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Research on the construction of a core competency system for Master of Agricultural Management under the background of the Rural Revitalization Strategy

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Abstract. The Master of Agricultural Management plays an important role in cultivating high-level "agriculture, rural areas, and farmers" (san nong) management professionals for the implementation of the Rural Revitalization Strategy. However, the traditional competency-oriented model of talent cultivation for this degree can no longer meet the needs arising from the Rural Revitalization Strategy. Based on an analysis of the influencing factors and dimensions of competency requirements for agricultural management positions under the context of rural revitalization, this study adopts both interview and questionnaire survey methods to identify the core competency requirements for the Master of Agricultural Management. Accordingly, a core competency indicator system is constructed, consisting of four first-level indicators and twelve second-level indicators. The study aims to provide a theoretical foundation for reforming the training model of Master of Agricultural Management programs in universities.

Keywords: Rural Revitalization Strategy, Master of Agricultural Management, core competency, indicator system

1. Introduction

The Rural Revitalization Strategy, proposed at the *19th National Congress of the Communist Party of China*, is a major national strategy and one of the long-term development strategies that China must adhere to. The *Opinions of the CPC Central Committee and the State Council on the Implementation of the Rural Revitalization Strategy* explicitly states that "to implement the Rural Revitalization Strategy, it is necessary to break through the constraints of the talent bottleneck and prioritize the development of human capital". Postgraduate students trained in agricultural universities constitute an important reserve force and backbone for the implementation of this strategy. As the only management-oriented professional degree among the eight specializations of the Master of Agricultural Science in China, the Master of Agricultural Management bears the important responsibility of cultivating high-level management professionals for the "agriculture, rural areas, and farmers" sector. However, the current state of talent cultivation in this field reveals several common problems, including weak willingness to work at the grassroots rural level, insufficient understanding of contemporary agriculture, rural areas, and farmers, and a mismatch between graduates' competencies and the

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demands of rural revitalization in the new era. These issues have led to a growing contradiction between the shortage of high-level talent for rural revitalization and the employment difficulties faced by graduates of agricultural management programs, reflecting the inadequacy of existing training models in meeting the practical demands of the Rural Revitalization Strategy for agricultural management professionals [1–4]. Therefore, in order to better align with the needs of the Rural Revitalization Strategy in the new era, it is necessary to conduct a systematic study on the core competency system for Master of Agricultural Management programs. On this basis, timely reforms of training curricula and models should be implemented, so as to cultivate high-quality agricultural management professionals capable of meeting the requirements of China's Rural Revitalization Strategy.

2. Analysis of influencing factors on competency requirements for agricultural management positions under the rural revitalization context

The objective of cultivating Master of Agricultural Management students is to meet the functional requirements of agricultural management positions. Accordingly, the competency requirements of these positions under the Rural Revitalization Strategy constitute a fundamental basis for constructing a core competency system for the degree. Such competency requirements emerge from the dynamic interaction of multiple dimensions, including policy, industry, technology, and governance. With the comprehensive advancement of the Rural Revitalization Strategy, rural development environments, agricultural business structures, agri-related market conditions, and grassroots governance models have undergone profound transformation. As a result, agricultural management positions are required to continuously update competency standards, expand competency boundaries, and optimize competency structures. Examining the influencing factors shaping competency demands under this context, and clarifying the new requirements and challenges imposed by both external environments and internal developmental dynamics, enables a more precise identification of core competencies in agricultural management talent cultivation. This, in turn, promotes better alignment between talent supply and the competency demands of rural revitalization-related positions.

2.1. Policy and institutional factors

Policy and institutional arrangements constitute the most fundamental macro-level determinants of competency requirements for agricultural management positions, shaping both their functional orientation and performance standards. First, adjustments in national top-level strategies concerning agriculture, rural areas, and farmers reshape the core focus of agricultural management work, thereby altering the emphasis of competency demands. Prior to the full implementation of the Rural Revitalization Strategy, grassroots agricultural management primarily focused on agricultural production guidance and basic administrative affairs. However, with the rollout of the strategy, tasks such as industrial revitalization, ecological livability, rural civilization, and effective rural governance have been incorporated into the core responsibilities of agricultural management. This shift requires personnel to possess comprehensive competencies in industrial planning, ecological conservation, and rural governance. Policy orientation thus directly drives a transformation in competency requirements from single-dimensional specialization toward integrated and multi-dimensional capability. Second, the continuous refinement of agricultural-related laws and regulations has raised the legal and institutional competency requirements for agricultural management personnel. Regulations such as the *Regulations on the Protection of Cultivated Land*, the *Food Safety Law for Agricultural Products*, and the *Regulations on Comprehensive Administrative Law Enforcement in Agriculture*

have been revised and improved over time, clarifying regulatory responsibilities and enforcement authority within the agricultural sector. This development necessitates that agricultural management personnel acquire legal knowledge and become familiar with administrative law enforcement procedures. At the same time, various regions have formulated targeted policies regarding characteristic agricultural development, strengthening of rural collective economies, and improvement of rural living environments. These policies require agricultural management personnel to implement localized and targeted initiatives, thereby embedding differentiated and context-specific competency requirements aligned with regional agricultural development realities. Therefore, continuous policy and institutional evolution remains the primary driving force behind the upgrading of competency standards in agricultural management positions.

