

# Development Status and Path Optimisation of Agricultural "Planting and Raising Plus" Mode in Anhui Province

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**Abstract:** Low-carbon planting and raising cycle effectively promotes China's agricultural development with the agricultural production model of "green low-carbon, cost reduction and efficiency". This study is based on the research data of Anhui Province (southern Anhui, northern Anhui and central Anhui), aiming to understand the current application status and development path optimisation of the "planting and raising plus" model in the province. Through reviewing a large number of domestic and international literature and empirical research, we gained insight into the changes in economic benefits before and after the application of the model in Anhui Province, and analysed the possible problems. On this basis, a comprehensive analysis and evaluation of the economic benefits and potential application willingness of the province's agricultural 'planting and raising plus' model is launched, leading to a preliminary forecast of future trends. Finally, targeted proposals are made to optimise the path and countermeasures of the 'planting and raising plus' model.

**Keywords:** Breeding Plus; Entropy Weighting Method-TOPSIS Model; Bayesian Decision-making Model; Chi-square Test.

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## 1. Introduction

As global climate change, population growth pressure and ecological degradation become more and more prominent, the development of a low-carbon agricultural model has received great attention from all sectors at home and abroad. The "Three Rural Issues" is a fundamental issue related to national economy and people's livelihood, and is the top priority of the work of the whole party. At present, China's social development has entered a new era, the level of agricultural development in various regions are steady progress, but in the new era, how to achieve low carbon and high efficiency, energy saving and environmental protection, to achieve the goal of "reducing costs and increasing incomes" is still an urgent problem in China's rural development. Domestic academic research is mainly focused on the development of the dilemma and economic efficiency changes and other issues, compared to this, many developed countries in the field of agriculture has been widely used in the agricultural "planting and raising plus" model, and through practice has proved its positive role in improving the efficiency of resource utilisation, reducing carbon emissions, and improving economic efficiency. Domestic academic research on the theme of agricultural low-carbon "planting and raising plus" is mostly focused on the theoretical level, with fewer specific empirical analyses; secondly, it lacks a certain degree of pertinence, and there is also a large difference in the selection of specific analytical indicators.

Therefore, based on the research data from various cities in Anhui Province, this study applies the entropy weight method-TOPSIS evaluation model, random forest model, Bayesian algorithm and other data analysis methods to comprehensively analyse and evaluate the development status and economic benefits of agricultural "planting, raising and processing" mode in the province. Finally, according to the conclusions of the study, the development path optimisation and countermeasure suggestions for the agricultural "planting and raising plus" mode in Anhui Province are given.

## 2. Literature Review

### 2.1. Current Status and Development of Domestic and International Research on the "Planting and Raising Plus" Model

Through searching and reading a large amount of domestic and foreign literature, research on the agricultural "planting and raising plus" model has begun to bear fruit. Research results from the macro to the micro level have emerged, focusing mainly on the following aspects.

First, the dilemma faced by promoting the development of seed raising plus. Li Shasha, Zhu Yiming et al. (2018) in Analysis and Reflections on Promoting the Development of Seed Raising Plus Integration show that China is currently facing the following three dilemmas in promoting the development of the integration of seed raising plus: poor mobility of the elements of the integration of seed raising plus, weak synergistic nature of the main body of the integration of seed raising plus, and low degree of integration of the industry of seed raising plus integration. In the article "Theoretical Exploration and Policy Recommendations on the Integration of Seed Raising and Processing", the author analyses the current situation of the development of the integration of seed raising and processing in China, and analyses the current situation of the development of the integration of seed raising and processing in China, and the combination of seed raising and processing links has gradually become a trend of development, but the disconnection with processing links is more serious.

