, Southeast Asia, as well as Japan and South Korea. Brazil is the top-ranked importer of China's agricultural trade. As one of the world's largest agricultural producers and exporters, Brazil is rich in agricultural products such as soybeans, corn, and beef, which account for a large proportion of China's agricultural imports ($2.4 billion). Among the exporters, Southeast Asian countries such as Vietnam and Malaysia account for a relatively high proportion, thanks to their geographic proximity to China and convenient transportation, which facilitates trade. At the same time, Southeast Asian countries share certain similarities in culture and consumption habits. Live cross-border e-commerce through Lazada, Southeast Asia's largest online shopping platform, resulted in agricultural exports to Malaysia and Vietnam amounting to about $450 million, or 46 percent of the total. Geographic distance has an impact on international agricultural trade. China and Mongolia also share geographic advantages, with China continuing to be Mongolia's largest trading partner and export market in 2022. According to China's customs data, the total bilateral trade in goods between China and Mongolia amounted to $12.22 billion in 2022, a year-on-year increase of 34.1%, with a trade deficit of $6.45 billion, laying the foundation for the development of cross-border e-commerce in agricultural products between the two countries.

## 4. Difficulties and challenges of cross-border e-commerce trade in agricultural products between China and Mongolia under the perspective of digital empowerment

### 4.1 Dual restrictions of uneven quality of agricultural products and trade protection barriers

Currently, the industrial chain of cross-border e-commerce of agricultural products in China and Mongolia is still not perfect, and farmers are still the main suppliers. During the production process, safety issues such as pesticide and hormone residues are difficult to control effectively in the production chain, affecting the quality and safety of agricultural products, leading to a decline in consumer trust and making products more vulnerable to green trade barriers in various countries, restricting exports and weakening competitiveness in the international market. In addition, many cross-border e-commerce companies have deficiencies in the packaging and transportation management of agricultural products, and improper packaging may lead to transportation damage, affecting product quality and freshness. Meanwhile, China and Mongolia are lagging in the construction of agricultural export bases, the quality standards and certification system of e-commerce platforms have not yet been established, and the actual role of the quality monitoring system is limited. Many cross-border e-commerce enterprises lack brand awareness, resulting in an unfavorable position in market competition. In addition, the lack of brand awareness prevents enterprises from effectively communicating the uniqueness of their products when their marketing and marketing strategies are not clear enough. The key to this problem is that enterprises are not

sufficiently adapted to international rules, thus facing challenges when entering new markets, limiting growth potential.

### 4.2 Fragmentation of agricultural trade and tax collection and refund issues

Cross-border e-commerce trade in agricultural products has gradually won the trust of more and more international consumers due to its characteristics of being "small, fast, and flexible." With the fast development of cross-border e-commerce platforms, the simplification of transaction links has enhanced the consumer shopping experience and provided a rich selection of commodities, thus promoting the expansion of cross-border e-commerce for agricultural products. However, the trend of fragmentation in agricultural trade is gradually emerging, manifesting itself in the diversification of participants and transaction modes. This phenomenon poses regulatory challenges and may lead to asymmetric market information, increasing the difficulty for regulators in quality control and compliance checks. Currently, most agricultural products are delivered directly to consumers via international express delivery or small packages, a mode of transportation that does not follow a formal customs declaration and inspection process, making it difficult to comply with tax rebates and levies for international trade. Despite the state's strong support for the development of cross-border e-commerce, the tax policy and tax rebate rules for cross-border e-commerce of agricultural products are still unclear, resulting in difficulties in the tax rebate and tax collection process, which negatively affects the sustainable development of cross-border e-commerce of agricultural products.

