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How Does the Certification Policy of Agricultural Products Affect the Adoption of Green Production Technologies by Farmers?—An Integrated Study

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Abstract

This paper studied the influence of agricultural product certification policy on the adoption of green prevention and control technology by farmers. Firstly, we used SPSS24.0 software to analyze the influence mechanism between farmers' behavioral attitudes, subjective norms, perceived behavioral control, safety responsibility awareness and farmers' green prevention and control technology adoption. Then, hierarchical regression analysis was used to test the hypotheses proposed in the study, and the effects of farmers' behavioral attitudes, subjective norms, perceived behavioral control, and policy incentives and constraints related to agricultural product certification on the behavioral intention and behavior of adopting green prevention and control technology were studied. The results showed that the behavioral attitude, adoption intention and policy incentives contained in the agricultural product certification policy had significant effects on the adoption opinions and adoption behaviors of farmers' green prevention and control technology, but the effect of policy constraints on the adoption behaviors was not obvious. Finally, according to the research conclusions, we put forward policy suggestions from three aspects: publicity, guidance and research and development.

Keywords

agricultural product certification policy, green prevention technology, green control technology

1. Introduction

At present, the production of agricultural products in China presents the characteristics of "double negative externalities", which not only produces soil and water resource pollution and environmental damage, but also produces the quality and safety problems of agricultural products. The Chinese government clearly requires the implementation of the strictest ecological environmental protection system and the formation of a green development mode and lifestyle. In particular, the promulgation of the Opinions on Promoting the Green Development of Agriculture through Innovative Systems and Mechanisms has placed green agricultural production in a prominent position in the construction of ecological civilization. At the same time, it has emphasized the main position of farmers in the process of green agricultural production. It is pointed out that we should not only clarify the main responsibility of the operator, but also mobilize the enthusiasm of the majority of farmers to participate in the green production of agricultural products through market guidance and government support.

Excessive reliance on chemical pesticides has not only caused serious environmental pollution and food safety problems, but also restricted China's agricultural exports. In order to realize the reduction and control of chemical pesticides from the root, the government departments have formulated and issued a series of policies to actively promote Green Control Techniques (GCT) that take into account economic, ecological and social benefits. Green prevention and control technology is an environmentally friendly agricultural technology that comprehensively uses biological control, physical control, agricultural control and scientific drug use to prevent and control crop diseases and pests. However, at present, the actual promotion effect of green prevention and control technology is very limited, and it has not become the first choice for farmers to control diseases and pests. As the final users of green prevention and control technology, green prevention and control technology can only play its role fully if it is accepted and adopted by farmers. Green agricultural product certification policy has always been regarded as an important way to solve the green development of agriculture. Therefore, it is of great significance to study the influencing factors of green agricultural product certification policy for farmers to adopt green prevention and control technology. This study combined with e-commerce applications in the field of Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM), To explore the effect of green agricultural product certification policy on farmers' green prevention and control behavior, and provide suggestions for government departments to formulate green agricultural product certification policy.

2. Conceptual Framework

2.1 TRA, TPB and TAM

Theory of Reasoned Action、Theory of Planned Behavior and Technology Acceptance Model is the most widely accepted theory and model of technology adoption research. Fishbein and Ajzen put forward the theory of rational behavior, which holds that usage attitudes and subjective norms affect individuals' willingness to use technologies and tools, and thus affect individuals' behavior to use

technologies and tools. On this basis, Ajzen introduced the concept of perceived behavior control, proposed the theory of planned behavior, and comprehensively studied the influencing factors of user behavior intention. An important point of view of rational behavior theory and planned behavior theory is that the factors that affect behavior indirectly affect use behavior through behavioral intention, and behavioral intention is generally affected by attitude, perceived behavioral control and subjective norms. At the same time, Davis proposed a technology acceptance model, pointing out the importance of perceived usefulness and perceived ease of use in predicting user acceptance of a certain technology. Scholars have studied and expanded these theories and models, and put forward the technology acceptance extension model, the integrated technology acceptance extension model and the integrated technology acceptance extension model. One of the representative models is the integrated technology adoption model proposed by Sun Jianjun et al., which combines factors such as task difficulty, technical level and user characteristics, and has a high ability to explain reality in empirical studies.

