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## **DISSERTATION**

### **MECHANISMS OF REGULATION OF WORLD AGRICULTURAL MARKETS IN THE CONTEXT OF GLOBALIZATION**

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## ABSTRACT

*Zhang Fenghe. Mechanisms of regulation of world agricultural markets in the context of globalization.-Manuscript.*

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Trade in agricultural products is an important part of international trade in world goods. Due to the special basic status of agriculture in various countries, all countries in the world attach great importance to the international trade of agricultural products. In recent years, the international trade of agricultural products is in a period of comprehensive changes. This change has changed the status and role of international trade in agricultural products, and also changed the trade pattern of agricultural products. Agricultural products are commodities, and there is no unified definition standard for the scope of agricultural products in the world at present. But in general, the agricultural products counted by the International Trade Organization mainly include: crops (grain and cash crops), aquatic products, livestock products, etc. Agriculture is not only a necessity for human survival, but also a source of industrial resources. The development of industry is closely related to the development of agriculture. In addition, it also involves many issues such as food security, environmental protection, promoting employment, and maintaining social stability. Agricultural trade also plays an important role in international trade. First, it can adjust the relationship between supply and demand in the markets of various countries. Through international trade, different countries can adjust the relationship between supply and demand in their markets. Secondly, developing international trade in

agricultural products is conducive to reducing hunger and poverty and increasing employment. This function plays a particularly important role in developing countries, especially those with extremely widespread hunger. In developing countries, agriculture provides more than half of employment opportunities. Finally, it can improve the welfare level of consumers and promote the development of agricultural technology. The development of international trade in agricultural products can provide consumers with the opportunity to buy better and cheaper agricultural products, so as to purchase high-quality and cheap agricultural products and improve their welfare. It can stimulate the international flow of agricultural technology and capital, improve the level of agricultural productivity in each country, and gradually coordinate and improve the internal structure of agricultural products in each country. Under the current market economy and in the face of globalization, the international trade of agricultural products will give play to the comparative advantages of various countries and realize the optimal allocation of resources worldwide. However, the agricultural production and economic development of all countries must also cope with the impact of fierce market competition, price fluctuations and related industry adjustments.

In the context of the rapid development of economic globalization, this paper analyzes the market situation of global agricultural trade. The main objectives are as follows: first, to comprehensively and systematically understand the scale and structural characteristics of the development of international trade in agricultural products in all continents and major agricultural products trading countries, analyze the import and export trade volume of each agricultural product market and the main

types of agricultural products traded, and analyze the factors affecting agricultural trade and the future development trend; Second, from the perspective of agricultural product types, study the trading situation of specific agricultural products in the world agricultural product market, and analyze the impact and contribution of natural resources endowment, industrial structure and other factors on the trade of various agricultural products; The third is to calculate the competitiveness and complementarity between agricultural product markets with close trade exchanges, analyze the trade relationship and trade structure between different agricultural product markets, and put forward policy recommendations for the development of good interaction of agricultural product markets in the future.

In order to achieve the research objectives, according to the research ideas, this article includes three parts of the research content. The content of the first part is mainly about the development of international trade in agricultural products and the theory of its impact; according to the relevant international trade theories such as H-O theory (factor endowment theory) and intra-industry trade theory, the theoretical analysis framework for the development of international trade in agricultural products is constructed; according to the theory of agricultural development , to study the theoretical framework of the impact of international trade in agricultural products on agricultural development; according to the theory of economic development, to study the theoretical analysis framework of the impact of international trade of agricultural products on economic short-term and long-term growth; to review the literature on the research on international trade of agricultural products, and summarize the current status of relevant research. The second part is the calculation and analysis of the

import and export trade pattern of agricultural products on all continents and major agricultural countries and regions, including the research on the development process of agricultural product trade in specific countries or regions, the flow of trade flows, natural resource endowments, product structure, etc. The third part is to study the pattern of agricultural product markets according to specific types of agricultural products, use mathematical models to calculate the competitiveness and complementarity of trade exchanges between different agricultural product markets, and find out the advantages and disadvantages of different agricultural product markets in the import and export of agricultural products. Promoting the development of agricultural product market trade and putting forward ideas.

As a part of international trade in world goods, agricultural trade is linked with the production and consumption of agricultural products. This paper takes agricultural products as the research object, which refers to agricultural products as consumer goods, namely agricultural products trade for direct consumption. Trade in agricultural products is of great significance to meet the people's living and consumption needs, promote the development of agricultural production and promote economic development. According to the specific classification of agricultural products, using the agricultural product trade data in FAO database and the agricultural product trade data in the UNCommodity Trade Statistics Database in different regions, it is found that different types of agricultural products have different production and sales markets, and the production of agricultural products is greatly affected by natural geographical conditions, and different natural resource endowments produce different agricultural products. Agricultural product markets in

different regions also have different demands for different types of agricultural products. The trade of agricultural products is most affected by the natural conditions of countries (regions). At the same time, with the continuous development of agricultural products technology, it will have an important impact on the export barriers, trade structure and flow of agricultural products trade to a certain extent. Therefore, all countries in the world should fully combine the natural resources endowment, actively carry out agricultural science and technology research, improve the level of agricultural production technology, and create good conditions for the development of domestic agricultural trade.

*Keywords:* globalization, world agricultural markets, agricultural development, sustainable development, agricultural sector of the economy, food security, management, regulatory mechanisms, international markets, export, import, model, "One Belt - One Road".

## **АНОТАЦІЯ**

**Чжан Фєньхє. Механізми регулювання світових аграрних ринків в умовах глобалізації – Рукопис.**

Дисертація на здобуття наукового ступеня доктора філософії (PhD) за спеціальністю 073 – Менеджмент. – Сумський національний аграрний університет, м. Суми, 2023.

Міжнародна торгівля є своєрідним проявом всього світового товарного ринку. Торгівля сільськогосподарською продукцією є важливою складовою всієї міжнародної торгівлі. При чому, через особливий статус сільського господарства, країни світу надають міжнародному аграрному ринку

величезного значення. Важливою характеристикою міжнародної торгівлі сільськогосподарською продукцією є те, що кожна країна світу проводить свою власну політику по відношенню до аграрного сектору, так як сільське господарство має особливості, котрі у значній мірі залежить від природно-кліматичних умов, які в різних країнах різні. Останніми роками міжнародна торгівля сільськогосподарською продукцією переживає трансформаційний період свого розвитку. Ці зміни вплинули на статус, роль та структуру міжнародної торгівлі. Розгляд сільськогосподарської продукції, з позиції торгівельних відносин, визначає її товаром. За класифікацією Світової організації торгівлі (*World Trade Organization*), сільськогосподарська продукція включає: сільськогосподарські культури, продукти водного господарства та тваринництва тощо. Розвиток сільського господарства є не лише необхідністю для виживання людини, але й джерелом промислових ресурсів. Розвиток промисловості тісно пов'язаний з розвитком сільського господарства. Крім того, актуальність теми дослідження визначається впливом міжнародної торгівлі сільськогосподарськими товарами на продовольчу безпеку, навколишнє середовище, зайнятість та соціальну стабільність світової спільноти.

Науковий результат дисертаційної роботи полягає у створенні теоретичного підґрунтя та поглибленні прикладних засад вдосконалення механізмів регулювання світових аграрних ринків з використанням системного та синергетичного підходів.

При характеристиці об'єкту та предмету дослідження виокремлено кілька підходів, відповідно до яких аграрні ринки розглянуто з позицій стрімкого

розвитку економічної глобалізації та впливу на світову торгову систему. Для досягнення мети дослідження у дисертаційній роботі використовується емпіричні, статистичні, логічні, коефіцієнтні методи дослідження.

Для досягнення мети та завдань дослідження, відповідно до головної гіпотези, дисертація складається з 3-ох окремих розділів.

У першому розділі дисертаційної роботи, визначено рівень впливу світового аграрного ринку на розвиток галузі сільського господарства у світі, а також встановлено взаємозв'язки між рівнем економічного розвитку та зростанням світового аграрного ринку. У роботі встановлено, що вдосконалення технологічного прогресу у сільському господарстві, оптимізація структури сільськогосподарської промисловості та впровадження активної державної політики є ефективними заходами для подальшого розширення торгівлі сільськогосподарською продукцією. Важливу роль відіграє як короткострокове, так і довгострокове зростання економічних показників. При узагальненні концепцій та моделей світової торгівлі сільськогосподарською продукцією, у дисертаційній роботі розглянуто дві теорії економічного зростання: довгострокова та короткострокова. При чому, у роботі визначено, що довгостроковий рівноважний темп зростання залежить від пропозиції, впливу факторів та технологічного прогресу. За теорією Denison, до факторів, які мають довгостроковий ефект і впливають на зміну темпів зростання належать: кількість соціальної зайнятості та її віковий і статевий склад; тривалість робочого часу штатних і працівників з неповною зайнятістю; рівень освіти працевлаштованих осіб; капітал; ефективність розподілу ресурсів; ефект

масштабу, що формується за рахунок розширення ринку; прогрес знань. Короткострокове економічне зростання залежить від сукупного попиту та пропозиції. При чому, сукупний попит залежить від кон'юнктури товарного ринку, грошового та світового ринків, тоді як сукупна пропозиція залежить від робочої сили.

У дисертації зазначається, що розвиток світової торгівлі тісно пов'язаний з економічним зростанням. При чому, взаємозв'язок між ними поділяється на три різні точки зору: теорія просування, представлена теорією «двигуна», яка вважає, що міжнародна торгівля може сприяти економічному зростанню; теорія перешкод, представлена «теорією центральної периферії» та «збідненого зростанням», вважає, що міжнародна торгівля перешкоджатиме економічному зростанню; еkleктична теорія, представлена «теорією служниці». Наукові результати свідчать, що світова торгівля має суттєвий вплив на економічне зростання через розподіл ресурсів, розміри ринків, накопичення капіталу, структурну перебудову, розподіл доходів, технологічні інновації, а також світові торговельні системи.

У другому розділі дисертаційної роботи, у контексті стрімкого розвитку економічної глобалізації, проаналізовано ринкову ситуацію світової торгівлі сільськогосподарською продукцією. Проведено аналіз моделей імпорту та експорту торгівлі сільськогосподарською продукцією на всіх континентах в розрізі основних сільськогосподарських країн і регіонів. Також аналітична частина включає дослідження процесу розвитку торгівлі сільськогосподарською продукцією в конкретних країнах або регіонах,

торгівельні потоки, забезпеченість природними ресурсами, структуру продукції тощо. У дисертації визначено, що світовий ринок сільськогосподарської продукції структуровано на шість континентів: Азію, Європу, Африку, Океанію, Північну Америку та Південну Америку. За результатами дослідження, встановлено, що Європа посідає перше місце у світі (41,68% від загального обсягу імпорту та експорту світової сільськогосподарської продукції); Азія посідає друге місце у світі (29,09% загального обсягу імпорту та експорту світової сільськогосподарської продукції); третє місце займає Північна Америка (16,05% загального обсягу імпорту та експорту світової сільськогосподарської продукції); четверте місце займає Південна Америка (6,79% загального обсягу імпорту та експорту світової сільськогосподарської продукції); п'яте місце займає Африка (3,78% загального обсягу імпорту та експорту світової сільськогосподарської продукції); шосте місце займає Океанія (2,60% від загального обсягу імпорту та експорту світової сільськогосподарської продукції). Вивчаючи торгівлю сільськогосподарською продукцією країн (регіонів) світу, встановлено, що Україна багата на сільськогосподарські ресурси та відома як «житниця Європи». Останніми роками, річний обсяг експорту сільськогосподарської продукції України становить близько 45% від загального значення показника. Основними експортно орієнтованими товарами, є зернові, тваринні та рослинні олії, насіння олійних культур, залишки та відходи харчової промисловості, зернове борошно.

У роботі для розрахунку конкурентоспроможності та взаємодоповнюваності торговельних операцій сільськогосподарської продукції

на різних світових аграрних ринках (на прикладі Китаю та України) використовується модель постійної частки та сегментації ринку. Порівнюючи імпорتنу та експортну торгівлю, у роботі проаналізовано торговельний попит, структуру, конкурентоспроможність та інші фактори. Також, у роботі, із застосування прогностичних функцій, побудовано сценарії розвитку світового аграрного ринку. Підсумовуючи наукові дослідження аналітичної частини, у роботі пропонується здійснити заходи щодо: розширення масштабів виробництва сільськогосподарської продукції, зниження собівартості аграрного виробництва та підвищення його міжнародної конкурентоспроможності; зміцнення інновацій відповідно до міжнародних стандартів та сприяння реформам сільськогосподарського виробництва.

У третій частині дисертаційної роботи, за допомогою математичних моделей розрахунку конкурентоспроможності та взаємодоповнюваності торгових обмінів між різними аграрними ринками, узагальнено відповідні їх моделі в розрізі видів сільськогосподарської продукції. У роботі зазначено, що обсяги імпорту та експорту сільськогосподарської продукції часто відповідають рівню модернізації сільського господарства у відповідній країні. Експортна торгівля сільськогосподарською продукцією базується на міжнародній порівняльній перевазі. Необхідно зазначити, що не завжди така перевага пов'язана з ресурсними можливостями країни. У сучасному світі, основне значення належить технологічним перевагам. Всі ці чинники позитивно корелює з модернізацією сільського господарства.

*Ключові слова:* глобалізація, світові аграрні ринки, аграрний розвиток, сталий розвиток, аграрний сектор економіки, продовольча безпека, управління, механізми регулювання, міжнародні ринки, експорт, імпорт, модель, «Один пояс – Один шлях».

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## **THE LIST OF SYMBOLS**

COVID-19 - Coronavirus disease

GDP- gross domestic product

BRICS - Brazil, Russia, India, China, South Africa

B&R - B&R Initiative

SITC - Standard International Trade Classification

UN - United Nations

Bn – billion

m - million

\$ - us dollars

## INTRODUCTION

Through the research on the development status of world agricultural product trade, it is found that it has obvious stage characteristics. The scale of agricultural product trade is represented by the total export trade volume. The world agricultural product export is generally on the rise. However, it is affected by the economic policies of various countries and the global macroeconomic trend. At the same time, it also comes from the characteristics of agricultural products themselves. The elasticity of demand for agricultural products is very small, and the variability of climate and years often causes great changes in the supply of agricultural products. These characteristics have caused long-term instability in the production and prices of agricultural products in the world. The growth rate of the export volume of agricultural products fluctuated greatly, and the trade volume of agricultural products showed obvious stages. From the analysis of the statistics of the UN Food and Agriculture Organization since the 20th century, the international trade of agricultural products can be roughly divided into the following stages of development: the first stage is the 1960s and 1970s, which is a slow growth stage. In this stage, many agricultural products have been oversupplied for a long time, and prices have been at a low level. However, the average growth rate of the world's agricultural exports is relatively low; the second stage is from the 1970s to the 1980s, this stage is a rapid growth stage, due to intensified inflation, soaring oil prices, and surging agricultural production costs, some major countries and regions have failed agricultural harvests. The third stage was from the early to mid-1980s, when the

world's agricultural exports declined, and by 1985 There are two main reasons for this situation: on the one hand, since the 1980s, the world's agricultural harvest has increased year after year, the supply of agricultural products has increased, and prices have reversed and fallen; on the other hand, at this stage, Western developed countries have Trade protectionist measures such as agricultural export subsidies and import restrictions prevailed; the fourth stage was from the mid-1980s to the mid-1990s, which belonged to the recovery growth stage. As a result, the world agricultural trade has moved towards freedom; the fifth stage is from the mid-1990s to the early 21st century. In this stage, due to the outbreak of the Asian financial crisis, the growth rate of the world economy has slowed down, the demand in the international market has decreased, and the trade in agricultural products has decreased. The sixth stage is from the beginning of the 21st century to the current period. Due to the rapid development of the global economy, especially the rapid economic growth of the BRICS countries represented by China, it has greatly increased people's interest in agricultural products. At this stage, the international trade of agricultural products is showing a rapid growth trend, and the average growth rate is above double digits. The proportion of agricultural trade in global commodity trade has been declining. Since the 1980s, the commodity structure of international trade in goods has undergone great changes. The development speed of world agricultural trade has continued to be lower than that of all commodity trade. The trend is in line with the requirements of the current world economic development pattern, because with the continuous economic development of various

countries, whether they are developed or developing countries, all countries have experienced or are experiencing changes in their domestic industrial structures. The proportion of the tertiary industry (service industry) increased, while the proportion of the primary industry (agriculture) continued to decline. The product structure of international trade in agricultural products is dominated by manufactured products, mainly because unprocessed agricultural products are perishable and difficult to transport and maintain, while processed products make up for this shortcoming to a large extent; On the one hand, compared with unprocessed agricultural products, processed manufactured products have greater potential for intra-industry trade, have greater added value, and can better meet the preferences of different consumers for product differences, bringing greater benefits. intra-industry trade.

The production of agricultural products has a fixed seasonal cycle of sowing, growing and harvesting. Agricultural products, and it is precisely the unique seasonal changes in supply and demand of agricultural products, that make their price fluctuations have a very obvious tendency to move in the same direction in certain specific periods of each year. The trade of agricultural products has a high regional concentration. The topography, climate, hydrology and other natural conditions of a country or region directly affect the production of agricultural products in this country or region. Therefore, different agricultural products generally have relatively fixed origins that are suitable for their production conditions. , which also restricts the current flow of agricultural trade. Due to the characteristics of perishability and timeliness of agricultural products, this leads to

large losses of agricultural products in the process of transportation and circulation. Agricultural products are packaged, stored and processed at low temperature to maintain the freshness and quality of agricultural products. The competition in agricultural trade is incomplete. A few agricultural exporting countries have a monopoly in their advantageous agricultural trade. Developed countries often have obvious competitive advantages in agricultural trade. The reason is that developed countries maintain a wide range of agricultural protection policies and means. its competitive advantage. These measures taken by developed countries have put developing countries at an extremely disadvantageous position in competition, especially for those whose economies depend on agriculture and agricultural products. exporting country.

Connection of work with scientific programs, plans, topics. The dissertation work was carried out in accordance with the research plan of the Sumy National Agrarian University on the topic: "Organization and economics aspects to foreign economic activity agrarian enterprises of B&R", within which the author investigated the functioning and development of world agricultural markets.

*The purpose and tasks of the research.* The purpose of the dissertation research is the theoretical and methodological justification of the functioning and development of world agricultural markets in the conditions of globalization and the growth of the share of the world trade system. In accordance with the goal, the following tasks were set and solved:

- comprehensively and systematically understand the scale and structural

characteristics of the development of international agricultural trade in all continents and major agricultural trading countries;

-analyze the import and export trade volume of each agricultural product market and the main categories of agricultural products traded, and analyze the factors affecting agricultural trade and the future development trend;

- study the trading situation of specific agricultural products in the world agricultural product market, and analyze the impact and contribution of natural resource endowment, industrial structure and other factors on the trade of various agricultural products;

-is to calculate the competitiveness and complementarities between agricultural product markets with close trade relations (such as China and Ukraine);

-analyze the trade relations and trade structures between different agricultural product markets, and put forward policy suggestions for the good interactive development of agricultural product markets in the future.

The scientific result of the dissertation work was created in the creation of a theoretical foundation and deepening of the applied principles of improving the mechanisms of regulation of world agricultural markets using systemic and synergistic approaches.

*Research ideas and methods.* In order to achieve the research goal, this article is based on the theoretical basis, the current situation of agricultural product trade, the market relationship of agricultural products, etc., through the idea of empirical research, from macro to micro, from general to specific logic sequence. In the

context of the increasingly developed agricultural trade, based on the theory of international trade and agricultural growth and economic growth, a framework for analyzing differences in the international market of agricultural products is constructed.

*The methodology of the dissertation research* is based on generally accepted principles of complex scientific research. The theoretical and methodological basis of the dissertation work is the dialectical method of cognition, a systematic approach to the study of issues of the development of integration processes, the main scientific provisions of modern economic theory and the scientific works of domestic and foreign scientists. In the process of solving the tasks, the following scientific methods and analysis techniques were used: systemic-structural and abstract-logical, in particular their techniques: generalization, analysis and synthesis, induction and deduction (for the formulation of theoretical research results, clarification of the conceptual apparatus, formulation of conclusions and proposals); statistical and economic-mathematical, in particular their techniques: group research, multi-factor correlation and regression analysis. Graphical and tabular methods were used for visual presentation of the obtained results.

*The information base of the dissertation research* consists of primary information obtained as a result of own research and observations, publications of domestic and international scientists, monographic publications, official materials of the State Statistics Service of China, data comes from China Statistical Yearbook, China Statistical Yearbook and so on

*Scientific novelty of the obtained results.* The most important research results that reveal the content of the dissertation, characterize its scientific novelty and are presented for defense include the following:

*For the first time:*

the theoretical and methodological foundations of the development of the world agricultural market are substantiated from the point of view of the formation of differentiated strategies and strengthening of agricultural advantages to promote interregional cooperation;

the axiological characteristics of the spatial and temporal challenges of the development of agrarian markets based on institutional changes, the application of innovative factors and the formation of a modern economic environment for the rapid development of China's agrarian economy are formulated;

the impact of green trade barriers on Chinese agricultural export trade is scientifically covered, under the condition of improving technologies, environmental protection standards and increasing the level of agricultural production in order to promote the optimization and modernization of the agricultural industrial structure;

*Improved:*

a methodical approach to the index assessment of international trade in agricultural products between Ukraine and China, which, unlike the existing ones, is built on the basis of the characteristics of the coefficients of comparative advantage and complementarity of trade, which allows to form complex

characteristics regarding the state of development of agricultural markets;

the system for assessing the level of international competitiveness of trade in agricultural products of China and Ukraine, which, in comparison with the existing practice, is based on the use of the method of competitive and complimentary analysis, in order to determine the advantages of priority groups of goods;

the mechanisms of regulation of the world agricultural market have been improved in the conditions of new globalization challenges in order to determine the sectoral vectors of the strategic development of agriculture in conditions of uncertainty and multicriteria;

*Acquired further development:*

theoretical generalization of concepts, models of the development of world agricultural markets based on the establishment of a relationship between trade in agricultural products (export and import) and economic growth of the agricultural sector, in order to form the advantages of the market economy and marketing of agricultural products;

formation of a system of strategic positioning of China's agricultural industry, which will allow timely diagnosis of problems and provide stimulation of progressive development of trade in agricultural products of China;

substantiation of the mechanisms of short-term and long-term influence of international trade in agricultural products on price fluctuations, market demand and supply based on optimization and modernization of the structure of the agricultural industry in order to improve China's economic policy;

scientific generalization of the criteria for ensuring the competitiveness and complementarity of Sino-American agricultural trade, subject to the determination of indices of comparative advantages, complementarity, trade intensity, similarity and dispersion of agricultural products for the formation of mechanisms for the effective use of the industry's potential.

*The practical significance* of the obtained results is that the theoretical provisions and methods proposed in the work deepen the research and practice of the functioning and development of world agricultural markets.

The main theoretical propositions outlined in this work have reached the level of methodological developments and practical recommendations in management practice that are used and implemented.

*Personal contribution of the acquirer.* A dissertation is a completed scientific study. Scientific statements, conclusions and recommendations are the result of personal scientific research. Published scientific works are independent developments and reflect the main content of the dissertation.

*Publications.* Based on the results of the conducted research, the author has published 14 scientific works.

*Structure and scope of work.* The main part of the dissertation consists of an introduction, three chapters and conclusions, the volume of 219 pages of computer text and contains 42 tables, 40 figures.

## SECTION 1.

# THEORETICAL FOUNDATIONS OF FUNCTIONING AND DEVELOPMENT OF WORLD AGRICULTURAL MARKETS

### **1.1. Concepts, models, theories of trade in agricultural products and their impact on economic development**

Trade between countries is like a link that connects the economies of the world's economies together. Especially in modern society, if a country's economy wants to maintain a rapid development speed, it must have the support and help of international trade. Therefore, the concept, theory and content of international trade have become one of the objects that must be learned and mastered by businessmen from all over the world.

As an integral part of world commodity international trade, agricultural product trade links the production and consumption of agricultural products, including the purchase, transportation, storage and sales of agricultural products. There are two basic types of agricultural products in terms of use, one is agricultural products that are directly used by people for consumption, and the other is agricultural products that are provided as raw materials for industrial production. However, in this article, agricultural products as research objects only refer to agricultural products that are consumer goods, and agricultural product trade only refers to the first type of agricultural product trade, that is, agricultural product trade that is used for direct

consumption. Agricultural product trade is of great significance to meet people's living consumption needs, promote the development of agricultural production, improve and increase farmers' income, promote economic development, and increase a country's accumulated funds.

International trade refers to the buying and selling and exchanging of goods and services between countries in the world. It includes both trade activities between one country and other countries, and trade activities between other countries. International trade is composed of foreign trade of various countries. It is the sum of foreign trade of all countries in the world. Therefore, international trade is also called world trade.

International trade is a discipline that studies the production relations in the process of international commodity and labor exchange and the development law of the superstructure. The research task is the reasons for the emergence and development of international trade and the restrictive factors for the distribution of trade benefits among countries, and to reveal the characteristics and laws of motion. In the historical process, many economists have studied and discussed international trade issues as an important part of their economic theories. For example, from the mercantilism in the period of primitive accumulation of capitalism on how to bring wealth through foreign trade, to the Keynesian study on how to create employment opportunities through foreign trade after the capitalist economic crisis; from the representative of the British classical school Adam Smith And David Ricardo to study what benefits free trade can bring to the economic development of various countries, to Friedrich Liszt, the representative of the German historical school, to study what

benefits the protection of trade will bring to countries with relatively backward economies; from Marx From the theory that foreign trade is a means of preventing a country's rate of profit from falling, to Lenin's theory that capitalist development cannot be separated from foreign markets, etc. These economists and classic writers have enriched and developed the theory and content of international trade from different angles. The research object of international trade includes the basic theory of international trade, as well as international trade policy and the historical development process and status quo of international trade. It is generally believed that there are the following aspects: the law of international trade development; the particularity of international trade development in different countries; international trade theories and theories; international trade policies and measures. The basic contents of international trade mainly include:

*It belongs to foreign trade activities.* Foreign trade is the sale and exchange of goods and services between a country and other countries. Trade activities viewed from the perspective of a country are called foreign trade or foreign trade, overseas trade, etc. International trade and foreign trade belong to the same category of activities, but from an international perspective, it is called international trade, and from a country's perspective, it is called foreign trade.

*Export and Import.* Exports refer to the trade activities of exporting goods and services from the country, and imports refer to the trade activities of importing goods and services from abroad, but goods or services that are not shipped out of and into the country for export and purchase are not included in the list. List of import and

export. In the statistics of international trade value, export commodities are generally calculated according to the "free on board price (FOB price)" of the exporting country, and imported commodities are calculated according to the "landed price (CIF price)" of the importing country.

*Trade Amount and Trade Quantity.* Trade Amount, also known as trade value, is an economic indicator expressed in currency that reflects the scale of trade. Countries are generally expressed in their own currencies. Due to the hegemony of the US dollar in the international financial system, the US dollar has long been the main international currency. The sum of a country's exports and imports is called the country's total foreign trade. Trade Quantity refers to an indicator that reflects the scale of trade expressed in units of measurement such as quantity, weight, area, and volume. Measuring the scale of trade by trade volume can eliminate the impact of changes or fluctuations in prices or currency values on the actual scale of international trade.

*Trade balance.* It refers to the difference between the total export trade of a country in a certain period (usually one year) compared with the total import trade. If the export value is greater than the import value, it is called a trade surplus or trade surplus; if the export value is less than the import value, it is called a trade deficit or trade deficit. A country's trade surplus or deficit in a certain period mainly depends on the type, quantity, price level of its import and export commodities and the international economic situation at that time. The trade balance is an important indicator to measure a country's foreign trade status, international balance of

payments status and macroeconomic status.

*Terms of trade.* It refers to the ratio between the price of a country's export commodities and the price of imported commodities in a certain period of time. Due to the variety of import and export commodities of a country, it is difficult to directly compare the prices of import and export commodities, so it is usually calculated by comparing the price index of a country's export commodities with the price index of imported commodities in a certain period of time. The calculation formula is:

The terms of trade index = (export price index/import price index)  $\times$  100; if the calculated terms of trade index is greater than 100, it indicates that the terms of trade have improved; otherwise, it has deteriorated.

*Commodity structure of trade.* It refers to the proportion of various commodities in the total import and export volume in a certain period of time. The commodity structure of trade can be studied from the perspectives of the world and a country. The changes in the structure of traded commodities in the world are a reflection of the changes in the economic structure of various countries in the world; the structure of a country's traded commodities can reflect the country's The level of economic development and its position in the international division of labor. Under normal circumstances, a country's trade commodity structure is mainly determined by conditions such as technological status, natural resource endowment, productivity level, and people's demand. Developed countries mainly export industrial manufactured products and import primary products, while developing countries mainly export primary products. and imported manufactured goods.

*Geographical direction of trade.* It refers to the regional distribution of international trade and the flow of commodities, that is, the position occupied by each region or country in international trade. The geographical direction of a country's foreign trade refers to the regional distribution and country distribution of the country's foreign trade volume, indicating the flow of export commodities and the source of imported commodities, and reflecting the degree of economic and trade ties between the country and countries and regions in the world. The geographical direction of international trade mainly indicates the position of the world's continents and countries in international trade.

*Free trade and protection trade.* Free trade, also known as trade liberalization, advocates relaxing or even abolishing trade restrictions between countries and a theory or policy that enables the free flow of goods and services in the markets of various countries; protection trade is also called trade protectionism, which advocates that countries take measures to A theory or policy for managing and intervening in import and export trade.

*Dependence on foreign trade.* Refers to the proportion of a country's total foreign trade (the sum of exports and imports) in the country's GDP in a certain period of time. The greater the degree of dependence on foreign trade, the higher the degree of opening of the country to the outside world, and the more important the position of foreign trade in the development of the country's national economy.

Agricultural trade is the foreign trade of agricultural products. As a bulk commodity, there is no unified standard for the definition of agricultural products.

Different organizations have different definitions of agricultural products. UNConference on Trade and Development's definition of agricultural products. According to the scope of agricultural products defined by SITC (Standard International Trade Classification), agricultural products include all commodities belonging to chapters 0, 1, 2 and 4 of the SITC classification, namely Class 0 (food and live animals), Class 1 Category 2 (beverages and cigarettes), Category 2 (non-edible raw materials, except fuel) and Category 4 (Animal and vegetable oils, fats and waxes), excluding Chapter 27 (Natural fertilizers and Minerals, coal, oil and precious stones), Chapter 28 (metal ores and metal waste) commodities, agricultural products mainly include food and agricultural raw materials.

The definition of agricultural products in the World Trade Organization's Agreement on Agriculture. WTO's "Agricultural Agreement" (AOA), according to HS (Commodity Name and Coding Negotiation System), makes classification and statistics on agricultural product trade, the scope is: Chapter 1 of HS Code - Chapter 24 to remove Chapter 3 Fish and Crustaceans , molluscs and water buckets, invertebrates and the parts of Chapter 16 dealing with fish products. Including Mannitol, Sorbitol in Chapter 29, Essential Oils in Chapter 33, Proteins, Starches and Gums in Chapter 35, Finishes, Other Sorbitols in Chapter 38, Hides in Chapter 41 , Raw Furs in Chapter 43, Raw and Silk Waste in Chapter 50, Wool and Animal Hair in Chapter 51, Raw Cotton, Cotton Waste and Carded Cotton in Chapter 52, Raw Linen in Chapter 53 , raw marijuana.

The definition of agricultural products in the International Trade Statistics

Report (ITS) of the World Trade Organization Secretariat. "International Trade Statistics Report" is an analysis and research report related to economic and trade policies released by the World Trade Organization Secretariat to its members and the public every year. The scope of its definition of agricultural products is the same as that of the UNConference on Trade and Development, including food and agricultural raw materials. Specifically according to the SITC classification standard, food includes: Category 0 (food and live animals), Category 1 (beverages and tobacco), Chapter 22 in Category 2 (oilseeds and oleaginous fruits) and Category 4 ( animal and vegetable oils, fats and waxes). Agricultural raw materials include: Chapter 21 (raw hides and skins), Chapter 23 (raw rubber, including synthetic rubber and reclaimed rubber), Chapter 24 (cork and wood) in Class 2 (non-edible raw materials, except fuel) , Chapter 25 (Pulp and Waste Paper), Chapter 26 (Textile Fibres and Wastes Except Wool) and Chapter 29 (Other Animal and Plant Raw Materials).

The definition of agricultural products by the Food and Agriculture Organization of the United Nations. According to the scope of its jurisdiction, the definition of agricultural products includes: grain, aquatic products, livestock products, and oil crops, beverage crops and sugar crops in economic crops, but excludes rubber and fiber in forest products and economic crops.

The definition of agricultural products used in this article. This article will study the definition of agricultural products in the International Trade Statistics Report (ITS) of the Food and Agriculture Organization of the UNand the World Trade Organization Secretariat in combination with the specific research situation.

The research on the agricultural product trade market at home and abroad mainly focuses on the impact of agricultural product trade on economic development, the competitiveness and complementarity between different agricultural product markets, and the influencing factors on the development of agricultural product trade.

The research on the impact of international trade in agricultural products on economic development is generally believed to have started with Johnston and Mellor (1961), who believed that "expanding agricultural exports is one of the best ways to increase income and expand foreign exchange earnings". Subsequent studies also focused on agricultural exports and their impact. Levin and Raut (1997) studied the export of primary products and manufactured products, and concluded that the export of manufactured products can bring economic growth, but the export of primary products has a negative effect on economic growth. Dawson (2005) found that the export of primary agricultural products also has an "engine" effect on economic growth, but the GDP growth elasticity of agricultural exports is lower than that of non-agricultural products, and the long-term elasticity is greater than the short-term elasticity. At the same time, the study also found that across countries, the long-term impact of agricultural exports on GDP growth diminished as incomes increased. In China, many scholars are very concerned about the research on the impact of agricultural product trade on economic development: Zhu Weidong, Lin Bing (2021) In order to study the impact of agricultural product trade on agricultural economic growth, select the agricultural product trade, capital and labor input in Shandong Province, China from 2000 to 2019. Relevant data, based on the analysis of the impact

mechanism of agricultural trade on agricultural economic growth, the relevant data of agricultural production, agricultural fixed asset investment, agricultural labor employment, and agricultural import and export trade volume in Shandong Province from 2000 to 2019 were analyzed. Stationarity, co-integration relationship and other tests and empirical analysis using OLS regression analysis. The result is that agricultural product trade has a growth effect on agricultural economic growth, while capital and labor input have little effect on agricultural economic growth. Therefore, some pertinent suggestions are put forward, such as strengthening the economic and trade exchanges of agricultural products with other countries in the world, improving the competitiveness of agricultural products in foreign trade, and adjusting the structure of agricultural products production and trade, so as to promote the efficient and coordinated development of agricultural product trade and agricultural economy. Zhou Luoxing (2021) believes that after the reform and opening up, agricultural trade has been paid more and more attention, and the trade volume and trade volume have also expanded year by year; however, China's agricultural import volume far exceeds the agricultural export volume, resulting in a trade deficit in agricultural products. However, China is a big agricultural country with agriculture as its main industry and basic industry. International trade in agricultural products can speed up China's economic development to a certain extent. Therefore, timely optimization of the structure of agricultural products industry is an effective measure to promote the improvement of China's economic level. . Wang Jun (2020) used China's agricultural export trade data from 2005 to 2016 to conduct quantitative analysis on the

relationship between agricultural export and agricultural economic growth, such as correlation test, stationarity test, and cointegration test, and analyzed the relationship between indicators. The growth relationship was studied in both vertical and horizontal comparisons. The research results show that the export trade growth of China's agricultural products can significantly promote the growth of China's rural economy, and at the same time, it will also significantly promote the growth of agricultural economy. Among them, the research on the export of specific types of agricultural products found that the export trade of fruits and vegetables has the greatest role in promoting the development of agricultural economy, and animal products and fishery can also significantly promote the development of agricultural economy; and in the process of promoting the effective development of agricultural export trade, The investment of capital funds plays the biggest role. Therefore, increasing the state's financial support for agricultural development and improving the production environment of agricultural products are important measures to improve the export output and quality of agricultural products, thereby promoting the development of agricultural economy. Xiao Shuai and Xiao Li (2020) selected China's total agricultural import trade and agricultural economic growth from 1995 to 2018 as sample data, and combined cointegration theory and adaptive expectation model to study the impact of China's agricultural import trade on agricultural economy. The results show that the increase in the import volume of agricultural products has a positive impact on the development of agricultural economy, and can effectively promote the development of agricultural economy; increasing the import

trade of agricultural products, releasing real and good economic development data in a timely manner, and forming good import expectations are important to China's agricultural industry. Effective guarantee for healthy economic growth. Chen Yanling, Zhuang Peifen, and Peng Jianping (2021) studied the impact of agricultural trade opening up on the high-quality development of agricultural economy from the perspective of agricultural green total factor productivity, and believed that both the export and import of agricultural products promoted the growth of agricultural green total factor productivity and helped for the high-quality development of the agricultural economy. From the perspective of subregions: the export and import of agricultural products promote the growth of agricultural green total factor productivity in the eastern and western regions of China, but the impact on the central region is not significant. From the perspective of specific agricultural product categories: the import of edible oilseeds and the export of vegetables, fruits and nuts drive the growth of agricultural green total factor productivity, but the export of livestock products inhibits the growth of agricultural green total factor productivity. Based on this, they put forward suggestions to promote the high-quality development of agricultural economy, such as improving the export quality of agricultural products, maintaining an appropriate import scale, developing agricultural production technology, and implementing differentiated agricultural product trade. Li Dan and Xia Yanlei (2019) believe that there is a relationship between the evolution of agricultural product trade structure and the development of agricultural economy in China's Yangtze River Delta region, which influences and restricts each other.

Clarifying the coupling mechanism between the two will help the high-quality development of the agricultural economy in this region. They used mathematical tools such as regional coupling coordination degree and regional spatial gravity model to study the coupling system between provinces in China's Yangtze River Delta and the urban spatial structure of the Yangtze River Economic Belt from 2000 to 2016. The results show that institutional change, economic environment and innovation factors are the important factors that cause the spatiotemporal change of coupling coordination. It is suggested to adopt measures such as differentiated development strategies and strengthening agricultural advantages to promote inter-regional cooperation, which are the keys to promoting the overall development quality of the agricultural economy in China's Yangtze River Delta region. Luo Huan (2019) believes that the import and export of agricultural products is an important part of China's trade system. In recent years, it has achieved rapid development under the implementation of the "B&R" initiative, and trade with countries and regions along the route has gradually increased. Therefore, China's agricultural import and export trade should rely on the implementation of the "One Belt, One Road" initiative to strengthen trade exchanges with regions and countries along the route, strengthen China's investment in agricultural science and technology, adjust the agricultural industry structure, improve the circulation mode of agricultural products, and clear the transmission channels of agricultural products prices, etc. . Wu Yuxin (2018) found that after entering the new century, China's international trade in agricultural products has achieved rapid development. However, in the process of development,

although the import volume of agricultural products is greater than the export volume, resulting in a trade deficit, the international trade in agricultural products is in a positive trend. It has promoted China's economic development and influenced China's agricultural industrial structure. Optimizing the agricultural industrial structure can promote the improvement of China's economic development level. To this end, it is necessary to take measures such as improving rural infrastructure, promoting rural productivity, and improving production quality. Wang Xiaohong (2018) China, as a major agricultural country, has achieved rapid development in agricultural product trade after implementing the "reform and opening up" policy. As China's basic industry, agriculture is necessary and feasible to develop agricultural economy, and it is also the key to solving China's agricultural problems. However, in order to expand the scale of agricultural trade and promote the rapid development of China's agricultural economy, it is necessary to optimize the production structure and trade structure of agricultural products, and gradually reduce the negative impact of the agricultural trade deficit. Ma Guangqi and Han Yang (2018) used the agricultural product trade data of Shaanxi Province in China from 2005 to 2015 to study the relationship between the import and export trade of agricultural products and the economic growth of Shaanxi, China. The results show that the import and export trade of agricultural products has a positive promoting effect on the regional GDP growth, and the promoting effect of the import trade of agricultural products is obviously greater than that of the export trade. The policy implications from this study are: Shaanxi Province in China should rely on the "B&R" initiative to actively play the

role of import and export trade of agricultural products, especially import trade, in promoting the regional economy; increase investment in agricultural human capital, and improve the culture of agricultural laborers. Scientific and technological quality; pay attention to brand building, and strive to "sell" characteristic agricultural products; commit to developing an open agricultural economy, and actively implement the strategy of "going out" and "bringing in". Liang Dandan (2017) used China's agricultural export trade data from 1994 to 2015 to study the trade situation before and after China's accession to the World Trade Organization. The result is: After joining the World Trade Organization, China's agricultural export trade volume has grown rapidly, but the proportion of export trade volume in the total trade volume has become lower and lower, and the export of agricultural products has encountered more and more trade barriers. The model analyzes the relationship between China's economic growth and agricultural exports, and finds that economic growth has a one-way positive impact on agricultural exports in the short term. Ma Jinwei (2017) studied the production and sales of agricultural products under China's market economy system. He found that the international trade of agricultural products makes the development of the agricultural economy rely on the supply and demand sides to allocate resources around the price mechanism, which enables the agricultural economy to gain more benefits in the process of competition. More vigor and vitality, and promote the all-round development of agricultural economy. At the same time, agricultural product trade can fully integrate the production and sales of agricultural products, thereby promoting the marketization of agricultural products and ultimately

promoting the development of agricultural economy. As China's agricultural product market is not fully developed, regional development differences are large, and the level is backward, and the key to solving these problems is to carry out agricultural system reform. Sun Meihong, Han Xinghuan, Li Rui, et al. (2017) selected the relevant data of agricultural trade between China and South Korea from 1992 to 2015, and conducted an empirical study on the dynamic relationship between agricultural trade and economic growth. The results show that for every 1% increase in China's agricultural exports to South Korea, China's GDP growth will increase by 1.8%, and expanding agricultural trade can effectively promote China's economic growth.

Zhong Feiyan. (2017) Through the analysis of the short-term and long-term impact mechanism of international trade in agricultural products on economic growth, it is believed that agricultural products determine the price of international trade through price fluctuations and market supply and demand, and ultimately affect the price of agricultural products in the country through the economic industry mechanism. This in turn has an impact on the economy of the entire country. The article analyzes the characteristics of my country's agricultural international trade development and the main ways of affecting agricultural growth, analyzes the adjustment mechanism of my country's agricultural international trade industry structure, and points out that my country's agricultural economic structure should be optimized and upgraded, and the economic policies of agricultural products should be improved and improved.

International competitiveness of the agricultural economy. Lan Mengfen, Chang Rui, Lin Zhenyang (2017) selected economic data from 1996 to 2015 to study the

relationship between China's Guangxi and ASEAN agricultural trade and agricultural economic growth. The results show that: when China's Guangxi and ASEAN's agricultural export trade gradually rises, the agricultural economy can develop; every 1% increase in agricultural export trade between Guangxi, China and ASEAN will drive the agricultural economy to grow by 0.25%; and to promote the growth of agricultural export trade, it is necessary to further optimize the structure of agricultural export trade.

*Trade relations between different agricultural markets in the world.* It is also the focus of many scholars to study the status of different agricultural product markets in trade exchanges, that is, whether different agricultural product markets are competitive or complementary.