Secondly, it is a reflection on promoting the integrated development of breeding and raising. Wang Shubin and Wang Mingli (2022) in the article "Research on the evaluation of the comprehensive benefits of seeding and raising integration in Chinese pig farms - based on field research in 8 provinces" showed that the adoption of seeding and raising integration of agricultural production can reduce the cost of agricultural production inputs, reduce the pollution of the

ecological environment, increase the employment opportunities in rural areas, and have a social and ecological benefits are high. In recent years, the promotion of eco-economy and social justice has been effective, and the emphasis on society and ecology has been gradually strengthened. Li Shasha, Zhu Yiming et al. (2018) made a clear definition of how to deal with the relationship between "points" and "points" in the industrial chain, how to position the role of the government and the market, how to improve the degree of integration of planting and raising plus industry, and how to seize the focus of the integrated development of planting and raising plus. Clearly defined.

Thirdly, it is the elaboration of the concept and basic connotation of the integration of planting and raising plus. Wang Guogang, Liu Huguang et al. (2016) provided a comprehensive clarification and in-depth interpretation of the concept and basic connotation of the integration of planting and raising plus in "Theoretical Exploration of the Integration of Planting and Raising Plus and Policy Suggestions".

Fourthly, it is a reflection on the realisation path of the integrated development of planting and raising plus. Wang Guogang, Liu Huguang et al. (2016) put forward the suggestions of supporting the growth of leading enterprises to lead the integrated development of planting, raising and raising, innovating the mechanism of benefit linkage between subjects to promote stable win-win situation, and encouraging the construction of large-scale planting and raising bases to consolidate the foundation of the integrated development in the article "Theoretical Exploration of Planting, Raising and Raising Plus Integration and Policy Suggestions".

## **2.2. Current Status and Development of Domestic and International Research on the Economic Benefits of Low-Carbon Agriculture**

Low-carbon agriculture, as an important form of modern agriculture, has received extensive attention and research in China in recent years. Research has shown that low-carbon agriculture can not only achieve the rational use of resources and increase benefits and wealth, but also effectively improve the agro-ecological environment, increase agricultural output and improve production efficiency. By optimising the natural, social and economic complex system in the countryside, low-carbon agriculture helps to reduce the use of pesticides and chemical fertilisers and to make effective use of waste, thereby reducing agricultural production costs.

However, the development of low-carbon agriculture in China has been uneven, which, to a certain extent, has affected the fulfilment of its economic benefits. This is mainly attributable to a number of factors, such as the decentralised distribution of agricultural resources, the crude mode of agricultural production management and operation, as well as farmers' insufficient awareness of low-carbon agriculture. In addition, despite the large number of farmers in China, their overall quality is relatively low, which also limits the rapid development of low-carbon agriculture.

In response to these problems, domestic research is actively exploring solutions. In 2015, Jiang Hong put forward the solution measures of low carbon economic management to the problem of transformation of agricultural economic development mode in the article 'Exploration of the transformation of agricultural economic development mode in the era of low carbon economy', including strengthening the publicity of low carbon economic management,

strengthening the comprehensive quality of employees in the management of low carbon economy, strengthening the comprehensive quality of employees in the management of low carbon economy, optimising the structure of low carbon economic management. The intervention of scientific means. Wang Yun (2008) discussed how to vigorously promote the healthy development of low-carbon agricultural economy in 'Low-Carbon Agricultural Economy', and put forward the strategy of promoting the healthy development of low-carbon agricultural economy in the following five aspects: (1) publicising vigorously and reaching a consensus, (2) formulating plans and clear objectives, (3) choosing modes and implementing them in a practical manner, (4) highlighting the key points and putting science and technology first, and (5) strengthening the leadership and linking up as a whole. Zhang Li-man and Cao Liming (2011) in 'China's Low-Carbon Agricultural Development: Foundations, Challenges and Countermeasures' said that the challenges of developing a low-carbon agricultural economy in China can be met by strengthening the planning and guidance of low-carbon agricultural demonstration zones, regulating the production behaviours of enterprises and farmers, accelerating the research and demonstration of low-carbon agricultural technological innovation systems, and strengthening the publicity of the concept of low-carbon agriculture.