2.2. Industrial development factors

The essence of rural revitalization lies in industrial revitalization. Changes in agricultural industrial structure, transformation of business entities, and extension of industrial chains constitute the most direct and practical drivers of competency upgrading in agricultural management positions. On the one hand, the transformation of traditional agriculture toward modern agriculture has reshaped service delivery models and generated new competency demands. Emerging agricultural formats—such as large-scale crop and livestock farming, facility agriculture, leisure agriculture, deep processing of agricultural products, and rural e-commerce—have developed rapidly. As agriculture moves toward intensification, integration, and market-oriented development, agricultural management personnel are required to master competencies in full industrial chain operation, agricultural branding, market supply-demand coordination, and agri-tourism integration. Traditional agricultural technical skills alone are no longer sufficient to meet these evolving industrial demands. On the other hand, significant changes in the structure of agricultural business entities have further driven the need for enhanced service-oriented management capabilities. New types of agricultural operators—including family farms, farmer cooperatives, leading agricultural enterprises, and returnee "new farmers"—have become the main driving force of rural industrial development. These entities present substantial needs in areas such as project application, market expansion, risk mitigation, and standardized operations. Consequently, agricultural management personnel must develop specialized service capabilities in entrepreneurship support, business incubation, and resource integration. In addition, shifts in the supply-demand structure of agricultural markets and intensified market competition further raise the requirements for agricultural management personnel in terms of market analysis and risk prevention capabilities.

2.3. Grassroots governance factors

Under the Rural Revitalization Strategy, the accelerated integration of urban and rural development has brought profound changes to rural social structures and grassroots governance environments, thereby continuously expanding the scope of agricultural management positions and enriching their comprehensive competency requirements. From the perspective of the working environment, agricultural management is carried out at the grassroots frontline in rural areas, where conditions are relatively harsh and tasks are complex and fragmented. This places higher demands on personnel in terms of stress tolerance, emotional regulation, and overall coordination and multitasking capabilities. From the perspective of public service delivery, rural residents' demands have become increasingly diversified. With improved cognitive levels and strengthened rights awareness, villagers now require agricultural management personnel to possess strong communication and expression skills, policy interpretation and dissemination abilities, and conflict mediation competencies, enabling them to accurately respond to public concerns and effectively resolve grassroots agricultural disputes. At the same time, China's rural governance system has been continuously improved, with

grid-based governance models being widely implemented. Agricultural management positions have become deeply embedded within the grassroots governance system, no longer functioning as isolated technical or administrative roles, but as integral components of local governance structures. This institutional integration means that competency requirements are no longer confined to agricultural expertise alone. Instead, governance-oriented thinking, public engagement skills, and social service capabilities have become indispensable. Consequently, the grassroots governance environment has emerged as a critical factor shaping the comprehensive competency requirements of agricultural management personnel.

2.4. Technological change factors

The construction of digital countryside initiatives constitutes a key component of the Rural Revitalization Strategy. Emerging information technologies—such as big data, the Internet of Things, artificial intelligence, and e-commerce live streaming—are being widely deployed across rural and agricultural sectors. Technological innovation has thus become a major driving force behind the transformation of competency requirements for agricultural management positions. In agricultural production management, digital agriculture technologies and platforms—including smart farmland monitoring systems, intelligent pest and disease early-warning systems, agricultural product traceability systems, and smart agricultural machinery control systems—are being widely adopted. This requires agricultural management personnel to be proficient in operating various agricultural digital platforms, conducting agricultural data collection and analysis, and applying intelligent equipment, thereby enabling them to carry out tasks such as agricultural supervision, industrial statistics, and disaster prevention and control through digital tools. In agricultural business and service domains, new marketing models such as rural e-commerce, livestreaming-based agricultural promotion, and online supply-demand matching have become increasingly prevalent. Agricultural management personnel are therefore expected to develop new competencies in new media operations, online agricultural product marketing, and e-commerce service guidance, so as to help local specialty agricultural products reach broader markets and expand sales channels. Overall, the rapid diffusion and deep integration of information technologies have effectively broken traditional spatial and temporal constraints in agricultural management, significantly improving work efficiency while simultaneously exerting strong pressure for capability upgrading among traditional agricultural management personnel. As such, technological advancement has become a key driving force behind competency evolution in the new era.

3. Analysis of core competency dimensions for agricultural management positions under the rural revitalization context

The comprehensive advancement of the Rural Revitalization Strategy encompasses five major dimensions: industrial revitalization, talent revitalization, cultural revitalization, ecological revitalization, and organizational revitalization. This process is driving a profound transformation of agriculture and rural areas from traditional development patterns toward modernization, marketization, digitalization, and improved governance capacity. As a key interface connecting agricultural policy implementation, grassroots rural governance, agricultural industrial operation, and rural public services, agricultural management positions impose increasingly multi-layered, composite, and practice-oriented competency requirements on practitioners. Grounded in the overall development context of rural revitalization, systematically clarifying the core competency dimensions of agricultural management positions—along with their practical value, application scenarios, and development pathways—not only helps define the essential professional attributes required for grassroots agricultural administrators, but also provides a scientific basis for the cultivation of

Master of Agricultural Management students in higher education institutions. Based on real-world job performance scenarios and the requirements of the five dimensions of rural revitalization, the core competency requirements for agricultural management positions can be categorized into five dimensions: policy implementation, industrial management, grassroots service, innovation practice, and comprehensive literacy.

