Value Implications, Practical Basis, and Practical Paths of Empowering High-quality Agricultural Development with New Quality Productivity

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Abstract On the basis of clarifying the connotation of agricultural new quality productivity and high-quality development, the value implication of new quality productivity empowering high-quality development through deconstructing traditional factor constraints, driving industrial level transitions, building a solid foundation for ecological modernization, and ensuring national food security is systematically explained. Currently, China has the practical foundation of technological innovation, talent support, facility elements, and policy systems. Based on this, a practical path should be constructed from the aspects of tackling core technological innovation and deepening scenario applications, reconstructing industrial spatial layout to optimize regional coordination, innovating green trading systems to accelerate ecological value transformation, and improving inclusive governance frameworks to ensure fair sharing of development dividends, providing theoretical reference for the construction of a strong agricultural country.

Key words New quality productivity, High-quality development of agriculture, Value implications, Practical basis, Practical path

0 Introduction

Agriculture is the foundation of the national economy, and a strong agriculture is the key to a strong country. The Fourth Plenary Session of the 20th Central Committee of the Communist Party of China pointed out the need to accelerate the modernization of agriculture and rural areas, and solidly promote the comprehensive revitalization of rural areas. To promote the modernization of agriculture and rural areas, it must persistently consolidate the foundation of agriculture, prioritize the development of agriculture and rural areas, and achieve high-quality development of agriculture. It is not only the only way to achieve rural revitalization by promoting high-quality development in rural areas, but also the strategic pivot to solve the problem of unbalanced and insufficient development and build a new development pattern. It is an important lever and driving force in the process of building a modern strong country by promoting the transformation of agriculture from mainly increasing production to improving quality and efficiency, continuously enhancing the overall efficiency and comprehensive competitiveness of Chinese agriculture, and comprehensively promoting the high-quality development of agriculture. However, traditional agricultural production methods are no longer able to provide sustained momentum for high-quality development, and It requires new production theories to guide achieving high-quality development. In 2025, the No. 1 central document of the Central Government first mentioned "agricultural new quality productivity". The new quality productivity of agriculture is gradually becoming the core competitiveness leading the development of agricultural modernization, providing key support for promoting the improvement of agricultural quality and efficiency, accelerating the comprehensive revitalization of rural areas, and realizing the transformation of agricultural modernization. It can be seen that it is of great significance for accelerating agricultural modernization and building a strong agricultural country by promoting high-quality agricultural development through the development of new quality productivity.

At present, the academic community has explored the generation logic, connotation, and development characteristics of new quality productivity, and analyzed their practical paths for empowering high-quality development. In the field of high-quality agricultural development, existing research mostly focuses on influencing factors and mechanism pathways, such as the cultivation of new agricultural talents[1], digital economy empowerment[2], agglomeration of productive service industries[3], urban-rural integration[4], *etc.* However, there is relatively little research on the relationship between new quality productivity and high-quality agricultural development, with only a small amount of literature exploring the relationship and implementation mechanism. It is believed that new quality productivity generates agricultural new quality productivity by empowering the three elements of productivity, thereby promoting high-quality agricultural development[5]. In view of this, this paper aims to clarify the theoretical connotations of agricultural new quality productivity and high-quality development, systematically expound the contemporary value of the former to the latter, deeply analyze the current development conditions, and explore feasible practical paths.

1 Profound connotation of agricultural new quality productivity and high-quality development

1.1 Connotation of agricultural new quality productivity

According to the Marxist theory of productive forces, productive forces are the ability of individuals with labor capacity to transform the natural world by combining them with the means of produc-

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tion. As the latest achievement of Xi Jinping's economic thought, new quality productivity is a new category of political economy theory in the sinicization and modernization of Marxist theory. It has emerged with the emergence of new technologies, new materials, new industries, and new models, and has become a new driving force for promoting high-quality economic development[6]. This form of productivity is fundamentally driven by innovation, breaking through the traditional economic growth model and productivity development paradigm. It has the characteristics of high technology, high efficiency, and high quality, and is an advanced quality of productivity guided by the new development concept[7]. Focusing on the field of agriculture, agricultural new quality productivity is an innovative breakthrough from traditional productivity, presenting higher technological content and innovation capabilities. It deeply integrates agriculture with other industries, expands the space for agricultural development, improves agricultural production efficiency, reduces production inputs, and increases farmers' income. The modern agricultural technology, new agricultural management entities, agricultural informatization and other elements included in the new quality productivity of agriculture are reshaping the new development pattern of agriculture with strong driving force. The practical application of modern agricultural technologies such as precision agriculture, intelligent equipment, and biotechnology has effectively optimized resource allocation efficiency and improved production quality. New types of agricultural management entities such as family farms, farmer cooperatives, and agricultural enterprises are promoting the formation of a large-scale and specialized development pattern in agriculture. The informatization of the agricultural sector, covering the application of the Internet of Things, e-commerce, and big data, has driven the intelligence of agricultural production and the optimization of the industrial chain. New quality productivity, with technological innovation as its core, injects new momentum into the high-quality development of agriculture by reshaping the agricultural production paradigm and industrial system.