Internationally, the economic benefits of low-carbon agriculture have likewise received widespread attention. Many countries have carried out a great deal of research and practice to explore how to achieve sustainable development through low-carbon agriculture. These studies have focused not only on the role of low-carbon agriculture in improving the environment, but also on its enhancement of economic benefits. Some developed countries have made remarkable progress in low-carbon agriculture. They have promoted the transformation of agricultural production towards low-carbon and recycling through policy guidance and technological innovation.

At the same time, international cooperation will be further strengthened in the area of low-carbon agriculture. Countries will work together to share experiences, technologies and resources and jointly promote the development of low-carbon agriculture globally. This will help to accelerate the dissemination and application of low-carbon agricultural technologies and promote the green transformation of global agricultural production.

In the future, research on the economic benefits of low-carbon agriculture will focus more on practical application and policy innovation. On the one hand, researchers will continue to explore low-carbon agricultural technologies and management models that are suitable for different regions and types of agriculture; on the other hand, policymakers will actively promote the formulation and implementation of policies related to low-carbon agriculture in order to encourage farmers to actively participate in low-carbon agricultural production.

### 3. Study on the Potential Willingness of Farming Households for Agricultural "Planting and Raising Plus" and Analysis of Factors Influencing the Economic Benefit

#### 3.1. Study on the Potential Willingness to "Grow, Feed and Add" in Low-Carbon Agriculture Based on the Entropy Weight Method and the TOPSIS Evaluation Model

##### 3.1.1. Evaluation System Construction

Based on the questionnaire questions, we can study the

potential willingness of residents to "planting and raising plus" low-carbon agriculture through the evaluation model. We divided the questions into residents' experience in agricultural cultivation, residents' knowledge and attitude towards "planting and raising plus", residents' conditions and understanding of "planting and raising plus", residents' assessment of economic benefits of "planting and raising plus", and residents' assessment of ecological benefits of "planting and raising plus", and assigned values. The results are shown in the table below:

**Table 1.** Construction of the evaluation system and assignment of values

Level 1 indicators	Secondary indicators (some issues abbreviated)	assign a value to something
Resident Cultivation Experience X1	2. Your age group	The initial value is 1, and the score is increased by 1 point for each additional stage of age group/education/years of farming/area of cultivated land/knowledge.
	3. Your level of education	
	6. Your years of farming	
	10. Your area under cultivation	
Cognition and Attitude of the Population towards "planting and raising plus" X2	15. Level of knowledge of the "breeder plus" model	Question 15: The initial value is 1. For each additional stage of understanding, 1 point is added to the score.  Other issues: 1 mark for disagreeing/strongly disagreeing; 2 marks for not quite agreeing/disagreeing; General scores 3 points; 4 points for more agreement/agreement; Score 5 for strongly agree/agree.
	22. Understanding the concept and role of "seed farming plus"	
	22. Understanding of the "grow, feed and add" application model	
	22. Considerations for the implementation of the "breeder plus" approach	
Conditions and knowledge of the population in terms of "farming and raising" X3	23. Impact of education	
	23. Policy implications	
	23. Impact of economic conditions	
	23. Impact of market demand	
Evaluation of the economic benefits of "farming" for the population X4	41. Promoting income generation through crop quality improvement	
	41. Improving fertilizer efficiency reduces costs	
	41. Increasing crop yields increases incomes	
	41. Cost savings from increased land use	
Evaluation of the eco-efficiency of "planting and raising plus" for the population X5	22. "Seed farming plus" can reduce environmental pollution and save resources.	
	41. Reducing the cost of discharging sewage effluent from the farming industry	
	41. Reducing water waste and pollution	
	41. Introduction of new technical equipment to improve production efficiency	

##### 3.1.2. Modelling and Solving

The entropy weight method-TOPSIS was performed on the evaluation system according to MATLAB and the following results were obtained:

It can be learnt that the composite score obtained by TOPSIS obeys normal distribution, and the score is mainly distributed between 0.4-0.55. According to the analysis of the results of TOPSIS evaluation model, the closer the comprehensive score is to 1, the more ideal the potential

willingness of residents to accept low-carbon agriculture "planting and raising plus", and the closer it is to 0, the more ideal the potential willingness of residents to accept low-carbon agriculture "planting and raising plus" is in a non-ideal state. The closer to 0, the more ideal the potential willingness to accept low-carbon agriculture is. By looking at the distribution chart of potential willingness, it can be found that half of the residents have the potential willingness to accept "planting and raising plus", but still nearly half of the

residents are in a non-ideal state when accepting "planting and raising plus".

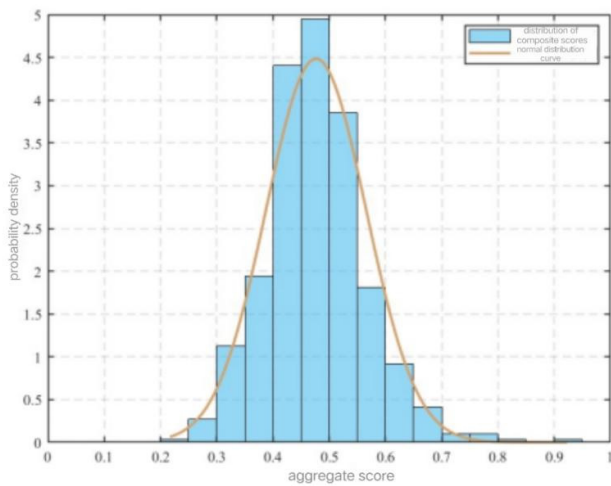


Fig 1. Distribution of potential willingness of residents to "planting and raising plus" low-carbon agriculture

According to the question "Do you think the net income per acre of land can be increased by adopting the agricultural 'planting and raising plus' model", we set the value of less than 200 RMB as 1, 200-300 RMB as 2, 300-600 RMB as 3, and more than 600 RMB as 4. assigned a value of 4. Depending on the region, we can plot Figure 2, based on the score.

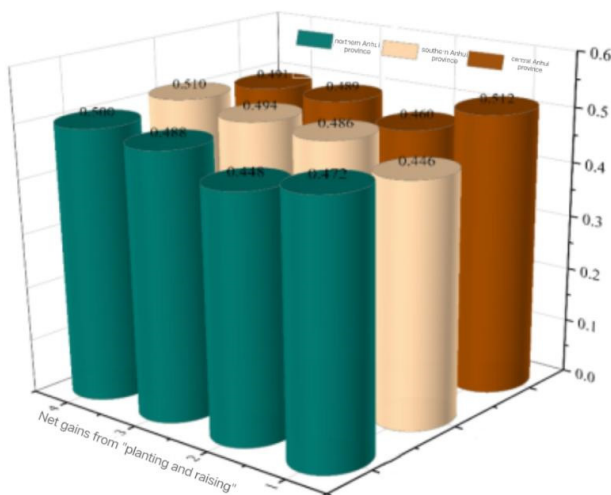


Fig 2. Difference between residents' income from farming and below-score

According to the difference in farmers' willingness to implement "planting and raising plus" benefits, the study learnt that in southern Anhui, the willingness to implement will increase as the benefits increase; in northern Anhui, the willingness to implement will first decrease and then increase as the benefits increase, while in central Anhui, the willingness will decrease and then increase as the benefits increase. According to the regional average, we can learn that the potential willingness to accept low-carbon agriculture "planting and raising plus" is the highest in central Anhui, followed by southern Anhui and northern Anhui.

