Postprint: Evaluation and Spatial Distribution Patterns of New-type Agricultural Modernization Service Organization System in Henan Province

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Abstract

Based on the "three orientations" requirements for agricultural development proposed by the central government in 2014, this paper constructs an evaluation model for a new agricultural modernization service organization system composed of the "four major organizations" of land transfer, resource allocation, information service, and industrial management. Taking the 18 cities of Henan Province as the basic units, it evaluates the comprehensive development level of the service organization system and explores its spatial distribution patterns. The results indicate that the overall development level of Henan Province's new agricultural modernization service organization system is relatively low, with only three cities (Zhengzhou, Jiyuan, and Luohe) entering Category I and II areas, while the remaining 15 cities are concentrated in Category III, IV, V, and VI areas. The spatial distribution exhibits certain regularities: western Henan has a relatively high overall level, with Luoyang, Jiyuan, Jiaozuo, and Sanmenxia all in Category II or III areas; followed by central Henan, where Zhengzhou and Luohe have entered Category I and II areas respectively, but Xuchang and Pingdingshan are both in Category V areas; next is northern Henan, where Hebi has entered Category III area, while Xinxiang, Anyang, and Puyang remain in Category IV and V areas; then southern Henan, where Nanyang, Xinyang, and Zhumadian are all in Category V areas; and finally eastern Henan, where Shangqiu and Zhoukou are both in Category VI areas, and Kaifeng has only entered Category IV area. The study demonstrates that Henan Province should construct and improve the new agricultural modernization service organization system, guide the large-scale transfer of agricultural land, enhance the degree of organization in production and operation, promote the transformation of agricultural development modes, and ensure the safety of agricultural product quality and quantity, which constitutes an inevitable

choice for accelerating agricultural modernization development.

Full Text

Abstract

Based on the "Three Orientations" strategy for agricultural development presented by China' s Central Government in 2014, this study constructs an evaluation model for a new agricultural modernization service organization system composed of four major components: land circulation, resource allocation, information service, and industrial management. Taking 18 cities in Henan Province as basic units, the study evaluates the comprehensive development level of the service organization system and explores its spatial distribution patterns. The results show that the overall development level of Henan' s new agricultural modernization service organization system is relatively low. Only three cities (Zhengzhou, Jiyuan, and Luohe) fall into Categories I and II, while the remaining 15 cities are concentrated in Categories III, IV, V, and VI. The spatial distribution exhibits clear patterns: western Henan shows the highest overall level, with Luoyang, Jiyuan, Jiaozuo, and Sanmenxia all in Category II or III; central Henan ranks second, with Zhengzhou and Luohe entering Categories I and II respectively, while Xuchang and Pingdingshan remain in Category V; northern Henan comes third, with Hebi entering Category III while Xinxiang, Anyang, and Puyang stay in Categories IV and V; southern Henan follows, with Nanyang, Xinyang, and Zhumadian all in Category V; and eastern Henan is the lowest, with Shangqiu and Zhoukou both in Category VI and Kaifeng only reaching Category IV. The study concludes that Henan Province should establish a comprehensive new agricultural modernization service organization system to guide large-scale land circulation, improve the degree of organization in production and operation, promote transformation of agricultural development patterns, and ensure the safety of agricultural product quality and quantity. This represents an inevitable choice for accelerating agricultural modernization development.

Keywords: Henan Province; New agriculture; Modernization development; Service organization system; Spatial distribution patterns

1. Study Area Overview and Data Sources

Henan Province is located between 110°21 -116°39 E and 31°23 -36°22 N, covering a total area of 167,000 km². The province governs 18 prefecture-level cities and can be divided into five regions with Zhengzhou as the center: central Henan (Zhengzhou, Luohe, Xuchang, Pingdingshan), eastern Henan (Kaifeng, Shangqiu, Zhoukou), southern Henan (Nanyang, Xinyang, Zhumadian), western Henan (Luoyang, Jiaozuo, Jiyuan, Sanmenxia), and northern Henan (Hebi, Xinxiang, Anyang, Puyang). The terrain slopes from west to east, with the Taihang Mountains in the northwest, the eastern foothills of the Qinling Mountains

in the west, the Tongbai-Dabie Mountains in the south, the Huang-Huai-Hai alluvial plain in the central and eastern regions, and the Nanyang Basin in the southwest. Mountains, hills, and plains account for 27%, 18%, and 56% of the total area respectively.