2.2 Agricultural Product Certification Policy

Agricultural product certification includes organic agricultural products, green food, pollution-free agricultural products and agricultural geographical indication certification policies, covering the production, processing and circulation of agricultural products in the process of safety, quality, characteristics and other elements, is an important management policy of safe and high-quality agricultural products in China. Driven by brand promotion, the certification of agricultural products develops in the direction of product standardization, production scale, form base and high-end industry. The quality of agricultural products has been significantly improved, and the brand influence and market competitiveness of agricultural products have been gradually highlighted, which has a strong promoting role in agricultural modernization, supply-side structural reform, efficiency and income increase. More conducive to the implementation and implementation of the national targeted poverty alleviation policy. The development of agricultural product certification follows the concept of safety, high quality, ecology, environmental protection and sustainable production, focusing on the coordinated development of quantity, quality and efficiency. By strengthening environmental protection of origin, strictly controlling the use of agricultural inputs, strictly managing the production process and strictly testing the end products, it pays attention to both the quality and safety of agricultural products and the protection of the ecological environment. At present, it has become the leading policy of China’s safe and high-quality agricultural products. From the perspective of the development process of agricultural product certification, whether it is the production concept and concept connotation, or control measures and development goals, the requirements of agricultural product certification and green production are highly consistent, representing the current and future advanced agricultural production methods for a long period of time. From years of practice, agricultural product certification production adheres to the scientific and rational use of agricultural inputs, takes into account the improvement of the quality and safety level of agricultural products and the protection of agricultural ecological environment, and effectively promotes the green production of agricultural products in China.

In recent years, China's policies and measures around agricultural product certification mainly include three aspects: First, through green agricultural production training, improve farmers' awareness of agricultural product safety production, improve green agricultural production skills. Second, by increasing the intensity of sampling inspection and punishment of agricultural product certification, to eliminate products that do not meet the requirements to enter the market. Third, reasonable subsidies for all enterprises of certified agricultural products to improve the incentive effect of the policy. Therefore, in this study, we believe that the incentive of agricultural product certification policy can improve the motivation of farmers' green production, and then promote the willingness and behavior of farmers to adopt green prevention and control technology, while the constraint policy increases the cost of violating rules, and also improves the willingness and behavior of farmers to adopt green prevention and control technology. Based on this, we propose the following hypothesis:

Hypothesis 1 (H1)

H1a: Agricultural product certification policies positively affect farmers' willingness to adopt green prevention and control technologies.

H1b; Agricultural product certification policies positively affect the adoption of green prevention and control technology by farmers.

Hypothesis 2 (H2)

H2a: Agricultural product certification policy constraints positively affect farmers' willingness to adopt green prevention and control technology

H2b: Agricultural product certification policy constraints positively affect the adoption of green prevention and control technology behavior of farmers.

2.3 Behavior Attitude

The attitude is composed of strength and evaluation, where the strength indicates an individual's expectation of the possible consequences of a behavior, and the evaluation is an individual's expectation of the positive or negative attributes of the consequences of the behavior. Individual attitude will affect their attention allocation and information processing, and then affect their behavioral intention. The empirical research shows that there is a positive correlation between attitude and intention to use, and attitude has a strong predictive ability for intention to use. The behavioral attitude of farmers to adopt green prevention and control technology refers to the cognition of farmers to green prevention and control technology and the effect evaluation of adopting green prevention and control technology. Wu Xuelian's (2016) empirical study showed that the higher the farmers' recognition of the environmental and economic benefits of efficient pesticide spray technology, the higher the farmers' enthusiasm for technology adoption. The empirical study of Du Bin (2014) shows that the more farmers pay attention to pesticide residues, the more they agree with safe production, and the more inclined they are to choose safe production methods. Houbo's (2015) study on low-carbon production behaviors of farmers shows that the more farmers recognize the environmental and health benefits of low-carbon agricultural production behaviors, the more likely they are to choose low-carbon

production behaviors. The application of green prevention and control technology can not only reduce environmental pollution and pesticide residues, but also benefit the personal health of farmers. The higher the farmers' recognition of green prevention and control technology's environmental benefits, economic benefits, agricultural product quality and safety benefits and farmer's health benefits, the more positive their behavior attitude and the higher the adoption of green prevention and control technology may be. Therefore, this paper proposes the following hypothesis:

Hypothesis 3 (H3)

H3a: The behavioral attitude of farmers to adopt green prevention and control technology positively affects the willingness of farmers to adopt green prevention and control technology.