1.2 Connotation of high-quality agricultural development

As an important goal of China's agricultural development in the new era, the connotation of high-quality agricultural development has multidimensional characteristics, and there are different interpretations in the academic community. Based on the perspective of core elements, Zhong Yu emphasizes that high-quality agricultural development should include elements such as a high-standard agricultural product production system, a high-efficiency agricultural industry chain, an efficient and complete management system, and high-quality international competitiveness[8]. Zhang Wufeng focuses on the construction of the industrial system, believing that the high-quality development of agriculture is mainly reflected in the formation of a complete industrial system, enhanced market competitiveness, increased supply of green and high-quality products, optimized resource allocation, improvement of total factor productivity, rational adjustment of production capacity structure, and stimulation of subject vitality[9]. Gao Qiang proposes the new era connotation under the background of comprehensive rural revitalization, that is, the agricultural production transforms from growth oriented to welfare oriented. Under the guidance of the goal of common prosperity, it is transformed into high-quality development that meets the growing needs of the people for a better life in various aspects[10]. The high-quality development of agriculture focuses on enhancing the comprehensive benefits and competitiveness of agriculture, with the goal of achieving sustainable, green, innovative, and integrated development of agriculture. Specifically, it covers the following key points. Firstly, to improve the quality of agricultural products, it is necessary to rely on improving the quality and safety standard system, strengthening production process supervision, promoting green production technologies, and enhancing brand building. Secondly, to achieve the improvement of agricultural production efficiency, it is necessary to focus on promoting the process of agricultural mechanization and intelligence, optimizing the structure of planting and breeding, and increasing the promotion and application of new varieties and technologies. Thirdly, to optimize the structure of the agricultural industry, it should advocate for deep integration between agriculture and the secondary and tertiary industries, expand emerging business categories such as characteristic agriculture, leisure agriculture, and rural tourism, and strengthen the construction of the industrial chain. Fourthly, it should focus on agricultural technological innovation, increase research and development investment, cultivate practical talents in science and technology, and promote the accelerated transformation and application of scientific and technological achievements. Fifthly, it should practice the concept of protecting the agricultural ecological environment, focus on the protection of the agricultural ecosystem, actively promote the ecological circular agriculture model, and establish and improve relevant policies and regulations, in order to achieve harmonious coexistence between agriculture and ecological environment.

2 Value implications of empowering agricultural high-quality development with new quality productivity

2.1 Deconstructing traditional constraints and reshaping the paradigm of agricultural production technology New quality productivity relies on advanced technology and innovative production models, effectively breaking the constraints of extensive utilization of traditional agricultural production factors and greatly reshaping the agricultural production technology model. The extensive application of intelligent agricultural machinery has achieved precise sowing, moderate fertilization, on-demand irrigation, and precise harvesting. While reducing human input, it has greatly improved the accuracy and speed of operations, promoting agricultural production towards precision and intelligent management, and greatly improving the efficiency of agricultural production. Big data and artificial intelligence technology can monitor and analyze key data such as soil, climate, and crop growth in real time, providing farmers with accurate planting guidance, optimizing production processes, and thereby improving yield and quality levels per unit area. The application of green agricultural technologies should be promoted, such as the use of organic fertilizers and biological

control, can effectively reduce dependence on pesticides and fertilizers, thereby improving the quality and safety of agricultural products. The quality of agricultural products could be further ensured by improving the quality traceability system for agricultural products, and achieving full process supervision.

