



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Guarantee Strategy for the Safety of Agricultural Industry in Hunan Province

Wenxing XIAO, Shuhan GUO *

Business College of Hunan University of Technology, Zhuzhou 412007, China

Abstract The safety of agricultural industry in Hunan Province shows an upward trend from "basically safe" to "very safe", but the state in the "safe" or "very safe" range is still unstable. In view of this, Hunan Province should guarantee the agricultural production ability, cultivate and enhance the core competitiveness of agriculture, firmly grasp the agricultural control power, attach importance to the export quality of agricultural products and other aspects to ensure the safety of agricultural industry.

Key words Safety of agricultural industry, Comprehensive support and guarantee, Developing agriculture through science and technology

1 Introduction

Hunan Province produces 6% of grain, 8% of cotton, 13% of citrus, 6% of *Camellia oleifera* seeds, 11% of pork and 8% of fresh water products on only 3.2% of cultivated land in China, having a solid industrial foundation for developing modern agriculture.

There are still some problems in the agricultural development of Hunan Province, such as low investment in agriculture, low processing rate of agricultural products, low contribution rate of science and technology to agriculture, extensive growth mode of agricultural production, slow technological progress and fragile agricultural infrastructure. Especially, the quality rate of agricultural and sideline products in the province is less than 40%. In the short term, it is difficult to change the long-term situation that the comparative benefit of agriculture is low, farmers can't get the average profit of society, leading enterprises are not strong enough, and the level of agricultural industrialization is low. To a certain extent, there are "three low" problems—low processing and conversion rate of agricultural and sideline products, low commercialization degree of agricultural products and low income level of farmers. In some places, land is abandoned. If foreign countries stop exporting grain to China, the consequences will be serious. International agricultural competition has become the competition among agricultural industrial chains. With the deepening of agricultural division of labor, whether agricultural products are competitive depends not only on farmers' planting skills, but also on the level of improved varieties, agricultural materials, processing, storage and transportation, marketing and other links, as well as the corresponding industrial chain support systems such as science

and technology, information, logistics and finance.

With the transfer of a large number of high-quality rural laborers to non-agricultural industries, farmers engaged in agricultural production have low quality, lack modern technical knowledge and management concepts, and often the more they plant, the greater their losses, so that they simply engage in agricultural production with the goal of ensuring rations, which reduces the multiple cropping index of agriculture and becomes "ration" agriculture. Imperfect infrastructure, lack of clear and feasible policy support, low technical level of agricultural production, deterioration of ecological environment of cultivated land, and high market risk of agricultural products income, *etc.*, more or less affect farmers' enthusiasm for agricultural production. Therefore, for the economic incentive of farmers, we should form a new idea of government leadership, market optimization and science and technology promotion, which is very important to the safety of agricultural industry in Hunan.

In view of the new development situation, Hunan agriculture should seize the opportunity, adjust the industrial structure, improve the competitiveness and create a new situation.

2 Constructing and improving the comprehensive support and guarantee system of agricultural industry

2.1 Optimizing the structure of financial input and improving the efficiency of financial subsidies

2.1.1 Reorganizing funds for supporting agriculture to achieve optimal allocation. We must integrate all kinds of funds for supporting agriculture and increase financial input year by year, and establish and improve the long-term mechanism of financial support for agriculture. It is necessary to explore the financial policy of supporting agriculture by combining "generalized system of preference" with "preferential system", so that the business entities really engaged in agricultural production can get more subsidies. It is necessary to focus on supporting key industries and projects of agricultural industrialization, improving water conservancy in bases, and supporting deep processing of agricultural products, agricultural improved seed projects, agricultural technology popu-

Received: December 19, 2023 Accepted: January 8, 2024

Supported by Hunan Provincial Philosophy and Social Science Fund Project "Hunan Agricultural Industry Safety Assessment and Early Warning Research" (22YBA161).

Wenxing XIAO, PhD., professor, master tutor, research fields: financial theory and financial engineering, industrial economics.

* Corresponding author. Shuhan GUO, master candidate, research fields: industrial finance research.

larization and agricultural science and technology demonstration.

