

The Value and Practical Approaches of Green Finance in Promoting the Green Transformation of Agriculture

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Abstract: With the rapid economic development, ecological environment and food safety have become problems that must be solved in the process of sustainable agricultural development in China. Achieving the green transformation of China's agriculture has become an urgent task. Green finance targets the need for green investment and is the main driving force for promoting the green development of China's economy. Its application in the process of the green transformation of agriculture has certain practical value. Based on this, this paper first expounds the value of green finance in promoting the green transformation of agriculture, secondly analyzes the mechanism of green finance in promoting the green transformation of agriculture, and finally proposes specific practical methods, with the expectation of providing a reference for the subsequent research in this field.

Keywords: Green finance; Green agriculture; Transformation and upgrading

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1. Introduction

To effectively alleviate the problems brought about by global warming and mitigate the impact of the greenhouse effect, China is paying increasing attention to carbon emission control in various industries. As one of the main sources of carbon emissions, agriculture is a key component in the process of peaking carbon emissions and achieving carbon neutrality, playing a significant regulatory role. In the future development of agriculture, green agriculture will be the theme. The integration of the concept of green finance can help build a green production management concept. By applying green and environmental protection technologies, it can promote the large-scale, intelligent and green development of agriculture, and thereby achieve the strategic goal of rural revitalization. Therefore, the research in this paper has certain practical significance.

2. The value of green finance in promoting the green transformation of agriculture

2.1. Establish the concept of green development

Green finance is a financial asset specifically used for investing in green projects. Its main objective is to ensure basic benefits during production and development while focusing on energy conservation, emission reduction,

pollution reduction and other aspects, to minimize the adverse impact on the ecological environment, promote the transformation of highly polluting industries towards a green and sustainable direction, and emphasize the full implementation of the green concept while promoting industrial development. So as to achieve the harmonious development of human beings and nature. In order to obtain green financial support and enable it to be invested in agricultural product production, agricultural entities need to pay attention to environmental protection requirements in production, establish the concept of green production, update their original thinking, and introduce advanced green production equipment and develop green production technologies. They should not only ensure basic production capacity but also reduce carbon emissions in production and continuously develop in a green direction. In a certain sense, green finance can guide agricultural entities to pay more attention to environmental protection requirements and enhance ecological protection awareness. Thus, under the guidance of awareness, they can restrain their behaviors, reduce environmental protection problems that occur during the production process, accelerate the green production transformation rate of the entire rural area and agriculture, and ultimately achieve the goal of green village construction. The development of green agriculture is a key guarantee for implementing the national “dual carbon” strategy, and green finance can guide agriculture towards a sustainable development path, thereby promoting the effective implementation of the “dual carbon” goals ^[1].

2.2. Promote green and large-scale development

By purchasing advanced green production equipment and developing green production technologies, such as energy-saving and low-consumption intelligent agricultural equipment and energy-saving and water-saving irrigation equipment, the pollution problems brought about by agricultural production can be further solved, thereby promoting the development of agriculture towards a green direction. At the same time, it is also necessary to continue the technological innovation of green production, such as developing new types of pollution-free and effective fertilizers to reduce the pollution caused by the use of fertilizers to the land. The transformation from traditional agriculture to green agriculture not only requires a huge amount of human and material resources, but also must be supported by corresponding funds; otherwise, all the work will be difficult to proceed smoothly. At present, China's agriculture is moving towards a green direction, which has led to a continuous increase in the demand for funds and is facing a serious financial predicament. Green finance is oriented towards green investment projects. Introducing it into the transformation of green agriculture can effectively solve the problem of funds. Green finance can provide sufficient funds for the green development of agriculture, equip the mechanical facilities needed for green agricultural production, accelerate the innovation of green technologies in agricultural production, and promote the accelerated transformation of traditional agriculture to green agriculture. With the support of green finance, green agriculture can develop rapidly in the direction of scale and modernization. Continuous technological innovation through the adoption of green production technologies can reduce the pollutants discharged in conventional agricultural production, effectively alleviate production pollution problems, and further improve the rural ecological environment ^[2].

