

Green Education Promotes the Mechanism of Green Agricultural Production by Farmers in Hunan Region and Its Influencing Factors

Wenxiao Fan

Environmental Management, Edith Cowan University, Joondalup, WA 6027, Australia

Abstract: The current world faces increasingly severe ecological and environmental challenges, making green education key to promoting sustainable development. Particularly in the field of agricultural development, green education not only promotes the modernization of agriculture but also constructs the foundation of ecological civilization. Hunan Province, as an important agricultural area in China, is urgently in need of transforming its agricultural system into a more sustainable and eco-friendly model. This study utilized interviews, Colaizzi's phenomenological analysis, and surveys to conduct a detailed analysis of the basic information of farmers in Hunan Province, the current state of agricultural production, and the willingness to adopt green agricultural production technologies. The subjects of the study are the farmers of Hunan Province, especially those who have received green education or are considering adopting green agricultural production technologies. The study found that green education plays a key role in improving the quality of agricultural talents, promoting agricultural technological innovation and application. Although there is no significant correlation between the economic condition of farmers' families and the willingness to adopt green production technology, the cognitive level of farmers, social structure, and interpersonal relationships within villages have a significant positive impact on the adoption of green technology. Green education promotes the popularization of green agricultural production by cultivating ecological awareness and a mindset for sustainable development, laying a solid foundation for achieving sustainable development.

Keywords: Green Education; Sustainable Development; Green Agriculture; Hunan Province.

1. Introduction

Today's world faces increasingly severe ecological challenges, and in the face of this global challenge, green education has become an important tool for leading sustainable development. Especially in the field of agricultural development, green education is not only a necessary means to promote agricultural modernization but also a foundation for building an ecological civilization. Hunan Province, as an important agricultural area in China, is at a critical period of this transformation. Agriculture in Hunan Province is primarily based on mountainous and hilly terrain, which restricts agricultural production conditions. Meanwhile, the level of agricultural mechanization in mountainous areas of Hunan Province is not high, agricultural infrastructure is backward, and the agricultural production management system urgently needs to be improved, facing problems such as land fragmentation, short agricultural product processing and sales links (Li & Liu, 2023). Therefore, the agricultural system in Hunan Province urgently needs a transformation, and promoting green agricultural development can transform agriculture in the Hunan region into a more sustainable, eco-friendly agricultural production model. The importance of green education is reflected in its ability to effectively guide and improve the quality of agricultural talents, as well as promote the innovation and application of agricultural technology. Green education is not just about imparting agricultural knowledge and technology; more importantly, it cultivates students' ecological consciousness and sustainable development thinking. It educates people to understand the value of the natural ecology and promote environmentally friendly behavior and decision-making (Zhao, Lu & Zhou, 2021; Feng & Sun, 2007). Only

through such education can high-quality agricultural talents who can meet the needs of new-era agricultural development be cultivated. Green education can provide scientific agricultural practice methods, promote farmers' awareness of ecological environment protection, and thus promote the development of green agriculture. Green agriculture is not only a need for ecological and environmental protection but can also bring ecological dividends to agricultural development (Kuang & Yi, 2021). This agricultural method reduces the use of chemical fertilizers and pesticides, protecting soil quality and water resources, thereby helping to increase the quality and safety of agricultural products. In the long run, green agriculture can also enhance the sustainability of agriculture, creating a healthier and more sustainable environment for future agricultural development. In summary, green education plays a crucial role in promoting the development of agriculture in the Hunan region towards a more sustainable, efficient, and eco-friendly direction. Through the promotion and implementation of green education, not only can the quality of agricultural talents be improved, technological innovation be promoted, but also the agricultural ecological environment of the entire region can be improved, laying a solid foundation for achieving sustainable development goals.

2. Green Transformation: The Future of Chinese Agriculture and Environmental Education

Green education, that is, environmental education, aims to cultivate people's environmental awareness and action capacity through educational activities. Environmental education needs to continuously adapt to social and

technological developments, while focusing on science-based and practical approaches (HUDSON, 2001).

