

Analysis of Value Assessment of Pledge Financing of New Plant Variety Rights

Linqi Li^a, Yabin Wang^b

School of Law, Henan Normal University, Xinxiang 453007, China

^alilinqi726@126.com, ^bw20212024@163.com

Abstract

As a property right in the transferable intellectual property, the new plant variety right can be pledged for financing according to the law to relieve the financial pressure of small and medium-sized scientific and technological enterprises. However, the pledge financing of new plant variety rights in China is not common, because there are many obstacles in the evaluation of the value of the pledge financing of new plant variety rights. Combining the characteristics of new plant variety rights, addressing the shortcomings of pledge financing value assessment and learning from the experience of foreign pledge financing value assessment, the actual value of new plant variety rights should be clarified, flexible assessment methods should be applied, the assessment market system should be improved, and the assessment constraint mechanism should be strengthened.

Keywords

New Plant Variety Rights; Pledge Financing; Value Assessment.

1. Introduction

Value assessment of new plant variety rights as intellectual property rights specifically for seed industry R&D enterprises, in the development of market economy, pledge financing of new plant variety rights provides a new financing platform for enterprises, widens financing channels and can effectively alleviate the financial pressure under the epidemic. The prerequisite for carrying out the pledge financing of new plant variety rights requires its value assessment to determine the value of the pledged new plant variety rights, which also provides the basis for financial institutions to grant credit. As an intangible asset, the value of new plant variety rights is affected by a variety of factors, and the lack of specificity in the evaluation guidelines and evaluation methods in the value assessment leads to difficulties in the value assessment. Based on this, this paper puts forward suggestions for the problems arising in the value assessment of plant new variety rights pledge financing, with a view to promoting the improvement and development of the value assessment of plant new variety rights pledge financing at the present stage.

2. Overview of Value Assessment of Pledge Financing of New Plant Variety Rights

2.1. The Concept of Valuation of Pledge Financing of New Plant Variety Rights

As a creative intellectual achievement other than works and inventions, new plant varieties are included in the scope of intellectual products in combination with their specificity and novelty.^[1] As a transferable property right in intellectual property, the right to new plant variety can be pledged according to the law. Thus, the evaluation of the value of the pledge financing of new plant variety rights is a social and economic activity to confirm the price of the pledged new plant variety rights at a certain point of time by selecting an evaluation agency with certain

qualifications, according to the specific evaluation purposes and evaluation standards and in accordance with certain evaluation procedures and methods.^[2] The value assessment of the pledge financing of new plant variety rights is a benefit assessment, and the value assessment not only plays an important role in the pledge financing of new plant variety rights, but also helps financial institutions reasonably determine the credit amount, reduce the cost of mortgage realization, alleviate the financial pressure of the company, and grasp the development prospect and market direction of new varieties.

2.2. Principles of Assessing the Value of Pledge Financing of New Plant Variety Right

The evaluation of the value of the pledge financing of new plant variety rights shall implement the principles of scientificity, comprehensiveness and operability to ensure that the evaluation results are reasonable and fair.

The principle of scientificity means that in the appraisal process, the applicable appraisal method should be selected from objective reality, combined with the life cycle and biological characteristics of the new species itself, and a scientific appraisal plan should be formulated to exclude the interference of personal will; the principle of comprehensiveness means that when conducting the appraisal, it is necessary to consider not only the basic situation of the financing company, but also the market and macro and other political and economic factors, and the appraisal method should be selected comprehensively on the premise of combining the existing and future; the principle of operability means that the appraisal method selected should be practically applicable, the data should be accessible, and subjective assumptions should be avoided.

3. Composition of the Value of New Plant Variety Rights and its Influencing Factors

3.1. Composition of the Value of New Plant Variety Rights

The process of forming new plant variety rights is roughly divided into four stages: inspiration for R&D, comprehensive evaluation of R&D, variety testing and variety rights authorization,^[3] To evaluate the value of new plant variety rights, it is necessary to clarify the composition of such value and various factors affecting the evaluation value, so as to reasonably select the evaluation method.