### 3.2. Random Forest-based Study on the Factors Influencing the Economic Efficiency of the Agricultural "Planting and Raising Plus" Model

#### 3.2.1. Data Pre-processing and Model Preparation

By using entropy weighting method to get the values of X1 to X5 based on the first level indicators obtained in the previous section, so that X1 to X5 are used as the influence factors, and the degree of influence is judged by random forest. The questionnaire questions can be recorded as 1 for less than 200 yuan, 2 for 200-300 yuan, 3 for 300-600 yuan, and 4 for more than 600 yuan, and the variables are set as Y1 and Y2 respectively.

In Random Forest, determining the extent to which the independent variables (features X1 to X5) influence the dependent variables (changes in revenue Y1 and cost Y2) is mainly done by calculating feature importance. Feature importance is the extent to which features contribute to the split points on the decision tree in a random forest, and it helps us to understand how much each feature contributes to the model's predictions. For the classification problem, we use a random forest judgement of importance based on average accuracy reduction. This approach involves randomly upsetting the value of a feature on an OOB sample (a cross-validation technique in random forests) and then observing the effect of this upset on the accuracy of the model. A significant drop in accuracy means that the feature is important for model prediction. This can be counted as a reduction in the average accuracy of the feature. The formula is:

$$Accuracy\ importance\ of\ feature\ j = \frac{1}{N} \sum_{n=1}^N acc_n - acc'_n$$

where N is the number of trees,  $acc_n$  is the OOB accuracy before disrupting the feature j before OOB accuracy,  $acc'_n$  is the OOB accuracy after disrupting features j OOB accuracy after disrupting the features. The feature importance metric of random forests can help us understand which independent variables influence the classification results of the dependent variable. When confronted with combinations of continuous and categorical variables, random forests can capture complex interactions between variables through their nonlinear and nonparametric properties.

#### 3.2.2. Random Forest Modelling with Reduced Average Accuracy

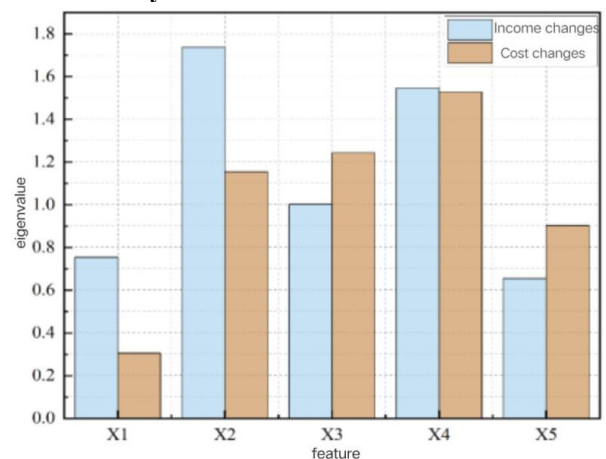


Fig 3. Study on the degree of impact on the economic benefits of "planting and raising plus" by residents

It can be found that for the low-carbon agriculture "planting and raising plus" model, the change of income is mainly affected by X2, followed by X4, X3, X1, and finally X5, while for the low-carbon agriculture "planting and raising plus" model, the change of cost is mainly affected by X4, followed by X3, X2, X5, and finally X1. We can learn that residents' knowledge and attitude towards "planting and raising plus", residents' conditions and understanding of "planting and raising plus", and residents' knowledge of "planting and raising plus" are all important factors in the assessment of the economic benefits of low-carbon agriculture. We can learn that residents' cognition and attitude towards "planting and raising plus", residents' conditions and understanding of "planting and raising plus", and residents' assessment of "planting and raising plus" economic benefits have a greater influence on the changes in income and costs of "planting and raising plus" economic benefits of low-carbon agriculture.