In the past decade, China's environmental education has achieved great success, but at the same time, it contains many deficiencies. The development of green education in different regions and institutions in China is uneven, especially in areas with rich natural resources and excessive development, where the development of green education is particularly lagging behind (Xiong et al., 2013). In addition, influenced by the "hierarchical pattern" of rural society and the deeply rooted concept of public and private, although green agriculture may be beneficial to the environment, many farmers may not be willing to adopt these practices if individuals, or their small groups, cannot obtain direct economic benefits from them. These small groups, such as families and villages, may change due to different life stages of individuals, social and economic development, and the influence of individual interests. Therefore, green education requires comprehensive intervention and guidance from policies and social norms, encouraging people to consider long-term public interests rather than short-term private interests (Fei, 2020).

Green agriculture, or Agricultural Green Development (AGD), refers to maintaining high agricultural productivity while improving resource use efficiency and reducing negative environmental impacts (Conway & Barbie, 1988). This concept is particularly important in China, as China has rich agricultural resources and a large rural population.

Since the 1960s, China's agricultural production has undergone tremendous transformation, especially through the implementation of the Green Revolution. However, the practice of the Green Revolution has led to over-reliance on agricultural chemicals, resulting in resource waste and environmental problems. As sustainable development has become part of the global agenda, the Chinese government has proposed the need to transform the agricultural development model, shifting from a high-input, high-environmental-cost model to a sustainable intensification model (SHEN et al., 2020).

Green agriculture includes several key aspects: first, a green crop production system, including the development of new varieties, new types of fertilizers, and green pesticides, establishing an integrated soil-crop system management; second, integrating animal and plant production systems, optimizing the agricultural industrial structure, and achieving resource recycling; third, green food products and industries, focusing on the production of safe, high-quality, and nutritious food, while paying attention to the protection of the rural ecological environment; fourth, rural environment and ecosystem services, dedicated to developing a green ecological environment, achieving a balance between human needs and environmental sustainability (Conway & Barbie, 1988).

The key to achieving green agriculture lies in valuing green education, coupled with technological innovation and policy support. Green agriculture is crucial for ensuring food security, promoting environmental sustainability, and improving ecological efficiency (Koohafkan et al., 2011). China's AGD model is not only crucial for China's own sustainable development but also provides valuable experience and practice cases for other countries around the world.

3. Analysis of Interviews on Factors Influencing Farmers' Willingness to Adopt Green Agricultural Production

This study selected six agricultural practitioners in the Hunan region for in-depth interviews. The general information of the six interviewees is shown in Table 1.

For the interview data, this study used Colaizzi's phenomenological analysis method, which emphasizes extracting meaning from participants' narratives and transforming these narratives into data that researchers can analyze through a series of steps. This process usually includes the following steps:

- 1) Data collection: Collect participants' descriptions of their experiences through interviews, observations, or other means.
- 2) Reading and re-reading: Researchers carefully read participants' narratives to fully understand their content.
- 3) Extraction of significant statements: Extract key statements about the research topic from participants' narratives.
- 4) Induction of themes: Induce these significant statements into themes, reflecting the core elements of participants' experiences.
- 5) Formation of descriptions: Based on the extracted themes, form detailed and comprehensive descriptions of participants' experiences.
- 6) Formation of fundamental structure: Further deepen the description to reveal the basic structure or essence of the experience.

Validation of research results: Present the descriptions and structures of the research to participants to verify their accuracy and authenticity.

Table 1. General information of six agricultural practitioners

Surname	Identity/Position
Tan	Hujiuwuyu Tea Responsible
Yang	Village Branch Secretary
Peng	Chicken Farm Owner
Li	Sheep Stomach Mushroom Cooperative Responsible
Peng	Kiwi Tree Planter
Hu	Farm Owner

3.1. Support from the Government or Social Organizations for Villagers with Willingness

Villagers with high educational levels and professional knowledge backgrounds received support for standardized design, sales channels, and publicity. Tan Xia, the person in charge of Hujiu Fog Language Tea, learned tea art and established a brand with his father. Hunan University provided him with regular technical training, professional marketing strategy guidance, and helped establish connections with urban buyers. With the help of Hunan University, his industry became more standardized, and the scale was further expanded, and product sales increased significantly.