3.1. Policy implementation dimension

China has issued a series of top-level policy designs for rural revitalization, while local governments at various levels have simultaneously formulated supporting implementation guidelines, forming a multi-tiered, well-structured, and highly detailed agricultural policy system. As direct implementers of these policies at the grassroots level, agricultural management personnel play a decisive role in determining whether policy dividends of rural revitalization can be effectively transmitted to rural communities and benefit farmers. Their level of policy comprehension, implementation efficiency, and execution standard directly affects policy effectiveness. In terms of specific competency requirements, practitioners must first possess precise policy interpretation and analytical abilities. Faced with a large volume of diverse, broad-coverage, and frequently updated agricultural policies, agricultural management personnel need to accurately distinguish between different policy types and precisely understand policy targets, implementation standards, operational procedures, and timelines. At the same time, they must integrate macro-level policy provisions with local agricultural development realities, translating abstract policy statements into localized and operable implementation measures. Second, as the rural revitalization process continues to advance, the rule-of-law framework in agriculture is being continuously strengthened. This requires agricultural management personnel to be well-versed in agricultural laws and regulations and to master administrative law enforcement procedures, jurisdictional authority, and enforcement standards. They must be capable of addressing various forms of non-compliance in agricultural production and operation in accordance with the law, while maintaining a balance between strict adherence to policy and legal boundaries and the practical needs of agricultural production, thereby ensuring a stable and orderly agricultural development environment. Finally, rural revitalization involves multiple functional departments, including agriculture and rural affairs, finance, natural resources, water resources, culture and tourism, and market regulation, all of which require coordinated collaboration. Agricultural management personnel must therefore possess strong coordination and integration capabilities, be able to clarify interdepartmental responsibilities, and effectively integrate human, material, and financial resources related to agriculture. By breaking down institutional barriers and overcoming fragmented governance structures, they can foster synergy in rural revitalization efforts and significantly improve overall implementation efficiency.

3.2. Industrial development dimension

Industrial revitalization is the central pillar of rural revitalization and the key mechanism for increasing farmers' income and stimulating endogenous rural development. As agricultural industrial structures continue to be optimized, agriculture is progressively evolving toward intensification, integration, market orientation, and branding. These transformations place increasingly high demands on agricultural management personnel in terms of industrial planning, operational guidance, and resource integration capabilities. First, agricultural management personnel must base their work on the agricultural resource endowment of their jurisdiction and align it with the overall strategic positioning of local rural revitalization. They are expected to scientifically formulate short-term agricultural development plans and medium- to long-term rural industrial development strategies, thereby fostering a rural industrial structure that is rationally distributed, regionally distinctive, and sustainably developed, while avoiding disorderly expansion of industries. Second, many new types of

agricultural business entities—such as family farms, farmer cooperatives, and leading agricultural enterprises—face practical challenges including short industrial chains, low value-added products, weak market competitiveness, and underdeveloped branding systems. Agricultural management personnel are therefore required to systematically understand full agricultural industrial chain operation models, provide guidance on standardized production and operations for these entities, support the development of regional public brands, establish supply–demand matching platforms, and extend agricultural value chains. These efforts contribute to the deep integration of primary, secondary, and tertiary industries in rural areas. Finally, frequent fluctuations in agricultural product prices, rapidly changing market supply-demand conditions, and the impact of natural disasters create multiple operational risks for agricultural development. This requires agricultural management personnel to possess basic market analysis capabilities, continuously monitor agricultural market trends, promptly disseminate relevant market information to farmers and business entities, and guide them in rationally adjusting production and breeding structures so as to mitigate losses caused by blind expansion or misaligned production decisions.

3.3. Grassroots service dimension

The ultimate goal of rural revitalization is to benefit the broad rural population. Agricultural management positions are rooted at the grassroots level in rural areas and directly engage with farmers and various agricultural business entities. Their daily work is closely linked to the production and livelihoods of rural residents. High-quality and efficient grassroots service capability is therefore essential for strengthening relations between cadres and the public, resolving grassroots conflicts, and consolidating social support for rural revitalization. First, rural populations vary significantly in age, educational background, and cognitive perspectives. In processes such as land transfer, distribution of agricultural subsidies, and rural construction projects, disagreements and interest conflicts are easily generated. Agricultural management personnel must patiently listen to the production and livelihood needs of rural residents, the difficulties faced in industrial development, and their genuine concerns. They should communicate and provide policy guidance in plain, accessible language that is closely aligned with rural contexts. At the same time, they must properly mediate disputes, resolve potential grassroots conflicts, and foster a harmonious and stable rural development environment. In addition, they are responsible for ensuring effective communication between higher-level authorities and grassroots communities, accurately reporting local development realities upward while actively striving for the allocation of projects, funding, and policy resources to the grassroots level, thereby helping to address development constraints. Second, as rural revitalization advances, rural residents increasingly demand support in areas such as entrepreneurship and employment, skills training, infrastructure improvement, elderly care and healthcare, and rural public services. Agricultural management personnel must proactively expand their service scope. While implementing various policies that benefit farmers and improve livelihoods, they should also take the lead in organizing practical agricultural skills training and the cultivation of new-type professional farmers. These efforts aim to enhance farmers' production skills and overall development capacity, facilitating a gradual transformation of agricultural managers into comprehensive rural "three-agriculture" service providers capable of meeting diversified rural development needs.

