
Review and System Construction of Chinese Food Security in the New Era

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Abstract: Food is related to the national economy and people's livelihood. Food security is the "ballast stone" that maintains social stability and is an important foundation for national security. With the vigorous advancement of Chinese industrialization, urbanization, modernization, and informatization, Chinese food security and development are in trouble in the new era. There are ecological environmental pollution and declining quality of cultivated land, resource shortage and rigid growth of demand, insufficient subsidies and limited production scale and other issues. These problems will lead to a growing gap in grain supply and demand year by year, which to some extent restricts the sustainability of grain supply. At the same time, these problems have "crowding out effect" on grain scale production. Therefore, this paper analyzes the foothold, point of view, focus point and equilibrium point of Chinese food security strategy and grasp Chinese food security strategy from a macro perspective. On this basis, it makes a rational review of Chinese food security issues in the new era. A guarantee system is constructed based on the improvement of farmland protection system, the development of grain through science and education, the development of grain through ecology, use of two market resources, and increased subsidies, to ensure the long-term, stable and sustained security of Chinese grain.

Keywords: New Era, Food Security, Problem Review, Security System

1. Introduction

Food is the basic means of production and living materials for human survival and development. Food security is related to the development of the national economy and social stability. China is a world's most populous country, a major grain producer and a major consumer of food. It attaches more importance to food security than any other country in the world. [1] In recent years, the Party Central Committee and the State Council have always viewed food security issues from a strategic perspective. In 2014, the no. 1 central document stated clearly that "keeping the rice bowl firmly in your hands is a basic principle that must be adhered to for a long time in the governance of the country". The no. 1 document of the central committee of the communist party of China in 2016 put forward the strategy of "storing grain in the ground" and "storing grain in the technology", which calls for de-stocking, structural adjustment, improvement of quality, cost reduction, integration promotion and short supply, accelerating the transformation of agricultural development

mode, and forming a more efficient, effective and sustainable supply. After the 19th congress, socialism with Chinese characteristics entered a new era. Under the new social environment and economic background, general secretary Xi Jinping has put forward the strategy of "Rural Revitalization" and reiterated the concept of "holding a prison rice bowl". Highlighting the importance of agricultural production capacity in the 2018 central no 1 document, he stressed: "strictly observe the farmland red line and ensure national food security".

In 2015, Chinese grain output achieved a historical "continuous increase", which not only guaranteed the security of national grain ration, but also laid a material foundation for the steady and healthy development of Chinese economy and society under the new normal environment. [2] However, with the vigorous promotion of industrialization, urbanization, modernization and informatization in China, the supply and demand of grain are out of balance, and grain production is also facing adverse factors such as labor shortage, shortage of agricultural resources, and deterioration of ecological

environment. Therefore, Chinese grain security and development are in trouble. Thus, it is of great practical significance to analyze the strategies and problems of Chinese food security in the new era, and to construct the safeguard system on the basis of attribution.

2. Overview of Chinese Food Security Strategy in the New Era

Since the 18th national congress of the communist party of China (CPC), general secretary Xi Jinping has made a profound interpretation of the path of food security with Chinese characteristics based on his continuous study of world conditions, national conditions and agricultural conditions. [3] In 2013, the central economic work conference put forward a new national food security strategy of "focusing on ourselves, based on the domestic market, ensuring production capacity, moderate import and scientific and technological support", and continuously explored new approaches and new requirements in practice. A scientific understanding of the strategic implications and transformation of Chinese food security is conducive to accelerating the country's agricultural modernization development, helping rural revitalization and realizing a socialist modern power on the basis of building a moderately prosperous society in all respects.

2.1. *Grasp the Strategic Foothold and Adhere to the Principle of "Focusing on Me and Based on China"*

General secretary Xi Jinping has pointed out that "the problem of food for Chinese people is basically solved based on domestic conditions", which is also the strategic premise and strategic basis of Chinese food security. According to Chinese basic national conditions, the rice bowl of our people should contain Chinese own grain and firmly grasp the initiative in the food issue. By the end of 2017, Chinese population has reached nearly 1.4 billion. With such a huge number of people, it is not a long-term policy to rely on the food bought. On the one hand, the grain size of the international market is limited, which cannot meet Chinese total grain demand. On the other hand, buying food to meet the basic needs of survival is bound to put our country into a passive position. If the international market raises food prices, it will not only cause great losses to our economy, but also undermine our friendly relations with other developing countries. Based on this, only by "focusing on ourselves and basing ourselves at home", and taking into account the production, ecology, improvement of scientific and technological level and development of modern grain circulation industry, can the grain problem of Chinese 1.4 billion population be sustainably and firmly guaranteed.

