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Research on International Trade of Agricultural Products and Rural Development Path in China

Tiantian Wang[1]

[1] Henan University of Science and Technology, China

Correspondence: Tiantian Wang, Henan University of Science and Technology, Henan, Luoyang, China.

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Abstract

This paper focuses on the interactive relationship between China's agricultural products international trade and rural development, aiming to clarify the impact of agricultural trade on rural areas and explore feasible rural development paths under the background of globalization. By adopting research methods such as literature review, case analysis and data statistical analysis, the study first sorts out the relevant theories of agricultural products international trade, including the application of comparative advantage theory and factor endowment theory in China's agricultural trade. Then, it analyzes the current situation of China's agricultural products international trade from the aspects of trade scale, trade structure and main trading partners. On this basis, the paper deeply discusses the economic, social and environmental impacts of agricultural products international trade on rural development. For example, it promotes farmers' income growth and industrial structure adjustment economically, increases employment opportunities and improves farmers' quality socially, while promoting green agriculture development and bringing potential environmental challenges environmentally.

Keywords: China's agricultural products, international trade, rural development, trade structure

1. Introduction

Agriculture serves as the foundation of the national economy, playing a crucial role in the development of a country. In China, with a large rural population and vast arable land, the development of agriculture is of utmost importance for ensuring national food security, promoting rural economic growth, and improving farmers' living standards. In recent years, with the acceleration of economic globalization and the continuous deepening of international trade liberalization, China's agricultural product international trade has achieved remarkable development, which has had a profound impact on rural development. Studying China's agricultural product international trade and rural development paths has significant theoretical and practical significance for the development of the agricultural economy and rural areas. From a theoretical perspective, it enriches and develops the research content of agricultural economics and international trade, providing new ideas and methods for exploring the relationship between the two. From a practical perspective, it can help the government formulate more scientific and reasonable agricultural policies, guide agricultural enterprises to better participate in international competition, and promote the all - round development of rural areas. It also provides practical guidance for solving problems such as rural poverty alleviation, employment promotion, and ecological environment protection, and is of great significance for promoting the implementation of the rural revitalization strategy.

2. Literature Review

2.1 Theories Related to Agricultural Products International Trade

2.1.1 Comparative Advantage Theory

The Comparative Advantage Theory, initially proposed by David Ricardo, holds that even if a country is less efficient in the production of all goods compared to another country, there is still a basis for mutually beneficial trade. Each country should specialize in producing and exporting goods in which it has a comparative advantage, that is, the goods with a relatively lower opportunity cost of production, and import goods with a comparative disadvantage.

In the context of agricultural product international trade, this theory has important applications. For China, labor - intensive agricultural products such as fruits, vegetables, and aquatic products often have certain comparative advantages. China has a large - scale labor force, and the cost of labor - intensive agricultural production is relatively low. For example, in the production of fresh vegetables, a large number of rural laborers can be engaged

in cultivation, harvesting, and preliminary processing, which enables China to produce vegetables at a relatively lower cost compared to some developed countries with high - cost labor forces. As a result, China's vegetable exports have shown growth momentum in the international market, occupying a certain market share in countries such as Southeast Asia and Russia.

2.1.2 Factor Endowment Theory

The Factor Endowment Theory, also known as the H - O (Heckscher - Ohlin) theory, posits that a country will export goods that intensively use the factors of production it is relatively abundant in and import goods that intensively use the factors it is relatively scarce in. The main factors of production considered include labor, capital, and land.

For China's agricultural product trade pattern, the Factor Endowment Theory has a significant influence. China is a country with a large population, which means it has a relatively abundant labor force but relatively scarce land resources. Therefore, in agricultural production, China is more inclined to produce labor - intensive agricultural products for export. For instance, in the tea - growing regions of Fujian and Yunnan, a large number of tea - pickers are employed during the tea - picking season. The rich labor resource enables China to produce high - quality tea at a relatively lower cost, and Chinese tea is popular in many international markets.

2.2 Research on the Relationship between Agricultural Products International Trade and Rural Development

2.2.1 The Impact of International Trade on Rural Economy

Many scholars have conducted in - depth research on the impact of international trade on the rural economy. From the perspective of rural economic growth, international trade provides a broader market for rural agricultural products. When agricultural products are exported, the income of rural areas increases, which in turn promotes investment in rural infrastructure, agricultural production technology improvement, and the development of rural service industries. For example, in some rural areas in Shandong Province with developed vegetable exports, the growth of vegetable exports has led to the construction of more modern cold - storage facilities, the improvement of transportation conditions, and the development of related processing industries, driving the overall economic growth of these rural areas.

Regarding rural industrial structure adjustment, international trade plays a guiding role. It encourages rural areas to develop industries that are in line with market demand and have comparative advantages. For instance, with the increase in international demand for organic agricultural products, some rural areas have actively adjusted their planting structures, reducing the planting area of traditional non - organic crops and increasing the cultivation of organic vegetables, fruits, and grains. This not only promotes the development of the organic agriculture industry in rural areas but also promotes the integration of the primary, secondary, and tertiary industries in rural areas, such as the development of organic food processing and rural eco - tourism related to organic agriculture.

