Advance Journal of Food Science and Technology 11(6): 448-452, 2016
DOI:10.19026/ajfst.11.2659
ISSN: 2042-4868; e-ISSN: 2042-4876

Submitted: July 2, 2015 Accepted: August 5, 2015 Published: June 25, 2016

Research Article

Study on Competitive Forces Model of China Green Food and Developmental Pattern of Its Industrial Clusters

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Abstract: In order to improve the developing level of China green food industrial clusters, the corresponding analysis is carried out. Chinese green food industry has developed in recent years, the competitive advantage of high level factors of Chinese green food industry is not obvious and therefore it is necessary to carry out relating researches. Firstly, existential questions during the procession of Chinese green food industry are discussed. Secondly, the critical factor analysis of affecting the Chinese green food industry development is carried out. Thirdly, the theory model of green food enterprise industry cluster is established. Finally, developing pattern of China green food industry cluster is put forward.

Keywords: Chinese green food industry, developing pattern, industry cluster, theory model

INTRODUCTION

Chinese green food develops from 1990 to now, the number of enterprises producing green food and total of certified products have reached thousands, which have covered every industry of Chinese food industry. The production of green food denotes the developing direction of future agriculture, food industry and food consumption. It is good carrier of regulating Chinese agricultural and rural economic structure. Chinese green food industry indicates a collectivity of green food producing enterprise certified and products. Chinese green food has experienced ten years of development and the total has been expanding and the market risk of green food can not be ignored, these risks will restrict the sound and quick development of Chinese green food (Qiao *et al*., 2013).

At present, Chinese green food industry keep quick developing trend, there are 1839 enterprises certified and 5077 products, the total number of enterprise using green mark is 3695, the total number of products reaches 9728. The total amount of the product is 6300 10000-ton, annual sales have reached 1030 billion yuan and amount of exports has reached 16.2 billion dollars. The area of environmental monitoring farmland, grassland, forest land, water area is 9800 million acres. The sampling pass rate of green food is 98.4% and annual rate of enterprise is 92%. The quality and safety and product quality of Chinese green food exported are not substantially different with abroad organic produce. The market sales price is obvious lower than the price of abroad organic produce, therefore it has obvious price advantage; the main reason is that the producing cost of Chinese green food is lower than that of similar foreign products and the cost advantage comes from cheap labor price. In recent years, all kinds of green food has achieved export abroad, export markets conclude Japan, Korea, Russia, America and European Union, however Chinese green food is simply uncompetitive, it is necessary to establish the effective competitive model of Chinese green food (Sybesma *et al*., 2006).

Industrial clusters are propitious to improve the competitive edge of green food industry, has become the developing stress of China Chinese green food industrial cluster has become originally and has a certain competitive advantage and however this kind of competitive advantage mainly comes from natural factors and the competitive advantage of high level factors is not obvious, if the innovative activities of industrial clusters are not carried out in time for adding new factor to keep the existing competitive advantage of green food industry, the competitive power of whole industry and cluster can be weak. Therefore it is also put forward advanced developing pattern of industrial cluster. This research aims at constructing the competitive model of China green food and put forward corresponding developing pattern of its industrial clusters.

EXISTENTIAL QUESTIONS DURING THE PROCESSION OF CHINESE GREEN FOOD

Consumer lacks understanding on green food: With strengthening of environmental awareness and changes of consumption concept, the consumer increasingly favors the green food without pollution and nuisance. The trustworthiness of general food is declining, the green food consumption has become the international tidal current. At present in view of China, most of consumers only stay in the level of “heard” and they lack sufficient understanding of meaning of green food and they do not know where is the advantage of green food and they do not understand the effect of green food on the environment protection and human healthy, they lack the purchasing desire. Most of consumers recognize that the “green consumption” should conclude “no pollution” consumption, however they can not understand the “economical consumption”, “continuous consumption” and “safe consumption”.