2.2 Driving industry level transition and building a resilient supply chain system New quality productivity injects new impetus into the agricultural industry through technological innovation, effectively driving the hierarchical upgrading of the agricultural industry. Through the introduction of Internet, Internet of Things, e-commerce and other emerging technologies, they are throughout all links of the agricultural industry chain, and the integration and intellectualization of production, processing and sales are realized. It not only improves the added value of agricultural products, but also broadens the development space of agriculture, promotes the deep integration of primary, secondary and tertiary industries, and realizes the extension of agricultural industry chain and value chain. The e-commerce platform for agricultural products effectively narrows the distance between farmers and consumers, eliminates intermediate links, and directly promotes the growth of farmers' income. The smart agriculture park integrates advanced production technologies and management models, becoming a demonstration base for agriculture to move towards modernization. New quality productivity plays a key role in building a resilient agricultural supply chain system. The big data platform significantly reduces the information cost expenditure of farmers, and advanced meteorological forecasting and disaster warning systems assist farmers in preparing for prevention and response in advance, reducing the negative impact of natural disasters on agricultural production. The application of financial technology in the agricultural sector, such as agricultural insurance innovation and agricultural product futures, provides farmers with a more comprehensive risk management approach. The new quality productivity has further promoted the diversification and decentralization of agricultural production, and effectively reduced the risks caused by single crops or market fluctuations, thereby enhancing the overall resilience of agricultural supply chain.

2.3 Building a solid foundation for ecological modernization and leading the transformation of low-carbon agricultural paradigm The new quality productivity has established a symbiotic mechanism between agricultural production and ecological protection. At the technical application level, new technologies such as precision irrigation systems and ecological agriculture models significantly reduce water resource waste and the use of fertilizers and pesticides, greatly reducing agricultural non-point source pollution, and alleviating environmental burden. In terms of promoting renewable energy, the application of solar greenhouses, biomass energy systems, *etc.* in the agricultural field has effectively replaced traditional fossil fuels, thereby reducing agricultural carbon emission intensity and promoting the green transformation of production methods. The active promotion of resource utilization of agricultural waste can help achieve the development of circular economy and lay a solid foundation for the long-term stability and sustainable development of agriculture.

2.4 Ensuring national food security and activating inclusive income increasing mechanisms The deep application of new quality productivity in the field of agriculture plays a strategic supporting role in ensuring national food security, and can also activate the mechanism of inclusive income increase for farmers. In terms of food security, the new quality productivity has significantly improved the comprehensive agricultural production capacity through technological breakthroughs and optimized allocation of factors. For example, the application of intelligent agricultural machinery, biological breeding technology, and precision agriculture systems significantly improves yield levels, reduces production losses, enhances agricultural resilience, and ensures stable grain production and supply chain resilience. The advanced warehousing, logistics, and processing technologies reduce losses in the circulation process, improve the effective supply level of grain, and lay a solid material and technological foundation for national food security. In addition, new quality productivity is the core driving force for activating the mechanism of inclusive income increase in rural areas. On the one hand, it directly improves agricultural production efficiency and the added value of agricultural products, increasing farmers' operating income. On the other hand, it gives rise to new business models such as rural e-commerce and leisure agriculture, creates diversified employment and entrepreneurship opportunities, and ultimately achieves sustainable and inclusive growth in farmers' income.

3 Realistic foundation of empowering high-quality agricultural development with new quality productivity

3.1 Technical conditions New quality productivity is centered on technological innovation, with a focus on shaping the foundation of agricultural development from supply. In the field of biological breeding, cutting-edge technologies such as gene editing and synthetic biology have broken through the innovation paradigm of traditional seed industry, improving crop yield potential, stress resistance, and nutritional quality from the source, and forming a fundamental solution to overcome key technological bottlenecks in seed sources. In the field of intelligent equipment, the integration of autonomous navigation agricultural machinery, agricultural robots, and intelligent sensors enables precise perception of the entire agricultural production process and supports intelligent decision-making, greatly improving labor productivity and resource utilization efficiency, and effectively alleviating the problem of rising labor costs and structural shortages in rural areas. The breakthroughs in these key core technologies provide fundamental impetus for the transformation of agricultural production methods from resource dependent to technology driven.

3.2 Talent support New quality productivity ultimately needs to be transformed into real productivity through advanced organizational carriers. Intelligent and high investment production tools and complex management systems have put forward higher requirements for the scale, capital, and knowledge level of operators. Therefore, new quality productivity could prioritize and empower

new business entities such as family farms, farmer professional cooperatives, and agricultural industrialization leading enterprises that have advantages in scale, specialization, and marketization. These entities have accelerated the transformation and application of scientific and technological achievements through close cooperation with research institutes and universities. Besides, new quality productivity also puts forward new requirements for workers. The cultivation of new professional farmers has improved the overall quality of agricultural workers, enabling them to better adapt to and control advanced productivity. The adaptation and innovation of this microstructure enable new quality productivity to take root in the fields, transforming technological changes and institutional innovations at macro level into the improvement of agricultural productivity and the growth of farmers' income, and injecting a continuous stream of vitality into the high-quality development of agriculture.