2.2.2 The Influence on Rural Social and Environmental Aspects

International trade also has an impact on rural social and environmental aspects. In terms of rural social development, the development of agricultural product international trade can promote the flow of people, information, and technology in rural areas. For example, in rural areas with developed agricultural exports, farmers have more opportunities to communicate with international buyers, which enables them to understand international market demands, advanced agricultural production concepts, and management experience. This can improve the overall quality of farmers and promote the modernization of rural social concepts. In addition, the development of related industries driven by international trade can also provide more employment opportunities for rural laborers, reducing the outflow of rural population and promoting the stability of rural society.

3. Current Situation of China's Agricultural Products International Trade

3.1 Scale and Growth Trends of Trade

3.1.1 Total Trade Volume

In recent years, China's agricultural product international trade has shown dynamic development in terms of total trade volume. According to the data from the General Administration of Customs, in 2010, the total trade volume of China's agricultural products was approximately 121.96 billion. With the continuous development of the global economy and the deepening of China's opening - up, by 2022, this figure had soared to 3334 billion, representing a significant growth rate over the past decade.

This growth trend reflects China's increasing integration into the global agricultural product market. China's growing economy has led to an expansion in both domestic demand for high - quality agricultural products from abroad and the international market's recognition of Chinese - produced agricultural products. For example, as

Chinese consumers' living standards rise, there is a greater demand for imported dairy products, fruits, and nuts, which has driven up the import volume and value. At the same time, China's agricultural products such as tea, some high - quality fruits, and processed agricultural products have also found a broader market overseas, contributing to the growth of export volume and value, thus jointly promoting the growth of the total trade volume.

3.1.2 Import and Export Volumes

In terms of import volume, China has been a major importer of agricultural products globally. In 2002, China's agricultural product imports were only 124.7 billion. However, by 2022, the import volume had reached 2360.6 billion, showing a substantial increase. The continuous growth of imports can be attributed to several factors. Firstly, with the improvement of people's living standards, the demand for diverse agricultural products has increased. For instance, the demand for high - quality beef, high - end fruits like cherries, and dairy products has surged, leading to a significant increase in imports of these products. Secondly, the development of domestic industries, such as the feed industry, has increased the demand for raw materials like soybeans. China imports a large amount of soybeans mainly from the United States, Brazil, and Argentina to meet the needs of the feed and edible oil industries.

Regarding export volume, from 2002 to 2022, China's agricultural product exports grew from 181.3 billion to 982.6 billion. Although there has been growth, the growth rate is relatively lower compared to imports. China's main export products include labor - intensive agricultural products such as vegetables, fruits, and aquatic products. For example, Chinese - grown fruits like lychees and longans are popular in Southeast Asian and European markets due to their unique taste and quality. Chinese vegetables are also exported to many neighboring countries, taking advantage of their cost - effectiveness and freshness.

3.2 Trade Structure

3.2.1 Product Structure

China's agricultural product import and export product structures have their own characteristics.

In terms of imports, land - intensive agricultural products account for a large proportion. Among them, Edible oilseeds are the largest - volume imported category. In 2024, the import volume of oilseeds reached 1.15 billion tons, with an import value of $594.4 billion. The main imported oilseeds are soybeans, which are mainly used for the production of edible oil and livestock feed. The high demand for soybeans is mainly due to the rapid development of China's livestock industry, which requires a large amount of high - protein feed. In addition, imports of grains such as wheat and corn also occupy a certain proportion, mainly to meet the diversified needs of the domestic food market and the raw material requirements of the food processing industry. For example, high - quality wheat imported from some developed countries is often used in the production of high - end flour products.

For exports, labor - intensive agricultural products are the mainstay. Aquatic products, vegetables, and fruits are the three major export categories. In 2024, the export value of aquatic products reached 208.2 billion, the export value of vegetables was 186.6 billion, and the export value of fruits was $85.4 billion. These products have certain advantages in international trade. For example, China's aquaculture industry is developed, and aquatic products such as fish, shrimp, and shellfish have rich varieties and relatively low production costs, which are very competitive in the international market. Chinese vegetables, with the advantages of rich varieties, fresh quality, and cost - effectiveness, are popular in neighboring countries and regions. In addition, fruits like apples, pears, and oranges produced in China also have a certain market share in the international market due to their unique flavor and high quality.

However, it should be noted that although China has advantages in the export of some labor - intensive agricultural products, there are still some problems. For example, the added value of some products is relatively low, and there are challenges in meeting the increasingly stringent international food safety and quality standards. In the future, it is necessary to further improve product quality, increase added value, and enhance the international competitiveness of agricultural products through technological innovation and industrial upgrading.

3.2.2 Regional Structure

China's agricultural product international trade shows obvious regional differences in terms of import and export.

In terms of imports, the main sources are concentrated in a few regions. The Americas are an important source of imports, with the United States, Brazil, and Argentina being major suppliers. For example, the United States is an important exporter of soybeans, wheat, and cotton to China. In 2024, a large proportion of China's soybean imports came from the United States and Brazil. These countries have vast arable land, advanced agricultural production technologies, and high - efficiency agricultural machinery, which enable them to produce agricultural products on

a large scale at a relatively low cost. In addition, Southeast Asian countries are also important sources of imports for some agricultural products. For example, Thailand is an important source of rice imports for China, and Malaysia and Indonesia are important sources of palm oil imports. These countries have unique geographical and climatic advantages in the production of tropical agricultural products.

