

Analysis of Factors Influencing Farmers' Behavior in Green Agriculture Production: Evidence from Khanh Hoa Province, Vietnam

Tran Hoai Nam¹, Ngo Minh Hien² and Do Minh Hoang^{3*}

^{1,3} Faculty of Economics, Nong Lam University, Vietnam

² Faculty of Business Management, Ho Chi Minh University of Banking, Vietnam

ABSTRACT

This study examines the factors influencing farmers' behavior toward green agricultural production in Khanh Hoa Province, Vietnam. Based on data collected from face-to-face interviews with 510 farmers, an ordered logit regression model was employed to identify the key determinants of green production behavior. The results reveal that education level, farm size, agricultural income, awareness of green agriculture, production linkages, and access to agricultural extension programs have significant positive effects on farmers' engagement in green practices. In contrast, the agricultural labor size and gender exhibit negative influences on such behavior. The model explains 45.9% of the variance in farmers' green production behavior. These findings offer valuable insights for governments and policymakers in formulating effective strategies to promote farmers' participation in environmentally sustainable agricultural practices.

Keywords: farmer, ordered logit regression, green agriculture production, Khanh Hoa Province

INTRODUCTION

As the world confronts increasingly severe ecological challenges, green agriculture has emerged as a pivotal pathway toward sustainable development. Green agriculture not only facilitates the modernization of production systems but also strengthens the foundation for a resilient and enduring ecological environment. In Vietnam, the government recognizes agriculture as a vital pillar of the national economy and places strong emphasis on advancing green, organic, and circular agricultural systems that align with market demands.

However, the success of green agricultural transformation depends not only on technological innovation or supportive policy frameworks but also on the production behavior of farmers. As the main labor force directly involved in agricultural production, farmers play a decisive role in the shift from traditional to environmentally responsible farming practices (Li et al., 2020). Major behaviors such as reducing the use of chemical inputs, adopting eco-friendly cultivation techniques, and managing soil and water resources efficiently serve as the foundation for building a sustainable agricultural system. Furthermore, green agricultural production acts as a catalyst for changing farmers' perceptions and actions, thereby fostering the adoption of sustainable and environmentally friendly farming models. The transition toward green agriculture not only conserves natural resources but also enhances the quality and value of agricultural products, contributing to inclusive and sustainable rural economic development (Pan et al., 2022).

Given this context, it is essential to understand the determinants that influence farmers' engagement in green agriculture production, including factors such as awareness of green agriculture, educational background, economic capacity, and the influence of government policies and communication initiatives. Therefore, this study aims to analyze the key factors

* Corresponding Author

shaping the green production behavior of farming households in Khanh Hoa province, Vietnam. The findings are expected to provide valuable insights for government agencies in formulating differentiated policies that encourage farmers' green production behaviors and foster the sustainable development of green agriculture in the future.

LITERATURE REVIEW

Green agriculture refers to an agricultural production system that seeks to minimize negative environmental impacts, safeguard human health, and preserve biodiversity (Pan et al., 2022). It is also conceptualized as a form of sustainable or alternative agriculture, which increasingly relies on ecological principles to enhance productivity while ensuring environmental integrity (Long, 2016).

The green production behavior of farmers encompasses a range of environmentally responsible actions undertaken across the pre-production, production, and post-production stages, all aimed at protecting the environment and promoting sustainable agricultural development (Li et al., 2020; Yu et al., 2022). This behavioral dimension is a critical component in achieving the overarching goal of environmentally friendly and sustainable agriculture. Specifically, during the pre-production stage, green behaviors include the use of safely pesticide-treated seed varieties (Li et al., 2022), the application of biological pesticides (Yan et al., 2023), the adoption of organic fertilizers (Li et al., 2024), and the recycling of agricultural mulch films (Luo et al., 2022). In the production stage, sustainable practices such as conservation tillage and integrated pest management are essential for maintaining the ecological balance of agricultural ecosystems (Yi et al., 2023). In the post-production stage, green behaviors are reflected in efficient transportation, storage, drying, processing, and distribution of agricultural products—activities that enhance energy efficiency and minimize waste (Gao et al., 2022). Collectively, these practices not only mitigate environmental degradation but also increase the added value of agricultural products, thereby improving farmers' economic performance and long-term competitiveness.