2.3. Promote the rural revitalization strategy

In the transformation and development of green rural areas, green finance not only prompts agricultural entities to establish a green development concept and provides them with development funds, but also plays a certain promoting role in the implementation of the rural revitalization strategy. First of all, as a major agricultural production area in our country, the improvement of the rural living environment quality is closely related to the vital interests of all agricultural entities and is also an important part of implementing the rural revitalization strategy. Supporting the development of green industries, reducing industrial pollution, and promoting the

coordinated and sustainable development of humans and the environment are important goals of green financial investment. The development of green agriculture is conducive to enhancing the ecological environment level of rural areas in our country, improving living conditions, improving the quality of life and happiness index of agricultural entities, and encouraging farmers to participate more actively in the process of green agriculture development, thereby contributing to the implementation of the rural revitalization strategy. Secondly, the green development concept conveyed through green finance will also have a certain impact on agricultural entities, making them voluntarily restrain their behaviors in the actual production process and gradually achieve green transformation. Finally, before allocating funds, green finance will conduct an investigation and analysis of the applicant's credit status. If the applicant fails to meet the requirements, no financial support will be provided^[3]. This means that if agricultural entities want to obtain financial support, they must attach importance to their credibility, make them pay attention to the issue of credibility, and promote the formation of a civilized rural atmosphere. The implementation of the rural revitalization strategy requires strong support from the financial industry, which should also provide effective financial support for rural construction and development. The key steps in rural revitalization are low-carbon development and green development. Green finance, as an important guarantee for the construction of green and civilized villages, holds significant value^[4].

3. The mechanism by which green finance promotes the green transformation of agriculture

3.1. Financial support

In terms of green credit, through a comprehensive evaluation of indicators such as the environmental, social and economic benefits of various green projects, personalized financial plans are formulated based on the assessment results to provide appropriate services for them. On the one hand, fiscal funds support has extended the credit repayment period and appropriately reduced the interest rate, which can provide full support for the production needs of agricultural entities in terms of technology, equipment and resources, and better meet the needs of green agricultural development. Through the policy of re-lending to support agriculture, the brand image of green agriculture is established, attracting more capital investment, thereby promoting the further development of green agricultural projects. On the other hand, by innovating the financing collateral, a multi-level guarantee system suitable for the characteristics of local agriculture has been established. Batch credit granting has been implemented for agricultural entities, which has enabled green agriculture to attract more funds and solved the problem of capital bottleneck^[5].

In terms of green bonds, financial institutions focus on environmental protection regulations when reviewing green agricultural projects. After confirming that the projects meet environmental protection requirements, they complete the approval process and issue loans. To support the development of green agriculture, the funds that previously flowed to highly polluting industries are being recovered, and more funds are flowing to green projects. Appropriate issuance of corporate bonds can replenish the funds of enterprises and prevent the breakdown of the capital chain. The participation of enterprises in green projects will increase the cost of non-green projects to a certain extent, which also imposes certain constraints on the enterprises themselves, making them pay more attention to green development.

In terms of green funds, a dedicated fund is established for projects such as energy conservation and emission reduction in green agriculture, low-carbon development, and ecological optimization and transformation. The government's leverage role is maximized. Each investor supervises and manages the development of green projects through equity investment, fully leveraging advantages in policies, funds, information, and talents to achieve the dispersion and transfer of related risks. Increase the value of tradable

assets. Green funds have broad channels and can effectively solve the financial problems faced by the development of green agriculture, promoting the further transformation from traditional agriculture to green agriculture^[6].

3.2. Risk management

The growth and production of agricultural products go through many links and have a certain degree of complexity. They are quite sensitive to climate change, natural disasters and market changes. At present, there are relatively high risks in developing green agriculture in our country, which requires a relatively high cost. Meanwhile, due to the weak risk-resistance capacity of agricultural entities themselves, when affected by relevant factors, they are prone to situations such as reduced production and decreased income, and may also cause ecological and environmental pollution problems. Under such circumstances, effective protection can be provided through green insurance to enhance and diversify risks. There are numerous types of green insurance, mainly including insurance for vegetables, poultry, and fruits, disaster insurance, weather index insurance, environmental pollution liability insurance, etc. The introduction of green insurance has built a solid risk barrier for agricultural entities, thereby further promoting the development of China's agriculture towards a green and healthy direction.