3.4. Innovation practice dimension

Against the backdrop of ongoing digital rural development and agricultural modernization reforms, reliance on traditional working mindsets and outdated management models is increasingly insufficient for meeting the demands of the new era. Innovation and practical application capability has therefore become an advanced core competency for improving the quality and efficiency of rural revitalization and promoting the

transformation and upgrading of agricultural management work. First, new challenges continuously emerge during rural revitalization. Relying solely on past experience often leads to a disconnect from grassroots realities. Agricultural management personnel must adhere to the principle of frontline field investigation, conducting on-site surveys of local agricultural industrial development, the actual effectiveness of policy implementation, and existing weaknesses in rural governance. Through in-depth analysis of the root causes of problems, they should develop feasible and targeted work strategies and optimization plans based on empirical findings. Second, emerging technologies such as big data, the Internet of Things, remote sensing monitoring, smart agricultural machinery, and agricultural product traceability systems are being widely deployed in rural and agricultural sectors. Agricultural management personnel must proactively learn to operate various digital management platforms related to agriculture, and leverage digital tools to streamline workflows and improve management precision. This facilitates the deep integration of digital technologies with agricultural production, grassroots governance, and industrial services. Finally, talent revitalization constitutes the core driving force of rural revitalization. Returnee entrepreneurs, new farmers, and local entrepreneurial groups represent the key force in cultivating new rural business formats and strengthening rural industries. However, many agricultural entrepreneurs currently face challenges such as limited entrepreneurial experience, insufficient access to resources, narrow operational thinking, and weak risk resistance, all of which highlight the urgent need for professional guidance and policy support. Agricultural management personnel must be fully familiar with rural entrepreneurship support policies, entry requirements, and industrial development orientations. They should proactively provide one-stop services for agricultural entrepreneurs, including business planning, project matching, technical guidance, and market linkage, thereby supporting the successful implementation of rural entrepreneurial projects and continuously strengthening the entrepreneurial talent base that drives rural revitalization.

3.5. Comprehensive literacy dimension

Grassroots rural working environments are often harsh, tasks are complex and diverse, and unexpected situations occur frequently. The workload associated with rural revitalization is heavy and time-sensitive. Strong comprehensive literacy therefore serves as a fundamental guarantee for agricultural management personnel to remain rooted in grassroots positions and maintain long-term engagement in agricultural and rural work. First, grassroots agricultural management work is characterized by complexity, unpredictability, and high intensity. Practitioners often face multiple pressures simultaneously, including resistance to policy implementation, diverse and fragmented public demands, and concentrated short-term task surges. Prolonged exposure to high-pressure working environments may easily lead to burnout and emotional imbalance. This requires agricultural management personnel to possess strong psychological resilience, to regulate their emotions scientifically, to face difficulties and setbacks rationally, and to respond calmly to complex grassroots situations. Second, policies and regulations in the "agriculture, rural areas, and farmers" domain, agricultural production technologies, market conditions, and governance concepts are in a constant state of evolution. Agricultural management personnel must therefore establish a mindset of lifelong learning, actively acquire the latest agricultural knowledge, and rapidly comprehend policy directives and task requirements issued by higher authorities. Finally, rural revitalization is a systemic and holistic undertaking that cannot be completed by individuals alone. From agricultural industrial project development and rural environmental improvement to grassroots governance and policy implementation, effective progress depends on teamwork, cadre–mass coordination, and interdepartmental collaboration. Agricultural management personnel must cultivate a strong sense of collective cooperation, actively coordinate with colleagues, ensure rational task

division and efficient workflow integration, and demonstrate initiative and responsibility in critical team-based projects.

4. Construction of a core competency indicator system for the master of agricultural management under the rural revitalization context

Based on an in-depth analysis of the influencing factors and dimensional structure of competency requirements for agricultural management positions under the Rural Revitalization Strategy, and with reference to relevant literature [5–10] as well as consultation results from township-level leaders in western Guangdong and supervisors of Master of Agricultural Management programs at several universities in Guangdong Province, this study initially identified 20 candidate competency items for refinement. A questionnaire survey was then designed based on these 20 competency items and distributed to relevant leaders and staff engaged in grassroots agricultural management in western Guangdong, who were asked to select the competencies they considered most important. A total of 128 valid responses were collected. Subsequently, statistical analysis was conducted, and the top 12 competency items with a selection rate exceeding 50% were extracted and categorized. On this basis, a core competency system for the Master of Agricultural Management was constructed, consisting of four first-level indicators and twelve second-level indicators (see Table 1). Among them, the four first-level indicators represent the core competency dimensions, namely policy implementation capability, management and service capability, innovation and development capability, and environmental adaptability. The twelve second-level indicators represent the specific sub-competencies embedded within these core dimensions.