A growing body of research has investigated the determinants of farmers' green production behaviors from multiple theoretical and empirical perspectives. Individual characteristics—such as gender, farming experience, and educational level—have been identified as important predictors influencing farmers' engagement in green agricultural practices (Liu et al., 2024; Luo et al., 2022; Yu et al., 2022; Zhou et al., 2023). Similarly, agricultural income has been found to play a vital role in encouraging farmers to participate in environmentally sustainable production (Hou & Wang, 2023). In addition, production linkages or cooperative participation among farmers significantly facilitate the adoption of green practices by enabling knowledge sharing and collective efficiency (Li et al., 2024). Other studies highlight the influence of farm size, labor availability, and agricultural extension programs as significant drivers of green agricultural adoption (Li et al., 2020; Liu et al., 2024; Wu et al., 2021). More recently, within a study conducted in China, Sun (2025) postulates that farmers' awareness and understanding of green agriculture have become increasingly important determinants in shaping their decision-making processes regarding sustainable farming practices.

In summary, prior studies have identified a variety of individual, economic, and institutional factors influencing farmers' behavior in green agricultural production. Building on insights from existing literature and field investigations conducted in the study area, this paper proposes a research model outlining the factors affecting farmers' behavior in green agricultural production in Khanh Hoa Province, Vietnam (Figure 1).