Regarding exports, Asia is the largest export destination for China's agricultural products. In 2024, a large proportion of China's vegetable and fruit exports were directed to Asian countries such as Japan, South Korea, and Vietnam. For example, Japan has always been an important export market for Chinese agricultural products. Chinese aquatic products, vegetables, and fruits are very popular in the Japanese market due to their high quality and cost - effectiveness. In addition, Europe and North America also have a certain market share for China's agricultural products. For example, some high - end processed agricultural products from China, such as high - quality tea and some canned fruits, are well - received by consumers in Europe and North America.

The regional differences in trade are mainly due to factors such as geographical location, economic development level, and consumption habits. Proximity in geographical location reduces transportation costs and time, making trade between neighboring regions more convenient. For example, the trade between China and Southeast Asian countries is facilitated by their close geographical location. The economic development level and consumption habits of different regions also affect the demand for agricultural products. Developed regions in Europe and North America have higher requirements for the quality and variety of agricultural products, while neighboring Asian countries may have a greater demand for cost - effective and fresh agricultural products due to similar consumption cultures.

4. Impact of Agricultural Products International Trade on Rural Development

4.1 Economic Impact

4.1.1 Income Growth

The export of agricultural products has a significant positive impact on farmers' income. Take Gannan navel oranges as an example. Gannan, located in southern Jiangxi Province, is a major production area of navel oranges in China. In recent years, with the expansion of international market demand, the export volume of Gannan navel oranges has been increasing steadily. In 2024, the export volume of Gannan navel oranges reached **10,510 tons**, with an export value of **82 million yuan** as supervised by Longnan Customs, covering exports to countries including Canada, the Philippines, Indonesia and Vietnam. The export volume and value both increased by approximately 1.8 times compared with the previous year . The increase in exports has directly increased the income of local orange farmers. According to industry growth trends and relevant surveys, the average income of orange-growing farmers in Gannan has increased by **over 20%** compared with before the expansion of exports, benefiting from both higher export prices and increased sales volume. After the oranges are sold abroad, farmers can obtain more revenue, which enables them to improve their living standards, invest more in agricultural production, such as purchasing better quality fertilizers, pesticides, and agricultural machinery, further improving the quality and yield of navel oranges, forming a virtuous cycle.

Wuchang rice, produced in Wuchang, Heilongjiang Province, is also well-known in the international market for its excellent quality. Since the 1980s, Wuchang rice has gradually entered the international market. In 2024, Wuchang rice achieved remarkable results in the domestic and international markets with its brand value reaching **71.341 billion yuan**, ranking first in China's geographical indication rice products for nine consecutive years . Although specific international export volume data for 2024 is not publicly available, Wuchang rice has been exported to more than ten countries and regions including Japan, South Korea and Singapore . The export of Wuchang rice has not only enhanced its brand influence globally but also significantly increased the income of local rice farmers. In 2024, the disposable income of local farmers increased by **18%** driven by the rice industry development . The high-end positioning of Wuchang rice in the international market allows farmers to sell their products at relatively high prices, and the stable export market provides farmers with a reliable income source. In addition, the development of the Wuchang rice export industry has also driven the development of related industries such as rice processing, packaging, and transportation in the local area, creating more income-generating opportunities for farmers, such as employment in processing plants and participation in the transportation of agricultural products.

4.1.2 Industrial Structure Adjustment

The impact of international trade on rural industrial structure adjustment can be seen from the cases of some coastal areas. In the past, some coastal rural areas mainly engaged in traditional agricultural production, with a single industrial structure and low economic benefits. With the development of international trade, these areas have

gradually adjusted their industrial structures according to international market demands. For example, in some coastal rural areas of Shandong Province, due to the large - scale export of vegetables, the local agricultural production has gradually shifted from traditional grain - based planting to vegetable - based planting. The area of vegetable cultivation has expanded year by year, and a large number of modern vegetable greenhouses have been built. These greenhouses are equipped with advanced irrigation systems, temperature - control systems, and pest - control systems, which not only improve the yield and quality of vegetables but also make the production of vegetables more in line with international standards.

At the same time, the development of the vegetable export industry has also driven the development of related industries. Vegetable processing enterprises have emerged in large numbers, which process fresh vegetables into dehydrated vegetables, canned vegetables, and pickled vegetables, increasing the added value of products. The packaging industry has also developed rapidly. High - quality, environmentally friendly, and visually appealing packaging materials and designs are used to meet the needs of international markets. In addition, the transportation industry has also been promoted. Refrigerated trucks and ships are used to ensure the freshness of vegetables during transportation, and a complete cold - chain logistics system has been established. This series of industrial development has made the rural industrial structure in these areas more diversified, with the coordinated development of primary, secondary, and tertiary industries, improving the overall economic strength and competitiveness of rural areas.

4.1.3 Development of Agricultural Product Processing Industry

The export of agricultural products can effectively drive the development of the agricultural product processing industry and related industries. Take the export of canned meat products in Chongqing as an example. In the past, the meat processing industry in Chongqing was relatively underdeveloped, mainly serving the local market. In 2025, through the exploration of the international market and the improvement of product quality and production standards, Chongqing's canned meat products successfully entered the Singapore market, achieving a "zero" breakthrough in exports. In that year, a total of 19.5 tons of pork - canned products from two enterprises, Chongqing Dejia Meat Technology Development Co., Ltd. and Chongqing Agricultural Products Group Food Technology Co., Ltd., were exported to Singapore.