H3b: The behavioral attitude of farmers to adopt green prevention and control technology positively affects the adoption behavior of farmers' green prevention and control technology.

2.4 Subjective Norm

Individual use behavior is not only affected by autonomous factors such as attitude, but also by social pressure and other factors. If significant antothers—relatives, friends, classmates, or members of the public—take a stand for or against an action, that will affect an individual's willingness to do so. Ayez calls an individual's perception of these kinds of social pressures "subjective norms." The subjective norm for farmers to adopt green prevention and control technology refers to the support or opposition pressure felt by farmers from the government, surrounding farmers and agricultural technology departments when they make decisions to adopt green prevention and control technology. Li Shijie's (2013) empirical study on farmers' drug application behavior showed that the stricter the government supervision, the more standardized the production behavior of farmers, and the more inclined farmers are to use medicine safely. Tzeling (2011)'s research on farmers' behavioral decision-making shows that the frequency of communication with surrounding farmers will significantly affect farmers' behavioral decision-making. Gao Yang's (2017) study on the adoption behavior of green prevention and control technology by farmers shows that the frequency of communication between farmers and their neighbors and the promotion efforts of agricultural technology departments significantly affect the adoption degree of green prevention and control technology by farmers. The higher the support level for green pest control technologies from the government, neighboring farmers, and agricultural technicians, the greater the perceived social normative pressure on farmers, and the more likely they are to adopt green pest control technologies. Therefore, this article proposes the following hypothesis:

Hypothesis 4 (H4)

H4: The subjective norms of farmers' adoption of green prevention and control technology positively affect farmers' willingness to adopt green prevention and control technology.

2.5 Perceptual Behavior Control

Perceived behavior control is an empirical judgment that an individual perceives the difficulty of using a certain technology or completing a certain behavior, reflecting an individual's expected obstacles. The perceived behavioral control of farmers' adoption of green prevention and control technology refers to

the consideration of factors such as knowledge, experience and ability of individuals to adopt green prevention and control technology when making decisions on green prevention and control technology adoption. Jiang Qianyu (2018) empirically studied the impact of perceived behavioral control on farmers' production safety behaviors and found that farmers' production knowledge and legal cognition would affect farmers' production safety behaviors. Yin Zhiyang's (2012) research on land transfer shows that the more familiar farmers are with land transfer policies, the more clear they are about how to transfer their land. The stronger their behavior control ability, the more inclined they are to choose land transfer. The empirical study of Du Bin (2014) shows that agricultural technology training can reduce the perceived technical complexity of farmers and enhance their enthusiasm for safe production. The more abundant green prevention and control technology information farmers have, the more familiar they are with relevant policies and regulations, the more effective green prevention and control technology training they receive, and the stronger their perceptual behavior control ability, the more likely they are to adopt green prevention and control technology. Therefore, this paper proposes the following hypothesis:

Hypothesis 5 (H5)

H5: The perceived behavioral control of farmers' adoption of green prevention and control technology positively affects the willingness of farmers to adopt green prevention and control technology.

Hypothesis 6 (H6)

H6: The behavioral willingness of farmers to adopt green prevention and control technology positively affects the adoption behavior of farmers' green prevention and control technology.

According to the assumptions, we construct the theoretical model of this study:

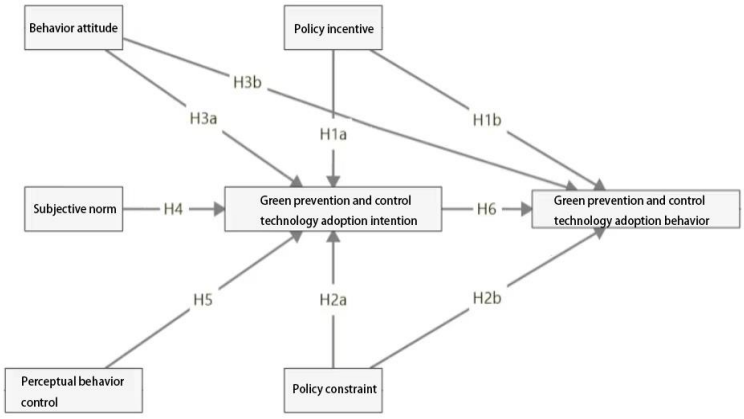

Figure 1. Theoretical Model

3. Materials and Methods

3.1 Data Collection

The data used in this study came from the questionnaire survey conducted by the research group in Xuzhou, Yancheng, Huai'an, Taizhou and Zhenjiang cities of Jiangsu Province. The research group recruited 18 students and divided them into 5 groups according to their families' regions, corresponding to 5 prefecture-level cities, and conducted unified questionnaire survey training. A total of 135 questionnaires were sent out and 124 valid questionnaires were collected through random sampling. The collected questionnaires were processed. In the first step, the questionnaires without demographic information were regarded as invalid and excluded. In the second step, questionnaires with the same number selected on the whole page are considered invalid and removed. After excluding invalid questionnaires, 113 questionnaires were finally included in the analysis, with an effective recovery rate of 83.70%. The basic statistical results of valid samples are shown in Table 1.

Table 1. Demographic Characteristics of Respondents

Characteristics		**Frequency**	**Percentage**	**Cumulative frequency%**
Gender	male	78	69.03%	69.03%
	female	35	30.97%	100.00%
district	Xuzhou City	23	20.35%	20.35%
	Yancheng City	32	28.32%	48.67%
	Huai 'an City	25	22.12%	70.80%
	Taizhou City	14	12.39%	83.19%
	Zhenjiang City	19	16.81%	100.00%
Age	under 35 years old	6	5.31%	5.31%
	35-45 years old	28	24.78%	30.09%
	46-55 years old	43	38.05%	68.14%
	56-65 years old	24	21.24%	89.38%
	65years old and above	12	10.62%	100.00%

Household size	2 or under	9	7.96%	7.96%
	3	26	23.01%	30.97%
	4	34	30.09%	61.06%
	5	24	21.24%	82.30%
	6 or above	20	17.70%	100.00%
Education level	None	2	1.77%	1.77%
	elementary school (1-6 years)	23	20.35%	22.12%
	middle school (7-9 years)	63	55.75%	77.87%
	high school (10-12 years)	14	12.39%	90.26%
	other (>12 years)	11	9.73%	99.99%
Per capital annual household income	10,000 Yuan or under	34	30.09%	30.09%
	10,001-20,000 Yuan	38	33.63%	63.72%
	20,001-30,000 Yuan	22	19.47%	83.19%
	30,001-40,000 Yuan	12	10.62%	93.81%
	above 40,000 Yuan	7	6.19%	100.00%

In terms of demographics, 69.03% of respondents were male and 30.97% were female. Respondents from Xuzhou accounted for 20.35%, from Yancheng accounted for 28.32%, from Huaian accounted for 22.12%, from Taizhou accounted for 12.39%, from Zhenjiang accounted for 16.81%. From the perspective of age, 30.09% were 45 years old or below, 59.29% were 45 to 65 years old, and 10.62% were over 65 years old. The sample farmers were mainly middle-aged and elderly. From the perspective of education level, 77.87% were junior high school or below, 12.39% were senior high school or technical secondary school, and 9.73% were junior college or above. From the perspective of family size, 7.96% of the families have 2 or less people, 74.34% of the families have 3 to 5 people, and

17.70% of the families have 6 or more people. From the perspective of per capita household income, 63.72% were 20,000 yuan or less, 19.47% were 20,000 to 30,000 yuan, and 16.81% were more than 30,000 yuan.