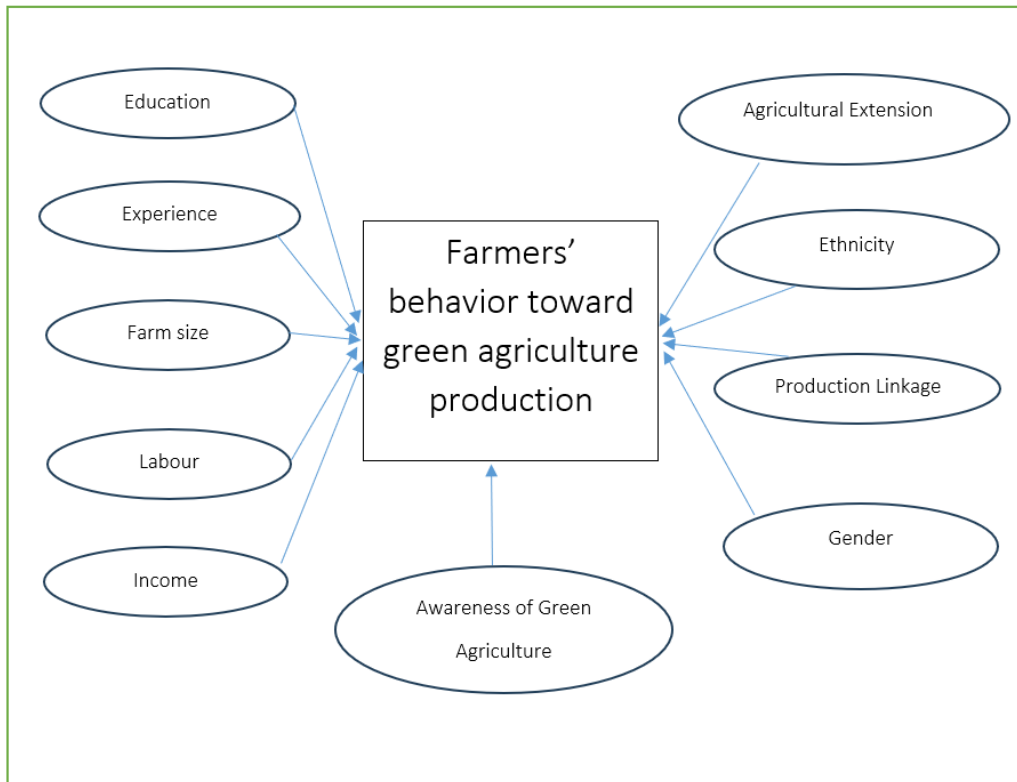


Figure 1: Proposed research model

RESEARCH METHOD

The study was conducted in Khanh Hoa Province, situated along Vietnam's South-Central Coast, approximately 350 kilometers from Ho Chi Minh City and about 60 kilometers from Cam Ranh Airport in Nha Trang City (see Figure 2). Covering a total area of 335,534 hectares and encompassing 111,294 households, Khanh Hoa Province has increasingly adopted green agricultural practices, making sustainable farming one of the government's key policy priorities. This study focuses on three communes—Phuoc Hau, Vinh Hai, and Phuoc Dinh—to examine the factors influencing farmers' green agricultural production behaviors.



Figure 2: Map of Khanh Hoa Province

The sample size for the survey was determined using the formula proposed by Cochran (1977):

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

Where,

n is the sample size (number of farming households) to be interviewed.

N is the total number of households about 111,294.

n_0 is calculated using the formula: $n_0 = \frac{Z^2 \times p \times (1-p)}{d^2}$, where Z represents the distribution value corresponding to 95% confidence level, p is the assumed proportion accuracy at 95%, and d is the error at 5%. Based on these values, $n_0 = 385$.

Based on the sample formula, a minimum of 385 households was required. Accordingly, the study collected data from 540 households across three communes—Phuoc Hau, Vinh Hai, and Phuoc Dinh—located in Khanh Hoa Province. After excluding invalid responses, a total of 510 valid observations were retained for analysis. The data collection was carried out in 2025 using a stratified random sampling approach and direct interviews with farmers through structured questionnaires. All collected data were systematically processed and analyzed by Stata 17 software.

This study employs an ordered logit regression model to examine the factors influencing farmers' behaviors in green agricultural production. The hierarchical structure of the ordered logit regression model is specified as follows:

$$Y_i^* = \sum_{j=1}^J \beta_j X_{ji} + \varepsilon_i = Z_i + \varepsilon_i$$

The hierarchical logit model estimates part of the conditions using the formula:

$$Z_i = \sum_{j=1}^J \beta_j X_{ji} = E(Y_i^*)$$

And the probability formula:

$$P(Y_i \geq j) = \frac{\exp(X_i \beta_j - \kappa_j)}{1 + [\exp(X_i \beta_j - \kappa_j)]}, j = 1, 2, \dots, M$$

Take the logarithm of the cumulative probability function:

$$\text{Logit}[P(Y_i \geq j)] = \log \left[\frac{\exp(X_i \beta_j - \kappa_j)}{1 + [\exp(X_i \beta_j - \kappa_j)]} \right] = \alpha_j + \beta_j X_i$$

In the model, α_j denotes the intercept or threshold value. The regression coefficients are estimated using the Maximum Likelihood Estimation (MLE) method. The dependent variable (Y) is measured on an ordinal scale, representing the degree of farmers' engagement in green agricultural production. Specifically, Y is categorized into five levels: 1 = completely no engagement in green agricultural production; 2 = no engagement; 3 = neutral; 4 = engagement in green agricultural production; 5 = strong engagement in green agricultural production.

The independent variables (X_i) are described in Table 1.

Table 1: Independent variables in research model

Variable	Description	Measurement	Expected sign
X₁ (Education)	The education level of the household head	Not educated = 1, primary education = 2, secondary education = 3, high school = 4, and degree = 5	+
X₂ (Experience)	Farming experience of the household head	Number of years	-
X₃ (Farm size)	Size of cultivated land for farming	1000m ²	+
X₄ (Labor)	The number of agricultural laborers in the household	People	+
X₅ (Income)	The total amount of money earned from agricultural production	VND	+
X₆ (Awareness of green agriculture)	The level of farmers' awareness of green agriculture	Likert scale from 1 to 5 (strongly disagree to strongly agree)	+
D₁ (Gender)	Gender of the household head	1 = Male 0 = Female	+
D₂ (Linkage)	The linkage in production of the household head	1 = Household joins in a cooperative, 0 = otherwise	+
D₃ (Agricultural Extension)	Agricultural extension participation of the household	1 = Household participates in agricultural extension, 0 = otherwise	+
D₄ (Ethnicity)	Ethnicity of the household head	1 = Household is Kinh ethnic, 0 = otherwise	-