2.2. *Focus on Strategic Priorities and Always Give Top Priority to Ensuring Basic Self-Sufficiency of Grain and Absolute Security of Grain Ration*

Under the historical conditions of backward economy in the past, the central government emphasized "protecting all,

protecting all". However, with the continuous improvement of social and economic level and the deepening of new urbanization, a large amount of land has been developed in China. Faced with the gradual reduction of agricultural land and the gradual increase of population, the Chinese Government must give up and retain some pressure. Therefore, the scope of "safeguard" in the strategy has been narrowed. Based on the assessment and analysis of the future supply and demand situation of Chinese agricultural products and the resource conditions, the strategic choice is "safeguard ration". The traditional Chinese diet is mainly plant-based and the staple food is grain. Among them, rice and wheat are the most common grain ration varieties in China. According to the region, people in the north like pasta, while people in the south like rice, with the proportion being 40% and 60% respectively. However, the current number of cultivated land in China is fixed, which requires us to strictly observe the red line of cultivated land, rationally allocate resources, ensure the priority production of rice and wheat, achieve absolute safety, and stabilize the area of more than 450 million mu and 340 million mu respectively, and ensure 100% self-sufficiency rate. The second is "cereal", which refers to rice, wheat and corn, which account for 90% of Chinese total grain output. Corn, as an important feed and industrial food, is a key problem in food structure. In the era of rapid economic development, people's demand for it also presents a rapid growth.

2.3. *Grasp the Strategic Focus and Strive to Ensure Production Capacity, Strengthening Scientific and Technological Support*

"ensuring capacity" is a strategic priority, and "scientific and technological support" is a strategic key. The security strategy should consider not only short-term benefits, but also long-term development. In the face of the fact that the grain demand will reach 140 trillion jin by 2020, showing a rigid growth, coupled with uncontrollable and unstable factors such as climate change and ecological pollution, general secretary Xi Jinping stressed that "quantity and quality should be given equal attention". In the past, the Chinese have been willing to pay ecological and environmental costs to meet the target of grain production. Under the guidance of strategy, the Chinese Government will change this situation. To enhance Chinese comprehensive grain production capacity and fundamentally guarantee the stability of grain development, the first is to "store grain in the ground". Cultivated land is the lifeblood of grain production, so the Chinese Government must not only protect the quantity of cultivated land, but also improve the quality of cultivated land. [4] To ensure production capacity, it is an important prerequisite to maintain the red line of farmland, and the demarcation of permanent basic farmland is an important guarantee to ensure that "land is available for planting". In addition, the strategic plan is to build 800 million mu of high-standard farmland for drought and flood protection and irrigation by 2020, which is also an important way to strengthen the construction and management of farmland quality. Next is "hide grain at skill". Under the severe situation of increasingly strengthened resource constraints such as

farmland, water conservancy and labor force, the only way to ensure the increase of grain production is to develop agricultural science and technology. Since the 18th national congress of the communist party of China, breakthroughs have been made in agricultural and rural scientific and technological work, and the contribution rate of agricultural scientific and technological progress has increased from 53.5% in 2012 to 57.5% in 2017. In 2016, Chinese comprehensive mechanization rate of crop cultivation and harvest accelerated, reaching 65%. It can be seen that agricultural science and technology contribute a lot to the increase of grain yield in China, and also have a greater room to play in the new era.

2.4. Strike a Strategic Balance and Import Agricultural Products Moderately, Making Good Use of Two Resources and Two Markets

"Moderate import" is an important means to implement the strategy and guarantee Chinese food security. On the premise of basic self-sufficiency of grain and absolute safety of grain ration, in the face of insufficient land, water and resources, it is also necessary to make rational use of the international market to fill the gap of domestic demand, and it is also a feasible way to grasp the degree. From the strategic choice of "moderate import", Chinese food security has changed. In the past, the Chinese Government considered the issue of food security in an economic closed environment. Now, China is more open to solve the problem, which can not only make domestic food consumption more diversified, but also contribute to resource conservation and cost reduction. Specifically speaking on the one hand, it is necessary to improve the situation that special varieties such as strong gluten wheat, weak gluten wheat and beer barley are in short supply. On the other hand, the Chinese Government need to do a good annual balance adjustment, which needs to be adjusted through import and export and inventory in the case of uncertainty. In addition, if wanting to coordinate the international and domestic markets, the Chinese Government needs to grasp the scale and rhythm. In the case of no impact on the domestic market and no negative impact on the increase of farmers' income, the pressure on domestic resources and environment can be alleviated through the right amount of imports to replenish domestic inventory.