Most of the province lies in the warm temperate zone, with the southern part crossing into the subtropical zone, characterized by a continental monsoon climate transitioning from north subtropical to warm temperate. Known as the "Central Plains Granary" and "National Kitchen," Henan is a major wheat-producing region in China, with wheat output accounting for approximately one-quarter of the national total. The province is also a major producer of agricultural and sideline products, ranking among the top nationwide in output of oil crops, cotton, milk, and vegetables. The province currently has 8.2 million hectares (123 million mu) of cultivated land, mainly distributed in plains and hilly areas. In 2015, the total population reached 107.22 million, ranking third nationally, with per capita cultivated land of less than 0.087 hectares—below the national average. The prominent contradiction between population and land necessitates promoting a new agricultural modernization path centered on the "Three Orientations," accelerating land circulation, transforming land management patterns, shifting agricultural development modes, and strengthening safety management of agricultural products.

Data for this study were primarily obtained from the *Henan Statistical Yearbook* (2009–2013) and the websites of the Henan Provincial Bureau of Statistics and 18 municipal governments. Additional missing data were supplemented through the Henan Provincial Department of Agriculture, Department of Science and Technology, and corresponding municipal bureaus of agriculture and science and technology.

2. Evaluation Indicators for New Agricultural Modernization Service Organization System

The primary function of the new agricultural modernization service organization system is to cultivate new agricultural management entities such as specialized large households, family farms, farmer cooperatives, and leading enterprises. The service content covers the entire process from land circulation supply, resource optimization allocation, and industrial information dissemination to quality and safety management, connecting small-scale agricultural production with socialized mass production and promoting scaled, specialized, and standardized production to provide organizational support and service guarantees for modern agricultural development.

2.1 Construction of the Evaluation Index System

The new agricultural modernization service organization system is a complex system comprising multiple sub-modules. Based on understanding its connotation and considering influencing factors of agricultural service organizations in

Henan Province, this study divides evaluation indicators into three hierarchical levels : the comprehensive indicator layer (A), representing the comprehensive development index of the new agricultural modernization service organization system; the first-level indicator layer (B), including development indexes for rural land circulation organization, resource allocation organization, information service organization, and industrial management organization; and the second-level indicator layer (C), comprising specific indicators that evaluate first-level indicators from a micro perspective. Indicator selection follows principles of comprehensiveness, scientific rigor, comparability, and operability, striving to reflect the content, functions, and orientations of new agricultural modernization while fully demonstrating integrity and hierarchy.

Regarding the selection of second-level indicators: First, the land circulation organization development index reflects the degree of scaled and organized operation after land circulation, which represents an important symbol of agricultural modernization. Capital serves as a crucial supporting element, while industrialization provides important momentum and guarantee. Cultivated land area per capita for primary industry employees reflects the degree of land circulation scaling, the number of specialized farmer cooperatives per 10,000 rural population reflects the degree of land circulation organization, agricultural capital investment per unit area of cultivated land reflects the degree of financial investment guarantee for land, and industrialization level reflects the development degree of driving forces for land circulation.

Second, the resource allocation organization development index addresses the need to allocate organizational, technological, financial, and labor resources in operations after land circulation. The number of city-level key leading enterprises per 10,000 rural households reflects resource allocation capacity, the number of scientific and technical personnel per 10,000 rural population reflects technological resource allocation capacity, agricultural financial budget expenditure per unit area of cultivated land reflects financial resource allocation capacity, and output value per capita for primary industry employees reflects industrial capacity allocation.

Third, the information service organization development index reflects how, under the "Internet Plus" background, informatization serves as a booster for agricultural modernization by integrating information into every link of the industrial chain to reduce information and transaction costs and improve agricultural resource utilization and transaction efficiency. The ratio of internet users reflects the development level of information markets, telecommunication consumption per capita reflects the development level of information demand, the ratio of fixed asset investment in information service industry reflects the level of information infrastructure, and the ratio of employees in information service industry reflects the level of information resource service capacity.

Fourth, the industrial management organization development index addresses four important indicators of agricultural safety production management: input levels of production materials, product certification standards, product produc-

tion scale, and product trading platforms. This study selects four indicators: fertilizer consumption, geographical indication product production area, animal meat product output, and trading market stalls. Fertilizer consumption per unit area of cultivated land reflects agricultural product quality and safety management levels, the ratio of planting area for geographical indications products reflects agricultural product certification management levels, animal meat products yield per capita in primary industry reflects agricultural product production capacity levels, and the number of commodity market stalls over 100 million per unit area of cultivated land reflects agricultural product sales management levels.