Table 1. Core competency indicator system for the master of agricultural management under the rural revitalization context

Overall Objective	First-Level Indicators	Second-Level Indicators
Core competencies of Master of Agricultural Management	Policy implementation capability	Policy interpretation capability
		Administrative law enforcement capability
		Administrative coordination capability
	Management and service capability	Planning and management capability
		Industrial operation capability
		Communication and coordination capability
	Innovation and development capability	Field research capability
		Digital intelligence application capability
		Entrepreneurship support capability
	Environmental adaptability	Learning and comprehension capability
		Team collaboration capability
		Stress resilience and adjustment capability

4.1. Policy implementation capability

During the implementation of the Rural Revitalization Strategy, the state has issued a series of agricultural and rural-related policies that serve as key institutional foundations for regulating agricultural development, guiding the transformation and upgrading of modern agriculture, and ensuring the orderly advancement of "agriculture, rural areas, and farmers" work. As high-level applied professionals serving rural revitalization, Master of Agricultural Management graduates must possess policy implementation capability as their core professional competence and fundamental occupational anchor. A strong policy implementation capability ensures the accurate execution of national agricultural policies, the effective realization of policy dividends, and the provision of solid institutional and operational support for high-quality agricultural and rural development. This capability is further composed of three sub-dimensions.

4.1.1. Policy interpretation capability

The agricultural policy system is characterized by hierarchical complexity, broad coverage, and highly detailed regulatory content, spanning multiple domains and frequently updated supporting regulations at various administrative levels. In grassroots agricultural governance and industrial development practice, inaccurate understanding of policy content, unclear boundary definitions, or misinterpretation of applicable contexts may easily lead to policy implementation deviations, inconsistent execution standards, and delayed responses to public concerns. Therefore, precise policy interpretation capability constitutes the prerequisite and foundation for all agricultural and rural-related work undertaken by Master of Agricultural Management professionals. This capability is reflected in the ability to systematically study agricultural laws, regulations, and policy documents issued at central, provincial, municipal, and county levels, and to accurately distinguish among general public-benefit policies, targeted support policies, and restrictive regulatory policies. It also requires a clear understanding of policy subjects, implementation standards, coverage scope, timelines, and core objectives. On this basis, practitioners must be able to deconstruct macro-level policy frameworks in accordance with regional agricultural endowments, industrial foundations, and local conditions, thereby translating abstract policy provisions into operable and context-specific implementation pathways. In addition, they should be able to communicate policies in accessible, plain language to farmers and new types of agricultural business entities, reducing policy gaps at the grassroots level and ensuring that policy benefits are accurately delivered to target populations.

4.1.2. Administrative law enforcement capability

Modern agricultural governance is fundamentally a rule-of-law and standardized governance system. The agricultural sector involves multiple administrative law enforcement domains, including cultivated land protection, agricultural input regulation, agricultural product quality and safety, agricultural machinery safety production, ecological conservation in agriculture, as well as fisheries and livestock supervision. Standardized administrative law enforcement capability is therefore a mandatory requirement for rule-of-law governance in agriculture in the new era and a core competency for Master of Agricultural Management professionals. This capability is reflected in a solid understanding of the statutory authority, enforcement procedures, operational standards, and disciplinary requirements of integrated agricultural law enforcement. It also includes proficiency in practical enforcement tasks such as combating counterfeit agricultural inputs, enforcing cultivated land protection regulations, supervising agricultural product quality and safety, inspecting agricultural machinery safety, and conducting ecological governance in agricultural production environments. Practitioners are expected to routinely carry out grassroots inspections, safety hazard identification, corrective guidance, and lawful enforcement actions. They must adhere to a combination of law-based enforcement, civilized enforcement, and flexible enforcement approaches, strictly uphold fairness and justice in law enforcement, and balance legal rigidity with the practical realities of agricultural production. In doing so, they

contribute to the standardization of agricultural market order and the effective prevention and resolution of legal and regulatory risks in the agricultural sector.

4.1.3. Administrative coordination capability

Rural revitalization is characterized by complex tasks, multiple stakeholders, extensive interdepartmental linkages, and long implementation chains, requiring coordinated efforts among township governments and departments such as finance, natural resources, water resources, and market regulation. Efficient administrative coordination capability is therefore a core mechanism for addressing fragmentation, resource dispersion, and inefficiency in agricultural and rural work, and represents one of the key competencies that distinguishes high-level agricultural management professionals from ordinary grassroots practitioners. This capability is reflected in the ability to coordinate cross-departmental, cross-level, and cross-regional agricultural tasks and to establish effective collaborative working mechanisms. It also requires the capacity to integrate human, material, and financial resources in agriculture to achieve optimal allocation and efficient utilization. In line with annual objectives and regional development priorities, practitioners must be able to formulate phased implementation plans for agricultural work, clearly define task allocations, assign responsibilities, and specify timelines for implementation. They are also responsible for coordinating key tasks such as agricultural project application, implementation, acceptance, and operation; allocation of agricultural subsidies; delivery of livelihood-related rural initiatives; and advancement of industrial development projects. Furthermore, they must prioritize tasks rationally, distinguish between urgent and routine work, and ensure balanced coordination between ongoing operations and key initiatives, thereby guaranteeing the orderly and efficient implementation of all agricultural and rural development tasks.

