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SWOT Analysis of Industrial Development of Double-low Rapeseed in Hubei Province

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Abstract Based on SWOT analysis method, this paper conducts analysis on the industrial development environment of double-low rapeseed in Hubei Province from the following four aspects, in order to crystallize its resources advantage and disadvantage and make it know the opportunities and challenges that it is faced by. First, advantage analysis: excellent geographic conditions, vigorous government support, powerful scientific research force, sound industrial system support; second, disadvantage analysis: poor quality, low-level fine and deep processing, scant publicity and promotion, lagged infrastructure conditions, shortage of effective market access mechanism and sound industry regulation, no brand effect; opportunity analysis: the opportunities brought by low-carbon economy, the opportunities brought by consumers' preference, the opportunities brought by policy environment, the opportunities brought by establishment of strategic union; threat analysis: fierce external competition, continuous decline of comparative benefit. The results of research show that in order to promote industrial development of double-low rapeseed in Hubei Province, we should implement brand effect strategy, quality management strategy and strategy of deepening industrial system, give full play to existing geographic advantage and other advantages, grasp scarce opportunities and actively confront challenges.

Key words Hubei Province, Double-low rape, Industry, SWOT analysis, China

Rape, as one of the main oil crops in China and even in the world, plays a vital role in consumption field of edible vegetable oil of residents and agricultural production. In recent years, the vigorous inputs of world's leading producers of rapeseed in research on rape make the whole industry of rape develop rapidly and the quality of rapeseed has been further improved, gradually from "double high" to "double low"^[1].

Hubei Province, as a big producing province of rapeseed, with a long history of producing rape, has made a remarkable progress by leaps and bounds in terms of scientific research of double-low rape, promotion of double-low rape, production of double-low rape and so on. Apart from the remote mountainous areas, the planting of rape in Hubei Province basically realizes "double low", with the "double low rate" more than 95%; during the Eleventh Five-Year Plan period, the rapeseed planting area in Hubei Province reaches 5.516 7 million hm², and the average annual planting area reaches 1.103 3 million hm², with the yield per unit of 1 99 5 kg/hm² and total output of 2.1 million tons; the seed selection and application of double-low rape in Hubei Province are in the forefront of China and the cultivation area and total yield of rape in Hubei Province rank first for 15 years in succession; the research and application of simplified cultivation technique model are expanding continuously, now accounting for 50% of the total planting area. However, in the process of the development of this industry, it still faces some new problems. First, since large-scale promotion of double-low rapeseed varieties from the early nineties of 20th century, so far, we have not yet brought out the double-low rapeseed prod-

ucts in line with national standards, and mighty concept of double-low rape has not yet been transformed into mighty economy; second, the processing of rapeseed products lags, and fine and deep processing has not been initiated; third, the degree of mechanization of rapeseed production is low, and the labor input is excessive, resulting in relatively low efficiency of rape cultivation^[2], which has seriously affected the enthusiasm of farmers to grow rape. These factors severely restrict the production of double-low rapeseed. In addition, after joining WTO, the double-low rapeseed of Hubei Province bears the enormous brunt of high-quality but low-price rape in the international market. This paper adopted SWOT analysis to analyze the development environment of double-low rapeseed industry in Hubei Province, in order to crystallize its advantages and disadvantages, and make it know the opportunities and challenges that it is faced by, which has important practical significance to formulating the future development strategy of double-low rapeseed industry in Hubei Province, and combining the strategy with internal resources and external environment of Hubei Province, so that the double-low rapeseed industry in Hubei Province is further developed.

1 SWOT analysis on industrial development environment of double-low rapeseed in Hubei Province

1.1 Advantage analysis

1.1.1 Excellent geographic conditions. Hubei Province is located in the middle of Yangtze River, with subtropical monsoon climate which is characterized by abundant sunshine, profuse heat quantity, and plenty of rain. In addition, the sunny days are approximately equal to rainy days, with the average annual rainfall of 750 – 1 600 mm in all regions, and annual average

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daily temperature is 15 – 17 °C. The accumulated temperature of the average daily temperature which is no less than 10 °C is 4 800 – 5 400 °C, and frost-free period reaches 230 – 300 days, therefore, this climate and environment are very suitable for the growth of winter oilseed rape.

Hubei Province abounds in land resources, with more than 0.2 million hm² various kinds of land that can be developed and used. The development potential of rape in Hubei Province will reach 1.6 million hm².

Rape in Hubei Province is winter crop, practising two crops a year or three crops a year farming system, with not high cost of land; meanwhile, rape in Hubei Province does not compete for land resources and labor forces resources with main grain crops, which is conducive to reasonable allocation and optimization of land resources and labor forces resources.