Green food has high price: In order to avoid the pollution of pesticide residue, noxious bacteria, radioactive substance and heavy metal on food, the relating departments have carried out strict quality control on the green food, there are special rules for production, processing, storage, inspection and package and certification and other parts. A lot of money should be invested to buy advanced devices and high level technology should be applied and the high quality raw materials should be used and the high level technical and management personnel should be hired for Strictly implement of these rules. Then the production and management cost of green food will improve, then the price of green food is higher than the general food, although the corresponding policy is put forward for reducing the fee scale of certifying the green food; however the cost of green food is still high. Comparing with developed countries, Chinese consumers have still low income and the low-income persons overwhelms majority, therefore they lack purchasing power of green food with high price (Sreekanth *et al*., 2013).

The production capacity of green food is small and the variety is single: The standard construction of green food raw material begins from 2005. So far there are 312 green food raw material standard production bases, the total planting area is 7538 million acres, the total production is 4221 million tons. The production capacity of green food bases in China is relative small and they are lack of coordination, the scale merit can not be formed, competitive power is not strong. The green food has single species, mainly concluding grain oil, fruits and vegetables, dairy products and beverages, other types of green food is rare. The prosaic variety can not satisfy the all kinds of requirement and the development of green food will be prevented.

Normative and effective monitoring mechanism is lack: For a long time, food is managed respectively by agriculture, industry and commerce, environmental protection, quality inspection, food and drug administration and the management is very confusing. Some food enterprise carries out illegal business for their self benefits. For example, some enterprises relax the management and pursuit profits after they obtain the green food certification, then the food quality decreases, then the production can not satisfy the standard of green food, these unqualified productions can not be dispelled out of market, they still be on sale with the sign of green food. These activities affect the reputation of green strictly and disturb the order of the market.

Green food faces with serious ecological threat: For the discharge of industrial three wastes, the quality of surface water and groundwater face with serious pollution and the agroecological environment is damaged and then the production of green food is affected seriously. In addition, because the environmental protection consciousness is not strong, some areas will destroy the original agricultural ecological environment at same time and then the investable loss can be caused (Perumalla and Hettiarachchy, 2011).

CRITICAL FACTOR ANALYSIS OF AFFECTING THE CHINESE GREEN FOOD INDUSTRY DEVELOPMENT

Production factors: The green food mainly comes from agricultural products, which is restricted by natural conditions and therefore rich natural resources will affect the development of green food industry.

China has vast region and multiple climate, fecund soil, which can offer benefit conditions for green food, however soil desertification, river pollution, soil and water loss and other environmental problems will add the cost of modifying environment for green food, which can bring out the adverse affect for green food production. Because of dual restraints of natural risk and market risk, the risk of agricultural investment is high and the enthusiasm of investor will decrease. The infrastructures of countryside are backward, which restricts the rapid expansion of green food scale. The human and knowledge resources of supporting the green food industry are lack. In addition, China has some agricultural colleges and agricultural research institutions, which have a certain scientific research strength, however the researches on specia green food producing technology and relating matching technology is rare, therefore the upgrade of green food industry is slow.

Domestic market demand: The consumption requirement of Chinese green food lags. The main reasons are listed as follows: Price is an important factor for restricting the green food consumption, the price of green food is higher than that of general food and most of consumers concern the price of green food. The green food is not propagated insufficiently and lacks the whole and correct understanding for green food and suspects the quality of green food and refuses to buy it. The brand influence of green food is small and the varieties are not rich. The circulation channel is not smooth and the market mechanism is imperfect, then the green consumption is restricted. In several years of development, the proportion of AA class green