Peng Hong, Lin Shaozhen, Zhang Zujuan (2021) Research on the competitiveness and complementarity of Sino-US agricultural trade in 2009-2019 with the help of revealed comparative advantage index, trade complementarity index, product similarity index, product dispersion index and trade intensity index and development potential. The research results show that although there is a long-term trade deficit in the trade of agricultural products between China and the United States, the overall trade structure is reasonable, the development potential is large, and there is a large room for growth in bilateral trade. However, compared with the United States, China's weak agricultural export diversity should also be paid attention to. Finally, according to the research conclusions, it puts forward countermeasures and suggestions that China and the United States should strengthen bilateral agricultural

product trade cooperation and optimize the development environment of bilateral agricultural product trade, and point out that under the background of escalating Sino-US trade frictions, China should also actively formulate a long-term strategy for agricultural product development to enhance exports. International competitiveness of agricultural products. Yao Chenmin, Wang Yun, Xu Xingkai (2021). The study believes that the "B&R" initiative, as an important platform for in-depth cooperation in agricultural trade between China and Ukraine, promotes the agricultural trade between the two countries to enter the fast lane. By sorting out the agricultural product trade data of the UN Comtrade database, it is found that although the development of agricultural product trade between China and Ukraine has shown a good trend of expanding trade scale, strong trade complementarity and more diversified trade types, it also faces asymmetric agricultural trade information resources and backward logistics infrastructure. , insufficient input in agricultural production and low levels of trade facilitation. The two countries should start to build a diversified information exchange platform, intensify the transformation of transportation infrastructure, optimize the allocation of agricultural production factors and reduce institutional transaction costs, in order to solve the development dilemma of China-Uzbekistan bilateral agricultural trade and enhance the development potential of bilateral agricultural trade. Lin Qingquan, Zheng Yi, Yu Jianhui. (2021). The study found that the signing of the Regional Comprehensive Economic Partnership (RCEP) will bring opportunities and challenges to China's agricultural trade. The index analysis of revealed comparative advantage, product similarity, market similarity and trade

complementarity shows that the international competitiveness of China's agricultural products is at a relative disadvantage in terms of the competitiveness and complementarity of agricultural trade between China and other RCEP member countries from 2000 to 2017. , only higher than South Korea and Japan, China and other RCEP member countries have relatively weak competition in agricultural exports, and the trade of various agricultural products is highly complementary. Dong Xin, Zhong Tengjiao, Lin Chang, Yao Jing, Liu Xin (2021) Analysis of the trade in agricultural products between the five island countries in the South Pacific (Papua New Guinea, Fiji, Samoa, Tonga and Vanuatu) and the 15 EU countries, summarizing the trade in agricultural products of the five island countries The existing advantages and disadvantages are expected to promote the improvement of the international competitiveness of agricultural products in the South Pacific island countries. Using UN Comtrade data and HS codes, this paper describes the scale and structure of agricultural trade between 5 South Pacific island countries and 15 EU countries, calculates trade intensity index, revealed comparative advantage index, and trade complementarity index, and analyzes the impact of different types of agricultural products in the 5 island countries on the EU by country. Trade characteristics of 15 countries. The study found that the overall agricultural product trade relationship between the five South Pacific island countries and the EU 15 countries is not close, and the export comparative advantage is not obvious; the third and fourth types of agricultural products are highly complementary with the EU 15 countries. , single product production, imperfect related and supporting industries, etc. It is proposed

that the five island countries should learn from each other, seize the opportunity to deepen the development cooperation with the 15 EU countries, optimize the export structure by using comparative advantages, and enhance the level of international competitiveness of the 15 EU countries' agricultural products. . Zheng Guofu.(2021)

The Chinese government proposed the "B&R" initiative in 2013, and the role of Central Asia as the strategic fulcrum of the "Silk Road Economic Belt" has become increasingly prominent. From 2013 to 2019, the agricultural trade cooperation between China and the five Central Asian countries continued to grow, the country market and product structure were gradually optimized, the cooperation field was greatly expanded and the level was continuously improved; but the following main problems still exist: the total trade volume is low and the influence is relatively low. Weakness, unreasonable country market structure, relatively limited and concentrated product categories, generally low degree of trade liberalization and facilitation, and sluggish development of interconnection infrastructure. China and the five Central Asian countries should use the "B&R" initiative as a platform for cooperation, enhance political and strategic mutual trust, and take the construction of the "five links" in the agricultural field as an action guide to improve mechanisms, upgrade levels, differentiate positioning, implement precise policies, and make concerted progress. Promote the sustainable and healthy development of agricultural trade cooperation, and join hands to build a closer community of interests and destiny. Guo Yanjing, Xiao Haifeng.(2021) Based on the UN COMTRADE data, based on the analysis of the current situation of agricultural trade between China and the SCO

member states from 1996 to 2017, using the constant market share model, from the demand factor, structural factor and competitiveness factor three This paper analyzes the influencing factors of the fluctuation of agricultural products trade between China and the SCO member states. The results show that: in terms of China's agricultural exports, the increase in the import demand of agricultural products from the SCO member states is the primary factor leading to the growth of China's agricultural exports. The competitiveness effect has a positive role in promoting the growth of China's agricultural exports, but in recent years, the structural adaptability of agricultural exports has gradually declined, resulting in a gradual reduction in the role of structural effects; in terms of agricultural exports from the SCO member states, the increase in China's agricultural import demand is the driving force behind the growth. The main factors for the growth of agricultural exports of SCO member countries, and the unreasonable structure of agricultural exports and the decline of export competitiveness together hinder the growth of agricultural exports. Yao Jincheng, Gong Zibing, Chen Junmiao, Xia Xiangling.(2020) The trade of agricultural products between China and ASEAN countries is an important direction of cooperation between the two sides in the agricultural field. According to the foreign trade database of Guoyan.com and the HS code of the General Administration of Customs of China, this paper analyzes the current situation, structural characteristics, product structure and complementarity of agricultural products trade between China and ASEAN countries from 2005 to 2019. Improvements should be made in the following aspects: integrating the advantages of agricultural production and expanding the production

scale; reducing the production cost of agricultural products and improving international competitiveness; strengthening innovation, in line with international standards, and promoting agricultural supply-side reforms. Hao Tian's (2020) gravity model describes two variables that affect international trade: the size of the economy and the distance between the two countries. In recent years, China's foreign trade surplus has become larger. Under the background of "One Belt, One Road", China's trade partners and forms are diversified, so it is very necessary to study the changes in China's trade volume, and to explore China's trade based on the gravity model. Based on the "16+1" cooperation and the "B&R" policy, China and the 16 Central and Eastern European countries have frequent trade and greater potential for trade space. This paper mainly discusses the empirical research based on the gravitational model of agricultural trade between China and Poland in "16+1". The agricultural products of the two countries have comparative advantages and do not overlap. The competitiveness of agricultural products in the international market is weak, but the complementarity is strong. Through the specific discussion of using the gravity model to research and develop the agricultural trade between China and Poland, the aim is to summarize the application of the gravity model in China's foreign trade, and to bring enlightenment to China's trade improvement based on the gravity model. Hu Yijie, Wu Xiaolu, Wang Linbin. (2020). China and Italy signed an inter-governmental memorandum of understanding on jointly promoting the construction of the "B&R" in 2019, bringing new opportunities and challenges to bilateral cooperation in agriculture between the two countries. Using methods such as field research and

grounded theory, the following conclusions are drawn: China and Italy have their own advantages in terms of product characteristics, policy support, production and operation, and technological innovation. There are weak links in aspects such as persistent problems; in addition to agricultural product trade and agricultural science and technology exchanges, the future key areas of cooperation between the two countries under the background of the "B&R" include agricultural development policy cooperation, agricultural industry chain complementarity, and mutual learning of agricultural business models. ; Difficulties and obstacles to cooperation between the two sides are mainly reflected in differences in objective national conditions, barriers to international trade, construction of cooperation mechanisms, and willingness to cooperate between the two sides. It is suggested to strengthen the communication between China and Italy between the government and the people, to create the subjective conditions for agricultural cooperation; to promote the construction of infrastructure and investment platforms, and to match the objective conditions of agricultural cooperation; to identify three different types of cooperation, and to take targeted support measures. Li Rou, Tan Dan.(2020) In the context of the prevention and control of the new crown epidemic and the suppression of global trade, food security issues have attracted widespread attention. As the world's main food supply places, China and ASEAN's food trade will have a certain impact on the world. Using the bilateral grain agricultural product trade data between China and ASEAN from 2000 to 2019, a trade gravity model was established to analyze the direction and extent of the influence of factors such as the area of grain arable land and TCI index

in the ten ASEAN countries on grain trade between China and ASEAN, and on this basis to calculate China-ASEAN trade potential of cereals and agricultural products. The research shows that factors such as ASEAN GDP, ASEAN grain arable land, TCI index and China's land border have a significant positive impact on bilateral grain trade, and the trade potential of China-ASEAN grain agricultural products belongs to "great potential". China should promote bilateral grain trade by strengthening agricultural investment in ASEAN countries and actively carrying out technical cooperation in grain production and circulation. Yang Lihua, Gong Enmin. (2019) believe that in the context of protracted trade frictions between China and the United States, it has become inevitable to develop new trade markets. The Central Asian region borders China, and it is also the place where the "Silk Road Economic Belt" was initiated and has an important position. By analyzing the trade data of agricultural products between China and Central Asia, and calculating the competitiveness of agricultural products trade, it is concluded that the scale of agricultural trade between China and Central Asia is expanding and the trade potential is large, but the trade structure is relatively simple, and the competitiveness of different types of agricultural products In conclusion, it is recommended to take measures such as optimizing the trade structure and speeding up the construction of infrastructure to improve the convenience of trade between the two and promote the rapid development of agricultural trade.

Hoang V (2018) used the TCI index and the ESI index to study the agricultural export trade of the Association of Southeast Asian Nations (ASEAN) countries during

1997-2015. The results show that the agricultural export patterns of ASEAN countries lack complementarity in meeting regional import needs, but They are relatively complementary in exporting agricultural products to the world market; compared with regional integration, countries' agricultural competitiveness models are more affected by and benefit from global integration; therefore, ASEAN countries should strengthen internal cooperation and strengthen external global market competitiveness. Yang Fengmin and Xiang Xin (2018) used the agricultural product trade data between China and India to calculate the competitiveness index, trade complementarity index and intra-industry trade index of agricultural product trade between the two countries, and analyzed the competition and complementarity relationship of agricultural product trade between the two countries. The results show that the competitive advantages of China's main agricultural products and the complementarity of agricultural trade between China and India both show a downward trend. In addition, the products with high complementarity index between the two countries are also the main objects of bilateral agricultural trade. This also shows that the bilateral agricultural trade between China and India has exerted their respective production advantages to a certain extent, and the agricultural trade has great potential for development. Han Tinghui, Liu Zeying. (2018) studied the current situation of bilateral agricultural trade between China and Brazil, and found that the scale of agricultural trade between the two countries has grown rapidly and the proportion of trade volume has increased steadily. China mainly imports animal and vegetable oil products from Brazil, and Brazil mainly imports from China. Horticultural products, aquatic products and processed agricultural products. Through

the calculation and analysis of the bilateral trade competitiveness index and trade complementarity index, the result is that the comparative advantage and trade complementarity of agricultural products between the two countries show a growing trend, and the products with high trade complementarity index between the two countries are concentrated. Product diversification has great potential for development. Cheng Yunjie and Wu Jie (2017) analyzed the agricultural trade between China and Pakistan from the aspects of competitiveness and complementarity. The result is that China and Pakistan have comparative advantages in agricultural exports, and the types of agricultural products are quite different. However, the import and export structure of agricultural products between the two countries is consistent, and the trade in agricultural products is dominated by inter-industry trade, and the degree of intra-industry trade is not high, so there is strong trade complementarity. Huang Yong (2016) believes that China and Australia have large differences in agricultural resource endowments, high trade concentration, and rapid growth of bilateral agricultural trade. China is an important agricultural export market for Australia. Competitiveness and complementarity analysis using the agricultural product trade data of the two countries, the result is that Australian agricultural products have a relatively large trade advantage over China, the similarity index of agricultural products of the two countries in the world market is not high, and the competitiveness is not strong; Imported agricultural products have a high degree of coincidence, and the agricultural products trade between the two countries is highly complementary. From the perspective of Ukraine, Shtelmakh liliia (2019) takes the trade between Ukraine and China as the research object, and analyzes

the trade scale, commodity classification and commodity structure of the two countries. The results show that the trade scale between Ukraine and China is relatively small, the Ukrainian trade deficit is relatively large, and the trade structure is unreasonable. The establishment of a free trade zone, the expansion of Ukrainian-China trade liberalization, and the optimization of the Ukrainian trade industry structure are proposed as effective ways to promote the development of trade between the two countries. Zhao Huirong (2018) studied the bilateral economic and trade cooperation since the establishment of diplomatic relations between China and Ukraine, and believed that Ukraine is an important node of the "B&R". However, at the same time, there are uncertain factors affecting economic and trade cooperation in terms of political stability and economic policies. It is proposed that the two sides should actively do a good job in policy-level docking under the background of the "B&R" initiative cooperation; give full play to the role of cooperation platforms and think tanks such as chambers of commerce, associations and think tanks; pay attention to the role of media and educational institutions, and strengthen mutual To understand and train China-Uzbekistan cooperation talents and other driving force measures to promote bilateral economic and trade development. Genia (2017) conducted a study on the economic and trade relations between the two countries based on the relevant trade data between Ukraine and China from 2009 to 2015 according to the statistics of the Ukrainian customs. The results show that the economies of Ukraine and China are complementary, and the agricultural complex is the two Trade and investment relations are a very promising development direction. More than 50% of Ukraine's exports to China are agricultural products. In the

future, improving the quality of agricultural products and expanding the export volume of organic food are important areas of economic and trade cooperation between the two countries.

The international trade theory represented by the "H-O" theory to explain the inter-industry trade and the international trade theory represented by the "scale economy" to explain the intra-industry trade explain why the international trade of agricultural products occurs and develops from different levels, and how to develop it. Power and other issues are explained. Although many of the early international trade theories were related to agricultural products, large-scale international trade occurred after the Industrial Revolution, and related theories also emerged in the context of industrialization. In the 20th century, the research on international trade in developed countries was mainly concentrated in the industrial field, and less involved in agriculture and agricultural products. The main reason is that the theory of international trade and economic growth itself has already covered the theory of international trade and agricultural development of agricultural products. On the one hand, the developed countries have achieved industrialization, the proportion of agriculture in their national economy is relatively low, and agriculture has achieved modernization and industrialization development, the government has given strong financial support, and the competitive advantage in the international market is obvious. Moreover, it is in an advantageous position in international trade negotiations and trade rule-making, so there is no need to think too much about the possible problems of agriculture in the liberalization project. Nevertheless, Theodory Schultz's "Transforming Traditional

Agriculture" and "International Analysis of Agricultural Development" co-authored by Yujiro Hayami and Vernon W. Ruttan have far-reaching influences on the international trade of agricultural products and agricultural development. Schultz stressed the importance of the agricultural sector to economic growth. He believes that the agricultural sector can make a significant contribution to economic growth. But at the same time, he emphasized that in order for developing countries to make agriculture an important contribution to economic growth, only by transforming traditional and weak agriculture into a highly efficient economic sector. And this transformation process includes the requirements of international trade in agricultural products. In 1841, when Liszt expounded his "theory of infant industry protection", he pointed out that "export demand" was one of the driving forces for agricultural development. The two essential characteristics of agriculture's natural reproduction and economic reproduction determine that agricultural products have particularity different from other products. The contradiction between the seasonality of agricultural production and the perennial consumption of agricultural products, the contradiction between the regionality of agricultural production and the universality of demand for agricultural products, the contradiction between small agricultural production and the large market, and the biological characteristics of agricultural products such as perishability and fragility, make the circulation of agricultural products different from ordinary agricultural products. Distinctive features of different commodities. The particularity of agricultural products determines the difference between the international trade of agricultural products and other commodities. Nevertheless, the international trade of agricultural

products still belongs to the category of international trade, and its theoretical basis is still applicable to the general international trade theory.

Inter-industry trade theory. Adam Smith proposed on the basis of the division of labor theory that "absolute cost advantage" is the reason and driving force for the emergence and development of international trade. The reason is "The theory of absolute advantage". However, David Ricardo inherited and developed Smith's theory, proposing that the basis of international division of labor and international trade is not "absolute advantage", but "comparative advantage", that is, "the theory of comparative advantage". comparative advantage)". Countries will divide labor and trade in accordance with the principle of "balancing the two benefits and taking the lesser of the two disadvantages", and both parties will benefit. The "Comparative Advantage Theory" has more extensively demonstrated the basis of international trade, and also explained the reasons for trade between some developed and backward countries, which is of great significance in the real economy. Therefore, the "comparative advantage" is the basis and driving force of international trade began to be accepted. International trade theory begins to explore the sources of comparative advantage. Based on the labor theory of value, the classical international trade theory believes that differences in labor productivity are the source of "comparative advantage" among countries. Swedish economists Heckscher and Ohlin explored the reasons for the formation of comparative advantage based on the abundance of production factor endowments, emphasizing that the generation of international trade is mainly due to differences in factor endowments, and founded the factor endowment theory. ), the Heckscher-Ohlin (H-O) theory. The H-

O theory points out that the fundamental cause of international trade is the difference in the endowments of production factors. Countries should export products produced by intensive use of their own abundant factors, and import products produced by intensive use of their own scarce factors. Both sides of the trade are beneficial.

Intra-industry trade theory. Since the 1960s, great changes have taken place in the international division of labor and international trade. The trade between developed industrialized countries has developed rapidly, and the trade volume of similar products within the industry has greatly increased. The traditional international division of labor and international trade theories are difficult to explain the dynamics of trade development. With the new trend of international trade, a new international trade theory emerges as the times require. The theory of product life cycle proposed by Vernon (1966) believes that products have different life cycles, and products at different life stages have different element-intensity, different levels of technological advancement, and different types of products. This enables different types of countries to have different comparative interests at different stages of the product. At the same time, this comparative benefit will gradually shift from innovative product producing countries to developing countries. John Mill's reciprocal demand theory introduced demand factors into the theory of international trade. On this basis, Linder (S. Linder 1961) explained the development of manufactured goods trade with the similarity of demand preference, namely "Theory of Demand Preference Similarity", which holds that the demand between two countries The similarity of structure and demand preference is an important factor affecting the trade volume, the more similar, the greater the trade volume. At the same time, the level

of per capita income affects consumption preferences and demand structure, which in turn affects trade relations. The more similar the per capita income level, the more similar the consumption preference and consumption structure, the stronger the adaptability of the products, and the closer the trade relationship; the countries with lower per capita income levels choose the lower quality of consumer goods, while the countries with higher per capita income levels, The quality of selected consumer products is higher. Grubel (H. G. Grubel) put forward the "intra-industry trade theory", and analyzed the trade phenomenon (intra-industry trade) that both imported and exported similar products between developed countries since the 1960s, and believed that products meet different consumption levels. Differences in psychological desires and preferences, the motivation of manufacturers to pursue scale effects, and the overlapping of economic development levels and needs lead to the occurrence and development of intra-industry trade between different countries. Since the 1980s, the "New Trade Theory" founded by Helpman, Krugman and others has abandoned the two assumptions of constant returns to scale and perfectly competitive markets in the study of comparative advantage theory. The premise is that economies of scale (that is, increasing returns to scale) and imperfect competition are introduced into the analytical framework of international trade, and that comparative advantage and economies of scale are both the reasons and foundations for specialized division of labor and international trade, even if there is no comparative advantage (derived from resource endowment) There is also the possibility of international division of labor and international exchange between two countries with differences in technical level. In

2003, Melitz's "New New Trade Theory" constructed a heterogeneous enterprise trade model, endogenous enterprise productivity into the model, and expanded the research object of trade theory to the enterprise level. According to the logic of the New New Trade Theory, due to the existence of heterogeneous enterprises, trade will lead to the redistribution of market share among enterprises in the industry, the market share will gradually approach the high-productivity enterprises, and those enterprises with the lowest productivity will be forced to withdraw from the market, Thereby increasing the level of productivity of the industry. Posner put forward the technical gap theory on the basis of the revised H-O model, arguing that due to the existence of technology imitation and demand time lag in technology-intensive products, there will be technological gaps between trading countries, and countries with advanced technological innovation tend to The latter countries have a comparative advantage in their production, and this technological gap leads to intra-industry trade among industrial goods.

The driving force for the development of international trade in agricultural products. From the perspective of development history, international trade theory has developed from a static analysis of the causes of international trade in a perfectly competitive market to a dynamic analysis of the evolution of international trade models in an imperfectly competitive market. The driving force for the emergence and development of international trade has expanded from exogenous comparative advantages. endogenous comparative advantage. Since Ricardo proposed that comparative advantage is the basis and driving force for the emergence and development of international trade, many international trade theories aim to explore the source of

comparative advantage that drives international trade. Based on the labor theory of value, the classical international trade theory believes that comparative advantage originates from differences in labor productivity; the neoclassical international trade theory believes that the primary factor that produces comparative advantage is the difference in factor endowments; new trade theorists believe that economies of scale can also constitute a direct factor in international trade. Driving force; The new growth theory that studies international trade issues from a dynamic perspective argues that endogenous technological progress is a direct source of comparative advantage. Due to the particularity of the trade objects (agricultural products), the international trade of agricultural products also has particularity in its foundation and development momentum. Supply analysis of the driving force for the development of international trade in agricultural products. From the perspective of supply, the driving force for the development of international trade in agricultural products mainly stems from the factor endowment advantages of exporting countries, the level of agricultural technology and the economies of scale in agricultural production. The H-O theory holds that the difference in factor endowments is an important driving force for the international trade of agricultural products. Due to the high dependence of agricultural production on natural resources, the difference in factor endowments has become the primary factor affecting the development of international trade in agricultural products. The input production factors in agricultural production mainly include capital, land, water and labor, etc. The types of agricultural products can be correspondingly divided into resource-intensive (water-intensive or land-intensive) and labor-intensive products.

Agricultural products produced intensively using abundant domestic factors have a comparative advantage in the international market, so more products can be exchanged for export through exports, and they have higher trade gains. Classical trade theory and new growth theory pay special attention to the dynamic role of technological progress on international trade. Schultz (1964) pointed out that the input of new production factors is an important reason for the development of agricultural production, and new production factors are the product of technological progress; Dixit and Norman (1980) pointed out that technological progress is an important driving force for international trade. In the field of international trade of agricultural products, due to the influence of technical factors, the combination of production factors of the same agricultural product in different countries will be different, so there may be factor-intensive differences in the same agricultural product in different countries. The new trade theory emphasizes increasing returns to scale and regards economies of scale as the key factor driving international trade. In an environment of imperfect competition, for some reason, an industry develops with economies of scale and thus has an advantage in international trade. Although agricultural products do not have extensive and significant economies of scale compared with industrial products, with the rapid development of agricultural science and technology and the widespread use of agricultural machinery, the production and processing of agricultural products have begun to exhibit increasing returns to scale. Demand analysis of the driving force for the development of international trade in agricultural products. From the perspective of demand, the driving force for the development of international trade in agricultural products mainly stems from the basic

human survival needs and the demand for agricultural raw materials in industrial production, as well as the increase in income and the upgrading of the consumption structure caused by the increase in income. According to the traditional import and export theory, a country's exports are determined by foreign demand and should be consistent with the global economic cycle; while a country's imports are determined by domestic demand and should be consistent with its domestic economic cycle. Agricultural products are the basic material basis for human survival and development. When the agricultural production of a country or region is difficult to maintain the survival of its population and the needs of economic development, it needs to be adjusted through international trade. International trade in agricultural products is an important means to adjust the uneven distribution of global agricultural resources and an important adjustment mechanism when major global agricultural disasters occur. Therefore, with the continuous expansion of the global population and economic scale, the consumer demand for agricultural products continues to increase, and the adjustment role of international trade in the global agricultural production and consumption distribution has become increasingly important, becoming an important driving force for the development of international agricultural trade. The population expansion of agricultural importing countries leads to an increase in the demand for products. Under the circumstance of rigid domestic production and supply, the demand for the international market will increase. The economic scale of the importing country can reflect the actual demand capacity as a whole, and the increase in the economic scale of the importing country will reflect the improvement of its effective demand capacity. Income is the

direct cause of demand. According to consumer theory, income growth is the direct driving force for changes in residents' consumption behavior. Food, as the material basis for human survival, has less elasticity of expenditure. As income continues to increase, the proportion of food expenditure in total expenditure gradually decreases (Engel's law). However, with the growth of income, people's food consumption structure will change, and consumer demand will become increasingly diverse. Satisfying food and clothing is no longer the only goal of people's consumption, and high nutrition, high quality and safety have become people's pursuit. When people's income reaches a certain level, the consumption of rations will gradually decrease, while the consumption demand for meat, poultry, eggs, milk, aquatic products and edible vegetable oil will gradually increase. If the adjustment of domestic agricultural production fails to adapt well to the changes in consumption level and consumption structure brought about by income level, international trade of agricultural products becomes an important way to meet this demand. Consumption growth and changes in consumption structure caused by income growth have become the driving force for the development of international trade in agricultural products. A trade cost analysis of the driving force for the development of international trade in agricultural products. Driven by supply and demand, the international trade of agricultural products is also faced with the constraints or restrictions of various trade costs in reality, such as transportation costs formed by economic distance, trade restrictions such as tariffs and non-tariffs, exchange rate and financial controls and other measures. The resulting transaction costs and other trade costs. With the emergence of deep processing and advanced packaging technology of

agricultural products, it has become possible to transport more agricultural products that were difficult to preserve and transport over long distances, transforming non-tradable products into tradable products, entering the field of international trade, and expanding the products of international trade in agricultural products. scope. At the same time, with the development of the international transportation industry, the cost of long-distance transportation of agricultural products has gradually decreased, and the benefits of agricultural trade have gradually expanded, promoting the expansion of trade scale. With the development of world economic integration and regional economic integration, the wave of economic liberalization has gradually swept the world, the degree of openness of various countries has gradually expanded, tariff and non-tariff barriers have gradually decreased, and the obstacles to international trade in agricultural products have gradually decreased, which is the scale of international trade in agricultural products. conditions for expansion. Empirical tests from the levels of openness, currency union, trade controls, exchange rate and financial controls, and regional trade agreements have confirmed the impact of trade costs on world trade flows. Studies have also shown that regional free trade arrangements have a significant role in promoting international agricultural exports.

To sum up, from the perspective of supply, demand and trade cost, with the gradual development of the economies of various countries and the deepening of the trend of globalization of the world economy, the international trade of agricultural products has its own internal driving force for development, and it will definitely be a future trend in the future. Continue to prosper and develop, become an important part of world trade,

and have an important impact on the world and national economies.

## **1.2 Systematization of factors affecting trade in agricultural products**

There are many kinds of factors that affect the development of agricultural trade, but the focus of scholars is mainly on trade barriers, institutions and other factors.

Wu Yonghong and Zhang Huan (2021) study that after the 2008 international financial crisis, the global economic recovery is weak, trade protectionism is on the rise, and technical trade barriers have gradually become the most serious non-tariff barriers affecting developing countries including China. Using the time series data from the first quarter of 2001 to the fourth quarter of 2019, this paper empirically analyzes the impact of technical barriers to trade in Japan and South Korea on China's agricultural exports. The study finds that the technical barriers to trade in Japan and South Korea have a significant negative impact on the agricultural products exported from China to the two countries, but the first lag of technical barriers to trade has no significant impact on the trade volume of agricultural products. After the COVID-19 outbreak, more and more countries have realized the importance of regional economic integration, and the successful signing of the Regional Comprehensive Economic Partnership Agreement has also provided a further opportunity for the China-Japan-Korea Free Trade Zone to further reduce tariff and non-tariff barriers. many possibilities. Liu Yongjiang, Song Xinxin, Duan Xiaojuan (2020) believe that as traditional tariff barriers and non-tariff barriers are strictly restricted by the WTO, technical trade barriers have gradually

replaced tariffs and non-tariff barriers and become the main means and tools of trade protection in various countries. Trade protectionism is also prevalent in the field of international trade of agricultural products, in which technical trade barriers affect the export of agricultural products. The proposal of China's "One Belt, One Road" initiative provides new opportunities for agricultural export trade. However, due to the world political structure, factor endowments, cultural differences, etc., countries have adopted technical trade barriers and imposed restrictions on the export of agricultural products from other countries to their own countries. Due to the impact of technical trade barriers, agricultural exporting countries are also actively improving the production conditions and environment of their own agricultural products, or formulating corresponding technical trade barriers and adopting reverse restrictions. Yang Haosen, Yang Jun (2020)

According to the specific provisions of the first-phase trade agreement between China and the United States, the amount of agricultural imports from the United States will increase significantly. According to the changing characteristics of China's imports of agricultural products from the United States, the rules on the import of agricultural products in the first-phase trade agreement between China and the United States, and the comparison of bilateral costs, it is expected that livestock products have the greatest growth potential in imports from the United States. At the same time, there is an "offset effect" between the import of livestock products and the import of feed. With a given increase in imports, after the import of feed is replaced, the import of livestock products will be forced to increase further, thereby aggravating the impact on the livestock product industry. The research results show that the import of feed and textile raw

materials should be expanded as much as possible to maximize the domestic agricultural output value; at the same time, attention should be paid to the impact of animal product imports on domestic animal husbandry output and production methods, and targeted support policies should be formulated. Jiang Hui, Wu Lingling (2020) believe that China's imposition of import tariffs on U.S. soybeans is an effective means to deal with trade frictions between the two sides. The study found that the tariff control policy had a significant trade diversion effect, the US soybean exports to China plummeted and the terms of trade deteriorated, and the market share of Brazilian soybeans in China increased rapidly. The tariff control policy has increased the geographic concentration of China's soybean imports, especially the high dependence on Brazil's soybean imports, which has maintained China's food security to a certain extent. However, the Chinese government should also increase the geographic dispersion of agricultural imports. The level of self-sufficiency in agricultural products. Sun Dongsheng, Su Jingxuan, Li Ninghui, and Zhang Lin (2021) analyzed the list of products subject to tariffs released in three installments since the trade friction between China and the United States occurred in April 2018. Calculated and calculated the intensity, product and geographical structure of Sino-US agricultural trade from 2001 to 2017. The results show that the tariffs between China and the United States will reduce China's imports of agricultural products to the United States, and the export of agricultural products to the United States will also decline slightly. Some were transferred to South Korea, the Netherlands, and Mexico. Therefore, it is proposed that China should solve the shortage of soybean and feed in the short term, adjust the structure of agricultural planting and

agricultural product import in the long run, increase the import volume of meat and meat products, and consciously adjust the trade structure, diversify risks, and improve the resistance to emergencies. ability to ensure the security of the domestic agricultural industry. Xu Taoxiong (2019) Under the circumstance of economic globalization, many countries have adopted double standards in the international trade of agricultural products under the pretext of protecting human health and the environment, and established trade barriers through legislation to restrict the entry of agricultural products from other countries into their own markets. By studying the impact of green trade barriers on China's agricultural export trade, it is believed that improving the technology, environmental protection standards and production levels of agricultural products plays an important role in breaking through green trade barriers and promoting the optimization and upgrading of agricultural industrial structure. Yang Xueying (2021) used China's agricultural export data to other countries and regions from 1995 to 2018 to calculate the institutional distance between China and agricultural trade partners in terms of political institutions, and to study the impact of institutional differences on China's agricultural exports. The results show that institutional factors mainly affect emerging economies in developing countries. The narrowing of the political institutional distance can significantly promote China's agricultural exports to trading partners. Institutional factors in different countries have a greater impact on agricultural trade. Pang Guohao (2021) used the number of Chinese agricultural products exported to Japan from 2003 to 2020 as a sample to study the impact of Japan's economic policy uncertainty on some Chinese agricultural products exported to Japan. The results show

that Japan's economic policy uncertainty has a significant impact on the trade of Chinese agricultural products exported to Japan in the short term, while the long-term impact is not significant, and the impact of Japan's economic policy uncertainty on different types of agricultural products is different; China's agricultural product trade is affected by The Japanese government's economic system policy has obvious influence, and it is also greatly influenced by the economic situation of Japan's agricultural product market. Li Junru, Shi Zizhong, Hu Xiangdong (2020) used the import and export trade data of China's major grain and livestock products from January 1995 to July 2018 and the US trade policy uncertainty index to analyze the impact of US trade policy uncertainty on China's agricultural trade. Impact. The results show that U.S. trade policy uncertainty has a significant impact on China's agricultural product import and export trade, and the impact of U.S. trade policy uncertainty on China's agricultural product trade is different in different periods; the impact of U.S. trade policy uncertainty on China's different agricultural product trade exists. Among them, grain trade is more affected than livestock products, soybean imports are the most affected, and pork imports are more affected among livestock products. During the Trump administration period, the US government pursued trade protectionism policies, which had an obvious negative impact on the import of Chinese agricultural products. Rice, wheat, and soybeans had the most negative effects, and they had a relatively obvious promotion effect on China's agricultural exports. Yang Qian (2019) believes that technical trade barriers have gradually replaced tariff barriers due to their extensiveness and concealment, and have become the most common international trade protection measures. As a big agricultural

country, China is in a disadvantageous position in the international agricultural export trade due to objective factors such as history and relatively backward agricultural production technology and conditions. After joining the WTO, the scale of China's foreign trade in agricultural products has continued to increase, and the total trade volume has risen year by year. However, since 2004, the import and export volume of China's agricultural products has been in a state of trade deficit. This situation is largely due to the fact that China's agricultural exports are hit by technical barriers to trade in developed countries. In order to solve the obstacles caused by technical barriers to the export of Chinese agricultural products, it needs to be solved from three aspects: the formulation of government policies, the communication and consultation of industry associations and the adjustment of production structure of enterprises. Jeremiás Máté Balogh, Nuno Carlos Leitão (2019) analyzed the impact of geographic proximity, cultural similarity, and free trade agreements between EU member states and their trading partners on bilateral agricultural trade, and the results showed that the EU and its external trading partners Culturally similar, with the same religious beliefs or bilateral regional trade agreements, the bilateral agricultural export costs will be lower, which is more conducive to the development of agricultural trade. James Scott (2017) argues that it is very difficult to establish multilateral rules to govern trade in agricultural products, and there is a consensus that it is successful to rely on the principle of stand alone to link agricultural liberalization with broader transactions involving multiple sectors. But the World Trade Organization (WTO) abandoned this principle at its Nairobi ministerial conference in 2015, identifying the multilateral trading system as a new trajectory for

development, but the findings suggest that this is detrimental to low-income countries that depend on agricultural exports. Yes, the future World Trade Organization (WTO) should think deeply about creating equal trade opportunities for all.

As a means of supplementing and regulating domestic production and consumption, international trade will inevitably have an impact on the development of domestic industries. The relationship between international trade of agricultural products and agricultural development belongs to the category of research on the relationship between international trade and economic development, and is applicable to general research conclusions on international trade and economic development. However, due to the particularity of agriculture and its production, the relationship between international trade in agricultural products and agricultural development has its own uniqueness. The relevant theories of agricultural industry development explain many factors of agricultural development, and provide a theoretical basis for the analysis of the relationship between international trade in agricultural products and agricultural development.

**Theory of Agricultural Industrial Development.** The theory of agricultural development explains how agriculture develops, that is, the various factors that affect agricultural development, and analyzes how various parts of the economic system interact with each other in the process of agricultural growth, and what kind of economic relationships exist between them. The relevant theories of agricultural industry development mainly include:

**Resource Development Model.** The history of world economic development has

proved that the expansion of natural resources such as arable land and pastures is the main way to increase agricultural production. The development of natural resources according to the ideas provided by Harold Innes' "Commodities" and Hera Minter's "Remaining Way Out" model is the main source of agricultural and economic development in many countries or regions. However, the remaining uncultivated land in the world is quite small, and it is impossible for resource development to continue to be the main source of agricultural industry growth. As a result, world agricultural production in the 20th century has undergone a transition from an era of growth primarily driven by the expansion of arable land to one where crop and animal production must come primarily from increased frequency and intensity of cultivation. Whether from theoretical analysis or from the perspective of real resource constraints, the growth of agriculture based on the resource development model is unsustainable in the long run, and the development of resource-conserving or enhancing technologies is bound to be required.

Fertility Preservation Model. The fertility preservation model of agricultural development originated from the progress of British animal and plant management methods and the "concept of soil fertility depletion" proposed by German soil scientists, and was developed by the British classical school's theory of diminishing returns to capital and labor for agricultural production and the American soil conservation movement. be strengthened. The fertility preservation model is based on the premise of "resource scarcity" and "soil fertility depletion", emphasizing the maintenance of soil fertility. Although in the short term, the decline in land productivity can be compensated

and recovered through investment, and the fertility maintenance model has little effect; but in the long run, the fertility maintenance model will definitely play an appropriate role in the development of agriculture, especially when agricultural production The model plays an important role when irreversible damage to land productivity occurs. The rise in energy prices in the early 1970s refocused the attention of plant and soil scientists and agricultural planners on biological sources that rely more on crop nutrition, energy-efficient farming methods, and more efficient agricultural systems.

Diffusion model. Better farming methods and the spread of better plant and animal species across regions are important factors in agricultural productivity growth. Empirical observations of land or labor productivity differences between farmers in advanced and backward regions are the second source of ideas for expanding agricultural development. Therefore, the path of agricultural development is through more effective dissemination of technical knowledge and reduction of productivity gaps between farmers and regions. Diffusion models have played an important role in the agricultural modernization process in many developed countries.

High-yield investment model. Based on the problem of diffusion failure caused by the "regional characteristics" of agricultural technology in diffusion theory, Schultz proposed the high-yield input theory. He believes that the key to the transformation of traditional agriculture is investment to make it easier for farmers to obtain modern high-yield inputs; in the traditional agricultural system, the reallocation of resources cannot bring about a significant increase in productivity, and only through technological change can it bring about a significant increase in productivity. meaningful growth opportunities,

including new farming techniques, cheaper plant food, better seed varieties, and more efficient power sources. Technological change and productivity growth in agriculture are bound to be underpinned by increased investment in agricultural research activities that lead to the supply of new inputs and in the transactions of farmers who will use these new inputs. The theory is highly inclusive and can basically cover the central concepts of fertility preservation, location and diffusion theory for agricultural development. It emphasizes that investment in research is the source of new high-yield technologies, and proposes to accelerate investment in scientific research and education. The opening and dissemination of new products and technologies has important policy implications for agricultural development.

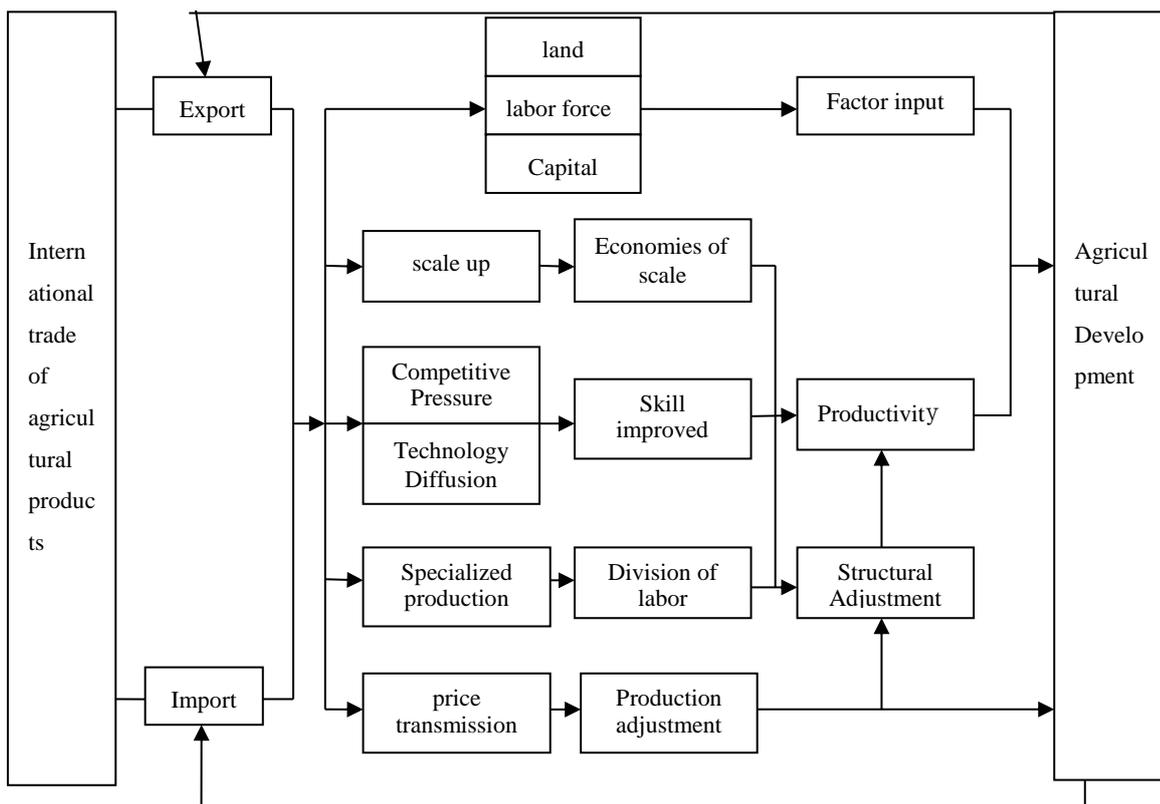
The induced institutional innovation model is also known as the Hicks-Bingswanger model. The main point of this model is that under the conditions of a market economy, under the influence and induction of factor price changes, farmers will strive to seek technical choices that can substitute for increasingly scarce production factors. That is to say, in an economy, the abundance of factor endowments will have an important impact on the effective path of technological change. The model also excludes public goods. Based on the semi-public product nature of agricultural technology, a complete inductive institutional innovation model that reflects resource endowment, cultural endowment, and the general equilibrium relationship between technology and institutions is established to explore the process of agricultural economic development. The decisive influence of the resource endowment status on technological choice, the demand and supply of institutional change, the significance of technological change to

agricultural development, and the relationship between institutional change and technological innovation, etc. Technological innovation is central to this model, but "long-term changes in the relative prices of factors and products convey much of the information about society's prioritization of research goals." It also emphasizes that "research scientists and managers respond by inducing key joints of the mechanism." They may not be motivated primarily by market signals, but by motivations for career achievement or social recognition, thus, "an effective incentive mechanism enables scientists and It is necessary for managers to receive material or honorary rewards". Agricultural productivity growth can only be secured if this dialectical mechanism of action works properly among farmers, suppliers of new inputs, scientific researchers, and government officials. The model also believes that the essence of agricultural development lies in "accelerating the growth of agricultural output and productivity so as to be consistent with the growth of other sectors in the modern economy", and technological progress and institutional innovation are two necessary conditions for achieving agricultural productivity growth, and also This means that "the response of public and private sector providers and institutions of knowledge and new inputs to new economic opportunities needs to be an integral part of the economic system." This innovation-inducing mechanism, in addition to being based on profit-maximizing firms' Responses to changes in market prices are also based on the responses of researchers and managers in public institutions to changes in resource endowments and the economy, so that agricultural growth, technological-institutional innovation, and public sector behavior are integrated. At the same time, it is also believed that the factor endowment

of an economy induces technological innovation, and in turn, technological change itself also changes the nature of the factor endowment. For example, "the development of technology can promote the substitution of relatively abundant factors for relatively scarce factors in the economy", and the scarce factors may also partially change their scarcity through the deep development of technology. They also dialectically expounded the relationship between institutional change and technological innovation. On the one hand, new substances, new methods and new opportunities related to technological progress usually become the source of institutional changes in social modernization. On the other hand, agricultural technologies with the nature of public goods cannot be exchanged through the market, and require the intervention of social institutions to ensure their production and supply. The dominant role of socialization or supply institutions in agricultural research is a major institutional innovation. It is worth noting that the founders of the model also included social science research in the model or hypothesis, and education was also highly valued. "It has become more and more possible to replace the more expensive process of acquiring knowledge through trial and error with social science knowledge and analytical techniques." From the perspective of agricultural development theory, the discussion of the source of power for agricultural development has experienced from basic elements Invest in the process of exploring factors of production efficiency, that is, from the development of land resources such as cultivated land and pastures, to the improvement of production efficiency brought about by the maintenance of land fertility, the spread of farming methods and animal and plant varieties, investment and institutional innovation. This provides a theoretical basis for

the analysis of the impact of international trade in agricultural products on agricultural economic development.

Partial balance of international trade in agricultural products and agricultural development. From the perspective of agricultural development theory, as an industrial sector, the growth of agriculture is a growth system determined by the input production factors and their combination methods, while international trade, as an exogenous variable, affects the number of factors of agricultural production and the change of production factors by Combining methods and their efficiency to have an impact on the agricultural growth system.



**Figure 1.1 The partial equilibrium relationship between international trade in agricultural products and agricultural development**

*Source: developed by author*

Based on the analysis idea of partial equilibrium, this part analyzes the impact of

international trade in agricultural products on agricultural development. As can be seen from Figure 1.1, based on the partial equilibrium analysis of agricultural economic development, the relationship between international trade in agricultural products (import and export) and agricultural development relation.