This export achievement has not only opened up a new market for Chongqing's meat processing industry but also strongly promoted the development of the local meat processing industry. In order to meet the high - standard requirements of the Singaporean market, these two enterprises have carried out a series of technological upgrades and management improvements. They have introduced advanced production equipment, improved the production process, and strengthened quality control, from the selection of raw materials to the processing and packaging of products, strictly complying with international food safety standards. As a result, the production efficiency and product quality of these enterprises have been significantly improved.

The development of the canned meat export industry has also driven the development of related industries. The demand for raw materials has increased, which has promoted the development of the local livestock breeding industry. Farmers are more motivated to raise pigs, cattle, and sheep, and the scale of breeding has gradually expanded. At the same time, the packaging industry has also benefited. High - quality packaging materials and exquisite packaging designs are required to meet the needs of the international market, which has promoted the development of the local packaging industry. In addition, the transportation industry has also been promoted. In order to ensure the timely delivery of products, more efficient transportation modes and logistics systems have been established, including the use of cold - chain transportation to ensure the quality of canned meat during transportation.

4.2 Social Impact

4.2.1 Employment Opportunities

The development of agricultural product trade has led to a significant increase in employment opportunities in multiple fields related to agriculture. In the field of agricultural production, with the expansion of export - oriented agricultural production, more labor is needed. For example, in the production of Gannan navel oranges, during the peak seasons of orchard management, such as pruning, fertilizing, and pest - control, a large number of local farmers are employed. In addition, during the harvest season, a large number of temporary workers are hired to pick oranges. The increase in the export volume of Gannan navel oranges has led to a corresponding increase in the demand for labor in these production - link jobs, providing more employment opportunities for local rural laborers, especially those who have farming skills.

In the agricultural product processing industry, the development of export - related processing enterprises has created a large number of jobs. For instance, in the vegetable - processing enterprises in Shandong's coastal areas that export vegetables, there are various positions, including sorting, washing, cutting, canning, and packaging of vegetables. These enterprises can employ hundreds or even thousands of workers, and most of the employees are local rural residents. These jobs not only provide stable income sources for rural laborers but also enable them to master certain industrial skills, such as operating processing equipment and understanding food - processing quality - control requirements.

The transportation industry related to agricultural product trade also provides many employment opportunities. With the growth of agricultural product exports, the transportation volume of agricultural products has increased significantly. Refrigerated trucks are used to transport fresh agricultural products, and ships are used for long - distance transportation of large - volume agricultural products. This has led to an increase in the demand for truck drivers, ship crew, and logistics workers. In addition, the construction and operation of cold - chain logistics facilities also require a certain number of workers, such as cold - storage management personnel and equipment maintenance personnel, providing employment opportunities for rural laborers with relevant skills or who are willing to learn these skills.

4.2.2 Farmer Skill and Quality Improvement

In order to meet the standards and requirements of international trade, farmers have made significant progress in terms of technology and knowledge. First, in terms of production technology, farmers need to master more scientific and environmentally friendly planting and breeding techniques. For example, in the production of tea for export, farmers in some tea - producing areas need to learn how to use biological pest - control methods instead of relying solely on chemical pesticides. They use natural enemies of pests to control pest populations, such as releasing ladybugs to control aphids in tea gardens. In addition, farmers also need to master scientific fertilization methods, understanding the nutrient requirements of different crops at different growth stages, and applying fertilizers rationally to ensure the quality and safety of agricultural products.

In terms of quality control knowledge, farmers need to understand international food - safety standards and quality - inspection requirements. They need to be familiar with the maximum residue limits of pesticides and fertilizers in agricultural products set by importing countries, and strictly control the use of agricultural inputs during the production process to ensure that the products meet the standards. For example, when exporting fruits, farmers need to ensure that the pesticide residues in fruits are within the specified range of the importing country. They also need to learn about the packaging, labeling, and storage requirements of agricultural products to ensure that the products are in good condition during transportation and storage and can meet the market requirements of importing countries.

4.3 Environmental Impact

4.3.1 Promotion of Green Agriculture

The standards of international trade have played a positive role in promoting the development of green agriculture. In the field of planting, more and more rural areas are adopting green planting models to meet international market requirements. For example, in some vegetable - producing areas in Hebei Province that export vegetables, farmers are reducing the use of chemical pesticides and fertilizers. Instead, they are using organic fertilizers, such as compost and manure, which can improve soil fertility, enhance the quality of vegetables, and reduce soil pollution. In terms of pest control, they are using physical and biological control methods. Physical control methods include using insect - proof nets to prevent pests from entering the vegetable fields and setting up insect - trapping lamps to kill pests at night. Biological control methods involve releasing natural enemies of pests or using microbial pesticides to control pests, which can effectively reduce the use of chemical pesticides and protect the ecological environment.

In the field of aquaculture, the development of international trade has also promoted the adoption of ecological breeding models. For example, in some shrimp - farming areas in Guangdong Province that export shrimp, farmers are optimizing the water - quality management of aquaculture ponds. They use biological filtration systems to purify the water in the ponds, reducing the discharge of pollutants. In addition, they are rationally controlling the stocking density of shrimp to avoid over - breeding, which can improve the growth environment of shrimp, reduce the incidence of diseases, and improve the quality of shrimp products. At the same time, they are also using feed with high nutritional value and low pollution to ensure the healthy growth of shrimp and reduce the pollution of aquaculture wastewater. These green agriculture production models not only meet the environmental protection and quality - safety requirements of international trade but also help to protect the rural ecological environment,

promote the sustainable development of agriculture, and enhance the international competitiveness of agricultural products.