According to the secondary indicators, it is easy to find that the influencing factors related to the economic efficiency of low carbon agriculture "planting and raising plus" to improve income are mainly related to understanding the degree of knowledge and understanding of "planting and raising plus" (X2), and improving the efficiency of fertiliser, land, etc. (X4) to Reduce the cost, and from the theory, understand those theoretical factors can affect the economic efficiency of "planting and raising plus" (X3). At the same time, we can also know that improving the efficiency of fertiliser and land use (X4) is an important factor that affects the change of costs, and is a measure to control costs, and the study of theories (X3) and the knowledge and understanding of "planting, raising, and adding" (X2) can, to a certain extent, also reduce costs and control the change of costs.

This reflects, on the one hand, the need for farmers to learn how to improve fertiliser and land utilisation, in addition to their own farming background and experience, as well as the need to improve their knowledge of "farming plus" and their own conditions. On the other hand, policy support and market factors also have an important impact on income and cost changes in the economic benefits of low-carbon agriculture.

## 4. Forecasts of Future Trends in Low-Carbon Agriculture "Farming and Raising"

### 4.1. Future Market Forecasting of Low-Carbon Agricultural "Farming and Processing": Based on a Bayesian Decision-making Model

#### 4.1.1. Application of Bayesian Decision Modelling in Market Forecasting

Low-carbon agriculture, as an important means of combating climate change and environmental pollution, is of great significance for the sustainable development of agriculture. As the two pillars of agriculture, planting and farming are often developed independently of each other in practice. However, the "planting and farming" model, which combines planting and farming, can give full play to the advantages of both, reduce production costs and improve resource utilisation, thus bringing new development opportunities to agricultural production.

Bayesian decision modelling is a reasoning technique based on statistical methods that enables forecasting by

constantly updating probability distributions. In market forecasting, Bayesian Decision Models build probability models by considering historical data, market trends, policy changes and other factors to achieve probabilistic forecasts of future markets.

#### 4.1.2. Methods and Steps for Market Forecasting in the Low-Carbon Agriculture "Planting and Raising Plus" Model

Collecting and collating relevant historical data and market research information, and through coding and entering as well as cleaning the data in the questionnaire, selecting the five evaluation dimensions of willingness to try to use agricultural farming plus, agricultural farming plus with broader development prospects, the impact of product market demand on the understanding of and support for agricultural farming plus, the average yield of planted crops in recent years, and the average yield of farmed aquatic products in recent years, to establish the model, and establish the probability distribution of the market share and growth trend of the "farming plus" model in different regions and different agricultural fields, and categories the model according to the direction of agricultural production. The probability distribution of the market share and growth trend of the "planting and raising plus" model in different regions and agricultural fields, and the models are classified according to the direction of agricultural production and numbered 1-5 respectively.

Means, univariate ANOVA values, Box' M values as well as within-group covariance, subgroup covariance, and overall covariance were computed for each group of data and Bayesian discrimination was carried out under the Fisher's discrimination criterion to obtain Wilks' Lambda values as shown below.

A box test for homogeneity of the covariance matrix was obtained and the results of the Fisher discriminant function validity test. The original hypothesis of this test is that there is no significant difference in the mean Fisher discriminant function values of different groups. From the p-values given in the table,  $p=0.00<0.05$ , indicating that there is a reason to reject the original hypothesis at the 0.05 level of significance. 1 to 4 indicates that no function was removed, rejecting the original hypothesis, indicating that the two discriminant functions were able to separate the groups of samples, and the ones from 2 to 4 indicate that the test of significance after the exclusion of the first discriminant function was rejected, rejecting the hypothesis, and that the second discriminant function was also able to separate the samples. 3 to 4 and 4,  $p>0.05$ , accept the original hypothesis, indicating that the two discriminant functions cannot separate the groups of samples.

On this basis, the following mathematical functions are obtained:

$$Y = f(x_1, x_2, x_3, x_4, x_5, x_6)$$

Where Y denotes the net income per acre after adopting the plantation plus model,  $x_1$  denotes the yield per acre,  $x_2$  denotes the cost per acre,  $x_3$  denotes the cost of new machinery inputs per acre,  $x_4$  denotes the fertiliser inputs per acre,  $x_5$  denotes the pesticide inputs per acre, and  $x_6$  denotes the government subsidy per acre.