3.2 Measurement

In order to ensure the reliability and validity of the measurement, the measurement indicators of each variable proposed in this paper refer to the measurement problems of potential variables commonly used in foreign literature studies as the theoretical basis, and are modified and supplemented according to the actual use of users. The measurement items of attitude variables were constructed from two aspects of emotion and instrumentality. The measurement items of subjective norm are constructed from two aspects: demonstrative norm and prescriptive norm. Ajzen measured perceived behavior control from two aspects: internal control belief and external control belief. This paper believes that this division is too broad, which may lead to measurement distortion. The measurement accuracy can be improved by measuring from three aspects: self-efficacy, internal control belief and external control belief. When discussing the adoption behavior of farmers' green prevention and control technology, most of the previous studies set it as a binary variable (0 did not adopt, 1 adopted), which ignored the gradual process of farmers' adoption of green prevention and control technology. Green control technology includes biological control, physical control, agricultural control and scientific drug use 4 seed technologies. The more sub-technologies adopted by farmers, the higher the adoption of green control technology by farmers. Therefore, referring to the research of Geng Yuning (2017) and CAI Shukai (2013), this study adopted more detailed indicators to evaluate the adoption behavior of green prevention and control technology of farmers, namely, "the adoption degree of green prevention and control technology of pests and diseases". 5 answer options of "no sub-technology adopted", "adopted 1 seed technology", "adopted 2 seed technology", "adopted 3 seed technology" and "adopted 4 seed technology" were set respectively, and assigned values of 1, 2, 3, 4 and 5. The questionnaire was designed using a five-level Likert scale, with 1 indicating "strongly disagree" and 5 indicating "strongly agree". After the completion of the questionnaire design, experts and scholars in the industry are invited to review it, and gradually modify and improve it.

4. Result

4.1 Reliability and Validity

Based on the questionnaire and data, we performed a factor analysis and calculated the Cronbachα value for each variable. According to the requirements of Anderson (1988), the Cronbachα value of the variable should not be lower than 0.7, and items with low factor load should be eliminated. The result of factor analysis shows that each item within the variable has a high factor load, and the factor load between variables is low. The questionnaire has good aggregation validity and discriminative validity.

Table 2. Reliability and Validity Tests of Variables

Construct	Items	KMO	Factor Loading	Cronbach's α
Attitude (ATT)	The adoption of green prevention and control technology is conducive to reducing environmental pollution	0.865 （0.000）	0.852	0.946
	The adoption of green prevention and control technology is conducive to ensuring food safety		0.850	
	The adoption of green prevention and control technology is conducive to increasing economic benefits		0.883	
	The adoption of green prevention and control technology is conducive to the individual health of farmers		0.854	
	Government departments support the adoption of green prevention and control technologies		0.824	
Subjective norm (SN)	Agricultural technicians support the adoption of green prevention and control technologies	0.696 （0.000）	0.848	0.771
	Surrounding farmers support the adoption of green prevention and control technologies		0.813	
Perceived behavioral control (PBC)	If I want to know about green control technology, I can get it	0.693(0.000)	0.799	0.790
	I am familiar with green prevention and control policies and regulations		0.855	
	Green prevention and control technology training has given me more guidance		0.868	

4.2 Regression

In this study, SPSS24.0 software was used to analyze the influence mechanism between farmers'

behavioral attitudes, subjective norms, perceived behavioral control, safety responsibility awareness and farmers' adoption of green prevention and control technology. The hypothesis proposed in this study was tested by the method of hierarchical regression analysis, and the effects of farmers' behavioral attitudes, subjective norms, perceived behavioral control, and policy incentives and constraints related to agricultural product certification on the behavioral intention and behavior of adopting green prevention and control technology were studied.

