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Technological Innovation of Agricultural Products Processing Enterprises from the Perspective of Modern Marketing —A Case of Agricultural Products Processing Enterprises in Hubei Province, China

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Abstract The science and technology development of agricultural products processing enterprises in Hubei Province is analyzed. From the perspective of modern marketing, problems in the research and development work of agricultural products processing enterprises are analyzed from the aspects of market, personal training and technology radiation, which are mainly the lack of close connection with market. Countermeasures for the technological innovation of agricultural products processing enterprises are put forward, such as establishing modern enterprise culture with innovative features, strengthening the market benefits of brand, constructing a comprehensive customer orientation information platform, scientifically predicting and developing the market, doing well in market positioning of enterprise, selecting corresponding technology innovation strategy, taking technological innovation strategy as the basis, realizing the transformation from "4P" marketing combination to "4C", cultivating technical personnel, and realizing the integration of professional skill and marketing ability.

Key words Modern marketing, Agricultural products processing enterprises, Technological innovation, China

At present, service and products are becoming increasingly homogeneous in the market, and the technology development is difficult to have a higher breakthrough. Therefore, agricultural products processing enterprises can hardly form competitive advantages in the same trade in China. Usually, project of technology development has been completed, but the sale of new products is still poor; technology development costs can never be linked with the sales achievement; and finally development of enterprises is constrained. This is because there is a huge gap between the technological development and the customer expectation. Therefore, marketing knowledge should be grasped systematically and comprehensively and technological development should be combined with the market demand, so as to make technical changes become important energy sources for an enterprise that becomes success and obtains competitive advantages, to realize the integration of the core resources and core competence of an enterprise, and to achieve the transformation from technology to commodity.

1 Analysis of science and technology development of agricultural products processing enterprises in Hubei Province, China

1.1 Science and technology development status of agricultural products processing enterprises in Hubei Province

Agricultural products processing enterprises in China take important social responsibilities. Development of agricultural prod-

ucts processing enterprises not only improves the living quality of residents, but also absorbs a large amount of surplus labor forces. Agricultural products processing, especially the deep processing, can improve the technological content and added value of agricultural products, realize the multiple added value of agricultural products, and accelerate the modernization development and science and technology competition of agricultural products processing enterprises. Hubei Province is a big agricultural province in China, having the typical characteristics of agricultural products processing enterprises in China. Therefore, research on the agricultural products processing enterprises in Hubei Province can be applied in other provinces. On the one hand, agricultural products processing enterprises in Hubei Province have natural advantages in geography, having the most important commodity grain, cotton and oil production bases and the biggest freshwater products production bases in China. This lays a solid foundation for the development of agricultural products processing enterprises in Hubei Province. On the other hand, Hubei is a province with advanced agricultural science and technology, which provides a technological and scientific protection for solving the bottlenecks during the development of agricultural products processing enterprises. In recent years, Hubei Province has made use of the opportunity of agricultural structure adjustment to support the development of agricultural products processing enterprises, and has made new progress in modern agriculture. According to incomplete statistics, until the year 2008, there are in all 4 050 large-scale agricultural products processing enterprises in Hubei Province, accounting for 3.73% of those in China and occupying more than one third of the agricultural products processing enterpri-

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ses in Hubei Province. Output value of agricultural products processing industry has increased from 86 382 million yuan in the year 1996 to 267 018 million yuan in the year 2008, up by 209% within 12 years.

1.2 Problems in the science and technology development of agricultural products processing enterprises in Hubei Province

There are also some disadvantages in the technological innovation of agricultural products processing enterprises in Hubei Province. Firstly, in the aspect of market, there are conflicts between agricultural technology supply and market demand. Enterprises should carry out technological innovation and apply the achievements in practice according to the market change. Secondly, in the aspect of personnel training, there lacks the construction of innovation culture in enterprise and the innovation cultivation of technical personnel. And the power of skilled personnel has not yet fully exerted. In the aspect of technology radiation, the platform for information exchange is lacked, as well as the conversion rate of innovation achievements; and the commercial and profit-oriented technology can not be achieved effectively. In the aspect of innovative mode, there are problems such as single collaborative network of technological innovation, weak brand awareness, few alliances sharing risks, and poor financing capability. Development of modern economy has transferred the research center from enterprises into market and consumers. All business activities of enterprises should rely on the change of market development. Quick response to the demand of market is the law of survival for enterprises today. And innovation is an adjustment of enterprise in order to adapt to the change of market and environment. Therefore, based on market, this research puts forward the countermeasures for the technological innovation of agricultural products processing enterprises in Hubei Province.

2 Countermeasures for the technological innovation of agricultural products processing enterprises from the perspective of modern marketing

2.1 Establishing modern enterprise culture with innovative features; strengthening the market benefits of brand

With the development of market economy, products are becoming increasingly homogeneous, and the technology development is difficult to have a higher breakthrough due to the funding constraints and development difficulties. Finally, enterprises can hardly form core advantage, which has sustainable competitive advantage. Therefore, future development trend of enterprises is no longer a pure product competition, but a competition in enterprise culture and brand culture^[1]. An enterprise culture with creative features will certainly lead to the innovation of all staff in enterprises; and an enterprise brand with creative features will produce brand effect in market, be accepted by the consumers, and bring along the brand benefit. For instance, the rice wine is a traditional drink with local characteristics in Hubei Province. And rice wine factories are distributed all over the province with no significant differences in their products.