RESULTS AND DISCUSSION

Assessing Farmers' Readiness to Engage in Green Agricultural Production

Farmer's socioeconomic characteristics

Socioeconomic characteristics form a crucial basis for developing policies that promote green agricultural production. As shown in Table 2, most household heads are male (61.37%) and aged between 40 and 60 (70.98%), representing an active and experienced labor force. The majority have completed secondary school (46.67%) and primary school (29.02%), suggesting a moderate educational level supportive of adopting improved farming techniques. Moreover, 93.92% of farming households operate on areas smaller than 5,000 m², reflecting a fragmented and small-scale production that may constrain their access to and adoption of green agricultural models.

Table 2: Socioeconomic characteristics of the farmer

Variable	Frequency (Household)	Percentage (%)
Gender		
Male	313	61.37
Female	197	38.63
Age		
<= 30	10	1.96
30 – 40	68	13.33
40 – 50	176	34.51
50 – 60	186	36.47
> 60	70	13.73
Education		
Illiteracy	15	2.94
Primary School	61	11.96
Secondary School	238	46.67
High School	148	29.02
Degree	48	9.41
Farm size		
<= 1,000 m ²	128	25.10
1,000 m ² – 5,000 m ²	351	68.82
> 5,000 m ²	31	6.08

Source: Survey data, 2025

Farmers' Readiness to Engage in Green Agricultural Production

The survey results presented in Table 3 reveal that farmers' readiness to engage in green agricultural production is shaped by multiple factors. Among these, households with a high level of awareness of green agriculture achieved the highest mean score (3.60), followed by educational attainment (3.59) and production scale (3.49). These findings suggest that awareness, education, and farm size play critical roles in enhancing farmers' willingness to adopt green agricultural practices. Meanwhile, factors such as younger age and participation in cooperatives exhibit moderate influence (3.32). In contrast, non-agricultural income records the lowest mean score (3.01), implying that households with greater off-farm income are generally less inclined to participate in green agricultural production.

Table 3: Readiness metrics

Items	Mean	Standard Deviation
Qualified households are always ready to participate in production	3.59	0.86
Young farmers are always ready to participate in production	3.32	0.90
Households with many workers are always ready to participate in production	3.21	0.88
Households with high non-agricultural incomes are always ready to participate in production	3.01	0.85
Households with large production scale are always ready to participate in production	3.49	0.98
Households that participate in cooperatives are always ready to participate in production	3.32	0.91
Households with a clear awareness of agricultural production are always ready to participate in production	3.60	0.87

Source: Survey data, 2025

Factors Affecting Farmers' Behaviors in Green Agricultural Production

The results of the ordered logit regression model are presented in Table 4. The model exhibits a pseudo- R^2 of 45.90%, with a $\text{Prob} > \chi^2 = 0.000$, indicating the statistical appropriateness of the ordered logit regression model. Moreover, the model results delineate that the explanatory variables explain 45.9% of the variation in farmers' intentions to engage in green agricultural production.

The regression results presented in Table 4 indicate that variables such as education level, farm size, number of laborers, agricultural income, awareness, gender, production linkage, and agricultural extension significantly influence farmers' behavior toward green agricultural production. The odds ratios demonstrate the likelihood of farmers' intention to engage in green production with a one-unit increase in each independent variable.

