An Analysis of the Economic Development Prospects and Strategies of Rice Industry

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Abstract: Rice as one of China's important grain, the development of rice industry has a great impact on China's economy. As the rice production technology in the Chinese market is not enough to meet the needs of agricultural development in the new era, it is necessary to strengthen the innovation of rice varieties and continuously develop rice varieties that meet market demand, thus expanding the international market share of China's rice industry. In view of this, this paper puts forward the current problems in the rice industry by analyzing the elements of the new agricultural development of rice. Based on this, a solution is put forward to enhance the competitiveness of China's rice industry in the international market.

1. Research Background

1.1 Literature review

Hybrid rice technology is a grain production enhancement technology invented in China. With the continuous innovation of rice cultivation technology, China's hybrid rice cultivation is at the international leading level (Lian et al., 2013).In recent years, China's agriculture has become more and more demanding of hybrid rice, hybrid rice development has encountered new bottlenecks, hybrid rice yield, anti-reversal and rice quality need to be improved (Xu et al., 2018). Therefore, in maintaining domestic hybrid rice cultivation, China needs to expand its foreign markets and enhance the competitiveness of Chinese enterprises in the international market for rice (Zhao, 2013). Due to the limited nature of rice industry, coupled with the impact of the new agricultural era on hybrid rice, people's demands on rice resistance, yield, rice quality and so on are getting higher and higher, hybrid rice breeding and cultivation can not be mechanized production, which has a great impact on traditional rice. At present, some Chinese companies have coped with these problems, but most still have many problems, and the solution to them is not clear (Wang, 2012). Therefore, in order to solve the problems encountered by the development of Rice industry in China, this paper analyzes the current situation of rice industry and puts forward new ideas for the development of rice industry (Jin, 2014).

1.2 Purpose of research

Under the new agricultural era, agricultural mechanization is becoming more and more popular. Since the reform and opening up, although the area under rice cultivation in China has decreased, the yield of rice has been increasing. The emergence of hybrid rice has greatly increased rice yield and made great contributions to the economic development of China's rice industry. Rice occupies the main position in Chinese grain, the hybrid rice varieties are not enough to meet the market demand, in order to ensure the quality of rice and the normal supply of rice, hybrid rice research and development and rice industry development need to be changed. China Rice Industry Corporation can promote the development process of local hybrid rice by establishing overseas hybrid rice research and development and planting by in line with international standards.

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2. The Current Situation of Rice Industry Development in China

2.1 Specialized rice production

In order to meet market demand, rice needs to develop different varieties, according to the order of the classification of planting. Specialized production is divided into feed rice, edible rice and industrial rice. According to different uses of specialized production, adjust the proportion of rice cultivation, the development of rice economy. Foreign countries early in the special grain research, such as the United States produced special wheat and special corn, the proportion of the united States accounted for 90% of the production of 90% (Luo and Zhang, 2016. Although China's development is relatively late, the pace of development is unusually rapid. According to statistics, China's special wheat development area in 2001 was only 2.3 million hm2, while in 2002 the development area doubled, accounting for 20% of the country's total wheat cultivation.

2.2 Regionalized layout of rice

According to the rice variety, market demand, and planting environment, the rice is scientifically planned. Planning the advantageous rice areas and developing large-scale, high-demand and distinctive rice varieties through the analysis of rice-growing areas, market demand and the overall layout of the country (Zhang, 2018). The regional layout of rice cultivation needs to stand on the overall view of the country, break the restrictions of small families and regions, overcome the traditional agricultural restrictions, and establish the concept of large market and big industry.

2.3 Standardized management

The development of rice industry should be in line with national standards and market demand, and the production and processing technology of pollution-free, organic and green rice should be implemented to improve the quality of rice. The standard system consists of four aspects. First, the standardization of rice varieties. High-quality edible rice appearance, yield, cooking, taste quality needs to be strictly controlled, should meet the national standard of high-quality rice consumption requirements (Wu, 2018). The state stipulated that the rice yield should be greater than 8.25 tons /hm2, the protein content is greater than 12%, and the direct chain starch content is 23% to 27%. Second, the rice cultivation environment is standardized. In the rice-growing area, water pollution, pesticides and other harmful substances can not exceed the standard, strictly abide by the provisions of the state. Third, the rice production process standardization. From the rice planting area, rice varieties, and planting season to carry out standardized management, rice cultivation fertilization, planting density, irrigation, pesticide selection for scientific planning. Fourth, the quality of rice processing standardization. High-quality rice processing needs to meet national standards, to achieve green, organic, pollution-free treatment, rice processing enterprises need to develop rice processing standards, rice processing impurities, precision, broken rice strict control, to ensure that rice in enterprise processing steps to obtain high-quality rice.