The international trade of agricultural products will have a short-term impact on agricultural development by affecting the prices of agricultural products and exerting the regulating effect of prices on agricultural production. In a long period of time, the international trade of agricultural products will affect agricultural development by affecting the factor input and production efficiency of agricultural production. From the perspective of factor input, there are differences in the factor structure used in the production process of different agricultural products. The international flow of production factors contained in the cross-border flow of products through international trade in agricultural products has changed the factors of input in a country's domestic agricultural production. Quantity, specifically, the main agricultural production factors include land, labor and capital. From the perspective of production efficiency, the international specialized division of labor and production of agricultural products can improve labor productivity; the expansion of the market scale formed by the export of agricultural products can bring economies of scale and improve production efficiency; The technological diffusion effect of the technology is beneficial to the progress of agricultural technology and becomes an important way to improve the efficiency of agricultural production; the specialized division of labor and production is conducive to the rational allocation of resources, promotes the adjustment and optimization of the

industrial structure, and improves the efficiency of agricultural production.

From the existing economic theories, we can know that the factors affecting long-term economic growth mainly include the increase in the supply of capital, labor and other factors, technological progress, industrial structure optimization, institutional innovation, and the formation of economies of scale and other total factor productivity improvements. Economic growth is mainly determined by demand, which mainly includes investment demand, consumption demand and export demand. Therefore, the impact of international trade in agricultural products on economic growth can also be described from both long-term and short-term perspectives.

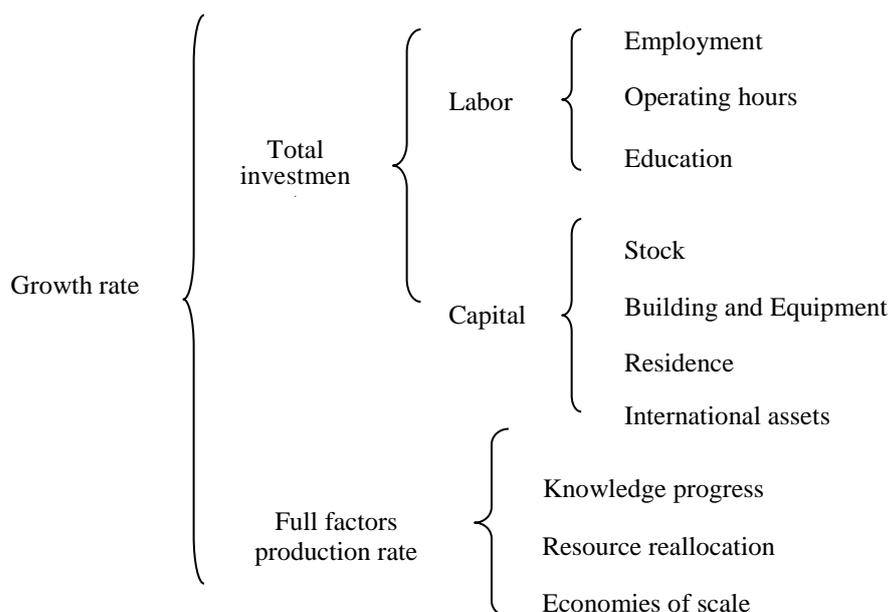
Long-term economic growth theory. The emergence of economic growth theory has a long history, which can be traced back to the period of mercantilism in the 15th century, which was the primitive accumulation stage of capital in the capitalist economy. With the development of capitalism, the theory of international trade also developed in the 18th and 19th centuries. Adam Smith, in his book *The Wealth of Nations*, put forward the "Theory of Absolute Advantage" to explain the international division of labor and the emergence of international trade. This is the real beginning of the pure theory of international trade. On the basis of Adam Smith's theory of absolute advantage, another famous British classical economist, David Ricardo, put forward the theory of comparative advantage trade. It is believed that the basis of international trade is not limited to the absolute difference in labor productivity, but the relative cost of commodities in two countries. As long as the costs of the two commodities are different, the two countries can still carry out international division of labor and trade, and both

sides can still benefit from trade. profit in. Harrod (R. E. Harrod 1993) and Domar (E. D. Domar 1946) proposed the Harrod-Domar Model, which became the beginning of modern economic growth theory. From the perspective of demand, according to Keynes's theory of national income determination, Harold studies the conditions for achieving long-term equilibrium economic growth with full employment, and concludes that in order to achieve long-term equilibrium with full employment, the economic growth rate must be in accordance with the rate of capital accumulation and capital production. ratio increased. Under the conditions that labor and capital are completely irreplaceable, and to ensure full employment conditions, multiple macroeconomic variables in the entire economy and society can grow in equal proportions and stably for a long time. Once deviations occur, they will never recover. However, academic circles believe that this model is not the "orthodox" theory of economic growth theory, because the conclusion of the model is that economic growth is not stable. Neoclassical economists incorporate capital and labor into the production function based on the substitutability of capital and labor. Solow (Robert M. Solow and Swan) believe that due to the substitutability of capital and labor, full employment It can be achieved through market mechanism adjustment. As long as the adjustment role of the market mechanism is fully utilized, the long-term equilibrium of full employment is an inevitable trend of economic growth. The long-run equilibrium growth rate depends only on the supply side, that is, factor growth and technological progress. However, when classical economists deduce their economic growth theory, they still focus on the accumulation of capital per capita. Solow (1956) put forward the Solow model,

proposing that technological progress plays an important role in promoting sustained economic growth, because technological progress can overcome the decline in the marginal output of capital, thus ensuring sustained economic growth. Explain technological progress as one of the main reasons for economic growth, and think that technological progress is determined by factors outside the economic system. In 1957, Solow mathematically decomposed the growth of output into the sum of the growth of capital, labor and technological progress. This growth is also called "growth of total factor productivity" or "growth of multifactor productivity" (Solow 1957). In economic growth accounting, what cannot be explained by the growth of factor inputs in the production function is called "residuals" or "a ratio that is ignored by us" (Solo residuals or residuals), and technological progress becomes the total factor to explain this. main reason for productivity growth. This formula is used by many economists to analyze the sources of output growth. Gregory Mankiw (Mankiw), David Romer (Romer) and David Weil (Weil) (1992) included human capital into the research scope of the Solow model and constructed a "neoclassical growth model". Considering the effect of human capital or skilled labor, the Solow model has a better fit. However, an inherent flaw of neoclassical growth theory is that although technology is an important factor in neoclassical theory, it is believed that technological progress is the engine that leads to economic growth, but it is not included in the model. Technological progress is assumed to take a Exogenous growth at a fixed rate. The literature on new economic growth such as Romer (1990) and Lucas (Lucas 1988) introduced factors such as increasing returns to scale, imperfect competition and human capital into the growth model, and

internalized the exogenous variables of the growth model to better explain the growth problem and lay the foundation of the endogenous growth theory or the new growth theory. That is to say, the process of technological progress and economic growth itself is an endogenous result of economic development. Simon Kuznets (S. Kuznets) a series of works on economic growth argue that the main factors of economic growth are the increase of knowledge stock, the improvement of labor productivity and structural changes. Starting from the historical data of US economic growth, Denison believes that the factors that have long-term effects and affect the change of growth rate mainly include: the number of social employment and its age and gender composition; the working hours of full-time and part-time workers; the education of employed persons level; capital; efficiency of resource allocation; economies of scale formed by the expansion of the market; knowledge progress. The first four factors belong to factor inputs; the last three belong to total factor productivity, as shown in Figure 1.2.

Factors affecting short-term economic growth. Short-term economic growth depends on aggregate demand and aggregate supply. According to the national income determination theory of the economic equilibrium of four sectors under the condition of open economy, the aggregate demand depends on the conditions of the product market, the money market and the international market, while the aggregate supply depends on the labor market and the aggregate production function.



**Figure 1.2- The relationship between Dennison's factors and economic growth**

In order to illustrate the problem simply, let's start with the simple national income determination theory proposed by Keynes that only includes product markets. Under the conditions of an open economy, in a four-sectoral economic system consisting of consumers (households), enterprises (ie manufacturers), government departments and foreign departments, the balanced national income depends not only on domestic consumption, investment and government spending, but also on at net exports, i.e.:

$$y = c + i + g + nx \quad (1.1)$$

Among them,  $y$ ,  $c$ ,  $I$ ,  $g$  respectively represent the actual output or income excluding price changes, the actual consumption of residents, the actual investment of enterprises and the actual expenditure of the government;  $nx$  refers to the net export.

$$nx = x - m \quad (1.2)$$

Among them, export  $X$  represents the foreign demand for domestic goods, which is determined by the purchasing power and purchasing requirements of foreign countries. It is difficult for the country to control, so it is usually assumed to be an exogenous variable ( $x=\bar{x}$ ); while imports will increase with the increase of domestic income, so Imports can be expressed as a function of income:

$$m=m_0+ry \quad (1.3)$$

Among them,  $m_0$  represents spontaneous imports, that is, the part of imports that has nothing to do with income level;  $r$  represents the marginal propensity to import, that is, how much imports will increase by 1 unit of income. Consumption consists of spontaneous consumption and income-induced consumption:

$$C=\alpha+\beta y_d \quad (1.4)$$

Among them,  $\alpha$  represents the essential part of spontaneous consumption;  $\beta$  represents the marginal propensity to consume;  $y_d$  represents the disposable income. Disposable income is determined by equilibrium income, tax levels, and government transfers:

$$Y_d=y-t+tr \quad (1.5)$$

Among them,  $t$  is the tax;  $tr$  is the government transfer payment. Since government

taxes, investment, government spending, government transfers, and exports are all exogenous variables, then:

$$t=t \quad (1.6)$$

$$i=I \quad (1.7)$$

$$g=g \quad (1.8)$$

$$tr=tr \quad (1.9)$$

$$x=x \quad (1.10)$$

Replace the letters in formula (1.1) with the corresponding formulas in (1.2)-(1.10).

The equilibrium income formula in the four-sector economy is:

$$y = \frac{1}{1-\beta+\gamma} (\bar{a} + \bar{i} + \bar{g} - \beta \bar{t} - \beta \bar{tr} + X - m_0) \quad (1.11)$$

After calculation, it can be concluded that  $dy/dx = 1/(1-\beta+r)$ , which is the foreign trade multiplier under the condition of open economy, which indicates the amount of national income change caused by each increase in export by 1 unit. Multiple relationship.

The above analysis is carried out under the assumption that the general price level is fixed, but the actual economy is the price level and output of the whole society determined by the total supply and demand of the society. Price is a key means for the market mechanism to play a fundamental role in allocation, and price has a greater impact on short-term economic growth. If we link economic growth with cyclical

fluctuations, resource allocation, income distribution, price determination and other issues, and look at short-term issues and long-term issues, we will find that discussions on market price mechanisms should actually be included in growth issues. In the discussion of , because the normal functioning of the market price system will not only stimulate economic efficiency, but also stimulate economic growth.

The reasons for the impact of international trade in agricultural products on economic growth. The development of international trade is closely related to economic growth, but the specific relationship between the two is generally divided into three different views: the promotion theory represented by the "engine" theory, which believes that international trade can promote economic growth; The impediment theory represented by the "Central Periphery Theory" and the "impoverished growth" believes that international trade will hinder economic growth; the eclectic theory represented by the "Handmaid Theory". The research conclusions of most scholars also show that international trade can have an impact on economic growth through resource allocation, market size, capital accumulation, structural adjustment, income distribution, technological innovation and diffusion, and trade systems.

The international trade of agricultural products, as the product trade in the agricultural field, also affects the national economy of a country. In the short term, international trade in agricultural products produces price transmission and spillover, which affects economic growth through demand. Foreign trade of agricultural products is a component of total demand, and its changes cause price changes through total demand. Through the status of agricultural products in the price system, the international

trade of agricultural products affects the prices of agricultural products and their fluctuations, and then affects the overall price level through the price transmission mechanism, thereby affecting domestic economic growth and development. In a market economy, price plays an important role that cannot be ignored. The price of agricultural products is an important factor that constitutes the price level. Due to the transmission between the prices of agricultural products and the prices of other industrial sectors, the stability of the prices of agricultural products plays a key role in the price stability of the entire macro economy. In the long run, the international trade of agricultural products produces an industrial structure adjustment effect, which affects economic growth through structural adjustment; the long-term industrial structure adjustment effect of the international agricultural trade in status, and indirectly transmits it to the entire economy within the national economic system. The natural characteristics of agriculture and the natural attributes of agricultural products determine the basic status of agriculture, and also determine that agriculture is the most basic link in the entire national economic chain. The development scale and speed of other sectors of the national economy are subject to the development level of agricultural productivity and agricultural labor productivity; conversely, as an important part of the national economic system, changes in any internal factors of agriculture may trigger a series of economic chain effects, which are transmitted to the entire national economic system through the internal mechanism of the economic system. Agriculture is the foundation of the national economy, providing not only living consumption materials, but also industrial raw materials. The healthy and stable development of agriculture affects the stable

development of the national economy. The development of agriculture can not only provide the most basic foundation for the existence and development of human beings and other departments, but also promote the development of related industries and form an interaction mechanism between industries; Domestic demand and improve the supply and demand pattern of the national economy. The adjustment of agricultural structure can not only realize the optimal allocation of agricultural resources such as labor force and capital in agriculture, but also form the transfer of factors between agriculture and other national economic departments, thus forming a structural adjustment effect on the entire national economic system. Secondly, the supply effect produced by the import trade of agricultural products, agricultural products can be divided into consumption-oriented agricultural products for direct consumption and raw-material agricultural products for industrial production according to their uses. The import of consumer-oriented agricultural products can increase domestic consumption of high-quality agricultural products, improve national welfare, and promote economic growth. The import of raw agricultural products makes up for the shortage of domestic agricultural production, can provide more and cheaper raw materials, break through domestic supply bottlenecks, and promote the development of textile, food and other related industries, thus producing a chain effect in the national economic system.

### **1.3. The trade market pattern of the world's major agricultural products**

The main agricultural products studied in this section are based on the varieties

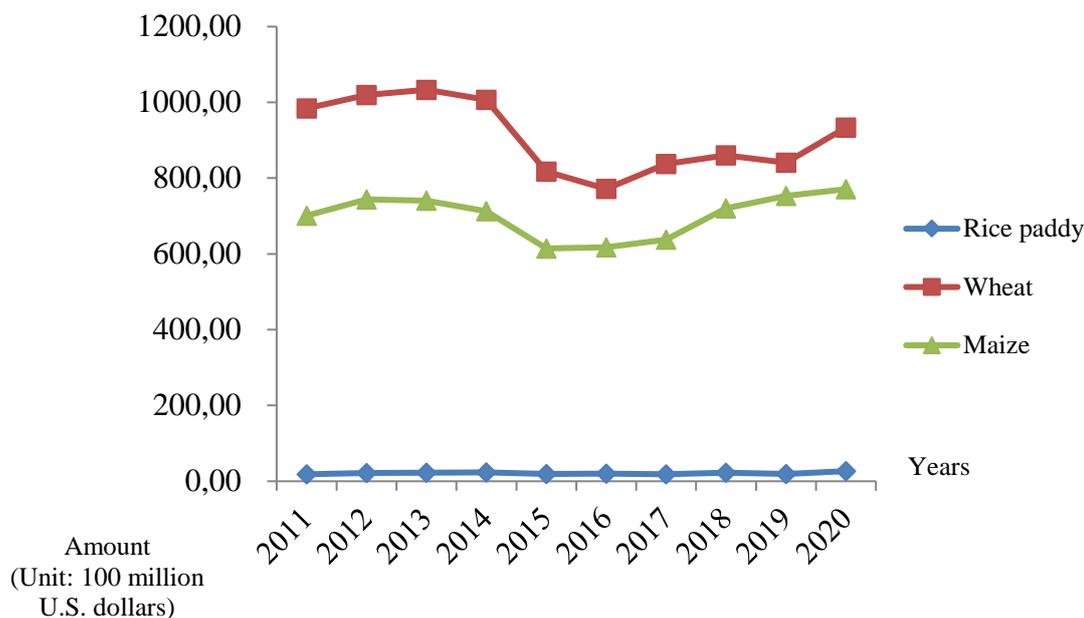
designated by the Food and Agriculture Organization of the United Nations. Through further induction and classification, they are divided into eight categories of agricultural products: cereals, soybeans, cotton, fruits, vegetables, meat, aquatic products, and dairy products. Trade in 2011-2020 The data is used as the research object to summarize the import and export flow and flow direction of each variety, showing the current basic trade pattern of these types of agricultural products.

*World cereal trade.* According to the standard of the UNFood and Agriculture Organization, cereal products mainly include rice, corn, wheat and other products and their products. From *Figure 1.3* (data source: calculated according to the UNCommodity Trade Statistics Database), it can be known that from 2011 to 2019, the overall import and export trade volume of world cereals showed a downward trend, and only in 2020 did it rise rapidly; Wheat accounted for 55,76% of cereals, followed by corn, accounting for 42,94% of cereals. Rice has the smallest proportion, accounting for 1,31% of grain types, and this article does not conduct a special study on it.

Characteristics of rice import and export trade. The import and export trade volume of rice in the world has shown a slow growth trend, from US\$1,876 Bn in 2011 to US\$2,663 Bn in 2020, with a growth rate of 41,95%. The growth trend is relatively obvious.

Exports of world rice. It can be seen from *Table 1.1* that the Americas is the main region of the world's rice exports, with an average export share of 72,36% in the world over the past 10 years, occupying an absolute dominant position in exports; followed

by Asia, where Asia's rice exports account for the world's rice exports



**Figure 1.3 - World cereal import and export trade volume from 2011 to 2020**

*Source: developed by author*

The proportion of the total is increasing, from 13,25% in 2011 to 25,74% in 2020, an obvious increase. Oceania's rice exports account for the smallest proportion of the world's rice exports, and it has basically remained at a low level in the past 10 years, with an average proportion of only 0,01%. The European rice export market generally shows a fluctuating downward trend, with an average export share of 9,3% of the world's rice export share in the past 10 years. The proportion of rice exports from Africa in the world's rice exports has generally shown a wave-like growth trend, increasing from 0,39% in 2011 to 0,90% in 2020. During the period, the proportion reached 1,90% in 2013, which is the highest value in 10 years. , and the proportions

in other years are between 0 and 2%, which is insignificant in the world rice export market.

**Table 1.1 - Shares of Rice Exports in Agricultural Products Markets of World Continents (2011-2020), Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	0.39	0.63	1.90	1.37	1.22	0.51	0.80	0.95	0.52	0.90
America	76.65	70.44	74.78	74.97	70.81	76.03	73.22	70.55	71.85	64.33
Asia	13.25	16.48	14.43	12.84	18.36	14.63	18.27	21.63	18.41	25.74
Europe	9.67	12.45	8,89	10.81	9.61	8.82	7.71	6.82	9.22	9.00
Oceania	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.03
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100,00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

From Table 1.2, we know that the five countries with the largest share of the world's average rice exports from 2011 to 2020 are the United States, Brazil, India, Argentina and Uruguay. Among them, the United States has the largest share of rice exports in the world, accounting for an average of 60.17%, occupying an absolute advantage in all countries in the world; but on the whole, there has been a wave of decline, from 68.74% in 2011 to 2020. 42.51%, a more obvious decline. The other four countries with a large share of rice exports are Brazil, whose average export value in the past 10 years accounted for 10.60% of the world's average rice export value; India's average export value accounted for 7.95% of the world's average rice export value; Uruguay's average export value accounted for the world's average rice export value. 2.69% of the average export value; Argentina's average export value accounted for 1.85% of the world's average rice export value. From the perspective of export trends, Brazil, India, and Uruguay's rice exports in the world's rice exports have

generally shown an upward trend, while Argentina has shown a downward trend.

**Table 1.2 - The world's five largest rice exporting countries in the world's rice market export share (2011-2020), Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
United States of America	68.74	61.99	61.76	55.13	68.13	65.68	70.64	47.74	59.41	42.51
Brazil	6.73	5.43	11.42	10.51	9.21	6.75	4.51	25.30	10.11	16.05
India	1.92	10.18	9.81	7,25	8.40	3.67	7.54	8.56	9.30	12.83
Argentina	6.14	1.15	1.51	1,73	0.19	0.55	2.08	1.10	2.24	--
Uruguay	0.50	3.73	2.29	1,57	1.84	2.60	1.86	1.68	5.85	5.04
World	100.0	100.0	100,0	100,0	100.0	100.0	100.0	100.0	100.0	100.0

*Data source: Calculated from the data of the UNFood and Agriculture Organization (FAO) database (the data for Argentina 2020 is missing)*

World rice imports. It can be seen from Table 1.3 that the Americas is also the main import region of the world's rice, and the average import share in the world's rice imports is 61.76%, occupying a dominant position in imports; the specific proportions of the statistics in each year generally show a wave-like decline In 2011, the proportion dropped from 60% to 57.65% in 2020. The year with the largest proportion was in 2018. Imported rice accounted for 70.91% of the world's total rice imports, playing a pivotal role. Followed by Asia, the average import share in the world's rice imports is 23.51%, and the proportion of rice imports in the world's rice imports has increased from 22.78% in 2011 to 32.02% in 2020. There have been fluctuations in the period, but On the whole, it is showing a growth trend. Compared with the other four continents, the share of rice imports is relatively small.

**Table 1.3 - Shares of Rice Imports in Agricultural Products Markets of****World Continents (2011-2020), Unit: %**

<i>Country</i>	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	8.05	9.93	10.10	5.48	9.39	7.18	8.31	5.09	3.94	4.35
America	60.00	58.91	67.24	62.54	54.90	59.03	63.36	70.91	63.07	57.65
Asia	22.78	23.54	16.35	26.03	27.48	22.10	21.25	18.22	25.36	32.02
Europe	9.12	7.47	6.11	5.81	8.16	11.48	6.79	5.51	7.34	5.74
Oceania	0.05	0.15	0.20	0.13	0.06	0.21	0.30	0.26	0.29	0.24
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

From Table 1.4, the five countries with the largest share of the world's average rice imports from 2011 to 2020 are: Mexico, Venezuela, Brazil, Turkey, and Costa Rica. Among them, Mexico has the largest share of rice imports in the world, and the average import value accounts for 26.38% of the world's average rice imports; however, it has shown a downward trend in the past 10 years, and the proportion of imports in the world's rice imports has dropped from 32.22% in 2011 to 2020. 23.08% of the year, a significant decrease. The other four countries with a larger share of rice imports are Venezuela, whose average import value accounts for 16.09% of the world's average rice import value; Brazil's average import value accounts for 9.72% of the world's average rice import value; Turkey's average import value accounts for the world's average rice import value. The average import value of Costa Rica accounted for 3.76% of the world average import value of rice. From the perspective of import development trends, the proportion of rice imports in Venezuela (except 2020), Brazil, and Costa Rica in the world's rice imports has generally shown an

upward trend, while Turkey has shown a downward trend.

**Table 1.4 - Import share of the world's top five rice importing countries in the world rice market (2011-2020), Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Mexico	32.22	26.45	27.47	23.92	23.27	25.92	30.70	24.94	25.80	23.08
Venezuela	11.89	13.22	20.18	18.25	15.11	15.45	19.00	23.10	15.60	9.14
Brazil	5.47	5.07	10.45	10.55	7.89	6.72	3.43	22.80	9.64	15.18
Turkey	11.16	8.62	6.12	12.01	6.80	7.12	5.66	1.89	3.62	5.25
Costa Rica	2.35	3.11	3.03	2.61	3.45	3.72	4.53	4.07	5.31	5.40
World	100.00	100.0 0								

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

Characteristics of wheat import and export trade. In general, the import and export trade volume of wheat in the world showed a downward trend, from US\$98.453 Bn in 2011 to US\$93.348 Bn in 2020, with an average annual growth rate of -5.19%, a slight decline.

World wheat exports. As can be seen from Table 1.5, Europe is the main region for world wheat exports, with an average export share of 49.30% in the world, accounting for almost half of the total. The proportion of European wheat exports in world wheat exports is generally increasing. , the proportion has increased from 39.92% in 2011 to 57.05% in 2020, a significant increase. The second is the Americas. The proportion of wheat exports in the Americas in the world's wheat exports has shown a downward trend. The proportion has dropped from 44.52% in 2011 to 33.44% in

2020, with an average drop of 24.89% in the past 10 years, a significant decline. The third is Oceania, but Oceania's wheat export market is generally declining, with an average export share of 10.19% of the world's wheat export share. As the world's fourth largest wheat exporting region, Asia's average export share in the past 10 years accounted for 3.84% of the world's wheat export share; the export share remained relatively stable in each year. However, Africa's wheat exports account for the smallest proportion of the world's wheat exports, and it has basically remained at a low level in the past 10 years, with an average proportion of only 0.16%, which is insignificant in the world wheat export market.

**Table 1.5 - Shares of Wheat Exports in Agricultural Markets of World Continents (2011-2020), Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	0.11	0.19	0.20	0.31	0.28	0.07	0.12	0.07	0.13	0.14
America	44.52	38.62	38.15	34.51	35.71	34.38	35.60	33.97	36.19	33.44
Asia	3.28	6.40	6.85	4.69	2.59	2.29	2.18	3.61	3.15	3.36
Europe	39.92	40.96	42.85	49.31	50.13	53.33	50.18	54.97	54.28	57.05
Oceania	12.18	13.83	11.94	11.18	11.29	9.93	11.92	7.39	6.25	6.02
World	100.0 0									

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

From Table 1.6, we know that from 2011 to 2020, the five countries with the largest share of world wheat exports are the United States, Russia, Canada, France and Australia. Among them, the United States has the largest share of wheat exports in the world, with an average share of 15.18%; however, the overall export share

during the 10-year period has shown a downward trend, from 22.10% in 2011 to 13.16% in 2020, the decline is more obvious.

**Table 1.6 - The world's five largest wheat exporting countries in the world wheat market export share (2011-2020), Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
United States of America	22.10	15.65	20.39	14.74	12.45	12.65	13.89	11.79	15.02	13.16
Russian	10.24	9.77	8.47	12.72	12.43	13.33	16.80	23.03	17.69	18.77
Canada	11.01	10.85	12.17	13.90	13.82	10.37	10.96	11.98	12.66	13.15
France	13.72	10.00	12.06	11.72	11.60	9.65	7.75	9.92	11.08	9.97
Australia	11.90	14.30	11.06	10.51	9.98	8.50	11.18	6.47	5.32	5.24
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

World wheat imports. As can be seen from Table 1.7, Asia is the main importing region of world wheat, with an average import share of 40.43% in world wheat imports, occupying a relatively large import share; and accounting for the world's wheat imports during the statistical period The share has shown an upward trend, rising from 36.95% in 2011 to 44.10% in 2020, which has an important position.

**Table 1.7 - Shares of Wheat Imports in Agricultural Markets of World Continents 2011-2020, Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	27.83	25.89	24.57	26.65	26.17	25.83	25.12	25.81	25.70	26.27
Americas	14.17	13.97	15.81	14.75	14.04	13.61	13.31	13.96	13.34	11.54
Asia	36.95	40.01	40.56	39.69	39.50	39.74	42.18	39.60	41.98	44.10
Europe	20.55	19.60	18.51	18.32	19.68	20.22	18.78	19.92	18.10	17.29
Oceania	0.50	0.54	0.56	0.60	0.61	0.60	0.62	0.71	0.88	0.80
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

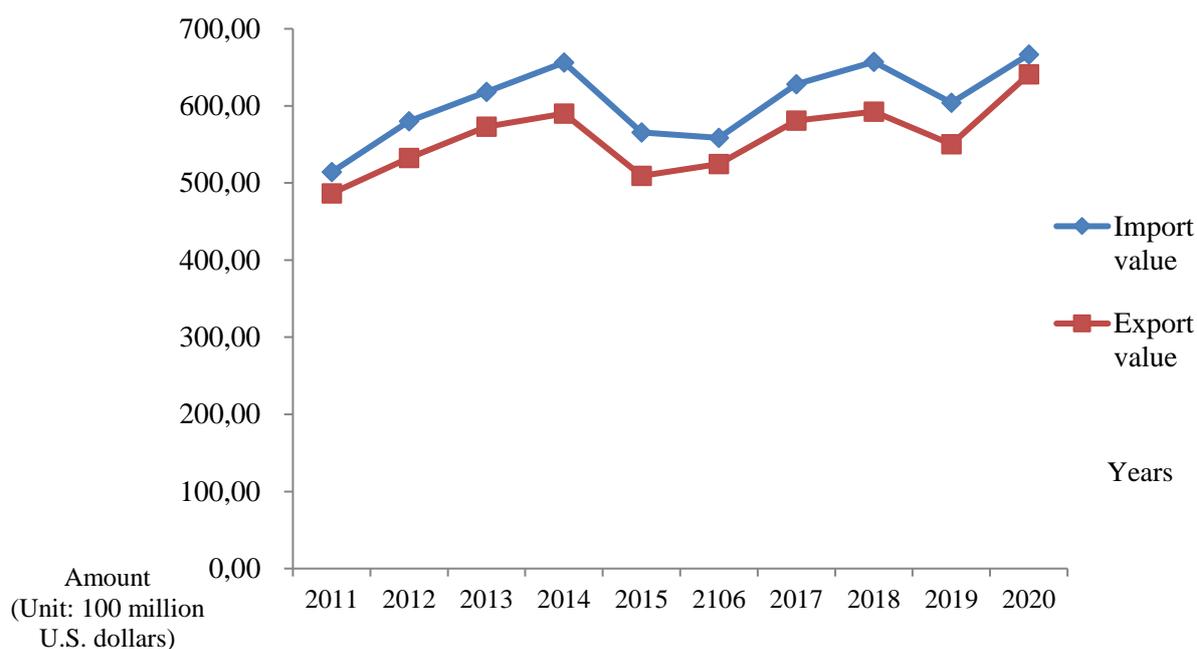
From Table 1.8, the five countries with the largest average import share of world wheat from 2011 to 2020 are: Egypt, Indonesia, Algeria, Italy and Brazil. Among them, Egypt has the largest share of wheat imports in the world, and the average import value accounts for 23.17% of the world's average wheat imports; and from 2011 to 2019, the proportion showed an overall growth trend, from 19% in 2011 to 23.52% in 2019, However, the proportion in 2020 was 18.64%, a sharp decline. The other four countries with a larger share of wheat imports are Indonesia, whose average import value accounts for 18.35% of the world's average wheat import value; Algeria's average import value accounts for 15.87% of the world's average wheat import value; Italy's average import value accounts for the world's average wheat import value. The average import value of Brazil accounted for 13.29% of the world's average wheat import value. From the perspective of the development trend of imports, the proportion of wheat imports in the world's five major wheat importing countries in the world's wheat imports has generally shown an increasing trend, and wheat is still the world's major food crop.

**Table 1.8 - Import share of the world's top five wheat importing countries in the world wheat market from 2011 to 2020, Unit: %**

<i>Country</i>	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Egypt	19.00	21.54	19.07	21.10	24.80	27.37	28.88	27.81	23.52	18.64
Indonesia	10.86	11.78	12.49	14.05	17.24	25.89	23.35	22.46	24.18	21.23
Algeria	14.45	11.96	11.69	14.02	19.79	20.21	18.04	18.73	15.29	14.54
Italy	14.19	11.51	10.74	14.23	16.63	18.81	16.59	16.58	16.87	16.48
Brazil	11.13	12.40	13.48	10.93	12.03	16.87	13.45	15.16	14.84	12.70
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

World soybean trade. As can be seen from Figure 1.4, the import and export trade volume of soybeans in the world agricultural product market shows a wave-like growth trend; among them, the average annual growth rate of soybean exports in the world agricultural product market is 6.35%, and the average annual growth rate of import volume The growth rate was 4.01%.



**Figure1.4 - World soybean import and export trade volume from 2011 to 2020**

*Source: developed by author*

Exports of world soybeans. As can be seen from Table 1.9, the Americas is the main region for soybean exports in the world, with an average export share of 95.62% in the world, occupying an absolute dominant position.

**Table 1.9 - Shares of soybean exports in agricultural markets of all continents from 2011 to 2020, Unit: %**

<i>Country</i>	2011	2012	2013	2014	2015	2106	2017	2018	2019	2020
Africa	0.06	0.20	0.10	0.10	0.09	0.12	0.27	0.19	0.23	0.22
Americas	96.31	94.79	95.90	96.21	95.74	95.38	95.10	95.70	95.16	95.91
Asia	0.48	0.71	0.65	0.72	0.62	0.68	0.61	0.48	0.42	0.31
Europe	3.15	4.31	3.34	2.96	3.55	3.81	4.02	3.62	4.19	3.56
Oceania	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

As can be seen from Table 1.10, the five countries with the largest share of average soybean exports in the world from 2011 to 2020 are: the United States, Brazil, Argentina, Paraguay and Canada; the above five countries belong to the Americas, which also proves that the Soybean exports have an absolute advantage in the world agricultural market. Among the five countries mentioned above, Brazil has the largest share of soybean exports in the world, accounting for an average of 42.31%, and has been increasing year by year during the 10-year period; the other four countries with a large soybean export share are the United States, with an average export share.

**Table 1.10 - The world's top five soybean exporting countries in the world soybean market export share (2011-2020), Unit: %**

<i>Country</i>	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
United States of America	37.71	45.26	36.90	41.84	36.78	42.36	36.49	30.42	33.73	37.25
Brazil	36.26	33.50	40.31	38.53	41.44	37.82	44.90	54.79	47.69	47.86
Argentina	11.89	6.35	7.33	6.28	8.89	6.56	4.88	2.32	6.47	3.67
Paraguay	5.60	3.26	4.79	4.09	3.49	3.96	4.03	3.95	3.16	3.82
Canada	2.91	3.72	3.10	2.97	3.24	3.24	3.07	3.60	2.58	2.56
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

Imports of world soybeans. As can be seen from Table 1.11, Asia is the main region for soybean imports in the world, with an average import share of 76.91% in the world, occupying a dominant position; the other orders are: the average import share of European soybeans in the world is 14% %, the average import share of American soybeans in the world is 6.62%, the average import share of African soybeans in the world is 2.47%, and the average import share of Oceania soybeans is the smallest in the world, with an average share of only 0.01 %.

**Table 1.11 - Share of Soybean Imports in Agricultural Products Markets of World Continents (2011-2020), Unit: %**

<i>Country</i>	2011	2012	2013	2014	2015	2106	2017	2018	2019	2020
Africa	2.45	2.35	2.18	2.20	2.05	2.08	1.91	2.72	3.35	3.40
Americas	5.40	5.61	6.34	6.81	5.45	5.94	6.12	9.56	7.78	7.16
Asia	75.56	76.63	76.01	76.55	78.96	78.10	79.84	74.77	76.31	76.37
Europe	16.59	15.40	15.47	14.44	13.53	13.88	12.12	12.95	12.55	13.05
Oceania	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

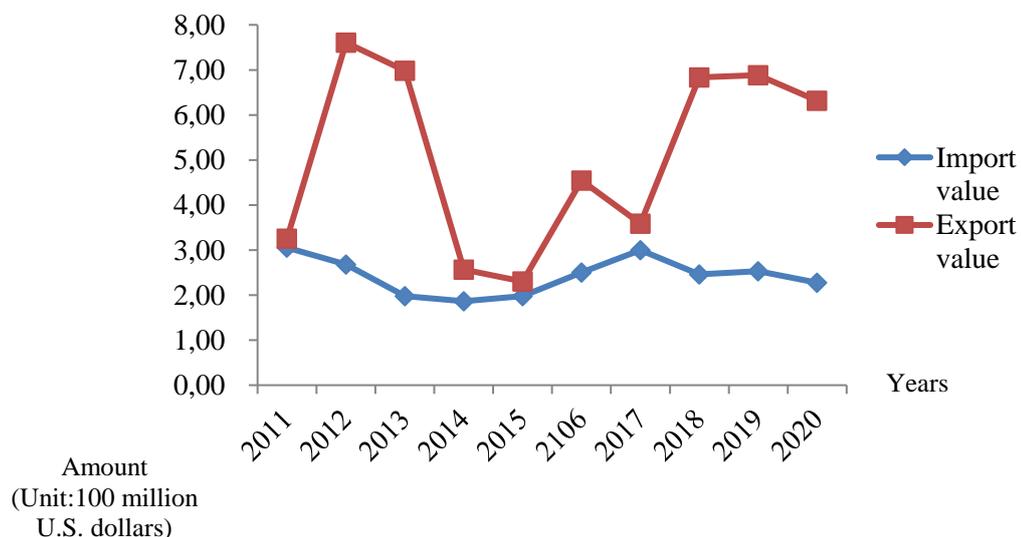
As can be seen from Table 1.12, the five countries with the largest share of the world's average soybean imports from 2011 to 2020 are: China, Mexico, the Netherlands, Germany and Spain; among them, China's soybean imports have the largest share in the world, with an average of It accounts for 60.43%, showing a weak growth trend in the past 10 years. It is the world's largest soybean importer.

**Table 1-12 Import share of the world's top five soybean importing countries in the world soybean market from 2011 to 2020, Unit:%**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
China	57.44	60.15	61.52	61.25	62.36	62.11	63.94	57.44	58.01	60.06
Mexico	3.66	3.58	3.51	3.34	2.97	2.99	2.91	3.38	3.18	2.33
Netherlands	3.34	2.91	3.21	2.50	2.65	3.23	2.57	2.79	2.69	2.72
Germany	3.49	3.55	3.51	3.19	2.89	2.33	2.02	2.38	2.40	2.31
Spain	3.48	3.41	3.29	2.97	2.73	2.39	2.27	2.22	2.18	2.00
World	100.0	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

World cotton trade. As can be seen from Figure 1.5, the import and export trade volume of cotton in the world agricultural product market from 2011 to 2020 showed different development trends; among them, the import share showed a wave-like decline, with an average annual growth rate of -3.23%. However, the export volume has shown great fluctuations, showing an overall growth trend. The average annual growth rate of the export volume is 7.65%.



**Figure1.5- World cotton import and export trade volume from 2011 to 2020**

*Source: developed by author*

World cotton exports. As can be seen from Table 1.13, Africa is the main region for world cotton exports, with an average export share of 64.92% in the world, occupying a dominant position; followed by Asia, with an average cotton export share of 15.85% in the world The third is the Americas, the average export share of cotton in the world is 14.33%; the fourth is Europe, the average export share of cotton in the world is 4.78%; Oceania has the smallest share of cotton exports in the world, the average proportion is only 0.12%.

**Table 1.13 Share of Cotton Exports in Agricultural Products Markets of World Continents (2011-2020), Unit: %**

<i>Country</i>	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	43.16	74.63	67.37	43.07	42.36	83.21	74.10	81.12	68.12	72.02
Americas	19.03	12.73	12.62	29.00	28.11	7.38	6.11	8.29	12.96	7.06
Asia	25.37	6.91	15.66	22.35	22.87	8.04	15.25	8.69	15.29	18.09
Europe	12.45	5.73	4.34	5.55	6.61	1.36	3.57	1.86	3.56	2.78
Oceania	0.00	0.00	0.00	0.03	0.04	0.01	0.97	0.04	0.06	0.05
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

As can be seen from Table 1.14, the five countries with the largest share of world cotton exports from 2011 to 2020 are Mali, Uganda, Tanzania, Mexico and the United States. Among them, Mali's cotton exports have the largest share in the world, with an average share of 42.57%, showing a wave-like rapid growth during the 10-year period; the other four countries with a large share of cotton exports are Uganda, whose average export value accounts for the world's average cotton export. The average export value of the United States accounted for 7.31% of the world's average cotton

export value; Tanzania's average export value accounted for 6.96% of the world's average cotton export value. Mexico's average export value accounted for 6.43% of the world's average cotton export value. Judging from the development trend of export share, only Mali's cotton exports in the world's cotton exports have shown a rapid growth overall, while Uganda, the United States, Tanzania and Mexico have shown a downward trend.

**Table 1.14 - The world's five largest cotton exporting countries in the world cotton market export share (2011-2020), Unit:%**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Mali	--	42.36	47.66	0.06	0.07	65.35	43.39	69.82	53.69	60.75
Uganda	19.27	11.56	5.34	8.56	12.60	5.91	12.55	5.04	11.17	6.12
United States of America	8.56	4.28	6.44	18.10	16.63	3.88	4.89	2.99	4.18	3.15
Tanzania	8.41	9.05	5.42	12.51	6.44	2.83	6.11	4.90	--	--
Mexico	9.78	8.17	5.94	9.03	10.43	3.20	0.75	4.99	8.34	3.65
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO). Mali's cotton export data in 2011 is missing, and Tanzania's cotton export data in 2019 and 2020 are missing.*

Imports of world cotton. As can be seen from Table 1.15, Asia is the main region for world cotton imports, with an average import share of 47.72% in the world. Others are: the average import share of European cotton in the world is 42.68%, the average import share of African cotton in the world is 6.38%, the average import share of American soybeans in the world is 3.04%, Oceania The average import share of cotton in China is the smallest in the world, with an average share of 0.17%.

**Table 1.15 The share of cotton imports in the world's agricultural market from 2011 to 2020, Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	4.72	3.82	8.11	10.92	16.28	4.17	4.05	3.79	3.84	4.14
Americas	5.46	3.99	4.20	2.57	1.70	1.69	1.72	2.11	3.56	3.41
Asia	27.62	54.42	30.67	35.10	35.07	61.15	61.80	58.10	57.72	55.57
Europe	62.09	37.64	56.79	51.17	46.66	32.81	32.32	35.92	34.73	36.71
Oceania	0.11	0.14	0.23	0.24	0.29	0.18	0.12	0.08	0.14	0.17
World	100.0 0									

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

It can be known from Table 1.16 that the five countries with the largest share of world cotton imports from 2011 to 2020 are Vietnam, Spain, the United Kingdom, Bangladesh and Taiwan, China. Among them, Vietnam's cotton imports have the largest share in the world, with an average share of 14.46%. During the 10-year period, it has shown a rapid growth trend, and its share has risen from 2.38% in 2011 to 28.53% in 2020.

**Table 1.16 - Import share of the world's top five cotton importing countries (regions) from 2011 to 2020, Unit:%**

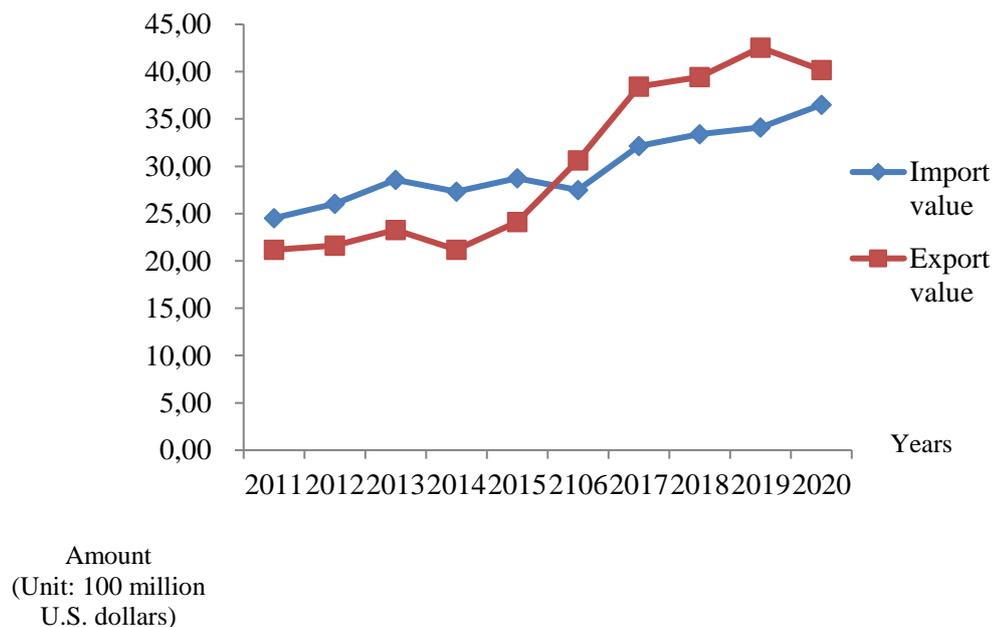
Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Viet Nam	2.38	7.07	6.66	10.34	9.03	8.09	15.56	25.95	31.02	28.53
Spain	17.18	11.46	15.37	14.22	13.45	9.69	10.82	11.97	9.50	10.03
UK	28.62	7.30	16.09	14.23	11.47	8.30	7.39	8.46	6.77	6.00
Bangladesh	0.90	5.66	3.62	4.98	8.53	38.08	29.27	5.02	2.57	3.44
Taiwan of China	1.29	5.67	11.14	10.53	8.05	6.59	7.77	17.14	15.27	13.75
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

World fruit trade. As can be seen from Figure 1.6, from 2011 to 2020, the

import and export trade of fruits in the world agricultural product market showed an increasing trend; among them, the average annual growth rate of fruit imports was 4.52%, and the average annual growth rate of exports was 7.36% .