Villagers with low educational levels and lacking professional knowledge backgrounds received support for professional technology, funds, equipment, and crop varieties. Secretary Yang, a major grower of honeysuckle, improved

soil quality and established a selenium-rich rice planting cooperative with the support of Hunan University, improving the output quality of honeysuckle. This comprehensive support system not only changed the fate of individual farmers but also promoted the sustainable development of agriculture in the entire village.

3.2. Pursuing the Economic Development of the Village Community

As the agricultural industry develops, more and more farmers have the ability to expand production scale, thereby providing more job opportunities for villagers. This not only drives the economic development of the village but also promotes common prosperity. Taking Tan Xia, the person in charge of Hujiu Fog Language Tea, as an example, she not only successfully created her own tea brand but also provided villagers with various job positions, such as picking, processing, and packaging tea. These job positions greatly improved the villagers' employment rate and income level, effectively promoting the overall economic and social development of the village. In this way, the industrialization of agriculture not only improves the quality and value of agricultural products but also brings more development opportunities to rural areas.

Establishing cooperatives can not only expand the scale of the crop industry but also drive the development of other villagers. Master Li, originally a carpenter, later transformed into a sheep stomach mushroom grower. His cooperative focuses on improving soil management, introducing high-quality seeds, and optimizing the production process, significantly increasing the yield and quality of honeysuckle. His approach attracted a large number of villagers to join sheep stomach mushroom planting, effectively promoting the development of the entire village's sheep stomach mushroom industry chain.

3.3. The Role of Personal Beliefs and External Help

Tan Xia is a typical example of personal belief. She firmly believes that everything has a spirit, has deep feelings for tea, and believes that tea has its own language and perception. This unique belief and love for tea became the driving force for her to establish and develop the Hujiu Fog Language Tea brand. Her story shows that strong personal beliefs and emotional investment can be important factors driving agricultural entrepreneurship and innovation, especially in traditional industries such as tea planting.

External organizations' help also promotes agricultural development. The cooperative established by Secretary Yang is a successful case, which received professional technical guidance and advanced equipment support from Hunan University. This support not only improved the yield and quality of crops but also significantly enhanced the market competitiveness and revenue of agricultural products. This proves the importance of external resources and professional knowledge for improving agricultural productivity and promoting rural economic development.

3.4. Limitations of Agricultural Resources and Sales Channels

The limitations of agricultural resources need to be overcome through technological innovation and variety improvement. As the largest chicken farm owner in the village, Master Peng adopted the under-forest chicken-raising model,

emphasizing maintaining a small scale while achieving ecological balance in green agriculture. This method not only improves the quality of chicken and egg products but also reduces production costs and environmental impact. His successful practice shows that combining traditional knowledge and modern technology can achieve efficient and sustainable agricultural production under limited resource conditions. At the same time, Master Peng also established a stable green agricultural product sales channel, further enhancing the sustainability of his business.

The cost of green agriculture is high, requiring a balance between environmental protection and economic benefits. Taking Master Li's sheep stomach mushroom planting as an example, its high planting cost requires not only financial support but also manpower and equipment input. Therefore, policy support and the involvement of social organizations are key to realizing this high-cost agriculture. In addition, Master Li's sales channels mainly target large enterprises and government organizations, but also include some individual customers. This diversified market strategy helps stabilize income and provides sustainability guarantees for high-cost green agriculture.

Adding value to agricultural products can compensate for the limitations brought by industry scale. Tan Xia's Hujiu Fog Language Tea company faces the limitation of tea mountain resources, which hinders further expansion of the industry scale. However, with the assistance of Hunan University, by organizing two annual large-scale festival events and launching cultural tourism projects, Hujiu Fog Language successfully attracted more tea enthusiasts. These events not only increased brand awareness but also significantly expanded the product sales channels, thereby enhancing the market competitiveness of the enterprise.

3.5. Application of Advanced Agricultural Management Systems

Modern agricultural technology plays an important role in improving agricultural production efficiency and quality. Mr. Hu, the farm owner, successfully introduced modern agricultural technology and an integrated water and fertilizer management system by utilizing the professional knowledge he learned in school and exchanging and learning with peers in the industry. These innovative measures not only achieve the scale and standardization of crop planting but also greatly increase yield and quality. Mr. Hu's case shows that by integrating knowledge from education and practice, modern agricultural technology can effectively promote the sustainable development of agriculture.