Table 4: Regression model estimation results

Variable	Coefficient	Odds
X1 (Education)	0.3047*** (0.000)	1.3563*** (0.000)
X2 (Experience)	-0.0018 (0.880)	0.9981 (0.880)
X3 (Farm size)	0.0851* (0.082)	1.0888* (0.082)
X4 (Number of labor)	-0.125** (0.017)	0.8819** (0.017)
X5 (Income)	0.0039*** (0.000)	1.0039*** (0.000)
X6 (Awareness of green agriculture)	0.1931** (0.021)	0.8243** (0.021)
D1 (Gender)	-0.8074*** (0.005)	0.4459*** (0.005)
D2 (Linkage)	0.4137** (0.018)	1.5124** (0.018)
D3 (Agricultural Extension)	0.9629*** (0.001)	2.6193*** (0.001)
D4 (Ethnicity)	0.1444 (0.445)	1.1554 (0.445)
LR $\chi^2(10) = 234.33$		$\text{Prob} > \chi^2 = 0.000$
Pseudo R-Square = 0.459		

Source: Derivation from output generated by Stata 17 software

Note: The figures enclosed in parentheses represent P-values; ***, **, * denote significance at 1, 5 and 10%, respectively.

Table 5: Marginal effect coefficient in the model

Variable	Completely no production	No production	Neutral	Production	Strong production
Education	-0.0313***	-0.0199***	-0.0006	0.0241***	0.0277***
Experience	0.0019	0.0012	0.0000	-0.0015	-0.0017
Farm size	-0.0087*	-0.0055*	-0.0001	0.0067*	0.0077*
Labor	0.0129**	0.0082**	0.0002	-0.0099**	-0.0114**
Income	-0.0004***	-0.0002***	0.0000	0.0031***	0.0035***
Awareness of green agriculture	-0.0198**	-0.0126**	-0.0003	0.0153**	0.0175**
Gender	0.0829***	0.0528***	0.0016	-0.0639***	-0.0734***
Linkage	-0.0425**	-0.0270**	-0.0008	0.0327**	0.037**
Agricultural Extension	-0.0989***	-0.0630***	-0.0019	0.0762***	0.0875***
Ethnicity	-0.0148	-0.0094	-0.002	0.0114	0.0131

Source: Derivation from output generated by Stata 17 software

Note: The figures enclosed in parentheses represent P-values; ***, **, * denote significance at 1, 5 and 10%, respectively.

The results presented in Table 5 reveal that factors influencing farmers' production behavior have a difference across household groups. Namely, experience and ethnicity are not statistically significant, while the education level is statistically significant. An increase in educational attainment is positively associated with farmers' engagement in green agricultural practices. Education is widely recognized as a critical determinant of farmers' capacity to acquire, interpret, and adopt green farming techniques. Individuals with higher education tend to be more proactive in implementing environmentally friendly production methods. Prior studies (e.g., Yu et al., 2022; Luo et al., 2022) have consistently confirmed that the education level of the household head exerts a positive influence on sustainable agricultural behavior.

The farm size also exerts a positive effect on farmers' green production behavior. Households possessing large land with favorable farming conditions generally implement green agricultural models effectively. This finding aligns with previous research of Pan et al. (2022), which emphasizes that land size and spatial characteristics significantly shape the feasibility of adopting sustainable agricultural systems.

The production linkage has a significant positive impact on green production behavior. Participation in cooperative forms—such as agricultural cooperatives or value-chain partnerships with enterprises—enables farmers to access new technologies and technical knowledge, reduce production costs through shared resources, and optimize production processes. These linkages better facilitate the transition to environmentally friendly farming systems. Consistent with Li et al. (2024) show that the households engaged in production networks are more likely to adopt sustainable practices due to access to technical assistance, product consumption commitment, and market accessibility. Therefore, production linkages act not only as supporting mechanisms but also as motivations fostering a sustainable transformation toward green agriculture.

Conversely, labor size and gender exhibit negative effects on green production behavior. Specifically, as the number of household laborers increases, the likelihood of adopting green production practices tends to decline. This may stem from the diversity of opinions within larger households, which can impede consensus and the implementation of new farming models. Similar findings were reported by Liu et al. (2024), indicating that a larger labor force does not necessarily correspond to greater innovation in sustainable agriculture.

