

Research on the Four-Element Integrated Model of Organic Agriculture Development in Jiangxi Province

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Abstract—The development of organic agriculture is especially important to Jiangxi, which has the demand for economic development and has obvious resource advantages and internal driving force in this industry. Although domestic scholars have done a lot of research on organic agriculture, there is a lack of research on integrating consumers into its development model. This paper analyzes the research status of organic agriculture at home and abroad, and obtains the internal and external constraints of organic agriculture development model in Jiangxi, through the investigation of production base, department interview, and retailer & consumer survey. In view of the existing problems, this paper innovatively establishes the "four-element integrated model of organic agriculture development", that is, the integration of policy resources, industrial chain, external resources, consumer intention and interaction, and puts forward the strategy of farmers buys shares. We expect to provide a more feasible development model reference for organic agriculture in Jiangxi and other regions.

Keywords—Organic agriculture; Integration; Development model; Jiangxi province

I. INTRODUCTION

Environmental pollution, ecological degradation and food safety brought by the development of modern industry and agriculture have been the focus of public attention. Countries around the world are actively exploring how to promote sustainable development of agriculture. Organic agriculture is a kind of agricultural production model that can promote the benign development of economy, environment and society. In order to standardize and promote the healthy development of domestic organic agriculture industry, Chinese government has successively issued relevant policies to encourage and support the production and sales of organic agriculture. The state and governments at all levels, actively advocate the transformation of traditional agriculture and encourage environmental-friendly organic agriculture to develop as a pioneer of modern new agriculture. As a large agricultural province with long history, Jiangxi has unique resource advantages. It is the key to the sustainable development of

Jiangxi province to seize the opportunity and turn resource advantage into economic advantage. This paper studies the problems existing in the organic agriculture develop model in Jiangxi, creatively puts forward and fully explains the four-element integration model of organic agriculture.

II. LITERATURE REVIEW

Based on the summary and study of traditional Chinese agriculture, Howard, who as a pioneer, actively advocates the development of organic agriculture. The Codex Alimentarius Commission (CAC) defines organic agriculture as: organic agriculture is an integrated production management system to promote and strengthen agricultural ecological health system including soil, biological activities, biological diversity and biological cycle [1].

A. Foreign research reviews

In 2005, Rifkin and Jeremy studied organic agriculture from the perspectives of food security, health and protection of natural environment [2]. Steven c. Blank and Garyd believed that the scale of organic agriculture was small, but gradually expanded in the same year. It is clearly pointed out that organic agriculture has a short history, but it will be developed in the long term in the future [3]. In the past 20 years, organic agriculture has experienced rapid growth worldwide, with the global production area of organic products reaching 43,700 m² [4]. The development model of organic agriculture in developed countries is formed in the process of solving environmental problems. In recent years, the agricultural development in some developed countries has been confronted with the following problems: first, there are too many agricultural products, the pressure of purchase and storage is great, and the export is tough. Second, the negative impact of agricultural production is increasing; the scale of farming and breeding industry is too large, resulting in a large number of agricultural waste resources difficult to deal with, which brings great pressure to the environment. To this end, countries around the world have emerged their own systems

of organic agriculture model and related technology system. The United States, for example, mainly USES crop rotation; Germany mainly adopts the organic agriculture model of crop rotation and combination of agriculture and animal husbandry. Israel mainly USES greenhouse cultivation to develop organic agriculture [5]. There are various models for the development of organic agriculture in various countries, and there are two main models for organizing farmers' production, namely, cooperative model and company plus farmers' model.

B. Domestic research review

In the late 1980s, organic agriculture began to develop in China. Since 2006, China has changed from an exporter to an importer of organic agricultural products, becoming the fourth largest consumer of organic products after the United States, Germany and France. In 2015, Chinese organic agricultural production area has reached to 193 m², and the sales volume of organic agricultural products reached 60 billion Yuan [6].