In terms of season of production, Canada, Europe and other major rape-producing countries mainly produce spring rape, while Hubei Province mainly produces winter rape, and as for the time when rapeseed can be sold in market, Hubei Province is 2 – 3 months earlier than other countries, which meets the demand for off-season production of processing enterprises.

In addition, Hubei Province is endowed with convenient transportation and excellent conditions for water, land and air transport, which is conducive to closely integrating the domestic market and the international market, so that we can promote market competitiveness of the double-low rapeseed industry in Hubei Province and leave Hubei Province in a good status in global allocation of resources of the oil crops.

1.1.2 Vigorous government support. Hubei Provincial Government always offers vigorous support for research and development, planting, and production and promotion of rapeseed, in terms of policy, human resource, material resources and financial resources. Since 1999, Hubei Provincial Government has begun to implement high-quality rape project. *In Opinions on Implementing Agricultural Technology Development Program from 2001 to 2010*, it advances that one of the key tasks of agricultural technological work is to give priority to improvement and application of new varieties of double-low rapeseed. It should accelerate selection of a batch of varieties whose quality reaches the international advanced level, and double-low super new varieties of rape which have high rate of oil-yielding, high quality and advantage of resisting pest, so as to realize double-low planting of oilseed in whole province. Since 2008, Hubei Provincial Government fully implemented subsidizing better strains of rapeseed, and directly transmitted the subsidy into household account, according to the standard of 150 yuan/hm², 0.18 billion yuan annually; actively implemented national fund as incentive for big oil-producing county, about 0.25 billion per year, and 60% of the fund was directly used to development of the rapeseed industry; implemented 44 demonstration points of high-yield oilseed supported by Ministry of Agriculture, and offered subsidy of 0.2 million yuan to each demonstration point, 8.8 million yuan in the aggregate; established agricultural sector fund, with fund of 7 million yuan annually that was used to support rape industries; in addition, since the Twelfth Five-Year

Plan, Hubei Provincial Government took annual outlay of 20 million yuan as special fund for development of rape industry. As can be seen from the above analysis, we clearly know that Hubei Provincial Government always takes the development of rape industry as one of the important strategies of agricultural development in Hubei Province, which becomes one of the important advantages of rapid development of double-low rapeseed industry in Hubei Province.

1.1.3 Powerful scientific research force. The two strongest institutions of researching and developing rape in China, namely Huazhong Agricultural University and Oil Crops Research Institute, Chinese Academy of Agricultural Sciences, are both in Wuhan City, Hubei Province. Huazhong Agricultural University and Oil Crops Research Institute, Chinese Academy of Agricultural Sciences have made amazing progress in breeding, cultivation and processing of rapeseed, which leaves China's production technology of rapeseed at leading level worldwide, enhances competitiveness of science and technology, improves the level and technologies of improvement of rape varieties, and promoted the industrialized development of rape. In addition, there are a large number of scientific and technological personnel who are specialized in the research and promotion of rapeseed, for example, there are 2 – 3 technological personnel who are specialized in the research and promotion of rapeseed in the main producing counties or cities in Hubei Province, and there are more than 200 technological personnel who are engaged in rapeseed promotion system. The above advantages greatly boost industrialized development of rapeseed in Hubei Province.

1.1.4 Sound industrial system support. In addition to government support and remarkable strength of scientific research, Hubei Province has initially formed a relatively complete double-low rapeseed industrial system, integrating research and development, promotion, marketing and purchasing, information consulting, transportation and acquisition^[3], which makes Hubei Province not only become the cultivation base for high-quality double-low rapeseed, but also become powerful agricultural province which can transform scientific research results into productivity rapidly.

1.2 Disadvantage analysis

1.2.1 Poor quality. Although the quality of double-low rape produced by Hubei Province has reached the national standard of quality, compared with Canada and other major rape-producing countries, the content of erucic acid in rapeseed oil and the content of glucosinolates in the rapeseed cake are still high^[3]. On one hand, it is because that the double-low rape in Hubei Province has not yet realized mass mechanized production, and it is mainly the scattered planting of farmers, so there may be the phenomenon of flower arrangement planting in the process of planting, making the quality of double-low rapeseed decline; on the other hand, due to the constraints of technology and capital in the chain of purchasing, the farmers cannot complete single harvest and single storage, but basically mixed harvest and mixed storage^[4], which greatly reduces the quality of double-low rapeseed oil.

1.2.2 Low-level fine and deep processing. The processing level and the technology of rapeseed oil in Hubei Province are relatively backward, and the scale of processing is small, resulting in that even there are high-quality rapeseeds, we can not bring out and produce high-quality edible oil and feed. At present, the market is glutted with a large number of poor-quality double-low rapeseed oil, with low industrial added value, so that farmers and consumers' trust for the double-low rape repeatedly declines.