From the process of rights formation, it can be found that the value composition of new plant variety rights mainly includes the value of research and development and the value of implementation and application. The R&D value of new plant variety rights includes the cost of researching new varieties and the labor value of R&D. Due to the specificity of new plant variety rights, the value it generates is the individual labor value, while what really brings into play the value of new plant variety rights is the value brought by the implementation of rights, i.e. the residual value, including the use, transfer and license of rights, and the proceeds obtained from the above implementation are beyond the R&D process beyond its own value Residual value.

3.2. Factors Influencing the Value of New Plant Variety Rights

The appraised value of pledges plays a key role in obtaining pledged loans for enterprises, and the factors influencing the pledge value of new plant variety rights also have an important impact on the appraised value.^[4] Starting from the special characteristics of intellectual property itself, new plant variety rights, as intangible assets, are inherently more complex compared with tangible assets, involving a wide range of fields and many kinds of appraisal objects, and lacking comparability among them.

In assessing the value of new plant variety rights, it is necessary to analyze the factors affecting its value, mainly including technical factors (the R&D cost of new varieties, the adaptability, substitutability, resistance to harm and transformation power of new varieties), legal factors (the duration of protection granted, the level of validation and authorization license), enterprise factors (the nature of the enterprise, its R&D capability, its reputation, the overall quality of its managers), market factors (the maturity of the market, the market share of new varieties and the supply and demand of new varieties) and macro environment factors (the state of economic development and policy support). These factors will have positive or negative impacts on the value of new plant variety rights, and certain aspects need to be considered, such as ownership, license, market share, enterprise operation and credit status, scientific research ability, etc.

4. Difficulties in Value Assessment in Pledge Financing of New Plant Variety Rights

4.1. Uncertainty of Appraisal Value in Pledge Financing of New Plant Variety Rights

Valuation seems to be one of the cliched topics in the process of applying intellectual property rights, and the fundamental reason for the difficulty of valuation is that its value is determined by the measurement of individual labor time, which is more complicated than the measurement of tangible assets and is accompanied by uncertainty. The determination of the actual value of new plant variety rights is influenced by various factors, mainly revolving around two aspects of new plant variety rights as well as new plant varieties. On the one hand, the acquisition of new plant variety rights is inseparable from the initial investment in research and development costs, and later on, due to the risk changes in the market, there may be a situation that the investment is not proportional to the return. The determination of the appraisal institution based on the future over-estimated value is highly subjective and arbitrary when conducting the value assessment. Secondly, the size of the appraisal value of new plant variety rights is also related to factors such as market acceptance, marketing ability and brand influence of enterprises. The assessment results vary from node to node, which further aggravates the uncertainty of the assessment results.

On the other hand, although the level of variety validation is not traceable for the criteria affecting the value, although the national trial variety is higher than the provincial trial, the higher margin is not clear. The stable and excellent characteristics of the varieties themselves will speed up the process of entering the pledge procedure of the new plant variety rights, which will be one of the potential criteria considered by the appraisal institutions when conducting the value assessment.^[5] In conclusion, whether due to subjective or objective factors, the appraisal value of new plant variety rights in pledge financing often has the problem of being overestimated or underestimated due to the large uncertainty of the appraisal value.

4.2. Unstandardized Assessment and Recognition Methods in Pledge Financing of New Plant Variety Rights

The valuation methods stipulated in the Practice Guidelines on Asset Valuation and the Guide to Valuation of Intellectual Property Assets include the market approach, the income approach and the cost approach and their derivative methods. However, in practice, due to the specificity of new plant variety rights, each of the above methods has its own advantages and disadvantages in application. Although the market method compares the market price of the reference to determine the appraisal value, due to the uniqueness of intellectual property rights, it is impossible to have identical or highly similar right contents, and it is difficult to apply with reference; the cost method takes the cost of reconstruction or replacement of the appraisal

object as the basis for determining the value, so as to reflect the loss and consumption, but the new plant variety rights, as intellectual achievements, are difficult to reconstruct and reset; the income method takes the The income method is to assess the value of the appraisal object by its expected income or discounting. The income method can reflect the value of the appraisal object to the greatest extent through assumptions, however, the new plant variety rights are subject to the influence of market instability factors and the expected returns are risky.