2.2 Determination of Evaluation Indicator Weights and Evaluation Models

Based on relevant data from 2009–2013 for 18 cities in Henan Province, the linear proportional transformation method was used to standardize raw data. This method uses the average value of a set of original data for an indicator as the standard value, comparing each indicator value against this average to obtain a proportional coefficient, which becomes the standardized value. The specific calculation formula is: iX is the original data value of the evaluation indicator, iX is the average value of this set of data, and iX is the standardized value after processing.

On the basis of establishing the evaluation index system, an evaluation model for the new agricultural modernization service organization system was constructed as follows:

This model includes the comprehensive evaluation model for the new agricultural modernization service organization system and its sub-models, with specific results as follows: (8)

Then, based on the average values of the comprehensive development index and individual organization development indexes for the new agricultural modernization service organization system from 2009–2013, ArcGIS 10.0 software was used to display classification results and explore spatial distribution patterns.

3. Analysis of Evaluation Results

3.1.1 Land Circulation Organization Development Evaluation

Among the average annual development indexes of land circulation organization from 2009–2013 , Jiyuan ranked highest (1.443), followed by Hebi (1.321). These two cities achieved top provincial rankings primarily because of high scores in cultivated land area per capita and agricultural capital investment per unit area of cultivated land, which contributed most significantly to the evaluation results and demonstrated remarkable achievements in farmland protection and agricultural financial support in recent years. In addition, Jiaozuo, Sanmenxia, Luoyang, Zhengzhou, Xinxiang, and Xinyang also exceeded the provin-

cial average. The remaining ten cities—Luohe, Kaifeng, Pingdingshan, Anyang, Puyang, Xuchang, Nanyang, Zhoukou, Zhumadian, and Shangqiu—all fell below the provincial average. Shangqiu scored the lowest (only 0.716), with large gaps from other cities in the number of specialized cooperatives per 10,000 people and agricultural capital investment per unit area of cultivated land, which hindered land circulation organization development. The city should therefore focus on improving farmer organization and increasing capital investment.

Based on evaluation results, the 18 cities can be divided into five categories: >1.4 as Category I, 1.2–1.4 as Category II, 1.0–1.2 as Category III, 0.8–1.0 as Category IV, and <0.8 as Category V. Overall, the 18 cities concentrate in Categories III and V, with only two cities (Jiyuan and Hebi) entering Categories I and II, indicating that Henan's land circulation organization development level is generally medium to low. From a spatial distribution perspective, eastern Henan shows weak development, with Zhoukou, Kaifeng, and Shangqiu all in Category V; western Henan demonstrates better development, with Luoyang, Jiaozuo, Jiyuan, and Sanmenxia all exceeding the provincial average; central and southern Henan cities concentrate in Categories III and IV; and northern Henan shows large disparities, with Hebi and Xinxiang entering Categories II and III respectively, while Anyang and Puyang remain in Category IV.

3.1.2 Resource Allocation Organization Development Evaluation

Among the average annual development indexes of resource allocation organization from 2009–2013 , seven cities exceeded the provincial average, with Luohe (2.168) and Zhengzhou (2.103) ranking top two, both reaching approximately twice the provincial average. Food processing serves as Luohe' s pillar industry with a solid foundation for agricultural industrialization, leading the province in the number of leading enterprises per 10,000 households and showing agricultural financial expenditure per unit area of cultivated land significantly above the provincial average, providing strong momentum for resource allocation organization development. However, its weakness lies in the low number of scientific and technical personnel per 10,000 people, requiring greater attention to technological talent investment. As the provincial capital and an industrial powerhouse with a strong economic foundation, numerous universities, and research institutions, Zhengzhou enjoys high agricultural financial investment and technological input, making its resource allocation organization development level significantly higher than other cities. Zhoukou scored the lowest (0.430), only 43% of the provincial average and approximately one-fifth of Luohe and Zhengzhou, primarily due to fewer leading enterprises per 10,000 rural population that struggle to drive farmers, coupled with large gaps from other cities in technological and financial investment.