### 4.2. Regression Modelling to Forecast Future Trends in the Market

Through the established discriminant function, the

economic benefits of farmers are predicted and analyzed, and the results of the sample analysis are as follows: it can be obtained that the development potential of agroforestry planting, flower, fruit and vegetable planting and aquaculture

is large, and it is the main direction of development of low-carbon agriculture in the future, which has a good momentum of development, and it has a broader prospect of development.

**Table 2.** Test of equality of group means

	Wilks's Lambda	F	df1	df2	Sig.
20.Would you like to try to use agricultural "farming and raising plus"?	.866	3.747	4	97	.007
20.Do you think there is a broader development prospect for agricultural"planting and raising plus"?	.861	3.903	4	97	.006
21.Do you think that the market demand for products has an impact on the understanding and support of agricultural"farming and raising plus"?	.842	4.553	4	97	.002
Average yield of planted crops in recent years	.954	1.168	4	97	.330
Average yield of farmed aquaculture in recent years	.707	10.048	4	97	.000

**Table 3.** Wilks' Lambda

	Wilk's Lambda	$\chi^2$	df	Sig.
1 to 4	.556	56.330	20	.000
2 to 4	.863	14.121	12	.293
3 to 4	.952	4.717	6	.581
4	.992	.794	2	.672

**Table 4.** Classification results

Type	Projected value					Total
	1	2	3	4	5	
initial count						
1	8	6	7	15	13	49
2	5	5	3	4	2	19
3	0	0	3	2	1	6
4	1	1	3	8	0	13
5	1	0	1	0	13	15
Ungrouped cases	2	0	0	3	0	5
%						
1	16.3	12.2	14.3	30.6	26.5	100.0
2	26.3	26.3	15.8	21.1	10.5	100.0
3	.0	.0	50.0	33.3	16.7	100.0
4	7.7	7.7	23.1	61.5	.0	100.0
5	6.7	.0	6.7	.0	86.7	100.0
Ungrouped cases	40.0	.0	.0	60.0	.0	100.0

a. 36.3 percent of the initial grouped cases were correctly classified.

**Table 5.** Projected results

Observed value	Projected value				Percentage correction
	1 times	2 times and more	more than 1 times, less than 2 times	less than 1 times	
1 times	122	4	51	20	61.9%
2 times and more	9	10	15	10	22.7%
more than 1 times, less than 2 times	58	3	99	31	51.8%
less than 1 times	33	1	45	75	48.7%
Total percentage	37.9%	3.1%	35.8%	23.2%	52.2%

A regression model is set up with the value of the economic effect of agricultural "breeding and raising plus" on farmers as the dependent variable, and a regression model is set up with the prospects for the development of breeding and raising plus, future development trends, the increase in crop

yields, the economic effect brought about, and the region in which farmers are situated, etc., and a test is carried out, and the prediction results can be obtained. The accuracy rate of the tendency that the economic benefits of agricultural "planting and raising plus" to farmers are expected to increase

by 1 times is 37.9%, the accuracy rate of greater than 1 times and less than 2 times is 35.8%, the accuracy rate of 2 times and more is 3.1%, and the overall prediction accuracy rate of the model is 52.2%. It can be seen that the application of low-carbon agriculture "planting and conservation" will bring farmers economic benefits of 1 to 2 times, and in rare cases, it can reach 2 times or more. With the promotion and application of the new planting and conservation mode of low-carbon agriculture, farmers can change from selling crops only to selling crops and aquatic products at the same time to make profits, killing two birds with one stone, which greatly improves the value of the farmers' labour and labour efficiency, and the doubling of the economic effect brings great confidence to the farmers and improves people's quality of life and standards.