Due to the weak operability of intangible asset valuation guidelines, the actual valuation methods and valuation standards used by appraisal institutions in valuing different intangible assets are not uniform. For example, some scholars have adopted the AHP method, fuzzy comprehensive evaluation method and real option method for the existing valuation of patent rights, which are applied to new plant variety rights. Behind the use of these methods, appraisal institutions need to make every effort to understand the legal factors, technical factors and economic factors that may affect the pledge of new plant variety rights. Of course, the existing valuation of new plant variety rights mostly adopts the cost method and the expected revenue method, which are considered by some scholars to be defective due to the influence of factors such as development cost, legal status and market economic environment. [6] Some scholars believe that we should accelerate the establishment of real options assessment with American options based on the attributes of new plant varieties, protection years, market demand, etc. [7] On the one hand, different appraisal methods will yield different appraisal results, and on the other hand, appraisal institutions cannot effectively carry out appraisal due to the lack of specific methods for appraising the value of new plant variety rights, which is one of the urgent problems concerning the appraisal of the pledge value of new plant variety rights at present.

4.3. The Market System for Assessing the Pledge Financing of New Plant Variety Rights is not yet Perfect

The new plant variety right is a traditional right in the scope of intellectual property rights, but in terms of pledge financing, it is still an emerging project, and there are not many examples of the new plant variety right being able to bring "real money" to enterprises. It was not until January 2021 that the first national case of pledge financing for new plant variety rights [8] Jiusheng Seed Co., Ltd. obtained a credit line of 50 million yuan from the bank with an appraisal price of more than 100 million yuan. From the comparison of the appraisal price and the credit line, it can be found that there is a gap between the right and the realization, and this gap not only reflects the imperfection of the appraisal market of the new plant variety right pledge financing, but also reflects the risk concerns of banks and other financial institutions.

First of all, the awareness of seed companies and rights holders of new plant variety rights for loan financing is generally not high, as the person in charge of Jiusheng Company said: I did not expect that new plant variety rights could be pledged for financing. Coupled with the risk concerns of financial institutions, it leads to the fact that the value assessment of new plant variety rights cannot enter the loan financing process and the assessment market system is incomplete. Secondly, the market system lacks the integration of assessment information, and the flow of assessment pledge information is not smooth. Plant new variety right pledge financing has just started, and the state does not have separate assessment methods and specific measures for plant new variety right pledge financing, lacking reference assessment methods and systems, and assessment institutions can only rigidly apply the existing assessment methods, which cannot fully reflect the characteristics of variety right.

4.4. The Lack of Assessment and Supervision Mechanism in the Pledge Financing of New Plant Variety Rights

First, from the perspective of rights and obligations, when the parties give the appraisal agency the right to assess the value of new plant variety rights, their obligation is to conduct prudent

assessment of new plant variety rights. However, the fundamental purpose of the appraisal agency is to make profit, and the appraisers gain revenue through appraisal services, [9] thus expanding the scope of the case.

For this reason, they are forced to consider the opinions of the principals when conducting the appraisal in order to get favorable comments, and in practice, there will be an appraisal value mixed with subjective will, and the appraisal value will be unfair. Secondly, the determination of the pledge value of new plant variety rights itself has complexity and lacks unified guidelines for pledge of new plant variety rights with high subjectivity, then at this time, the value assessment behavior of the assessment agencies should be reviewed and a supervision mechanism should be established to make them assess objectively and fairly.