1.2.3 Scant publicity and promotion. Although double-low rape plays a pivotal role in promoting livelihood of the people, and social and economic benefits, due to scant publicity and promotion, neither the farmers realize the tremendous economic benefits of planting double-low rape, nor the consumers know the health value of vegetable oil produced from double-low rapeseed, so that the economic and social value of double-low rape can not be fully realized.

1.2.4 Lagged infrastructure conditions. Although Hubei Province has leading strength of scientific research of double-low rape, the supporting infrastructure conditions lag greatly. Even if the government has attached considerable importance to the development of double-low rapeseed industry, but compared with other grain crops, the inputs in oil crops are not enough, so outdated and stale infrastructure can no longer meet the production, test and processing of double-low rapeseed, which has become a major stumbling block in the process of development of double-low rape industry in Hubei Province.

1.2.5 Shortage of effective market access mechanism and sound industry regulation. At present, there is a mingling of good and evil in the oil market in Hubei Province. It is because that it has not yet established a set of effective market access mechanism and complete industry regulation, which makes considerable poor-quality rapeseed oil and feed products propagate their belief on a large scale in the market and deals a great blow to the enthusiasm of farmers who grow double-low rapeseed.

1.2.6 No brand effect. Being that double-low rape in Hubei Province practises small-scale and decentralized production and operation at present, and it has not yet created a well-known brand, therefore it can not form brand effect in the domestic market and even in the international market, so that it is very difficult to improve overall competitiveness of double-low rape in Hubei Province.

1.3 Opportunity analysis

1.3.1 The opportunities brought by low-carbon economy. As the production and living of people have caused tremendous pollution to whole ecological environment, curbing global warming has become a pressing need, so low-carbon economy has become one of the main themes of the current economic operation in the world. The bio-diesel produced by raw material of rapeseed can help us to achieve energy conservation and reduce emission, which has become important target of development in all countries^[5]. This, undoubtedly, has brought a great opportunity to the development of double-low rapeseed industry in Hubei Province.

1.3.2 The opportunities brought by consumers' preference.

With the rapid development of China's economy and the increasing improvement of living standards of people, people pay more and more attention to health. On the one hand, residents' demand for edible vegetable oil is increased and the level of consumption of residents' is promoted; on the other hand, as people's requirements of quality of edible vegetable oil are gradually elevated, people will have more preferences for edible vegetable oil which is produced from double-low rapeseed. These will further expand the demand for double-low rapeseed.

In addition, the double-low rapeseed planted in Hubei Province is non-GM crop. Although there is a shortage of strong evidence to support the skepticism of safety of genetically modified food, residents still hold the wait-and-see attitude towards genetically modified food. Currently, the majority of edible oil sold in market is made of genetically modified crops, and residents' preference for non-GM edible oil has also expanded, to some extent, the demand for double-low rapeseed in Hubei Province.

1.3.3 The opportunities brought by policy environment. The strategic plan of "8 + 1 City Circle" which takes Wuhan City as the center, has made resources of all cities in Hubei Province get better optimization and allocation, and significantly promoted overall competitiveness of regions, which will bring tremendous opportunity to development of double-low rapeseed industry in Hubei Province. Meanwhile, the implementation of the strategy of reviving central China and the central government's vigorous support for agriculture create favorable external policy environment for development of double-low rapeseed industry in Hubei Province.

1.3.4 The opportunities brought by establishment of strategic union. On January 8, 2010, the strategic union of rapeseed industrialization established by rapeseed scientific personnel, enterprises and so on, created another new opportunities to the development of double-low high-quality rapeseed industry in Hubei Province. Through this strategic union, advanced scientific research results of rapeseed can be transformed into productivity better and faster, so that they can be sold in market, and they can preoccupy the market.

1.4 Threat analysis

1.4.1 Fierce external competition. After China's accession to WTO, a large number of high-quality and cheap rapeseeds and the products from abroad enter the domestic market, which has caused tremendous pressure on rapeseed industry in China. Due to high production costs and relatively poor quality of double-low rapeseed in Hubei Province, there is a gap between the rapeseed of Hubei Province and the rapeseed of foreign countries, therefore, the rapeseed products of Hubei Province cannot compete with the rapeseed products of foreign countries. The rapid development of high-quality double-low rapeseed or other oil crops of other provinces, and high market share pose enormous challenges to development of double-low rapeseed industry in Hubei Province.

