



Comparative Analysis of China-US Grain Security Policies from the Russia-Ukraine Conflict

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Abstract. As the most important grain producers and exporters, Russia-Ukraine conflict may bring about a major change in the global grain trade system. This paper believes that although the impact of the grain security on China and the United States is short-term, many diffusion crises caused are long-term. By comparing new policies of China and the US, China needs to optimize its food policy, take multiple measures and guard against the “domino” effect.

Keywords: grain security; Russia-Ukraine conflict; Policy Comparison.

1 Introduction

In the face of Russia-Ukraine conflict, China's food policy is constantly making new changes. The process of building a moderately prosperous society in all respects is also the process of China's continuous improvement of agricultural defects. China's food policy focuses on quantity, farmland, circulation, reserve and consumption. While the U.S. food policy pays more attention to structural adjustment. It focuses on production, commercialization, subsidies, biotechnology, and resources.

2 Literature Review

According to statistics, only 11-28% of the world's people can meet the demand for specific food within a radius of 100 kilometers, vast majority still depends on exported. [1] Through multiresolution analysis, scholars also get the influence of Geopolitics on grain prices, and the causal relationship between the Russia-Ukraine conflict and grain security.[2]

The research on grain security mainly focuses on country case, technological innovation, financial subsidies and so on. There is a lack of research on policies and crisis oriented. The policy of "smart manufacturing initiative" is an important guiding strategy for China. Market supply and demand play a fundamental role in the price formation process, while the government cooperates with appropriate intervention and gives necessary subsidies to farmers.[3]

The grain security strategy of the US has gone through the development from food aid to the food cold war, and then to the food loans and establishment of the WTO. The most famous "Food for Peace" is the most competitive part. It keeps with the times, and is forward-looking and progressive.

The Russia-Ukraine conflict has triggered a crisis of "tsunami" spread,[4] and this paper lies in its practical value and innovation of research perspective.

3 Policy Comparison

Both China and the United States have an active crisis management for food. They have derived new policies from the following aspects under Russia-Ukraine conflict.

3.1 New Food Security Policy of China and the United States

Financial Subsidies.

China's 2022 Central Document No. 1 put forward a series of preferential policies focusing on food at the beginning. The Executive meeting of the State Council on April 20, proposed to increase the crop's minimum purchase price and subsidies for "one gush 3 prevent" of wheat. Subsequently, on July 1, China proposed to accelerate the establishment of a subsidy mechanism of farmers. In addition, China's provinces have various food subsidies and loan policies, the policy is highly independent.

The US Rescue Plan at the beginning of 2022 increased assistance to poultry, and allocated \$3 billion in the "Additional Ukraine Supplemental Appropriations Act, 2022" to safeguard global food security. On May 11, Biden announced three policy shifts to help farmers, including increasing the number of "double cropping" countries, precision farm management, and double investment in fertilizers. Besides, benefits like CRP, EQIP, crop insurance, disaster payment are continuously subsidized.

Plant and Technology.

In China, soybean oil, wheat, corn and rice are the main grain varieties, and always insist the strategy of "smart manufacturing initiative". The No.1 Document of the Ministry of Agriculture and Rural Affairs proposed to accelerate the biotechnology breeding project, and increase 100 million mu of high standard farmland.

The U.S. regards soybean as main industry. The Agribusiness Innovation Center established on June 8 will provide technical assistance to agriculture, then upgrade of grain processing and feed business proposed on June 20. In addition, government and NGO interact with the world in science and technology frequently.

Resource and land protection.

China pays attention to the sustainable food system, and has added green planting and conservation cycle projects. Besides, the Black Land Protection Law was put into practice on August 1, which also strengthened the recycling of plastic film. In terms of agriculture and economy, "dual circulation" is the key word.

The U.S. Department of Agriculture reiterated the protecting of forest on June 22, and put forward the Bio product Pilot Program by Bipartisan Infrastructure Law on June 28. Environmental protection proposals were offered in the Paris Climate Accords, the area of protective agricultural land are increasing.

Supply Chain.

China has a fairly perfect mechanism to further ensure supply and stabilize prices of grain, and is developing temporary purchase and storage policies. Furthermore, China proposes to build a market synergy mechanism for "staple food" and "non-staple food". Perfect grain circulation supervision system is also being promoted.

2022 the U.S. Family Plan increases Food Aid, and on June 1, Biden announced to invest \$ 2.1 billion to the construction of food supply chain. Subsequently, the Healthy Food Financing Initiative and the Child Feeding Act was established, making healthy food a key target.

Warning and Recovery.

There are many disaster prevention and reduction mechanisms of grain in China. The market price monitoring system of forage and the grain contingency plan system are improving. Based on the 2022 Chinese Dietary Guidelines, the expert evaluation system for big-food is also being established.

The 10-year Wildfire Crisis Strategy proposed by the U.S. on April 11 and several new emergency relief payments to farm families and animals reflect the concern for food security from farm to table.

4 Policy Analysis

The following is a summary of the new food policies of China and the U.S. by Russia-Ukraine conflict and simplifies them into table I.

4.1 Summary of China's policy

China's new policy shows great importance to the protection of arable land.

From the perspective of grain production and resources, increasing arable land is a good way.[6] The destruction of arable land in the process of rapid economic development and agricultural industrialization has become a major threat to China's grain security. Arable land, as a resource that plays a role in ensuring grain security, is also the least affected by wars outside the region and the most critical factor.

