

STRATEGY OF MAIZE'S CONCENTRATING TO ADVANTAGE AREAS IN JILIN PROVINCE

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ABSTRACT: Jilin Province is one of the main grain-producing provinces of China, which has dominant position in maize production, by the view of its advantages in policy, location, breed and market. And after entering WTO, some measures have been taken to enhance maize competitive ability. But there are some difficulties in concentrating production to maize advantaged areas. This paper expounds the basis that Jilin Province becomes the advantage area of maize, analyzes the problems and puts forward the supporting policy. Some strategic measures are proposed, as developing comparable advantages, carrying out the strategy of un-equilibrium development and cultivating advantaged product areas of maize to rapidly improve the international competitive ability and productivity of maize in Jilin Province, cast the agricultural predicament off and promote the agricultural development into a new stage.

KEY WORDS: maize; advantage area; concentration; Jilin Province

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With the development of agriculture and China's entry into WTO, the situation of supply and demand in maize market has changed greatly. Facing the relative surplus of maize and the formation of buyer's market, we should fully develop relative advantages, carry out the uneven strategy of supporting the superior in maize production and cultivate advantaged areas of maize. The above strategic measures can rapidly improve the internationally competitive ability and productivity of maize in Jilin Province, get out of the agricultural predicament and make the agricultural development step into a new stage.

1 CONDITIONS OF BUILDING UP ADVANTAGE AREAS OF MAIZE

Jilin Province is one of the main grain-producing provinces of China. The amounts of the commercial, the domestically and internationally exported maize, and per capita consumption of maize are on the top of country. The advantages of resources for maize production are notable. The maize industry has become the dominant industry of agriculture in Jilin Province with the better location and natural endowments.

1.1 Policy Advantage for Maize Production

Maize production has taken a very important role in national grain production. In 2001, the planting area, the total output and export quantity of maize took up 22.89%, 25.21% and 66.45% respectively in the maize planting areas (National Bureau of Statistics of China, 2002). Considering food security, we cannot reduce the production of maize. The yield per unit area is so high that no grain can replace maize in national food security. With entering the 21st century, the demand of agricultural products will still keep rigid increase, and the universal grain crisis cannot be ignored, even it should be enhanced to be wary that developed countries use grain weapon to exert political pressure (JIANG, 2003). Thus it is necessity to keep stable productivity of maize so as to guarantee the national food security and not to weaken its function as strategic reserved food. With the development of the subsequent industry of maize, the maize of China will not be enough in future. The development of animal husbandry and the booming of maize processing industry will increase the demand of maize rapidly. The annual indirect consumption of maize per

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capita was 300kg in developed countries (626kg in America) in 1999. But in China the sum of annual direct and indirect consumption per capita is only 90kg, less than 1/3 of developed countries', which testifies that the potential market is big in China. The gap of supply and demand is 22.09×10^6 t in 2000–2001, 13.52×10^6 t in 2001–2002 in China (Research group of "Situation of Corn Production in Hebei Province", 2003), and the main reason is the plentiful maize stock, causing no consequent price fluctuation in such great gap (Informational Center of Agricultural Department, 2002). In the light of strategic demand of China's food security, more policy advantages are in Jilin Province to develop its maize industry.

1.2 Location Advantages for Maize Production

Jilin Province lies in the continental monsoon area of the north temperate zone. The growing period of plants is short, which is only 120–160 days. Because of location limitations, the climatic condition does not fit to plant cash crops such as vegetables, flowers and so on. Natural endowments make it only produce soybean, maize and rice. Although with high profit, rice requests better natural conditions such as soil texture, soil smooth level, source of water and so on. Furthermore, the province has developed a lot of paddy and irrigated fields with ground water since 1995. This has made some regional ground water decline; consequently it is difficult to extend the rice areas. For maize and soybean, the profit of maize is higher than that of soybean in normal years from 1991 to 2001. The substitutable elasticity of maize is very little. The growing custom of the peasants is difficult to change, and soybean market risk is high. Therefore maize is the dominant industry of agriculture in Jilin Province.

1.3 Market, Technology and Breed Advantages for Maize Production

Jilin Province is a hometown of maize in China. And fortunately it is one of "Three Golden Zones of Maize" in the world, just as American Maize Zone and Ukrainian Maize Zone, in which maize possesses higher qualities. Meanwhile, it has traditional advantages of maize production. Nowadays, the maize cost of per kilogram in Jilin is lower than the average level of China, and there is enough space to obtain profit, compared with the market price. Moreover, the maize produced here is not gene-transferred. Especially, the active maize, which is dried naturally, is welcome in

the international market. From market location, Japan, D. P. R. Korea and R. O. Korea, which are near Jilin Province, are principal maize markets in the world. The consumption of three countries is 35×10^6 t/a and takes up 50% of maize import in the world. Japan is the biggest country of maize import and R. O. Korea is the second (GUO, 2003). The maize export of the province is of transport with short-distance, speedy and low cost. From the progress of science and technology, there have been 25 agricultural institutes and 5 agricultural colleges in the province, and 12.62 agricultural technical personnel per ten thousand persons in rural areas, which is higher than the average level of China. Better maize varieties and cultivation techniques provided support the development of maize industry in Jilin Province.