Exports of world fruit. As can be seen from Table 1. 17, Asia is the main region of the world's fruit exports, with an average export share of 78.28% in the world, occupying an absolute dominant position. The average export share of fruits in Africa is 5.73% in the world, the average export share of fruits in America is 5.69% in the world, and the average export share of fruits in Oceania is 0.05% in the world.



**Figure 1.6 - World fresh fruits import and export trade volume from 2011 to 2020**

*Source: developed by author*

As can be seen from Table 1.18, the five countries (regions) with the largest share of the world's average fruit exports from 2011 to 2020 are: Thailand, Vietnam, Hong Kong, Turkey and Egypt. Among them, Thailand's fruit exports have the largest share in the world, with an average share of 19.59%, but the share has shown a downward trend in the past 10 years, from 22.25% in 2011 to 14.30% in 2020.

**Table 1.17 - Shares of Fruit Exports in Agricultural Markets of World**

**Continents (2011-2020) , Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	3.20	2.44	3.71	7.60	4.59	4.95	3.34	3.19	12.10	12.10
Americas	4.77	5.23	4.53	6.50	6.40	5.77	4.93	5.74	5.41	7.43
Asia	80.05	84.41	84.04	74.04	77.58	76.63	81.80	80.90	73.09	70.20
Europe	11.90	7.88	7.61	11.75	11.30	12.57	9.80	10.07	9.37	10.20
Oceania	0.08	0.01	0.01	0.05	0.00	0.05	0.00	0.05	0.01	0.04
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

The other four countries with a large share of fruit exports are Vietnam, with an average export value of 17.78% of the world's average fruit export value.

**Table 1.18 - Export Shares of the Top Five Fruit Exporting Countries**

**(Regions) in the World (2011-2020), Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Thailand	22.25	25.29	20.76	20.93	21.07	16.28	21.14	16.53	17.37	14.30
Viet Nam	28.48	32.91	32.19	6.90	9.32	14.04	14.49	13.52	13.23	12.68
Hong Kong of China	12.36	13.04	10.18	8.27	6.35	3.56	4.17	2.43	3.37	3.61
Turkey	4.06	3.92	5.84	6.52	6.13	6.01	4.25	5.20	3.64	4.65
Egypt	2.70	1.98	2.52	4.91	2.28	2.06	1.17	0.84	7.08	7.26
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	0	0	0	0	0	0	0	0	0	0

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

World fruit imports. As can be seen from Table 1.19, Asia is the main region for fruit imports in the world, with an average import share of 72.86% in the world, occupying a relatively dominant position. The average import share of fruits in America is 8.09% in the world, the average import share of fruits in Africa is 0.74% in the world, and the average import share of fruits in Oceania is the smallest in the world, accounting for 0.12%.

**Table 1.19 Shares of Fruit Imports in Agricultural Products Markets of World Continents (2011-2020), Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	0.61	0.59	0.56	0.74	0.70	0.85	0.64	0.82	0.88	0.97
Americas	6.53	7.28	7.19	8.67	7.34	8.94	8.26	8.75	8.94	9.05
Asia	67.66	75.41	74.97	73.11	76.12	72.18	73.66	71.06	71.85	72.54
Europe	25.12	16.65	17.14	17.35	15.73	17.88	17.33	19.26	18.22	17.31
Oceania	0.09	0.07	0.14	0.13	0.11	0.14	0.11	0.11	0.11	0.13
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

As can be seen from Table 1.20, the five countries (regions) with the largest share of the world's average fruit imports from 2011 to 2020 are: China, Hong Kong, the United States, Saudi Arabia and Russia. Among them, China's fruit imports have the largest share in the world, accounting for an average of 46.68%. The other four countries (regions) with a larger share of fruit imports are Hong Kong, China, with an average import value of 8.70% of the world's average fruit import value; the United States' average import value of 6.38% of the world's average fruit import value; Saudi Arabia's average import value It accounts for 3.99% of the world's average fruit import value; Russia's average import value accounts for 3.63% of the world's average fruit import value. From the perspective of the development trend of import share, the

proportion of fruit imports in the United States and Saudi Arabia in the world's fruit imports generally shows an increasing trend, while China, Hong Kong, China and Russia show a declining trend.

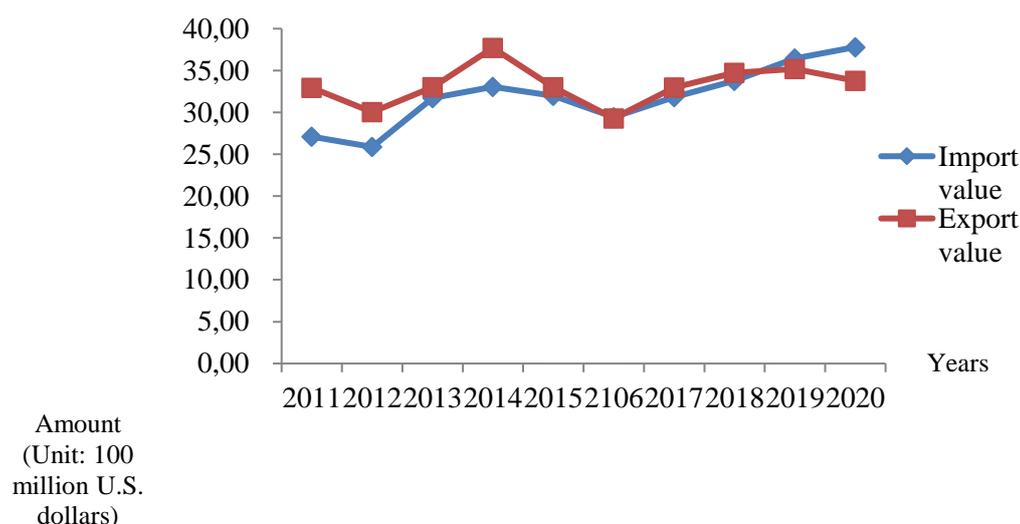
**Table 1.20 - Import share of the world's top five fruit importing countries (regions) from 2011 to 2020, Unit:%**

<i>Country</i>	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
China	43.73	49.00	49.51	51.10	54.57	47.05	47.46	43.59	39.61	41.20
Hong Kong of China	13.41	13.27	11.13	9.40	7.39	6.25	7.76	5.79	6.57	6.05
USA	4.91	5.59	5.61	6.81	5.84	7.18	6.69	7.07	7.00	7.10
Saudi Arabia	1.60	2.82	2.61	2.23	2.00	2.46	2.43	6.16	7.92	9.69
Russia	8.93	3.01	3.55	3.35	2.67	2.04	2.42	3.62	3.18	3.56
World	100.0 0									

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

World vegetable trade. As can be seen from Figure 1.7, the import and export trade of vegetables in the world agricultural product market has shown an increasing trend from 2011 to 2020; among them, the average annual growth rate of vegetable import value is 3.77%, and the average annual growth rate of export value is 0.27% .

Exports of world vegetables. As can be seen from Table 1.21, Asia is the main region of the world's vegetable exports, with an average export share of 38.24% in the world. The average export share of vegetables in the world is 26.09%, the average export share of vegetables in Africa is 4.31% in the world, and the average export share of vegetables in Oceania is 0.61% in the world.



**Figure 1.7 - World vegetables import and export trade volume from 2011 to 2020**

*Source: developed by author*

As can be seen from Table 1.22, the five countries (regions) with the largest share of the world's average vegetable exports from 2011 to 2020 are: China, Spain, Portugal, Egypt and Sudan. Among them, China's vegetable exports have the largest share in the world, with an average share of 4.41%, and the share has also shown an increasing trend in the past 10 years.

**Table 1.21 - Shares of Vegetable Exports in Agricultural Products Markets of World Continents (2011-2020), Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	3.61	2.87	6.55	5.88	5.62	2.86	2.63	3.12	5.53	4.46
Americas	30.27	33.09	23.69	22.73	22.82	24.76	26.17	24.89	24.87	27.57
Asia	38.90	36.01	38.59	40.42	41.14	38.57	37.09	38.72	37.24	35.68
Europe	26.64	27.44	30.53	30.45	29.84	33.01	33.47	32.64	31.77	31.77
Oceania	0.58	0.60	0.65	0.52	0.57	0.80	0.63	0.62	0.60	0.52
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

The other four countries with a large share of vegetable exports are Spain, whose average export value accounts for 0.74% of the world's average vegetable export value; Portugal's average export value accounts for 0.73% of the world's average vegetable export value; Egypt's average export value accounts for the world's average vegetable export value. The average export value of Sudan accounted for 0.34% of the world's average vegetable export value. Judging from the development trend of export share, the proportion of vegetable exports in China, Spain and Portugal in the world's vegetable exports has generally shown an increasing trend, while Egypt and Sudan have shown a downward trend.

**Table 1.22 - The export share of the world's five largest vegetable exporting countries (2011-2020), Unit: %**

<i>Country</i>	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
China	3.72	3.82	4.26	4.20	3.87	4.94	4.90	4.56	4.73	5.13
Spain	0.04	0.82	0.77	0.73	0.88	0.94	0.80	0.77	0.83	0.83
Portugal	0.03	0.40	0.27	1.07	0.85	0.61	0.84	0.89	0.91	1.42
Egypt	0.45	0.75	0.60	0.61	0.61	0.90	0.17	0.12	0.19	0.20
Sudan	0.55	0.35	0.33	0.49	0.82	0.15	0.30	0.10	0.10	0.18
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

World vegetable imports. As can be seen from Table 1-23, Europe is the main region of the world's vegetable imports, with an average import share of 41.53% in the world, occupying a certain dominant position; the other orders are: Asia's average vegetable import share accounts for the world's average vegetable import share The average import share of vegetables in America is 21.38% in the world, the average

import share of vegetables in Africa is 4.78% in the world, and the average import share of vegetables in Oceania is the smallest in the world, accounting for 0.14%.

**Table 1.23 - Shares of Vegetable Imports in Agricultural Products Markets of World Continents (2011-2020), Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	1.67	3.43	5.89	6.88	4.97	4.52	4.68	5.33	5.84	4.48
Americas	15.30	21.88	22.26	21.42	21.30	20.88	21.78	22.10	23.39	23.47
Asia	35.73	33.50	30.21	31.13	32.17	32.23	31.57	31.14	30.83	33.27
Europe	47.23	41.09	41.51	40.43	41.44	42.16	41.78	41.25	39.77	38.65
Oceania	0.08	0.10	0.13	0.13	0.12	0.20	0.19	0.18	0.16	0.14
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

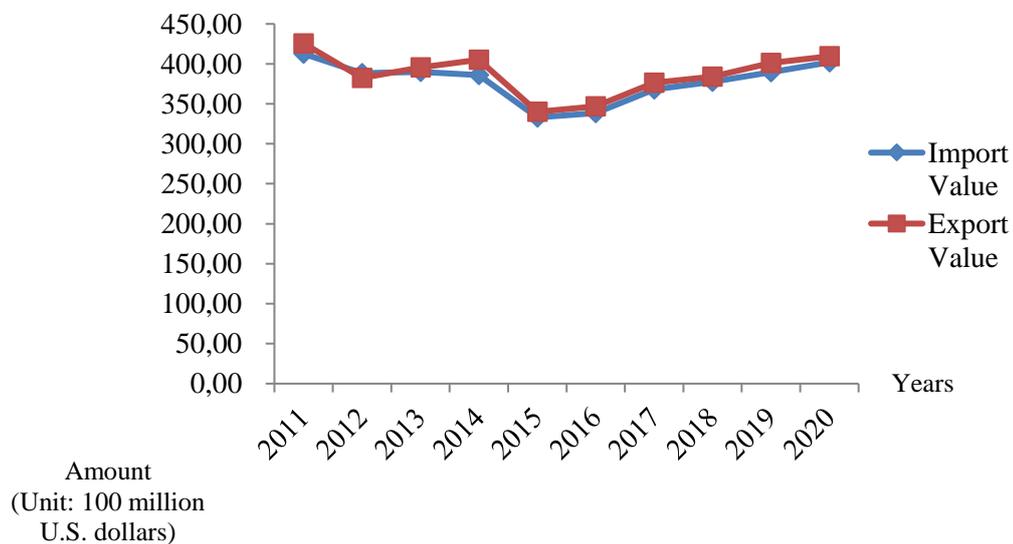
As can be seen from Table 1.24, the five countries with the largest share of world vegetable imports from 2011 to 2020 are Germany, the United States, Saudi Arabia, Spain and China. Among them, Germany's vegetable imports have the largest share in the world, accounting for an average of 1.16%.

**Table 1.24 - Import share of the world's five largest vegetable importing countries from 2011 to 2020, Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Germany	1.18	1.28	1.08	1.28	1.28	1.11	1.22	1.25	1.02	0.96
USA	0.65	0.78	0.88	1.09	1.04	1.06	0.82	1.24	0.79	0.84
Saudi Arabia	1.25	1.04	0.59	0.83	0.69	0.38	0.29	0.46	0.32	0.41
Spain	0.05	0.82	0.61	0.65	0.72	0.79	0.66	0.70	0.55	0.66
China	0.89	0.27	0.28	0.27	0.23	0.23	0.25	0.30	0.86	0.97
World	100.0	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

World meat trade. The world trade of meat products is dominated by chicken, pork and beef. The meat trade studied in this article mainly refers to the trade volume or total trade volume of chicken, pork and beef. As can be seen from Figure 1.8, from 2011 to 2020, the import and export trade volume of meat in the world agricultural product market showed a slight downward trend; among them, the average annual growth rate of meat import value was -0.29%, and the average annual growth rate of export value was -0.29%. The growth rate is -0.43%.



**Figure1.8 - World meat import and export trade volume from 2011 to 2020**

*Source: developed by author*

World meat exports. As can be seen from Table 1.25, the Americas are the main region for meat exports in the world, with an average export share of 54.07% in the world, accounting for more than half of the global meat export share, and the export scale was basically stable during the 10-year period. In order of meat export share,

the others are: the average meat export share of Europe accounts for 37.23% of the world's average meat export value, the average meat export share of Asia is 8.04%, and the average meat export share of Africa is 8.04%. The export share in the world is 0.33%, and the average export share of Oceania meat in the world is 0.32%.

**Table 1.25 - The share of meat exports in the world's agricultural market from 2011 to 2020, Unit: %**

<i>Country</i>	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	0.08	0.08	0.30	0.39	0.42	0.40	0.38	0.43	0.45	0.34
Americas	52.81	58.60	57.29	55.45	53.88	53.22	52.43	51.06	52.01	53.95
Asia	7.75	7.66	8.01	8.99	8.50	8.01	8.00	8.72	7.79	7.01
Europe	39.09	33.33	34.04	34.81	36.89	38.05	38.83	39.44	39.43	38.42
Oceania	0.27	0.33	0.36	0.37	0.32	0.31	0.36	0.35	0.32	0.28
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

Because the types of meat exported by each country are quite different, when analyzing the share of meat exports by country statistics, we conduct separate studies based on chicken, pork, and beef, which account for a large proportion of international meat trade. As can be seen from Table 1.26, the five countries (regions) with the largest share of the world's average chicken exports from 2011 to 2020 are: Brazil, the United States, the Netherlands, Poland and Hong Kong, China. Among them, Brazil's average chicken exports have the largest share in the world's chicken exports, with an average share of 28.17%. The other four countries with a larger share of chicken exports are: the average export value of the United States accounts for 25.10% of the world's average chicken export value, the Netherlands' average export value

accounts for 7.83% of the world's average chicken export value, and Poland's average export value accounts for the world's average chicken exports. The average export value of Hong Kong, China accounted for 3.75% of the world's average chicken export value. From the perspective of the development trend of export share, the proportion of chicken exports in the Netherlands and Poland in the world's chicken exports has generally increased, while Brazil, the United States and Hong Kong, China have shown a downward trend.

**Table 1.26 - The world's five major chicken exporting countries (regions) export share (2011-2020), Unit: %**

<i>Country</i>	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Brazil	28.70	28.21	27.88	27.69	30.34	29.71	28.42	26.67	27.13	26.88
USA	27.70	28.51	27.94	26.84	23.21	23.36	23.00	23.06	22.95	24.45
Netherlands	8.01	7.26	6.85	6.92	7.40	7.84	8.51	8.55	8.86	8.06
Poland	2.44	3.01	3.32	3.13	3.81	4.64	5.23	5.67	6.32	6.49
China, Hong Kong	6.12	4.52	4.04	4.68	4.27	3.89	3.53	3.77	2.05	0.57
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

As can be seen from Table 1.27, the five countries with the largest share of the world's average pork exports from 2011 to 2020 are the United States, Germany, Canada, Spain and Brazil. Among them, the average pork export of the United States has the largest share in the world pork export, with an average proportion of 21.48%. The other four countries with a large share of pork exports are: Germany's average export value accounts for 15.43% of the world's average pork export value, Canada's

average export value accounts for 14.21% of the world's average pork export value, and Spain's average export value accounts for the world's average pork exports. Brazil's average export value accounts for 9.41% of the world's average pork export value. From the perspective of the development trend of export share, the proportion of pork exports in the United States, Canada, Spain and Brazil in the world's pork exports has generally increased, while Germany has shown a downward trend.

**Table 1.27 - Export share of the world's five largest pork exporting countries from 2011 to 2020, Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
USA	18.39	24.32	22.01	20.96	20.60	19.55	21.40	22.47	22.21	22.86
Germany	16.49	15.48	16.63	16.41	16.30	15.34	15.32	15.37	14.70	12.23
Canada	11.39	15.67	15.37	15.10	14.40	13.97	14.22	14.16	13.54	14.31
Spain	10.01	7.81	7.74	10.20	11.41	12.63	12.30	12.25	12.59	13.06
Brazil	5.89	8.69	8.06	8.20	8.83	10.83	10.25	9.30	10.78	13.23
World	100.0 0									

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

As can be seen from Table 1.28, the five countries with the largest share of the world's average beef exports from 2011 to 2020 are Poland, Germany, France, the Netherlands and the United States. Among them, Poland's average beef exports have the largest share in the world's beef exports, with an average share of 11.71%, which has remained basically stable for 10 years. The other four countries with a larger share of beef exports are: Germany's average export value accounts for 9.53% of the world's average beef export value, France's average export value accounts for 9.46% of the



*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

Here, as with the export trade study of meat, we only study chicken, pork and beef, which account for a large proportion of international meat trade, separately. As can be seen from Table 1.30, the five countries (regions) with the largest share of the world's average chicken imports from 2011 to 2020 are: Hong Kong, China, Mexico, Saudi Arabia, China and Japan. Among them, the average chicken import of Hong Kong, China has the largest share of the world chicken import, with an average proportion of 6.39%.

**Table 1.30 - Export share of the world's top five chicken exporting countries (regions), 2011-2020 , Unit: %**

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Hong Kong of China	10.31	7.40	6.40	7.55	6.17	6.26	6.11	5.36	5.00	3.35
Mexico	4.94	5.25	5.90	6.25	6.96	6.66	6.54	6.41	7.51	6.54
Saudi Arabia	6.46	6.47	7.35	6.38	7.56	7.34	6.06	4.96	4.92	4.58
China	3.38	4.12	4.78	3.89	3.53	4.85	3.74	4.00	6.04	11.34
Japan	4.13	3.70	3.66	4.20	4.74	4.70	4.72	4.47	4.36	3.97
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

As can be seen from Table 1.31, the five countries with the largest share of the world's average pork imports from 2011 to 2020 are Japan, South Korea, China, the United States and Russia. Among them, Japan's average pork imports have the largest share in the world's pork imports, accounting for an average of 16.61%. From the perspective of the development trend of imports, the share of pork imports in Japan, China, and the United States in the world's pork imports has generally shown an

increasing trend, while South Korea and Russia have shown a downward trend.

**Table 1.31 - The export share of the world's five largest pork exporters from 2011 to 2020, Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Japan	14.41	16.95	15.58	18.43	16.67	16.63	17.53	17.06	17.39	15.42
Korea	8.87	8.31	6.19	8.09	9.58	9.00	9.23	10.55	9.54	7.24
China	5.77	3.37	9.36	3.09	5.17	10.26	7.47	6.45	8.68	18.32
USA	4.16	5.06	5.47	6.87	7.16	6.46	6.48	6.22	5.32	4.51
Russian	8.77	12.05	10.49	6.40	4.86	4.13	4.46	0.89	1.25	0.03
World	100.0 0									

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

As can be seen from Table 1.32, the five countries with the largest share of the world's average beef imports from 2011 to 2020 are Italy, the Netherlands, Germany, South Korea and China. Among them, Italy's average beef imports have the largest share in the world's beef imports, with an average share of 13.34%. The other four countries with a larger share of beef imports are: the Netherlands' average import value accounts for 12.78% of the world's average beef import value, Germany's average import value accounts for 7.67% of the world's average beef import value, and South Korea's average import value accounts for the world's average beef import value. China's average import value accounts for 6.44% of the world's average beef import value. From the perspective of the development trend of imports, China and South Korea's share of beef imports in the world's beef imports has generally shown an increasing trend, while Italy, the Netherlands and Germany have shown a

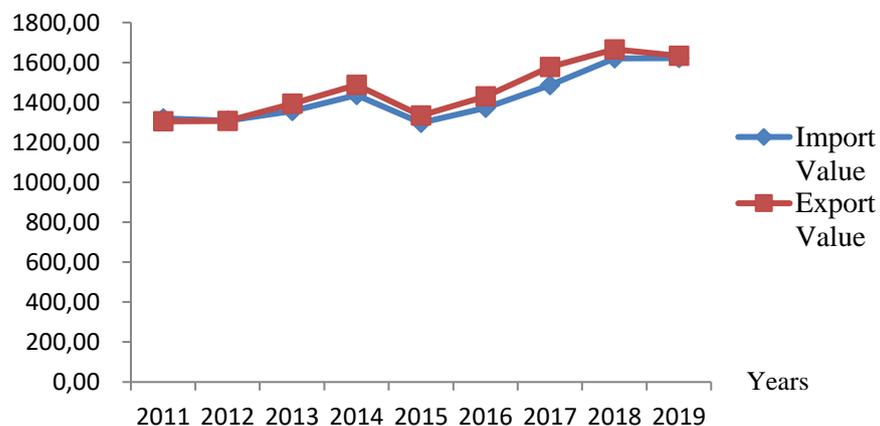
downward trend.

**Table 1.32 - Import share of the world's top five beef importers from 2011 to 2020, Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Italy	16.32	16.12	15.19	15.31	13.84	12.85	11.83	10.78	10.77	10.35
Netherlands	13.95	14.89	12.61	12.24	11.52	12.45	13.10	12.65	12.50	11.85
Germany	8.40	9.24	8.30	7.83	8.01	7.71	7.55	6.89	6.37	6.40
Korea	6.73	6.62	6.00	5.93	5.81	7.38	7.07	7.10	7.66	8.02
China	0.12	0.62	3.60	5.64	5.43	5.59	6.57	8.30	13.20	15.37
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

World Aquatic Products Trade. According to the database of the Food and Agriculture Organization of the United Nations, the current statistical time of global aquatic product trade is 2019, so the research period of this article is 2011-2019.



Amount  
(Unit: 100 million  
U.S. dollars)

**Figure 1.9 - World aquatic products import and export trade volume from 2011 to 2020**

*Source: developed by author*

As can be seen from Figure 1.9, the import and export trade of aquatic products in the world agricultural product market has shown an increasing trend from 2011 to 2019; among them, the average annual growth rate of import value is 2.62%, and the average annual growth rate of export value is 2.84% .World aquatic product exports. As can be seen from Table 33, Asia is the main region of the world's aquatic product exports, with an average export share of 34.59% in the world. According to the export share of aquatic products, the others are as follows: the average export share of aquatic products in Europe accounts for 31.73% of the average export value of aquatic products in the world, the average export share of aquatic products in America is 17.76% in the world, and the average export share of aquatic products in Africa. The export share in the world is 4.03%, and the average export share of Oceania's aquatic products in the world is 1.90%.

**Table 1.33 - Shares of Aquatic Products Exports in Agricultural Markets of World Continents (2011-2019), Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019
Africa	4.08	4.43	4.33	4.29	4.46	4.57	4.62	4.84	4.68
Americas	19.48	19.50	19.44	19.82	19.84	19.29	20.06	19.82	20.32
Asia	38.70	39.78	39.05	38.86	38.73	38.17	38.08	37.52	36.99
Europe	35.59	34.10	35.13	34.96	34.78	35.86	35.15	35.82	35.90
Oceania	2.15	2.19	2.05	2.07	2.19	2.11	2.09	2.00	2.12
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

As can be seen from Table 1.34, the five countries with the largest share of world aquatic product exports from 2011 to 2019 are China, Norway, Vietnam, Thailand and the United States. Among them, China's average aquatic product exports have the

largest share in the world's aquatic product exports, accounting for an average of 12.35%.

**Table 1.34 Export share of the world's top five exporters of aquatic products (2011-2019), Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019
China	12.40	13.12	13.12	14.20	14.93	14.25	14.15	14.12	13.20
Norway	7.36	7.21	7.17	7.55	6.90	7.28	7.46	6.83	7.27
Viet Nam	5.32	5.35	5.44	5.13	5.08	5.41	4.95	4.82	4.80
Thailand	3.59	3.65	3.83	4.13	4.27	4.48	5.07	6.23	6.25
United States of America	3.32	3.47	3.96	3.91	4.25	3.93	4.08	4.20	4.52
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

Imports of world aquatic products. As can be seen from Table 1.35, Europe is the main region for importing aquatic products in the world, with an average import share of 37.31% in the world. In order of the import share of aquatic products, the others are as follows: the average import share of aquatic products in Asia accounts for 30.03% of the average import value of aquatic products in the world, the average import share of aquatic products in the Americas accounts for 17.98% in the world, and the average import share of aquatic products in Africa . The import share in the world is 3.41%, and the average import share of Oceania's aquatic products in the world is 1.27%.

As can be seen from Table 1-36, the five countries with the largest share of the world's average import of aquatic products from 2011 to 2019 are the United States, Japan, China, Spain and France.

**Table 1.35 - Shares of Aquatic Products Imports in Agricultural Markets of World Continents (2011-2019), Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019
Africa	4.12	4.12	3.91	4.09	4.11	3.48	3.38	3.47	3.46
Americas	18.74	19.12	19.99	20.88	21.11	20.45	20.09	19.89	19.49
Asia	32.98	34.32	32.01	31.07	32.84	32.73	33.56	34.53	36.25
Europe	42.75	40.90	42.58	42.36	40.50	41.97	41.58	40.86	39.61
Oceania	1.42	1.54	1.51	1.59	1.45	1.37	1.39	1.25	1.19
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

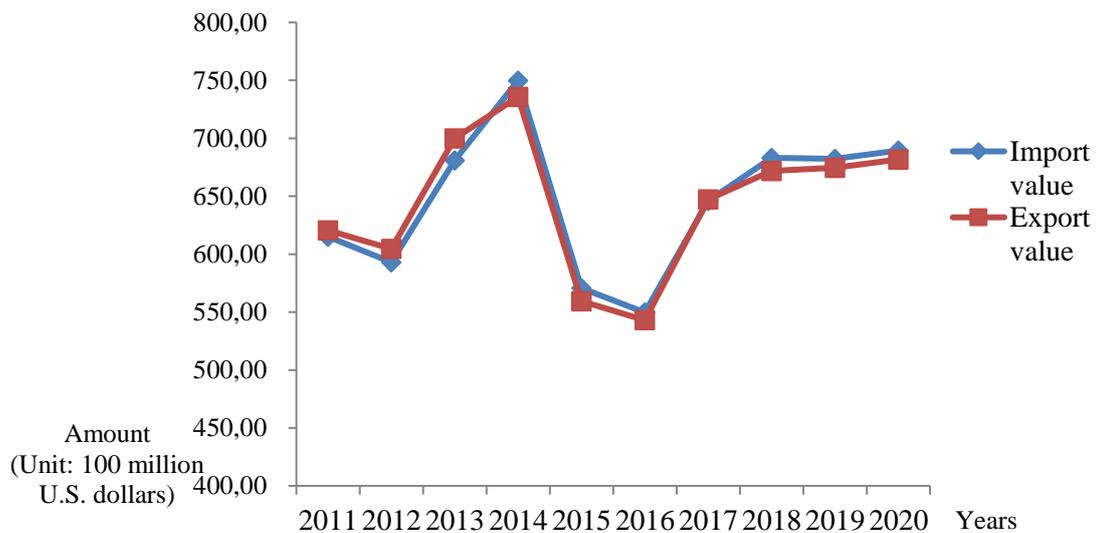
Among them, the average aquatic product import of the United States has the largest share in the world aquatic product import, with an average proportion of 14.53%. China's average import value accounts for 7.25% of the world's average import value of aquatic products, and Spain's average import value accounts for the world's average import value. From the perspective of the development trend of imports, the share of aquatic product imports in the United States and China in the world's aquatic product import share has generally increased, while Japan, Spain and France have shown a downward trend.

**Table 1.36 - Import share of the world's top five importers of aquatic products from 2011 to 2019, Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019
United States of America	13.39	13.57	14.16	15.00	15.48	15.16	14.72	14.80	14.50
Japan	13.44	14.02	11.55	10.59	10.60	10.36	10.33	9.70	9.55
China	5.91	5.88	6.17	6.19	6.72	6.60	7.42	9.07	11.31
Spain	5.56	4.90	4.75	4.91	5.01	5.23	5.41	5.33	5.02
France	5.02	4.66	4.85	4.65	4.47	4.55	4.55	4.37	4.15
world	100.0 0								

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

World trade in dairy products. As can be seen from Figure 1.10, the import and export trade of dairy products in the world agricultural product market from 2011 to 2020 showed an increasing trend; among them, the average annual growth rate of the import value was 1.28%, and the average annual growth rate of the export value was 1.05%.



**Figure 1.10 - World milk products import and export trade volume from 2011 to 2020**

*Source: developed by author*

World dairy exports. As can be seen from Table 1.37, Europe is the main region for the world's dairy product exports. From 2011 to 2020, the average export share in the world accounted for 66.98%, accounting for more than half of the world's dairy product exports. According to the export share of dairy products, the others are: Oceania's average export share of dairy products accounts for 16.68% of the world's average export value of dairy products, the average export share of American dairy

products in the world is 9.25%, and the average export share of Asian dairy products is 9.25%. The export share in the world is 6.40%, and the average export share of African dairy products in the world is 0.70%.

**Table 1.37 - Shares of dairy product exports in the world's agricultural market from 2011 to 2020, Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	0.72	0.53	0.74	0.68	0.76	0.76	0.75	0.71	0.69	0.65
Americas	9.39	9.57	10.41	10.57	9.89	8.60	7.94	8.30	8.49	9.32
Asia	5.23	5.61	6.36	5.93	7.05	7.29	6.61	7.06	6.88	5.95
Europe	71.65	66.41	64.55	64.18	65.64	66.97	67.84	67.55	67.20	67.77
Oceania	13.01	17.89	17.94	18.64	16.67	16.38	16.86	16.39	16.75	16.31
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

As can be seen from Table 1.38, the five countries with the largest share of the world's milk product exports from 2011 to 2020 are: New Zealand, the Netherlands, Germany, France and Italy. Among them, New Zealand's average dairy product exports have the largest share in the world's dairy product exports, with an average share of 13.42%.

**Table 1.38 - Export share of the world's top five exporters of dairy products 2011-2020, Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
New Zealand	13.8	17.6	13.1	12.0	14.1	15.7	12.7	11.9	11.7	11.0
Netherlands	14.0	11.7	12.7	12.8	12.7	10.1	11.1	12.4	12.6	11.0
Germany	10.8	17.0	17.4	12.1	8.3	8.4	9.1	8.9	9.3	9.8
France	6.9	5.7	8.6	12.8	14.3	14.0	13.0	10.7	9.3	9.4
Italy	7.1	4.5	4.9	7.1	6.7	5.9	5.4	6.9	7.0	6.3
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

Imports of world dairy products. As can be seen from Table 1.39, Europe is the main region for importing dairy products in the world, with an average import share of 52.49% in the world from 2011 to 2020.

**Table 1.39 - Import share of dairy products in the agricultural market of each continent from 2011 to 2020, Unit: %**

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Africa	7.35	7.55	6.88	8.07	7.59	6.55	6.76	6.67	6.24	6.62
Americas	9.91	11.05	9.66	8.79	11.57	10.78	9.49	9.87	9.69	9.60
Asia	25.12	26.66	28.52	31.05	29.69	29.54	28.85	29.16	30.21	29.95
Europe	56.39	53.38	53.75	49.85	49.72	51.61	53.20	52.64	52.17	52.16
Oceania	1.23	1.36	1.19	1.28	1.43	1.52	1.70	1.66	1.69	1.67
World	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

From Table 1.40, it can be known that the five countries with the largest share of the world's milk product imports from 2011 to 2020 are Germany, Italy, the United States, Sweden and France. Among them, Germany's average dairy product imports have the largest share in the world's dairy product imports, accounting for an average of 13.50%. The other four countries with a large import share of dairy products are: the average import value of Italy accounts for 11.04% of the average import value of the world's dairy products, the average import value of the United States accounts for 7.78% of the average import value of the world's dairy products, and the average import value of Sweden accounts for the world's average import value of dairy products. The average import value of dairy products is 6.28%, and the average import

value of France accounts for 5.38% of the average import value of dairy products in the world. From the perspective of the development trend of imports, Sweden and France's share of dairy product imports in the world's dairy product import share has generally shown an increasing trend, while Germany, Italy and the United States have shown a downward trend.

**Table 1.40 - Import share of the world's top five importers of dairy products from 2011 to 2020, Unit: %**

Country	201	201	201	201	201	201	201	201	201	202
Germany	15.0	17.5	12.4	9.7	11.3	15.0	16.0	14.9	12.3	10.4
Italy	17.3	14.7	15.4	10.4	13.0	9.7	8.3	8.3	6.5	6.3
United States of America	10.2	10.7	9.0	5.9	8.5	8.0	6.0	6.2	6.6	6.2
Sweden	1.1	5.2	4.9	7.8	9.2	7.5	6.5	7.1	6.4	6.6
France	0.5	1.0	1.8	3.6	4.8	9.1	7.8	7.3	8.5	8.9
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Data source: Calculated from data from the Food and Agriculture Organization of the UN(FAO) database*

## **Conclusion to section 1**

According to the category of agricultural products, through the statistics and analysis of the trade data of eight types of agricultural products in the FAO database from 2011 to 2020, including cereals (rice, wheat), soybeans, cotton, fruits, vegetables, meat, aquatic products and dairy products, the paper studies the import and export flow and flow direction of each variety. The total import and export trade of rice shows a significant growth trend. The export regions of rice are mainly concentrated in the Americas. The average export share in the world in the past 10 years is 72.36%, occupying an absolute export advantage position. The United States has the largest share of rice exports in the world, accounting for 60.17% on average. It is the largest trade

exporter in the global agricultural product market. The main import regions of rice in the world are also concentrated in the Americas. The average import share in the world rice imports is 61.76%. Mexico's rice imports account for the largest share in the world agricultural trade, with the average import volume accounting for 26.38% of the world's average rice imports. On the whole, the import and export trade volume of wheat in the world agricultural product market presents a wave like downward trend. From the perspective of exports, Europe is the main region of world wheat exports, with an average export share of 49.30% in the world, accounting for almost half of the world's wheat exports, and the proportion of European wheat exports in the world's wheat exports continues to increase on the whole. However, from the perspective of specific countries and regions, the United States is the largest wheat exporter in the world, with the average export volume accounting for 15.18% of the world's total wheat exports. However, the overall trend of decline is obvious, from 22.10% in 2011 to 13.16% in 2020. In terms of world wheat import, Asia is the main import region of world wheat. The average import share in the world wheat import is 40.43%, accounting for a large import share, and its share in the world wheat import has shown an upward trend during the statistical period; Egypt has the largest share of wheat imports in the world, with the average import volume accounting for 23.17% of the world's average total wheat imports. The import and export trade volume of soybean in the world agricultural product market shows a wave like growth trend; In terms of exports, the Americas is the main region of soybean exports in the world, with an average export share of 95.62% in the world, occupying an absolute dominant position; The countries with large average

export volume of soybean in the world are all in the Americas, among which Brazil has the largest share of soybean exports in the world, accounting for 42.31% on average, showing an increasing trend year by year; Asia is the main region of soybean import in the world, with an average import share of 76.91% in the world; China's soybean import has the largest share in the world, accounting for 60.43% on average. The total import trade volume is still growing, making it the world's largest soybean importer. The import and export volume of the world cotton trade in the agricultural product market shows different development trends, showing a downward trend in the total import volume, while the total export volume shows a large fluctuation, showing an overall growth trend. In terms of export trade, Africa is the main region of world cotton exports, with an average export share of 64.92% in the world, occupying a dominant position; Mali has the largest share of cotton exports in the world, averaging 42.57%, with a wave like rapid growth trend during the decade; In terms of world cotton imports, Asia is the main region of world cotton imports, with an average import share of 47.72% in the world; Vietnam's cotton import has the largest share in the world, with an average share of 14.46%. During the 10-year period, it showed a rapid growth trend, and its share increased from 2.38% in 2011 to 28.53% in 2020. The import and export trade of world fruit trade in the world agricultural product market has shown an increasing trend; Among them, the average annual growth rate of fruit import is 4.52%, and the average annual growth rate of export is 7.36%. In terms of world fruit export, Asia is the main region of world fruit export, with an average export share of 78.28% in the world; Among them, Thailand has the largest share of fruit exports in the world, accounting for

19.59% on average, but its share has declined in the past 10 years, from 22.25% in 2011 to 14.30% in 2020. In terms of fruit import in the world, Asia is the main region of fruit import in the world, with an average import share of 72.86% in the world, occupying a relatively dominant position; Among them, China has the largest share of fruit imports in the world, averaging 46.68%. China has become a major fruit consumer in the world. The import and export trade of world vegetable trade in the world agricultural product market has shown an increasing trend; Among them, the average annual growth rate of vegetable imports is 3.77% and that of exports is 0.27%. In terms of world vegetable exports, Asia is the main region of world vegetable exports, with an average export share of 38.24% in the world; Among them, China's vegetable exports have the largest share in the world, accounting for 4.41% on average, and the proportion has also shown a growth trend in the past 10 years. In terms of vegetable import in the world, Europe is the main region of vegetable import in the world, with an average import share of 41.53% in the world; Among them, Germany has the largest share of vegetable imports in the world, averaging 1.16%. World meat trade. The world meat product trade is dominated by chicken, pork and beef. The meat trade in this paper mainly refers to the trade volume or total trade volume of chicken, pork and beef. The import and export volume of meat in the world agricultural product market showed a small decline; Among them, the average annual growth rate of meat import is -0.29%, and the average annual growth rate of export is -0.43%. In terms of world meat exports, the Americas is the main region of world meat exports. The average export share in the world is 54.07%, accounting for more than half of the global meat export share. The export scale was basically stable

during the decade. Because the types of meat exported by different countries are very different, when we analyze the share of meat exports by country statistics, we conduct a separate study based on chicken, pork and beef, which account for a large proportion in international meat trade. Brazil's average chicken export has the largest share in the world's chicken export, accounting for 28.17% on average; The average pork export of the United States is the largest in the world, accounting for 21.48% on average; The average beef export of Poland has the largest share in the world's beef export, accounting for 11.71% on average. It has basically remained stable for 10 years. In terms of world meat imports, Asia is the main region of world meat imports, with an average import share of 40.77% in the world, accounting for a large share of global meat imports. As with the study of meat export trade, only the chicken, pork and beef, which account for a large proportion of international meat trade, are studied separately. Among them, the average chicken import of Hong Kong, China, has the largest share in the world's chicken import, accounting for 6.39% on average; Japan's average pork import has the largest share in the world's pork import, accounting for 16.61% on average; Italy's average beef import has the largest share in the world's beef import, accounting for 13.34% on average. In terms of world aquatic product trade, according to the database of the Food and Agriculture Organization of the United Nations, the current statistical time for global aquatic product trade is 2019. The research period of this article is 2011-2019. The import and export trade of aquatic products in the world agricultural product market is growing; Among them, the average annual growth rate of import is 2.62%, and the average annual growth rate of export is 2.84%. In terms of world aquatic product exports,

Asia is the main region of world aquatic product exports, with an average export share of 34.59% in the world. Among them, China's average aquatic product export has the largest share in the world's aquatic product export, averaging 12.35%. In terms of world aquatic product imports, Europe is the main region of world aquatic product imports, with an average import share of 37.31% in the world. Among them, the average aquatic product import of the United States has the largest share in the world's aquatic product import, accounting for 14.53% on average. The import and export trade of world dairy products in the world agricultural product market has shown an increasing trend; Among them, the average annual growth rate of import is 1.28%, and the average annual growth rate of export is 1.05%. World dairy products export. Europe is the main region of milk product export in the world, with an average export share of 66.98% in the world, accounting for more than half of the world's milk product export. Among them, New Zealand's average dairy product export has the largest share in the world's dairy product export, accounting for 13.42% on average. In terms of world milk product imports, Europe is the main region of world milk product imports, with an average import share of 52.49% in the world. Among them, Germany's average milk product import has the largest share in the world's milk product import, with an average proportion of 13.50%.

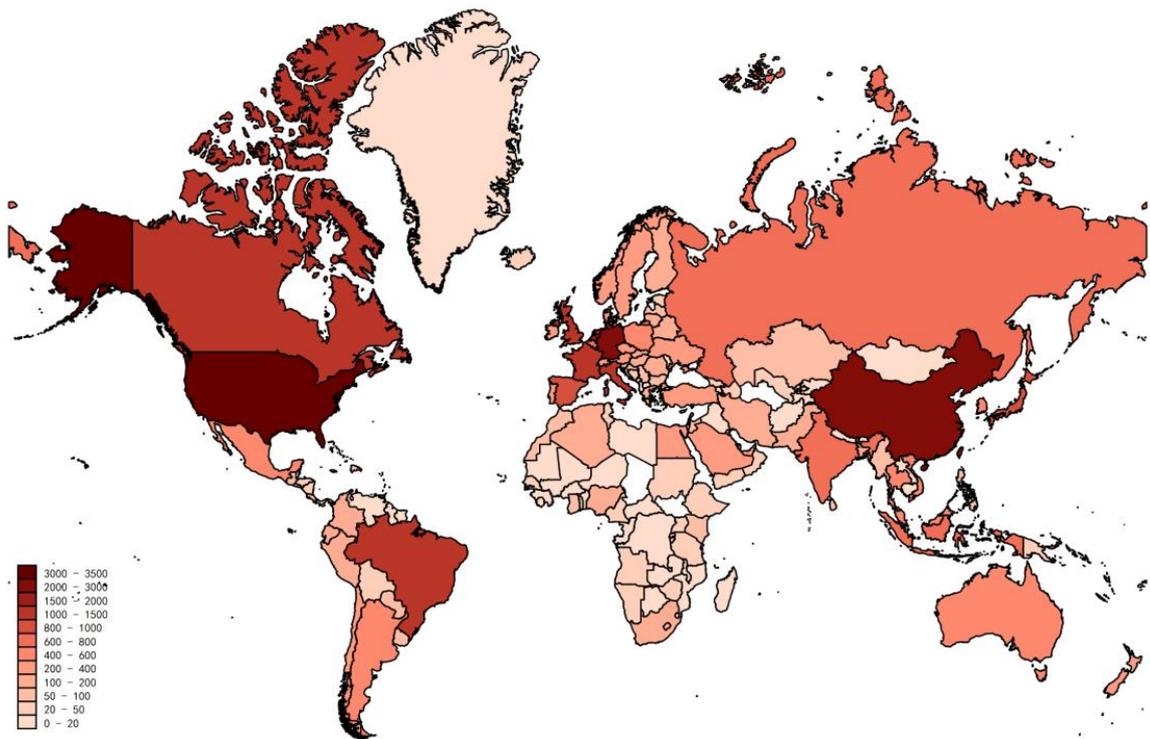
## SECTION 2.

### THE STATE OF WORLD AGRICULTURAL TRADE MARKETS

#### 2.1 Analysis of the structure of trading activity on the world market of agricultural products

According to the statistics of the UN Commodity Trade Statistics Database and geographical divisions, we divide the world agricultural product market into six continents: Asia, Europe, Africa, Oceania, North America and South America for research. First, analyze it from the static level. From Figure 2.1, we can intuitively see the general situation of the total import and export trade of the world agricultural products market from 2011 to 2020. Europe ranks first in the world, and the total import and export trade is 13914.960 Bn \$, accounting for 41.68% of the global total agricultural import and export trade; Asia It ranks second in the world, with a total import and export trade value of US\$9,711.625 Bn, accounting for 29.09% of the global total import and export trade of agricultural products; the third is North America, with a total import and export trade value of US\$5,358.824 Bn, accounting for 29.09% of the global total agricultural product import and export trade. 16.05%; the fourth place is South America, with a total import and export trade value of 2,267.177 Bn \$, accounting for 6.79% of the global agricultural product import and export trade volume; the fifth place is Africa, with a total import and export trade value of 1,260.942 Bn \$, accounting for the global agricultural product import and export volume. 3.78% of the total trade; Oceania ranked sixth, with a total import and export trade value of US\$868.970 Bn,

accounting for 2.60% of the global total import and export trade of agricultural products.