Based on evaluation results, the 18 cities can be divided into five categories: >2.0 as Category I, 1.5–2.0 as Category II, 1.0–1.5 as Category III, 0.5–1.0 as Category IV, and <0.5 as Category V. Overall, development levels present an olive-shaped structure with small ends and a large middle—few cities in Cate-

gories I, II, and V, but many in Categories III and IV. Spatially, central Henan performs best but shows large inter-city disparities, with Zhengzhou and Luohe in Category I, while Xuchang and Pingdingshan fall in Categories III and IV respectively. Western Henan ranks second, but with unbalanced development among cities: Jiyuan in Category II, Jiaozuo and Sanmenxia in Category III, and Luoyang in Category IV. Northern Henan performs poorly, with only Hebi in Category III while Xinxiang, Anyang, and Puyang all remain in Category IV. Southern Henan also shows poor performance, with Nanyang, Xinyang, and Zhumadian all in Category IV. Eastern Henan demonstrates the worst development, with Zhoukou ranking last provincially and Kaifeng and Shangqiu only reaching Category IV.

3.1.3 Information Service Organization Development Evaluation

Among the average annual development indexes of information service organization from 2009–2013 , eight cities exceeded the provincial average, with Zhengzhou (2.644) and Luoyang (1.430) ranking top two. Zhengzhou' s strong economic foundation gives it absolute advantages in internet user ratio and information service industry fixed asset investment, demonstrating remarkable effectiveness in information infrastructure construction and capital investment. Although Luoyang ranks second provincially, its excessively low ratio of information service personnel constitutes a prominent weakness affecting future development. Shangqiu scored the lowest (0.619), only 61.9% of the provincial average. As one of the traditional agricultural regions, Shangqiu has weak informatization foundations, with its three indicators—internet user ratio, telecommunication consumption per capita, and information service industry fixed asset investment ratio—all far below other cities. Insufficient investment in information services, lagging information infrastructure construction, and inadequate utilization of information resources constitute the main obstacles to information service organization development.

Based on evaluation results, the 18 cities can be divided into six categories: >1.5 as Category I, 1.3–1.5 as Category II, 1.1–1.3 as Category III, 0.9–1.1 as Category IV, 0.7–0.9 as Category V, and <0.7 as Category VI. Spatially , western Henan shows better development: Luoyang and Jiyuan in Category II, Sanmenxia in Category III, and only Jiaozuo in Category IV. Northern Henan also performs relatively well, with Anyang, Xinxiang, and Puyang in Categories III and IV, though Hebi falls in Category V. Central Henan shows the largest disparities, with Zhengzhou in Category I, Luohe in Category IV, and Pingdingshan and Xuchang in Category VI. Southern Henan demonstrates relatively weak development, with Xinyang and Nanyang in Category V and Zhumadian in Category VI. Eastern Henan lags most severely, with only Kaifeng in Category III while Shangqiu and Zhoukou both remain in Category VI.

3.1.4 Industrial Management Organization Development Evaluation

Among the average annual development indexes of industrial management organization from 2009–2013 , eight cities exceeded the provincial average. Luohe (2.546) ranked highest as the province' s only Category I city, showing absolute advantage in animal meat products yield per capita and higher-than-average number of commodity market stalls over 100 million per unit area of cultivated land, demonstrating remarkable effectiveness in agricultural sales organization management. Kaifeng (2.029) ranked second provincially, having started early in geographical indication agricultural product certification and production—Qixian garlic, Kaifeng chrysanthemum, and Bianliang watermelon were among the earliest products entering the geographical indication list. The city also controls fertilizer consumption per unit area of cultivated land well, indicating strict supervision of production material inputs. Its development shortcomings lie in animal meat products yield per capita and the number of commodity market stalls over 100 million per unit area of cultivated land, suggesting the need to strengthen development of agricultural product deep processing industries, expand marketing channels, and extend industrial chains backward. Shangqiu scored the lowest (only 0.381), less than half the provincial average. Although agriculture-dominant, the city started late in geographical indication agricultural product certification and production, with small-scale agricultural product processing industries and lagging construction of large trading markets.