3.3 Facilities and elements New quality productivity builds efficient digital infrastructure for high-quality agricultural development through revolutionary changes at the factor level. In traditional agricultural production, a large amount of valuable experience is difficult to accumulate and replicate, while the Internet of Things, big data, and artificial intelligence technology systems can collect, aggregate, and analyze agricultural whole process data in real time, transforming unquantifiable experience into computable and optimizable data models. This not only achieves precise regulation of agricultural production, but also promotes the symmetrical flow of information in the upstream and downstream of the industrial chain, effectively alleviating the mismatch between supply and demand of agricultural products and market fluctuations. Digital agricultural infrastructure enables data to become a key production factor beyond land, labor, and capital, improving agricultural total factor productivity through optimized resource allocation and providing sustained driving force for agricultural modernization.

3.4 Policies and systems New quality productivity challenges existing production relations through technological changes and factor restructuring, promotes innovative adjustments in the institutional system, and creates favorable external conditions for high-quality agricultural development. Specifically, it strengthens the protection of data property rights and intellectual property rights in the field of property rights system, and stimulates the vitality of agricultural scientific and technological innovation. Relying on market mechanisms, it guides the investment of social capital, and promotes the development of green finance and agricultural insurance, thereby providing the necessary financial support and risk protection for technological innovation and industrial upgrading. It promotes the tilt of finance and taxation, land, and talent policies towards agricultural technology innovation and green development in policy coordination, and a policy synergy to support the development of new quality productivity is formed. This institutional policy synergy can effectively reduce the institutional transaction costs of applying new technologies and models, and build a solid institutional guarantee system for high-quality agricultural development.

4 Practical paths of empowering agricultural high-quality development with new quality productivity

4.1 Tackling core technological innovation and deepening the integration mechanism of scenario applications The key to consolidating the technological foundation of driving high-quality agricultural development with new quality productivity lies in tackling core technological innovation and deepening its application and integration in all agricultural scenarios. By focusing on cutting-edge technologies such as artificial intelligence, big data, and the Internet of Things, it should deepen their application integration mechanism in the entire agricultural production scenario, thereby achieving precise monitoring and control of the production environment. The sensors and IoT technology can be used to monitor key parameters such as soil, weather, and crop growth in real time, which can provide scientific basis for precise irrigation and fertilization, significantly improving the efficiency of agricultural resource utilization and the yield and quality of agricultural products. The transformation of agricultural mechanization and intelligence also needs to be continuously promoted, with a focus on expanding the application scale of new equipment such as unmanned plant protection machinery and intelligent joint harvesting systems, in order to reduce the labor intensity of field operations, improve production efficiency, and achieve precise operations, reducing resource waste and environmental pollution. To accelerate the transformation of scientific and technological achievements into real productivity, it is necessary to build an efficient platform for industry-university-research cooperation, encourage agricultural enterprises, farmer cooperatives and other business entities to directly connect with scientific research institutions, and promote the promotion, application and industrialization of scientific and technological achievements. Furthermore, it is necessary to improve the protection system of agricultural intellectual property rights, clarify the scope of protection and implementation standards, so as to make researchers and business entities willing and daring to innovate.

4.2 Refactoring the industrial spatial layout and optimizing the regional coordinated development pattern To effectively promote the empowerment of high-quality agricultural development with new quality productivity, it is necessary to reconstruct the spatial layout of agricultural industry based on the heterogeneity of resource endowments, industrial foundations, and market demands in various regions of China. Firstly, top-level design should be strengthened, and scientific plans should be formulated to define the functional areas for grain production, the protection areas for important agricultural product production, and the advantage areas for characteristic agricultural product. It should promote the targeted flow of production factors such as capital, technology, and talent to key areas, forming a specialized, large-scale, and intensive modern agricultural industry cluster. Secondly, it needs to break down administrative barriers and establish a cross regional collaborative development mechanism. By establishing regional agricultural big data sharing platforms and industry chain collaboration alliances, it aims to promote deep cooperation between regions in

areas such as breeding of high-quality seeds, agricultural machinery operations, warehousing and logistics, and brand marketing, achieving complementary advantages and coordinated development. Finally, it should take the opportunity of urban-rural integration development to optimize the spatial layout of the "urban-suburban-rural" three-level agriculture. It should focus on developing urban modern agriculture and leisure tourism agriculture around the city to meet the diverse needs of citizens. In suburban and rural areas, the focus is on the production of bulk agricultural products and characteristic agriculture, building an agricultural production network that is closely connected to urban functional areas and develops in a gradient manner, thus forming a new pattern of regional agricultural development that is structurally reasonable, functionally complementary, and synergistically efficient.