2 MEASURES TAKEN IN JILIN PROVINCE ON INCREASING MAIZE COMPETITIVE ABILITY SINCE ENTERING WTO

2.1 Innovate Traditional Planting Methods

Jilin Province has reduced maize planting area and carried out rotation plan of maize and soybean. At the same time, the standard, special and regional maize cultivation has been practiced. It has optimized maize breed structure, reduced the area of ordinary maize and increased the area of special maize. On the basis of different standards for industrial and livestock feed material, as well as different demands of food and export, maize planting area and varieties has been arranged according to 'Ordering Agriculture'. Jilin Province has increased maize quality and competitive ability at international market by developing special varieties such as high-oil maize, high-protein maize and high-starch maize.

2.2 Stimulate Maize's Transformation Relying on Resourceful Advantages

By developing animal husbandry, Jilin Province has transformed the inferior position of maize high cost into price advantages of animal products. The whole province has constructed 10 animal counties including Dongfeng, Nong'an etc., and 100 animal villages including Wukeshu in Yushu City and Lishu in Lishu County etc., which get supports in funds, techniques, land and electricity from provincial government. And 5×10^6 t maize, which took up 1/3 of maize production in the province, was transformed by the

animal husbandry in 2002. At the same time, ten maize refining companies have been selected and developed, such as Changchun Dacheng Biochemical Engineering Development Company and Huanglong Food Industry Company, as leadings of enterprises of starch and alcohol. According to the idea of applying industrial thought to developing agriculture, the province has set up a lot of processing projects which are of influential ability. The processed maize products are being transformed from the primary products such as starch and alcohol to the refined products such as the fermented and the fine chemical products (FAN, 2001).

2.3 Accelerate Reform of Grain Circulation System

Jilin Province has launched direct grain subsidy program in Dongfeng County. The average production of maize and rice from 1994 to 1998 (465×10^3 t) is used as cardinal number, and the peasant's grain for themselves ($400\text{kg} \times 296 \times 10^3$ persons) is deducted. The rate of commodity is 75% and the quantity of commodity is 347×10^3 t. According to 70% of the quantity of commodity, the government should subsidize marketable grain of 243×10^3 t. The Financial Office of Jilin Province has allocated 21.842×10^6 yuan (RMB) from grain risk funds by one time. In Dongfeng County grain subsidy funds of 21.553×10^6 yuan has been paid for 78.543×10^3 peasant households by the principle of 268.4 yuan per hectare in 2002. The reform protects the profits of peasants.

3 PROBLEMS OF CONCENTRATING MAIZE TO ADVANTAGE AREAS

3.1 High Costs and Poor Quality of Maize

The production of peasant household is in small scale and labor efficiency is low. The rural cultivated land per capita is 0.267ha, and that of per household is 1.067ha, and the cultivated land of Jilin Province is prior in China. However it is not comparative to that of America, which is 73.33ha per household. The small-scale production leads to the low labor efficiency and poor ability of resisting risk (GUO, 2002a). The capital investing quantity in agricultural infrastructure has been 9% of total investment in infrastructure in China for recent ten years, whereas it is only 5% in Jilin Province because of the absence of financial funds. Limited by funds, a lot of agricultural infrastructure cannot be repaired and the function is

weakening. The dangerous reservoirs take up 50% of the large and middle reservoirs. And 80% artificial irrigation and drainage stations are working poorly; suitable projects in drought area and flood area are not provided so that the grain loss resulted from drought and flood reaches about 4×10^6 t. Under the condition of the backward and extensive management by single household and the purchase policy in the protected price, farmers pursue quantity instead of quality. They ignored natural conditions and increased cultivation blindly, which cause the low maize quality. All of these not only increased the maize cost but also influenced the profit of output.

3.2 Low Technical Level in Agriculture

Nowadays, the technical contribution ratio of agriculture in Jilin Province is only 45%, whereas it is over 80% in developed counties, and the use efficiency of fertilizer is only 30% in the province and over 70% in developed countries respectively. Developed countries have been in agriculture modernization, while it is only semi-mechanization in Jilin Province, especially being lower mechanization in harvest. The techniques cannot meet the requirement for transforming quantitative agriculture to qualitative one in Jilin Province. Maize breeding is not connected with production closely, which affects the effective supply and prompt transformation of technical achievement as well as the peasants' utilizing new techniques (LIANG *et al.*, 2003). During the course of the spreading of new varieties, the extension agents both enforce law and engage in seed dealing, and maize breeding and spreading is restrained. The research and application of advanced agricultural technique is in slow progress. The technique of maize refining lags behind.

3.3 Irrational Purchase and Sale System

Nowadays, the use value of maize has had notable change. The consumption of maize as principal food takes up 15% of maize production, and the others are as livestock feed and industrial material. If we still manage maize as ration, it will enhance the cost of animal husbandry and maize refining industry and limit them to develop (GUO, 2002b). The grain enterprises have depended on national grain policy for many years, only managed in collecting and storing without selling. The platforms of maize informational technical management and futures deal have not been established. These aspects, being named as 'intestinal ob-

struction' in circulation of maize, make maize sale difficult and overstock seriously, cost increasing greatly, result of which there is a large deficit in grain enterprises and local finance.