4.3.2 Potential Environmental Challenges

However, agricultural product trade may also bring some potential environmental problems. One of the prominent problems is pesticide residue. In order to ensure the yield and quality of agricultural products in the production process, some farmers may over - use pesticides. When these agricultural products are exported, although they may meet the domestic standards, they may not meet the more stringent pesticide - residue standards of some importing countries. Excessive pesticide use not only affects the quality and safety of agricultural products but also causes pollution to the soil, water sources, and air in rural areas. Pesticide residues in the soil can accumulate over time, affecting soil fertility and the growth environment of beneficial microorganisms in the soil. Pesticide - contaminated water sources can harm aquatic organisms and affect the drinking water safety of rural residents.

Another potential problem is ecological damage. The expansion of agricultural production to meet the needs of international trade may lead to the over - exploitation of natural resources. For example, the large - scale cultivation of cash crops for export may cause the destruction of natural habitats such as forests and wetlands. In some mountainous areas, in order to plant more high - value fruits for export, forests are cut down, which leads to soil erosion, loss of biodiversity, and a decline in the ecological service functions of the ecosystem. In addition, the development of some agricultural product processing industries related to international trade may also produce a large amount of industrial waste, such as wastewater, waste gas, and solid waste. If these wastes are not properly treated, they will cause serious pollution to the rural environment, endangering the health of rural residents and the sustainable development of the rural economy.

5. Existing Problems in Agricultural Products International Trade and Rural Development

5.1 Problems in Agricultural Products International Trade

5.1.1 Low International Competitiveness

In terms of quality, although China has made certain progress in agricultural product quality improvement in recent years, there are still some gaps compared with developed countries. For example, in the production of some fruits, due to differences in cultivation techniques and quality control during the production process, the appearance, taste, and storage - life of Chinese - produced fruits may not meet the high - standards of some international markets. Some fruits are prone to problems such as uneven ripening, poor appearance, and short - shelf life, which restricts their market share in high - end international markets.

Brand building is also a weak link. Many of China's agricultural products lack well - known international brands. Most agricultural products are sold in the international market in the form of raw materials or primary products, with low added - value. For instance, Chinese tea has a long - standing reputation, but in the international market, there are few world - renowned Chinese tea brands. In contrast, some foreign tea brands, through effective brand promotion and marketing strategies, can sell tea at much higher prices in the international market.

Price competitiveness also faces challenges. On one hand, the production costs of some agricultural products in China are relatively high. The increase in the prices of agricultural production materials such as fertilizers, pesticides, and seeds, as well as the relatively low labor - productivity in some agricultural production processes, have led to higher production costs. On the other hand, developed countries often provide large - scale subsidies to their agricultural industries, which makes their agricultural products more price - competitive in the international market. For example, in the grain market, the high - subsidy policies of the United States and the European Union for their grain production have made their grain prices more competitive in the international market, putting pressure on the price competitiveness of China's grain products.

5.1.2 Trade Barriers

Tariff barriers still exist in some cases. Although with the development of economic globalization and the continuous promotion of trade liberalization, the overall tariff level of agricultural products has shown a downward trend, in some specific agricultural product categories, some countries still set relatively high tariffs. For example, some European countries set relatively high tariffs on certain types of fruits and vegetables imported from China, which directly increases the price of Chinese agricultural products in the local market, weakening their price competitiveness and reducing the market share of Chinese agricultural products.

Non - tariff barriers have become more prominent. Technical barriers to trade (TBT) and sanitary and phytosanitary measures (SPS) are the main forms of non - tariff barriers. For example, in terms of TBT, some developed countries have extremely strict standards for the pesticide residues, food additives, and packaging of agricultural products.

In the export of Chinese fruits to the European Union, the EU has very strict regulations on the maximum residue limits of pesticides in fruits. If Chinese fruits do not meet these standards, they will be restricted from entering the EU market. In terms of SPS, countries often strengthen quarantine requirements for imported agricultural products to prevent the introduction of pests and diseases. However, some countries use SPS measures as a means of trade protection, setting overly strict quarantine standards, which makes it difficult for some of China's agricultural products to meet the requirements and enter their markets.

5.2 Constraints in Rural Development

5.2.1 Infrastructure Deficiencies

In terms of transportation, the road conditions in many rural areas are poor. Narrow and uneven roads are not conducive to the transportation of agricultural products. In some mountainous rural areas, the lack of high - quality roads makes it difficult to transport fresh agricultural products in a timely manner. For example, some fruits and vegetables need to be transported to the market quickly to ensure their freshness. However, due to poor road conditions, the transportation time is prolonged, which may lead to product spoilage and a decrease in product quality. In addition, the lack of convenient transportation hubs and connections with main transportation arteries in rural areas also increases the transportation costs of agricultural products. The need to transfer agricultural products multiple times during transportation not only increases the time cost but also the risk of product damage.