4. Practical approaches of green finance promoting the green transformation of agriculture

4.1. Establish a comprehensive standard system to form institutional basis

In the process of conducting green finance business, it is necessary to evaluate different types of green agricultural projects based on relevant indicators and evaluation standards to determine whether they can meet the requirements of green finance. At present, the domestic regulations on the application of green finance in the development of green agriculture are still not complete, making it difficult to provide relatively comprehensive support. To this end, on the basis of drawing on international advanced experience and in combination with the characteristics of China's agriculture itself, in-depth research should be conducted, and a sound evaluation system for agricultural green projects should be established as soon as possible, so as to form a guarantee for the combination of green finance and green agriculture development.

In the process of formulating specific standards, the principles of scientificity, feasibility, consistency and dynamics must be fully followed. Under the principle of scientificity, it is required that the formulation of standards should reflect the actual situation of the country's agricultural development, be able to reflect the true state of the transformation of green agriculture, and mobilize multiple fields, such as agriculture and environmental protection to formulate more scientific standards. Under the principle of feasibility, it is required that all the indicators formulated by the government must be clear, explicit, easy to understand, and implement. Under the principle of uniformity, it is required that when formulating relevant laws and regulations, unity and coordination should be achieved to avoid conflicts and contradictions. Under the principle of dynamics, it is required that the formulation of standards be adjustable and flexible. Relevant norms can be revised in a timely manner in response to new technologies and situations to meet the development and needs of green agriculture.

In the process of establishing the certification standards and evaluation system for agricultural green projects, the following points should also be noted: First, in the formulation of production standards, the types and quantities of fertilizers, pesticides, etc., used, as well as irrigation water, soil fertility, and waste disposal, etc., should be included. Rather, in the formulation of environmental assessment standards, the pollution and impact caused by agricultural production on water resources, air and soil, etc., should be included. Thirdly, in

the formulation of standards for pollution control and resource utilization, the collection, storage, treatment and use of livestock and poultry breeding waste should be included to reduce environmental pollution. On this basis, a database of green agricultural projects is constructed, and a guidance directory for supporting the green development of agriculture is further developed to determine the specific scope and priority areas. The further clarification of standards is conducive to forming normative guidance for the entire process of agricultural production, and further promoting the research and development and promotion of green agricultural production technologies, thereby continuously and deeply promoting the green transformation of agricultural production.

4.2. Work in concert with various financial institutions to jointly provide support

First, it is necessary to guide financial institutions to proactively develop green financial business to provide support for the transformation of green agriculture. The state should gradually introduce incentive policies for green finance to enable more financial institutions to participate in the process of providing financial support for the green transformation of agriculture. Meanwhile, we should strengthen the exemplary role of policy-based financial institutions in promoting the green transformation of agriculture and carry out publicity work on successful experiences, to further enhance the confidence and enthusiasm of various financial institutions to participate in agricultural green finance business. It is necessary to guide different types of financial institutions to give full play to their respective advantages and actively develop green financial products. By coordinating the efforts of various financial institutions, the scale of green finance business can be effectively expanded, generating significant economies of scale and providing a strong guarantee for the green transformation of agriculture.

Second, policy-based financial institutions have a good exemplary and guiding role, so it is necessary to give full play to the value of policy-based financial institutions. At present, the green development of agriculture in our country is facing a financial predicament. Compared with traditional agriculture, the development of green agriculture requires more costs. Coupled with the long investment cycle, many financial institutions lack trust in it and do not have sufficient investment enthusiasm. At this point, the participation of policy-based financial institutions can formulate reasonable loan preferential policies based on the development needs of different green agricultural projects. They can also establish special funds to convey the state's support for the green transformation of agriculture to various market entities in this way. Through this signal transmission, various financial institutions can be encouraged to actively participate, providing more financial support for promoting the green development of agriculture in the country.