The agricultural income demonstrates a positive relationship with green production behavior. Economically better-off households are more capable of investing in green technologies, high-quality inputs, and clean production processes. Higher income levels reduce financial constraints, allowing farmers to prioritize long-term sustainable practices over short-term profit-oriented methods. Previous studies (e.g., Hou & Wang, 2023) have also highlighted that income serves as a key driver of green production behavior, particularly as farmers increasingly recognize the long-term benefits of environmentally friendly agriculture. Hence, improving farmers' income not only enhances their living standards but also accelerates the transition toward sustainable agricultural production.

The awareness of green agriculture has a statistically significant and strongly positive effect on green production behavior. Awareness acts as a catalyst for behavioral change, producing spillover effects within communities and reflecting the effectiveness of communication and training programs. Empirical evidence from Sun (2025) supports this finding, indicating that awareness is among the most influential determinants of farmers' engagement in green agricultural production.

Finally, agricultural extension programs play a pivotal role in promoting green agricultural behavior by facilitating knowledge transfer, technological diffusion, and policy integration. This finding is consistent with Wu et al. (2021) showing that agricultural extension positively affects farmers' sustainable production behavior. Extension activities—such as technical training, workshops, and personalized consultations—enhance farmers' understanding of the environmental impacts of conventional farming practices and encourage the adoption of environmentally responsible models, including the use of organic fertilizers, biological pesticides, and water-saving technologies.

CONCLUSIONS AND PRACTICAL IMPLICATIONS

Conclusions

This study employed an ordered logit regression model to examine the factors influencing farmers' green agriculture production behavior in Khanh Hoa Province. The model results reveal that education level, farm size, agricultural income, awareness of green production, production linkage, and agricultural extension programs exert a positive and significant influence on farmers' green production behavior. Additionally, labor size and gender demonstrate a negative relationship, suggesting that larger households and male-dominated labor structures may be less inclined to adopt sustainable production practices. Based on these findings, several managerial and policy implications are proposed to promote the transition toward green agricultural production.

Practical Implications

First, raising farmers' awareness is a critical determinant of behavioral transformation toward green agricultural production. Awareness acts as a cognitive foundation that shapes farmers' perceptions of the interconnections between their production practices and broader environmental outcomes. When farmers fully recognize that their farming behaviors influence not only productivity and income but also environmental quality, public health, and the long-term sustainability of the agricultural system, they are more likely to adopt environmentally responsible practices. To strengthen this awareness, it is essential to implement targeted interventions such as training programs, environmental education campaigns, and field-based demonstrations. These initiatives can translate abstract environmental concepts into practical knowledge and skills, thereby fostering a sustained behavioral shift toward greener agricultural production.

Second, relevant government departments, such as the Ministry of Agriculture and Rural Development, provincial agricultural offices, and environmental agencies, should integrate agricultural extension programs with digital transformation strategies to effectively promote farmers' green production behavior. Agricultural extension acts as a critical channel for translating sustainability policies into local action through technical guidance and environmental training, while digital technologies (e.g., mobile advisory platforms, online learning, and precision agriculture tools) enhance the accessibility and efficiency of these services. Additionally, policymakers should also invest in rural digital infrastructure, foster public–private partnerships for agricultural innovation, and embed green production principles into extension curricula. The synergy between agricultural extension and digital transformation can cultivate an informed, connected, and environmentally responsible farming community, thereby accelerating the transition toward sustainable agriculture.

Finally, enhancing production linkages among farmers plays a crucial role in facilitating the diffusion of green agricultural practices through cooperation, knowledge exchange, and collective efficiency. When farmers are organized into cooperatives, producer groups, or value chain networks, they gain greater access to sustainable inputs, environmentally friendly technologies, and shared knowledge on ecological production methods. Therefore, governments should actively promote the development of agricultural cooperatives, production clusters, and farmer associations that embed environmental objectives into their operational strategies. These organizations can function as vital platforms for training, resource sharing, and the dissemination of green technologies, thereby accelerating the transition toward sustainable and environmentally responsible agriculture.

In conclusion, improving awareness, expanding agricultural extension programs, and promoting cooperative linkages are essential pathways for fostering environmentally responsible and economically viable green agricultural practices in Khanh Hoa Province and similar agricultural regions.

ACKNOWLEDGEMENT

We acknowledge and comply with ethical standards.