1.4.2 Continuous decline of comparative benefit. With the rapid economic development, the benefit obtained by farmers through working elsewhere is far higher than the benefit ob-

tained by farmers through planting rape; moreover, by comparing the rapeseed production with wheat production in the same season, the labor used for planting rape is more than the labor used for planting wheat by 1.3 per mu, while the national policy subsidy obtained by rapeseed production is less than the national policy subsidy obtained by wheat production by 41.95 yuan per mu. These all are responsible for the continuous decline of comparative benefit of rape production and critically impact the enthusiasm of farmers' cultivation of rapeseed. Therefore, since 2005, the production area of double-low rapeseed in Hubei Province has been at a standstill, and even in some years, the production area of double-low rapeseed in Hubei Province declines. During the Eleventh Five-Year Plan period, the planting area of rapeseed in Hubei Province is 5.516 million hm^2 , with the average annual planting area of 1.1033 million hm^2 . But in comparison with the Twelfth Five-Year Plan period, the cultivation area of rapeseed decreases by 0.2953 million hm^2 , with an average annual decrease of 58600 hm^2 .

2 Development strategy of double-low rapeseed industry in Hubei Province

2.1 SWOT strategy analysis SWOT strategy model is shown in Fig. 1.

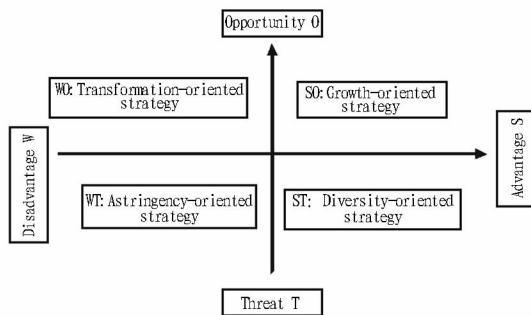


Fig. 1 SWOT strategy model

From the SWOT strategy model, we can know that in the process of developing double-low rapeseed industry in Hubei Province, we can have four strategies, namely SO transformation-oriented strategy, ST diversity-oriented strategy, WO transformation-oriented strategy, and WT astringency-oriented strategy. From the above analysis, we can know that in the long term, although there are some problems in the process of development of double-low rapeseed industry in Hubei Province, the potential of development is huge. Therefore, the process of development of double-low rapeseed industry in Hubei Province, it should give full play to existing strengths, use rare opportunity and actively tackle various challenges.

2.2 Development strategy choice of double-low rapeseed industry in Hubei Province

2.2.1 SO transformation-oriented strategy. In order to promote development of double-low rapeseed industry in Hubei Province, on the basis of giving full play to the existing geographic conditions advantage, policy advantage, scientific research advantage and so on, we should seize opportunities, implement strategy of brand effect, actively create brand effect,

and further expand domestic and international market.

First, through the development of leading enterprises, we are to create high-quality, affordable, and high service-level double-low rapeseed brand in Hubei Province trusted by consumers. Only through such brand building can we integrate double-low rapeseed resources in Hubei Province and form powerful force so as to improve the domestic market share and market influence, and further go out and explore the international market.

Second, after building brand, we should also conduct vigorous publicity on brand, which will better achieve the promotion of double-low rapeseed. As for the promotion of brand, on one hand, we can combine the promotion of brand and development of characteristic tourism of rape watching in Hubei Province; on the other hand, we can conduct publicity on the health value of double-low rapeseed to attract the attention of consumers.

Finally, we also need to pay attention to brand protection. Through law, we are to achieve protection of intellectual property and trademark, eradicate the counterfeit and poor-quality double-low rapeseed in the market, which is conducive to the orderly operation of the market economy.

2.2.2 ST diversity-oriented strategy. Although the development of double-low rapeseed industry in Hubei Province is facing the threat of fierce external competition, Hubei Province should be based on existing advantages, and implement quality management strategy and strategy of deepening industrial system.

As for the implementation of quality management strategy, first, we should further increase scientific inputs in double-low rapeseed, and strive to foster the varieties of double-low rapeseed with better quality; second, we should promote simplified cultivation techniques, realize industrialized large-scale operation, and change the situation of small-range cultivation and flower arrangement cultivation, so as to reduce production costs and improve production efficiency; finally, we need to implement strict market access system, tight control over double-low rapeseeds and high-quality products, and prohibit the unqualified products to enter the market, in order to achieve quality assurance.

With the implementation of strategy of deepening industrial system, we should ensure that among the chains of scientific research, breeding, cultivation, promotion, processing, marketing, distribution, trade, and service, it realizes seamless connection, and every chain should eliminate the outdated factors, so as to ensure the smooth operation of whole industrial chain; in addition, we should pay attention to the cultivation of leading enterprises, and only by owning a number of strong and large-scale enterprises can they help promoting rapid and better development of double-low rapeseed industry in Hubei Province in fierce market competition.

3 Conclusion

Through the above analysis, we can find that in the future, the industrial development of double-low rapeseed in Hubei

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