### 4.3 Lack of cross-border agricultural products logistics and cold chain logistics service capacity

At present, cross-border logistics faces several problems. First, the mode of transportation is relatively single, mainly relying on land and sea transportation, with a relative lack of air transportation services. Land and sea transportation usually has a long cycle, which seriously affects the customer's consumption experience. In addition, an effective coordination mechanism for cross-border e-commerce transportation of agricultural products has not yet been established between China and Mongolia, resulting in SMEs facing higher logistics costs and the risk of quality changes or expiration of fresh products in small-scale transactions. Due to the characteristics and shelf-life requirements of agricultural products, the cold chain transportation system has become a necessity for the cross-border e-commerce of agricultural products. At present, the cold chain logistics infrastructure in China and Mongolia is still weak, and fourth-party cross-border logistics and distribution enterprises are gradually growing, but they are not yet able to provide sufficient logistics support for cross-border e-commerce of agricultural products.

## 5. The Path of High-Quality Development of Cross-Border E-commerce of Agricultural Products between China and Mongolia under the Perspective of Digital Empowerment

### 5.1 Solve the problem of information asymmetry with the help of big data

Firstly, the credit information disclosure and sharing system of agricultural cross-border e-commerce platforms should be improved to reduce network fraud incidents caused by information opacity. Through big data technology, collect information on quality complaints, unqualified products, business dishonesty, and malicious infringement in cross-border e-commerce transactions of agricultural products, and report the collated data to the national regulatory agencies to solve the violations using judicial channels. Meanwhile, improve the cross-border e-commerce dispute resolution mechanism, encourage the cooperation between e-commerce platforms and judicial institutions, resolve disputes between the two parties to the transaction through mediation and arbitration, and introduce third-party mediation to enrich the way of problem-solving. Secondly,

build and improve the e-commerce traceability system of agricultural products, actively promote the Internet of Things (IoT) technology, combined with the two-dimensional code and barcode of the agricultural products' marking, to realize the whole process of traceability (Fu & Ding, 2024). In addition, the traceability content needs to cover the key links in the circulation of e-commerce, such as production, processing sales, etc., and the Internet technology should be effectively combined with the agricultural products labeling to ensure that the whole process of e-commerce is transparent and visible. Again, the establishment of agricultural products e-commerce big data monitoring and early warning system is based on the Internet, large data and artificial intelligence, and other high-tech, traceability systems, and e-commerce circulation information as the basis to realize the informatization of agricultural products e-commerce circulation process, to ensure that the circulation link of the whole process of controllable and early warning, can effectively prevent the occurrence of quality problems. Finally, to strengthen the construction of agricultural products' e-commerce quality inspection system, we need to improve the capacity of the inspection and testing center on the existing basis, increase the number of testing projects, and actively docking international standards.

### 5.2 Innovative agricultural cross-border e-commerce trade tax collection and administration and rights protection mechanism

First of all, a sound customs import and export tax management and tax rebate system should be established to comply with international trade standards and protect the legitimate rights and interests of agricultural cross-border e-commerce enterprises. At the same time, the customs clearance, quarantine, and return processes of agricultural cross-border e-commerce need to be simplified to facilitate the rapid circulation of agricultural products. Specifically, tax regulations and customs policies suitable for the development of cross-border e-commerce in agricultural products should be actively explored by the characteristics of such e-commerce, and the necessary policy support should be provided to relevant enterprises. Secondly, networked offices should be promoted to realize the intelligent processing of tax collection, tax payment, tax refund, and tax replacement to enhance the capital turnover efficiency of agricultural cross-border e-commerce enterprises. To solve the tax rebate problem, relevant policies should support the cross-border agricultural products to be consolidated and dispersed in bonded centers and effectively supervise the enterprises (Tang & Li, 2023). Finally, through data sharing between customs and tax departments, a comprehensive management mechanism for tax rebates on cross-border e-commerce exports of agricultural products should be established. The government should actively formulate relevant laws and enforce regulations to strengthen the supervision of cross-border e-commerce platforms for agricultural products and promote the protection of intellectual property rights and consumer rights and interests in e-commerce across borders for agricultural products through legal means.