4. Survey Analysis

4.1. Research Hypotheses

Hypothesis 1: Farmers with a good economic foundation, capable of bearing the additional costs brought by green production technology and enjoying the economic benefits resulting from green production, will be more motivated and willing to adopt green production technology. Therefore, as the economic status of a farmer's household increases, so does their willingness to adopt green production technology. There is a positive correlation between a farmer's household economic status and their willingness to adopt green production technology.

Hypothesis 2: As farmers' understanding and awareness of green agricultural production improve, they will realize that

green production technology can offer better environmental, health, and economic benefits, thereby increasing their willingness to adopt green production technology. Thus, as farmers' awareness of green agricultural production grows, their willingness to adopt green production technology also increases. There is a positive correlation between farmers' awareness of green agricultural production and their willingness to adopt green production technology.

Hypothesis 3: In a village with good social relations, more mutual assistance and cooperation among farmers are likely to reduce the practical difficulty of green production technology, promote the popularization and promotion of green production technology, and thereby improve the ecological and economic benefits of the entire village. Therefore, as social relations in the village strengthen, farmers' willingness to adopt green production technology also increases. There is a positive correlation between social relations in the village and farmers' willingness to adopt green production technology.

4.2. Descriptive Analysis

This survey collected a total of 161 responses. The

questionnaire consisted of 15 questions and statistically analyzed the basic information of farmers, the current state of agricultural production, and the willingness to adopt green agricultural production technologies. The reliability analysis showed a Cronbach's alpha of 0.878, indicating high reliability. The validity analysis showed a KMO value of 0.951, ensuring the questionnaire's structure is valid.

4.3. Green Agricultural Production is Unrelated to Farmers' Economic Status

The SPSS correlation analysis (Table 2) and regression analysis (Table 3) revealed no significant relationship between the economic status of farmers' households and their willingness to adopt green production technologies, invalidating Hypothesis 1. This may be due to the fact that adopting green agricultural technologies does not impose high economic demands on farmers' households. Although green agriculture production has certain costs, adopting it often comes with support and subsidies from the government, social organizations, and enterprises.

Table 2. Correlation analysis of peasant household economic status

Items	Average	Standard deviation	What are the total acres of arable land currently owned by your family?	How much is your family's total annual income?	How many healthy workers do you have in your family?	How much do you know about green farming?
What is the total area of arable land currently owned by your family?	2.3	0.97	1			
What is the total annual income of your family?	2.35	1.05	0.01	1		
How many healthy workers do you have in your household?	2.35	1.06	0.03	0.04	1	
How much do you know about green farming?	3.78	1.25	0.03	0.11	0.06	1

* p<0.05 ** p<0.01

Table 3. Regression analysis of the relationship between household economic status and the intention to adopt green production technology

Items	Regression coefficient	T- value	P value	VIF
Constant	3.55	8.71	0.000 * *	-
What is the total area of arable land in your family at present?	0.05	0.47	0.638	1
What is the approximate annual gross income of your family?	0.13	1.32	0.189	1
How many healthy workers are there in your household?	0.07	0.77	0.44	1
Sample size	161			
R ²	0.016			
Adjust R ²	0.002			
F	F (3157) = 0.874, p = 0.456)			

* p<0.05 ** p<0.01

4.4. Understanding Promotes Practice

Both correlation analysis (Table 4) and regression analysis (Table 5) indicated a significant relationship between farmers' awareness of green agricultural production and their willingness to adopt green production technologies, confirming Hypothesis 2. The limited awareness of green

agriculture among many farmers, due to information blockages, may change after they recognize the environmental, health, and economic benefits of green technologies. There was no significant correlation between the understanding of irrigation systems and green agricultural technology, likely due to the natural geographical constraints that limit the options for irrigation methods.