4.2. Management and service capability

With the continuous advancement of the Rural Revitalization Strategy, the core focus of agricultural management has gradually shifted from singular administrative control and task implementation toward industrial empowerment, precision services, scientific planning, and long-term governance. Management and service capability has therefore become a central lever through which agricultural management professionals perform their duties in the new era. For Master of Agricultural Management graduates, strong management and service capability not only enables the scientific planning of regional agricultural development layouts, but also supports precise services for various agricultural business entities, the improvement of agricultural industrial systems, and the effective alignment with grassroots public needs. It further helps consolidate development synergy and comprehensively empowers the modernization of agriculture and rural areas. This capability consists of the following three sub-dimensions.

4.2.1. Planning and management capability

The quality of regional agricultural development fundamentally depends on sound and scientific planning. The absence of systematic, forward-looking, and locally grounded development planning can easily lead to inefficient allocation of agricultural resources, weak industrial sustainability, and failure to fully leverage distinctive local advantages. Given that Master of Agricultural Management graduates are trained with an interdisciplinary foundation combining management science and agricultural science, planning and management capability constitutes a core competency for guiding high-quality regional agricultural development. This capability is reflected in the ability to conduct in-depth grassroots investigations and comprehensively assess regional agricultural resource endowments and industrial foundations. Based on regional development positioning and trends in modern agriculture, practitioners should be able to scientifically formulate specialized plans such as county- and township-level agricultural industrial development plans, high-standard farmland construction plans, and rural industrial spatial layout plans. They

are also expected to optimize agricultural production structures in line with local comparative advantages and rationally adjust spatial configurations of agricultural production. At the same time, they should actively integrate emerging agricultural formats such as smart agriculture, ecological agriculture, leisure agriculture, and deep processing of agricultural products, thereby promoting iterative upgrading of the agricultural industry. Furthermore, they must coordinate the relationship between agricultural production development, cultivated land protection, and ecological governance, ultimately establishing a modern agricultural development system characterized by high production efficiency, ecological livability, and diversified industrial forms, while designing long-term, implementable regulatory and implementation mechanisms for agricultural development.

4.2.2. Industrial operation capability

Industrial prosperity is the central objective of rural revitalization. At present, many new types of agricultural business entities still face challenges such as short industrial chains, weak brand influence, low risk resilience, and overly homogeneous business models. Possessing strong industrial operation capability is therefore essential for empowering the development of these entities, enhancing agricultural efficiency, expanding farmers' income channels, and stimulating rural industrial vitality. It is also a key competency for Master of Agricultural Management graduates to align with the development needs of modern agriculture. This capability is reflected in familiarity with full industrial chain operation models covering agricultural production, processing, storage, logistics, and marketing, as well as an understanding of the underlying logic of integrated development across primary, secondary, and tertiary industries. It also includes the ability to develop agricultural branding strategies, promote specialty agricultural products through packaging and marketing, apply e-commerce to support agriculture, and design agri-tourism integration projects. Practitioners should be capable of guiding new agricultural business entities toward standardized operations, standardized production, and scaled development. In addition, they must be able to accurately assess fluctuations in agricultural product supply and demand, price trends, and broader industry dynamics, thereby helping business entities mitigate market risks and optimize operational models. By effectively integrating regional agricultural resources, they can promote the development of new industrial forms such as deep processing of agricultural products, rural leisure agriculture, and agricultural e-commerce, extend industrial chains, and facilitate industrial upgrading and efficiency enhancement.

4.2.3. Communication and coordination capability

Grassroots agricultural management directly involves farmers, new types of agricultural business entities, rural collective economic organizations, and village cadres, while also requiring routine coordination with higher-level administrative departments and horizontally related functional agencies. The diversity of stakeholders and the plurality of interests often lead to divergences in work approaches, communication barriers, and grassroots conflicts. Strong communication and coordination capability is therefore a critical prerequisite for ensuring smooth policy implementation, resolving grassroots contradictions, and building consensus for development. It is an essential foundational competency for Master of Agricultural Management graduates engaged in rural governance and agricultural service delivery. This capability is reflected in the ability to deeply engage with grassroots communities, actively listen to the production challenges, development needs, and livelihood expectations of farmers, cooperatives, and agricultural enterprises, and accurately identify key pain points and difficulties in "agriculture, rural areas, and farmers" work. It also requires adaptability in communication contexts, enabling practitioners to use accessible and locally grounded language for dialogue, policy explanation, and work guidance. Furthermore, they must possess upward communication skills, capable of systematically summarizing field conditions, key challenges, work outcomes, and development demands in order to secure policy, project, funding, and resource support from higher authorities. Horizontally, they

should be able to coordinate among functional departments, market entities, and social organizations to build collaborative platforms and consolidate development synergies. Finally, they must also possess grassroots conflict mediation skills, enabling them to properly handle various agricultural-related disputes and create a stable and harmonious environment for agricultural development and rural governance.

