

## Research on Implementation of Intellectual Property Strategy in China's Agriculture-related Enterprises

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**Abstract:** Agriculture-related enterprises refer to the enterprises which are engaged in activities such as agricultural products' producing, processing, marketing, research and development, service and so forth. In accordance with the researches on intellectual property strategies at home and abroad, this paper analyzes the status quo of intellectual property strategy in China's agriculture-related enterprises, and put forward the specific implemental strategies of intellectual property.

**Key words:** Agricultural enterprise; Intellectual property; Strategy

### 1 Introduction

Agriculture-related enterprises refer to those enterprises that are engaged in activities such as agricultural products' and means of production's producing, processing, marketing, research and development, service and so forth. In general, they are the industries or enterprises involving in farming, forestry, animal husbandry, sideline occupation, fishery, fruit, vegetables, mulberry, tea, tobacco and etc.

The researches abroad mainly engage in intellectual property system and the national intellectual property strategy at the macro-level, and in patent strategy and trademark strategy at the micro-level, especially in the empirical research which reflects the combination of theory and practice. What's more, their further researches on the motivations and necessities of enterprises' intellectual property strategies enrich the theory of enterprise intellectual property strategy. For example, in the view of Samson (2005), when people are exposed to intellectual property, they would think of legal protection as patent, trademark and copyright; while the true value of intellectual property is enterprise's using it as enterprise strategy-assets accretion, research and development, and a part of the enterprise overall marketing strategy. The intellectual property in form of patent is regarded as a basic component in enterprise operation strategy. Lang (2001) considers that the strategic management of patent can improve enterprise competitive advantage in the market; enterprise patent decision-making is no longer a legal or technical decision, but the enterprise's strategic decision. After studying Japan's top 10 multinational enterprises in gaining patents, Arah. i H (2000) proposes that intellectual property strategy system dynamically integrates technology strategy, information strategy, organization strategy, knowledge assets operation strategy, international development strategy, and litigation and risk management strategy together, which provides theoretical references for the establishment of intellectual property strategy system in multinational enterprises. Stewart (1999) affirms the close connection between intellectual property and enterprise strategy. Intellectual property is not only a part of intellectual assets, but also the core element of enterprise competitiveness.

In China, the intellectual property system has just established over 20 years, therefore, the research on intellectual property strategy is still in its primary phase. However, based on the theory of intellectual property strategy in western developed countries and the successful experience of some multinational enterprises, the domestic academia provides some suggestions for enterprises in China to implement intellectual property strategies. Chen Changbai (2003) goes into rights utility, economic utility, technology utility, information utility, and competition utility of intellectual property from the perspectives of international trade and economics, and points out the important role that intellectual property plays in promoting the development of the country's and enterprises' economy. Huang Ping(2003) argues that intellectual property strategy should be integrated into the specific plan of nation's economical and technological development strategy. Jiang Xunming and Zhu Xuezhong (2003) put forward the concept of regional patent strategy from the perspective of regional economic development, and expound the characteristics, objectives, key tasks, and the main measures of regional patent strategy.

There are some problems in the current study. First, there isn't an agreed account of enterprise intellectual property strategy, nor a defined research field and content; second, the research on enterprise intellectual property strategy is abstract and macro, which lacks of maneuverability; third, enterprises of

different types and different trades lack of guidance and pertinence. For instance, the concrete implementation of intellectual property strategy in agriculture-related enterprises hasn't been studied.

## **2 Status of Intellectual Property Strategy in Agriculture-related Enterprises**

### **2.1 The feeble incentives of technological innovation in agriculture-related enterprises**

Under the planned economy system in China, the assessment and reward systems which emphasize the academic and papers but neglect the market and patents lead to the disconnection agricultural research and industry, and greatly limit the initiative of agricultural researchers' application of patents. The patent system in intellectual property most obviously promotes technological innovation, and it also provides the patentee a certain limited right, which asks the patentee to actively promote the application of its scientific and technological achievements. If the patentee hasn't effectively used its patent technology in a certain period, he not only can not obtain the commercial reward; on the other hand, his patent rights would be restricted, such as compulsory licensing of the patent. In addition, the patentee should maintain the validity of his patent which requires him to timely pay the annual fee that increases every year. Therefore, this would encourage the patentee to actively promote the application of his patent and create benefits thus maintain the validity. Otherwise, he could give up patent by refusing to pay the annual fee and make the patent technology public. However, at present, the incentives of China's intellectual property to agricultural enterprise technological innovation are not strong.