Table 4. Correlation analysis of farmers' green agricultural production cognition

Items	Average	Standard Deviation	What type of irrigation system does your farmland use?	How often do you use fertilizers in your agricultural production?	Are you willing to use more environmentally friendly or organic fertilizers instead of conventional fertilizers?	How knowledgeable are you about green farming?
What type of irrigation system does your arable land mainly uses?	1.8	0.73	1			
How often do you use fertilizers in your agricultural production?	3.89	1.25	0.07	1		
Are you willing to use more environmentally friendly or organic fertilizers instead of conventional fertilizers?	3.86	1.21	0.14	0.72 **	1	
How much do you know about green farming?	3.78	1.25	0.05	0.74 **	0.74 **	1
* p<0.05 ** p<0.01						

Table 5. Regression analysis of the relationship between farmers' cognition of green agricultural production and their willingness to adopt green production technology

Items	Regression coefficient	T-value	P value	VIF
Constant	0.51	2.05	0.042 *	-
What type of irrigation system does your arable land mainly use?	0.08	0.96	0.337	1.02
How often do you use fertilizers in your agricultural production?	0.42	6.06	0.000 **	2.11
Are you willing to use more environmentally friendly or organic fertilizers instead of conventional fertilizers?	0.46	6.36	0.000 **	2.14
Sample Size	161			
R ²	0.641			
Adjust R ²	0.634			
F	F (3157) = 93.281, p = 0.000)			
* p<0.05 ** p<0.01				

4.5. Analysis of the Impact of Social Structure on the Willingness to Adopt Green Production Technology

Correlation analysis (Table 6) and regression analysis (Table 7) showed that the internal social structure of the village, such as the level of trust in village elders, the involvement of clan elders in agricultural production

decision-making, and understanding of green agriculture, are significantly positively correlated. This indicates that in villages with a close social structure, combining traditional and modern concepts, farmers are more inclined to adopt green production technologies. The internal social structure of the village provides a supportive environment for adopting green production technologies, promotes the sharing of knowledge and experience, and enhances farmers' cognition and acceptance of green technology.

Table 6. Correlation analysis of village social structure

Items	Average	Standard Deviation	How much do you trust the village sages?	How involved are the family elders in the decision-making process of green agriculture in your family?	How much do you know about green farming?
How much do you trust the people in your village?	3.8	1.29	1		
How involved are the family elders in the decision-making process of your family's green agricultural production?	3.92	1.18	0.73 **	1	
How much do you know about green farming?	3.78	1.25	0.73 **	0.77 **	1

* p<0.05 ** p<0.01

Table 7. Regression analysis of the relationship between village social structure and willingness to adopt green production technology

Items	Regression coefficient	T-value	P value	VIF
Constant	0.34	1.62	0.106	-
How much do you trust the villagers?	0.35	5.3	0.000 **	2.17
How involved are the family elders in the decision-making process of your family's green agricultural production?	0.54	7.34	0.000 **	2.17
Sample Size	161			
R ²	0.656			
Adjust R ²	0.652			
F	F (2158) = 150.570, p = 0.000)			

* p<0.05 ** p<0.01

4.6. Support for Green Agricultural Production within the Village

As per the correlation analysis (Table 8) and regression analysis (Table 9), it's evident that the village's internal communication network significantly influences the willingness to produce green agriculture. Daily communication and financial mutual aid among villagers

have facilitated the spread and adoption of green agricultural information and technology. This shows that a strong community relationship and mutual aid network can effectively support the promotion and implementation of green agricultural technology. As the number of successful cases of green agricultural technology in the village increases, the demonstration effect and knowledge dissemination effect will further encourage more farmers to join the ranks of green production.

Table 8. Correlation analysis of village communication network

Items	Average	Standard Deviation	How much of what you know about green farming comes from gossip among villagers?	Are you willing to provide financial assistance to other farmers?	Have you ever received financial help from other farmers?	How much do you know about green farming?
How much do you know about green farming from the chatter among villagers?	3.88	1.13	1			
Are you willing to provide financial assistance to other farmers?	3.86	1.27	0.70 **	1		
Have you ever received financial help from other farmers?	3.86	1.3	0.76 **	0.78 **	1	
How much do you know about green farming?	3.78	1.25	0.73 **	0.76 **	0.77 **	1

* p<0.05 ** p<0.01

Table 9. Regression analysis of the relationship between village communication network and green production technology adoption intention