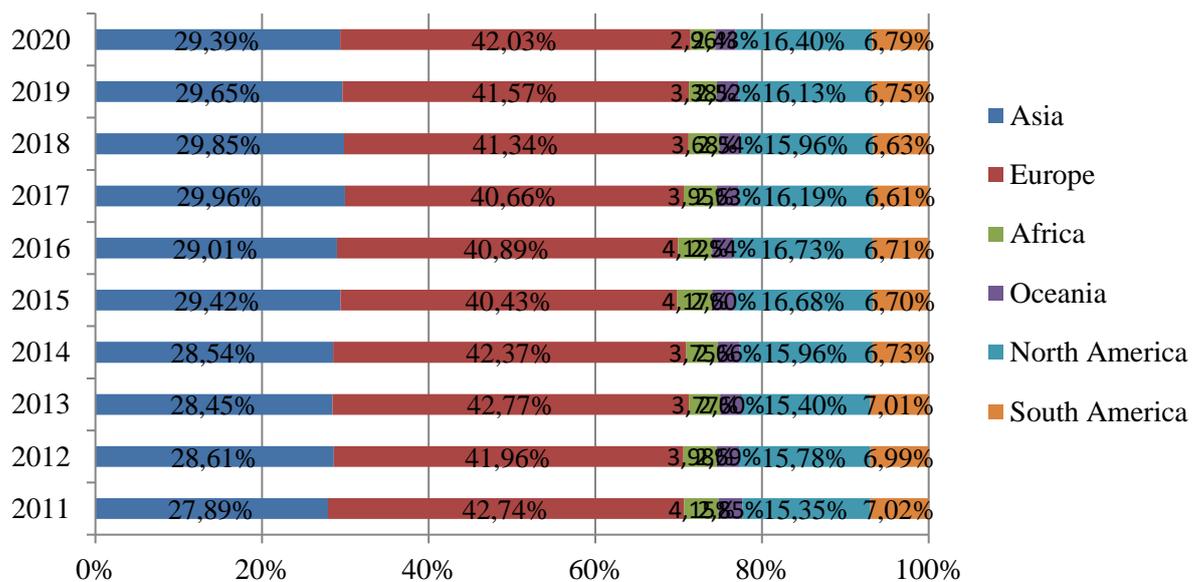
**Figure 2.1 General situation of total import and export trade of world agricultural products market from 2011 to 2020**

*Source: developed by author*

According to the dynamic analysis of time series, the import and export trade of agricultural products in each continent from 2011 to 2020. As can be seen from Figure 2-2, the proportion of the total import and export of agricultural products in Asia in the world agricultural product market is on the rise. %, with a growth rate of 5.38%; the proportion in 2017 reached the highest value in 10 years at 29.96%; the subsequent 2018-2020 saw a slight decline. The total import and export trade of European agricultural products occupies more than 40% of the world's total, and has an important position. The proportion of the total European import and export of agricultural products

in the world's total import and export of agricultural products during the 10-year period showed a slight wave-like fluctuation. The overall trend shows a downward trend. In 2011, the import and export volume of European agricultural products accounted for 42.74% of the world's total import and export of agricultural products. In 2020, it accounted for 42.03%, and the growth rate was -1.66%; 40.43%; from 2018 to 2020, there was a small increase in the export value of European agricultural products for three consecutive years. The total import and export of African agricultural products accounted for 4.15% of the world's total agricultural imports and exports in 2011, 2.96% in 2020, and a growth rate of -28.67%; the maximum proportion during the period appeared in 2015, with a value of 4.17 %, and the minimum value appears in 2020. Although the proportion of individual years has experienced a wave-like rise and fall, it has generally shown a downward trend. Oceania's agricultural product import and export trade accounted for 2.85% in 2011, 2.43% in 2020, and a growth rate of -14.74% in the world's total agricultural product import and export; the highest value during the period was 2011, and the lowest value It is 2020, and the overall trend is declining. The total import and export trade of agricultural products in North America accounted for 15.35% of the world's total import and export of agricultural products in 2011, 16.40% in 2020, and a growth rate of 6.84%. The maximum proportion during the 10-year period appeared in 2016, at 16.73% , the proportion of the minimum is 2011; the overall trend of growth. The total import and export trade of agricultural products in South America accounted for 7.02% of the total import and export of agricultural products in the world in 2011, 6.79% in 2020, and the growth rate was -3.28%. The maximum proportion

during the 10-year period appeared in 2011. The minimum value was 6.61% in 2017, showing a downward trend in general. According to the time series analysis, the proportion of the import and export trade of agricultural products in various continents to the total import and export of agricultural products in the world has not changed much during the 10-year period from 2011 to 2020; the proportion of individual continents, such as Africa, has dropped significantly. Continents are all subject to small increases and decreases. International trade in agricultural products is affected by various objective and subjective factors such as natural factors and trade policies, but it also has a certain degree of trade stability and continuity.



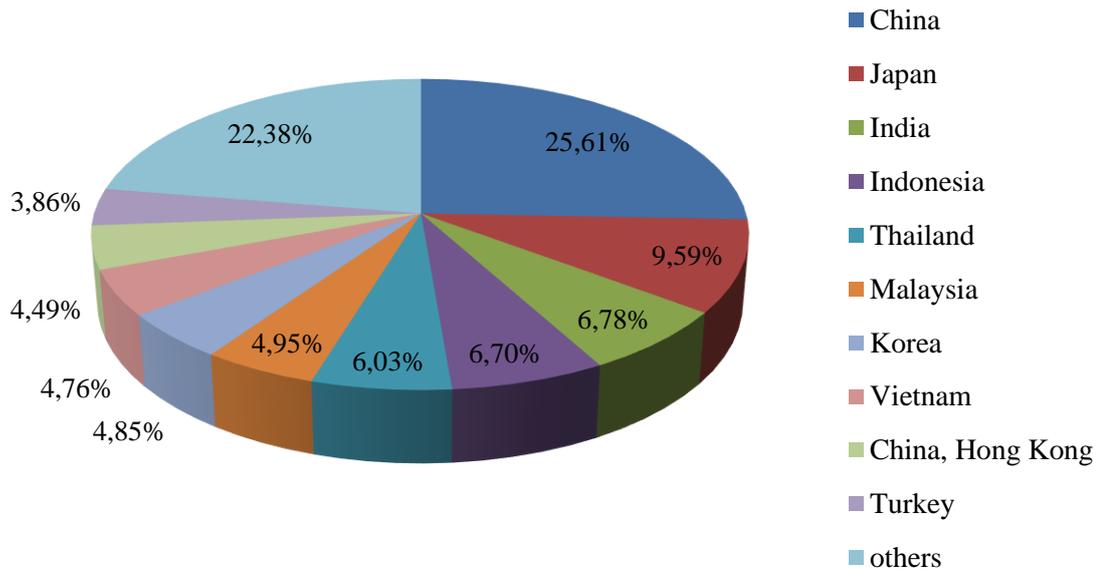
**Figure 2.2 - Overview of the proportion of the total import and export trade of agricultural products by continents from 2011 to 2020**

*Source: developed by author*

For example, during the three consecutive years from 2018 to 2020, The proportion of the import and export trade volume of agricultural products in all

continents in the total global agricultural product import and export trade shows a continuous trend of inertial increase and decrease. As an important part of international trade, agricultural product trade basically occurs in various countries. As the continent with the largest area and the largest population in the world, agricultural product trade plays an important role in the trade exchanges of various countries. Due to the limitations of specific research conditions, combined with the statistics of the UN Commodity Trade Statistics Database, and according to the size and proportion of the total import and export trade, this article selects 10 Asian countries including China as important research objects, to study the import and export of their agricultural trade in order to reflect the import and export of Asian agricultural trade. From the static analysis of the total import and export trade of Asian agricultural products market during the ten years from 2011 to 2020 in Figure 2-3, we can know that China has the largest proportion of the total import and export of agricultural products among Asian countries, accounting for 25.61%. The total amount is 2,486.994 Bn \$; in order of the proportion, the other countries are: Japan accounted for 9.59%, and the import and export trade volume was 931.575 Bn \$; India accounted for 6.78%, and the import and export trade volume was 658.621 Bn \$; Indonesia accounted for 6.70%, and the import and export trade volume was 650.682 Bn \$; Thailand accounted for 6.03%, and the import and export trade volume was 585.319 Bn \$; Malaysia accounted for 4.95%, and the import and export trade volume was 481.077 Bn \$; South Korea accounted for The ratio was 4.85%, and the import and export trade volume was 471.244 Bn \$; Vietnam accounted for 4.76%, and the import and export trade volume was 462.153 Bn \$; Hong Kong, China accounted

for 4.49%, and the import and export trade volume was 435.586 Bn \$; Turkey accounted for It is 3.86%, and the import and export trade volume is 374.979 Bn \$; the total proportion of other Asian countries in the UNCommodity Trade Statistics database is 22.38%, and the total import and export trade volume is 2,173.396 Bn \$.



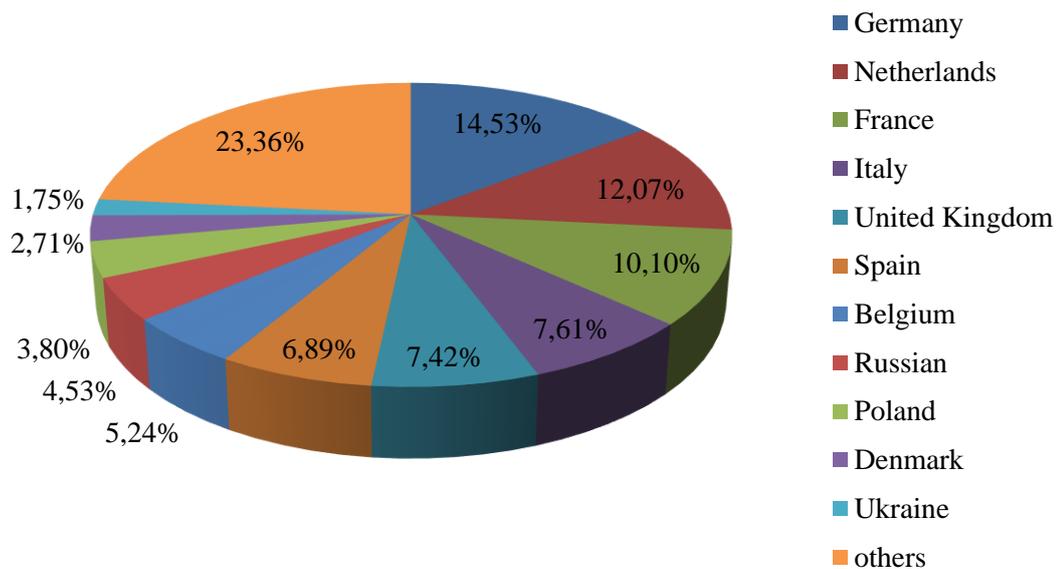
**Figure 2.3 - Proportion of total import and export trade of agricultural products in major countries in Asia from 2011 to 2020**

*Source: developed by author*

According to the size and proportion of the total import and export trade, this paper selects 11 European countries including Germany as important research objects, and studies their import and export of agricultural products trade, so as to reflect the import and export of European agricultural product trade. From the static analysis of the total import and export trade of European agricultural products market during the ten years from 2011 to 2020 in Figure 2-4, it can be known that Germany accounts for the largest proportion of the total import and export of agricultural products among

European countries, accounting for 14.53%. The total amount is 2021.467 Bn \$; in order of the proportion, the other countries are: the Netherlands accounted for 12.07%, and the import and export trade volume was 1,679.461 Bn \$; France accounted for 10.10%, and the import and export trade volume was 1,405.270 Bn \$; Italy accounted for 7.61%, and the import and export trade volume was 1,058.628 Bn \$; the United Kingdom accounted for 7.42%, and the import and export trade volume was 1,032.170 Bn \$; Spain accounted for 6.89%, and the import and export trade volume was 959.143 Bn \$; Belgium accounted for 5.24%, and the import and export trade volume is 729.102 Bn \$; Russia accounts for 4.53%, and the import and export trade volume is 629.983 Bn \$; Poland accounts for 3.80%, and the import and export trade volume is 528.232 Bn \$; Denmark accounts for 2.71%, and the import and export trade volume was 377.150 Bn \$; Ukraine ranked 13th in the total import and export trade of European agricultural products market, accounting for 1.75%, and the import and export trade volume was 243.525 Bn \$; statistics in the UNCommodity Trade Statistics Database The other 29 European countries accounted for 23.36% of the total, and the total import and export trade volume was 3,250.831 Bn \$.

Ukraine is rich in agricultural resources, with 41.5 m hectares of agricultural land, accounting for 70% of the country's land area and 19% of the total European agricultural land area.



**Figure 2.4 - Proportion of total import and export trade of agricultural products in major countries in Europe from 2011 to 2020**

*Source: developed by author*

The area of arable land is 32.5 m hectares, accounting for about 78.4% of the agricultural land and 27% of the arable land in Europe; the black soil area is 24.8986 m hectares; Ukraine has sufficient water resources and convenient irrigation, which is suitable for agricultural production. The agricultural products produced in Ukraine mainly include oil crops, cereals, sugar crops and potatoes. Since the average crop output can reach 1.5-2 times of its domestic demand, in addition to self-sufficiency, Ukrainian crops are mainly used for export to earn foreign exchange. At present, the annual export value of agricultural products accounts for about 45% of the total export products. The main agricultural products exported are grains, animal and vegetable oils, oilseeds, food industry residues and wastes, and grain flour. In 2019, the above five categories of

agricultural products accounted for more than 84% of the export value of agricultural products. Ukraine currently ranks first in the world in sunflower oil exports, second in barley exports, fourth in corn exports, and fifth in wheat exports. Ukraine's livestock products are mainly chicken exports, and it is one of the three major sources of chicken imports in the EU. Therefore, Ukraine is also known as the "granary of Europe".

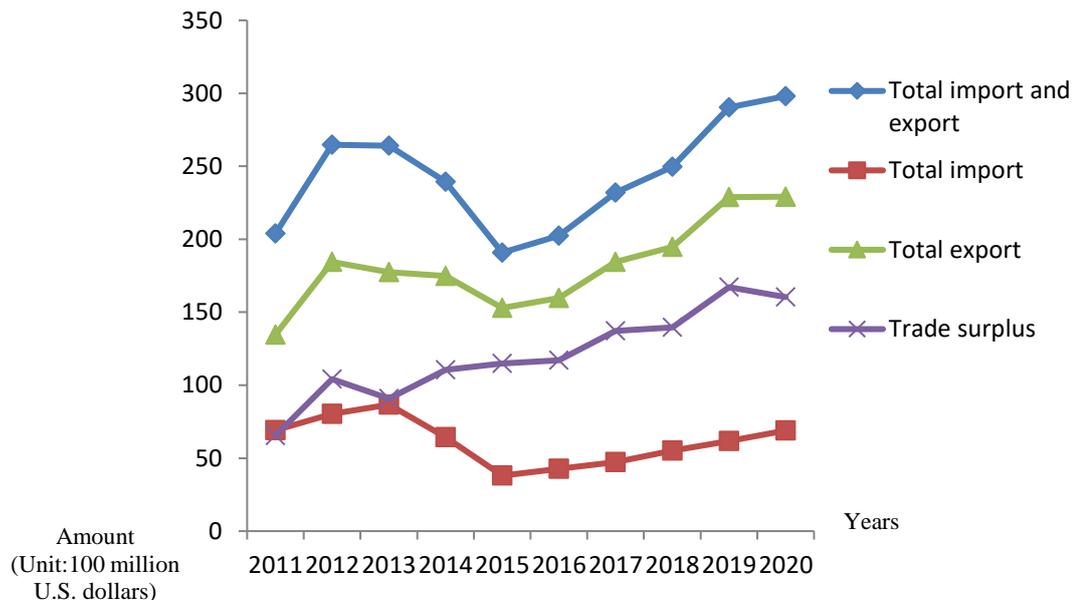
The Ukrainian agricultural product market is relatively open. The main large-scale agricultural enterprises are: Ukrlandfarming, with 654,000 hectares of land; NCH Agro, with 430,000 hectares of land; Kernel, with 390,000 hectares of land; MHP, with 360,000 hectares of land; Mriya, Owns 259,000 hectares of land. The main bottlenecks of agricultural development in Ukraine are: low utilization rate of arable land, insufficient deep processing capacity of agricultural products, export mainly of raw materials, low added value; backward infrastructure such as warehousing and logistics, which cannot guarantee export transportation capacity; agricultural enterprises are difficult to obtain credit and capital Insufficient investment etc.

As can be seen from Figure 3-1, from 2011 to 2020, the import and export trade of Ukrainian agricultural products generally showed a state of wave-like growth. The total import and export trade of agricultural products increased from USD 20.387 Bn in 2011 to USD 29.808 Bn in 2020, a growth rate of 46.21%; during the period, from 2011 to 2015, the total import and export trade of agricultural products generally showed a wave-like decline. In 2015 From 2015 to 2020, the total volume of import and export trade of agricultural products showed a sustained and rapid growth overall, with an increase of 56.17% in 2020 compared with 2015. In terms of export trade of agricultural products,

from 2011 to 2020, the export volume of Ukrainian agricultural products showed a wave-like growth on the whole, from 13.467 Bn \$ in 2011 to 22.918 Bn \$ in 2020, a growth rate of 70.18%; period, 2011-2012 It was in a state of growth, and it was in a state of decline from 2012 to 2015. Compared with 2012, in 2015, it decreased by 20.64%, and the decline reached the largest value in the past 10 years. However, from 2015 to 2020, the export of agricultural products showed a sustained and rapid growth trend. , an increase of 49.93% in 2020 compared to 2015. In terms of import trade of agricultural products, from 2011 to 2020, the import volume of Ukrainian agricultural products showed a wave-like decline as a whole, from USD 6.92 Bn in 2011 to USD 6.89 Bn in 2020, with a growth rate of -0.43%; during the period, 2011-2013 From 2013 to 2015, it was in a state of growth, and from 2013 to 2015, it was in a state of decline. In 2015, the import value of agricultural products was only 3.802 Bn \$, which was the lowest value in the past 10 years. From 2015 to 2020, the import of agricultural products showed a growth trend, with an increase of 81.22% in 2020 compared with 2015. %.

The above situation is mainly due to the outbreak of the Ukraine crisis in 2014, the domestic political turmoil in Ukraine, the unstable political environment and the ambiguous trade policy have had a huge negative impact on the country's international trade. In terms of trade surplus, from 2011 to 2020, the export volume of Ukraine's agricultural product import and export trade has always been greater than the import volume, maintaining a surplus state, and showing a sustained and rapid growth trend; the agricultural product trade surplus has increased from 6.547 Bn \$ in 2011 to 160.28 in 2020. USD 100 m, a growth rate of 144.81%; this shows that agricultural products

have always been export-oriented products in Ukraine and are the main commodities in export trade. Especially in recent years, the export value of agricultural products has accounted for about 45% of the total export trade, and has become the main source of foreign exchange earned by export. source.



**Figure 2.5. - Import and export trade of Ukrainian agricultural products from 2011 to 2020**

Ukraine also has relatively good land and sea transport infrastructure similar to those of developed agricultural countries such as the United States and Australia to support the export of agricultural products. This includes 21,700 kilometers of railways, 165,800 kilometers of roads, and 22,000 kilometers of inland waterways to the Azov and Black Seas; Ukraine has 18 merchant seaports, only Odessa, Ilychevsk and Yuzhny are three ports. The cargo volume of merchant ships in one seaport accounts for about 56% of the total cargo volume of merchant ships. Among the countries of the Black Sea

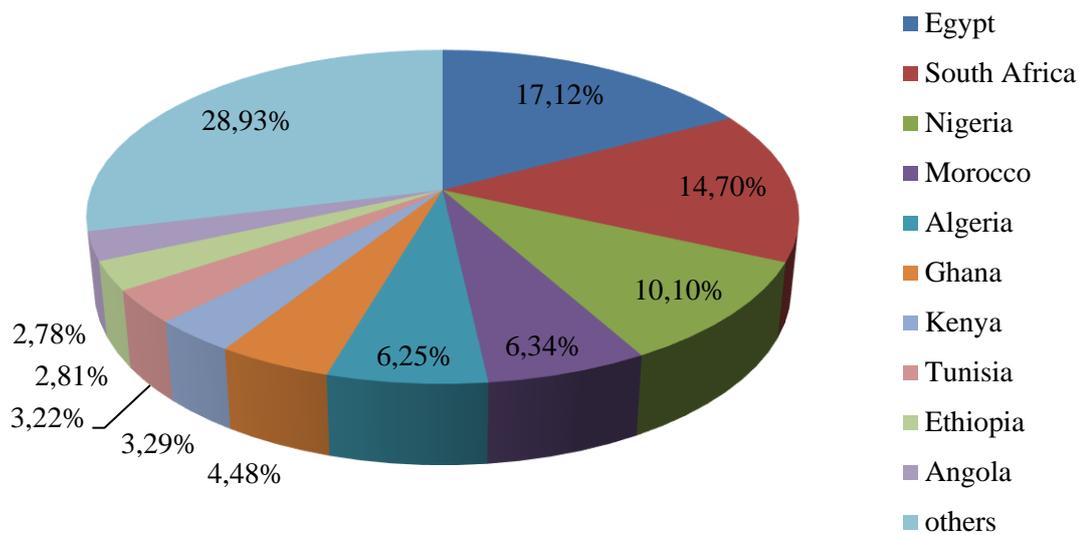
region, Ukrainian ports have the greatest potential. Ukraine is strategically located in the center of the global trade area during the development period, at the crossroads of Europe and Asia, with a very important trade location, with a good rail network connecting ports and shipping directly to the Black Sea. With its strategic location, it has strong competitiveness in exporting to major markets such as the Middle East, Asia, North Africa and the European Union. In addition, according to the forecast of the Ministry of Economy, Trade and Agriculture of Ukraine, grain exports can increase by 5-6 times by 2030, but Ukraine's grain consumption is far lower than grain production, which is in line with the world's major grain-producing countries such as China, India, Brazil, Turkey and Mexico. Differently, the grain production in these countries is mainly used to supply the domestic market. Ukraine's grain production is nearly twice its consumption, and one-third of its foreign exchange income comes from agricultural exports. It will play an increasingly important role in the world's food chain, and will also make a greater contribution to world food security.

In terms of the impact of the COVID—19: According to the National Statistics Agency of Ukraine, in the first quarter of 2020 Ukraine's GDP decreased by 1.5% year-on-year, and the total import and export volume decreased by about 2% year-on-year. In April 2020, the Ukrainian parliament as a whole passed the 2020 budget amendment, the state budget deficit increased by 202 Bn UAH, and 64.67 Bn UAH was invested in the anti-epidemic fund. However, after analysis, the COVID—19 has little impact on agricultural trade.

According to the size and proportion of the total import and export trade, this

article selects 10 African countries such as Egypt as important research objects to study their import and export of agricultural products trade, so as to reflect the import and export of African agricultural product trade.

From the static analysis of the total import and export trade of African agricultural products market in the ten years from 2011 to 2020 in Figure 2.6, we can know that Egypt has the largest proportion of the total import and export of agricultural products among African countries, accounting for 17.12%. The total amount is 215.812 Bn \$; in order of the proportion, the other countries are: South Africa accounted for 14.70%, and the import and export trade volume was 185.307 Bn \$; Nigeria accounted for 10.10%, and the import and export trade volume was 127.345 Bn \$; Morocco accounted for 6.34%, and the import and export trade volume was 79.978 Bn \$; Algeria accounted for 6.25%, and the import and export trade volume was 78.817 Bn \$; Ghana accounted for 4.48%, and the import and export trade volume was 56.521 Bn \$; Kenya accounted for 3.29%, and the import and export trade volume was 41.458 Bn \$; Tunisia accounted for 3.22%, and the import and export trade volume was 40.574 Bn \$; Ethiopia accounted for 2.81%, and the import and export trade volume was 35.377 Bn \$; Angola accounted for 2.78%, and the import and export trade volume was 35.025 Bn \$; the other 35 African countries in the UNCommodity Trade Statistics database accounted for 28.93%, and the total import and export trade volume was 364.728 Bn \$.

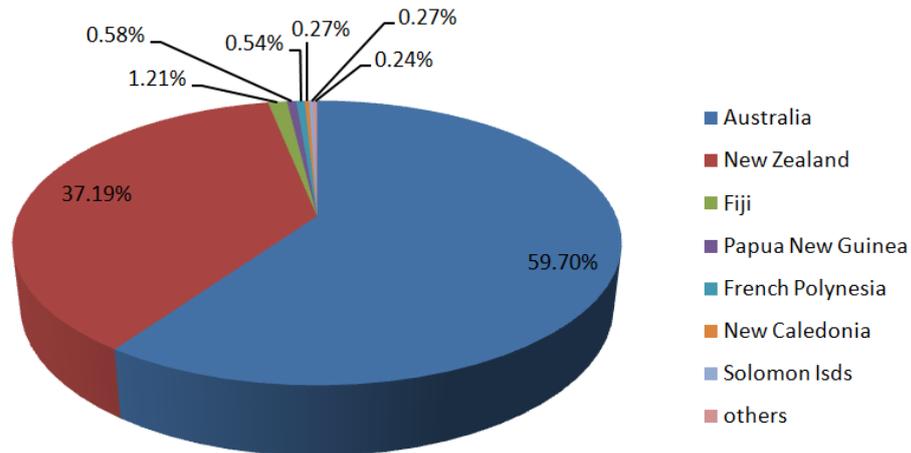


**Figure2.6 - Proportion of total import and export trade of agricultural products in major countries in Africa from 2011 to 2020**

*Source: developed by author*

According to the size and proportion of the total import and export trade, this article selects seven Oceanian countries including Australia as important research objects, and studies their import and export of agricultural products trade, so as to reflect the import and export of Oceania's agricultural product trade. From the static analysis of the total import and export trade of the Oceania agricultural product market during the ten years from 2011 to 2020 in Figure 2-6, we can know that Australia has the largest proportion of the total import and export of agricultural products among Oceania countries, accounting for 59.70%. The total amount is 518.743 Bn \$; according to the proportion, the other countries are: New Zealand accounted for 37.19%, and the import and export trade volume was 323.152 Bn \$; Fiji accounted for 1.21%, and the import and export trade volume was 10.485 Bn \$; Papua New Guinea accounted for 0.58%, and

the import and export trade volume was 5.032 Bn \$; French Polynesia accounted for 0.54%, and the import and export trade volume was 4.728 Bn \$; New Caledonia accounted for 0.27%, and the import and export volume was 0.27%.



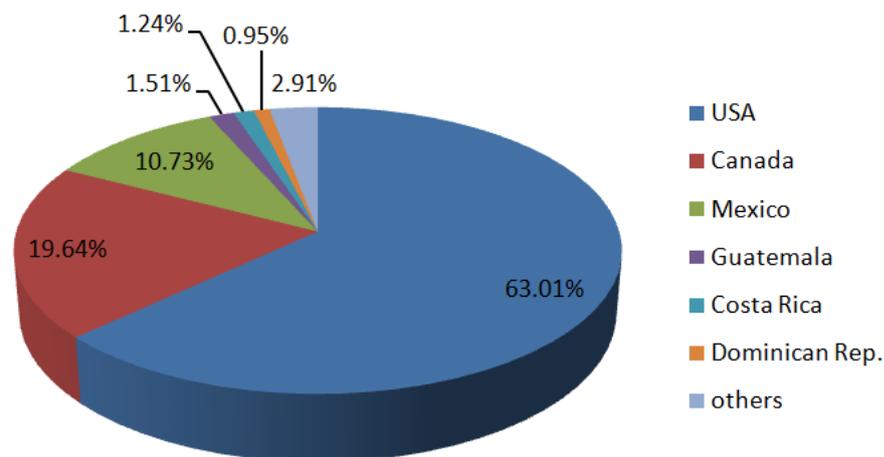
**Figure 2.6 - Proportion of total import and export trade of agricultural products in major countries in Oceania from 2011 to 2020**

*Source: developed by author*

The trade volume was 2.384 Bn \$; Solomon Islands accounted for 0.27%, and the import and export trade volume was 2.338 Bn \$; the other seven countries in Oceania accounted for 0.24% in the UNCommodity Trade Statistics Database, and the total import and export trade volume was 0.24%. \$2.109 Bn.

Import and export trade of major agricultural product markets in North America According to the size and proportion of the total import and export trade, this article selects six North American countries including the United States as important research objects, and studies the import and export of their agricultural products trade, so as to reflect the import and export of North American agricultural product trade. From the

static analysis of the total import and export trade of North American agricultural products market in the ten years from 2011 to 2020 in Figure 2-7, it can be known that the United States accounted for the largest proportion of the total import and export of agricultural products in North American countries, accounting for 63.01%. The export trade volume is 3,376.718 Bn \$; in order of the proportion, the other countries are: Canada accounted for 19.64%, and the import and export trade volume was 1,052.454 Bn \$; Mexico accounted for 10.73%, and the import and export trade volume was 575.124 Bn \$. US dollar; Guatemala accounted for 1.51%, and the import and export trade volume was 81.155 Bn \$; Costa Rica accounted for 1.24%, and the import and export trade volume was 66.525 Bn \$; the Dominican Republic accounted for 0.95%, and the import and export trade volume was 50.893 Bn \$. ; The other 20 North American countries in the UNCommodity Trade Statistics database accounted for 2.91% of the total, and the total import and export trade volume was 155.955 Bn \$.

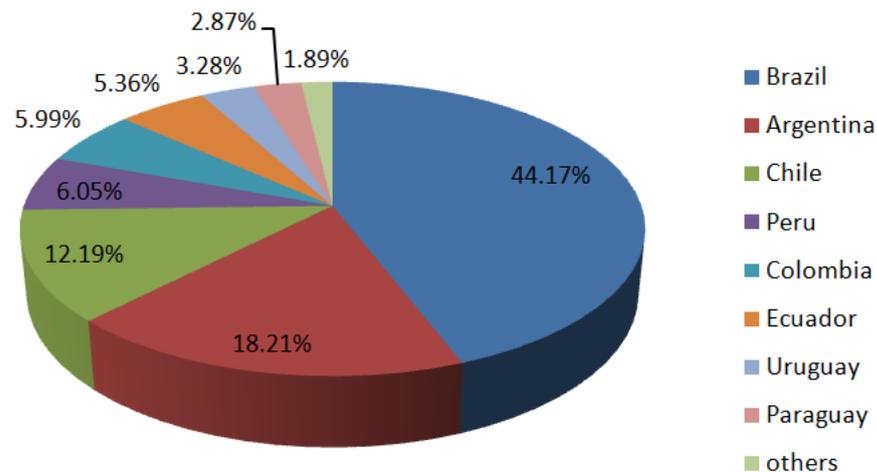


**Figure 2.7 - Proportion of total import and export trade of agricultural products in major countries in North America from 2011 to 2020**

*Source: developed by author*

Import and export trade of major agricultural product markets in South America

According to the size and proportion of the total import and export trade, this article selects 8 South American countries including Brazil as important research objects, and studies the import and export of their agricultural trade in order to reflect the import and export of South American agricultural trade. From the static analysis of the total import and export trade of agricultural products in South America during the ten years from 2011 to 2020 in Figure 2.8, it can be known that Brazil accounts for the largest proportion of the total import and export of agricultural products in South American countries, accounting for 44.17%.



**Figure 2.8 - Proportion of total import and export trade of agricultural products in major countries in South America from 2011 to 2020**

*Source: developed by author*

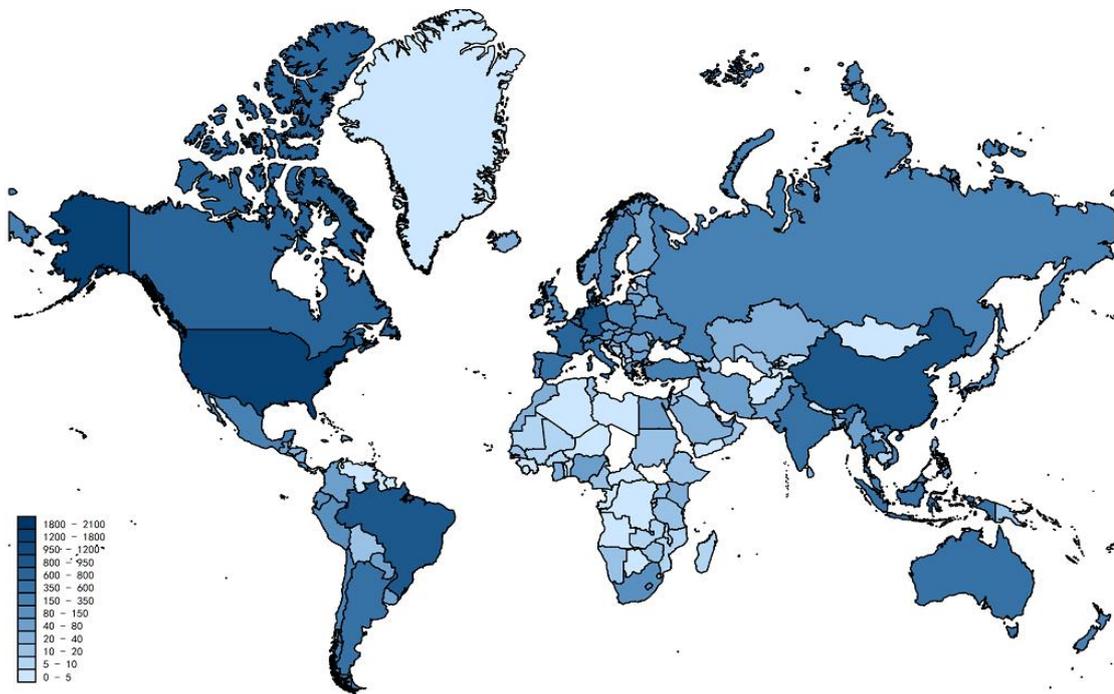
The export trade volume is 1,001.379 Bn \$; in order of the proportion, the other countries are: Argentina accounted for 18.21%, and the import and export trade volume was 412.740 Bn \$; Chile accounted for 12.19%, and the import and export trade volume

was 276.449 Bn \$. US dollar; Peru accounted for 6.05%, and the import and export trade volume was 137.126 Bn \$; Colombia accounted for 5.99%, and the import and export trade volume was 135.760 Bn \$; Ecuador accounted for 5.36%, and the import and export trade volume was 121.524 Bn \$; Uruguay accounted for 3.28%, and the import and export trade volume was 74.324 Bn \$; Paraguay accounted for 2.87%, and the import and export trade volume was 65.05 Bn \$; the other five South American countries in the UNCommodity Trade Statistics database accounted for a total of 1.89%, and the total import and export trade volume was 42.824 Bn \$.

## **2.2 The structure of export trade of the world market of agricultural products**

Using the data of the UNCommodity Trade Statistics Database (UN Commodity Trade Statistics Database) to calculate and analyze from a static level, from Figure 2-9, we can intuitively see the general situation of the total export trade of the world agricultural market from 2011 to 2020, and the ranking of European agricultural exports. It ranks first in the world, with an export trade value of US\$6,956.276 Bn, accounting for 42.06% of the total global agricultural export trade; ranking second in the world is Asia, with an export trade value of US\$3,728.936 Bn, accounting for 22.55% of the world's total agricultural export trade; The third place is North America, with an export trade value of US\$2,840.804 Bn, accounting for 17.18% of the total global agricultural export trade; the fourth is South America, with an export trade value of US\$1,855.135

Bn, accounting for 11.22% of the global total agricultural export trade. %; Oceania ranked fifth, with an export trade value of US\$646.741 Bn, accounting for 3.91% of the global total agricultural export trade; ranking sixth was Africa, with an export trade value of US\$511.493 Bn, accounting for 3.09% of the global total agricultural export trade.



**Figure2.9 - General situation of export trade of world agricultural products market from 2011 to 2020**

*Source: developed by author*

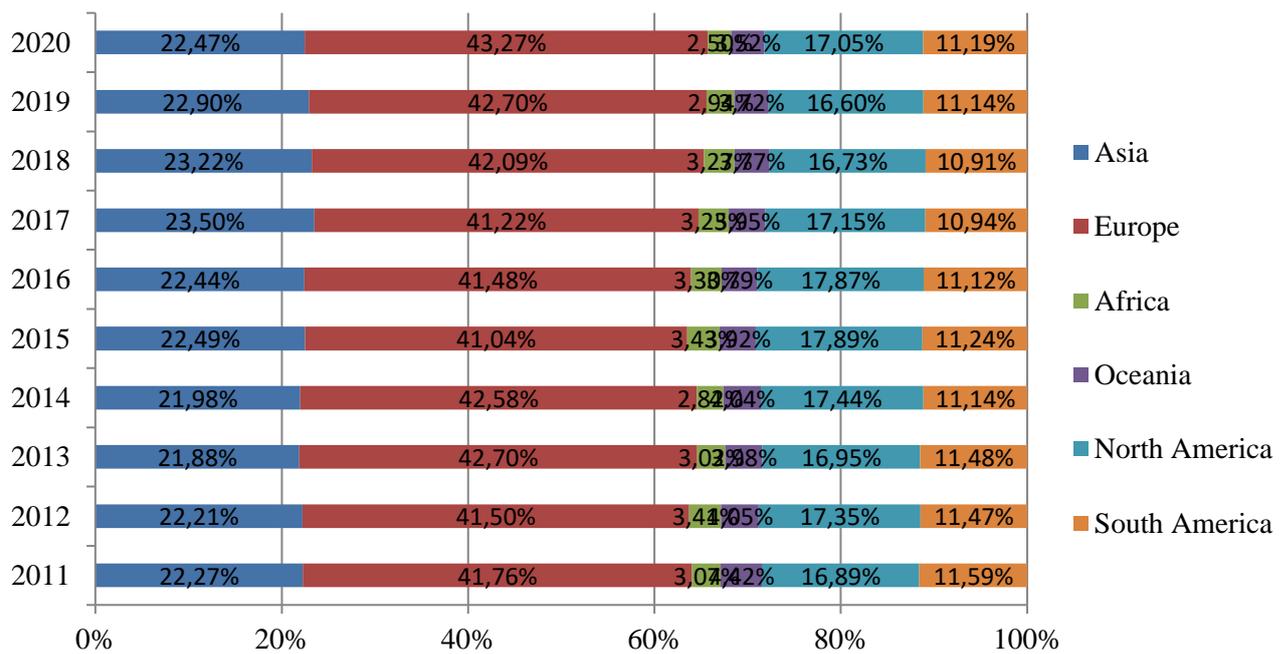
According to the dynamic analysis of time series, the export trade status of agricultural products in each continent from 2011 to 2020. As can be seen from Figure 2-10, the proportion of Asian agricultural exports in the world agricultural product

market has shown a wave-like upward trend. In 2011, Asia's exports accounted for 22.27% of the world's total agricultural exports, and in 2020, it accounted for 22.47%, and the growth rate was 0.90%; during the period from 2011 to 2013, the proportion value showed a downward trend, and the proportion value in 2013 was the lowest value in 10 years, which was 21.88%; the subsequent 2014-2017 years showed an overall growth trend, and the proportion value in 2017 reached 21.88%. The highest value in 10 years is 23.50%; in 2019, it should be affected by the global new crown pneumonia epidemic and show a slight downward trend. The proportion of European agricultural exports in the world agricultural market has shown a growing trend. In 2011, European agricultural exports accounted for 41.76% of the world's total agricultural exports, and in 2020, it accounted for 43.27%, with a growth rate of 3.62%. During the period from 2011 to 2015, overall Showing a downward trend, in 2015 it will reach the lowest value in 10 years, at 41.04%; the subsequent 2016-2020 showed a continuous upward trend in general; Europe is also a region where the export of agricultural products showed a significant growth trend after the global outbreak of the new crown pneumonia in 2019 . In 2011, African agricultural exports accounted for 3.07% of the world's total agricultural exports, and in 2020, it accounted for 2.50%, with a growth rate of -18.57%, a significant decline; During the period from 2011 to 2018, there was an overall growth trend, and the proportion in 2018 was 3.27%, but from 2019 to 2020, it continued to decline for two consecutive years. The proportion of Oceania's agricultural product exports in the world agricultural product market has shown a continuous downward trend. In 2011, Oceania's agricultural product exports accounted for 4.42% of the world's

total agricultural product exports. It is more obvious; although some years experienced a wave-like growth state, the proportion did not reach the proportion in 2011, and in 2020, the proportion dropped to the lowest value in 10 years. The proportion of North American agricultural exports in the world agricultural market is generally on the rise. In 2011, North American agricultural exports accounted for 16.89% of the world's total agricultural exports, and in 2020 it accounted for 17.05%, with a growth rate of 0.95%; during the period Although some years experienced undulations, they generally showed an upward trend. The proportion of South American agricultural product exports in the world agricultural product market has shown a continuous downward trend. In 2011, South American agricultural product exports accounted for 11.59% of the world's total agricultural exports. In 2020, it accounted for 11.19%, with a growth rate of -3.45%. ; 2011 is the year with the largest proportion in the 10-year period. Although some years experienced a process of decreasing and then increasing, the decrease or increase was not large, and the overall trend in the 10-year period was still declining. Through time series analysis, the export trade volume of each continent's agricultural product market during the 10-year period from 2011 to 2020 accounted for a small proportion of the global agricultural export trade volume even if it was affected by the 2019 new crown pneumonia virus raging around the world. For example, Europe, The export of agricultural products in Asia showed a growth trend before the outbreak of the new crown pneumonia virus, and it still shows a growth trend after the outbreak of the new crown pneumonia virus, which also shows that the export trade scale of the agricultural product markets in various regions in the world has remained stable, and natural factors

have not affected this. Very obvious.

According to the static analysis of the total export trade of Asian agricultural products market during the 10-year period from 2011 to 2020 in Figure 2.11, we can know that China has the largest proportion of the total agricultural exports among Asian countries, accounting for 19.96%, and the export trade volume is 7441.85

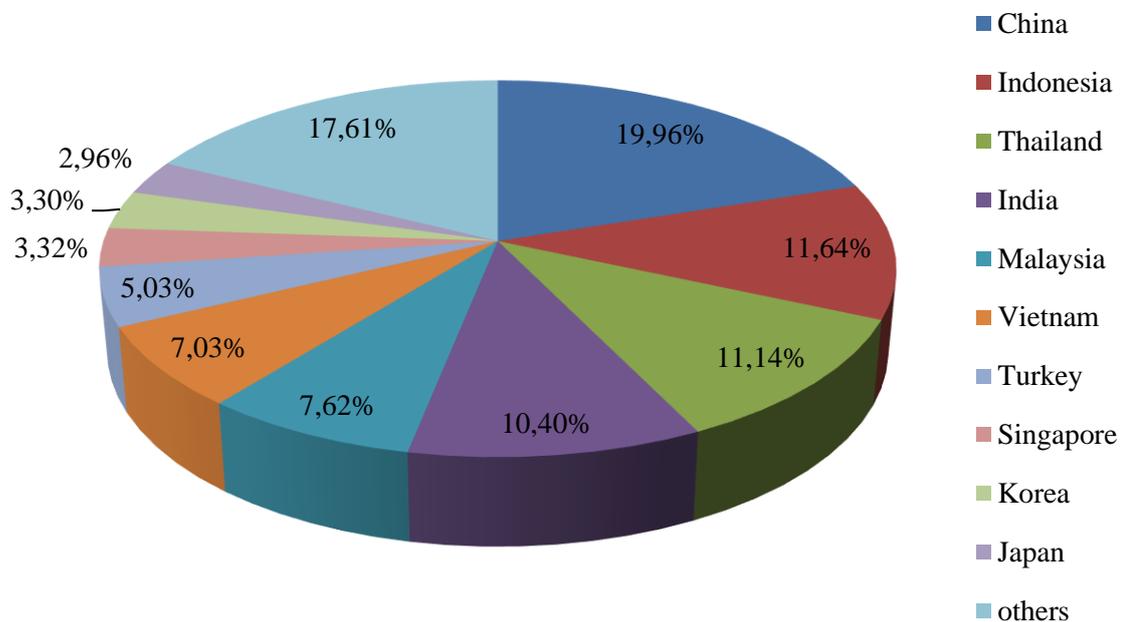


**Figure 2.10 - Overview of the proportion of export trade of agricultural products by continents from 2011 to 2020**

*Source: developed by author*

In order of their proportion, other countries are: Indonesia accounted for 11.64%, and the export trade volume was 434.088 Bn \$; Thailand accounted for 11.14%, and the export trade volume was 415.395 Bn \$; India accounted for 10.40% %, the export trade volume was 387.729 Bn \$; Malaysia accounted for 7.62%, and the export trade volume was 284.274 Bn \$; Vietnam accounted for 7.03%, and the export trade volume was

262.110 Bn \$; Turkey accounted for 5.03%, and the export trade volume was 262.110 Bn \$. Singapore accounted for 3.32%, and the export trade volume was 123.671 Bn \$; South Korea accounted for 3.30%, and the export trade volume was 122.950 Bn \$; Japan accounted for 2.96%, and the export trade volume was 110.319 Bn \$; The 38 other Asian countries counted in the UNCommodity Trade Statistics database accounted for 17.61% of the total, and the total export trade volume was US\$656.646 Bn.