2.1.2 Adhering to equal emphasis on extension and connotation enhancement, supporting and expanding key industries and leading enterprises. (i) It is necessary to carry out the "four batches" actions, that is, to guide and transform a batch, support and expand a batch, increase investment promotion and capital introduction for a batch, use external forces to support a batch; cultivate agricultural industrialization projects with high added value of products, strong industrial driving force, and large scale and strong competitiveness in advance; support enterprise R&D centers, scientific and technological achievements information platforms and technology trading platforms, so as to cultivate and form leading enterprise groups that combine primary processing with deep processing and integrate all industry links. (ii) According to the principle of classified guidance, supporting the superior and the strong, and making breakthroughs in key areas, special support of "one policy for one enterprise" should be implemented, and a group of leading enterprises with development potential should be selected for key cultivation. At the same time, it is necessary to guide leading enterprises to set up group companies and gradually form agricultural economic belts, regional economic belts and characteristic economic belts. (iii) Focusing on the construction of advantageous and characteristic agricultural product bases, efforts should be made to build a number of large-scale, standardized, intensive and commercialized modern agricultural communities. It is necessary to strengthen the integration of funds for supporting agriculture, implement project support and fund concentration, and focus on supporting the construction of modern agricultural communities. In accordance with the principles of law, voluntariness and compensation, it is necessary to mobilize, encourage and guide industrial and commercial capital, leading enterprises, capable farmers and farmers' professional cooperative organizations to lease and contract, or absorb farmers to participate in holding shares with land use rights, actively promote land circulation, implement large-scale, intensive and standardized planting and breeding, and cultivate a number of modern agricultural bases. (iv) We should encourage and guide all kinds of social capital to invest in agricultural industrialization, and form a multi-level and all-round centralized investment coordination mechanism.

2.2 Improving the rural financial support system and optimizing the competitive environment of agricultural products

At present, the development of urban and rural finance in Hunan Province is uncoordinated, and the problems of rural financial repression and marginalization are still serious. Therefore, it is necessary to define the financial department's responsibility for supporting agriculture. It is necessary to define the responsibilities of financial institutions in supporting agriculture and serving food security. It is necessary to increase subsidies and support for agriculture-related loans.

3 Strengthening the strategy of developing agriculture through science and technology

Innovation is the core of agricultural generation capacity. Ag-

ricultural science and technology innovation is the fundamental way to transform traditional agriculture. At present, small-scale production and loose cooperative management still occupy the dominant position in Hunan Province, and the scientific and technological content of agricultural products is low, which makes it difficult to meet the requirements of modern agricultural development. To realize the transformation from traditional agriculture to modern agriculture, the key is to break through the bottleneck of resources with the help of scientific and technological innovation and achieve the goals of high yield, high efficiency, high quality and ecological security.

3.1 Encouraging and supporting leading enterprises to establish technical service teams and carry out scientific and technological innovation and technical services

It is necessary to encourage leading enterprises to cooperate closely with colleges and research institutes, establish agricultural science and technology research and development centers, intensify scientific and technological research, focus on research and promotion of scientific and technological projects, accelerate the transformation of scientific and technological achievements, and enhance the scientific and technological level of agricultural industrialization.

3.2 Starting with the project of revitalizing agriculture through science and technology to further promote the reform of the management system of agricultural science and technology and the construction of an alliance for collaborative innovation of agricultural science and technology

It is necessary to further rationalize the service system of agricultural technology extension in villages and towns and better carry out scientific and technological services. Focusing on the integration of Internet + and agriculture, it is necessary to promote science and technology into villages and households and build an agricultural science and technology service cloud platform, improve the efficiency of agricultural technology extension services, enhance farmers' agricultural science and technology knowledge reserves, and improve the level of agricultural intelligence and precision. Agricultural technicians and graduates of various colleges and universities should be encouraged to engage in business-oriented scientific and technological services, including scientific and technological consultation, scientific and technological training and scientific and technological contracting. It is necessary to gradually increase investment in agricultural technology extension and earnestly strengthen scientific and technological training for farmers.

4 Promoting the "going out" strategy of agriculture

Hunan Province should rely on the "the belt and road initiative" to improve the support system of agricultural "going out" policy, and strengthen organization and supervision.

4.1 Giving full play to the main role of enterprises in the implementation of the "going out" strategy and strengthening the cultivation of large multinational agricultural enterprises

It is necessary to select as soon as possible a group of multinational agricultural enterprises with a certain scale and a good foundation

for development, experience and foundation in foreign agricultural investment and development and strong economic strength for key support, so as to build a number of powerful multinational agricultural enterprises that can operate flexibly and develop flexibly in the international agricultural industrial chain and the international agricultural product market, and form a powerful international agricultural enterprise with Chinese identity that can compete with the four major multinational agricultural enterprises.