4.3. Innovation and development capability

Against the backdrop of the deep integration of rural revitalization and agricultural modernization, traditional extensive modes of agricultural development and management can no longer accommodate emerging trends such as smart agriculture, green agriculture, and integrated agriculture. As high-level applied management professionals, Master of Agricultural Management graduates bear the important responsibility of leading regional agricultural transformation and upgrading. Only through continuous innovation grounded in grassroots realities, iterative refinement of working methods, and upgrading of developmental thinking can they break through structural constraints in agricultural development, foster new industries, models, and growth drivers, and support the transformation of agriculture from a traditional production-oriented sector into a modern, intelligent, and innovation-driven industry.

Innovation and development capability consists of the following three sub-dimensions.

4.3.1. Field research capability

The development of modern agriculture is characterized by rapid change, while grassroots "agriculture, rural areas, and farmers" issues are complex and diverse. Key bottlenecks in industrial development are often embedded at the grassroots level. Without strong field research capability, relying solely on prior experience for decision-making and policy formulation can easily result in strategies that are detached from reality and lack sufficient targeting. For Master of Agricultural Management professionals, field research capability is a fundamental guarantee for accurately understanding the status quo of agricultural development, identifying breakthrough points for innovation, ensuring evidence-based decision-making, and promoting practical innovation. This capability is reflected in the mastery of scientific research methods and the ability to design targeted research plans based on regional agricultural development priorities and challenges, clearly defining research themes, scope, and key directions. It also requires the ability to conduct field visits in farmland, agricultural enterprises, cooperatives, and farming households, and to systematically collect, organize, and analyze agricultural data, case materials, and grassroots issues. Practitioners must be able to move beyond surface-level phenomena to uncover deeper structural contradictions and core constraints in agricultural development. Based on research findings, they should be capable of summarizing successful development experiences, identifying existing problems, and assessing future opportunities, ultimately producing research reports that are data-rich, logically rigorous, and closely aligned with practical conditions. Furthermore, they must be able to propose targeted, innovative, and implementable strategies and development pathways grounded in empirical findings.

4.3.2. Digital intelligence application capability

Digital agriculture and smart agriculture represent the core direction of modern agricultural development. Digital technologies such as big data, the Internet of Things, remote sensing monitoring, and intelligent management systems have been widely applied across the entire agricultural sector. Digital intelligence application capability is therefore an essential core competence for agricultural management professionals in the new era, enabling them to adapt to industrial transformation, support innovation in agricultural governance, and empower the development of smart agriculture. This capability is reflected in the ability to proficiently operate and apply various agricultural digital management tools, including agricultural big data platforms, farmland remote sensing monitoring systems, agricultural product traceability systems, and

intelligent agricultural machinery supervision platforms. It also involves the use of digital technologies for agricultural data collection, aggregation, analysis, and decision-making. Through digital tools, practitioners can optimize administrative workflows and improve the precision and efficiency of agricultural supervision, industrial statistics, and emergency response and risk prevention. In addition, they are expected to actively learn emerging technologies and applications related to smart agriculture and digital rural development, and to promote the deep integration of digital technologies with agricultural production, industrial operations, and grassroots governance in accordance with local development conditions. They should also contribute to the implementation of digital agricultural projects such as smart farmland systems, intelligent farming and breeding, and digital traceability systems, thereby leveraging digital technologies to enhance industrial efficiency and drive innovation in management models [11].

4.3.3. Entrepreneurship support capability

The core driving force of rural industrial revitalization lies in talent development and entrepreneurial innovation. At present, agricultural entrepreneurship groups commonly face challenges such as limited experience, insufficient resources, homogeneous business models, weak risk resistance, and inadequate utilization of policy support, all of which highlight the need for targeted professional guidance and assistance. Master of Agricultural Management professionals equipped with entrepreneurship support capability can effectively empower agricultural entrepreneurs, making this competency a key factor in expanding development pathways and strengthening the foundation of agricultural innovation. This capability is reflected in familiarity with agricultural entrepreneurship support policies, startup procedures, industrial access standards, and rural entrepreneurial development orientations. It includes the ability to provide comprehensive services such as policy consultation, entrepreneurial planning, and project guidance for returnee youth entrepreneurs, new farmers, family farms, and cooperatives. Based on regional resource endowments, practitioners should guide entrepreneurial entities in identifying distinctive agricultural resources, innovating production and cultivation models, business models, and marketing approaches, and fostering new entrepreneurial formats such as specialty agriculture, agricultural e-commerce, and agri-tourism integration. They should also help entrepreneurs mitigate agricultural market risks, natural risks, and operational risks, and optimize business operation plans. Furthermore, they are expected to build platforms for entrepreneurial exchange, resource matching, and production–marketing cooperation, integrating policy, financial, technological, and market resources to support the establishment and scaling of agricultural entrepreneurial projects and to continuously strengthen the rural entrepreneurial talent base [12].

4.4. Environmental adaptability

Grassroots agricultural management is rooted in rural frontline contexts characterized by complex working environments, multifaceted tasks, and frequent contingencies. These conditions place exceptionally high demands on practitioners' comprehensive literacy and adaptability. Only by possessing strong environmental adaptability can Master of Agricultural Management professionals quickly adjust to demanding grassroots conditions, respond effectively to complex situations, maintain stable performance under high pressure and constant change, and steadily advance the high-quality development of agricultural and rural work. Environmental adaptability further consists of the following three sub-dimensions.