5. Sound Evaluation System for Pledge of New Plant Variety Rights

To do a good job in assessing the value of new plant varieties must have the following conditions: first of all, there must be a practical set of biological, data, legal, etc. as one of the plant variety rights value assessment system; secondly, there must have been a professional assessment team composed of breeding experts and seed entrepreneurs, etc.; finally, several on-site observations and other field visits are required. But in fact, China has not formed a perfect systematic and standardized evaluation system, and may not be able to assess the value of new plant variety rights in a scientific and comprehensive manner. Therefore, it is necessary to improve the value assessment system of pledge financing of new plant variety rights from various aspects.

5.1. Clarifying the Actual Value in Pledge Financing of New Plant Variety Rights

To clarify the actual value in the pledge financing of new plant variety rights can refer to the evaluation of the value of patent right pledge financing and construct a patent value evaluation index system from four dimensions of patent technology renewal speed, marketability level, cost and revenue to comprehensively evaluate the value of patents. [10] Then, the actual value of the pledge financing of the new plant variety rights should include the cost value and the existing and expected revenue value.

From the inspiration of a new plant variety to its final authorization and promotion, the cost spent during the period may not be measured due to the long time and the number of repeated tests, but the necessary R&D and operation costs should still be included in the appraised value as R&D costs, and the relatively convergent costs should be estimated. New varieties and new variety rights can only be put into the market to test the quality and revenue. Considering the pledge financing of new plant variety rights at different stages, the existing income and the expected market income value should be evaluated in the pledge financing appraisal, linking intangible assets with real assets and linking the intrinsic value through the bond of market. The existing and expected earnings are calculated by conducting sufficient research on the market data.

5.2. Flexible Use of New Plant Variety Rights Pledge Financing Assessment Methods

The assessment method is one of the necessary factors to be considered in the establishment of the assessment guidelines. The establishment of the evaluation guidelines for the pledge financing of new plant variety rights requires further research on the path and methods for the evaluation of the value of new plant varieties. Based on the traditional assessment methods, some scholars have proposed the proportional method, fuzzy comprehensive evaluation method, real option value assessment method and so on. In practice, it should start from the characteristics of new plant varieties, combine mathematical models, integrate biological, scientific, financial, legal and other theoretical systems, draw on the operability of

emerging assessment methods on the basis of existing assessment methods, and develop targeted and comprehensive methods for the assessment of new plant variety rights.

The U.S. IPR pledge financing value assessment adopts different valuation methods according to different rights types, and also divides the rights development into four stages: early, developed, developed and mature, and accordingly adopts the cost-recovery method, replacement method, revenue market method and market residual method.^[11] In conducting the appraisal, the value characteristics required to factor in the different stages of the development of new plant variety rights will be different and the influencing factors to be considered will also be different. Referring to the phased appraisal in the United States, the pledge financing of new plant variety rights is roughly divided into two main stages. First, new plant varieties have been tested and have not yet entered the market stage, and second, new plant varieties have entered the market and developed to maturity. The evaluation is carried out under the dual role of self-regulation of the market and macro-regulation of the government, and the cost method and the market method are adopted respectively. At the same time, the dynamic comprehensive assessment method is introduced to conduct dynamic assessment in the four stages of early, rising, mature and declining development of new varieties, monitor the operation of new plant variety rights and evaluate the income of new plant variety rights, provide more adequate and useful reference for the pledge of new plant variety rights, and reduce the risks of financial institutions.

5.3. Improving the Market System of New Plant Variety Rights Pledge Financing Assessment

The promotion and implementation of new plant varieties need a perfect market system, and the pledge financing of new plant variety rights is not only a commercial act but also a market act, and the pledge financing of new plant variety rights is closely related to a perfect intellectual property market transaction system. Taking Henan as an example, the first case of pledge of new plant variety rights was not completed until January 2022.^[12] It can be seen that the pledge financing of new plant variety rights, as a financing model that has just started to develop, has little practice. The reason for this situation is not only the low enthusiasm of plant new variety rights pledge financing, but also the imperfect trading market of plant new variety rights.