### 5.3 Optimize the cross-border logistics supply chain of cross-border agricultural products and the cold chain service system

First, in logistics and transportation, the distribution network should be optimized, and a global logistics system should be constructed to effectively improve the efficiency levels of transportation warehousing and other links (Ci, 2022); the use of intelligent warehousing technology to monitor the temperature and humidity in real-time to avoid the deterioration of agricultural products, and to meet the needs of different types of agricultural products for transportation and storage. Secondly, for supply chain management, establishing a scientific supply chain management system supplemented with apt supplier management, procurement, inventory, and quality control to ensure the efficient synergy of each link is crucial. The logistics supply chain is the core of cross-border e-commerce enterprises of agricultural products, and it should increase investment in logistics, build

an efficient logistics supply chain, provide end-to-end services, and improve product quality and customer experience. Meanwhile, given the uniqueness of cross-border e-commerce of agricultural products, it is very important to improve the cold chain logistics system. On the one hand, the state should provide the necessary policy support to construct cold chain logistics, especially increasing the financial investment to improve the transportation network, enhance the connection with the production bases of exported agricultural products, and improve the speed of distribution and logistics efficiency. It should support cold chain enterprises to innovate research and develop key technologies to improve the overall technology level and optimize the cold chain logistics service level of cross-border e-commerce for agricultural products. In addition, e-commerce platforms are supported to build overseas warehouses to promote the maximization of logistics efficiency for agricultural product exports.

## CONCLUSION

Summarizing the extant study of the contemporary situation of agricultural products trade between Mongolia and China and the prospects for the development of e-commerce of agricultural products across borders between China and Mongolia, the basic conditions for cross-border e-commerce trade of agricultural products are available between China and Mongolia, which are mainly limited to two aspects, namely, the complementarity of the bilateral trade of agricultural products and the geographical convenience, and cross-border e-commerce of agricultural products between China and Mongolia is facing a good opportunity for development and market prospects. At the same time, the improvement of e-commerce trade in different agricultural products across the borders between China and Mongolia faces a series of challenges, including uneven quality of agricultural products, trade protection barriers, trade fragmentation, tax management and refund issues, and insufficient capacity in cross-border logistics and cold chain services. To cope with these issues, platforms and regulators are needed to address the information asymmetry situation and innovate tax collection and management, and rights protection mechanisms. This can effectively optimize the cross-border logistics supply chain and the cold chain service system, thereby promoting the development of cross-border e-commerce trade of agricultural products between China and Mongolia.

## REFERENCES

Chen, T., Dauger, Hunger, et al. (2020). Research on Mongolia's agriculture and animal husbandry and the cooperation of China-Mongolia free economic zone. *Asia-Pacific Economy,* (05), 60–68. https://doi.org/10.16407/j.cnki.1000-6052.2020.05.007

Ci, J. (2022). Analysis of the correlation between digital economy and cross-border e-commerce trade of agricultural products--Analyzing the optimization strategy of cross-border e-commerce trade of agricultural products. *Business and Economic Research,* (20), 92–95.

Fu, S., & Ding, B. (2024). Research on the application of blockchain in the field of cross-border e-commerce of agricultural products. *Price Monthly*, (02), 77–84. https://doi.org/10.14076/j.issn.1006-2025.2024.02.09

Li, S., & Zu, G. (2020). Study on the potential of agricultural products export trade between China and Russia under the background of “China-Mongolia-Russia Economic Corridor.” *Agricultural Economy*, (04), 127–129.

Tang, Z., & Li, J. (2023). Analysis of the impact of cross-border e-commerce on China's agricultural exports - based on the perspective of trade costs. Journal of Guizhou University of Finance and Economics, 2023(03), 7–17.

Zhang, X., Qi, X., & Qiao, G. (2020). Study on trade potential of agricultural and livestock products between China and Mongolia - based on stochastic frontier gravity model. *Heilongjiang Animal Husbandry and Veterinary Medicine*, (12), 1–7, 25, 158.