4.2 Establishing global agricultural industrial chain In order to enhance the international competitiveness of Hunan agriculture, it is necessary to make reasonable distribution and long-term planning in agricultural scientific research, agricultural material research and development, production, processing, logistics, warehousing and sales, so as to form the control ability of the whole industrial chain. For example, it can be extended to agricultural production-related fields, provide technical training and services for local producers, and exchange technology and services for products and markets and can be extended to infrastructure construction and lay out the logistics system of agricultural product transportation. The government should actively support China's agricultural enterprises to lay out key nodes of the global agricultural industrial chain, guide and support agricultural enterprises to expand into capital and technology-intensive industries in processing, logistics, warehousing and docks, and key areas with high scientific and technological content such as R&D, so as to upgrade the level of foreign investment and optimize the structure of foreign agricultural investment.

5 Strategies for improving the quality and safety of agricultural products

It is necessary to strengthen the management of agricultural product market, establish and improve the supervision mechanism, and speed up the construction of traceability system for agricultural product quality and safety.

(i) It is necessary to realize transparent management of agricultural product transactions, carry out quality inspection on agricultural products, and take emergency recall measures for problematic agricultural products. At the same time, in order to maintain the image of agricultural products in Hunan Province, the agricultural product market should set up a list of black and red enterprises, and it is strictly forbidden for those illegal enterprises to flow unqualified agricultural products into the agricultural product market, thus damaging the overall image of agricultural products in Hunan Province. It is necessary to strictly control various technical standards and pollution indicators of organic food, encourage producers of agricultural products to use organic fertilizers, and make producers of high-quality agricultural products get benefits.

(ii) It is necessary to establish an information platform for agricultural product quality and food safety that can be traced and shared throughout the whole process, speed up the application of traceability technology for agricultural product quality and safety, and implement a labeling system for high-quality agricultural

products.

(iii) We should take various measures to strengthen the organization and management in the production process of agricultural products for export and improve the international competitiveness of agricultural products. For example, we should use biological control technology to control crop diseases and pests, try to choose low-toxic pesticides, and reduce the residues of pesticides in exported agricultural products; irrigate crops with clean water sources that are not polluted; use sanitary organic fertilizer and reduce the amount of pesticides used. At the same time, aiming at the international market, we should focus on developing organic food without synthetic pesticides, fertilizers and production regulators, and comprehensively advocate the business philosophy of "developing green enterprises for foreign exchange earning, making green appreciate and making green enrich the people".

(iv) We must continue to strengthen the declaration, certification, publicity and promotion of famous agricultural product brands. It is necessary to actively participate in all kinds of large-scale agricultural exhibitions and agricultural product publicity and promotion activities to promote Hunan's famous agricultural products in all directions, and explore the markets outside the province and foreign markets. It is necessary to continuously expand the quantity, popularity and market share of famous brand agricultural products, especially the publicity and promotion of pollution-free agricultural products, green and organic foods. It is necessary to focus on cultivating leading industries and characteristic agricultural product brands involving chestnut, tea, *C. oleifera* and live pigs, and develop series brand products by classification and variety to form scale, enhance strength and improve efficiency.

6 Maintaining the safety of agricultural industry in accordance with the provincial conditions

The world is facing the crisis of depletion of traditional energy, and agricultural production is a circular economy using solar energy, which is profitable. We should proceed from the provincial conditions and maintain the safety of agricultural industry. First of all, for abandoned land, the responsible person should be directly found, fined, and even the contracting right should be cancelled. Secondly, we should stop some large projects, transfer funds to farmers, and restore irrigation and water conservancy. Thirdly, it is necessary to increase grain prices in advance, sign contracts to pay farmers in advance, and encourage farmers to grow grain.

Hunan province should take the opportunity of implementing the *Outline of the Development Plan of the Yangtze River Economic Belt* to strengthen cooperation with Zhejiang, Shanghai and other developed provinces in the Yangtze River Economic Belt in agricultural technology research and development. It is necessary to research and develop new technologies, deepen independent innovation and transformation of achievements, introduce excellent new varieties, make extensive use of high-quality scientific and

(To page 21)

5 Health assessment of Niligou Reservoir

Through the health assessment of ecological condition and service function of Niligou Reservoir, Niligou Reservoir was classified into the grade of very healthy, with 97.4 points for hydrological integrity, 50 points for chemical integrity, 80.5 points for mor-

phological and structural integrity, 70 points for biological integrity, and 80 points for sustainability of social service function. After weighted calculation, the health assessment of Niligou Reservoir was assigned 75.5 points (Table 4). Hence, Niligou River was in a healthy state.