Items	Regression coefficient	T-value	P value	VIF
Constant	0.24	1.17	0.246	-
How much do you know about green farming from the chatter among villagers?	0.28	3.44	0.001 **	2.54
Are you willing to provide financial assistance to other farmers?	0.32	4.29	0.000 **	2.78
Have you ever received financial help from other farmers?	0.32	4.04	0.000 **	3.3
Sample Size	161			
R ²	0.68			
Adjust R ²	0.674			
F	F (3157) = 111.168, p = 0.000			

* p<0.05 ** p<0.01

5. Influences of Green Education on the Mechanisms of Green Agricultural Practices

5.1. Financial Support Mitigates the Costs of Green Agricultural Initiatives

The empirical findings of this study underscore that while external variables such as familial characteristics, financial

circumstances, and technological aid do influence the adoption of sustainable agricultural practices, the pivotal determinants in this process are the intrinsic convictions of the farmers and the external support they receive. For instance, Mr. Hu's venture into green agriculture, financed through loans, not only signifies his staunch belief in sustainable farming practices but also accentuates the pivotal role of rural credit systems. Consequently, fortifying these credit facilities and bolstering external assistance are instrumental in

catalyzing the adoption of green agricultural methodologies.

5.2. Enhancing Sales Channels and Brand Visibility

The caliber and specialized expertise of personnel engaged in the dissemination of green agricultural practices are paramount. Presently, the heterogeneity in the competency of these personnel, coupled with a lack of in-depth professional knowledge, impinges on the scalability and efficacy of green agriculture. Therefore, augmenting the professional development of these individuals and enhancing their proficiency are imperative for the successful promotion and branding of green agricultural practices. Moreover, expanding the value chain and augmenting the value-added aspects of products emerge as viable strategies to amplify the benefits derived from green agriculture.

5.3. The Nexus of Interpersonal Relationships Within Rural Communities

The tapestry of social interactions within rural settings, encompassing dialogues among villagers, collaborative undertakings among peers, and the backing of cooperative societies, significantly propels green agricultural endeavors. Initiatives such as the transmission of familial agricultural legacies and the recognition of pioneering cultivators serve as conduits for sharing invaluable insights, thereby amplifying the inclination and capacity of farmers to embrace sustainable agricultural technologies. Thus, reinforcing the social fabric within these communities and establishing robust support and incentive frameworks is pivotal for the advancement of green agricultural practices.

Table 10. Factors Influencing Agricultural Production Stages

Pre-production	During production	Post-production
Support for cost of learning technology	Experience exchange	Promotion and sales
Guidance from village elders	Mutual assistance among peers	Extending the industrial chain
Personal belief	Support for funds and technical equipment	

6. Conclusion

This study elucidates that green agriculture transcends the realms of mere technical and economic considerations, permeating into the societal and cultural fabric. The amalgamation of farmers' personal convictions, the synergy of community relationships, and the scaffolding of external support coalesce to form an intricate matrix that underpins green agricultural practices. By harmonizing these socio-economic and technological elements, the propagation and universal adoption of green agriculture can be effectively realized. In light of the escalating global emphasis on sustainable development and environmental stewardship, green agriculture is poised to be a cornerstone in the future trajectory of agricultural evolution. Consequently, a profound comprehension of green agricultural practices, coupled with the reinforcement of pertinent policies and their implementation, holds profound implications for fostering the sustainability of the agricultural sector.