4 PROPOSALS TO CONCENTRATE MAIZE TO ADVANTAGE AREA

4.1 Main Technical Aim to Decrease Cost and Increase Profit

Maize of Jilin Province is in low competitive ability because of high cost. After entering WTO, we must consult the cost of farm products in international market and develop techniques to reduce cost (JIANG, 2002). 1) Strengthen infrastructure of agriculture to improve anti-calamity ability, and reduce cost. The government should add the investment in agricultural construction, improve conditions for agriculture and enhance the comprehensive ability of agriculture. In the long run, the government must accelerate technical reform and construction of rural industry and improve the labor productivity of rural industry. 2) On the basis of the physiological character of maize and local natural resources, set up maize productive bases with high standard, high quality, and high merchandization. Maize should be mainly planted in the middle part of Jilin Province, covering Yushu, Nong'an, Dehui and Jiutai of Changchun City, Lishu, Gongzhuling, Shuangliao and Yitong of Siping City, Qian Gorlos, Fuyu and Changling of Songyuan City, Dongfeng and Dongliao of Liaoyuan City and Yongji and Shulan of Jilin City. 3) Define advantage areas of special maize. The feed maize and high-oil maize should be planted in the arid western Jilin Province; the industrial maize should be distributed in the middle part; the sweet maize, polished glutinous maize and popcorn should be planted in the eastern mountain and half-mountain parts (LI *et al.*, 2002).

4.2 Support the Leading Enterprises and Accelerate Agricultural Industrialization

Maize is most likely transformed of all grains and there is a long industrial chain following maize cultivation, which are the advantages of maize-producing zone. But considering of the experiences, the backward farming industry in Jilin Province has not formed influential power on prompting the agricultural development for many years. The reason comes from two factors. The first is that the processing in-

dustries are lack of structure of multi-ownership. The non-stated economy only takes 30% in the province and most of all belong to circulating and catering trades. The second is the shortage of industrial policy. Contrasting to the national average investment in food industry, 15% of local basic construction investment, Jilin Province's is 5%. The shortage of feasible industrial policy causes the farm product processing not to become the main industry. Therefore, it should adjust the structure of ownership and formulate useful industrial policy on the refining industry to greatly develop in agriculture. The government should develop big leading enterprises to participate in international competition. The middle and small leading enterprises should be activated with the demand of 'distinguished great group' so as to advance maize industrialization. With the requirement of 'scalization, specialization, intensification, internationalization', the leading enterprises should provide peasants with techniques, funds, materials, transportation and information, at the same time bring numerous households to increase income. So the integration of planting, feeding, processing, and the union of production, supply, selling, and the combination of trade, industry and agriculture should be turned into realization by the favorable support policy.

4.3 Macroeconomic Policy and Suggestion for Maize Concentrating to Advantage Areas

In order to guarantee grain supply of China, more attention must be paid to the construction of maize advantage areas. The policy of construction of maize advantage areas should be continuously perfected and carried out. Thereby create superior conditions for the construction and development of maize advantage areas: 1) According to the situation of maize advantage areas, determine the marketable orientation of the grain circulation reform. On the plight of market, dominant maize production region should not be in market mechanism completely. Otherwise, the dominant maize production region will be under a serious attack of being responsible for the whole market risk, which is disadvantage to the stable development. Therefore, it is unadvisable to get Jilin Province out of the price protection or decrease the protective price greatly. The formation of maize advantage areas and maize merchant quantity are the outcome of implementing macroeconomic grain policy. The deficit of grain management is a result that old grain circulation system brings about. In recent years, the grain deficit

has been billions of yuan, which the maize advantage areas have no ability to undertake. Hence, the grain circulation system should be reformed to stop the loss of benefits in maize advantage areas. Meanwhile, the government should share the pressure with maize advantage areas. 2) Implement emphatically favorable policy to maize-producing areas depending on Green Box Policy. With the free market of grain trade strengthening, China should emphatically carry out efficient Green Box Policy, even Yellow Box Policy with varying protective quota in different area's grain merchant rates, in maize advantage areas in order to guarantee the supply of marketable grain. The arrangement of large maize processing projects should be inclined to maize advantage areas, and maize is transformed in maize production areas. The government should control the development of feedstuff processing enterprises in the south of China, accelerate feed processing enterprises to move to the north of China by all kinds of encouraging policies, and construct maize processing bases of high standard which are of regional characters. Meanwhile the government should set up special maize product bases in maize advantage areas and support the development of special breeds and reprocessing products in technology. 3) Strengthen and increase the economic integration function of maize advantage areas. Maize advantage areas achieve not only the synthetically development inside agriculture but also the coordinative development between agriculture and relative industries including the reproduction and postproduction industries. At the same time, the coordinative development between industry and agriculture must be achieved in the construction of maize advantage areas. We must construct the synthetically product system and transfer the resourceful advantages to local economic advantages.

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