Therefore, customers buy rice wine by random selection. However, "Old Rice Wine" improves the processing technique, and makes the utmost possible effort to retain the traditional taste and to enhance the taste at the same time. Thus, "Old Rice Wine" becomes popular among consumers and occupies a large market share of rice wine market. Once motioning about the "Old Rice Wine", the first response of costumers is "authentic", which is a brand benefit brought by enterprise culture, and brings along the customer loyalty and brand benefit.

2.2 Constructing a comprehensive customer orientation information platform; scientifically predicting and developing the market

At present, enterprises can neither win in the competition only according to the customer information obtained by the market business sector, nor find the new opportunity value in the future. Firstly, enterprises having high performance in a long period of time and maintaining the competitive advantages all have a system that can directly obtaining the customer information in a all round way. Technical section can construct a comprehensive customer orientation based on the direct collection of customer information and the accumulation of customer experience. The most direct sources of information are the digital platform of market information in the enterprise, the market consultative agency of project development, the field investigation of technical personnel, the cooperation with customer, the first-hand customer experience of technical personnel, and so on. Secondly, the aim of collecting the comprehensive customer information is to better forecast the market^[2]. Market forecast is the basis of enterprises decision, as well as the direction guidance and fundamental basis of the innovative reformation of enterprises. For instance, Xinmeixiang Food Co., Ltd. is a Taiwan-funded enterprise specialized in the production and sales of dehydrated products in Hubei Province. It mainly produces and sales deep-frozen fruit, dehydrated seafood, dehydrated meet, and dehydrated vegetable, which sell well all over the country and are even exported to overseas. The specialization and diversification of production and the globalization of market have won many the customers, due to the innovations and breakthroughs, the continuous meeting the practical needs of consumers, and developing the potential demands. However, there were also errors in the market prediction of this enterprise. The mass can not afford the deep processing products, such as instant soups and instant porridge, due to the high cost and the requirements of high-tech. Customers are willing to buy instant noodles in stead with the same or even more money. Thus, there is a great gap between the expected value and the actual sales performance due to the error in early market research and forecast and the deviation of product positioning.

2.3 Doing well in market positioning of enterprise; selecting corresponding technology innovation strategy

Firstly, market leader usually occupies about 50% of the market share, having advantages in the introduction, price, channel, and promotion of new products. The objective of market leader is to enlarge the original market share and to defense competitors. Enterprises can realize this objective by expanding the

original market share, improving the quality of agricultural processing products, expanding the product lineup, and providing different technical services. Secondly, market share and dominance of market competitor are second only to the market leader. Breaking the dominance of the leader is the key for the market competitor to achieve success. Therefore, market competitor should actively challenge the leader, or use freely the existing environment of the leader, in order to obtain the market share at the same scale and to attack the market follower and the market supplementer. The relatively good innovation strategies are cost strategy, cheap products strategy, high-end product strategy, diversification strategy, and core technology reform. Thirdly, although market followers have the similar market share with the competitors, they do not conflict with the leader, but share the benefits of the expansion of market share of the leaders, and transfer the risks of technological innovation into the leaders and the competitors in order to obtain high profits. Maintaining the current customers and following the market leaders are the basic strategies of market followers, such as imitative innovation and improving the strategies. Fourthly, market supplementer has a market share of less than 10%, which plays a leading role in the small market field that big enterprises are unwilling to develop. The basis of innovation is personalization. In other words, the technological level of personalization plays a leading role in this industry. Integrating all the resources and occupying a small and particular market field have ensured the high profits of market supplementer. Thus, the personalization of market segment, capital chain, core technology, and technology service will implement the demand and achievements of technological innovation to individual^[3].

Jinhanjiang Cellulose Co., Ltd. in Hubei Province is the biggest professional enterprise making refined cotton products in China. This company takes cotton linter as the raw material to produce refined cotton products, and sales to the customers with customization demand through personalized technical processing. As a supplementer in domestic market, the company mainly produces the special high viscosity M1000 and T20 refined cotton with ammonia copper fiber, which have filled in the domestic blank, and are identified as the national key new product, and almost monopolize the domestic market by professional skills and specific high-tech fields. Its centralized development has ensured the high profits, and maintained a relatively stable and mature market in foreign market as a supplementer. The company makes use of the stable price of raw materials in China, and gives high value-added to the semi-manufactured goods with low cost and high-tech content. Its products are sold to Italy for garment production, to Switzerland for film production, to Asia for paints production, and to European and American markets as satellite launch materials. 60% of the products are sold abroad, so that the company becomes the leading enterprise of Jinhanjiang. Therefore, the premise of technological innovation strategies selection is to do well in market positioning.