### **2.2 The lack of related intellectual property systems, policies, and funding guarantees in agriculture-related enterprises**

In recent years, we did make some progress in the development of China's enterprise intellectual property, but there are also some problems existing. The current intellectual property legal system in China is not sound. Besides, the intellectual property system in China is different from the regulations in WTO's TRIPS Agreement; the enforcement procedures, the enforcement standards, and law enforcement are still insufficient, especially in the application for intellectual property in agriculture-related enterprises and the law to protect it. What's more, the title in policies and funding as well as the insufficient support make it impossible to protect the intellectual property in China's agriculture-related enterprises after entering WTO. All of this increases the difficulty in protecting agricultural enterprise intellectual property.

### **2.3 The lack of intellectual property management systems and specialized agencies in agriculture-related enterprises**

Nowadays, most agricultural research institutions and agriculture-related enterprises haven't developed their own specific intellectual property management methods, or didn't set up a specific management fund. Besides, they also lack of internal and external patent technology, contracts to develop crop varieties licensing regulations, and profit distraction. Therefore, they didn't offer the applicable guidelines for intellectual property. According to the research group survey of national agricultural patent status, problems, and solutions, 67.5% of the national agricultural research institutions have not enacted intellectual property management practices, and 44% of those that have already enacted developed the policies after 1995. What's more, 90.2% of them haven't set up the fund for patent application, and 93.2% of them don't have a fund for exploitation of the patent. Some agriculture-related enterprises neither have the departments and person dealing with intellectual property, nor establish the related intellectual property management, protection requirements; as a result, they are unable to use intellectual property strategy to promote the development of agricultural high-technology. Meanwhile, the inadequate protection of the agricultural high-tech intellectual property in agriculture-related enterprises affects their development.

### **2.4 Not forming a macro-management system of intellectual property protection in agriculture-related enterprises**

The agriculture-related enterprises, especially agriculture-related high-tech enterprises, haven't form a macro-management and dynamic system of intellectual property promoting the combination of research, production, and marketing. The definition of intellectual property formed in the process of research and development is obscure, and the efficiency of intellectual property management is relatively low. In recent years, China has put out a series of vital measures and policies to encourage the industrialization of the high-technology and the strengthening of technology innovation. However, in the process of implementation, some measures are still in the primary stage, lacking of efficiency micro-management and dynamic systems. On the other hand, due to the inadequate agricultural input, the living condition of the farmers has not been improved; besides, the social barriers and high cost that

the agriculture-related enterprises met when putting the technological achievements into the market give rise to agricultural intellectual property's difficulty in obtaining its profits. They restricted the sustainable development of agriculture-related enterprises, which would weaken its agricultural scientific and technological innovation and its protection of agricultural intellectual property.

### **2.5 Not establishing an agricultural patent protection system in agriculture-related enterprises**

Based on the background of economic globalization, the competition of the domestic companies with those of the international ones improves the use of intellectual property system in China's agriculture-related enterprises, and increases their own of the quantity and quality of self-owned intellectual property, and accelerates the research and implementation of intellectual property in agriculture-related enterprises, which play an important part in the survival and development of China's agriculture-related enterprises. However, the agriculture-related enterprises haven't established an intellectual property protection system for protecting the agricultural patents. According to the research results of WIPO, 90% of the world's latest innovations and inventions are reflected by the patent documentations. The application of patent documentations in the process of research and development can not only improve the starting point of the research and development, but also save 40% of funding and 60% of the time in research and development. A study of European Patent Office reveals that more than a dozen of European Patent Convention member countries, in the research and development of applied technology, avoid duplication of research due to the using of patent documentations so as to save about 30 billion marks research and development funding per year

## **3 Intellectual Property Strategy Implementation in Agriculture-related Enterprises**

### **3.1 The further improvement of related scientific and technological innovation incentive system in agriculture-related enterprises**

The basic unit of technological innovation is scientific and technological researchers, engineering technical personnel, and production workers, whose initiative of technical innovation generates under certain incentives and measures, where the governments and enterprises play an important role. Therefore, the branches of government's scientific and technological competent departments should reward and protect the innovations of scientific and technological workers from the policy and law through the institutional innovation. In addition, the enterprises can mobilize the enthusiasm and creativity of technical research and development personnel through the management innovation. According to Maslow's hierarchy of needs, we should develop appropriate technological invention and innovation management system and regulations based on the different needs of technical research and development personnel in the economy, security, social psychology, honor, and rights so as to stimulate their creativity.

