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Investigation on New Agricultural Business Models in China — Integrating Smallholders into Modern Agriculture

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Abstract: China's agricultural sector is undergoing a critical transition from fragmented smallholder farming to large-scale, modernized operations. Smallholders often face challenges in evolving into qualified operators of modern farms due to constraints in capital, technology, management capacity, and risk resilience. In response, various innovative agricultural business models have emerged. This paper systematically reviews and compares five mature models currently in practice, focusing on their operational mechanisms, benefit-sharing arrangements, risk allocation, and applicable contexts. The study finds that each model possesses distinct advantages and limitations, influenced by factors such as agricultural product types, regional resource endowments, and farmer capabilities. Among these, the "Enterprise + Farmer" sharecropping model facilitates risk-sharing and mutual benefit, serving as an effective pathway to integrate smallholders into modern agriculture and promote moderately scaled operations.

Keywords: New agricultural business models; Family farms; Sharecropping; Smallholders; Contractual cooperation

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1. Introduction

China's agriculture is at a critical stage of transformation from fragmented smallholder farming to large-scale and modernized operations. Land transfer has been continuously promoted nationwide, yet smallholder farmers still suffer from severe shortages of capital, technology, management experience, and risk resistance capacity, which prevent them from growing independently into qualified modern family farm operators. Under such circumstances, various innovative agricultural business models based on contractual cooperation have emerged in different regions.

Since the founding of the People's Republic of China, land reform and the Household Contract Responsibility System have greatly boosted agricultural productivity, but they have also resulted in severe land fragmentation and long-term dependence on smallholder farming, which seriously restricts the

development of large-scale agriculture. Although land titling and land transfer policies have effectively solved the problem of land supply for large-scale farms, the transformation of smallholder farmers into professional and scaled agricultural operators remains a bottleneck.

To break this deadlock, contract farming, agricultural cooperatives, revenue-sharing cooperation, and other new agricultural business models have developed rapidly, becoming important carriers connecting smallholder farmers with modern agriculture. Existing studies mostly focus on single-model analysis, lacking a systematic comparison of multiple models. Therefore, this paper sorts out and compares the mainstream new agricultural business models in China, focusing on benefit linkage, risk allocation, and contract design, so as to provide references for promoting the integration of smallholder farmers into modern agriculture.

2. Literature review

Contract farming is an important way to solve the contradiction between smallholder farmers and large markets. Mao Hui et al. found that risk aversion of farmers inhibits technology adoption, while contract farming can alleviate this problem [1]. Liu Tingting divided Chinese contract farming into four types: leading enterprise-driven, intermediary-coordinated, cooperative-integrated, and agribusiness complex [2]. Liu Luhao et al. classified "social enterprise + farmer" cooperation into decentralized, close-knit, and centralized types [3].

Many scholars have studied the "Leading Enterprise + Farmer" model. Deng Hongtu believed that "enterprise + farmer + cooperative" can realize benefit sharing through land and labor equity [4]. Wang Ling et al. confirmed that contract farming significantly improves family farm performance [5]. Internationally, Liu Tingting et al. divided global contract farming into the European-American large-scale farm model and the East Asian smallholder support model [6].

Agricultural cooperatives play an important role in reducing transaction costs and sharing risks. Zhang Mei emphasized that cooperatives need relational contracts and sharecropping contracts to establish risk-sharing mechanisms [7]. Gao Sihan and Yan Weibo found that family farms with higher asset specificity are more willing to join cooperatives [8]. Cui Baoyu and Liu Ting found that joining a cooperative can expand the scale of family farm operations, while land fragmentation weakens this effect [9].

In summary, existing studies generally focus on a single model and lack comprehensive comparisons of the business models of various agricultural operators. This paper collates and compares new agricultural business models in practice, focusing on analyzing the differences and applicable conditions of different models.

3. Research and analysis of new agricultural business models

In the process of agricultural modernization in China, various new agricultural business models centered on contractual cooperation have emerged.

3.1. Leading Enterprise + Farmer Model

The Leading Enterprise + Farmer model is the most widely used agricultural organization form in China. Enterprises have advantages in capital, technology, and market channels, and cooperate with farmers to promote large-scale and specialized agricultural production. However, this model also has problems such as unequal benefit distribution and unstable contracts (**Table 1**).

Table 1. Leading Enterprise + Farmer Model

Item	Details
Core Forms	Contract Farming; Production Trusteeship; Equity Cooperation
Applicable Products	Grains, cash crops, livestock, aquaculture, processed agricultural products
Primary Distribution	Major grain-producing areas, specialty agricultural regions, livestock clusters

3.2. Corporate farm model

Corporate farms are an important form of large-scale and intensive agricultural development. Enterprises lease and integrate land for unified operation and management, with high investment and strict technical standards. Enterprises bear all risks, and farmers receive fixed wages (**Table 2**).