5.3.1. A Perfect Appraisal Market System is Needed to Improve Awareness and Confidence in Pledge Appraisal of New Plant Variety Rights

The establishment of a perfect evaluation market system improves the enthusiasm of market players and their awareness and confidence in the pledge evaluation of new plant variety rights. On the one hand, for seed companies or right holders, they can be made aware of the legal significance and legal nature of new plant variety rights and know that new plant variety rights as transferable property rights, can be pledged for financing through financing propaganda, so as to improve their confidence in pledging for financing. On the other hand, through analyzing the property value of intellectual property rights for banks and other financial institutions, i.e., new plant variety rights can bring existing and expected income, to reduce financing lending concerns, and make two-way efforts to promote the establishment of a market system for the pledge evaluation of new variety rights.

5.3.2. A Perfect Appraisal Market System Needs to Strengthen the Promotion of the System and the Integration and Sharing of Appraisal Information

Japan's intellectual property pledge financing system is a "government-led" policy that uses a policy investment bank pledge financing appraisal to secure the value of capital receipts and expenditures of the intellectual property protection business sector.^[13] The government fully plays the responsibility of a service provider and a guarantor in IPR pledge financing. The state needs to promote the evaluation guidelines for new plant variety rights as soon as possible,

provide guarantees for pledge financing through lowering tax rates, providing loan support funds and joint public-private guarantees, and promote the construction of an evaluation system.

In addition, the Japan Patent Office has implemented the "Intellectual Property Business Evaluation Letter" project, which provides a "government credit intermediary" for SMEs' intellectual property pledge financing through public project evaluation letters. [14] To this end, a department specializing in the trading of new plant variety rights can be set up in the forestry or agricultural departments, and joint assessment agencies can establish a database of new plant variety rights value assessment file system that sets up a service team of professional talents in file management and network operation, and publish it to the public through online and offline synchronization to ensure the integration and interoperability of assessment information, which not only facilitates the reference of assessment information but also helps the supervision of assessment.

5.4. Construct Authoritative Assessment Institutions and Necessary Assessment Restraint Mechanisms

The flexible application of assessment methods should be based on authoritative assessment institutions, and mature assessment institutions are the primary basis for the assessment of the value of new plant variety rights. Therefore, we should carefully identify the conditions of the assessment institutions that can evaluate the value of new plant variety rights and establish the necessary assessment restraint mechanism to ensure the credibility of the assessment of the value of new plant variety rights.

5.4.1. Construct Authoritative Appraisal Institutions and Training Professional Appraisers

As a novel appraisal object, new plant variety right involves more professional contents and is more comprehensive than traditional intellectual property rights, which requires the authority of appraisal institutions with professionals including banks, seed industry, law and so on. The existing professional direction of asset appraisal in China is only jewelry appraisal, so it is necessary to develop the direction of value appraisal of new plant variety rights and establish an authoritative appraisal institution or team for pledge financing of new plant variety rights. The construction of an authoritative appraisal institution is inseparable from the cultivation of professional appraisers. Due to the special nature of new plant variety rights and the fact that the professional qualification examination for asset appraisers is a general knowledge examination, it is not relevant to the appraisal of intellectual property rights such as new plant variety rights. For this reason, it is necessary to set up additional intellectual property appraisal examination subjects and strengthen the examination and cultivation of talents for the appraisal of new plant variety rights and other values.

5.4.2. Establish Supervision and Mechanisms for Appraisal Agencies and Appraisers

No rules can make a circle. The stable operation of industries and organizations is inseparable from the construction of supervision mechanisms. In the evaluation of the value of pledge financing of new plant variety rights, it is necessary to impose supervision and institutional regulation on evaluation agencies and evaluators. The members of the evaluation committee composed of agriculture and finance departments should carry out the evaluation under the supervision of the disciplinary committee and the supervisory committee. Although the appraisal agencies and appraisers are affiliated with the asset appraisal association and are managed and supervised by the association, the association, as an autonomous organization of the industry, does not have clear provisions regarding the supervisory measures of the appraisal agencies and appraisers, therefore, it is extremely necessary to establish a supervision and assessment mechanism, and to supervise the appraisal agencies and appraisers from a

professional perspective through a third-party supervisory body composed of personnel from the banking, judicial, seed industry, agricultural and financial sectors. A third-party supervisory body composed of personnel from banks, judicial, seed industry, agricultural and financial sectors will monitor the appraisal behavior and business performance of appraisers and appraisers from a professional perspective and deal with violations of the regulations.