The development of organic agriculture in Jiangxi has gone through three stages: slow start stage (1949-1977), initial development stage (1978-2000) and standard expansion stage (2001-present). Jiangxi organic agriculture development has some prominent problems at present, such as small scale, weak foundation, ecological decline, labor shortage, poor environment, low efficiency, irregular management and imperfect system. In order to realize the healthy, stable and sustainable development of organic agriculture in Jiangxi in the new era, it is necessary to formulate plans to improve consumers' knowledge, understanding and adopt measures, such as technology popularization, scale expansion, optimization model, science and technology upgrading, demonstration and guidance, improve laws and regulations, and strengthen supervision [7]. There are many types of organic agriculture models in Jiangxi. Some tea production and development companies are the early enterprises engaged in organic agriculture. The main models are as follows: the company leases land, selects appropriate management and technical personnel for management; Company plus farmer model; Company plus cooperative plus farmer production model; Professional cooperative model. [8].

III. RESEARCH ON THE ORGANIC AGRICULTURE DEVELOPMENT MODEL

A. National organic agriculture operation model

Chinese organic agriculture started in the 1980s, after nearly 40 years of exploration; all regions make full use of local resources and geographical advantages. Under the encouragement and support of local governments and major enterprises, Chinese organic agriculture has formed three main operating models, which are shown in table I.

TABLE I MAIN OPERATING MODELS OF ORGANIC AGRICULTURE

Model	Content
Order model	Company signs agreement with farmers directly. The company provides certain materials and production technology to the farmers, and purchases the organic agricultural products of farmers within the stipulated time at the agreed price.
Cooperative model of company plus farmer cooperative organization plus farmer	Local farmers spontaneously set up farmer cooperatives, which act as "middlemen", connecting farmers with companies. Farmers sign agreements with companies through cooperatives that provide resources to members of different farmers.
Reverse rent and reverse package	Village committees centralize the land contracted to households into collectives in the form of lease, carry out unified planning and distribution, and then contract the right to use the land to large agricultural enterprises or companies engaged in agricultural operation through marketization.

Source: author

B. Organic agriculture operation model in Jiangxi

The organic agriculture operation model in Jiangxi is basically the same as the three organic agriculture management models in China. Through literature search and investigation by the department of agriculture of it, this paper summarizes the existing organic agriculture development model in Jiangxi, as shown in table II.

TABLE II PROBLEMS IN THE DEVELOPMENT MODEL OF ORGANIC AGRICULTURE IN JIANGXI

Model	Content
Company plus farmer	High market risks make it difficult for the industrial chain to operate and extend normally. The contract agreement between the two parties is not perfect, farmers often break the contract.
Company plus base plus farmers	While ensuring the interests of farmers, there are still disputes and breach of contract.
Professional association for organic agriculture	Lack of legal constraints in production and sales. The industrial chain and production functions are one-sided and difficult to unify.
Companies plus associations plus farmers	Production relies on self-organized professional associations. Farmers have difficulty in grasping sales information and signing contracts.
Company plus association plus farmers plus base plus experts	Experts provide technical support to farmers through associations. Companies through organizations, bases and other farmers to establish a cooperative win-win relationship. The base provides farmers with production inputs to form a good external cycle.

Source: author

Through investigation, organic agricultural products enterprises in Jiangxi mainly adopt the operation model of "company plus association plus farmer plus base plus expert". This paper mainly analyzes the restrictive factors of organic agriculture development in Jiangxi, which based on this model, and draws relevant conclusions.

IV. THE EXISTING PROBLEMS OF ORGANIC AGRICULTURE IN JIANGXI PROVINCE

A. Analysis from consumers

In this paper, 178 valid questionnaires are obtained through online questionnaire survey of consumers. The respondents ranged in age from 18 to 65 years old, and most of them are bachelor's degree, while the other education levels were evenly distributed. 64.0% of consumers have purchased organic agricultural products; Organic agricultural products are highly recognized by consumers; 45.61% of consumers get information about agricultural products through advertising; The major purchase channels are malls and supermarkets, followed by the Internet and organic food stores; 41.23% of consumers want government to strengthen supervision of production process and identification results; Consumers are most concerned about the link for breeding and certification inspection.