4.4.1. Stress resilience and adjustment capability

Grassroots agricultural work is marked by complexity, fragmentation, and unpredictability. Prolonged exposure to high-pressure environments can easily lead to burnout, emotional imbalance, and reduced job engagement. Strong stress resilience and adjustment capability therefore serves as a key safeguard for maintaining work rhythm, responding to emergent challenges, and sustaining long-term commitment to

grassroots positions. This capability is reflected in the ability to calmly manage high-intensity and high-density workloads at the grassroots level, to effectively coordinate multiple concurrent tasks, and to maintain clear thinking and efficient performance during periods of concentrated task execution and critical project delivery. It also requires the capacity to confront difficulties, bottlenecks, and workplace pressures with a positive mindset, to rapidly regulate emotions, and to overcome challenges associated with harsh working environments, fragmented tasks, and implementation obstacles, thereby avoiding negative attitudes such as disengagement or passivity. In the face of emergencies such as agricultural natural disasters, production safety incidents, or sudden grassroots conflicts, practitioners must be able to respond calmly, act decisively, and carry out orderly emergency handling and remedial measures. In addition, they must possess strong emotional regulation and self-adjustment abilities, enabling them to remain rooted in grassroots practice over the long term while consistently maintaining a pragmatic, responsible, and proactive work style.

4.4.2. Learning and comprehension capability

The agricultural sector is undergoing rapid iterative transformation, with new agricultural business forms, technologies, and governance concepts continuously emerging. At the same time, priorities and requirements in "agriculture, rural areas, and farmers" work vary significantly across regions and stages of development. As a result, existing knowledge reserves and accumulated experience alone are insufficient to meet evolving job demands. Strong learning and comprehension capability is therefore a fundamental pathway for Master of Agricultural Management professionals to continuously update their knowledge systems, adapt to industry transformation, and enhance professional competence. This capability is reflected in a proactive learning orientation and the continuous acquisition of the latest agricultural policies and regulations, modern farming and breeding technologies, industrial operation knowledge, digital management skills, and emerging rural governance concepts. It also includes the ability to quickly comprehend policy directives, implementation requirements, and organizational instructions from higher authorities, accurately identify key priorities in phased rural development tasks, and efficiently translate them into concrete operational measures. Furthermore, practitioners should be skilled at summarizing experience and reflecting on shortcomings in their daily work, drawing insights from practical experience, representative case studies, and development models from advanced regions, thereby achieving applied learning and the ability to generalize from specific cases. They must also be able to rapidly adapt to new positions, new tasks, and new requirements, continuously address gaps in knowledge and capability, and update their knowledge structure in a timely manner so as to remain aligned with the demands of modern agricultural management and grassroots governance.

4.4.3. Team collaboration capability

Agricultural and rural development tasks cannot be accomplished by individuals alone. Whether in agricultural project development, industrial cultivation, policy implementation, grassroots governance, emergency response, rural environmental improvement, or agricultural public service delivery, effective progress relies on teamwork, interdepartmental coordination, and collective effort. Strong team collaboration capability is therefore a foundational guarantee for building synergy, improving team efficiency, and completing agricultural and rural tasks effectively. This capability is reflected in a strong sense of teamwork and collective responsibility, with practitioners consciously adhering to organizational arrangements and proactively cooperating with colleagues in completing agricultural and rural work tasks. It also includes the ability to engage in effective task division based on team members' strengths, complementing weaknesses and improving overall efficiency. In cross-departmental and cross-team collaboration, practitioners should actively coordinate, ensure smooth task handovers, facilitate information sharing, and support resource integration. They must also demonstrate respect for collective decisions, strong communication and inclusiveness, and the ability to appropriately manage differences within teams, thereby fostering consensus and shared

understanding. Finally, they should be willing to take initiative and responsibility, stepping in when needed during critical tasks, contributing proactively, and cultivating a cooperative, pragmatic, and results-oriented working atmosphere that collectively advances high-quality agricultural and rural development.

5. Conclusion

The in-depth advancement of the Rural Revitalization Strategy has placed unprecedentedly complex, practice-oriented, and innovation-driven requirements on the competency structure of agricultural management professionals. Grounded in the broader context of rural revitalization, this study systematically examines the driving effects of four key factors—policy and institutional arrangements, industrial development, grassroots governance, and technological transformation—on the competency demands of agricultural management positions. From the perspectives of policy implementation, industrial development, grassroots service, innovation practice, and comprehensive literacy, the study identifies and organizes the core competency requirements of the profession. On this basis, a core competency indicator system for the Master of Agricultural Management is constructed, comprising four first-level indicators—policy implementation capability, management and service capability, innovation and development capability, and environmental adaptability—and twelve corresponding second-level indicators. This indicator system not only responds to the practical demand for high-level "agriculture, rural areas, and farmers" management talent under the Rural Revitalization Strategy, but also provides an actionable theoretical reference for optimizing training programs, reconstructing curriculum systems, and innovating practical teaching models in Master of Agricultural Management education.

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