Logistics infrastructure is also weak. The lack of modern cold - chain logistics facilities is a prominent problem. For fresh agricultural products such as fruits, vegetables, and aquatic products, cold - chain logistics is crucial to ensure product quality and freshness during transportation and storage. However, in many rural areas, there are few cold - storage warehouses, and the cold - chain transportation vehicles are insufficient. This leads to a high loss rate of fresh agricultural products during the logistics process. For example, some fresh fruits may rot or deteriorate due to the lack of proper cold - chain conditions during transportation, resulting in economic losses for farmers and agricultural product traders.

Warehousing facilities in rural areas are often insufficient and backward. Simple and crude warehouses cannot meet the storage requirements of different types of agricultural products. Some agricultural products need to be stored in a dry, ventilated, and pest - free environment. However, the existing warehouses in rural areas may have problems such as poor ventilation, humidity control, and pest - prevention, which can cause agricultural products to mold, be damaged by pests, or reduce their quality during storage, affecting their market value and sales.

5.2.2 Inadequate Agricultural Technology and Talent

In terms of agricultural technology, compared with developed countries, China's overall agricultural technology level still has a certain gap. In agricultural production, the application rate of some advanced technologies is relatively low. For example, in precision agriculture, technologies such as remote sensing monitoring of soil conditions, intelligent irrigation systems, and automated agricultural machinery are not widely used in rural areas. This leads to low production efficiency, high resource consumption, and difficult improvement of product quality. In the process of crop cultivation, due to the lack of accurate soil nutrient monitoring and scientific irrigation technology, farmers may over - apply fertilizers and water, resulting in soil degradation, water resource waste, and reduced crop quality.

The shortage of agricultural - related talents is also a bottleneck restricting rural development. There is a lack of professional agricultural technicians in rural areas. These technicians are responsible for promoting new agricultural technologies, providing technical guidance to farmers, and solving production - related problems. However, due to the relatively difficult working and living conditions in rural areas, low income levels, and limited career development opportunities, it is difficult to attract and retain professional agricultural technicians. In addition, there is a lack of management talents in the agricultural product processing and marketing industries in rural areas. These talents are needed to manage agricultural product processing enterprises, develop market - oriented products, and expand sales channels. The absence of such talents makes it difficult for rural agricultural - related industries to operate efficiently and expand the market, affecting the development of the rural economy and the competitiveness of agricultural products in the international market.

6. Exploration of Rural Development Paths in the Context of International Trade

6.1 Strengthening Agricultural Product Competitiveness

6.1.1 Technological Innovation

Technological innovation stands as a cornerstone in enhancing the competitiveness of agricultural products, playing a pivotal role in elevating both product quality and production efficiency. For instance, the utilization of

greenhouse cultivation technology has brought about remarkable changes in vegetable production. In regions like Shouguang, Shandong Province, large - scale modern greenhouses are equipped with advanced environmental control systems. These systems can precisely regulate factors such as temperature, humidity, light, and carbon dioxide concentration within the greenhouse. By creating an optimal growth environment, vegetables can grow healthily throughout the year, regardless of external weather conditions. This not only significantly increases the yield of vegetables but also improves their quality. The vegetables produced in these greenhouses are more uniform in size, have brighter colors, and better taste, meeting the high - quality requirements of international markets.

The application of biotechnology also contributes to improving the quality of agricultural products. Through genetic engineering and breeding techniques, new crop varieties with stronger stress resistance, higher yields, and better quality can be developed. For example, the cultivation of disease - resistant and pest - resistant wheat varieties can reduce the use of pesticides during the growth process, ensuring the safety and quality of wheat. These new varieties can adapt to different soil and climatic conditions, expanding the scope of wheat cultivation and increasing production efficiency.

In addition, the use of precision agriculture technology has effectively improved production efficiency. Precision agriculture combines modern information technology, such as GPS, GIS, and sensor technology, with agricultural production. By accurately collecting data on soil fertility, crop growth status, and water content, farmers can implement targeted production management. For example, in the process of fertilization, instead of applying fertilizers uniformly across the field, fertilizers are applied according to the actual nutrient needs of different areas of the field. This not only reduces the waste of fertilizers but also improves the utilization rate of fertilizers, promoting the healthy growth of crops. In irrigation, precision irrigation systems can adjust the amount of water according to the water demand of crops, saving water resources and improving the efficiency of water use.

6.1.2 Brand Building

Brand building is an essential means to enhance the international competitiveness of agricultural products. Analyzing successful agricultural product brand cases can provide valuable insights and strategies for promoting brand building. Take "Chuying Ecological Eggs" as an example. This brand focuses on the concept of ecological and healthy egg production. It strictly controls the entire production process, from the selection of laying hens' breeds, the use of natural and pollution - free feed, to the management of the chicken coop environment. By ensuring the quality and safety of eggs, "Chuying Ecological Eggs" have won the trust of consumers. In terms of brand promotion, it actively participates in various agricultural product exhibitions and food expositions, and uses social media platforms for marketing. Through these efforts, the brand's popularity and market share have been continuously expanded, and it has gradually become a well - known brand in the domestic and international markets.

Another successful case is "Luban Wood - Carved Agricultural Products Packaging." This brand combines traditional Luban wood - carving techniques with agricultural product packaging. The unique and exquisitely carved packaging not only protects agricultural products but also adds cultural value to them. For example, when packaging local specialties such as dried fruits and nuts, the wooden boxes with fine wood - carving patterns make the products more attractive. This brand has successfully differentiated itself in the market, attracting consumers who value cultural connotations and unique packaging, and enhancing the added - value and competitiveness of agricultural products.