REFERENCES

- Cochran, W. G. (1977). *Sampling Techniques*. New York: John Wiley and Sons, Inc.
- Gao, R., Zhang, H., Gong, C., & Wu, Z. (2022). The role of farmers' green values in creation of green innovative intention and green technology adoption behavior: Evidence from farmers grain green production. *Front Psychol*, 13, 18-27. doi:10.3389/fpsyg.2022.980570
- Hou, D., & Wang, X. (2023). How does agricultural insurance induce farmers to adopt a green lifestyle? *Front Psychol*, 14, 13-30. doi:10.3389/fpsyg.2023.1308300
- 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). doi:10.3390/agriculture12060831
- Li M., W. J., Zhao P., Chen K., Wu L. (2020). Factors affecting the willingness of agricultural green production from the perspective of farmers' perceptions. *Science of The Total Environment*, 7(8), 14-28. doi:10.1111/agec.12836
- Li, S., Sun, S., & Zhang, C. (2024). Internet-Based Information Acquisition, Technical Knowledge and Farmers' Pesticide Use: Evidence from Rice Production in China. *Agriculture*, 14(9). doi:10.3390/agriculture14091447
- Liu, Y., Yang, J., Zhang, G., & Cui, X. (2024). Driving factors of green production behaviour among farmers of different scales: Evidence from North China. *Agricultural Economics*, 70(10), 474-494. doi:10.17221/188/2024-agricecon
- Long, K. Đ. (2016). Về Phát Triển Nông Nghiệp Xanh, Lợi Ích, Nhận Thức và Lựa Chọn. *Tạp Chí Khoa Học Đại Học Tân Trào*, 2, 5-13.
- Luo, L., Qiao, D., Zhang, R., Luo, C., Fu, X., & Liu, Y. (2022). Research on the Influence of Education of Farmers' Cooperatives on the Adoption of Green Prevention and Control Technologies by Members: Evidence from Rural China. *Int J Environ Res Public Health*, 19(10). doi:10.3390/ijerph19106255
- Pan, S., Di, C., Chandio, A. A., Sargani, G. R., & Zhang, H. (2022). Investigating the Impact of Grain Subsidy Policy on Farmers' Green Production Behavior: Recent Evidence from China. *Agriculture*, 12(8). doi:10.3390/agriculture12081191
- Sun, Y. (2025). Research on the Willingness of Farmers to Adopt Green Agricultural Production Technologies and Its Influencing Factors. *Advances in Economics, Management and Political Sciences*, 189(1), 85-90. doi:10.54254/2754-1169/2025.bl23896
- Wu, H., Hao, H., Lei, H., Ge, Y., Shi, H., & Song, Y. (2021). Farm Size, Risk Aversion and Overuse of Fertilizer: The Heterogeneity of Large-Scale and Small-Scale Wheat Farmers in Northern China. *Land*, 10(2). doi:10.3390/land10020111
- Yan, A., Luo, X., Tang, L., & Du, S. (2023). The Effect of Agricultural Extension Service Need-Supply Fit on Biological Pesticides Adoption Behavior: Evidence from Chinese Rice Farmers. *Agriculture*, 13(11). doi:10.3390/agriculture13112074
- Yi, X., Zou, Q., Zhang, Z., & Chang, S. H. (2023). What Motivates Greenhouse Vegetable Farmers to Adapt Organic-Substitute-Chemical-Fertilizer (OSCF)? An Empirical Study from Shandong, China. *Int J Environ Res Public Health*, 20(2). doi:10.3390/ijerph20021146
- Yu, L., Liu, W., Yang, S., Kong, R., & He, X. (2022). Impact of environmental literacy on farmers' agricultural green production behavior: Evidence from rural China. *Frontiers in Environmental Science*, 1(10). doi:10.3389/fenvs.2022.990981
- Zhou, W., Yang, Y., He, J., & Xu, D. (2023). Does Labor Aging Inhibit Farmers' Straw-Returning Behavior? Evidence from Rural Rice Farmers in Southwest China. *Land*, 12(9). doi:10.3390/land12091816