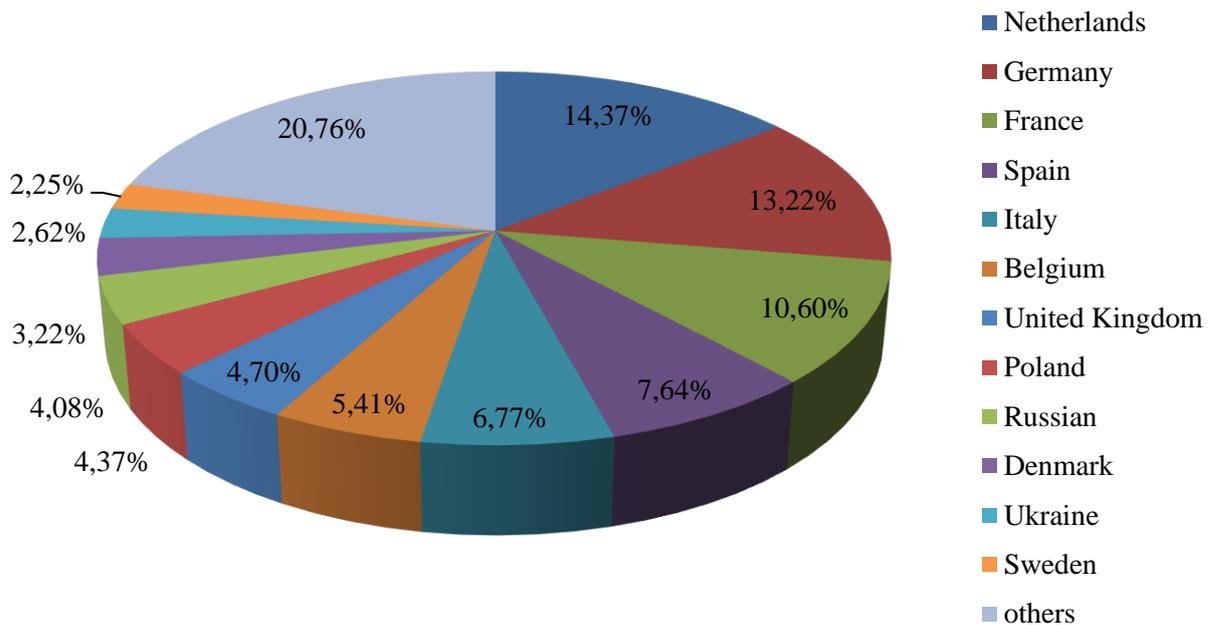
**Figure 2.11 - Proportion of export trade of agricultural products in major countries in Asia from 2011 to 2020**

*Source: developed by author*

From the static analysis of the total export trade of European agricultural products market during the 10-year period from 2011 to 2020 in Figure 2.12, it can be known that the Netherlands accounted for the largest proportion of the total export of European

agricultural products, accounting for 14.37%, and the export trade value was 999.579 Bn \$ ; In order of the proportion, the other countries are: Germany accounted for 13.22%, and the export trade volume was 919.933 Bn \$; France accounted for 10.60%, and the export trade volume was 737.125 Bn \$; Spain accounted for 7.64%, The export trade volume was 531.529 Bn \$; Italy accounted for 6.77%, and the export trade volume was 470.999 Bn \$; Belgium accounted for 5.41%, and the export trade volume was 376.030 Bn \$; the United Kingdom accounted for 4.70%, and the export trade volume was 3268.12 Poland accounted for 4.37%, and the export trade volume was 304.161 Bn \$; Russia accounted for 4.08%, and the export trade volume was 283.607 Bn \$; Denmark accounted for 3.22%, and the export trade volume was 223.723 Bn \$; Ukraine accounted for 283.607 Bn \$. The ratio was 2.62%, and the export trade volume was 182.114 Bn \$; Sweden accounted for 2.25%, and the export trade volume was 156.834 Bn \$; the other 29 European countries according to the UNCommodity Trade Statistics database accounted for 20.76%, and the export trade volume accounted for 20.76%. The total amount is 1,443.831 Bn \$.

According to the static analysis of the total export trade of African agricultural products market during the 10-year period from 2011 to 2020 in Figure 2.13, it can be known that South Africa has the largest proportion of the total export of African agricultural products, accounting for 21.81%, and the export trade value is 111.545 Bn \$ ;In order of the proportion, the other countries are: Egypt accounted for 10.09%, and the export trade volume was 51.631 Bn \$; Nigeria accounted for 8.70%, and the export trade volume was 44.484 Bn \$; Morocco accounted for 7.59%.



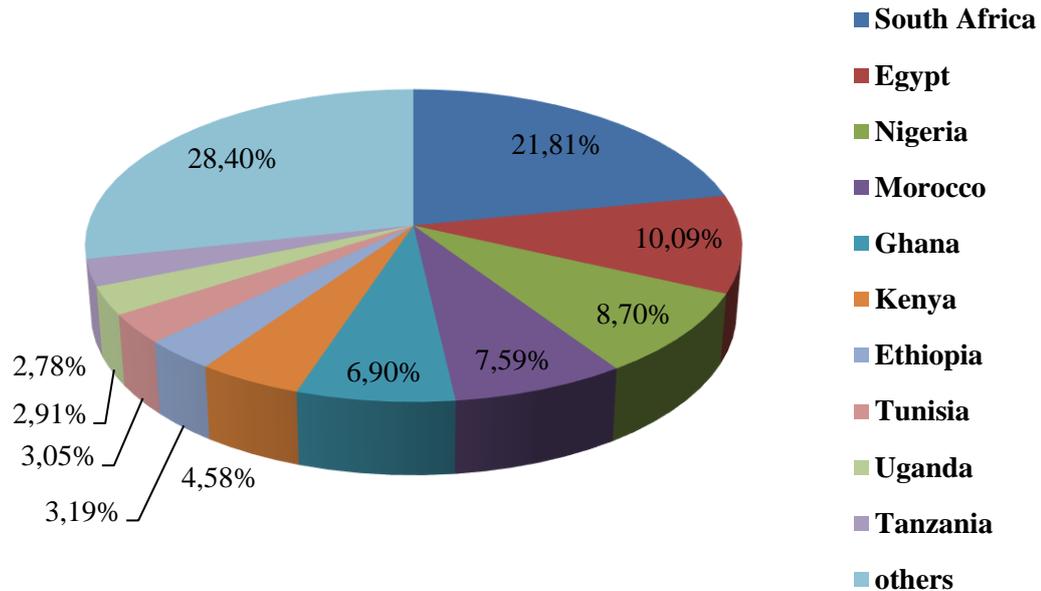
**Figure 2.12 - Proportion of export trade of agricultural products in major countries in Europe from 2011 to 2020**

*Source: developed by author*

The export trade volume was 38.847 Bn \$; Ghana accounted for 6.90%, and the export trade volume was 35.310 Bn \$; Kenya accounted for 4.58%, and the export trade volume was 23.402 Bn \$; Ethiopia accounted for 3.19%, and the export trade volume was 163.04 Tunisia accounted for 3.05%, and the export trade volume was 15.581 Bn \$; Uganda accounted for 2.91%, and the export trade volume was 14.882 Bn \$; Tanzania accounted for 2.78%, and the export trade volume was 14.229 Bn \$; UNC commodities The 35 other African countries counted in the trade statistics database accounted for 28.40% of the total, and the total export trade volume was 145.280 Bn \$.

From the static analysis of the total export trade of Oceania agricultural products

market during the 10-year period from 2011 to 2020 in Figure 2.14, we can know that Australia accounted for the largest proportion of the total export volume of Oceania agricultural products, accounting for 56.15%, and the export trade volume was 363.130 Bn \$.



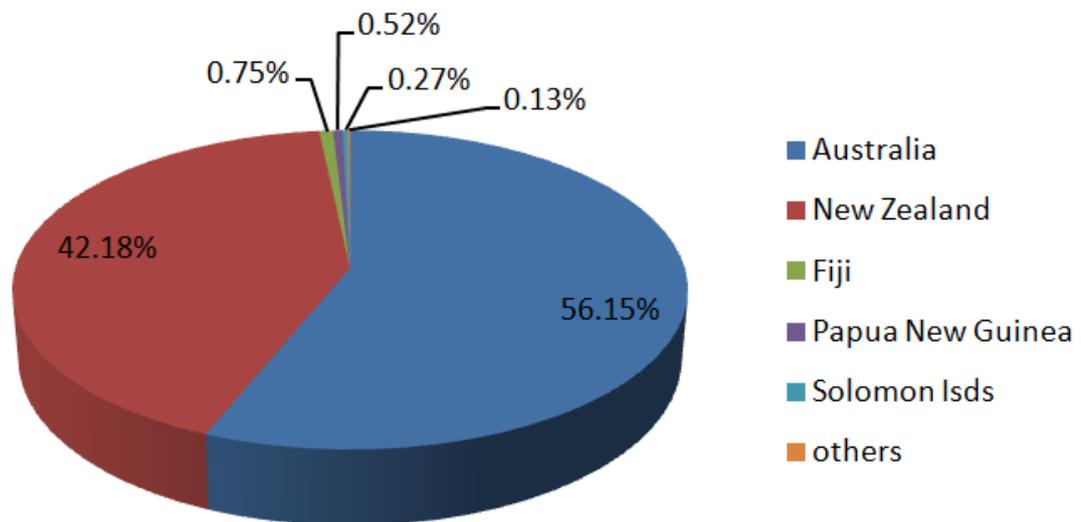
**Figure 2.13 - Proportion of export trade of agricultural products in major countries in Africa from 2011 to 2020**

*Source: developed by author*

In order of their proportion, the other countries are: New Zealand accounted for 42.18%, and the export trade volume was 272.812 Bn \$; Fiji accounted for 0.75%, and the export trade volume was 4.853 Bn \$; Papua New Guinea accounted for 0.52 %, the export trade volume was 3.347 Bn \$; Solomon Islands accounted for 0.27%, and the export trade volume was 1.747 Bn \$; the other 9 countries in Oceania according to the UNCommodity Trade Statistics database accounted for 0.13%, and the total export trade

volume accounted for 0.13% \$852 m.

According to the static analysis of the total export trade of North American agricultural products market during the 10-year period from 2011 to 2020 in Figure 2-15, it can be known that the United States accounted for the largest proportion of the total export of agricultural products in North America, accounting for 59.97%, and the export trade volume was 17037.21.

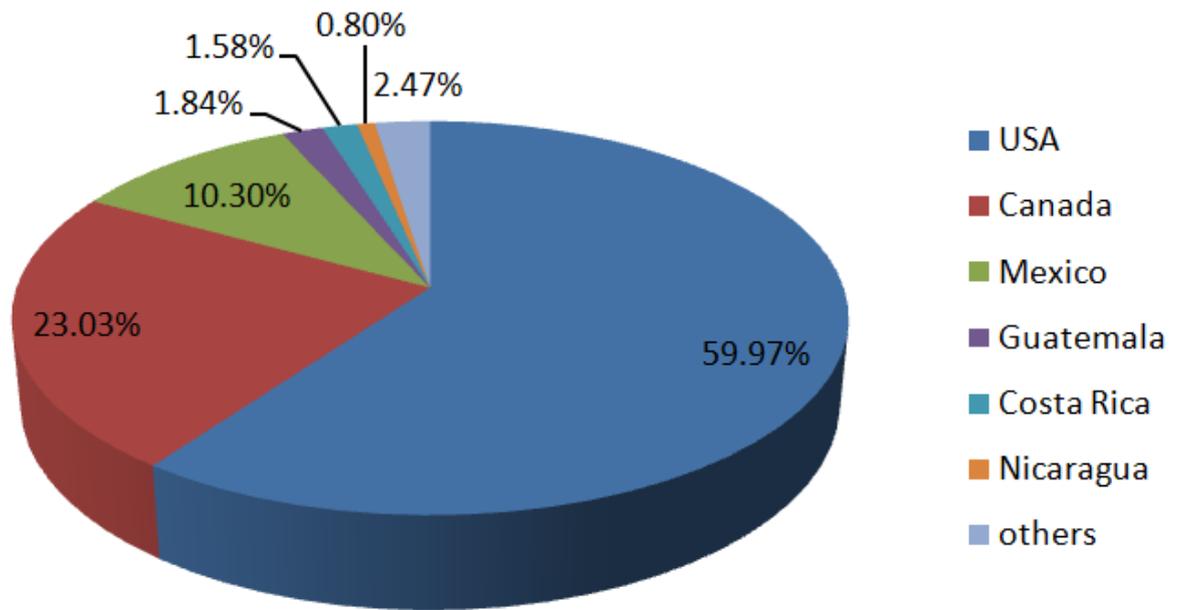


**Figure 2.14 - Proportion of export trade of agricultural products in major countries in Oceania from 2011 to 2020**

*Source: developed by author*

In order of their proportion, other countries are: Canada accounted for 23.03%, and the export trade volume was 654.377 Bn \$; Mexico accounted for 10.30%, and the export trade volume was 292.615 Bn \$; Guatemala accounted for 1.84% %, the export trade value was 52.346 Bn \$; Costa Rica accounted for 1.58%, and the export trade value

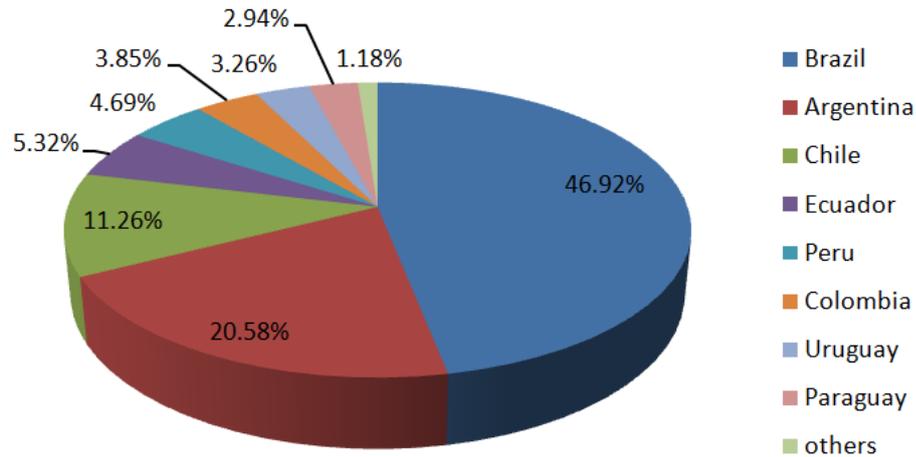
was 44.916 Bn \$; Nicaragua accounted for 0.80%, and the export trade value was 22.590 Bn \$; The 20 countries in the Americas accounted for 2.47% of the total, and the total export trade volume was 70.239 Bn \$.



**Figure 2.15 - Proportion of export trade of agricultural products in major countries in North America from 2011 to 2020**

*Source: developed by author*

From the static analysis of the total export trade of South American agricultural products market during the 10-year period from 2011 to 2020 in Figure 2.16, we can know that Brazil accounted for the largest proportion of the total agricultural exports of South America, accounting for 46.92%, and the export trade volume was 8704.51.



**Figure 2.16 Proportion of export trade of agricultural products in major countries in South America from 2011 to 2020**

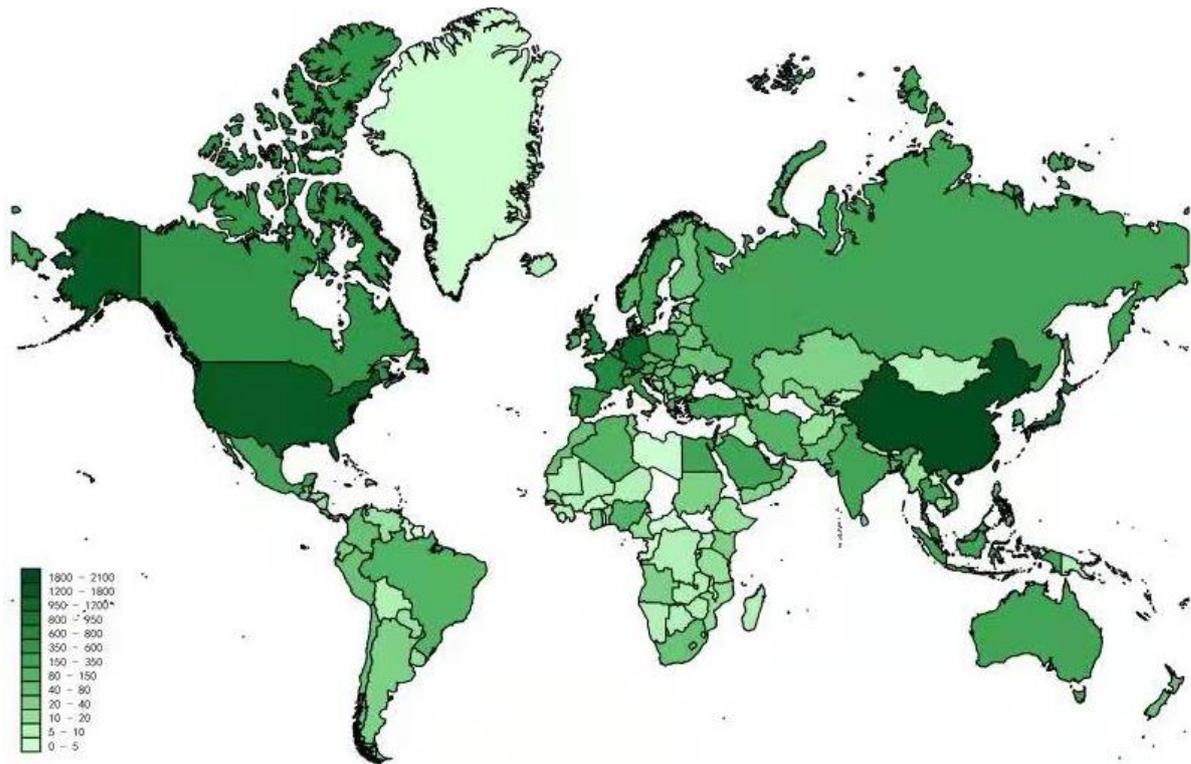
*Source: developed by author*

In order of their proportion, the other countries are: Argentina accounted for 20.58%, and the export trade volume was 381.832 Bn \$; Chile accounted for 11.26%, and the export trade volume was 208.887 Bn \$; Ecuador accounted for 5.32 %, the export trade volume was 98.614 Bn \$; Peru accounted for 4.69%, and the export trade volume was 87.056 Bn \$; Colombia accounted for 3.85%, and the export trade volume was 71.393 Bn \$; Uruguay accounted for 3.26%, and the export trade volume 60.459 Bn \$; Paraguay accounted for 2.94%, and the export trade volume was 54.492 Bn \$; the other 20 South American countries in the UNCommodity Trade Statistics database accounted for 1.18%, and the total export trade volume was 21.951 Bn \$.

### **2.3 The structure of import trade of the world market of agricultural products**

The data in this part is also calculated using the data of the UNCommodity Trade Statistics Database (UN Commodity Trade Statistics Database), and analyzed from a static level. From Figure 2-17, we can intuitively see an overview of the total import trade of the world agricultural market from 2011 to 2020. , European agricultural imports ranked first in the world, with an import trade volume of US\$6,934.206 Bn, accounting for 41.70% of the global agricultural import trade; Asia ranked second in the world, with an import trade value of US\$5,869.709 Bn, accounting for 41.70% of the global agricultural import trade. 35.30% of the total; North America ranked third, with an import trade value of US\$2,448.222 Bn, accounting for 14.72% of the total global agricultural import trade; Africa ranked fourth, with an import trade value of US\$744.751 Bn, accounting for 4.48% of the total import trade of agricultural products; South America ranked fifth, with an import trade value of 411.408 Bn \$, accounting for 2.47% of the total global agricultural import trade; Oceania ranked sixth, with an import trade value of 219.245 Bn \$ , accounting for 1.32% of the total global agricultural import trade.

According to the dynamic analysis of time series, the import trade of agricultural products in each continent from 2011 to 2020. As can be seen from Figure 2.18, in 2011, Asia's imports accounted for 33.17% of the world's total imports of agricultural products, and in 2020 it accounted for 36.18%, with a growth rate of 9.07%;



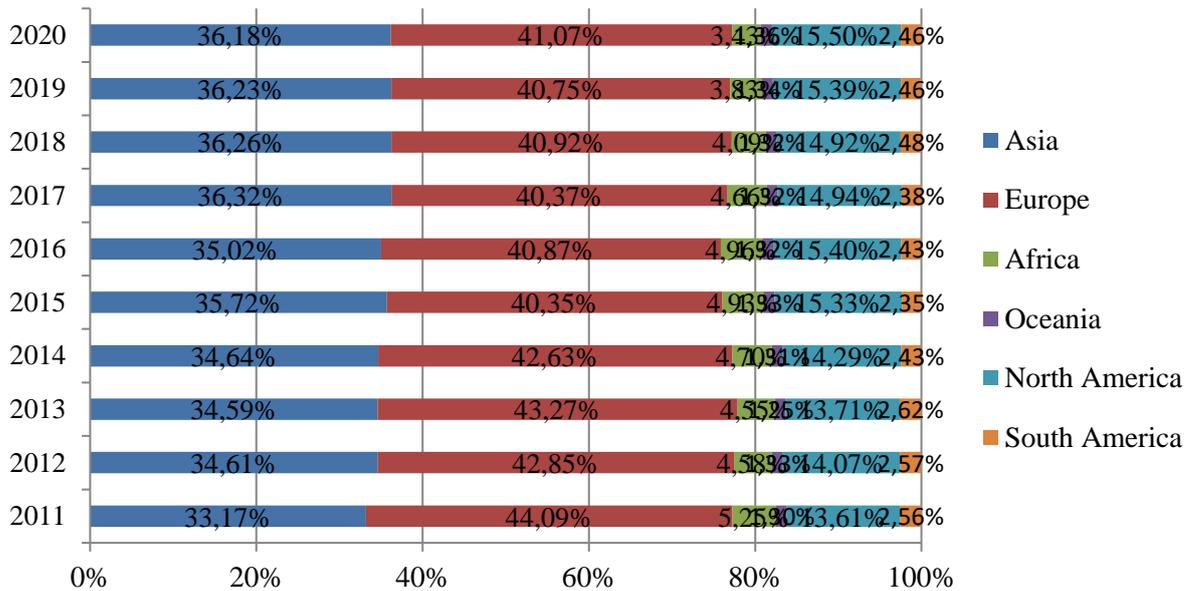
**Figure2.17 - General situation of import trade of world agricultural products market from 2011 to 2020**

*Source: developed by author*

The proportion is the highest in 10 years, at 36.32%; on the whole, the proportion of Asian agricultural imports in the world's total agricultural imports has shown an increasing trend. The import value of European agricultural products accounted for 44.09% of the world's total agricultural imports in 2011, and accounted for 41.07% in 2020, with a growth rate of -6.85%. The ratio is the smallest value in 10 years, and the proportion is 40.35%; the proportion of European agricultural imports in the world's total agricultural imports generally shows a downward trend in waves. The import value of African agricultural products accounted for 5.25% of the world's total agricultural imports in 2011, and it accounted for 3.43% in 2020, with a growth rate of -34.67%. The

ratio is the smallest in 10 years; in general, the proportion of African agricultural imports in the world's total agricultural imports has shown a downward trend. In 2011, Oceania's agricultural imports accounted for 1.30% of the world's total agricultural imports, and in 2020, it accounted for 1.36%, with a growth rate of 4.62%. The proportion in 2013 was the smallest in 10 years, and the proportion was 1.25%; in general, the proportion of Oceania's agricultural imports in the world's total agricultural imports showed a weak growth trend. In 2011, North America's agricultural imports accounted for 13.61% of the world's total agricultural imports, and in 2020, it accounted for 15.50%, with a growth rate of 13.89%; in the statistical sample data, the proportion in 2020 was the highest in 10 years. , the proportion in 2011 was the smallest in 10 years; on the whole, the proportion of North American agricultural imports in the world's total agricultural imports showed an increasing trend. The import value of agricultural products in South America accounted for 2.56% of the total import of agricultural products in the world in 2011, and it accounted for 2.46% in 2020, with a growth rate of -3.91%. Among them, the proportion in 2012 was the highest value in 10 years, and the value was In 2015, the proportion was the smallest in 10 years, and the value was 2.35%. In general, the proportion of South American agricultural imports in the world's total agricultural imports showed a wave-like decline. From the time series analysis, the proportion of the import trade volume of the agricultural product markets in each continent in the total global agricultural product import trade has changed to a certain extent during the 10-year period from 2011 to 2020. From the perspective of changing trends, except for Europe, even if other regional trade is affected by the new crown pneumonia epidemic,

the changing trend is basically unaffected.



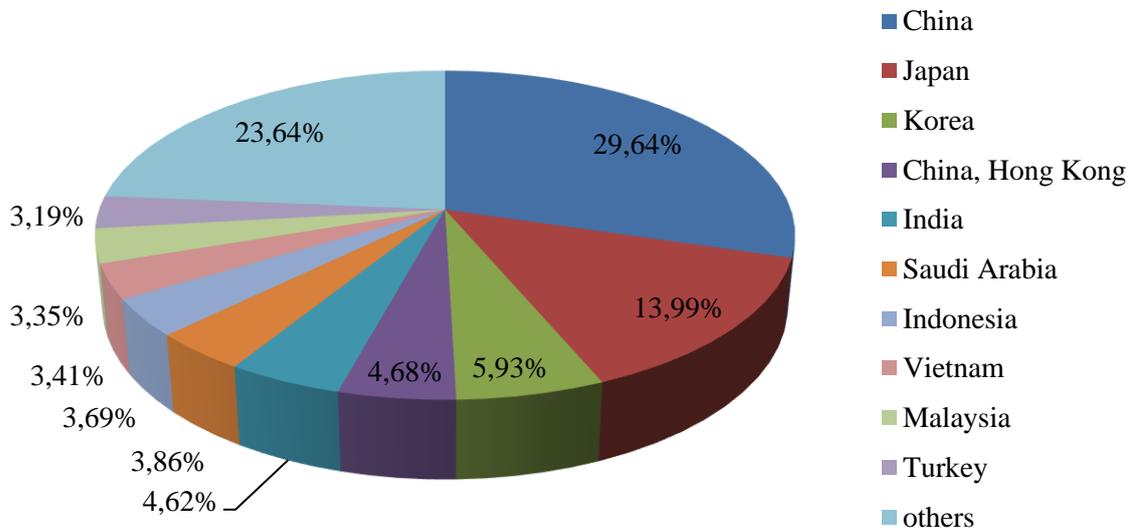
**Figure 2-18 Overview of the proportion of import trade of agricultural products by continents from 2011 to 2020**

*Source: developed by author*

In 2020, Europe's agricultural imports did not continue the downward trend of the previous two years, but showed a clear increase. This also shows that the import trade scale of agricultural product markets in various regions of the world is basically stable, and the impact of natural factors is not very obvious.

From the static analysis of the total import trade of Asian agricultural products market during the 10-year period from 2011 to 2020 in Figure 2-19, we can know that China has the largest proportion of the total import of agricultural products among Asian countries, accounting for 29.64%, and the import trade volume is 17396.45 In order of their proportion, other countries are: Japan accounted for 13.99%, and the import trade volume was 821.256 Bn \$; South Korea accounted for 5.93%, and the import trade

volume was 348.294 Bn \$; China Hong Kong accounted for 348.294 Bn \$ 4.68%, the import trade value was 274.474 Bn \$; India accounted for 4.62%, and the import trade value was 270.892 Bn \$; Saudi Arabia accounted for 3.86%, and the import trade value was 226.588 Bn \$; Indonesia accounted for 3.69%, and the import trade value was 226.588 Bn \$. The trade volume was 216.435 Bn \$; Vietnam accounted for 3.41%, and the import trade volume was 200.043 Bn \$; Malaysia accounted for 3.35%, and the import trade volume was 196.780 Bn \$; Turkey accounted for 3.19%, and the import trade volume was 187.410 Bn \$ The UNCommodity Trade Statistics database of 38 other Asian countries accounted for 23.65% of the total, and the total import trade volume was 1,387.891 Bn \$.

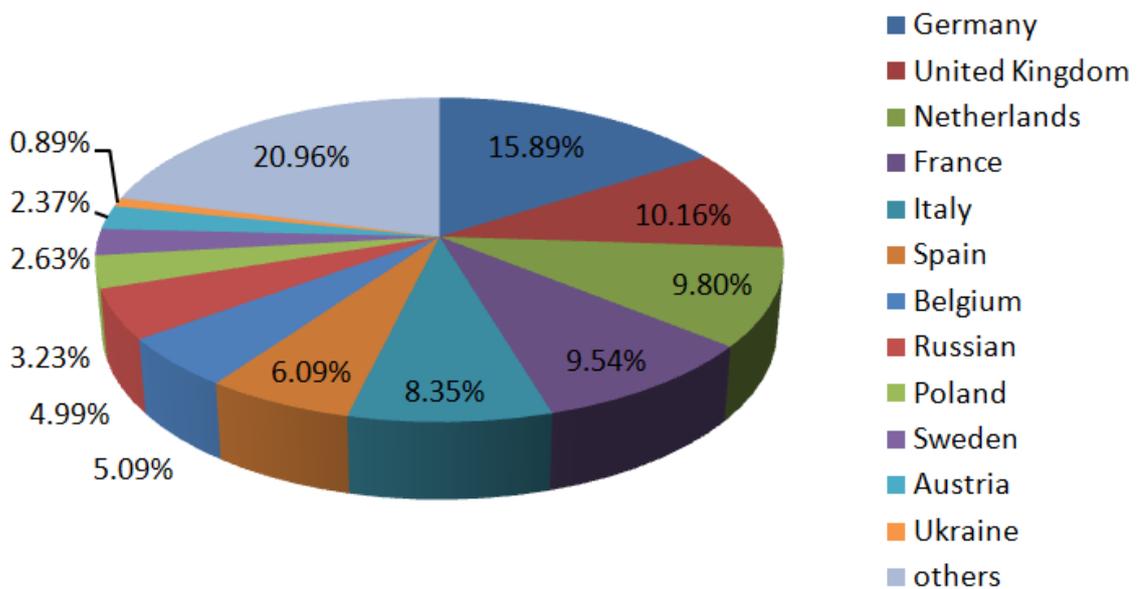


**Figure2.19 - Proportion of import trade of agricultural products in major countries in Asia from 2011 to 2020**

*Source: developed by author*

Import trade status of major European agricultural markets. According to the

static analysis of the total import trade of European agricultural products market during the 10-year period from 2011 to 2020 in Figure 2-20, it can be known that Germany has the largest proportion of the total import of agricultural products among European countries, accounting for 15.89%, and the import trade volume is 11015.34 10.16% of the UK, with an import trade value of 704.593 Bn \$; Netherlands 9.80%, with an import trade value of 679.883 Bn \$; France 9.54% %, the import trade volume was 661.523 Bn \$; Italy accounted for 8.35%, and the import trade volume was 579.268 Bn \$; Spain accounted for 6.09%, and the import trade volume was 422.221 Bn \$.



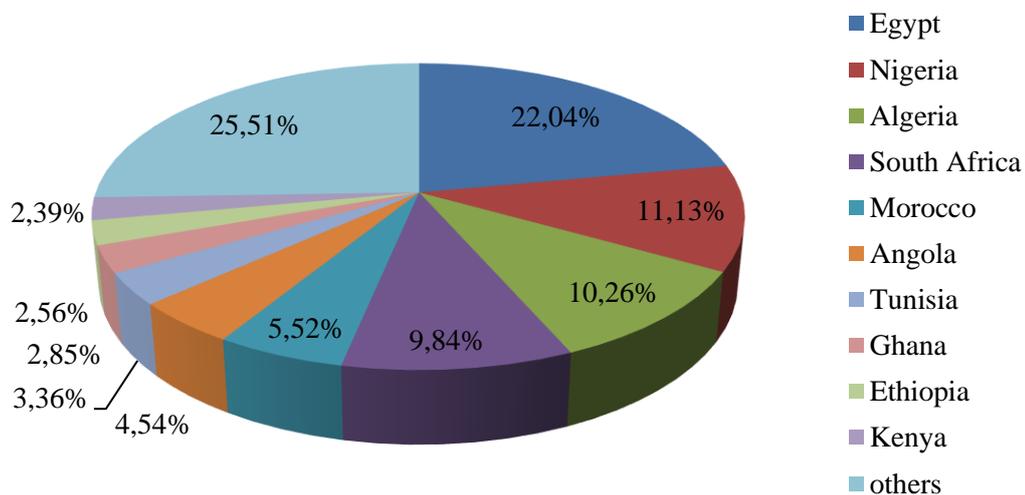
**Figure 2.20 - Proportion of import trade of agricultural products in major countries in Europe from 2011 to 2020**

*Source: developed by author*

Belgium accounted for 5.09%, and the import trade volume Russia accounted for 4.99%, and the import trade volume was 346.317 Bn \$; Poland accounted for 3.23%,

and the import trade volume was 224.071 Bn \$; Sweden accounted for 2.63%, and the import trade volume was 182.477 Bn \$; Austria accounted for 2.37%, and the import trade value was 164.355 Bn \$; Ukraine ranked 22nd in the total import trade of European agricultural products market, accounting for 0.89%, and the import trade value was 61.411 Bn \$; statistics in the UNCommodity Trade Statistics Database The other 29 European countries accounted for 20.96% of the total, and the total import trade volume was 1,453.481 Bn \$.

Import trade status of major agricultural markets in Africa. From the static analysis of the total import trade of African agricultural products market during the 10-year period from 2011 to 2020 in Figure 2-21, we can know that Egypt accounts for the largest proportion of the total import of agricultural products among African countries, accounting for 22.04%, and the import trade volume is 1641.79.

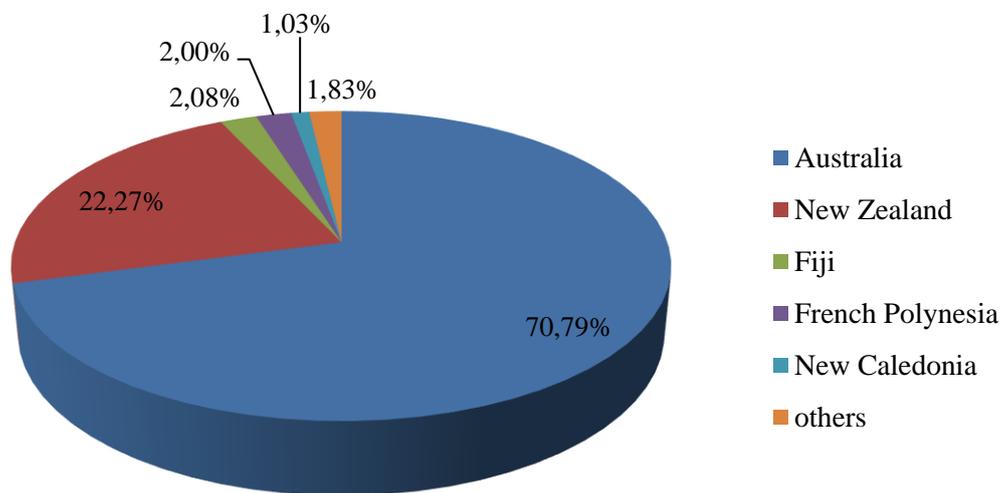


**Figure2.21 - Proportion of import trade of agricultural products in major countries in Africa from 2011 to 2020**

*Source: developed by author*

In order of their proportion, other countries are as follows: Nigeria accounted for 11.13%, and the import trade volume was 82.861 Bn \$; Algeria accounted for 10.26%, and the import trade volume was 76.405 Bn \$; South Africa accounted for 9.84% %, the import trade value was 73.273 Bn \$; Morocco accounted for 5.52%, and the import trade value was 41.132 Bn \$; Angola accounted for 4.54%, and the import trade value was 33.841 Bn \$; Tunisia accounted for 3.36%, and the import trade value was 33.841 Bn \$. 24.994 Bn \$; Ghana accounted for 2.85%, and the import trade volume was 21.204 Bn \$; Ethiopia accounted for 2.56%, and the import trade volume was 19.058 Bn \$; Kenya accounted for 2.39%, and the import trade volume was 17.785 Bn \$; The 35 other African countries counted in the UNCommodity Trade Statistics database accounted for 25.51% of the total, and the total import trade volume was 190.019 Bn \$.

Import trade of agricultural products in major countries in Oceania.



**Figure2.22 - Proportion of import trade of agricultural products in major countries in Oceania from 2011 to 2020**

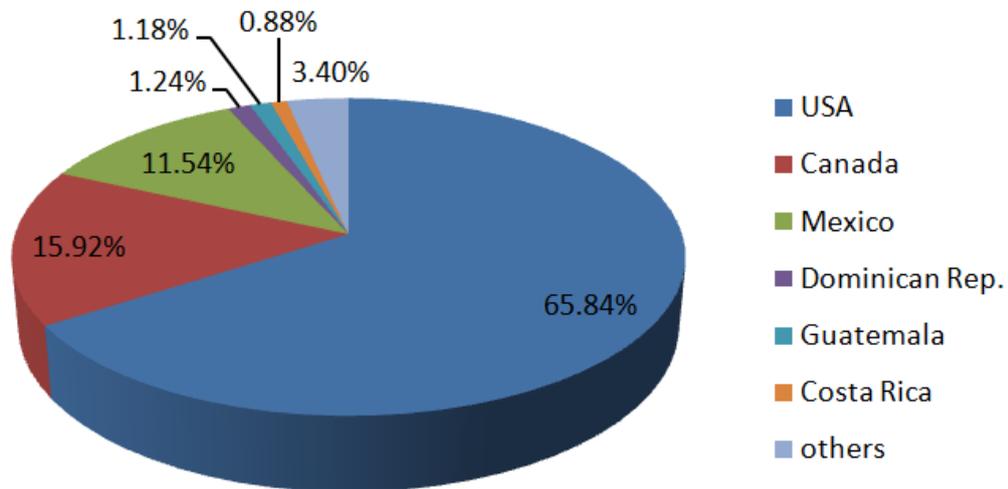
*Source: developed by author*

From the static analysis of the total import trade of Oceania agricultural products market during the 10-year period from 2011 to 2020 in Figure 2.22, we can know that Australia has the largest proportion of the total import of agricultural products among Oceania countries, accounting for 70.79%, and the import trade volume is 1552.10 In order of their proportion, the other countries are: New Zealand accounted for 22.27%, and the import trade volume was 48.830 Bn \$; Fiji accounted for 2.08%, and the import trade volume was 4.563 Bn \$; French Polynesia accounted for 4.563 Bn \$. It is 2.00%, and the import trade volume is 4.382 Bn \$; New Caledonia accounts for 1.03%, and the import trade volume is 2.256 Bn \$; the total proportion of other Oceania 9 countries in the UNCommodity Trade Statistics database is 1.83% %, the total import and export trade volume is 4.003 Bn \$.

Import trade status of agricultural products in major North American countries. From the static analysis of the total import trade of North American agricultural products market during the 10-year period from 2011 to 2020 in Figure 2-23, we can know that the United States accounted for the largest proportion of the total import of agricultural products in North American countries, accounting for 65.84%, and the import trade volume According to the proportion, the other countries are: Canada accounted for 15.92%, and the import trade volume was 389.754 Bn \$; Mexico accounted for 11.54%, and the import trade volume was 282.509 Bn \$; the Dominican Republic accounted for 282.509 Bn \$. The ratio was 1.24%, and the import trade volume was 30.464 Bn \$; Guatemala accounted for 1.18%, and the import trade volume was 28.809 Bn \$; Costa Rica accounted for 0.88%, and the import trade volume was 21.610 Bn \$; statistics in

the UNCommodity Trade Statistics Database The other 20 North American countries accounted for 3.40% of the total, and the total import trade volume was 83.232 Bn \$.

Import trade of agricultural products in major countries in South America.

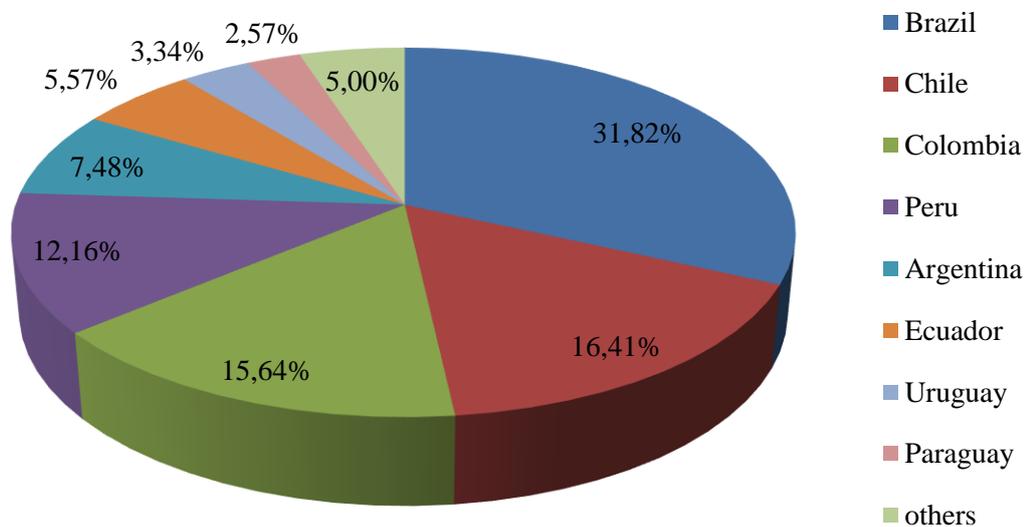


**Figure2.23 - Proportion of import trade of agricultural products in major countries in North America from 2011 to 2020**

*Source: developed by author*

From the static analysis of the total import trade of agricultural products in South America during the 10-year period from 2011 to 2020 in Figure 2-24, we can know that Brazil has the largest proportion of the total import of agricultural products in South American countries, accounting for 31.82%, and the import trade volume It is 130.927 Bn \$; in order of its proportion, the other countries are: Chile accounted for 16.41%, and the import trade volume was 67.527 Bn \$; Colombia accounted for 15.64%, and the import trade volume was 64.352 Bn \$; Peru accounted for 64.352 Bn \$. is 12.16%, and the import trade value is 50.039 Bn \$; Argentina accounts for 7.48%, and the import

trade value is 30.764 Bn \$; Ecuador accounts for 5.57%, and the import trade value is 22.910 Bn \$; Uruguay accounts for 3.34%, and the import trade value is 22.910 Bn \$. The trade volume was 13.743 Bn \$; Paraguay accounted for 2.57%, and the import trade volume was 10.558 Bn \$; the other 20 countries in South America according to the UNCommodity Trade Statistics database accounted for 5.00%, and the total import trade volume was 20.587 Bn. Dollar.



**Figure2.24 Proportion of import trade of agricultural products in major countries in South America from 2011 to 2020**

*Source: developed by author*

## **Conclusion to section 2**

According to the statistics of UN Commodity Trade Statistics Database and geographic division, the world agricultural product market is divided into six continents: Asia, Europe, Africa, Oceania, North America and South America for research.