### **3.2 The implementation of scientific and technological talents project in agriculture-related enterprises**

Talent is the foundation of innovation. In implementing scientific and technological talents project in agriculture-related enterprises, firstly, it is necessary to expand the proportion of technical research and development personnel. In order to become the main part of technological innovation, agriculture-related enterprises should have their own research team, and the government should encourage university students and scientific and technical personnel to the enterprises, and the front line of the production, in order to contribute to the development of agricultural enterprise technology. The second is to develop and implement a series of preferential policies within the enterprise so as to effectively improve the treatment and the working and living condition of scientific and technical personnel, which could retain them and fully mobilize their initiative and creativity and reflect their key role in solving technical problems in the enterprise. Thirdly, we should actively cooperate with scientific research institutions, and colleges and universities to form a community of interests, seeking talent and technology support to enrich and strengthen technology promotion, development. In the end, agriculture-related enterprises should recruit high a variety of quality innovation talents in domestic and international talent market according to their own development needs, and they should make every effort to create excellent conditions for scientific research, working environment and living condition to attract outstanding workers.

### **3.3 Intellectual property protection strategy implementation in agriculture-related enterprises**

The intellectual property protection in China's agriculture-related enterprises includes the protection of new plant varieties, agricultural patent protection, agricultural products trademark protection, geographical indication protection, and trade secrets protection.

PDO products refer to those produced in specific regions with qualities and reputations or other characteristics essentially depend on the origin of the natural and human factors, and are approved to name after the appellation of origin. agriculture-related enterprises should promptly apply the related agricultural geographical indication of origin as the registered trademark in order to achieve an effective protection of geographical indications. Based on the Mingyoute agricultural products, the agriculture-related enterprises that are engaged in producing local agricultural products can implement the geographical indication protection strategy. With the unique quality, characteristics, reputation, environmental protection, and other features, they can improve the international competitiveness of agricultural products. Therefore, the agriculture-related enterprises, employees, and the local government should strengthen the cooperation among them to explore the appropriate institutional arrangements on the registration, management, supervision, and dispute settlement of the agricultural geographical indication of origin.

In China's patent system, the patents that relate to agriculture-related enterprises include agricultural production technical invention patent, and invention and application of new design patent of agricultural ancillary products. The former refers to the invention that uses the agricultural biological technology, combined with nuclear technology, optical technology and conventional breeding technology to create, breed, produce, and improve new species of agricultural products. The latter refers to those make improvements or new designs to agricultural ancillary products (such as pesticides, fertilizers and farm machinery, etc.), which could get the protection under the current framework of China's patent law. Besides, agriculture-related enterprises should fully realize that the technological innovation can enhance the development of the enterprise. However, only the timely application of patent for its technology can ensure a permanent, sustained and harmonious development.

Plant variety rights, in short, plant breeder's rights, is to give the variety holder the exclusive rights to their new varieties. Agriculture-related enterprises in China should put plant variety rights protection, patent protection, and trademark protection at the same level. In the process of breed new plant varieties, agriculture-related enterprises should pay attention to the protection of existing resources, avoid wasting, and timely apply for protection of genetic resources, and new plant varieties with authorized conditions. Besides, they should also enhance the protection of plant varieties from the process of cultivation, protection, application, and management.

The protection of agricultural and commercial secrets in China's agriculture-related enterprises should start from the protection of general trade secrets. First, to strengthen the management of employees, especially those master the technological secrets or business secrets. Second, we should make use of relevant information in the production so as to bring certain economic interests and realize the value of trade secrets. Third, agriculture-related enterprises should actively take security measures, including the confidentiality agreement with employees, and the establishment of secret system. All of these can help them to obtain effective judicial assistance when their agricultural and commercial secrets are attacked.

#### **3.4 The implementation of patent strategy, geographical indication strategy, plant variety rights strategy in agriculture-related enterprises**

Agricultural enterprise patent strategy refers to the strategies an enterprise adopts, from a long-term strategy, making full use of patent system, patent technology, and patent information in order to get a dominant position in competition. Based on the overall interests of enterprise development, agriculture-related enterprises should formulate and use the patent strategy, and systematically establish the patent information documentations related to agricultural technology development, and closely track and monitor the domestic and international development level and direction of agricultural technology so as to continuously improve the technical starting point, and avoid repetition. As to the pillar products, agriculture-related enterprises should develop series of patents based on the basic patent to protect the core patent technology, and timely introduce the advanced agricultural technology domestic and international to enhance the technical strength, shorten the gap with the developed countries. In addition, they should also pay attention to trademark strategy by doing the following points. First, timely register the trademark; fill the form in accordance with the classification of goods; report the product category and name and get the registration right. Second, enterprises should register defensive trademark to build a strong protection and defense the counterfeiters. Third, they should timely assess the value of trademarks and make the intangible assets tangible. Therefore, in order to maintain the vitality in market

competition, a timely product trademark registration is particularly important. As to the enterprises involving geographical indications and plant varieties, it is profitable to apply the geographical indications rights and plant variety rights.