Based on evaluation results, the 18 cities can be divided into six categories: >2.5 as Category I, 2.0–2.5 as Category II, 1.5–2.0 as Category III, 1.0–1.5 as Category IV, 0.5–1.0 as Category V, and <0.5 as Category VI. Overall , Henan' s agricultural management level is relatively low, with only Luohe, Kaifeng, and Zhengzhou in the top three categories, while the remaining 15 cities concentrate in Categories IV, V, and VI. Spatially, central Henan shows large disparities, with Luohe and Zhengzhou in the top three categories but Pingdingshan and Xuchang in Categories V and VI respectively. In western Henan, except for Jiaozuo in Category V, Jiyuan, Sanmenxia, and Luoyang all fall in Category IV. Eastern Henan shows relatively good development in Kaifeng (Category II) but lagging development in Zhoukou and Shangqiu (both Category VI). Southern Henan' s Zhumadian, Xinyang, and Nanyang demonstrate balanced but lowest overall development, all in Category V. In northern Henan, Hebi and Xinxiang fall in Category IV, while Anyang and Puyang remain in Category VI.

3.2 Comprehensive Development Evaluation of New Agricultural Modernization Service Organization System

Based on comprehensive development index evaluation results [Figure 1: see original paper], this study divides the 18 cities into six categories: >1.5 as Category I, 1.3–1.5 as Category II, 1.1–1.3 as Category III, 0.9–1.1 as Category IV, 0.7–0.9 as Category V, and <0.7 as Category VI. Overall, Henan' s new agricultural modernization service organization system demonstrates low comprehensive development levels, with only Zhengzhou in Category I, only Luohe

and Jiyuan in Category II, only Sanmenxia, Hebi, Luoyang, and Jiaozuo in Category III, and the remaining 11 cities concentrated in Categories IV, V, and VI.

Spatial distribution patterns [Figure 1: see original paper] reveal that western Henan achieves the best and most balanced overall development, with Jiyuan in Category II and Luoyang, Sanmenxia, and Jiaozuo all in Category III. Central Henan ranks second but shows large inter-city gaps, with Zhengzhou (Category I) and Luohe (Category II) developing well while Xuchang and Pingdingshan lag in Category V. Northern Henan comes third with uneven development among cities: Hebi enters Category III, Xinxiang falls in Category IV, and Anyang and Puyang remain in Category V. Southern Henan follows with generally low development levels, as Nanyang, Xinyang, and Zhumadian all stay in Category V. Eastern Henan lags most severely, with Shangqiu and Zhoukou both in Category VI and Kaifeng only reaching Category IV.

Category I includes only Zhengzhou. As Henan's provincial capital, Zhengzhou maintains balanced development across all indicators, ranking among the top provincially in all categories: sixth in land circulation organization, second in resource allocation organization, first in information service organization, and third in industrial management organization. The city needs to strengthen land circulation service organization construction.

Category II includes Jiyuan and Luohe. Jiyuan demonstrates relatively balanced development across organizations, ranking first in land circulation organization, third provincially in both resource allocation and information service organizations, and fifth in industrial management organization. The city should enhance comprehensive development capacity to advance to Category I. Luohe shows outstanding development in resource allocation and industrial management organizations, ranking first provincially in both, while its information service organization ranks eighth. However, its land circulation organization development lags at 15th provincially. Since land circulation organization forms the foundation of the new agricultural modernization service organization system, the city must strengthen this aspect.

Category III includes Sanmenxia, Hebi, Luoyang, and Jiaozuo. Sanmenxia performs best within Category III, maintaining all organizations around fourth or fifth provincially, and should maintain this positive momentum to advance to Category II. Hebi' s advantage lies in its relatively good land circulation organization development (second provincially), which significantly contributes to overall development, but its information service organization represents a shortcoming, ranking only 13th provincially, requiring accelerated informatization construction. Luoyang shows outstanding development in information service organization (second provincially) with other three organizations at upper-middle levels, though resource allocation organization development is relatively low, requiring improved comprehensive development through agricultural industrialization. Jiaozuo also excels in land circulation organization (third provincially), while its other three organizations remain average, all in Category IV.

Category IV includes Xinxiang and Kaifeng. Kaifeng enters Category IV due to lagging land circulation organization development, ranking second-to-last provincially because of extremely low agricultural capital investment per unit area of cultivated land. Its resource allocation organization development level is also very low (third-to-last provincially), with gaps from other cities in the number of leading enterprises per 10,000 households and scientific and technical personnel per 10,000 people, requiring strengthened resource allocation organization construction and increased investment in technological elements. Xinxiang demonstrates balanced development across organizations at middle levels but lacks prominent advantages.