With the help of the model's prediction of the future development direction of the agricultural "planting and raising plus" model, it can be learnt that in the future, the application of precision farming and green energy model will be adopted more often, and at the same time, the model of recycled agriculture will be promoted vigorously, and more energy will be invested in the innovation of digital agriculture in the future; the future development prospect of the "planting and raising plus" model of low-carbon agriculture is very good. Low-carbon agriculture "planting and raising plus" model has a good prospect for future development, the development trend is good, there are more potential farmers to join; agricultural products planted by farmers have a high sales volume and strong market demand, the sales volume of aquatic products raised by farmers is average, the market demand is fair, and the market demand is weaker than that of agricultural products.

## 5. Conclusion and Insights

In order to promote the development of low-carbon agriculture and realise green agriculture, it is imperative to adopt the "planting and raising plus" mode of agricultural cultivation. The government should take corresponding measures to guide the green transformation of agriculture. This paper takes the predicament of the implementation of "planting and raising plus" as the entry point, empirically examines the relationship between the "planting and raising plus" agricultural model and each subject, and analyses how the planting and raising plus agricultural model affects the low-carbon transformation of agriculture. The study found that, firstly, farmers' attitudes towards the model significantly affect the implementation of the model, and farmers' confidence in the model is not very strong and needs to be further improved. Second, the introduction of relevant government agricultural policies can increase farmers' enthusiasm for the implementation of the "planting and raising plus" model and promote the promotion of low-carbon agricultural models. Thirdly, from a market perspective, the integration of market demand has a significant effect on the attraction of the planting and raising plus agricultural model.

The conclusions of this paper have certain theoretical contributions to promote the theoretical research related to the "planting plus" agricultural model. Firstly, the existing research mainly focuses on the innovation of agricultural science and technology, but this paper focuses on the impact of policy and market on the "planting and raising plus" model, which provides a new way of thinking. Secondly, in the era of low-carbon agriculture, the green transformation of agriculture is a "necessary path" for traditional agriculture.

This paper systematically analyses the mechanism path of green transformation and enriches the theoretical research related to "planting, raising and processing".

The practical significance of this paper lies in the following: Firstly, the Government should give full play to its macro-control role and formulate preferential policies, such as tax exemptions and reductions, loan interest subsidies and insurance subsidies, in order to support the development of the agricultural "planting and raising plus" model. At the same time, it should take appropriate safeguards and establish a risk compensation mechanism to reduce the impact of natural disasters and other unforeseen factors on farmers. Combined with the stage goals and key tasks of agricultural green and low-carbon development, continuously improve the relevant compensation system and support measures to increase farmers' confidence in planting. Secondly, through the establishment of low-carbon agricultural "planting, raising and processing" demonstration zones, the advanced technology and achievements of low-carbon agricultural planting, raising and processing will be demonstrated, so as to promote the development of low-carbon agriculture in the region. At the same time, it guides farmers to strengthen cooperation with family farms, leading enterprises and co-operatives, so as to achieve the optimal allocation of resources and optimise the production system as much as possible. It is conducive to the implementation of large-scale agricultural production methods and promotes the development of low-carbon agriculture in depth. Thirdly, in terms of technology, it is necessary to strengthen the research and development of agricultural science and technology, and promote advanced planting and breeding technology, such as precision agriculture, intelligent greenhouses, recycled water farming, etc.; vigorously promote water conservation, energy saving and emission reduction technology, improve resource use efficiency, and develop three-dimensional agriculture through digital production to achieve sustainable development. Finally, agricultural vocational education and technical training should be strengthened to cultivate agricultural technology and management talents. Through agricultural science and technology schools and rural areas, we have made alliances to promote the transfer of talents and technological advantages to rural areas, and organically combine industry, academia and research. In addition, practical training for farmers should be strengthened to give full play to their initiative and creativity, improve their level of practice, and cultivate a new type of farmer with scientific and cultural knowledge and innovative thinking skills.

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