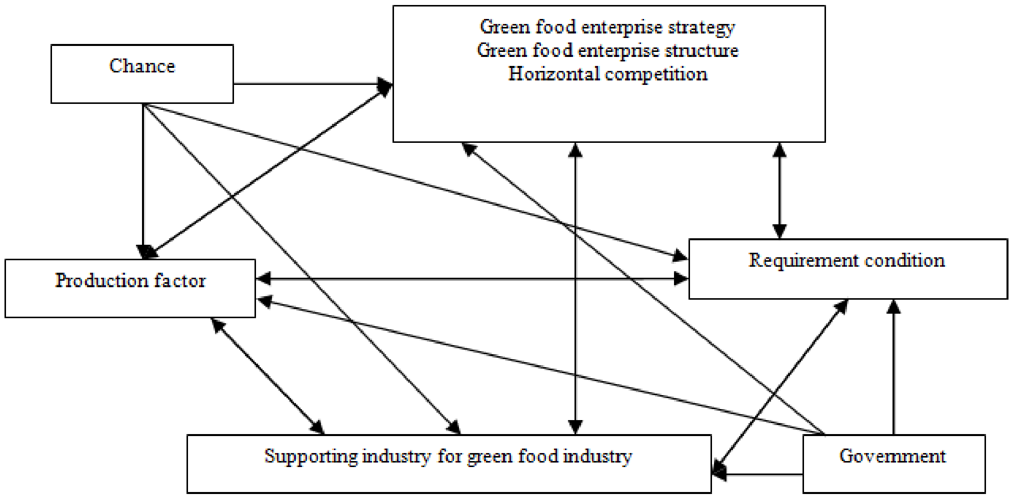

Fig. 1: Competitive model of green food enterprise

food is less. At present, AA class green food is 12% of overall, most of A class green food has existed a certain difference between the standard of organic food for international market.

Supporting industry develops slowly: Upriver production materials supply, such as seed, fertilizer, pesticide, feed and downstream processing, storage, transport, packaging, sales industries are supporting industry of green food. The development of green food has not a long time and the scale of industry is small, therefore upriver and downstream industries develop slowly, the green fertilizer, pesticide and feed additives, food additives, packaging products certified by China green food developing center are sparse. The processing technology of agricultural products lags and has low added value, professional Logistics and distribution channel of green food first develop in recent years. Only a few big cities have terminal markets, demo Center and sales counters, therefore the upriver and downstream industries develop slowly, which is difficult to drive quick expansion of green food industry (Hall and Howe, 2012).

On the other hand, China carries out trinity strategy of safe agro-food, green food and organic food from the angle of developing environmental friendly agriculture, these three kinds of products show “pyramid” relationship, the safe agro-food can be transferred to green food, while the green food can be updated to the organic food.

Green food enterprise lack long term strategy and market competition: Most of green food enterprises have small scale, the number green food enterprise that the annual sales revenue exceeds 3000 million yuan is 106 and the number of that the annual sales revenue exceeds billion yuan is only 36, over 95% of green food enterprises are middle and small type enterprise, therefore many green food enterprises only uses the pursuit of survival as object and only concerns short period profit and has no long term strategy and the marketing strategy is very simple, although every province has a lot of green food enterprises and the coordination between enterprises is less and the brand of like products is complex, in recent years there is no a industry cluster with a certain competition. At present the green food is in the turning point of industry forming period transferring to growth period. According to the current situation of green food enterprises, the corresponding competitive model is shown in Fig. 1 (Dziki *et al*., 2015).

Every factor in the competitive model has correlative dependence and interrelationship and the developing of whole effect of competitive system requires the interaction of every factor, the status of any factor should affect the status of another factor. However a factor can not create the competitive advantage of green food industry, the green food enterprise should construct the competitive advantage continuously and update the resources, then the Chinese green food industry can develop continuously.

THEORY MODEL OF GREEN FOOD ENTERPRISE INDUSTRY CLUSTER

Composition of green food industry cluster: The core of green food industry cluster concludes bases, farmers and green food processing enterprises, the green food industry cluster concludes every factor in the production chain that is made up of famers, production bases, corporate champions, distribution firm and consumption, in addition, the government, relating organization department and other department which can provide the professional training, education, information, research and technology support can offer intelligent support.

According to the situation of green food enterprise, the corresponding competitive advantage model is constructed, which is listed as follows (Liu *et al*., 2013):

$$CA = f[M_i, F_j, B_k, R_p],\ i, j, k, p = 1, 2, \cdots \quad (1)$$

where, CA is the competitive advantage of green food industry cluster, M_i is the developing level of i th core industry, F_j is the developing level of j th upstream industry, B_k is the developing of k th downstream industry, R_p is the developing level of p th other relating supporting industry. f is the relationship between upstream industry, downstream industry, other relating supporting industry and the core industry. When f is more harmonious, the industry cluster of green food can obtain big competitive advantage, because the industry cluster is a kind of organization between the market and enterprise, therefore f is not fixed, which is different for different cluster, the same cluster has different f when it is in different developing stage. According to the model, on one hand the competitive advantage of industry cluster comes from every industry and enterprise, on the other hand it comes from relationship and connection method between them. When the relationship between upstream industry, downstream industry, other relating supporting industry and the core industry is optimal, the competitive advantage of industry cluster is maximum, the maximum competitive advantage of green food industry cluster is defined by:

$$CA^* = f^*[M_i^*, F_j^*, B_k^*, R_p^*],\ i, j, k, p = 1, 2, \cdots \quad (2)$$

The real competitive advantage of green food industry cluster is defined by CA', the core industry $M_i^{'}$, $M_i^{'} < M_i^*$, if the other condition is unchanged, the following expression can be obtained:

$$CA^{'} = f^*[M_i^{'}, F_j^*, B_k^*, R_p^*],\ i, j, k, p = 1, 2, \cdots \quad (3)$$

Then the competitive advantage of green food industry cluster $CA^{'} < CA^*$, the developing level of green food industry cluster can not reach optimal status, the competitive advantage of green food industry cluster can not reach maximum. Similarly, the upstream industry, downstream industry, other relating supporting industry are so. The backwardness of these industries can lead to the changes of f, that is the insufficient developing of these industries not only lead to lack of their self development, but also the changes of cluster connection, which is defined by $f^{'}$, $f^{'} < f^*$. The main reason is that insufficient developing of these industries lead to the increasing of internal cost of trade in cluster and the profit decreases accordingly, then the competitive advantage of industry cluster can be weakened.

DEVELOPING PATTERN OF CHINA GREEN FOOD INDUSTRY CLUSTER

Understand the intension of green food industry cluster: The industry cluster existed in the mid-1980s under condition of industrial division in the whole world and information technology revolution. The industry cluster is a new economic geography phenomenon and practical experience, which can viewed as a kind of new industry space organization, it can be considered as new regional economical developing strategy and it also can be considered as new method of recognizing the regional economics.

Create the environment that is benefit for developing of green food industry cluster: The green food industry always develop based on agriculture, animal husbandry, this kind of industry centers on animal and plant production, which is the sum of all contents of pre-, peri-and postpartum, therefore the green food industry is only a part of reproduction of livestock industry. At same time, the service after the production process is necessary, such as transportation, storage, processing and sale, these industries can be named as downstream industry of green food industry. However the green food industry also concludes other industries, such as tourism industry, cultural industry, scientific research and education. The local government plays an important role in broadening the industry.

Improve the competition of green food industry cluster based on value chain: Understanding the value chain and analyzing the location local green food industry in value chain of whole world in depth and the critical part of value chain is developed and the measurement of upgrading industries can be taken and the location in the value chain is improved. At same time the connection obstacle between local relating enterprises should be analyzed in depth and the measurement of promoting the connection between industries should be taken. A king of mechanism of mutual learning should be put forward, the local green food enterprise should learn from enterprise and department in other regions. This kind of learning mechanism is decided by local industry competitive environment.

Improve investment and financing mechanism: Chinese green food enterprise has difficulty in investment and financing, in order to solve the problem of shortage of funds, the local government is taking measurement energetically and encourage the banking institution offer many kinds of financing products for green food enterprise, leading by local government the dialogue between bank and green food enterprise, the communication between financing department and green food enterprise are carried out. The private flow is encouraged actively in construction of all kinds of projects for green food industry cluster. All kinds of risk investment institutions are developed and the risk investment service system and investment mechanism are constructed. In addition, the green food industry cluster has something with agriculture. The agriculture is weak industry, which needed to be supported by agricultural insurance. China can learn the experience of other countries, the famers and green food enterprise can obtain basic compensation when they suffer a loss.

CONCLUSION

Chinese green food industry has big gross scale and quick developing speed and however the green food industry has extrusive structural contradiction, the developing trend of green food industry show obvious extensive operation characteristic. Therefore the Chinese green food industry should carry out industry structure regulation and technical innovation and then the Chinese green food industry can has sustainable development ability and strong competition. Chinese green food industry cluster is the main measurement for improving the competition of green food industry. The advantages of industrial clusters should be cultivated, the quick development of green food industry can be obtained.

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