First of all, we conducted hierarchical regression with behavioral intention to adopt green prevention and control technology as the dependent variable, behavioral attitude, subjective norms, perceived behavioral control, policy incentives and policy constraints as the independent variables, and age, family size, education level and per capita annual household income as the control variables. The results are shown in Table 3. The R2 of model 3 is 0.835, the adjusted R2 is 0.821, and the D-W value is 1.780, which indicates that the fit degree of the model has been significantly improved after the addition of independent variables. Regression results show that the coefficient of behavioral attitude is 0.494, which is significant at the level of 0.01, indicating that farmers' attitude towards green prevention and control technology positively affects their adoption intention, and H3a is verified. The coefficient of the subjective norm is 0.325, which is significant at the level of 0.01, indicating that the subjective norm positively affects farmers' willingness to adopt green prevention and control technology. When government departments, agricultural technicians and surrounding farmers have a positive attitude towards green prevention and control technology, farmers' willingness to adopt green prevention and control technology will be stronger, and H4 has been verified. The coefficient of perceived behavior control is 0.479, which is significant at the level of 0.01, indicating that farmers' perceived behavior control of green prevention and control technology positively affects their adoption intention. The more farmers have mastered the knowledge and skills of green prevention and control technology, the stronger their adoption intention is, and H5 is verified. The coefficient of policy incentive is 0.157, which is significant at the level of 0.01, this indicates that policy incentives positively affect the willingness to adopt green prevention and control technologies. H1a is verified. The coefficient of policy constraint is 0.162, which is significant at the level of 0.01, indicating that policy constraint positively affects the willingness to adopt green prevention and control technology, and H2a is verified. Compared with model 2 and model 3, the fit degree of the model is increased after the policy effect is increased, which indicates that agricultural product certification policy has a significant impact on farmers' willingness to adopt green prevention and control technology.

Table 3. Regression Analysis Results of Behavioral Intention to Adopt Green Prevention and Control Technology

variable	Behavioral willingness to adopt green prevention and control technologies		
	Model1	Model2	Model3

constant	2.805**	-2.174**	-2.238**
Control variable			
age	-0.041	0.008	0.014
Family size	0.043	0.022	0.021
Educational level	-0.151	0.041	0.045
Per capital annual household income	0.088	0.084	0.092*
Independent variable			
Behavior attitude		0.661**	0.494**
Subjective norm		0.394**	0.325**
Perceptual behavior control		0.535**	0.479**
Policy incentive			0.157**
Policy constraint			0.162*
R2	0.028	0.812	0.835
Adjusted R2	0.008	0.799	0.821
R2 change	0.028	0.784	0.023
f-number	0.785	64.615**	57.998**

Secondly, we carried out hierarchical regression with the adoption behavior of green prevention and control technology as the dependent variable, behavior attitude, adoption intention, policy incentives and policy constraints as the independent variables, and age, family size, education level and per capita annual household income as the control variables. The results are shown in Table 4. The R2 of Model 3 is 0.786, the adjusted R2 is 0.770, and the D-W value is 2.336. Regression results show that the coefficient of adoption willingness is 0.494, which is significant at the level of 0.01. Surface behavior willingness has a significant effect on behavior, which is consistent with the theoretical hypothesis of TPB and TAM, and H6 is confirmed. The coefficient of behavioral attitude is 0.153, which is not

significant at the level of 0.1, but not significant at the level of 0.05, and H3b has not been verified. We believe that the main reason is that the intermediary role of behavioral intention is strong, so the influence of attitude on behavior is not significant enough. The coefficient of policy incentive is 0.167, which is significant at the level of 0.01, indicating that policy incentive positively affects the adoption behavior of green prevention and control technology, and H1b is verified. The effect of policy constraints on the adoption of green prevention and control technology is not significant, and H2b has not been verified. Compared with model 2 and model 3, the fit degree of the model is increased after the policy effect is increased, which indicates that the agricultural product certification policy has a significant impact on the adoption behavior of farmers' green prevention and control technology. Compared with Table 3 and Table 4, behavioral attitude, adoption intention and policy incentives have significant effects on farmers' adoption intention and adoption behavior of green prevention and control technology, but policy constraints have no significant impact on adoption behavior.

Table 4. Results of Regression Analysis of Green Prevention and Control Technology Adoption Behavior

variable	**Green prevention and control technology adoption behavior**		
	Model1	**Model2**	**Model3**
constant	1.454*	-0.683	-0.799*
Control variable			
age	0.024	0.051	0.043
Family size	0.085	0.043	0.044
Educational level	-0.080	0.033	0.047
Per capital annual household income	0.089	0.040	0.037
Independent variable			
Willingness to adopt		0.564**	0.494**
Behavior attitude		0.185*	0.153
Policy incentive			0.167**

Policy constraint			-0.018
R2	0.034	0.764	0.786
Adjusted R2	-0.002	0.750	0.770
R2 change	0.034	0.730	0.022
f-number	00.950	57.137**	47.825**

5. Discussion

Based on the theory of planned behavior and the technology acceptance model, this paper studied the impact of agricultural product certification policy on the adoption behavior of green prevention and control technology of farmers. The empirical results showed that the incentive of agricultural product certification policy, policy constraints, farmers' attitude, subjective norms and perceived behavior control positively affected farmers' willingness to adopt green prevention and control technology. The incentive and adoption intention of agricultural product certification policy positively affect the adoption behavior of farmers' green prevention and control technology. According to the research conclusions, this study puts forward the following policy recommendations.