To promote brand building, several strategies can be adopted. First, it is necessary to focus on product quality. High - quality products are the foundation of brand building. By establishing strict quality control systems, from the production, processing, to the storage and transportation of agricultural products, every link is strictly supervised to ensure that the products meet high - quality standards. Second, cultural elements should be integrated into brand building. Each region has its unique agricultural culture and historical heritage. Incorporating these cultural elements into the brand can endow the brand with unique charm. For example, for tea brands in Fujian, the long - standing tea - making culture and the unique tea - tasting customs of the region can be used to create brand stories and brand images, enhancing the cultural connotation of the brand. Third, diversified marketing channels should be utilized. In addition to participating in traditional agricultural product exhibitions and trade fairs, modern e - commerce platforms, social media, and influencer marketing can also be used to promote brands. Through multi - channel promotion, the brand's popularity and influence can be rapidly expanded, and it can reach a wider range of consumers.

6.2 Optimizing the Rural Industrial Structure

6.2.1 Developing High - value - added Agricultural Industries

Developing high - value - added agricultural industries, such as characteristic agriculture and leisure agriculture, is an important way to optimize the rural industrial structure. Characteristic agriculture, with its unique product features and regional advantages, can meet the diverse needs of the market and achieve higher economic benefits. For example, in some mountainous areas of Sichuan, the cultivation of Chinese herbal medicines such as Gastrodia elata and Codonopsis pilosula has become a characteristic agricultural industry. These areas have unique natural environments, with suitable soil, climate, and altitude conditions for the growth of these Chinese herbal medicines. Through scientific cultivation and management, high - quality Chinese herbal medicines are produced. In the production process, advanced planting techniques are adopted, such as intercropping and green prevention and control of diseases and pests, to ensure the quality and yield of Chinese herbal medicines. After harvesting, they are processed through modern processing technologies, such as slicing, drying, and extraction, to increase their added - value. These processed Chinese herbal medicines are not only sold well in the domestic market but also exported to many foreign countries, becoming an important source of income for local farmers and promoting the development of the local rural economy.

Leisure agriculture, on the other hand, combines agricultural production with tourism and leisure services, creating a new business model. For example, in some rural areas of Beijing, there are many leisure agricultural parks. These parks integrate activities such as fruit and vegetable picking, rural cultural experience, and farm - stay accommodation. During the fruit - ripening season, urban residents can come to the park to pick fresh fruits such as strawberries, cherries, and peaches, experiencing the joy of rural life. At the same time, they can also participate in rural cultural activities, such as learning traditional handicrafts like paper - cutting and making clay sculptures, and taste authentic rural cuisine. The farm - stay accommodation provides a comfortable and quiet living environment for tourists, allowing them to fully relax. This kind of leisure agriculture not only increases the income of rural areas through tourism revenue but also promotes the development of related industries such as catering, accommodation, and handicrafts, further optimizing the rural industrial structure.

6.2.2 Promoting the Integration of Primary, Secondary, and Tertiary Industries

The integration of the primary, secondary, and tertiary industries in rural areas is of great significance for promoting rural economic development and optimizing the industrial structure. Take the development of the apple industry in a certain area of Shaanxi as an example. In the primary industry, local farmers focus on the cultivation of high - quality apple varieties. They introduce advanced apple - growing technologies, such as drip - irrigation systems for precise water supply, and scientific pruning and fertilization methods to ensure the quality and yield of apples. In the secondary industry, there are many apple - processing enterprises. These enterprises process apples into various products, such as apple juice, apple vinegar, and dried apples. By deep - processing apples, the added - value of products is greatly increased. For example, a ton of fresh apples may only be sold for a few thousand yuan, but after being processed into apple juice, its value can be increased several times. In the tertiary industry, the local area develops apple - themed tourism. During the apple - blooming season and the harvest season, tourists are attracted to come and enjoy the beautiful scenery of apple blossoms and participate in apple - picking activities. At the same time, related services such as rural catering and accommodation are also developed, providing tourists with a complete tourism experience.

To promote the integration of the primary, secondary, and tertiary industries, the following measures can be taken. First, strengthen the connection between industries. Establish a complete industrial chain from agricultural production to processing and sales, and promote the coordinated development of each link. For example, agricultural production bases can cooperate with processing enterprises to ensure the supply of high - quality raw materials; processing enterprises can cooperate with sales channels to ensure the smooth sale of products. Second, increase policy support. The government can issue relevant preferential policies, such as tax incentives, financial subsidies, and land - use support, to encourage the development of integrated industries in rural areas. Third, promote technological innovation. Use modern information technology and intelligent manufacturing technology to improve the efficiency and level of industrial integration. For example, through the construction of an agricultural product e - commerce platform, the sales channels of agricultural products can be expanded, and the connection between production, processing, and sales can be strengthened.