2.4 Integrated development of rice industry

We will vigorously promote the mode of cooperation between rice processing enterprises and base farmers, so that enterprises and farmers form a stable production and marketing relationship, and finally reach the integrated development direction of sharing benefits and sharing risks. Processing enterprises act as the core and leader, deep processing of rice, to promote the development of rice industrialization. Enterprises through farmers to share the rice product seismowas, circulation of profits, speed up product process and management innovation, improve the level and interests of rice processing. Through a variety of methods to promote the development of leading enterprises, asset restructuring and concentration. Rice by-products are also highly valuable and are renewable resources that can be further processed and fully utilized.

3. Problems in the development of Rice Industry in China

In recent years, with the development of agricultural mechanization and information technology, China's hybrid rice industry has been affected, the planting area has declined, and conventional rice has begun to resume production. The main reason is that the yield of hybrid rice, cultivation technology and seed addition advantages have been reduced, a small number of hybrid rice is not used for mechanized mechanical operation and live broadcast, people's requirements for hybrid rice rice rice quality and anti-reversal are also increasing. Only hybrid rice with high yield and high resistance can meet the needs of farmers in the new era.

3.1 Rice varieties can't meet the requirements of the times

With the coming of China's new agricultural era, the new form of mechanized and information-based agriculture has a great impact on traditional agriculture. In particular, the hybrid rice industry, the planting area has dropped significantly. The experts analyzed the hybrid rice industry and summarized the three factors that affect the development of hybrid rice. First, the advantages of high yield, low cost and low seed use of hybrid rice are being diluted. Second, most varieties of hybrid rice cannot be adapted to mechanization and large-scale production. Third, the existing varieties of hybrid rice can not meet the higher demands of farmers on rice. The same problem struck out in the production process of foreign farmers. Therefore, Chinese hybrid rice researchers should develop as soon as possible the hybrid rice varieties that farmers need in line with the new agricultural era.

3.2 Rice production technology can't meet the demand of the times

With the development of biotechnology and information technology, rice crop breeding will enter a new era. Traditional hybrid rice varieties, because they can not be selected in the early stage, therefore, the breeding cycle is long, the efficiency is not high, the impact on Chinese crops is huge, resulting in the renewal of hybrid rice new varieties slowly. At present, foreign rice enterprises increase investment in rice varieties research and development, the use of breeding technology, hoping to cultivate more new varieties of rice into the market. Some foreign enterprises to achieve great results, not only shorten the breeding time to increase production, while completing the identification and reproduction of the same seed, greatly improve efficiency. China invests too little in research and development in the rice industry, at 4 billion yuan, and does not invest 30% of a foreign company. At present, China's rice seed enterprises generally have insufficient financial resources, there is not enough funds for breeding and training, and the rest of the company's research and development capabilities are far apart, lack of modern scientific research capabilities of the team. Therefore, China's rice breeding industry can not rely on enterprises to carry out research and development, the government needs to help. With the support of bioinformatics and big data, rice breeding in China is expected to achieve the fourth agricultural revolution, and rice varieties can obtain new varieties of multi-gene polymerization. At the same time, China's scientific research institutes can cooperate with enterprises to develop and apply, through scientific research results and information sharing, to promote mutual progress.

3.3 Rice seeding technology and mechanized production need common development

At present, China's hybrid rice production is based on artificial, can not be mechanized mass production, and the current international situation and economic needs to develop rapidly, we must form a mechanized development path. The United States-style first use of mechanized seeding countries, but due to improper management, low production reasons, not suitable for China's promotion and application. In recent years, China's Hunan Province began to promote the implementation of mechanized seeding, seed production reached 3,000 kg / hm 2, greatly saving labor costs. Because China's terrain is complex, different planting area, not suitable for the promotion of mechanized seeding, so researchers need to continue to explore efficient methods to reduce the cost of seeding.

3.4 Commercial breeding system culture

Due to the strong support of the state for breeding technology, some Chinese enterprises began to establish commercial breeding system, because the breeding system is in the early stage of development, there are still many problems. In 2016, China invested 4 billion yuan in breeding technology, of which 800 million yuan was invested by enterprises. With the investment of funds, China's commercial breeding system has made great progress, but compared with the international breeding enterprises there is still a gap. From China's macro-view, due to the lack of large-scale planting in the domestic market, farmers occupy the majority of the planting system, making it difficult to achieve the scale of breeding technology, delaying the development of modern breeding technology in China. Due to the development needs, Chinese breeding enterprises to carry out reorganization, merger, but still only a small number of enterprises for breeding research, training, most enterprises are still only responsible for seed sales, so China's commercial breeding system development path still needs efforts.