Overview of the total import and export trade of the world agricultural products market from 2011 to 2020, Europe ranks first in the world, accounting for 41.68% of the total import and export trade of global agricultural products; Asia ranks second in the world, accounting for 29.09% of the total import and export trade of global agricultural products; The third place is North America, accounting for 16.05% of the total import and export trade of global agricultural products; The fourth place is South America, accounting for 6.79% of the total import and export trade of global agricultural products; The fifth place is Africa, accounting for 3.78% of the total import and export trade of global agricultural products; The sixth place is Oceania, accounting for 2.60% of the total import and export trade of global agricultural products. According to the proportion of import and export trade volume, from the static analysis of the total import and export trade volume of agricultural products market from 2011 to 2020, it can be seen that China has the largest proportion in the total import and export volume of agricultural products in Asian countries, accounting for 25.61%; Germany has the largest proportion in the total import and export of agricultural products among European countries, accounting for 14.53%; Egypt has the largest proportion in the total import and export of agricultural products among African countries, accounting for 17.12%; Australia has the largest proportion in the total import and export of agricultural products among Oceanian countries, accounting for 59.70%; The United States has the largest share in the total import and export of agricultural products in North American countries, accounting for 63.01%; Brazil has the largest share in the total import and export of agricultural products among South American countries, accounting for 44.17%. The

general situation of the total export trade of the world agricultural products market is as follows: European agricultural products export ranks first in the world, accounting for 42.06% of the total export trade of global agricultural products; Asia ranks second in the world, accounting for 22.55% of the total export trade of global agricultural products; The third place is North America, accounting for 17.18% of the total export trade of global agricultural products; The fourth place is South America, accounting for 11.22% of the total export trade of global agricultural products; The fifth place is Oceania, accounting for 3.91% of the total export trade of global agricultural products; Africa ranks sixth, accounting for 3.09% of global agricultural exports. The static analysis of the total export trade of agricultural products in Asian markets shows that China has the largest share of the total export of agricultural products in Asian countries, accounting for 19.96%; The Netherlands has the largest share in the total export of agricultural products in Europe, accounting for 14.37%; South Africa has the largest share in Africa's total agricultural exports, accounting for 21.81%; Australia has the largest share in the total agricultural exports of Oceania, accounting for 56.15%; The United States accounted for the largest proportion in the total export of agricultural products in North America, accounting for 59.97%; Brazil has the largest share in the total export of agricultural products in South America, accounting for 46.92%. From a static perspective, the total import trade volume of the world agricultural product market is analyzed. European agricultural product imports rank first in the world, accounting for 41.70% of the total import trade volume of global agricultural products; Asia ranks second in the world, with the import volume accounting for 35.30% of the total import

volume of global agricultural products; The third place is North America, whose import trade volume accounts for 14.72% of the total import trade of global agricultural products; The fourth place is Africa, whose import trade volume accounts for 4.48% of the total import trade of global agricultural products; The fifth place is South America, whose import trade volume accounts for 2.47% of the total import trade of global agricultural products; The sixth place is Oceania, whose import trade volume accounts for 1.32% of the global total import trade of agricultural products. A static analysis of the total import trade of agricultural products in the market from 2011 to 2020 shows that China has the largest proportion of the total import of agricultural products in Asian countries, accounting for 29.64%; Germany has the largest proportion in the total import of agricultural products among European countries, accounting for 15.89%; Egypt accounts for the largest proportion of total agricultural imports among African countries, accounting for 22.04%; Australia has the largest proportion in the total import of agricultural products among Oceanian countries, accounting for 70.79%; The United States accounts for the largest proportion of total agricultural imports among North American countries, accounting for 65.84%; Brazil accounts for the largest proportion of total agricultural imports among South American countries, accounting for 31.82%.

By studying the agricultural trade of major agricultural countries (regions) in the world, we can know that Ukraine is rich in agricultural resources and is known as the "granary of Europe". From 2011 to 2020, the import and export trade of Ukraine's agricultural products showed an overall growth, with the total import and export trade of agricultural products growing at a rate of 46.21% from 2011 to 2020; Among them,

the export trade of agricultural products grew strongly, with an increase rate of 70.18% from 2011 to 2020; In terms of import trade of agricultural products, the import trade volume has generally declined by 0.43% from 2011 to 2020; In terms of trade balance, the import and export trade of Ukrainian agricultural products has always been in surplus, with the export volume exceeding the import volume. Agricultural products in Ukraine have always been export-oriented products and the main commodities for export trade. In terms of agricultural products trade in the United States, the United States is the world's largest exporter of agricultural products, with the output of wheat, corn, soybeans, cotton, meat and other major agricultural and livestock products ranking first in the world. The import and export trade of agricultural products in the United States is generally on the rise, with the total import and export trade growing at 16.68% from 2011 to 2020; In terms of export trade of agricultural products, the export trade volume showed a slight increase, with a growth rate of 1.57% from 2011 to 2020; In terms of import trade, the import volume shows a continuous growth trend, with a growth rate of 35.35% from 2011 to 2020, which is significant. In terms of trade balance, it gradually changed from trade surplus to trade deficit, and the trade deficit rapidly expanded from a large agricultural export country to a large import country. As the world's largest consortium of developed countries, the EU has many agricultural trade partners in the world, and is also a huge agricultural trade market. The import and export trade of agricultural products in the EU shows a growth trend, with the total import and export trade growing at 15.21% from 2011 to 2020; In terms of agricultural export trade, the export volume of agricultural products in the EU shows a growth trend, with the growth

rate of 40.95% from 2011 to 2020; On the whole, the import volume showed a decline, down 7.32% from 2011 to 2020; In terms of trade balance, the import of agricultural products in the EU has always been greater than the export, showing a deficit in trade. China is a large agricultural country, and agricultural products trade plays an important role in China's foreign trade. The import and export trade of agricultural products shows a growing trend. The growth rate of total import and export trade from 2011 to 2020 is 40.90%; In terms of export trade of agricultural products, the export volume shows a trend of growth, with a growth rate of 21.01% from 2011 to 2020; In terms of import trade of agricultural products, the import trade volume showed a rapid growth, with a growth rate of 50.25% from 2011 to 2020; From the perspective of trade volume and growth rate, import trade accounts for a large proportion and plays an important role in China's agricultural product trade. China is a large agricultural product import country. In terms of the trade balance between imports and exports of agricultural products, China's agricultural trade has always been in a state of trade deficit, with imports exceeding exports.

### **SECTION 3.**

## **JUSTIFICATION OF THE REGULATORY MECHANISMS OF GLOBAL AGRICULTURAL MARKETS**

### **3.1. Generalization of methodical approaches to the index assessment of international trade in agricultural products (on the example of Ukraine and China)**

China is the world's most populous country and the world's largest producer and consumer of agricultural products. Agricultural products play an important role in foreign trade. Ukraine enjoys the reputation of "European granary" and has very developed agricultural resources. It is an important agricultural production area in the world. Since 2014, it has become the world's third largest grain exporter. The relationship between China and Ukraine has developed smoothly since the establishment of diplomatic relations in 1992. In 2011, the two countries established a strategic partnership of cooperation. The bilateral trade cooperation in various fields has continued to develop in depth. China has become Ukraine's second largest trading partner. Especially after China proposed and implemented the "B&R" in 2013, Ukraine, as one of the earliest countries to support the "B&R", the total trade volume between the two countries has doubled in recent years. In order to further promote the development of trade in agricultural products between China and Ukraine, on November 5, 2018, the "China-Ukrainian Agricultural Industry Cross-border Trade and Investment Exchange Conference" was successfully held in Shanghai. The meeting was approved by the First

Deputy Prime Minister of Ukraine. It is highly recognized by Stepan Kubiv, Minister of Economy and Trade. In 2013, after China proposed and implemented the "B&R" initiative, agricultural trade between China and Ukraine has developed rapidly. With the help of the new platform and new starting point of the "B&R" initiative, it will surely create a broader development space for the agricultural economic and trade cooperation between China and Ukraine in the future.

Revealed comparative advantage index. The differences in agricultural production factor endowment, agricultural production technology level and agricultural industrial structure between China and Ukraine determine the differences in the comparative advantages of agricultural products between the two countries. The Revealed Comparative Advantage Index was proposed by American economist Balassa in 1965 to measure the comparative advantage of a certain type of product in a country or region. The characteristic of the index is that it excludes the influence of fluctuations in the national total and the world's total, and objectively reflects the relative advantage of a country or region's export of a certain type of product compared with the world's average export level. The specific calculation formula is (3.1):

$$RCA_{ij}^k = \frac{X_{ij}^k / X_{ij}^t}{X_{i\omega}^k / X_{i\omega}^t} \quad (3.1)$$

In the formula,  $RCA_{ij}^k$  represents the revealed comparative advantage index of country  $i$  exporting product  $k$  to country  $j$ ,  $X_{ij}^k$  and  $X_{ij}^t$  represent the export value and total export value of product  $k$  from country  $i$  to country  $j$ ,  $X_{i\omega}^k$  and  $X_{i\omega}^t$  represents the

export value and total export value of product k from country i to the world, respectively. It is generally believed that if  $RCA_{ij}^k > 1$ , it indicates that the export of country i to country j of product k is relatively concentrated, so it is inferred that country i has a comparative advantage in the export of product k, otherwise it is at a comparative disadvantage. Analytical experience shows that the larger the index is, the greater the comparative advantage and the stronger the export competitiveness of the product of country i in the trade between the two countries. It is further subdivided that if  $RCA_{ij}^k \geq 2.5$ , it indicates that the product of country i has a strong export comparative advantage; if  $1.25 \leq RCA_{ij}^k < 2.5$ , it indicates that the product of country i has a strong export comparative advantage; if  $0.8 \leq RCA_{ij}^k < 1.25$ , it indicates that the product k of country i has a certain comparative advantage in export; if  $RCA_{ij}^k < 0.8$ , it indicates that the product k of country i has a weak export comparative advantage.

Trade Complementarity Index. It is mainly used to analyze the complementarity of the export trade of agricultural products between the two countries. The specific calculation formula is as follows (3.2):

$$TCI_{ij}^k = RCA_{ix}^k \times RCA_{jm}^k = \frac{X_{i\omega}^k / X_{i\omega}^t}{X_{\omega\omega}^k / X_{\omega\omega}^t} \times \frac{M_{j\omega}^k / M_{j\omega}^t}{M_{\omega\omega}^k / M_{\omega\omega}^t} \quad (3.2)$$

In the formula,  $TCI_{ij}^k$  represents the trade complementarity index between the export of country i and the import of product k from country j.  $X_{i\omega}^k$  and  $X_{i\omega}^t$  represent the export value and total export value of product k in country i, respectively, and  $X_{\omega\omega}^k$  and  $X_{\omega\omega}^t$  represent the export value and total export value of product k in the world,

respectively.  $M_{j\omega}^k$  and  $M_{j\omega}^t$  represent the import value and total import value of product  $k$  in country  $j$ , respectively, and  $M_{\omega\omega}^k$  and  $M_{\omega\omega}^t$  represent the import value and total import value of product  $k$  in the world, respectively. When  $RCA_{ix}^k$  is larger, it means that the export of product  $k$  of country  $j$  has a greater apparent comparative advantage. When  $RCA_{jm}^k$  is larger, it means that the apparent comparative advantage of import of product  $k$  of country  $i$  is greater. When the advantage is obvious and the comparative advantage of import of product  $k$  in country  $j$  is also obvious,  $TCI_{ij}^k$  is larger, indicating that the export of country  $i$  and the import of country  $j$  are complementary in product  $k$ . It is generally believed that when  $TCI_{ij}^k > 1$ , the export of country  $i$  and the import of country  $j$  are complementary in product  $k$ .

This article adopts the classification of agricultural products by the World Trade Organization (WTO) based on SITC, Rev.4. The data used are from the UNCommodity Trade Statistics Database (UN Comtrade database). The trade classification code of SITC and Rev.4 is based on 2011-- 2020 is the sample period to analyze the current situation, characteristics, competition and complementarity of agricultural trade between China and Ukraine. The specific classification of agricultural products is shown in Table 3.1.

From 2011 to 2020, bilateral trade between China and Ukraine was in a state of wave-like growth. The total trade volume between China and Ukraine increased from US\$10.412 Bn to US\$14.669 Bn, a growth rate of 40.89%. Among them, China's export trade to Ukraine is in a state of decline. The export value has dropped from 7.147 Bn \$ in 2011 to 6.878 Bn \$ in 2020, a decrease of 3.91%; China's import trade from Ukraine

has shown rapid growth, and the trade volume has increased from The US\$3.265 Bn in 2011 increased to US\$7.791 Bn in 2020, a growth rate of 138.62%; it can be seen that the increase in the total bilateral trade between China and Ukraine is mainly due to the rapid growth of China's import trade from Ukraine. In 2020, China in a trade deficit.

**Table 3.1 - SITC, Rev.4 Classification of Agricultural Products**

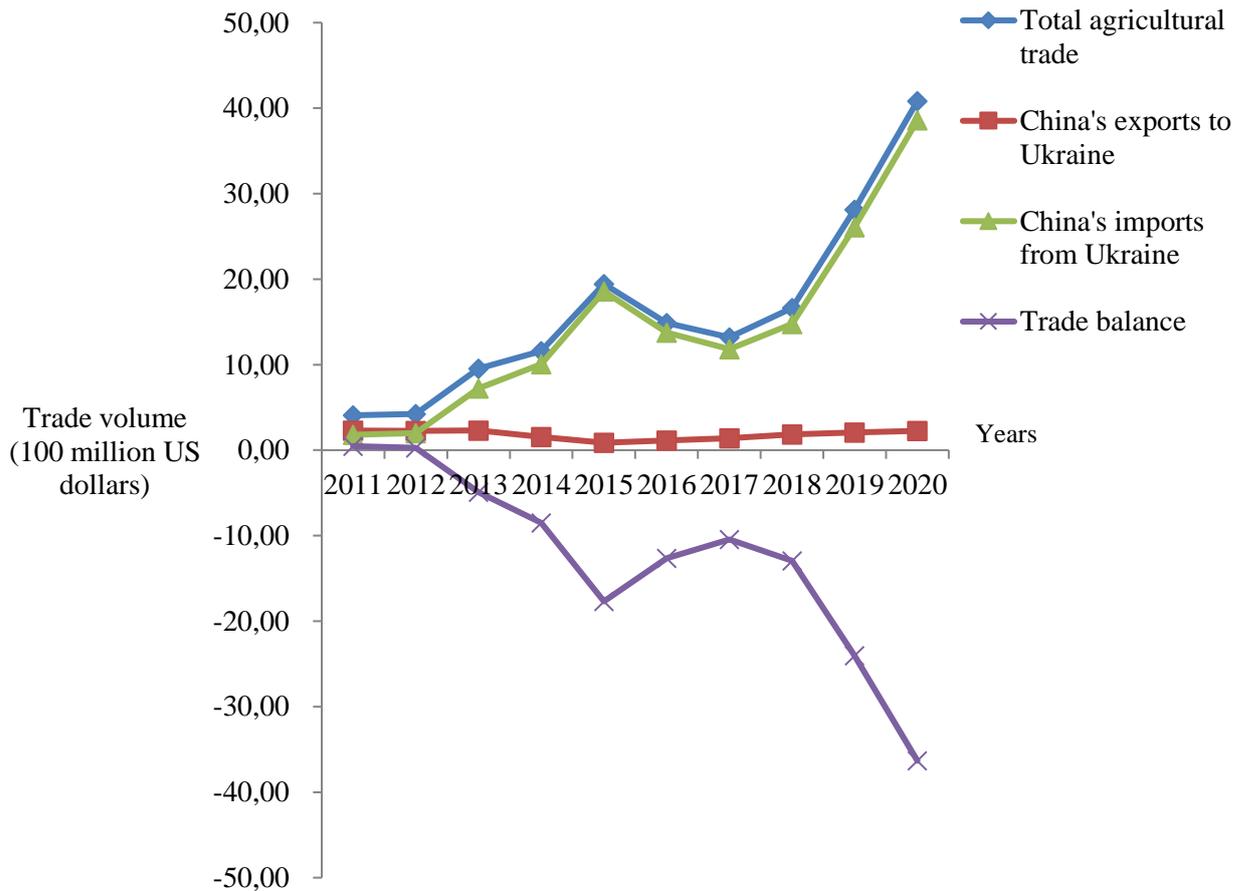
code	Classification of agricultural products	code	Classification of agricultural products
00	live animals	12	Tobacco and Tobacco
01	Meat and meat products	21	Hide and Leather
02	Dairy and Poultry	22	Oilseeds and Oily Fruits
03	Fish and fish products	23	Natural rubber
04	Cereals and Cereal Products	24	Cork and lumber
05	Vegetables and fruits	25	Pulp and waste paper
06	Sugar, sugar products and honey	26	Textile fibers
07	Coffee, tea, cocoa powder and spices	29	Raw animal and plant
08	Animal food	41	Animal fat
09	Mixed & Oily Fruits	42	Solid vegetable oil
11	Drinks	43	Processed animal and vegetable oils and fats

*Data sourced from UN Comtrade Database*

Both China and Ukraine are big agricultural countries, and the trade of agricultural products occupies an important position in the bilateral trade, and the trade volume shows a trend of rapid growth, indicating that the two countries have great cooperation space and development potential in the field of agricultural product trade. As can be seen from Figure 3-21, from 2011 to 2020, the total trade volume of agricultural products between China and Ukraine increased from US\$408 m to US\$4.083 Bn, with an average annual growth rate of 29.16%. Among them, China's trade volume of agricultural products imported from Ukraine increased from US\$180 m in 2011 to US\$3.858 Bn in

2020, with an average annual growth rate of 41%; China's trade volume of agricultural products exported to Ukraine decreased from US\$228 m in 2011 To 225 m \$ in 2020, the average annual growth rate is -0.13%, showing a downward trend; this shows that the large increase in the total trade volume of agricultural products between China and Ukraine is mainly due to the large increase in China's imports of agricultural products from Ukraine, while China's Ukrainian exports of agricultural products showed a downward trend. During the time frame of this study, in the agricultural products trade between China and Ukraine in 2011 and 2012, China was in a small trade surplus, and from 2013 to 2020, China was in a deficit in the agricultural product trade with Ukraine, especially in 2019 and 2020, the trade deficits were respectively It is 2.404 Bn \$ and 3.632 Bn \$, which are in a state of sharp expansion, which shows that Ukraine's agricultural products are more attractive to China, and China has become an important export market for Ukraine's agricultural products.

As can be seen from Table 3.2, from 2011 to 2020, China's agricultural products exported to Ukraine are mainly in categories 03 (fish and fish products), 05 (vegetables and fruits) and 29 (unprocessed animal and plant raw materials). It is 729 m \$, 396 m \$ and 150 m \$; they account for 40.68%, 22.08% and 8.36% of China's total export of agricultural products to Ukraine. Spices), 08 categories (animal feed), the trade volume is 097 m \$ and 132 m \$ respectively.



**Figure 3.1 - China-Ukraine agricultural trade from 2011 to 2020**

*Data source: calculated according to UN Comtrade database*

China's imports of agricultural products from Ukraine are mainly 04 categories (grains and cereal products), 42 categories (solid vegetable oils and fats) and 24 categories (cork and wood); Accounting for 43.84%, 36.74% and 9.16% of the total trade volume of agricultural products imported by China from Ukraine; only 08 types of agricultural products (animal feed) are imported more frequently, and the import trade volume is 1.117 Bn \$; Category is more concentrated. In terms of the total trade balance, China has the largest trade surplus of agricultural products with Ukraine in category 03 (fish and fish products), with a surplus of US\$722 m; the types of agricultural products

that China has a large trade deficit with Ukraine are in category 04 (cereals). and cereal products), 42 (solid vegetable oils and fats) and 24 (cork and wood), the deficits are 6.313 Bn \$, 5.313 Bn \$ and 1.320 Bn \$ respectively; China has a large demand for Ukrainian specific types of agricultural products.

**Table 3.2 Classification and structure of trade in agricultural products between China and Ukraine from 2011 to 2020, Unit: US\$ m**

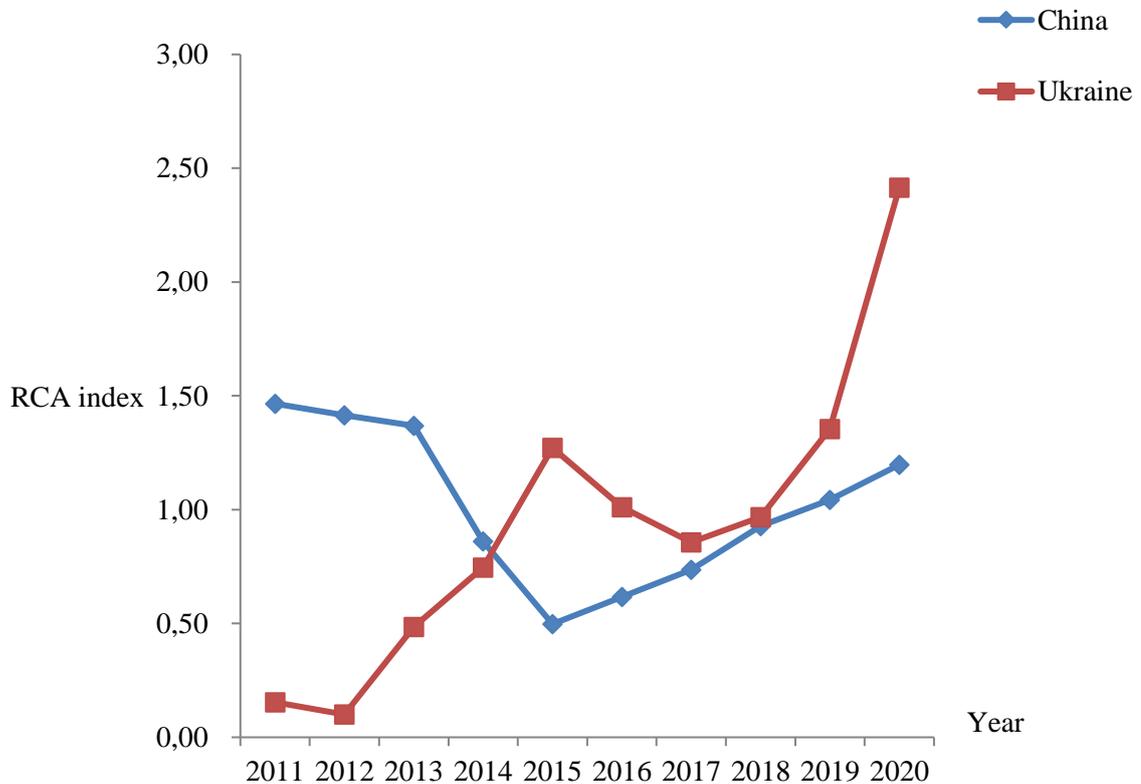
Code	China exports to Ukraine imports		Ukraine exports to China imports		China-Ukrainian agricultural trade volume		
	Trade volume	Proportion (%)	Trade volume	Proportion (%)	Trade volume	Proportion (%)	Trade balance
00	0.01	0.00	--	--	0.01	0.00	--
01	1.25	0.07	24.94	0.17	26.19	0.16	-23.69
02	--	--	94.74	0.66	94.74	0.58	--
03	728.62	40.68	6.99	0.05	735.61	4.53	721.63
04	27.58	1.54	6340.39	43.84	6367.96	39.18	-6312.81
05	395.54	22.08	52.56	0.36	448.10	2.76	342.98
06	59.55	3.32	27.14	0.19	86.69	0.53	32.41
07	97.21	5.43	19.95	0.14	117.15	0.72	77.26
08	132.43	7.39	1117.09	7.72	1249.52	7.69	-984.66
09	78.06	4.36	0.52	0.00	78.58	0.48	77.54
11	9.41	0.53	26.99	0.19	36.40	0.22	-17.58
12	41.83	2.34	3.33	0.02	45.16	0.28	38.5
21	--	--	1.41	0.01	1.41	0.01	--
22	6.59	0.37	53.39	0.37	59.98	0.37	-46.8
23	6.03	0.34	0.00	0.00	6.03	0.04	6.03
24	5.06	0.28	1324.80	9.16	1329.86	8.18	-1319.74
25	4.31	0.24	0.83	0.01	5.14	0.03	3.48
26	46.15	2.58	8.59	0.06	54.73	0.34	37.56
29	149.68	8.36	44.78	0.31	194.46	1.20	104.9
41	1.01	0.06	--	--	1.01	0.01	--
42	0.28	0.02	5313.55	36.74	5313.84	32.69	-5313.27
43	0.46	0.03	--	--	0.46	0.00	--
Total	1791.05	100	14461.97	100	16253.02	100	-12670.9

*Data source: UN Comtrade database. "--" indicates that there is no such trade amount in the database; the "0" value is due to the small amount of trade between China and Ukraine, which is rounded off to two decimal places after unit conversion.*

According to formula (3.2), the revealed comparative advantage index (RCA index) of China and Ukraine's agricultural exports is calculated. From Figure 3-22, we can see that there is a big difference in the comparative advantages of China's and Ukraine's agricultural exports. From 2011 to 2014, China's agricultural exports to Ukraine. The RCA index of exports is greater than the RCA index of Ukraine's agricultural exports to China, indicating that China's agricultural exports to the Ukrainian market have a strong comparative advantage. In 2011, the comparative advantage was the maximum value of 1.47; then the RCA index of Ukraine's agricultural exports to China from 2015 to 2020. It is greater than the RCA index of China's agricultural exports to Ukraine, reaching a maximum value of 2.42 in 2020, indicating that Ukraine's advantage in exporting agricultural products to China is far greater than China's advantage in exporting agricultural products to Ukraine, agricultural trade between the two countries, and Ukraine's agricultural export competition compared to China stronger.

According to Figure 3.2, it can be seen that there are obvious differences in the types of agricultural products with comparative advantages between China and Ukraine. The agricultural products that China exports to Ukraine with strong comparative advantages include 03 (fish and fish products), 08 (animal feed), 12 category (tobacco and tobacco products), category 25 (pulp and waste paper), category 29 (pulp and waste paper), the RCA indices of these agricultural exports are all greater than 1.25 and less than 2.5; category 06 (sugar, sugar products and honey), The RCA index of category 07 (coffee, tea, cocoa powder and spices) and category 09 (mixed and oily fruits)

agricultural products exports are all greater than 0.8 and less than 1.25, with a certain comparative advantage in exports; the rest of China's agricultural exports do not have comparative advantages

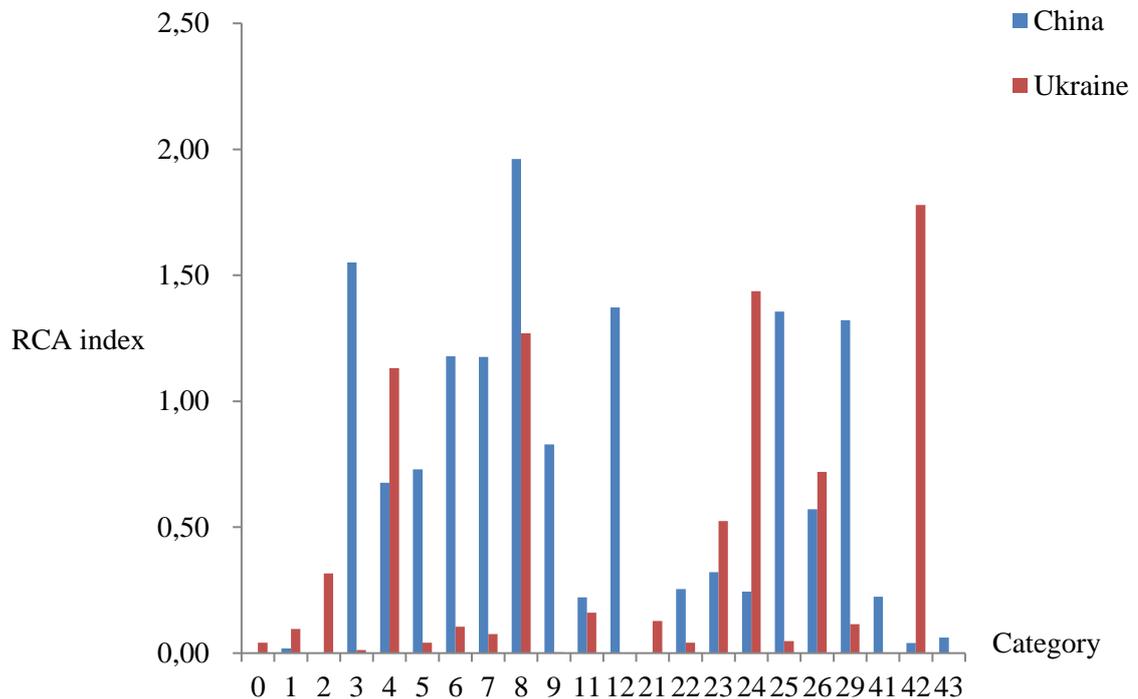


**Figure 3.2 RCA index of agricultural products exports between China and Ukraine from 2011 to 2020**

*Data source: calculated according to UN Comtrade database*

The agricultural products that Ukraine has a strong comparative advantage in exporting to China include category 08 (animal feed), category 24 (cork and wood), and category 42 (solid vegetable oils and fats). Cereals and cereal products) The RCA index of agricultural export is greater than 0.8 and less than 1.25, which has a certain comparative advantage in export; the RCA index of other Ukrainian agricultural exports

is less than 0.8, which does not have a comparative advantage.

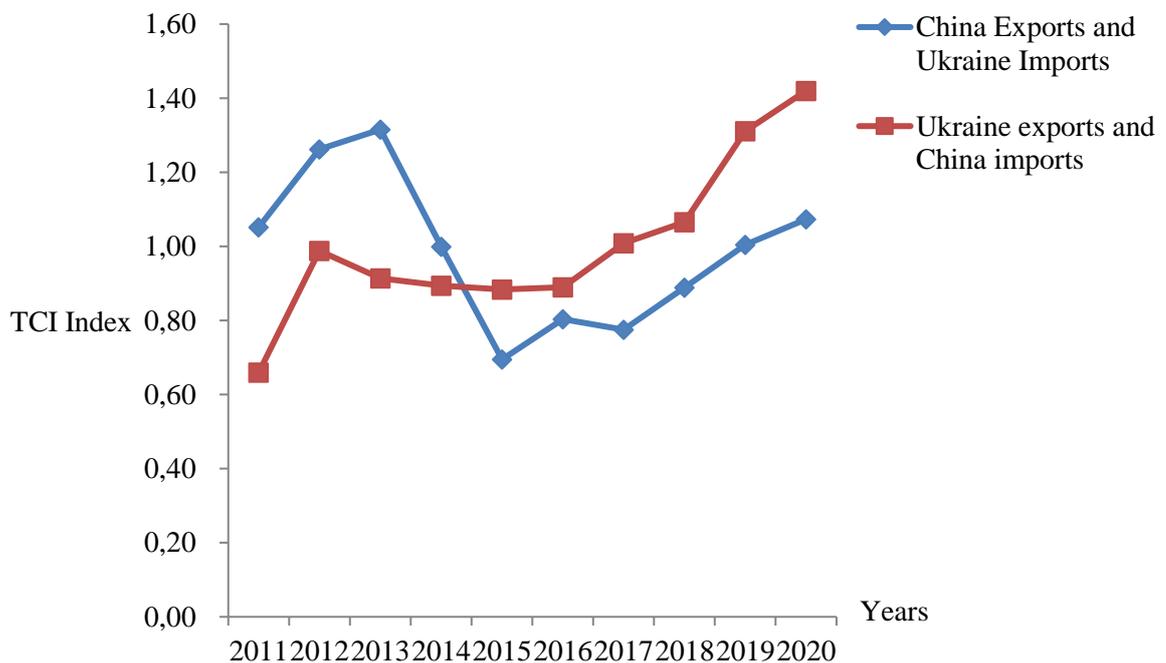


**Figure 3.3 - RCA index of China and Ukraine classified agricultural exports**

*Data source: calculated according to UN Comtrade database*

According to formula (3.2), the complementarity index of agricultural export trade between China and Ukraine is calculated. From Figure 3.4, we can know that in different years, the agricultural export trade between the two countries has different complementarity. From 2011 to 2014, the TCI indices of China's exports and Ukraine's imports were greater than 1 each year, indicating that the trade of agricultural products between the two countries was highly complementary; while the TCI indices of Ukrainian exports and China's imports were less than 1 each year, and the two countries' agricultural trade was complementary. Sex is not strong. In 2015 and 2016, the TCI index of agricultural products trade between China's exports and Ukraine's imports or

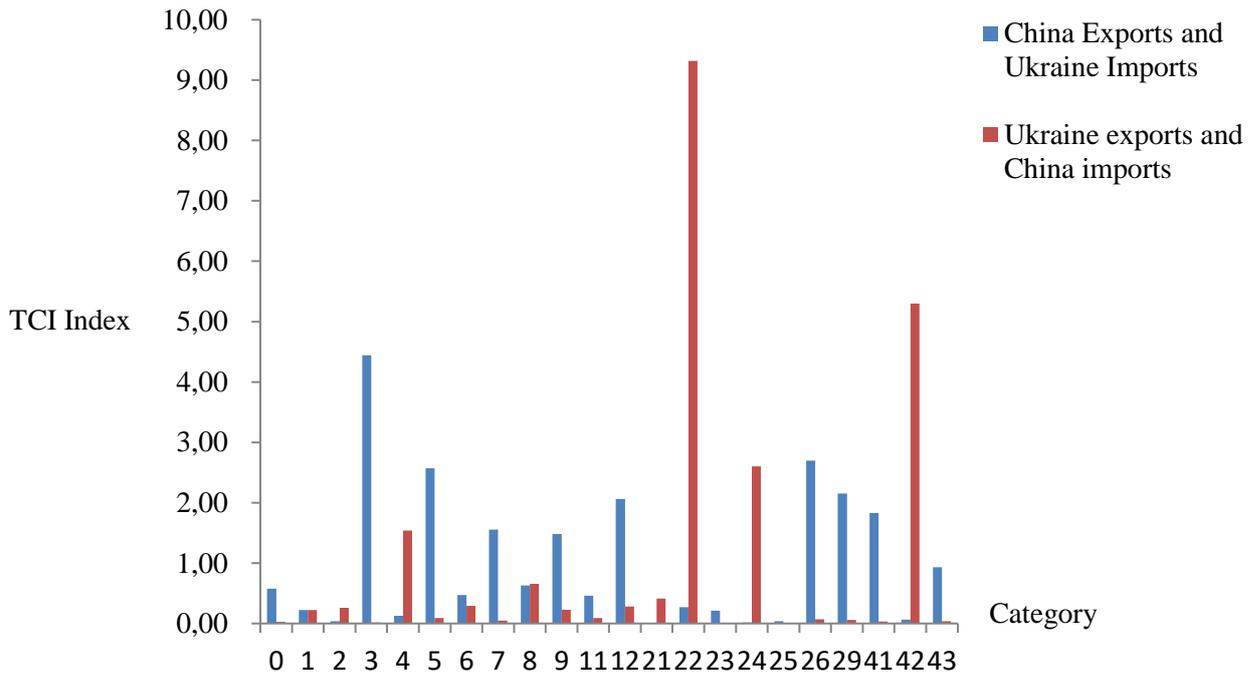
between Ukraine's exports and China's imports was less than 1. During this period, the complementarity of agricultural products trade between the two countries was not strong. From 2017 to 2020, the TCI indexes of Ukraine's exports and China's imports were both greater than 1, and the agricultural trade between the two countries had strong complementarity; among them, in 2019 and 2020, the TCI indexes of China's exports and Ukraine's imports, Ukraine's exports and China's imports were TCI indexes Both are greater than 1, and the agricultural product trade between the two countries has strong complementarity; this shows that the agricultural product trade between China and Ukraine has great potential for development and cooperation space, and trade cooperation is getting closer and closer.



**Figure 3.4 The trade complementarity index of agricultural exports Between China and Ukraine from 2011 to 2020**

*Data source: calculated according to UN Comtrade database*

According to the analysis of the trade complementarity of agricultural products between China and Ukraine from 2011 to 2020 according to the types of agricultural products, it can be seen from Figure 3.5 that in terms of agricultural trade between China's exports and Ukraine's imports of agricultural products, there are 03 categories (fish and fish products), 05 categories (Vegetables and fruits), 07 (coffee, tea, cocoa powder and spices), 09 (mixed and oily fruits), 12 (tobacco and tobacco products), 26 (textile fibers), 29 (unprocessed The TCI index of 8 types of agricultural products such as plant raw materials) and 41 (animal oils and fats) are all greater than 1, which is complementary; among them, the TCI index of 03 (fish and fish products) is 4.45, which is the strongest among all agricultural products. trade complementarity. In terms of trade of agricultural products exported from Ukraine and imported from China, there are 4 types of agricultural products TCI including 04 (grain and grain products), 22 (oil seeds and oily fruits), 24 (cork and wood), and 42 (solid vegetable oils and fats). The indices are all greater than 1, which is complementary; among them, the TCI index of 22 categories (oil seeds and oily fruits) reaches 9.32, which has the strongest trade complementarity among all agricultural product categories, which also shows that China purchases such agricultural products in the global agricultural product market. The concentration is in Ukraine.



**Figure 3.6 Trade complementarity index of classified agricultural exports**

**Between China and Ukraine**

*Data source: calculated according to UN Comtrade database*

Judging from the development status of agricultural products trade between China and Ukraine, the agricultural product trade between the two countries has achieved rapid development, and the trade volume has increased significantly. China has become an important market for Ukraine's agricultural exports. Especially in 2013, when China proposed the implementation of the "One Belt, One Road" initiative, the trade of agricultural products between China and Ukraine has been further developed rapidly. China has greatly increased its imports of agricultural products from Ukraine year by year. There is a deficit in the trade volume of agricultural products, and the deficit is expanding year by year. By 2020, the trade volume of agricultural products exported

from China to Ukraine will be 225 m \$, which is slightly lower than the 228 m \$ in 2011; However, it reached US\$3.858 Bn, an 82-fold increase from the US\$47 m in agricultural imports in 2011; in 2020, the trade deficit between China and Ukraine in agricultural products reached US\$3.632 Bn; China has become Ukraine's largest importer of agricultural products in the world.

In the analysis of the competitiveness of agricultural products trade between China and Ukraine, with the deepening of agricultural trade exchanges between the two countries and the continuous expansion of trade scale, Ukraine's advantage in exporting agricultural products to China has become more and more obvious. There are obvious differences. Generally speaking, in the international agricultural market, the competitiveness of agricultural export trade between China and Ukraine is not strong.

Analyzing the complementarity of agricultural products trade between China and Ukraine, it can be seen that the agricultural products trade between the two countries is increasingly connected. China is the largest market for Ukrainian agricultural exports, and its importance is also increasing. In addition, there is complementarity in the trade of agricultural products between China and Ukraine. The trade complementarity between China's exports and Ukraine's imports of agricultural products is weaker than that between Ukraine's exports and China's imports of agricultural products, especially from the perspective of classified agricultural exports in 22 categories (including oil seeds and oil Fruits) Ukrainian exports of such agricultural products imported from China are highly complementary, and there is a large space for cooperation and development in the agricultural trade between the two countries in the future.

### **3.2 Improving the mechanisms of development of the agricultural market of China**

China is a big agricultural country with a long history of agriculture. China's Yellow River Basin and Yangtze River Basin are also one of the origins of agriculture in the world. In the course of thousands of years of development, China's agriculture has undergone changes. There have been agricultural technological inventions and creations that are ahead of the world, and there have also been long periods of stagnation. In recent years, with the strong support of the Chinese government, China's agriculture has entered a period of rapid development. The agricultural production conditions and production technology have been significantly improved, and the output level has increased rapidly. China feeds almost one-fifth of the world's population with only 7% of the world's arable land, which shows that it has made great achievements. Since China's reform and opening up in 1979, agricultural education and scientific and technological undertakings have also flourished, which has greatly promoted the improvement of agricultural productivity.

China's agricultural natural resources have certain advantages and characteristics. The first is that the light and heat conditions are superior, and the regional differences in dry and wet conditions are large. The distance between north and south of China is more than 5,500 kilometers, spanning nearly 50 latitudes. The total solar radiation in the whole year is generally larger in the west than in the east, and the plateau is larger than the plain. The solar radiation conditions in the northwest region and the Yellow River

Basin are better than many places in the world with similar average temperatures, and the Yangtze River Basin is better than Japan and Western Europe. In terms of heat conditions during crop growth, except for the cold temperate zone, which accounts for 1.2% and 26.7% of the land area, and the Qinghai-Tibet Plateau, which is mostly alpine climate, the remaining 72.1% of the region is in the temperate zone (accounting for 25.9% of the national territory) and warm temperate zone (accounting for 18.5%). , subtropical zone (accounting for 26.1%), as well as tropical and equatorial zones (accounting for 1.6%), the annual accumulated temperature above 0 ° C is above 2500 ° C. Among them, Hainan is the highest, reaching 8500-9000 °C, and the frost-free period is 100 days to the whole year. Therefore, if only in terms of heat conditions, a variety of temperature-loving crops can be planted in summer, and most areas can be replanted, with two or three crops a year. The wet and dry conditions in various parts of China can be roughly bounded by the 400 mm isorain. The southeast is humid and semi-humid, and the northwest is semi-arid and arid, each accounting for about half of the country. Affected by the Pacific monsoon circulation, the southeast has abundant rainfall. The annual rainfall varies between 400 and 2400 mm with latitude and distance from the sea, and the dryness is generally lower than 1.5. In addition, the rain and heat are basically the same period, and more than 80% of the rainwater is concentrated in the active growth period of crops, which is an important reason why more than 90% of the agricultural and forest areas are distributed in the eastern half. The temperature difference between north and south in the summer half year is small. The summer temperature in the north is higher than that of the same latitude in the world, which can greatly shift the northern

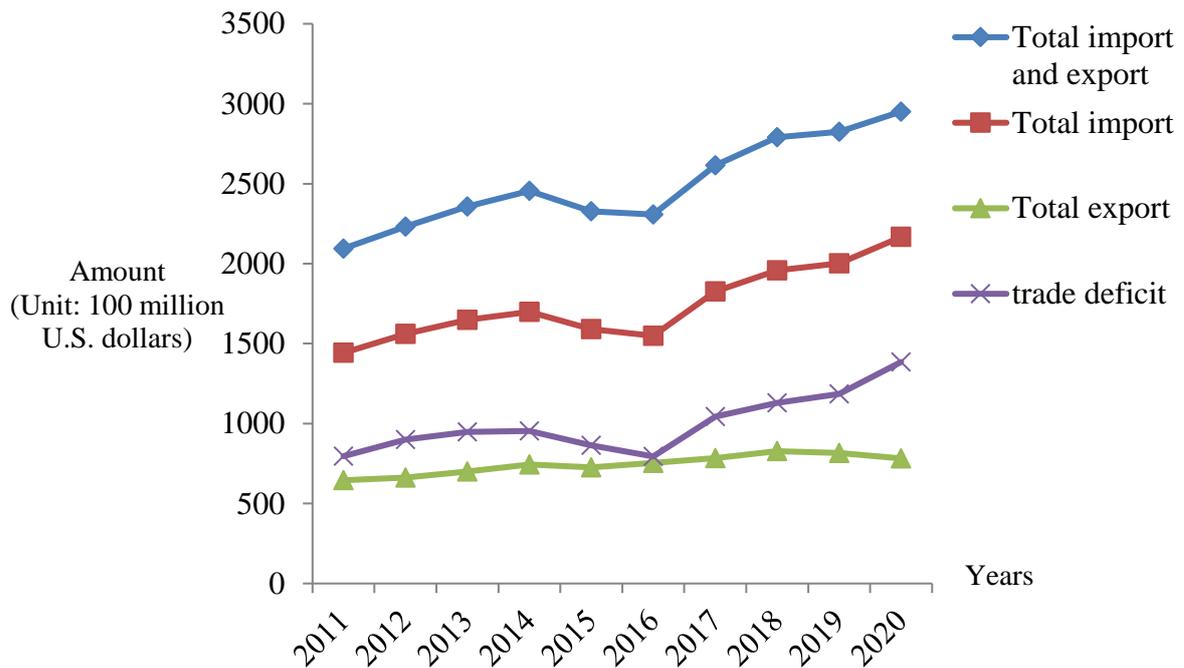
limit of annual thermophilic crops to the north. In winter, the temperature is lower than that of the same latitude in the world, which makes the northern boundary of winter crops such as winter wheat move to the south. The disadvantage of the monsoon climate is its instability, that is, the advance and retreat time, influence range and intensity of the summer monsoon are different in each year, so the precipitation is unevenly distributed within the year, and the inter-annual variation is also large. The frequency of agrometeorological disasters such as typhoons is high. The annual precipitation in the semi-arid and arid areas of the northwest is generally below 400 mm, and in some places it is only tens of millimeters or even a few millimeters, and the dryness is above 1.5, and some even reach above 20. Therefore, the development of agriculture and forestry is restricted, and there are only a small amount of forest resources in the higher mountains. But these areas have vast grasslands that form China's pastoral areas. The second is that the absolute amount of land resources is large, and the relative amount per capita is small. China's total land area is about 9.6 million square kilometers, accounting for about 7.3% of the world's total land area, ranking third in the world after Russia and Canada. The area of arable land is 129 million hectares, about 7% of the world's total arable land, ranking fourth after Russia, the United States, and India; the forest area is 284 million hectares, accounting for 3% of the world's total forest area, second only to Russia and Brazil, Canada and the United States ranked fifth; the grassland area was 265 million hectares, second only to Australia and Russia, ranking third; the freshwater surface was 17 million hectares, of which about 5.025 million hectares were available for farming, and about 2,008,000 hectares of seabed. , The continental shelf within 200 meters of water depth is about 154

m hectares, which provides better resource conditions for the development of freshwater and marine fisheries. However, the amount of land resources per capita in China is significantly lower than the world average. There are many mountains and few flats, and the high mountains and plateaus above 3,000 meters above sea level account for 25% of China's land area. In addition, there are about 19% of the land that is difficult to use and 3.5% of the land for urban, industrial and mining, and transportation. The per capita arable land area is only about 0.1 hectares, which is 1/3 of the world average of 0.3 hectares, and it is one of the countries with the least arable land per capita. The per capita forest area is about 0.12 hectares, and the forest coverage rate is 12.7%, while the world average is 0.91 hectares and 31.3% respectively. The per capita grassland area is about 0.34 hectares, which is only 1/2 of the world average of 0.70 hectares. The third is that the total amount of river runoff is large, but the coordination of water and soil is not coordinated. The average annual precipitation in China is about 6 trillion cubic meters (equivalent to an average precipitation depth of 628 mm), of which about 56% is consumed by plant transpiration, soil and surface water evaporation, and 44% forms runoff. The average annual runoff of the river is 2,711.5 Bn cubic meters, ranking sixth in the world after Brazil, Russia, Canada, the United States and Indonesia. But if converted into the average annual runoff depth, it is only 284 mm, which is lower than many countries. The regional distribution of water resources is very uneven. The cultivated land in the Yangtze River Basin and the south of the Yangtze River accounts for only 37.8% of the country's total cultivated land, but its runoff accounts for 82.5% of the country's total. The average water volume per hectare of cultivated land in the

Yangtze River Basin is about 1.876 m cubic meters, the Yellow River Basin is 174,200 cubic meters, and the Haihe River Basin is only 107,200 cubic meters. The distribution of water volume is also extremely unbalanced in time history, with a large inter-annual variation, and there are quite large areas that are vulnerable to natural disasters such as floods, waterlogging, drought, and waterlogging. The fourth is that there are many species of organisms, and the types of communities are rich and diverse. The reason for this diversity is that the natural conditions in different regions of China are very complex. Almost all types of natural vegetation in the northern hemisphere, from tropical rain forests and monsoon forests to cold temperate coniferous forests, can be seen, and the richness of flora is second only. In Malaysia and Brazil, it ranks third in the world. Animal and plant resources are also very rich. Giant pandas, metasequoia and silver fir, which are known as "living fossils", are rare and precious species of animals and plants in the world. Such diverse biological resources are not only an important material basis for agricultural diversification, but also provide a very rich gene pool for the further development of agriculture, forestry, animal husbandry and fishery. Utilization and Protection Under certain economic and technical conditions, the load capacity of all natural resources, including agricultural natural resources, for human survival needs is limited. With the continuous growth of the population, the contradiction between the population and the shortage of natural resources has become a worldwide problem. Therefore, while the population growth is strictly controlled, the protection and rational utilization of agricultural natural resources have been paid more and more attention.