China's new policy shows strong support for agricultural enterprises.

China has helped agricultural enterprises and farmers through large investment and various credit efforts, reduced the risks brought by conflict, and increased the enthusiasm of agricultural personnel. With the help of international cooperation such as the

"the Belt and Road" and food aid, China has carried out multiple agricultural cooperation and established a more favorable discourse right and international image.

China's new policy shows breakthroughs in agricultural technology.

There are difficulties in traditional agricultural technology and breeding, lack of high-quality grain varieties, and long-standing challenges in mechanized harvesting and planting. Therefore, China pays attention to the research and development of technology, puts forward new schemes in improving agricultural production efficiency, and promotes new products that can establish cooperation at home and abroad.

China's new policy emphasize sustainable agricultural industry chain.

China's new grain security policy integrates the diversity of the market, closely links R & D, production, processing, storage, transportation, consumption and others, gives full play to the leading role of the agricultural industry, and establishes a perfect closed-loop model of the whole domestic agricultural industry chain.

4.2 Summary of the U.S.'s policy

The new U.S. policy attaches importance to global food governance.

The U.S. continues its consistent intention of developing a integrated global food system through agricultural liberalization and global cooperation. Food aid has not been reduced under the conflict, and even promoted further trade cooperation, reflecting the great advantage in coordinating its own food supply with the world.

The new U.S. policy is characterized by high quality and full coverage.

The U.S. is the core of the global food system. From the Household Food Security in the United States in 2020, 89.5% of American households can ensure food security. Its food policy focuses on nutrition, while the National Food and Agriculture Research Institute has made "strengthening nutrition security" the primary goal of the government and added a variety of nutrition programs.

The new U.S. policy is dominated by macro-control.

The grain security policy of the U.S. has formed a framework of "market regulation plus macro regulation". Market regulation takes the lead and has become an invisible force that controls global food prices. As the largest national strategic resource, the U.S. grain policy firmly controls the leading power of the world food supply.

The new U.S. policy focus on ranking first in the global industry.

Although the planting area is limited, the level of scientific and technological plant in the U.S. has greatly improved the yield of bean crops. It took the lead in developing transgenic technology in 1976, and the mechanized and organized modern planting structure of soybeans also showed great economic advantages in this conflict.

The new U.S. policy shows a high degree of agricultural modernization.

The U.S. is one of the first countries to implement precision-farming. It has formed an international grain vision, advanced agricultural machinery and a relatively complete supply chain.[7] Meanwhile, the strategy continues to expand the construction of precision-farming and conservation farmland under the Russia-Ukraine conflict.

Table 1. Policy Review

<div>Feature</div> <div>Country</div>	China	The United States
<i>emphasis</i>	Absolute food security	Nutrition and Global cooperation
<i>subsidies</i>	universal	Grasp the main point
<i>technology</i>	Initial stage	Modernization , Mechanization
<i>supply chain</i>	Sustainable	Stable first place
<i>regulation</i>	Country vigorously support	Free economic regulation
<i>Family-farm</i>	Less land per capita	More land per capita

Characteristics of the new food policy.

5 Policy Suggestion

Russia-Ukraine conflict has damaged the primary links of the global supply chain and sharply increased export prices. Therefore, China should pay more attention to developing food security policies.

- China should rationalize the proportion of capital input. Sudden crises such as the Russia-Ukraine conflict have accelerated the cyclical changes in food security. Storage is the confidence, so China should emphasis on both supply and production. Therefore, the amount of direct subsidies should be increased, the comprehensive cost by farmers should be reduced, and the direction of land, machinery, disaster resistance and repayment ability that affect production capacity should be adjusted and rectified in an all-round way.
- China should improve planting structure and primary products with international experience. China's degree of self-sufficiency has been maintained at more than 95%, which is a solid category to ensure grain security. More specific policies can be formulated to encourage the sale and publicity of products whose domestic production exceeds demand, such as rice and wheat, so as to alleviate the demand for varieties with less output, such as corn and soybeans. Yield is also important, obtain as much output as possible in the limited arable land, efficiently use the relatively scarce resources and technologies, improve productivity.
- China should deliver more specific resources protection policies, early warning and recovery mechanisms. It is necessary to protect arable land like giant panda. In the open system of agriculture, the environment and arable land are the key to China's food security. We should correctly handle the relationship between green agriculture, environmental protection and grain security, establish an early warning and

protective agricultural mechanism with specific measures, and ensure a sufficient and clean production environment for food.

- China should solve the "bottleneck" problem of technology and safeguard the sustainable development of grain security. Strengthening scientific research on food, and promoting the construction of an agricultural power, especially high-speed upgrading channels in genetically modified backward areas. At the same time, China also needs to promote technology experiments in multiple regions, and promote new technologies in sowing, production, harvesting and other links, so as to truly realizing the strategic goal of "Smart Manufacturing Initiative".

6 Conclusions

The U.S. policy stabilizes domestic grain production and supply through the huge subsidy, and agriculture has long been integrated with the financial and other social levels with highly resilient. As the primary content of the "dual circulation" strategy in recent years, China has continuously made breakthroughs in upgrading high technologies and all-round guarantee system for other grain related issues.

The conflict under globalization is not just a war between two countries. As world-class agricultural countries, Russia and Ukraine have suffered a disaster in the global food system, which has had a profound negative impact on global supply. By comparing the new policies of China and the U.S. to deal with grain security, this paper gives China some policy suggestions for future food development.

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