Table 2. Corporate Farm Model

Item	Details
Core Forms	Enterprise Self-Operation; Specialized Division of Labor; Technology-Driven Intensive Production
Applicable Products	Rice, wheat, corn, cotton, dairy cows, large-scale livestock farming
Primary Distribution	Plain areas, modern agricultural demonstration zones, state-owned farms

3.3. Enterprise + Farmer Revenue Sharing Model

The Enterprise + Farmer Revenue Sharing model is a close cooperation mechanism with joint investment, shared production, and proportional profit distribution. Enterprises provide capital, technology, and services, while farmers are responsible for field management. Risks and benefits are shared proportionally (**Table 3**).

Table 3. Enterprise + Farmer Revenue Sharing Model

Item	Details
Core Forms	Production Trusteeship Sharing; Contract Production Sharing; Joint Household Service Sharing
Applicable Products	Bulk grains, traditional cash crops, conventional livestock farming
Contract Design	Enterprises provide inputs and technology; farmers manage production; revenue is shared proportionally
Primary Distribution	Traditional agricultural regions, livestock smallholder clusters, non-specialty crop regions

3.4. Platform + Farmer Model

The Platform + Farmer model is the core form of agricultural digital transformation. Platforms integrate information, match transactions, and provide services, reducing information asymmetry and expanding sales channels. Farmers bear production and market risks (**Table 4**).

Table 4. Platform + Farmer Model

Item	Details
Core Forms	Production-Marketing Matching; Crowdsourced Production Services; Customized Pre-Sales
Applicable Products	Fresh produce, specialty agricultural products, premium grains, high-value livestock and aquatic products

3.5. Enterprise + Agricultural Cooperative Model

The Enterprise + Agricultural Cooperative model is based on the rural collective economy. Cooperatives

organize farmers and integrate resources, then cooperate with enterprises. Farmers' bargaining power is enhanced, and unified standards, branding, and sales are realized (**Table 5**).

Table 5. Enterprise + Agricultural Cooperative Model

Item	Details
Core Forms	Contract Joint Operations; Asset Trusteeship; Equity Cooperation
Applicable Products	Regional specialty products, seasonal agricultural products, collective resource-based products
Primary Distribution	Strong collective economy villages, specialty industry villages, mountain and reservoir collective resource zones

4. Model comparison and contract selection

As shown in **Tables 1–5**, the five agricultural operation models differ significantly in operational logic, leading entities, benefit distribution, and risk-bearing mechanisms. In practical applications, selection should be based on product characteristics, resource conditions, and farmers' capabilities.

(1) Leading Enterprise + Farmer Model. Centered on the enterprise's control over the entire industrial chain, the enterprise dominates the whole process of production, supply, and sales. Farmers earn income through fixed purchase prices or share dividends. It is suitable for bulk standardized products, but farmers bear production risks.

(2) Corporate Farm Model. Achieves large-scale production through self-operation and employment. Enterprises fully control land and resources, relying on advanced technology to improve efficiency and bear all risks. It is suitable for intensive production of crops such as cotton and rice.

(3) Enterprise + Farmer Revenue Sharing Model. Emphasizes shared investment and yield-based risk sharing. Enterprises and farmers make joint decisions and share production risks, with benefits distributed proportionally. It is suitable for bulk grain crops and conventional farming in traditional agricultural areas.

(4) Platform + Farmer Model. Relies on third-party intermediaries to facilitate transactions. Platforms profit from commissions, while farmers independently bear production and market risks. It applies to high-value perishable products such as fresh fruits and seafood.

(5) New Rural Collective Economy Model (Enterprise + Agricultural Cooperative). Rooted in collective cooperation and shared benefits, cooperatives coordinate resources and collaborate with enterprises. Risks are mitigated through guaranteed procurement and collective income distribution. It is suitable for regional specialty products.

The core differences among the above models lie in **power structure** (enterprise monopoly vs. shared cooperation) and **benefit distribution** (fixed income, proportional sharing, or collective distribution). In practice, comprehensive consideration of product characteristics, regional resources, and technical conditions enables precise selection of an appropriate model, thereby improving agricultural efficiency and achieving balanced benefits (**Table 6**).

Table 6. Comparison of new agricultural business models

Model	Core Feature	Dominant Stakeholder	Benefit Distribution	Risk Bearer	Applicable Scenarios
Leading Enterprise+ Farmer	Enterprise-led end-to-end control	Enterprises	Fixed price or equity dividends	Enterprises bear market risks, farmers bear production risks	Standardized bulk products
Corporate Farm	Enterprise self-operation and employment	Enterprises	Fixed wages	Enterprises	Intensive, mechanized production
Revenue Sharing	Joint investment and risk sharing	Both parties	Proportional sharing	Both parties	Traditional smallholder agricultural areas
Platform+ Farmer	Third-party intermediary	Platform	Commission	Farmers	High-value, perishable products
Enterprise+ Cooperative	Collective cooperation	Cooperatives + Enterprises	Guaranteed purchase + collective distribution	Both parties	Regional specialty industries

5. Conclusion

This paper systematically compares five new agricultural business models. The Enterprise + Farmer Revenue Sharing model not only maintains the enthusiasm of family management but also relies on enterprises' advantages in capital, technology, and market to realize risk sharing and benefit sharing. It is most suitable for China's traditional agricultural areas and smallholder-dominated regions.

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Author contributions

Ping Yu conceived the idea of the study. Yixuan Guo analyzed the data and wrote the paper.

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