3. A Rational Review of Chinese Food Security in the New Era

3.1. Ecological Environment Pollution and Declining Farmland Quality Restrict the Sustainability of Food Supply

During the 13th five-year plan period, Chinese economy turned to endogenous quality growth, and adhering to the development mode of resource conservation and environmental protection became the core guidance for promoting agricultural modernization.[5] In the new era, general secretary Xi Jinping stressed that "we should adhere to

the concept of promoting green new economic development". However, China has been an extensive mode of agricultural production for many years, which has caused a lot of waste of resources and destruction of the ecological environment. In the past, the Chinese Government blindly pursued the increase of grain output. In order to meet the targets, farmers used chemical inputs such as fertilizers, pesticides and herbicides in large quantities and unreasonably for a long time, and the input volume reached 2.5 times of the world level. It did lead to a rapid increase in food production in a short time, but it also led to over-exploitation of agricultural resources and severe overdraft of ecological environment. In addition, many people have poor awareness of environmental protection. As a result, household waste, factory sewage, slag and even heavy metals are discharged at will, causing pollution and erosion to a small amount of cultivated land in China. Problems such as soil compaction, farmland degradation, shallow tillage, and decreased ability to maintain water and fertilizer have arisen. «The National Soil Pollution Survey Communiqué» released by the ministry of land and resources in 2017 shows that "the overall over-mark rate of soil in China is 16.1%, of which the over-mark rate of cultivated land is 19.4%, of which the over-mark rate of cultivated land is 13.7%, 2.8%, 1.8% and 1.1%, respectively." It can be seen that the quality of farmland and the ecological environment have become the biggest threat to Chinese food security, exacerbating the vulnerability of food supply.

As China pushes ahead with the building of a moderately prosperous society in all respects, the consumption structure of residents is undergoing a transformation from the pursuit of food and clothing to the focus on food safety, nutrition and health. Land is essential for food production, and the quality of soil is in proportion to the health of people's rations. Therefore, in the new normal of economy and the new era of agricultural supply-side structural reform, the Chinese Government not only pay attention to quantity, but also must consider quality to ensure the sustainability of Chinese grain supply.

3.2. The Shortage of Resources and the Rigid Demand Growth Lead to the Gap of Grain Supply and Demand Year by Year

Resource constraints on Chinese grain production are increasingly tight, mainly referring to the impact of arable land and water resources on food security production. Although Chinese grain output has been increasing rapidly, the severe situation of land area reduction and water resource shortage cannot be ignored. The improvement space of grain sown area depends on the abundant degree of cultivated land, but with the occupation of cultivated land by construction land, returning farmland to forest, etc., Chinese cultivated land has been in a rapid decline. In 1996, the arable land area in China was 1.951 billion mu, but in 2009, it decreased to 1.826 billion mu. Although the implementation of the national farmland protection system recovered in the following years, the obstacles to farmland number still existed. Therefore, the central government clearly issued the instruction that "the red line of Chinese cultivated land of 1.8 billion mu cannot be

broken", and firmly did not allow the situation of restricting the grain production potential due to the serious shortage of cultivated land area. Grain production is a kind of high water consumption industry. Moreover, there is a regional imbalance in Chinese water resources. Divided by the Yangtze river, the south region has more water and less farmland, while the north region has more water and arable land. It can be seen that the shortage of water resources and the contradiction of food production are increasingly prominent.

However, with the improvement of living standards of Chinese residents, the diet structure has also been adjusted accordingly, and the demand for feed grain and industrial grain has increased significantly. In addition, Chinese population base is large, and the population will continue to increase in the basic national conditions. In the future, Chinese grain consumption demand presents a rigid growth, which will lead to the gradual increase of grain production pressure. If demand and supply are asymmetrical for a long time, the gap between them is widening year by year, which will bring the extreme instability of Chinese food security.