Based on the above survey results, authors think that the main problems of organic agricultural products in Jiangxi are high price; few purchase channels, unpublished planting links, authoritative certification bodies and the same appearance as ordinary agricultural products.

B. Analysis of market environment

Through the investigation of production base, department interview and retailer survey, authors found that the main bottleneck of organic agriculture development in Jiangxi is the relative asymmetry of supply and demand, and the lack of consumer purchasing channels. There is a market demand for organic produce, but the supply of products cannot meet it. Secondly, the popularity of organic agricultural products is not high; there is no well-known brand of their own. Moreover, the production cost remains high. Although the government provides financial subsidies to organic agricultural enterprises, they still face the dilemma of investing more and earning less.

C. Deficiency of organic agriculture development model in Jiangxi

Through investigation and study, it is found that the organic agriculture development model in Jiangxi has three deficiencies: enterprise, production and model.

Enterprise: The research focuses on the regional organic agriculture development. The theoretical and strategic research level is not high; Organic agriculture production lacks systematic input research and application support; There is a lack of systematic research on the key technologies of organic agriculture production. Research on the excavation, protection and utilization of local characteristic varieties is insufficient.

Production: In the production process, only the product certification results are paid attention to, the production standards are not strict enough, and the key technology of production is not standardized; Despite the rapid development of the organic agricultural products industry, the organic food market is still in the primary stage of development, and the market system is not standardized and supervision needs to be improved.

Model: Bases and associations are not binding enough on farmers, and some farmers still break contracts due to

speculation, which leads to a low performance rate between farmers and enterprises, and indirectly affect the supply of goods to enterprises. The regional characteristics of the model are not strong, the regional characteristics of organic products in Jiangxi are not so that well known, and the regional brand marketing is not strong enough.

V. IMPROVEMENT OPINION

In order to solve the problems existing in the organic agriculture model in Jiangxi, such as high rate of destruction between farmers and enterprises, backward production technology, imperfect service system, irregular certification institutions, high logistics cost, and insufficient government support, etc. This paper puts forward the solution strategy, namely the four-element integrated model, which contains of policy resources, industrial chain, external resources, consumer intention and interaction. It is expected to develop organic agriculture in Nanchang city and provide reference model for the development of organic agriculture in Jiangxi province.

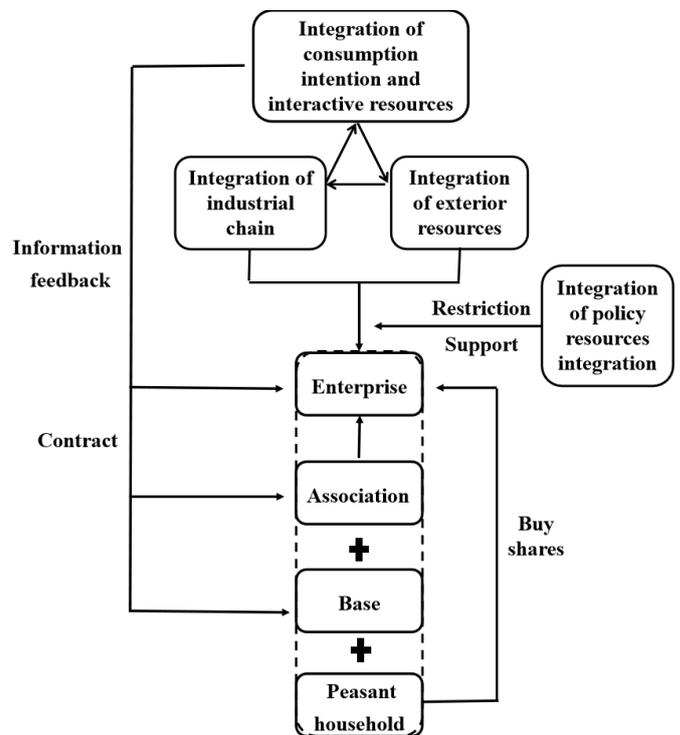


Fig. 1 Organic Agriculture Develop Model in Jiangxi

A. Shareholder system for farmers

Through the investigation and analysis of existing models, it is found that the cooperation between farmers and enterprises has a high rate of destruction; besides, the association is a non-governmental organization, which has a low binding force on farmers and enterprises. In this way, the cooperation between enterprises and farmers in this model is transformed into a shareholding system to create a community of solidarity between them. Fundamentally, improve the performance rate between farmers and enterprises to solve the supply problems.