4.3 Innovating green trading system and accelerating the market transformation of ecological value To promote the high-quality development of agriculture, it is necessary to realize the ecological value of agricultural production through market-oriented mechanisms. Therefore, it should vigorously innovate the green trading system. On the one hand, it is necessary to improve and promote the mechanism of agricultural carbon trading. On the basis of clarifying the accounting standards and methods for agricultural carbon sinks, it should encourage and support eligible agricultural production activities to enter the carbon emission trading market, so that agricultural ecological contributions can receive direct economic returns, thereby incentivizing business entities to adopt green and low-carbon production methods. On the other hand, it should explore the establishment of a mechanism for realizing the value of ecological products. By establishing ecological compensation funds, developing ecotourism, and promoting geographical indication products for farmland, wetlands, forests, and other areas with important ecological functions, the service functions of the ecosystem can be transformed into tradable and priced ecological products. In addition, it is necessary to improve the green financial service system, and develop targeted financial products such as green credit and green insurance, provide financing convenience and risk protection for agricultural business entities that adopt green production technologies, and effectively reducing their transformation costs, and thus building an ecological value transformation path led by market-oriented means and supplemented by policy support, accelerating the process of agricultural green development.

4.4 Establishing a sound and inclusive governance framework and ensuring fair sharing of development dividends The core of ensuring that the achievements of high-quality agricultural development driven by new quality productivity are universally accessible to the people lies in a sound and inclusive governance framework, to ensure that all parties share the development dividends fairly. Therefore, it is necessary to deepen the reform of institutional mechanisms. The agricultural subsidy policy should be optimized to tilt towards agricultural production and operation entities that actively apply new quality productivity, in order to encourage them to adopt new technologies and equipment. It needs to steadily promote the reform of the rural land property rights system, improve the land transfer mechanism, effectively protect the land rights and interests of farmers, and create a favorable institutional environment for the development of new quality productivity. In terms of talent cultivation, a diversified and composite agricultural talent system should be built. It is not only necessary to cultivate cutting-edge talents who can lead technological innovation, but also to strengthen technical training and guidance for ordinary farmers. By establishing high-quality agricultural demonstration bases, and strengthening the cooperation between enterprises and farmers, farmers are linked and led, and efficient income increase for farmers is promoted. Synchronizing and improving technical services and after-sales support mechanisms, it could ensure that farmers can quickly respond to and solve operational difficulties arising from the application of new technologies. In terms of infrastructure construction, simple replication of urban models should be avoided. Scientific planning and promotion of digital and intelligent transformation of rural infrastructure should be carried out to coordinate with the unique geographical conditions, natural resources, and cultural characteristics of rural areas, ensuring that development achievements are universally accessible to farmers.

References

[1] CHENG SG, PU YS, ZHU DQ. Research on endogenous power of high quality development of agriculture: View of interactive relationship between institutional change, technological progress and economic performance[J]. Soft Science, 2020(1): 19 - 24. (in Chinese).

[2] GAO D, LYU X. Agricultural total factor productivity, digital economy and agricultural high-quality development[J]. PloS One, 2023(10): e0292001 - e0292001.

[3] HAO YF, WANG ZB. Does the agglomeration of productive service industries contribute to high-quality agricultural growth? [J]. The Journal of Humanities, 2019(5): 54 - 61. (in Chinese).

[4] YAO YC, LI B. Mechanisms, challenges and approaches of promoting high-quality development of agriculture and in rural areas through urban-rural integration[J]. Tianjin Social Sciences, 2023(3): 99 - 106. (in Chinese).

[5] WANG QM, YANG JG. Research on digital new quality productivity and high-quality development of Chinese agriculture[J]. Journal of Shaanxi Normal University (Philosophy and Social Sciences Edition), 2023(6): 61 - 72. (in Chinese).

[6] PAN JT, TAO HL. Understanding the triple dimensions of the connotation and characteristics of new quality productive forces[J]. Journal of Xi'an Jiaotong University: Social Sciences, 2023(3): 1 - 10. (in Chinese).

[7] JIANG YM. The inheritance and development of the theory of new quality productive forces to the Marxist productive force theory[J]. Economic Perspectives, 2025(5): 5 - 18. (in Chinese).

[8] ZHONG Y. Agricultural development orientation towards high quality stage[J]. Academic Journal of Zhongzhou, 2018(5): 40 - 44. (in Chinese).

[9] ZHANG WF. Adhering to the goal of high-quality development and accelerating the construction of a strong country in the grain industry[J]. People's Tribune, 2018(25): 6 - 9. (in Chinese).

[10] GAO Q. Agricultural high-quality development: Characteristics, obstacles and path choices[J]. Academic Journal of Zhongzhou, 2022(4): 29 - 35. (in Chinese).