2.4 Taking technological innovation strategy as the basis; realizing the transformation from "4P" marketing combination to "4C"

2.4.1 Product—consumer. Development of the processed

products of agricultural products must adhere to the practical needs and potential desire. Enterprises can speed up market segments, develop characteristic products according to the different demands and unique tastes of customers, and give the products high value-added.

2.4.2 Price—cost. The traditional thinking model of price is "price + appropriate profit = price adaptation". However, the current model is "acceptable price of consumer – appropriate profit = cost ceiling". In other words, the price of a product has changed from the instruction of company to the acceptance of consumer. Therefore, to pursue higher profits, companies should reduce the cost and improve the expected price of customers. They should obtain technological breakthroughs in design, manufacturing, logistics and other links, and enhance the value while reducing the costs.

2.4.3 Channel—convenience. With the reform of circulation channel, new channel forms, such as direct sales, distribution, agent, chain and vending machines, have become popular in the agricultural products processing industry. Development of these new channels has expanded to the whole supply chain. Therefore, there are certain requirements for the modern technique and system improvement level. Relationship marketing is the first choice of technology innovation strategy, because enterprises not only need the high efficient cooperative mechanism of "production, reaching and research" during the technology development, but also need the convenience of multi-party cooperation in supply chain during the transformation of technological achievement.

2.4.4 Promotion—communication. Processing products and agricultural products have already affected every aspect of people's life. Consumers are no longer satisfied with the basic function of products, but needs a higher level of emotional value. Enterprises should carry out two-way communication with the consumers constantly, understand their needs, and bring brand and reputation into the development and promotion of new technological achievements, establish a good image, and enhance the promotion of technological achievements by high-quality and perfect after sales services^[4].

At present, in order to obtain more market share, the large-scale retail enterprises, such as Wuhan Zhongbai Group, have made use of the advantages of directly obtaining the demand information of consumers, implemented the differential management, and developed its own brands in cloth and food and so on. This transition has a strong advantage in cost saving, because shortening the supply chain has greatly reduced the circulation cost; the image of the enterprises have saved the money for advertising; and the large-scale purchase has increased the company's ability to bargain and has reduced the costs of the scale benefit.

2.5 Cultivating technical personnel; realizing the integration of professional skill and marketing ability Technical personnel can find out and create the value of customer, and achieve significant innovation for enterprises by long-term strategic design and technology. Therefore, marketing with technical

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ment before the law revision. The policy should aim to guide the cooperatives and alliance cooperatives to expand market share, improve the quality of products, expand the industrial chain, gradually cultivate the research and development abilities of cooperatives, and enhance their brand values.

Secondly, before the revision of the *Law of the People's Republic of China on Peasants Specialized Cooperatives*, the Standing Committee of the National People's Congress should firstly give the legislative interpretation, in order to provide basis for the local legislation and to ensure the effectiveness, because some regulations on the alliance cooperatives by local legislative bodies have defects in legislative power.

Finally, the alliance cooperative, which is inconsistent with the principle of homogeneity, should be defined as alliance association, which is different from the alliance cooperative and belongs to a kind of social organization as legal person. And these alliance associations can be registered and monitored according to the *Regulations on the Registration of Social Organization as Legal Person*.

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personnel as the main body has special advantages^[2]. The essence of technological innovation in an enterprise is to better adapt to the market change and to adjust the enterprise. Therefore, market-perceived ability of technical personnel is very important for an enterprise. The basic goal for an enterprise to carry out technological innovation is to establish a core competitiveness that brings sustainable competitive advantages to an enterprise, that is, the integrating force of core resource and core competence of an enterprise. Technical personnel are undoubtedly the core of human resources, who bring the competitive advantage and core competence to a company. Thus, it can be seen that grasping the marketing ability is the premise of the transformation of professional technology. Talents with professional knowledge and skills should be cultivated into inter-disciplinary talents with integrated marketing capabilities, which is a new stage for the talent development of an enterprise.

Wuhan Zhongliang Machinery Co., Ltd. in Hubei Province aims to improve the income of farmers, enhance the quality of edible rice, and make contribution to the social development. It carries out training for researchers in various aspects, obtains breakthroughs in professional skills and marketing ability, and pays attention to the research, production and sale of products with good social and economic benefits. The "production technology and complete equipment of low-temperature rice whitening" has greatly enhanced the level of rice processing enterprises, promoted the overall economic efficiency, and satisfied the requirements of modernization of

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agricultural processing.

3 Conclusion

How agricultural products processing enterprises carry out technological innovation from the perspective of modern marketing is analyzed from several aspects, by taking the typical agricultural products processing enterprises in Hubei Province as examples. Practice has proved that with the development of market economy, enterprise can never enhance its own strength by pure technological innovation, but should combine the "doing things right" with "doing right things". Enterprises should conduct corresponding research and development work based on market with customer as the center, ensure the transformation profit of technological achievements, enhance the core competitiveness of enterprise fundamentally, integrate the technology and market, and realize the integration of professional skill and marketing ability, which is a fundamental guarantee of the long-term development of enterprises.

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