3.3. The Simultaneous Promotion of "four Modernizations" in China Has "Crowding Out Effect" on the Large-Scale Grain Production

Today, with the increasingly prominent features of the new normal of economy, and the new era of industrialization, urbanization, informatization and modernization (referred to as "four modernizations"), the external environment of Chinese agriculture and rural areas and the situation of food security have undergone major changes. By the end of 2011, China had left the era of rural society as the main body and entered a new era of urban society as the main body. [6] Food security is the foundation of agricultural modernization, and agricultural modernization is the guarantee of food security. However, agricultural modernization, new urbanization and food production security are in conflict. It can be seen that to solve the food security problems in agricultural development in the new era is of certain complexity and difficulty. The "four modernizations" in China have a "crowding out effect" on the grain production in your rural areas, mainly manifested in: first, the accelerated pace of urbanization has changed the population structure and strengthened the rigidity of the grain consumption demand. According to 《The 13th Five-year Plan》, by the end of the 13th five-year plan, about 60 percent of the country's permanent population will be urbanized, and about 100 million rural migrants and other permanent residents will be settled in urban areas.[7] This will lead to the loss of a large number of rural labor force dominated by young men, leaving only the elderly, women and children as major producers of agricultural food, which will affect the quantity and efficiency of rural food production without advanced science and technology and sufficient physical strength. In addition, population mass transfer leads to the reduction of grain production and the increase of consumer demand multiple dilemma. Second, the vigorous promotion of industrialization has accelerated the demand for industrial grain. After the reform and opening up, Chinese industry has

developed rapidly, and the demand for industrial grain and feed grain has risen in a straight line, which has become the second largest source of grain consumption in China. Third, industrialization and urbanization have reduced the area of farmland in rural areas, making it difficult to form large-scale production. In China, agriculture is mainly operated by small-scale farmers, with low production cost and high production per plot, which makes it difficult to achieve scale efficiency. Fourthly, the high cost and low benefit grain production is not attractive to farmers in the economic environment. Compared with migrant workers, agricultural production benefits are relatively low, and they have to bear the risk of low production brought by natural disasters, which leads to decreased enthusiasm of farmers for grain production and restricts the development of food security in the power mechanism.

4. Construction of a System to Guarantee Chinese food Security in the New Era

Food security is not only an economic issue, but also a political one. "As long as there are no major problems with food, Chinese affairs will be stable," Xi Jinping said. Safeguarding national food security is an eternal topic. In the new era, facing new problems, building a food security guarantee system is an important measure to ensure food security, and it is also the meaning of the new strategy for implementing food security.

4.1. Establish and Improve the Farmland Protection Mechanism to Stabilize Grain Output

Protecting farmland is our lifeline and ensuring food security. Under the condition that the unit yield is basically stable, without a considerable amount of grain acreage, the grain yield cannot be guaranteed and the grain security cannot be talked about. With the rapid development of economy, the quantity and quality of Chinese cultivated land decrease. Land is the carrier of grain production. Urbanization and industrialization should not be carried out at the expense of farmers' farmland. Therefore, the Chinese Government must implement the strictest possible farmland protection system, stabilize the area sown with grain, strictly control the newly built and occupied farmland, ensure that the total amount of farmland is more than 1.8 billion mu, and ensure that the basic farmland is not less than 1.56 billion mu.[8] On the one hand, the state should introduce and improve relevant laws and regulations, formulate relevant policies to protect rural farmland, strictly implement the basic farmland protection system, do a good job in basic farmland census and regular inspection, and firmly adhere to the "red line" of basic farmland. On the other hand, the government and land management departments should strictly implement the land use management system and examination and approval system, prevent the abuse of land at the source, and ensure the long-term food security mechanism of "storing grain on the ground" from the perspective of farmland management.

4.2. Transform Grain Production Mode Based on Science and Education and Green Ecology to Achieve Sustainable Development of Grain