B. Integration of policy

Integrate external government policy resources. External policies include supportive policies and restrictive policies. Enterprises should comprehensively consider the integration of two kinds of resources, make full use of supportive policies, and increase the scale of enterprise investment, technology development and market expansion. Restrictive policies mainly solve the problems of small financial subsidies, delayed implementation and long policy implementation period.

C. Integration of industrial chain

The suppliers of organic agricultural products mainly include vocational colleges, organic fertilizer and technology providers. The need for talent, technology and fertilizer is fragmented, so enterprises' transportation costs increase and bargaining power weakens. Therefore, the construction of organic farming industry chain will help to reduce transaction costs and solve problems such as scattered suppliers.

D. Integration of exterior resources

The survey found that, the enterprises have problems such as low industrialization level and lagging technology, etc. Expert consultation and employment are only temporary solutions to the problems, and cannot create the core technology of the enterprise itself. Authors suggest canceling the original expert information and employment system, adopting the contract system to jointly develop core technologies with universities or scientific research institutions, breaking through technical problems, and master core technologies in enterprises. In addition, we should sign directional talent training contracts with colleges and universities to ensure the supply of talents, strengthen cooperation with financial institutions to ensure the source of enterprise funds.

E. Integration of consumer intention and interaction

Through the investigation of consumers, it is found that consumers generally do not trust the production process and safety certification of organic agricultural products. Establishing an interactive platform for consumers to timely process feedback information, open all production processes from agricultural base and seed selection to cultivation, fertilization, pest control to harvesting; Publicize the production process, release relevant information and certification information of organic agricultural products, attract consumers to pay constant attention to production safety and understand organic agricultural products. According to the feedback information of consumption, enterprises conduct analysis and processing, so that enterprises could connect with consumers directly. Therefore, reduce the influence of middlemen and accelerate the flattening of marketing channels.

VI. SUMMARY

A. Research significance

Authors have carried on the production base inspection, department interview, and retailer research and consumer survey of Jiangxi organic agriculture development situation; analyzing the internal and external constraints of organic agriculture development model from multiple angles. Aiming

at the existing problems, this paper puts forward the "four-element integrated model of organic agriculture development". Theoretically, it enriches the research on the development mode of organic agriculture and explores the management model more suitable for the development of regional organic agriculture from the perspective of "four-element integrated"; Through the cooperation with Nanchang county Linshengtang ecological agriculture development co., LTD., we can jointly explore the existing problems in the development of modern agricultural enterprises, and provide solutions to improve the business model and increase enterprise income; In terms of the development of regional organic agriculture, this paper provides a feasible reference for the development of organic agriculture in Nanchang city, and provides a solvable choice for the development of organic agriculture in Jiangxi province, so as to realize the sustainable development of agriculture and turn resource advantage into economic advantage.

B. Deficiencies and prospects

Due to the limited scope of sample collection in the questionnaire survey, the sample data in this paper are not enough, which limits the depth of the study. In addition, due to the limitations of time, space and other factors, the relevant field investigation materials are not detailed enough, and the investigation of the relevant agricultural base still needs to be more in-depth.

Based on Nanchang county Linshengtang ecological agriculture development co., LTD., this paper draws lessons from the development path of the organic agriculture demonstration base in Dexing city, proposes solutions to the existing problems in the development of organic agriculture in Jiangxi province, and initially constructs a new model of organic agriculture development, which driven by four-element integration, in order to develop organic agriculture in Nanchang city and provide a reference model for the development of organic agriculture in Jiangxi province.

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