4. Countermeasures of China's Rice Industry Development

China's hybrid rice through cooperation with foreign countries, the establishment of a plant, research and development base abroad, investment cooperation. For example, in South Asia, hybrid rice cultivation area has tripled the area under cultivation in China, with greater potential for development. In the process of promoting hybrid water, due to mechanized seeding technology, land and other problems, lack of corresponding competitiveness, resulting in many countries still stripped of local seeds. In order to improve the competitiveness of hybrid rice, researchers still need to work hard to develop and produce competitive seeds to ensure the development of hybrid rice.

4.1 In line with international standards, the establishment of overseas hybrid rice research and development and planting base

With the trend of global integration economic development, Chinese breeding enterprises should take a long-term view, take advantage of China's hybrid rice breeding advantages, seek cooperation in foreign markets, and bring Chinese hybrid rice abroad. First, due to the limited scale of China's current planting industry, enterprises should actively explore foreign varieties and technologies in their development, and promote the development of domestic rice industry. At present, some Chinese enterprises have set up overseas companies and breeding research and development institutions in the Philippines, Indonesia and other countries, while participating in the audit, experiment and promotion of foreign rice varieties, and began to lay out on a global scale. Second, promote the development of local rice varieties. As some countries prohibit the import of seeds, enterprises need to go to the local breeding base for variety audit, while the cultivation of suitable for the local rice varieties. Third, the introduction of international rice breeding technology. In order to promote the economic development of domestic rice industry, enterprises need to introduce foreign advanced breeding technology and improve the scientific development of China's hybrid rice industry while taking out rice breeding technology.

4.2 Strengthen technological innovation and improve competitiveness

If the problems encountered in rice cultivation and processing are not solved, enterprises should increase their scientific research input to solve the problems that arise. China needs to increase the diversity of hybrid rice varieties, reduce homogenization and enhance yield advantages. Through the advantages of hybrid rice in China, new varieties of multi-gene polymerization are cultivated to enhance the competitiveness of Chinese rice in the international arena. Strengthen the development of mechanized seeding technology and reduce the cost of seeding. Apply for property rights of independent innovation, improve the status of intellectual property rights, use new technologies in the international market to bring their own advantages, and occupy favorable conditions in the international competition.

4.3 Rice Industry Company Strong Union

The future seed market is a comprehensive competition, the company needs omnipotent development. In order to meet the needs of the market companies to establish alliances, jointly carry out seed research and development, production, promotion, the formation of a qualified management team, high-level research and development team, research and development and management of organic combination, to achieve international operation. Mergers between Longping Gawker and Brazil's Dow Yinong not only speed up the company's overseas market development, but also promote the company's international operations, forming a complete rice industry chain. At present, Longping Gaoke in Pakistan to determine 19 new hybrid rice varieties, in addition to India has more than 70 new varieties of hybrid rice outstanding performance. Longping Gaoke continues to carry out foreign hybrid rice training and other public welfare projects, not only to enhance their international influence, while combing the company's international status.

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References

[1] Lian X.L., Deng H.R., Jiang K.X. (2013). Analysis of the prospect of rice industry development in Qianfeng District. Rural Economy & Technology, 12(11), 59-59.

[2] Xu Y.Y., Liu Y.T., Wang J.H., et al. (2018). Current status and development prospects of rice dry broadcast research. Heilongjiang Agricultural Science, 18(6), 1-4.

[3] Zhao X.Q. (2013). The Path of Promoting the Development of Rice Industry in Zhejiang Province in Economically Developed Region--The Speech of Zhao Xingquan, Deputy Director of Zhejiang Agricultural Department at the Fourth Rice Industry Economic Forum. China Rice, 19(1), 1- 2.

[4] Wang Z.L. (2012). Economic and Ecological Analysis of the Change of Rice Industry Distribution in China. Zhejiang University,10 (6), 12-13.

[5] Jin K.R. (2014). Research on Rice Industry Development in Durbat Mongolian Autonomous County. Northeast Agricultural University,21 (3), 10-11.

[6] Luo K., Zhang J.S. (2016). Some Thoughts on Transforming the Development Mode of Rice Industry in Hubei Province. Hubei Agricultural Sciences, 13(3), 54-55.

[7] Zhang G.Y. (2018). Advantages and Development Prospects of Green Organic Rice Industry in Fu'an County. Agricultural Science and Technology Communication,8 (3), 17-19.

[8] Wu Y.Y. (2018). Current Status and Development Trend of Rice Production in China. New agriculture,868(7), 29-30.