Table 4 Health scoring of Niligou Reservoir

Name	Hydrological integrity		Chemical integrity		Morphological structure integrity		Biological integrity		Sustainability of social service function		Health assessment	
	Score	Weight	Score	Weight	Score	Weight	Score	Weight	Score	Weight	Score	Weight
Niligou River	97.4	0.2	50	0.2	80.5	0.2	70	0.4	80	–	75.5	Healthy

6 Suggestions

6.1 Ensuring the discharged ecological flow of Reservoir and reducing the impact of human activities on runoff The upstream of Niligou River is an important forest and swamp ecosystem and water collection area, and also an important guarantee of water resources security in Niligou River and Badaogou River basin. It is also an important habitat for rare and endangered wildlife resources such as *Mergus squamatus*. Niligou River Basin, with crisscrossing river network and good habitat conditions, is a good wetland community and habitat for rare wild animals and plants, thus becoming a key protection area in the Yalu River Basin. Niligou River mainly aims to protect the health of water environment, so it is advocated to reduce manual intervention, thus realizing natural succession of river ecosystems by self-metabolism.

6.2 Effective measures should be taken to control water quality in Niligou Reservoir Scientific and effective protection measures should be taken to further improve the ecological structure of Niligou River and Niligou Reservoir, and improve the het-

erogeneity and stability of habitat. The treatment of agricultural water pollution in Niligou River should be strengthened to intensify pollution control and management in tourist areas. Water resources in the river basin must be allocated scientifically, ensuring the ecological water demand of Reservoir wetland through ecological replenishment.

6.3 Adjusting the industrial structure and rationally developing eco-tourism The conservation of fish resources and the protection and restoration of their habitats in Niligou River can be realized through the rational planning of fishery production and tourism industry.

References

[1] Annals Compilation Committee of Changbai Korean Autonomous County. Annals of Changbai County. Changchun: Jilin Literature and History Publishing House. (in Chinese).

[2] Baishan Bureau of Hydrology. 2022 Water Resources Bulletin. Retrieved from <http://www.cbs.gov.cn/>. (in Chinese).

[3] NI HX. China's agricultural industry security under open conditions [EB/OL]. http://www.agri.gov.cn/V20/SC/myyj/201410/t20141023_4114003.htm. (in Chinese).

[4] WAN BR. Suggestions on ensuring the three major agricultural safety in China[J]. Agricultural Economic Issues, 2015 (3): 4 – 7. (in Chinese).

[5] LI N, LI AJ, WANG XM. Evaluation of China's agricultural industry safety based on DEA model[J]. Statistics and Decision Making, 2017 (18): 69 – 71. (in Chinese).

[6] ZHOU H. Research on safety evaluation of China's agricultural industry from the perspective of anti-dumping[J]. Modern Economic Discussion, 2018(7): 62 – 69. (in Chinese).

[7] LI JP. Research on the impact of the expansion of agricultural multinational corporations in China on China's agricultural industry security[D]. Luoyang: Henan University of Science and Technology, 2019. (in Chinese).

[8] MA YR. Ensuring the safety of agricultural industry and comprehensively promoting rural revitalization[J]. China Development Watch, 2020 (24): 21 – 25. (in Chinese).

[9] Institute of Agricultural Economics and Development, Chinese Academy of Agricultural Sciences, China Agricultural Industry Development News 2021[D]. Beijing: Chinese Academy of Agricultural Sciences, 2021. (in Chinese).

References

[1] TONGEREN V. Global models applied to agricultural and trade policies: A review and assessment[J]. Agricultural Economics, 2001(26):149 – 172.

[2] ENGLE RF, RANGEL JG. The Spline-GARCH model for low-frequency volatility and its global macroeconomic causes[J]. Review of Financial Studies, 2008, 21(3):1187 – 1222.

[3] GU GD, FANG CL. Research on domestic transmission path and asymmetry of agricultural product price fluctuation[J]. Agricultural Technology and Economics, 2011(3): 12 – 20. (in Chinese).

[4] WANG XY. Research on trade liberalization and industrial security in developing countries [D]. Dalian: Dongbei University of Finance and Economics, 2012. (in Chinese).

(From page 16)

educational resources, and further expand foreign scientific and technological cooperation and exchanges. It is necessary to focus on cultivating leading industries and characteristic agricultural product brands involving live pigs, Camellia oleifera, tea and chestnut according to local conditions, and develop series brand products by varieties and categories, so as to form scale, enhance strength and improve efficiency.