References

- [1] Adnan, N., Nordin, S. M., Rahman, I., & Noor, A. (2018). The effects of knowledge transfer on farmers decision making toward sustainable agriculture practices. *World Journal of Science, Technology and Sustainable Development*, 15(1), 98–115. <https://doi.org/10.1108/wjtsd-11-2016-0062>.
- [2] Chankrajang, T., & Muttarak, R. (2015). Green Returns to Education: Does Schooling Contribute to Pro-Environmental Behaviours? Evidence from Thailand. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2713362>.
- [3] Chawla, L., & Cushing, D. F. (2007). Education for strategic environmental behavior. *Environmental Education Research*, 13(4), 437–452. <https://doi.org/10.1080/13504620701581539>.
- [4] Conway, G. R., & Barbie, E. B. (1988). After the Green Revolution. *Futures*, 20(6), 651–670. [https://doi.org/10.1016/0016-3287\(88\)90006-7](https://doi.org/10.1016/0016-3287(88)90006-7).
- [5] Fei, X. T. (2020). Differential Pattern. *Contemporary Students (Z4)*, 66–67.
- [6] Feng, S. D. & Sun, T. F. (2007). Some reflections on green education in agricultural colleges and universities. *Heilongjiang Agricultural Sciences* (04), 109–111.
- [7] HUDSON, S. J. (2001). Challenges for Environmental Education: Issues and Ideas for the 21st Century. *BioScience*, 51 (4), 283. [https://doi.org/10.1641/0006-3568\(2001\)051\[0283:cfeeia\]2.0.co;2](https://doi.org/10.1641/0006-3568(2001)051[0283:cfeeia]2.0.co;2).
- [8] Koohafkan, P., Altieri, M. A., & Gimenez, E. H. (2011). Green Agriculture: foundations for biodiverse, resilient and productive agricultural systems. *International Journal of Agricultural Sustainability*, 10(1), 61–75. <https://doi.org/10.1080/14735903.2011.610206>.
- [9] Kuang, Y. P. & Yi, Y. J. (2021). Research on the obstacles and system construction of ecological dividend of green agriculture in Hunan Province. *Chinese Agricultural Resources and Regionalization* (01), 18–24.
- [10] Li, M. M. & Liu, T. F. (2023). Research on the development status and countermeasures of mountain agriculture -- taking Xinhua County of Hunan Province as an example. *Inner Mongolia Science and Technology and Economy* (18), 15–18+160.
- [11] Li, M., Liu, Y., Huang, Y., Wu, L., & Chen, K. (2022). Impacts of Risk Perception and Environmental Regulation on Farmers' Sustainable Behaviors of Agricultural Green Production in China. *Agriculture*, 12(6), 831. <https://doi.org/10.3390/agriculture12060831>.
- [12] Li, Y., Fan, Z., Jiang, G., & Quan, Z. (2021). Addressing the Differences in Farmers' Willingness and Behavior Regarding Developing Green Agriculture—A Case Study in Xichuan County, China. *Land*, 10(3), 316. <https://doi.org/10.3390/land10030316>.
- [13] Qiao, D., Xu, S., Xu, T., Hao, Q., & Zhang, Z. (2022). Gap between Willingness and Behaviors: Understanding the Consistency of Farmers' Green Production in Hainan, China. *International Journal of Environmental Research and Public Health*, 19(18), 11351–11351. <https://doi.org/10.3390/ijerph191811351>.
- [14] Schelly, C., Cross, J. E., Franzen, W., Hall, P., & Reeve, S. (2012). How to Go Green: Creating a Conservation Culture in a Public High School Through Education, Modeling, and Communication. *The Journal of Environmental Education*, 43(3), 143–161. <https://doi.org/10.1080/00958964.2011.631611>.
- [15] SHEN, J., ZHU, Q., JIAO, X., YING, H., WANG, H., WEN, X., XU, W., LI, T., CONG, W., LIU, X., HOU, Y., CUI, Z., OENEMA, O., DAVIES, W. J., & ZHANG, F. (2020).

- Agriculture Green Development: a model for China and the world. *Frontiers of Agricultural Science and Engineering*, 7(1), 5. <https://doi.org/10.15302/j-fase-2019300>.
- [16] Varela-Candamio, L., Novo-Corti, I., & García-Álvarez, M. T. (2018). The importance of environmental education in the determinants of green behavior: A meta-analysis approach. *Journal of Cleaner Production*, 170, 1565–1578. <https://doi.org/10.1016/j.jclepro.2017.09.214>.
- [17] Xiong, H., Fu, D., Duan, C., Liu, Chang'E., Yang, X., & Wang, R. (2013). Current status of green curriculum in higher education of Mainland China. *Journal of Cleaner Production*, 61, 100–105. <https://doi.org/10.1016/j.jclepro.2013.06.033>.
- [18] Zhao, F. K., Lu, W. F. & Zhou, Y. P. (2021). Reflections on green education in agriculture-related higher vocational colleges. *Education and Careers* (06),84-88. doi:10.13615/j.cnki.1004-3985.2021.06.014.