Third, it is necessary to support and encourage financial institutions to form collaborative consortia to jointly build a financial investment platform for the green transformation of agriculture. By organizing institutions such as banks, insurance companies and fund management companies, a green finance cooperation platform for the green transformation of agriculture has been established. Strict rules and standards have been formulated, and a multi-level framework has been set up in aspects such as fundraising and risk management, to promote the joint value of multiple participants and better serve the green transformation of agriculture.

4.3. Build a standardized service system to strengthen transformation guarantees

First, a professional institution should be established to be responsible for managing the financial business of agricultural green transformation projects. The focus of this institution's work is to identify, evaluate, and manage various agricultural green projects. In terms of team composition, it is necessary to ensure that they have certain agricultural knowledge, financial knowledge and environmental protection awareness, and belong to compound professional talents. In addition, the institution should also carry out cross-departmental cooperation with departments such as the agricultural department and the environmental protection department.

By allocating professional talents and resources and achieving cross-departmental information sharing, the accuracy of identifying the characteristics of agricultural green transformation projects can be further enhanced, and their specific needs can be judged, to better provide green finance decision support. Secondly, it is necessary to actively carry out reforms and innovations following various needs at different periods of China's agricultural green transformation and development, and develop diversified green financial products. China has a vast territory, and there are differences in agricultural structure, type and scale, as well as natural conditions among different regions. The requirements for funds also vary greatly. This requires that the development and design of green financial products take into account the actual situation, regional characteristics, and be flexibly designed in combination with actual needs. Meanwhile, it is also necessary to design relevant green insurance products for energy conservation and emission reduction, environmental pollution liability, etc., to provide more effective protection for the development of green agriculture. Finally, different financial plans should be formulated for different types of green agricultural projects. For instance, for green agricultural projects that utilize new energy sources, they can enjoy lower interest rates or extended repayment periods, thereby encouraging agricultural entities to proactively pay attention to environmental protection elements. Or for agricultural projects with long-term benefits, such as circular agriculture and ecological agriculture, it is necessary to ensure the stability of credit services, and there should be certain preferences in interest rates and repayment methods to promote the development of such sustainable agriculture.

5. Conclusion

Through the analysis and research of the article, it can be known that green finance targets the need for green investment and is the main driving force for promoting the green development of China's economy. Applying it in the process of the green transformation of agriculture has certain practical value. Based on this, this article mainly puts forward several suggestions: establishing a comprehensive standard system to form an institutional basis, coordinating various financial institutions to work together to provide support, and creating a standardized service system to strengthen transformation guarantees. It is hoped that this can provide a certain reference value.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Zhu Y, Zhou Y, 2025, A Perspective on the Significance, Practical Review and Realization Path of Green Finance Empowering the Green Transformation of Agriculture. *Journal of Qinghai Normal University (Social Sciences Edition)*, 2025(1): 1–8.
- [2] Gao X, He H, 2025, Research on the Path of Digital Inclusive Finance Empowering the Green and Low-Carbon Transformation of Agriculture: From the Perspective of Agricultural Science and Technology Innovation. *Jiangxi Journal of Agricultural Sciences*, 37(4): 103–111.
- [3] Zhang J, Fan Y, 2025, International Experience of Rural Financial Transformation under the Background of Carbon Neutrality: A Comparative Perspective of Large Banks. *Banker*, 2025(3): 100–105.
- [4] Research Group of Zhejiang Rural Commercial United Bank, Lin R, 2025, Research on the Integrated Development Path of Green Finance and Inclusive Finance: Based on the Practice of National Rural Cooperative Institutions and

Zhejiang Rural Commercial Bank System. *Zhejiang Finance*, 2025(2): 3–15.

- [5] Zhang W, Deng B, Zhong W, et al., 2025, Rural Green Insurance Empowering the Green Transformation and Development of Agriculture: An Empirical Study Based on Spatial Econometric Model. *Research on Agricultural Modernization*, 46(1): 117–130.
- [6] Chen X, Fu Y, 2025, The Evolution Trajectory and Theoretical Logic of China's Agricultural Green Transformation Support Policies: A Text Analysis Based on the Central Document No. 1 from 2004 to 2023. *Ecological Economy*, 41(2): 120–127.

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