First, increase media publicity and give full play to the leading demonstration role of agricultural product certification in green production. At present, although the products of the certified origin of agricultural products have been cultivated with a certain scale, there is still a big gap compared with the requirements of green production. Next, the certification of agricultural products should be in accordance with the requirements of green production, closely around a new round of "vegetable basket" project, advantageous agricultural products industrial belt and modern agricultural demonstration area construction, closely combined with various agricultural production projects, standardized demonstration creation, agricultural industrialization leading enterprises identification, the certification of agricultural products as a prerequisite for project construction and demonstration creation activities or acceptance indicators. We will further tap the development potential and promote the steady expansion of the total number of products produced in the country. Increase the positive publicity and reporting of agricultural product certification policies and green prevention and control technologies, enhance farmers' understanding of green agriculture, and improve farmers' awareness of the benefits of adopting green prevention and control technologies.

Second, strengthen guidance and standardization, and implement strict control of agricultural product certification process. Government departments improve and improve the relevant policies and regulations for the certification of agricultural products, strengthen the supervision of highly toxic and highly toxic products, and form institutional norms for promoting green prevention and control technologies. The certification and registration of agricultural products is not only the confirmation of product quality and safety, but also the evaluation of the standardization of the production process of agricultural products, emphasizing the standardization and conformity of production, and is a quality

and safety management mode for the quality control of the whole process of production. The certification of agricultural products should give play to its institutional advantages, technical advantages and system advantages, and implement stricter process control to ensure the quality and safety of the end products. We will strengthen environmental monitoring at production sites, establish a sound monitoring system for the safety of agricultural products at production sites, promote clean agricultural production technologies, and prevent pollution at source. Promote subject self-discipline and enhance subject integrity consciousness. Guide and urge the certified subject to earnestly implement standardized production measures, strictly implement production records, drug withdrawal period, interval period and other provisions, and constantly improve quality and safety control capabilities to ensure product quality and safety. Improve the standard management level of the industry. Accelerate the construction of agricultural product certification production bases, promote the production mode of “company + base + farmers” or cooperation and mutual assistance, and promote the large-scale development and industrialization of agricultural product certification production. Strengthen post-certification supervision. Strictly implement regulatory measures, strengthen daily supervision and inspection, actively explore the traceability management of agricultural product certification and credit classification management, smooth exit channels, and eliminate dishonest enterprises.

Third, increase investment in science and technology and attach importance to the application of new technologies. We should make full use of the excellent achievements of scientific and technological development, improve the production capacity of agricultural products by relying on scientific and technological progress and material input, and attach importance to the excellent quality of agricultural products. Only by attaching importance to the application of new technologies can we improve the utilization rate of resources and land output, fundamentally solve the problems of weak agricultural foundation and low comprehensive production capacity, and promote sustainable agricultural development. It is necessary to pay attention to the prevention and control of environmental pollution and the application of remediation technologies in producing areas, including environmental pollution caused by unreasonable application of pesticides and fertilizers, livestock and poultry manure discharge, farmland waste disposal, farming measures, improper treatment of industrial and domestic waste pollutants and agricultural utilization, and improve the ability to protect the environment in producing areas. Attach importance to the research and development and use of environmentally friendly agricultural inputs, gradually promote biopesticides, replace high-toxicity and high-residue chemical pesticides, assembly and integration of advanced production technology, pay attention to biological and physical ways to control pests and diseases, and reduce the impact of chemical inputs on the environment. The third is to pay attention to the application of quality control technology, including production process control, product packaging and storage, product quality traceability and other advanced technologies, from production, storage, transportation, sales and other aspects to ensure product quality.

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Note(s)

Note 1. * and ** are statistically significant at the level of 0.05 and 0.01, respectively