6.3 Improving Rural Infrastructure

6.3.1 Transportation and Logistics

Improving rural transportation and logistics systems is of great significance for promoting agricultural product trade and rural development. In terms of transportation, the construction of high - quality rural roads can effectively reduce the transportation cost of agricultural products and improve transportation efficiency. For example, in some rural areas of Henan Province, through the implementation of the "village - to - village access" project, high -

standard cement roads have been built, connecting rural villages with main transportation arteries. This makes it more convenient to transport agricultural products. In the past, due to poor road conditions, the transportation of agricultural products was often difficult, and a large amount of time and cost were wasted on the road. Now, with good roads, fresh agricultural products can be quickly transported to markets in cities, reducing losses during transportation and ensuring the freshness and quality of products.

The construction of logistics infrastructure, especially cold - chain logistics facilities, is crucial for the trade of fresh agricultural products. Cold - chain logistics can ensure that fresh agricultural products such as fruits, vegetables, and aquatic products are in a suitable low - temperature environment during transportation, storage, and sales, reducing product spoilage and waste. For example, in some coastal areas where aquatic products are produced, the construction of cold - storage warehouses and the use of refrigerated trucks and ships have effectively extended the shelf - life of aquatic products. Aquatic products can be transported to more distant markets, expanding the sales scope and increasing the income of farmers. In addition, the establishment of logistics distribution centers in rural areas can also improve the distribution efficiency of agricultural products. These distribution centers can centralize, sort, and distribute agricultural products, realizing the efficient allocation of resources and reducing logistics costs.

6.3.2 Information Infrastructure

The construction of rural information infrastructure has a significant promoting effect on agricultural product trade and rural economic development. With the popularization of the Internet in rural areas, farmers can obtain market information in a timely manner. Through e - commerce platforms and agricultural information websites, farmers can understand the market prices of agricultural products, market demand trends, and international trade policies. For example, in some rural areas of Zhejiang Province, farmers use e - commerce platforms to directly sell their agricultural products to domestic and foreign markets. They can update product information in real - time, communicate with customers, and complete transactions online. This not only expands the sales channels of agricultural products but also reduces intermediate links and increases the income of farmers.

The application of information technology in agricultural production also improves production efficiency. For example, through the use of agricultural big - data technology, farmers can analyze historical production data, market data, and climate data to make more scientific production decisions. They can predict market demand in advance, adjust the planting and breeding structure, and avoid overproduction or underproduction. In addition, the Internet of Things technology can be used to monitor the growth environment of agricultural products in real - time. Sensors are installed in farmland or greenhouses to monitor factors such as soil moisture, temperature, and nutrient content. Once abnormal conditions are detected, farmers can take timely measures to ensure the normal growth of agricultural products.

6.4 Cultivating Agricultural Talents

6.4.1 Strengthening Agricultural Education and Training

Strengthening agricultural education and training is an important measure to cultivate high - quality agricultural talents. First, in rural areas, agricultural vocational education should be strengthened. Vocational schools can set up relevant majors such as modern agricultural technology, agricultural product processing, and agricultural e - commerce. In the teaching process, theoretical knowledge and practical skills should be combined. For example, in the teaching of modern agricultural technology majors, students not only learn basic agricultural knowledge such as plant physiology and soil science but also have the opportunity to practice in agricultural production bases. They can learn how to operate modern agricultural machinery, use scientific fertilization and pest - control methods, and master the cultivation techniques of high - quality crops.

Regular agricultural training should also be carried out for farmers. The government and relevant departments can organize agricultural experts to conduct on - site training for farmers. The content of the training includes the latest agricultural production technologies, market information, and agricultural product quality - control knowledge. For example, in some vegetable - producing areas, agricultural experts regularly teach farmers new vegetable - planting techniques, such as the use of soilless cultivation and hydroponics, as well as how to prevent and control common diseases and pests in vegetables. At the same time, they also introduce market - demand information for vegetables, guiding farmers to plant vegetables that are in line with market demand.

6.4.2 Attracting Talent to Rural Areas

Attracting talent to return to rural areas is crucial for rural development, providing strong intellectual support. The government can introduce a series of preferential policies to attract talent. For example, providing housing subsidies for talents returning to rural areas to start businesses. In some rural areas, the local government builds

talent apartments or provides housing purchase subsidies for those who are willing to return to rural areas to engage in agricultural entrepreneurship. This can solve the housing problem of talents and make them more willing to stay in rural areas.

In addition, providing entrepreneurial support policies is also very important. The government can offer financial support, such as providing low - interest loans or venture capital for talent - led agricultural projects. For example, for some high - tech agricultural projects, the government can allocate special funds to support their research and development and promotion. At the same time, simplify administrative approval procedures to create a good business environment for talents. In terms of career development, establish a talent evaluation and promotion mechanism suitable for rural areas, so that talents can see career development prospects in rural areas and be more motivated to contribute to rural development.

7. Conclusion

This study comprehensively analyzes the international trade of agricultural products in China and its impact on rural development, and explores rural development paths. In response to these problems, this study explores a series of rural development paths. By strengthening technological innovation, such as the use of greenhouse cultivation technology in Shouguang, and brand building, such as the cases of "Chuying Ecological Eggs" and "Luban Wood - Carved Agricultural Products Packaging", the competitiveness of agricultural products can be enhanced. Optimizing the rural industrial structure through the development of high - value - added agricultural industries and the integration of primary, secondary, and tertiary industries can promote rural economic development. Improving rural infrastructure, including transportation, logistics, and information infrastructure, can provide better conditions for agricultural product trade. Cultivating agricultural talents by strengthening agricultural education and training and attracting talent to rural areas can provide intellectual support for rural development.

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