Category V includes Puyang, Anyang, Xuchang, Xinyang, Pingdingshan, Nanyang, and Zhumadian. Puyang' s industrial management organization development lags due to late start in geographical indication agricultural product certification, backward deep processing, and lagging large trading market construction. Anyang' s information service organization develops well, ranking fourth provincially, but its industrial management organization ranks third-to-last, indicating inadequate deep processing and channel expansion of agricultural products. Xuchang' s best-performing organization is resource allocation, as its number of leading enterprises per 10,000 households leads the province, significantly enhancing industrialization levels. However, its low fixed asset investment ratio in information services and gaps from other cities in information service personnel ratio, combined with insufficient progress in deep processing and geographical indication certification, cause its information service and industrial management organizations to lag. Pingdingshan shows low development levels in land circulation and information service organizations due to few specialized farmer cooperatives per 10,000 people, low farmer organization, and low fixed asset investment ratio in information services, requiring increased financial support. Nanyang' s development shortcoming is resource allocation organization, primarily due to insufficient investment in agricultural technology. Xinyang and Zhumadian show downstream development levels across all organizations, requiring urgent improvement.

Category VI includes only Shangqiu and Zhoukou. Both are traditional agricultural regions. Shangqiu ranks 14th in resource allocation organization but last provincially in the other three organizations, requiring integration of industrialization, informatization, and agricultural modernization based on land circulation organization to strengthen agricultural industrial management. Zhoukou ranks last provincially in resource allocation organization and downstream in the other three organizations, requiring efforts to enhance industrialization levels, increase agricultural output value, and promote transformation from traditional to modern agriculture.

4. Conclusions and Discussion

The comprehensive development level of Henan Province' s new agricultural modernization service organization system is generally low. Among the 18

prefecture-level cities, only three fall into Categories I and II, while the remaining 15 concentrate in Categories IV, V, and VI.

The spatial distribution of comprehensive development levels follows certain patterns. Western Henan shows higher levels with relatively balanced development: Jiyuan in Category II and Luoyang, Jiaozuo, and Sanmenxia all in Category III. Central Henan ranks second but with large inter-city disparities: Zhengzhou in Category I, Luohe in Category II, but Xuchang and Pingdingshan both in Category V. Northern Henan comes third with uneven development: Hebi in Category III, Xinxiang in Category IV, but Anyang and Puyang both in Category V. Southern Henan follows with generally low levels: Nanyang, Xinyang, and Zhumadian all in Category V. Eastern Henan lags most severely: Kaifeng reaches Category IV, but Shangqiu and Zhoukou both fall in Category VI.

The overall low development level of Henan' s new agricultural modernization service organization system stems from several factors. First, by the end of 2014, only 2.262 million hectares of land had been circulated in Henan, accounting for just 34.8% of family-contracted land. Land circulation faces three major contradictions: mismatched land supply and demand between farmers and new agricultural management entities, inconsistency between farmers' expectations for stable returns and agricultural production risks, and unequal distribution of fiscal subsidies between farmers and new agricultural management entities. The province has not yet established a hierarchical land circulation service organization system with "information officers at the village level, service centers at the township level, and service networks at the county level." Second, agricultural development still focuses on the three internal entities of enterprises, specialized cooperatives, and farmers, while external entities such as research institutions and financial organizations participate weakly, and interest linkage mechanisms among industrial entities are not tight, resulting in resource allocation that cannot meet actual demands and affecting modern agricultural development. Third, the informatization gap between urban and rural areas is significant, with severe departmental segmentation making it difficult to integrate, share, and utilize valuable information resources, greatly diminishing informatization effectiveness. Fourth, certification management of the "Three Products and One Indicator" (pollution-free agricultural products, green food, organic food, and geographical indication agricultural products) lags behind, ranking only 15th nationwide in 2014, which does not match the province' s status as a major agricultural province.

It should be noted that land circulation forms the foundation of new agricultural modernization development and the core of new agricultural management entity cultivation. Only after land circulation can scaled, intensive, organized, and socialized operations generate demand for resource allocation of technology, talent, finance, labor, and intermediaries. With economies of scale, the comprehensive costs of land circulation, resource allocation, information service, and industrial management can be afforded. The construction of Henan' s new agricultural modernization service organization system should follow this pattern

by strengthening the "four major organizations" of land circulation, resource allocation, information service, and industrial management, expanding service content, enhancing service functions, improving service capacity, and accelerating the development process of new agricultural modernization.

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Note: Figure translations are in progress. See original paper for figures.