As can be seen from Figure 3.7, China's import and export trade of agricultural products showed an overall growth trend from 2011 to 2020. The total import and export trade of agricultural products increased from US\$209.455 Bn in 2011 to US\$295.116 Bn in 2020, a growth rate of 40.90%; during the period, the import and export volume of agricultural products showed a continuous growth trend from 2011 to 2014, but in 2015 and 2016 However, there has been a continuous decline. In 2016, it fell to the lowest value in 10 years, with a value of 230.793 Bn \$; the following 2017-2020 The import and export trade volume of agricultural products showed rapid growth, reaching the largest value in 10 years in 2020. This shows that the proportion of agricultural trade in China's international trade exchanges is increasing. In terms of agricultural product export trade, China's agricultural product export volume also showed an overall growth trend from 2011 to 2020. The export volume increased from 64.568 Bn \$ in 2011 to 78.128 Bn \$ in 2020, a growth rate of 21.01%; during the period 2018 agricultural products exports The value reached the highest value in the 10-year period, with a value of 82.753 Bn \$, and the minimum value of the export value appeared in 2011, which shows that even though the export value of China's agricultural products has fluctuated in the past 10 years, it has been showing an overall increase. status. In terms of import trade of agricultural products, China's agricultural import volume from 2011 to 2020 showed a rapid growth, from 144.208 Bn \$ in 2011 to 216.672 Bn \$ in 2020, an increase of 50.25%; In terms of growth rate, import trade occupies a relatively large proportion in China's agricultural product trade and occupies an important position. China is a major importer of agricultural products. In terms of the import and export trade balance of

agricultural products, China's agricultural product trade from 2011 to 2020 has always been that the import value is greater than the export value, showing a trade deficit. In terms of export volume, trade deficit has become the norm, and the deficit has shown a trend of expanding year by year; in Figure 1, China's agricultural trade deficit in 2011 was 79.640 Bn \$, and in 2020 it was 138.544 Bn \$, an increase of 73.96%; This situation has a lot to do with China's specific national conditions. As the country with the largest population in the world, maintaining the survival of the population has always been the top priority of the Chinese government. Agriculture, as the foundation of the national economy and the guarantee of people's lives, is highly valued, because China's per capita arable land is far below the world average, relying only on domestically produced agricultural products can no longer meet people's needs for improving material living standards, and expanding imports has become an effective way to meet China's domestic demand for agricultural products. With the rapid development of China's economy in recent years, sufficient foreign exchange reserves have also provided a solid guarantee for expanding the import of agricultural products, which has also led to the situation that the import of agricultural products has expanded year by year. Compared with the slow growth of agricultural exports, the trade deficit of agricultural products has become getting bigger.



**Figure 3.7 Import and export trade of China agricultural Products from 2011 to 2020**

*Data source: calculated according to UN Comtrade database*

As a big agricultural country, the import and export trade of agricultural products occupies an important position in China's national economy. In recent years, with the continuous expansion of China's foreign trade, agricultural trade has also developed rapidly. From 2011 to 2020, the proportion of agricultural products exports in China's total foreign trade exports remained at 6%-7%, and it was relatively stable; at the same time, the proportion of agricultural products imports in China's foreign trade imports remained between 3% and 4%. However, the import trade volume of agricultural products is far greater than the export trade volume; in 2020, despite the impact of the new crown pneumonia epidemic, China's agricultural imports will still maintain a

growth state. Since China's accession to the WTO, the export of agricultural products has generally shown a trend of continuous expansion, and the growth rate has maintained a positive growth rate. The export of agricultural products has a certain competitiveness. However, after the global outbreak of the new crown pneumonia epidemic, compared with 2018, China's agricultural exports in 2019 declined, and agricultural exports were significantly affected. In 2020, affected by epidemic prevention measures such as restrictions on the movement of people and delayed resumption of work by enterprises, the supply chain of exported agricultural products has been blocked, and business operations have been difficult. As China's domestic epidemic prevention and control situation continues to improve and the emergency response level for prevention and control has been lowered, the government has issued a series of policies in a timely manner involving the transportation and logistics of agricultural products and agricultural materials, taxes and fees, credit, and resumption of work and production. There have been delays in progress and export deliveries.

On the other hand, as a country with the largest population in the world, due to the lack of endowment of agricultural resources, China is also an important importer of agricultural products in the world. The main imported agricultural products include soybeans, dairy products, beef, and wine. Soybean, as China's main imported crop, is used to be processed into edible oil on the one hand, and the remaining material is used as feed on the other hand. Due to factors such as dietary habits, edible oil is indispensable, resulting in soybeans have always been highly dependent on imports.

Regarding the balance of trade in agricultural products, since 2004, China's

agricultural trade has entered an era of deficit, China's dependence on agricultural imports has continued to rise, and China's agricultural trade deficit has expanded year after year. With the development of China's industrialization and urbanization, the cost of agricultural products will further increase, and imports will be a long-term trend. The consumption level of Chinese residents has gradually improved, and the import of high-quality agricultural products has become a trend in China's domestic market.

Promote and improve the construction of China's agricultural international trade development system. Strengthen policy research and strategic planning, and systematically study the basic rules and relevant laws and regulations for international trade, investment, and technical standards of agricultural products. Through the research on the domestic market capacity of agricultural products, the structure of imported and exported agricultural products, and the market environment, formulate the phased import and export strategy of China's agricultural products in the future; actively participate in the formulation of international trade rules and standards, and improve the ability to formulate and utilize the system and rules of the World Trade Organization ; Promote the establishment of a unified, stable, standardized and efficient agricultural product foreign trade management and control system; improve the public service level of agricultural international information and agricultural international marketing and promotion, build a smooth and efficient agricultural product trade information system, correctly guide market expectations, and provide government decision-making and Provide reference for business operations.

Strengthen agricultural protection, continuously deepen agricultural reform,

actively implement agricultural product trade strategies that serve the overall situation of China's food security, and improve agricultural product import and export management capabilities and market regulation. According to the changing trends of supply, demand and price of agricultural products at home and abroad, explore the establishment of a stable connection mechanism between domestic production and import of agricultural products, effectively regulate imports, and avoid the impact of imported agricultural products on China's domestic production and market; establish and improve agricultural products that serve China's strategic interests in food security. Export support policy system, expand the export of advantageous agricultural products, and strengthen import management; establish and improve the foreign capital access and safety management system, and establish a reporting and safety review mechanism for foreign capital mergers and acquisitions of agricultural enterprises in China. At the same time, it is necessary to actively participate in the formulation of international agricultural trade rules and agricultural standards, as well as many international negotiations and cooperation related to agriculture, such as animal and plant disease prevention and control, biosecurity, bioenergy, and climate change, and further conduct regional and bilateral trade negotiations to promote the establishment of more Fair and reasonable international trade rules will improve the international environment for China's agricultural development.

China should continue to implement high-priority policy arrangements for agriculture and a food security strategy to ensure domestic production, because China does not have the basic conditions to rely on food trade. From a technical point of view,

China does not have the basic conditions to rely on the international market to solve food problems. For example, the domestic market is sluggish, the food market system is not perfect, the industry organization is seriously lagging behind, a unified national market has not yet been formed, and there is a lack of risk management mechanisms and tools. . At present, China has no big grain merchants like the United States, France and Germany that can monopolize global grain trade, no trade organizations like Canada and Australia Wheat Board, no import management mechanism like Japan and South Korea, and no existing trade infrastructure. Have the ability to undertake large-scale import of food.

Develop agricultural trade strategies that promote participation in the world trading system. Based on promoting the strategic adjustment of agricultural structure and improving the efficiency of resource allocation. The implementation of the comparative advantage strategy at this stage can give full play to the advantages of China's abundant labor resources, expand the export of labor-intensive agricultural products, promote the concentration of agricultural resources in the production of high-value agricultural products, promote the strategic adjustment of agricultural structure, optimize resource allocation, and improve China's agricultural productivity. overall productivity. To improve the international competitiveness of agricultural products, China must bring into play its low-cost competitive advantage, speed up technological innovation, structural upgrading, improve the processing level of agricultural products, and optimize the trade structure of agricultural products through the introduction and independent research and development of new products. Establish a global agricultural product

market system characterized by "market diversification". It is necessary to gradually adjust the structure of the export market of agricultural products, establish a global agricultural export market system characterized by "market diversification", and meet the needs of China's rapid growth of agricultural exports and increasing competitiveness in the next few years.

### **3.3. Overcoming negative trends in international trade in agricultural products in the conditions of new globalization challenges**

Since the beginning of 2020, the COVID-19 epidemic has raged, greatly affecting the global economy and trade. The International Monetary Fund predicts that due to the impact of the new crown pneumonia epidemic, the world economy and world trade volume will experience a relatively sharp decline, and China is the only major economy in the world to achieve positive economic and trade growth. 2021 is also the first year of China's "14th Five-Year Plan". Trade in agricultural products plays an important strategic role in China's economic development and food security. China is the world's largest importer of agricultural products. At the same time, China is also an important exporter of aquatic products, vegetables and tea. The new crown epidemic has caused a huge impact on the world financial market, international trade in various industries, and industrial development, and will affect the allocation of agricultural resources in China's international and domestic markets to a certain extent; however, due to the vaccination of the new crown vaccine, China has resumed work and production earlier. Against the

background of the long-term impact of the new crown epidemic on the global agricultural product market, China's agricultural product trade has both opportunities and challenges for development.

The balance of supply and demand of agricultural products between countries has been broken, and the ability to complement each other's advantages has weakened. The international trade of agricultural products is based on the theory of comparative advantage. Through the specialization of labor, countries can improve labor productivity. However, under the epidemic, the micro-subjects are restricted by labor flow and logistics and transportation, and the macroeconomic downturn has broken the balance of the international market. Consumer income declines and unemployment risks increase, especially in low-income countries and low-income groups, which have reduced disposable income, resulting in insufficient effective demand and purchasing power. In addition, the epidemic is superimposed by natural disasters, the global agricultural security risks are highlighted, the number of hungry people and countries at risk of hunger has increased sharply, and the UN has warned that the world food crisis is approaching. For this reason, the stagnation of agricultural products caused by the early epidemic will gradually change to a shortage of supply, which magnifies the country's attention to agricultural product reserves. Countries will give priority to meeting domestic demand and reduce the export of related agricultural products. Once the cyclical and seasonality of agricultural trade is forced to interrupt, It will significantly reduce global agricultural output and production efficiency.

Many countries have adopted trade protectionism, which has impacted economic

and trade cooperation between many countries. After the global outbreak of the new crown pneumonia epidemic, many countries around the world have imposed restrictions on agricultural trade. For example, Vietnam and Cambodia have restricted rice exports; Russia has imposed strict export quotas on barley, wheat, corn and other agricultural products; Argentina has raised soybean export tariffs from 30% to 33%, etc. These trade protectionist measures have damaged the international division of labor concept, contrary to the rules of the international free trade system. With the long-term trend of the new crown epidemic, it cannot be ruled out that the situation will further deteriorate in the future. More countries or regions will adopt stricter control over agricultural export trade, or tend to adopt regional cooperation methods to hinder the circulation of the global industrial chain.

The arrival of the new crown epidemic has brought a huge impact on the world agricultural trade. First, due to the extensive influence of weather and the global economic recession, international food prices will rise sharply. First, the global food supply will tighten. Wheat growing conditions are worrying in parts of Russia, and drought in South America's main soybean-producing regions may affect the crop. The second is the reduction of grain production due to the outbreak of the new crown epidemic, which has led to the panic of "grain hoarding" caused by concerns about food security in various countries. For example, countries such as Africa and Southeast Asia are major grain importers, and a large amount of imported grain directly promotes the rise in international wheat prices. . The third is the speculation of international speculative capital. In the context of stimulating the global economic recovery, central

banks around the world cut interest rates and launched loose monetary policies. The arbitrage function of food has been improved, and the bullish expectation of international capital has increased. The intervention of international capital may further push up food prices. International meat prices can remain stable. Since 2019, the rise in global meat prices caused by the spread of African swine fever has been basically controlled. The outbreak of the new crown pneumonia epidemic has curbed international meat consumption demand. Major meats such as the United States, the European Union and Brazil The export volume of exporting countries has increased significantly, and countries with large meat production have also experienced oversupply. After experiencing the sharp rise in prices at the beginning of the new crown pneumonia epidemic, the overall price of meat will return to normal. The international trade of aquatic products and seafood has slowed down. Due to the risk of virus carrying in aquatic and seafood products, the customs of various countries have strengthened the risk monitoring of cold chain food to prevent the epidemic from being imported into their own countries, and consumers' willingness for aquatic and seafood products has been further reduced. Under the impact of the global epidemic, although the development of many industries has been affected and the output has declined, the global dairy output remains stable. In 2021, the EU, the United States, Australia and New Zealand, which are important dairy exporters (regions), except for the United States, will experience a decline in production. In addition, New Zealand's production remained stable, while the European Union and Australia's production increased; but in the future, due to the increase in livestock feed prices affected by the new crown pneumonia

epidemic, it will affect the production of the global dairy industry in the short term. The outbreak of the new crown pneumonia epidemic has a great impact on the vegetable and fruit industries. First, there is a lack of labor. The vegetable and fruit industry is a labor-intensive industry and has a large demand for labor. However, the outbreak of the new crown pneumonia epidemic has led many countries to adopt closed management. The labor force cannot return to work in time, resulting in labor difficulties in vegetable and fruit production and reduced production efficiency. The second is the decline in supply capacity. Affected by the epidemic, many countries have adopted strict restrictions on product imports, improved the quarantine testing standards of agricultural products and expanded the scope of quarantine, which greatly extended the customs clearance time of products and increased the risk of damage to vegetables, fruits and other products. The risk of damage to vegetables, fruits and other products has caused many companies engaged in the trading of vegetables, fruits and other agricultural products to suspend acquisitions and even close processing plants, reducing the supply capacity of various vegetables and fruits. Finally, the transportation is not smooth. The new crown pneumonia epidemic has a huge impact on transportation. Taking China as an example, due to the implementation of regional traffic control measures such as city closures, traffic is not smooth, vegetables and fruits cannot be transported in time, resulting in insufficient supply in some markets. , while the production area of vegetables and fruits have experienced slow sales, resulting in a drop in prices and a reduction in the income of operators. At present, the global agricultural product market will be continuously affected by the epidemic, which will have a continuous adverse impact on the planting area and output of vegetables and fruits.

The first is to build a new pattern of cooperation and opening up with the world agricultural product market and deepen agricultural trade relations. After the outbreak of COVID-19, China advocated the multilateral trading system, and used coordination and cooperation among countries to promote trade and investment liberalization and facilitation, so as to form a more favorable trade environment. For developed regions and countries such as Europe and the United States, there is a strong complementarity in agricultural trade with China. Relying on the signing of the Comprehensive Investment Agreement between China and Europe and the Economic and Trade Agreement between China and the United States, China should further expand corn, soybean and meat products. We will increase the import volume of urgently needed agricultural products such as these, and actively promote the export of agricultural products with Chinese characteristics. It also conducts technical consultations in the fields of pesticides and fertilizers, conducts cooperation and exchanges in agricultural planting and production, strengthens agricultural cooperation between governments and agricultural enterprises, and finds effective ways to break through the green barriers to China's agricultural exports. For important agricultural trade partners in the Asia-Pacific region and countries along the "B&R", with the help of the "Regional Comprehensive Economic Partnership Agreement" and the "B&R" cooperation framework agreement, the level of agricultural trade will be improved, and the import and export trade structure of agricultural products will be actively optimized. Agricultural production costs, improve the green prevention and control technology system for cross-border agricultural pests, increase the research and development of cross-border animal disease

response strategies and technology to reduce pests and diseases, strengthen agricultural assistance and agricultural development support between regions, and promote regional economic cycles to become more reliable , a strong new partnership.

The second is to cultivate new forms of agricultural trade and promote the development of world digital trade. The new crown pneumonia epidemic has promoted the development of the digital economy, and the demand for online transactions has increased significantly. On the one hand, modern information technology is used to hold Internet international agricultural product trade fairs and expositions, and enterprises are encouraged to participate in the exhibition. China's advantageous export of agricultural products and overseas trading partners create market opportunities. On the other hand, new trade formats and models such as cross-border e-commerce are emerging. Through digital technology, trading companies can more easily find overseas counterparties, understand the needs of counterparties in a timely and accurate manner, shorten trade time, and reduce transaction costs. . As a major country in the development of the digital economy, China actively supports the development of digital trade discussions between the World Trade Organization and various countries, participates in the construction of world digital trade rules, and promotes the high-quality development of global digital trade.

The third is to improve the new system of transportation and circulation of agricultural products and reduce the logistics cost of international trade of agricultural products. The international trade of agricultural products has the characteristics of large transaction volume and difficult preservation. Therefore, most of the international

logistics are transported by railway and ocean. The transportation of perishable agricultural products relies on refrigerated containers or air transportation. There are imperfect and imperfect places, especially in economically underdeveloped areas, there are still problems such as relatively backward cold chain transportation technology and high international logistics costs. It is urgent to improve the modernization level of agricultural product circulation. In the future, China will strengthen the construction of logistics infrastructure, promote the connection between agricultural production areas, consumer markets and trading companies, implement overseas warehouse construction, reduce the rate of corrosion during the transportation of agricultural products, and improve circulation efficiency; in addition, it must build stable logistics channels, Understand and master the new crown pneumonia epidemic prevention and control policies implemented by various trading countries, promote the construction of multi-channels by sea, land and air, enhance transportation capacity, and ensure the smooth flow of international supply chains.

Finally, China's agricultural product trade must adapt to the new international situation and continuously improve the ability of the agricultural industry chain to resist risks. The first is to speed up the establishment of overseas production bases for agricultural products. Due to specific national conditions, China has a large population, huge demand for agricultural products, and insufficient arable land resources per capita. It relies too much on the import of agricultural products and cannot guarantee domestic food security. Mongolia, which borders China's territory, Countries such as China, Russia and other countries are rich in land resources, but lack development funds and

human resources, which form an effective complement to China's rapid economic and technological development and less per capita arable land. Therefore, vigorously developing overseas agricultural cooperation and exploiting the surplus land resources of cooperative countries has a win-win demand and broad prospects. The second is to further improve the monitoring of international agricultural product information. At present, China has a relatively complete information monitoring system in domestic agricultural production, processing, and circulation informatization, but lacks an effective monitoring and analysis system for information related to international agricultural trade, resulting in foreign trade companies facing different channels and platforms. , when different calibers of information appear at a loss. In view of the problem of insufficient information services in China's agricultural public service system, it is necessary to speed up the construction of China's own agricultural product supply and demand analysis system that can guide the allocation of domestic and foreign resources, and to continuously monitor the world's major agricultural product production and trading countries and key crop varieties, so as to keep abreast of and Master the dynamic changes in the production and output of important global agricultural products, the policy environment for agricultural trade, and market transactions, to provide effective information support for China's agricultural foreign investment and agricultural product trade enterprise decision-making, and to promote investment and trade development in the agricultural field.

As a part of the international trade of world commodities, agricultural trade is linked with the production and consumption of agricultural products. In this article,

agricultural products as the research object refer to agricultural products as consumer goods, that is, agricultural products trade used for direct consumption. The trade of agricultural products is of great significance in meeting the needs of people's life and consumption, promoting the development of agricultural production and promoting economic development. According to the specific classification of agricultural products, by using the agricultural product trade data in the FAO database and the agricultural product trade data in the UNCommodity Trade Statistics Database according to different regions, it is found that different types of agricultural products have different production and sales markets, agricultural product production is greatly affected by natural geographical conditions, and different natural resource endowments produce different agricultural products. The agricultural product market in different regions also has different demands for different types of agricultural products. The agricultural product trade is most affected by the natural conditions of various countries (regions). At the same time, with the continuous development of agricultural product technology, to some extent, it will have an important impact on the export barriers, trade structure, flow direction, etc. of agricultural product trade. Therefore, all countries in the world should fully combine their natural resource endowments to plant and produce crops suitable for their own climate, soil, geographical environment, etc., and actively carry out agricultural science and technology research to improve the level of agricultural production technology, so as to create good conditions for the development of domestic agricultural trade.

### **Conclusion to section 3**

A study of the agricultural trade between China and Ukraine shows that the two countries have frequent agricultural trade exchanges and are good agricultural trade partners. In the competitive analysis of agricultural products trade, Ukraine has obvious advantages in exporting agricultural products to China; However, there are obvious differences in the categories of agricultural exports between the two countries. In the international agricultural market, the competitiveness of agricultural exports between China and Ukraine is not strong. As for the complementarity of agricultural products trade between the two countries, it can be seen that China is the largest market for Ukrainian agricultural products exports, and the degree of importance is also growing. The trade complementarity between China's exports and Ukraine's imports of agricultural products is weaker than that between Ukraine's exports and China's imports of agricultural products. In the future, there will be greater space for cooperation and development in agricultural products trade between the two countries.

## CONCLUSION

As a part of the world commodity trade, agricultural products trade has always been valued by countries all over the world because it involves basic issues such as food security and social stability. Through reading relevant literature, this paper draws on previous research methods and achievements, and selects research paths from specific classification of agricultural products to markets, from regional markets to specific agricultural products, and the relationship between different agricultural products markets to conduct in-depth and systematic analysis of the global agricultural trade market. The main conclusions of this paper are as follows:

1. As an important part of world commodity trade, agricultural trade also has a significant impact on national food security and social stability. Apply trade research theories such as factor endowment theory to analyze the current situation of trade in different types of agricultural products and different agricultural product markets, including the development process of agricultural products trade in specific countries or regions, trade flow, natural resource endowment, product structure, etc., to find the factors that affect trade development and the ways to promote trade development. In this way, the agricultural product markets of different countries (regions) in the world can realize the development of agricultural product trade.

2. The World Food and Agriculture Organization database is used to make statistics and analysis on the trade volume, import and export flow and other data of eight agricultural products, including grain (rice, wheat, corn), soybean, cotton, fruit, vegetables, meat, aquatic products and dairy products from 2011 to 2020. It is found that

Europe is the main export region of wheat in the world, and Asia is the main import region of wheat in the world; America is the main region of world soybean export, and Asia is the main region of world soybean import; Africa is the main region of world cotton export, and Asia is the main region of world cotton import; Asia is not only the main region of world fruit export but also the main region of import; Asia is the main region of vegetable export in the world, and Europe is the main region of vegetable import in the world; America is the main region of world meat export, and Asia is the main region of world meat import; Asia is the main export region of the world's aquatic products, and Europe is the main import region of the world's aquatic products. This shows that the categories of agricultural products imported or exported from different markets in different regions are very different. The natural resource factor endowment, economic development and government policies in different regions have a significant impact on the export or import demand of agricultural products.

3. According to the statistics of the UNCommodity Trade Standards Database and geographical divisions, the world agricultural market is divided into six continents: Asia, Europe, Africa, Oceania, North America and South America. Overview of the total import and export trade volume of the world agricultural products market from 2011 to 2020, Europe ranks first in the world, accounting for 41.68% of the total import and export trade volume of global agricultural products; Asia ranks second in the world, accounting for 29.09%; The third place is North America, accounting for 16.05%; The fourth place is South America, accounting for 6.79%; The fifth place is Africa, accounting for 3.78%; The sixth place is Oceania, accounting for 2.60%. From the static

analysis of the import and export trade of agricultural products market, it can be seen that China accounts for the largest proportion of the total import and export of agricultural products in Asian countries; Germany accounts for the largest proportion of the total import and export of agricultural products in European countries; Egypt accounts for the largest proportion of the total import and export of agricultural products in African countries; Australia accounts for the largest proportion of the total import and export of agricultural products in Oceania; The United States accounts for the largest share of the total imports and exports of agricultural products in North America; Brazil accounts for the largest share of the total imports and exports of agricultural products in South America. This shows that agricultural trade is closely related to the economic development level of regions and countries, and can promote the short-term and long-term development of regional and national economies.

4. Through the study of Ukrainian agricultural trade, we can know that Ukraine is rich in agricultural resources and is known as the "granary of Europe". From 2011 to 2020, the import and export of agricultural products in Ukraine showed an overall growth trend, and the total import and export of agricultural products increased by 46.21%; Among them, the export trade of agricultural products grew strongly, with a growth rate of 70.18% from 2011 to 2020. In terms of import trade of agricultural products, from 2011 to 2020, the total import trade volume decreased by 0.43%; In terms of trade balance, the import and export trade of Ukrainian agricultural products has been in a surplus, with the export volume exceeding the import volume. This shows that agricultural products in Ukraine are export-oriented products and also the main commodities of export trade.

5. By studying China's agricultural trade, we can know that China is a big agricultural country, agricultural trade plays an important role in China, and China's agricultural import and export trade shows an overall growth trend. In terms of trade volume and growth rate, import trade accounts for a large proportion and plays an important role in China's agricultural trade. China is a big importer of agricultural products. In terms of the trade balance of agricultural products import and export, China's agricultural products trade has been in a state of trade deficit, with imports exceeding exports.

6. The competitiveness of agricultural products trade between Ukraine and China is analyzed by using the indicator of comparative advantage (RCA). The result is that Ukraine has obvious advantages in exporting agricultural products to China; However, there are obvious differences in the export types of agricultural products between the two countries. In the international agricultural market, the export competitiveness of agricultural products between China and Ukraine is not strong. The trade complementarity index (TCI) is used to analyze the complementarity of agricultural products trade between the two countries. It shows that there is strong complementarity in agricultural products trade between the two countries. The trade complementarity between Chinese agricultural products export and Ukrainian agricultural products import is weaker than that between Ukrainian agricultural products export and Chinese agricultural products import. China is the largest market for Ukrainian agricultural products export. In the future, the agricultural products trade between the two countries will have greater cooperation and development space.

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## **APPENDICES**

## APPENDICES A

Use the statistical database of the Food and Agriculture Organization of the UN to collect data on the import and export trade volume of grain (wheat, rice, corn) agricultural products from 2011 to 2020

The screenshot displays the FAO FAOSTAT interface for configuring a data download. The main navigation bar includes the FAO logo, the text "Food and Agriculture Organization of the United Nations", and a search bar. Below the navigation bar, the "FAOSTAT" title is followed by a menu with options: Home, Data, Selected Indicators, Compare Data, Definitions and Standards, and FAQ. A search bar for indicators or commodities is also present.

The current page is titled "Crops and livestock products" and includes a "Back to domains" button. Below the title, there are three tabs: "DOWNLOAD DATA", "VISUALIZE DATA", and "METADATA".

The main content area is divided into several sections for data selection:

- COUNTRIES:** A search bar with "Filter results e.g. afghanistan" and a list of regions including "World + (Total)", "World > (List)", "Africa + (Total)", "Africa > (List)", and "-- Eastern Africa + (Total)". The "World + (Total)" option is selected.
- ELEMENTS:** A search bar with "Filter results e.g. import quantity" and a list of elements including "Import Quantity", "Import Value", "Export Quantity", and "Export Value". The "Import Value" and "Export Value" options are selected.
- ITEMS:** A search bar with "Filter results e.g. abaca, manila hemp, raw" and a list of items including "Watermelons", "Wheat", "Wheat and meslin flour", "Whey cheese", and "Whey, condensed". The "Wheat" option is selected.
- YEARS:** A search bar with "Filter results e.g. 2021" and a list of years from 2017 to 2021. The years 2017, 2018, 2019, and 2020 are selected.

At the bottom of the main content area, there are four sections for output configuration:

- Output Type:** Radio buttons for "Table" (selected) and "Pivot".
- File Type:** Radio buttons for "CSV" (selected) and "XLS".
- Thousand Separator in 'Show Data':** Radio buttons for "None" (selected), "Comma", and "Period".
- Output Formatting Options:** Checkboxes for "Flags", "Notes", "Codes", "Units", and "Null Values".

At the bottom of the page, there are two large buttons: "Show Data" and "Download Data".

On the right side of the page, there is a sidebar with the following content:

- Crops and livestock products:** A heading for the current page.
- The food and agricultural trade dataset is collected, processed and disseminated by FAO according to the standard International Merchandise Trade... Show More**
- Food and Agriculture Organization of the United Nations (FAO)**
- Bulk Downloads:** A table listing download options and their sizes:
 

All Data	78.85 MB
All Data Normalized	115.32 MB
All Area Groups	29.6 MB
Africa	10.31 MB
Americas	8.97 MB
Asia	12.79 MB
Europe	14.25 MB
Oceania	2.48 MB
- Last Update:** December 23, 2022
- Related Documents:** Links to "Trade" and "Update history".
- Suggested Reading:** Links to "Default coding and flags" and "Analytical brief".
- Definitions and standa...** (button)
- Metadata** (button)
- Term of Use:** "Statistical Database Terms of Use" (link)

APPENDICES B - 1

Use the statistical database of the Food and Agriculture Organization of the UN to collect data from the five countries with the largest total or average import or export trade volume of wheat from 2011 to 2020

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**FAOSTAT**

Data Selected Indicators Compare Data Definitions and Standards FAQ

Search an Indicator or

Crops and livestock products Back to domain...

DOWNLOAD DATA VISUALIZE DATA METADATA

Item: Wheat Area: United States of America From Year: 2011 To Year: 2020 Aggregation: Average

**Exports of top 5 exporters of Wheat Average 2011 - 2021**

Country	Export Quantity (1000 metric tons)
United States of America	~35
Russian Federation	~25
Canada	~15
France	~10
Australia	~5

**Imports of top 5 importers of Wheat Average 2011 - 2021**

Country	Import Quantity (1000 metric tons)
Egypt	~15
Indonesia	~10
Algeria	~8
Italy	~7
Brazil	~5

**Exports of Wheat in United States of America 2011 - 2020**

Year	Export Quantity (1000 metric tons)
2011	~35
2012	~25
2013	~35
2014	~25
2015	~20
2016	~25
2017	~30
2018	~25
2019	~30
2020	~28

**Exports of top 5 exporters of Wheat Average 2011 - 2020**

Country	Export Quantity (1000 metric tons)
United States of America	~35
Russian Federation	~25
Canada	~15
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**Imports of top 5 importers of Wheat Average 2011 - 2020**

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**Exports of Wheat in United States of America 2011 - 2020**

Year	Export Quantity (1000 metric tons)
2011	~35
2012	~25
2013	~35
2014	~25
2015	~20
2016	~25
2017	~30
2018	~25
2019	~30
2020	~28

**Crops and livestock products**

The food and agricultural trade dataset is collected, processed and disseminated by FAO according to the standard International Merchandise Trade... Show More

Food and Agriculture Organization of the United Nations (FAO)

**Bulk Downloads**

Category	Size
All Data	78.85 MB
All Data Normalized	115.32 MB
All Area Groups	29.6 MB
Africa	10.31 MB
Americas	8.97 MB
Asia	12.79 MB
Europe	14.25 MB
Oceania	2.48 MB

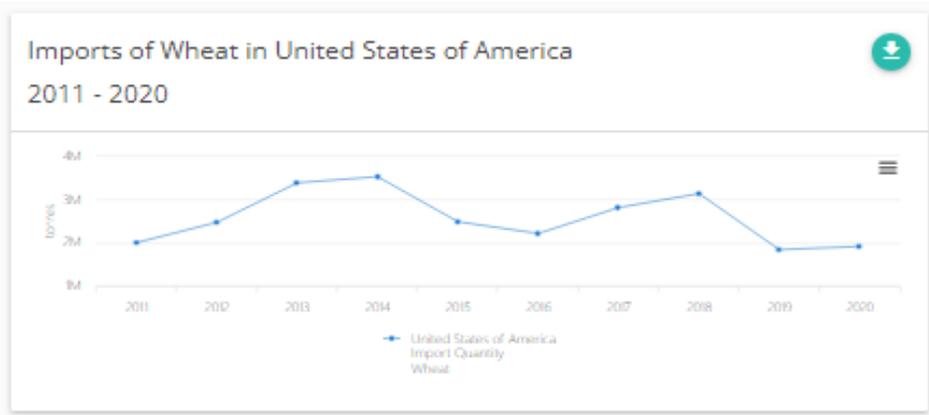
**Last Update**  
December 23, 2022

**Related Documents**

- Trade
- Update history

**Suggested Reading**

APPENDICES B - 2

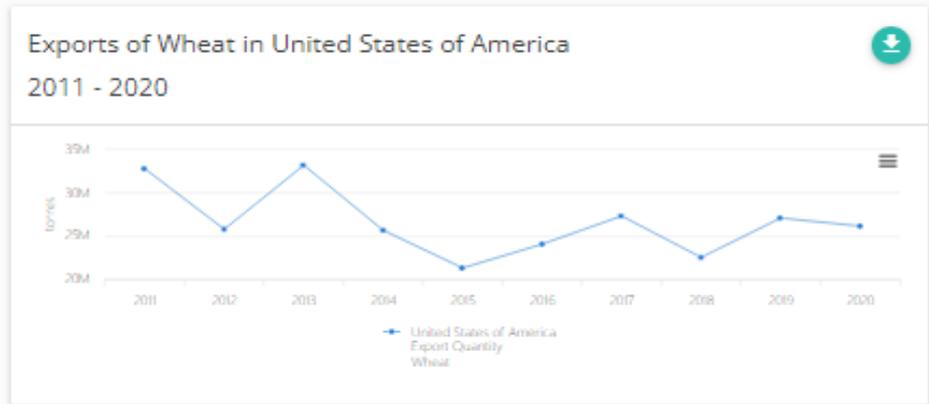
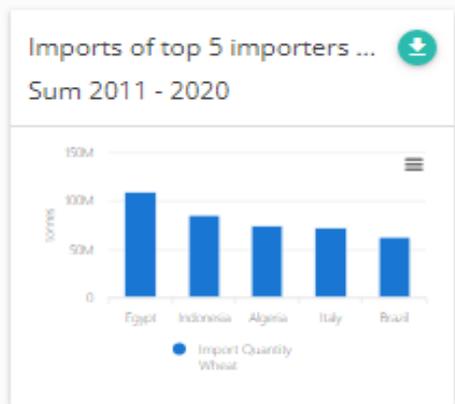
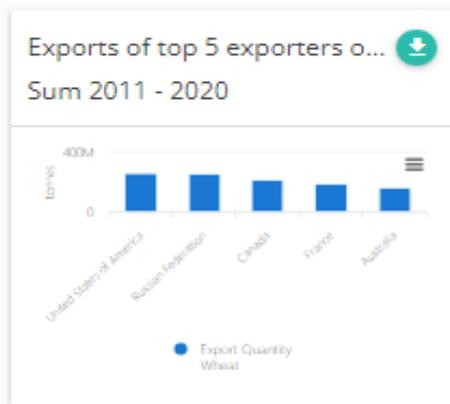


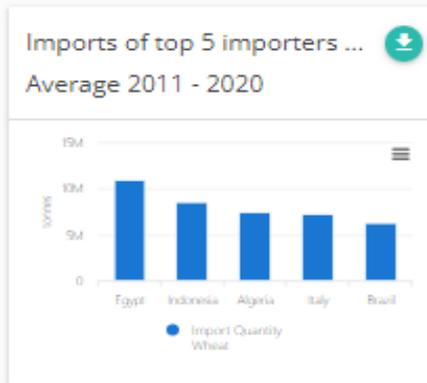
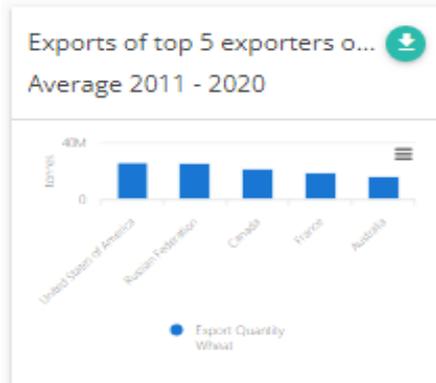
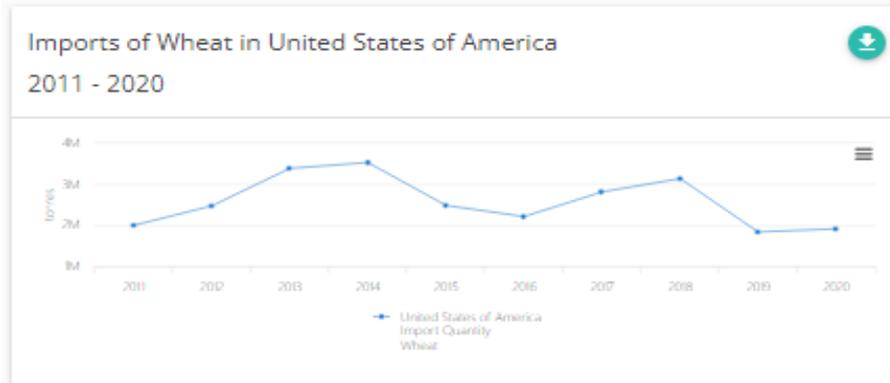
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[Analytical brief](#)

[Definitions ...](#)

[Metadata](#)

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Climate, Biodiversity, Land and Water Department  
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## APPENDICES C

Use the UN Comtrade database and the classification method of agricultural products of SITC, Rev. 4 to collect data on the total import and export trade between Ukraine and China from 2011 to 2020

The screenshot displays the UN Comtrade Database search interface. The top navigation bar includes 'United Nations', 'Department of Economic and Social Affairs', 'Statistics Division', and 'Trade Statistics'. The main header is 'UN Comtrade Database' with options for 'Data', 'Bulk Files', 'Visualization', 'Metadata', 'Publications', 'References', 'My Comtrade Free', and 'Logout'.

The 'Trade Data' section features a search filter area with the following settings:

- What are you looking for?**
  - Type of Product: Goods
  - Frequency: Annual
  - Classifications: SITC
- Refine your search**
  - SITC Rev. 4 commodity codes: 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 21, 22, 23, 24, 25, 26, 29, 41, 42, 43
  - Periods (year, month): 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020
  - Reporters: Ukraine
  - Partners: China
  - 2nd Partner: China
  - Trade Flows: Import, Export
  - Mode of Transport: TOTAL modes of transport
  - Customs Code: Select
- Set your query options**
  - Breakdown Mode: Plus
  - Aggregate By: None

Buttons for 'Preview', 'Download', and 'Deliver' are visible. Below the filters, a table shows the results:

Period	Trade Flow	Reporter	Partner	2nd Partner	Customs Desc	Transport Mode	Commodity Code	Trade Value (US\$)	Net Weight(kg)	Gross Weight	Qty Unit	Qty	Alternate Quantity Unit	Alternate Quantity
2017	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	09	\$2,876,060			N/A		N/A	
2017	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	11	\$15,046			N/A		N/A	
2017	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	22	\$2,988,961			N/A		N/A	
2017	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	23	\$447,892			N/A		N/A	
2017	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	24	\$114,135			N/A		N/A	
2017	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	25	\$343,552			N/A		N/A	
2017	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	26	\$3,109,056			N/A		N/A	
2016	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	26	\$2,436,584			N/A		N/A	
2016	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	25	\$621,315			N/A		N/A	
2016	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	24	\$196,569			N/A		N/A	
2016	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	23	\$282,043			N/A		N/A	
2017	X	Ukraine	China	China	TOTAL CPC	TOTAL MOT	09	\$194			N/A		N/A	
2017	X	Ukraine	China	China	TOTAL CPC	TOTAL MOT	11	\$1,973,055			N/A		N/A	
2017	X	Ukraine	China	China	TOTAL CPC	TOTAL MOT	12	\$363			N/A		N/A	
2017	X	Ukraine	China	China	TOTAL CPC	TOTAL MOT	21	\$264,881			N/A		N/A	
2017	X	Ukraine	China	China	TOTAL CPC	TOTAL MOT	22	\$663,467			N/A		N/A	
2017	X	Ukraine	China	China	TOTAL CPC	TOTAL MOT	24	\$5,455,504			N/A		N/A	
2017	X	Ukraine	China	China	TOTAL CPC	TOTAL MOT	26	\$295,040			N/A		N/A	
2016	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	22	\$1,093,597			N/A		N/A	
2016	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	12	\$131			N/A		N/A	
2016	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	11	\$14,117			N/A		N/A	
2016	M	Ukraine	China	China	TOTAL CPC	TOTAL MOT	09	\$2,793,303			N/A		N/A	
2016	X	Ukraine	China	China	TOTAL CPC	TOTAL MOT	26	\$322,031			N/A		N/A	
2016	X	Ukraine	China	China	TOTAL CPC	TOTAL MOT	24	\$3,660,661			N/A		N/A	
2016	X	Ukraine	China	China	TOTAL CPC	TOTAL MOT	22	\$804,738			N/A		N/A	

At the bottom of the page, there are links for 'My API Portal', 'Premium Services', 'Jump To', and 'Help & Support'. The footer contains 'Copyrights © United Nations 2022.', 'Data Disclaimer', and 'License Agreement'.