### **3.5 The improvement of intellectual property management system in agriculture-related enterprises**

#### **3.5.1 The improvement of intellectual property management incentive and risk-reward system in agriculture-related enterprises**

Agriculture-related enterprises' intellectual property management should meet the essential requirements of the intellectual property system, combined with high-risk characteristics of agricultural technological innovation to establish the agricultural technological innovation and intellectual property incentive and risk-reward systems centered on interests. On one hand, based on the intellectual property management, agriculture-related enterprises should protect the main body of agricultural innovation and intellectual property owner to recover the cost through the control and perform their rights so as to obtain the necessary returns. Besides, agriculture-related enterprises should also implement the incentive strategies of income distribution and equity awards according to the proportion that the technicians directly participant in technical innovation, and reflect the spirit reward such as the rights of authorship, honorary title which reflect the social respect and sense of achievement. On the other hand, agricultural enterprise should standardize the obligation and rights relationship between agricultural enterprise and technological innovation personnel, and make a part of the benefits gained in the transfer of the agricultural intellectual property as the risk-reward fund. Besides, we should also let the providers of technical elements involved in enterprise distribution, and establish a new distribution system of sharing both risk and benefits, in order to combine the property rights benefits and market benefits of agricultural technological innovation and form a benign power system.

#### **3.5.2 The improvement of resource allocation system of intellectual property management in agriculture-related enterprises**

The intellectual property management's resource allocation system in agriculture-related enterprises is to coordinate the enterprise's agricultural technological innovation and the formation, use, and transfer of intellectual property, and optimize the resources. Firstly, agriculture-related enterprises should establish the talent archive of agriculture-related enterprises' agricultural technological innovation and intellectual property, including agricultural technical personnel and the relevant R & D personnel in associated colleges, universities, and other research institutes, so as to track their research dynamics, the ownership of results, performance level, and the promotion ability of technology. It is also necessary to strengthen the cooperation among industries, universities and research institutes and establish a rational agricultural research echelon. Second, to establish a market-oriented agricultural technology innovation and intellectual property input system. Agriculture-related enterprises should ensure a continued and stable investment in agricultural research, pursuit the diversification of investors, actively receive social fund, in order to establish an incentive mechanism stimulating the farmers to invest in science and technology. In addition, we should build a platform for agricultural technology innovation and intellectual property information. Improving the system of related technical information's storage, aggregation, transmission and communication, agriculture-related enterprises can build their network system and intellectual property databases, make full use of the intellectual property information network established by the government, and realize the information link, search, order, and other functions. What's more, the registration, filling, storage, use, transfer, and distribution of intellectual property in agriculture-related enterprises and information management system should also be improved.

#### **3.5.3 The improvement of innovative achievements transformation mechanism of intellectual property management in agriculture-related enterprises**

The transformation of agricultural scientific and technological achievements is to apply its achievements into agricultural production and becomes the real productivity. The intellectual property management in agriculture-related enterprises should be market-oriented and focus on interest chain, and coordinate the relationship among technology suppliers, technology users, capital investors, go-betweens of technology promotion in the transformation process of intellectual property research achievements. Agriculture-related enterprises should track the market trends of agricultural technology demands, and keep the agricultural producers real demands and economical rule of new technology transformation in mind, thus to form the cycle mode of "innovation - enterprise - market - innovation". The tracking evaluation and information feedback as well as the understanding of new technology requirements in agricultural industrial system provide new resources for technological innovation and

form a virtuous circle in technological innovation and intellectual property inputs in agriculture-related enterprises. Meanwhile, the non-market elements should also be concerned, such as the government's macro-control of agricultural resource allocation and the trend of scientific and technological policy, so as to provide a good external information support for innovative achievements' transformation. What's more, they should also connected with the government-lead agricultural extension system of the public welfare, and share radiation efficiency of their layered management, forming the achievement transformation mechanism of enterprise agricultural technology innovation and intellectual property which is interests-centered, market-oriented, information-linked, and protected by policies.

#### **4 Conclusion**

The National Intellectual Property Strategy is promulgated in June 2008 and later all walks of life in different levels and different regions also developed their own intellectual property strategy. However, the majority of enterprises haven't put the intellectual property strategy at the same level with the business strategy. The conscious of intellectual property and intellectual property strategy is not strong, especially in agriculture-related enterprises. In order to improve the competitiveness and expand the market share, agriculture-related enterprises should implement intellectual property strategy. This paper, based on intellectual property's creation, use, protection, management, and other aspects, puts forward the concrete strategy of implementing intellectual property in agriculture-related enterprises, such as the further improvement of scientific and technological incentive system; the implementation of scientific and technological talents project; the implementation of intellectual property protection strategy; the implementation of patent strategy, geographical indication strategy, plant variety rights strategy; the improvement of intellectual property management incentive and risk-reward system; the improvement of resource allocation system of intellectual property management; the improvement of innovative achievements transformation mechanism of intellectual property management.

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