A joint and several appraisal mechanism shall be established. If an appraisal institution or appraisal personnel causes appraisal errors due to intentional or gross negligence, resulting in losses to the appraisal subject, the appraisal institution or appraisal personnel shall bear joint and several responsibilities. The asset appraisal association should also strictly examine the appraisal institutions and personnel in performing appraisal and title declaration, and implement integrity qualification and professional qualification access. In the early stage of the development of pledge financing value assessment of new plant variety rights, when the relevant assessment system and assessment standards are not yet complete, the review of the value assessment results of new plant variety rights should be strengthened and prudent assessment should be effectively achieved.

6. Conclusion

In the pledge financing of new plant variety rights, value assessment, as a key part, plays an important role in the success of pledge financing. The special characteristics of new plant varieties make the value assessment of new plant variety rights affected by various factors such as laws, technologies, markets, etc. Nowadays, traditional assessment methods have their own advantages and disadvantages, and relevant supporting measures are not yet perfect, so we draw on the assessment experience of the United States and Japan to propose solutions in terms of system mechanism and policy support, with a view to reducing the difficulty of value assessment of pledge financing of new plant varieties and promoting the development of pledge financing of new plant varieties.

References

- [1] T.P.Wang: Theoretical Scope of Intellectual Property Objects (Intellectual Property Press, China 2008), P169-170. (In Chinese)
- [2] Z.Zhou, F.Yang: A new exploration of value assessment issues in intellectual property pledge financing, China Asset Appraisal, Vol.09(2018), 17-19+25.
- [3] Y.Liu: Research on the valuation of new plant variety rights trading (Economic Science Press, China 2018), P 83-87. (In Chinese)
- [4] H.X.Liu: Research on the problems in the operation of intellectual property pledge financing model and its optimization countermeasures (Economic Science Press, China 2015), P94. (In Chinese)
- [5] C.X.Zhang, K.Wu, W.W.Gu and Z.S.Chen: Exploration and reflection on the implementation of plant variety rights trading--based on seven years' practice of Jiangsu Academy of Agricultural Sciences, Jiangsu Agricultural Science, Vol.39(2011) No.3, 593-595.
- [6] W.Qin, Z.Wan and L.Kang: Research on the improvement of plant new variety value assessment method based on income method, Agricultural Outlook, Vol.15(2019) No.09, 86-92.
- [7] H.Y.Chen, X.H.Gao and Y.P.Zhou: Research on the valuation of plant variety rights based on real options, Science and Technology Management Research, Vol.38(2018) No.19, 154-158.
- [8] Information on: http://www.chinaxinjiang.cn/dizhou/2/202101/t20210120_655716.htm
- [9] J. Wang: Research on the legal regulation of the risk of intellectual property funding (Shanghai People's Press, China 2018), P24. (In Chinese)

- [10] X.Z.Bao,Y.H.Dong:Research on risk evaluation of intellectual property pledgefinancing--based on bank perspective,Journal of Nanjing AuditInstitute,Vol.13(2016)No.2,48-56.
- [11] P.Su:The selection of intellectual property asset valuation methods in the United States and its inspiration:A perspective of intellectual property asset valuation of listed companies in China,Intellectual Property Rights,Vol.20(2010)No.3,87-94.
- [12] Informationon:http://henan.china.com.cn/news/2022-01/18/content_41855898.htm
- [13] L.Li:Japanese intellectual property pledge financing and valuation,Journal of East China University of Science and Technology (Social Science Edition),Vol.24(2009)No.4,79-85+99.
- [14] X.G.Fei,L.W.Kong:On the value orientation of intellectual property pledge financing system,Hebei Law,Vol.38(2020)No.10,189-200.