"2018 should take supply-side structural reform as the main line, achieve high-quality development as the goal, keep the safety bottom line, and strive to build a 'higher-level, higher-quality, more efficient and more sustainable' food security guarantee system," emphasized by the 2018 national food circulation work conference. At present, facing the ecological crisis of grain planting, China should fundamentally change production mode to solve the grain problem. More attention should be paid to science, education and ecological improvement. On the one hand, agricultural science and technology is taken as the carrier to improve the utilization rate of agricultural resources. At the 2018 work conference of the Chinese academy of agricultural sciences, it was pointed out that "the contribution rate of agricultural scientific and technological progress in China has exceeded 56%". Although the growth is relatively fast, there is still a big gap between China and developed countries. Therefore, related departments should increase investment in scientific research, strengthen the construction of basic irrigation and water conservancy facilities, and promote the construction of national-level breeding and seed production bases. The Chinese Government will develop biotechnology and information technology in digital agriculture, prevention of meteorological disasters, and protection of agricultural resources, and accelerate the establishment of a service platform for agricultural science and technology. In addition, the state should strengthen vocational training, cultivate new business entities and develop large-scale rural production on the basis of solving the problem of the loss of rural elites. On the other hand, the Chinese Government should strengthen the concept of ecological civilization in the process of grain production. The Chinese Government need to strictly control pollution from industrial sewage and household garbage on arable land, and promote the use of green, efficient, low toxicity and low residue of pesticides, or use green pest control and pest control methods to protect the quality of farmland and ensure the quality of rations. The Chinese Government will further develop ecological agriculture, organic agriculture, circular agriculture and original ecological agriculture, and establish an agricultural ecological compensation mechanism to prevent non-point source pollution. In a word, in the process of modern agricultural development, the Chinese Government should establish the concept of green and low-carbon development, actively develop resource-efficient and environment-friendly agriculture, and constantly enhance the sustainable development capacity of agriculture.

4.3. Tree Bottom Line to Import Moderately and Use Global Resources to Ease Domestic Production Pressure

The gap in Chinese grain production and demand has become the new normal, which is also an urgent problem to be solved in the new era of China. It is necessary to explore the

use of both domestic and foreign resources and the overall planning of both domestic and foreign markets from a strategic perspective to plan the implementation of the new national food security strategy. In 2013, China became the world's largest importer of wheat and rice. Prior to this, Chinese main food crops, wheat, corn and rice, have also been net importers. Experts at the Expert Advisory Committee on National Food Security Policy in 2018 discussed that "the self-sufficiency rate of rice and wheat is high, all above 95%". It can be seen that the proposal of "moderate import" strategy has played a greater role. Therefore, the Chinese Government should continue to set a bottom line, make active use of international markets and resources, and organically combine domestic grain production with imports. This can not only make up for shortfalls, but also effectively avoid the impact of international agricultural market fluctuations on the production and market of major agricultural products such as domestic grains. In particular, the Chinese Government should grasp the scale and pace of imports and keep the Chinese rice bowl firmly in the hands of our own people to prevent the concentrated import of certain varieties from affecting domestic production and bringing adverse effects to the increase of farmers' income.

4.4. Improve the Subsidy Mechanism for Food Production and Give Play to the Incentive Function of Food Support Policy

Agricultural subsidies have a significant positive impact on farmers' grain production, grain sown area and capital input, and play a positive role in promoting Chinese grain production.[9] However, the proportion of per capita subsidies for Chinese farmers in total income is very low, and there is a big gap compared with developed countries. American farmers get 40 percent of their income from agricultural subsidies, compared with less than 4 percent in China. At present, the Chinese Government must change the inefficient situation of agricultural subsidies and let the country's financial resources focus on subsidies for food production. In the framework of the policy of "benefiting farmers", the Chinese Government should increase the intensity of "benefiting grain" and improve the precision and orientation of subsidies. First, the Chinese Government should expand the scope of grain subsidies, increase subsidies for large farmers, family farms, farmers' cooperatives and other new operators, and support large-scale grain production to improve production efficiency. Secondly, the Chinese Government should integrate and optimize agricultural subsidy varieties and subsidy projects. The Chinese Government can appropriately explore new subsidy methods, such as increasing agricultural ecological protection, agricultural technology innovation and informatization projects. Third, the Chinese Government should raise the grain subsidy standard and establish a dynamic subsidy standard system. The Chinese Government should take factors such as rising prices and rising costs into account to ensure that the subsidy exceeds the increase in costs. Thus, agricultural production needs and farmers' income growth will continue to increase.

5. Conclusion

Agriculture is the foundation of the national economy. Only when a country achieves basic self-sufficiency in food can it grasp the overall situation of economic and social development. Excessive population, rigid food demand and limited agricultural resources have made Chinese grain supply and demand in a state of tension for a long time, which has become one of the shortcomings of Chinese economic and social development.

In today's economic globalization, the government should take domestic resources and markets as the main body to ensure farmers' grain-growing interests, and to stabilize grain-growing areas. The government should improve food production through policy innovation, science and education, and infrastructure construction. The government should simultaneously make full use of international and domestic resources, importing high-quality, reasonably priced food from abroad to make up for the gap between domestic supply and demand. In addition, the government should continuously improve the agro-ecological environment to ensure the sustainability of Chinese food security, and to promote the modernization and healthy development of Chinese agricultural economy.

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Biography



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