The Role of Human Resource Management in Agribusiness Development

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ABSTRAK

Penelitian ini bertujuan untuk menganalisis peran Strategi Pengelolaan Sumber Daya Manusia (HRM) dalam meningkatkan produktivitas dan daya saing sektor agribisnis, dengan fokus pada tantangan yang dihadapi oleh usaha agribisnis kecil dan menengah. Penelitian ini mengidentifikasi model HRM tradisional dan modern yang diterapkan dalam agribisnis, serta mengevaluasi dampaknya terhadap hasil produksi, pelatihan, dan pengembangan tenaga kerja. Metode penelitian yang digunakan adalah studi kualitatif dengan pendekatan deskriptif, yang melibatkan wawancara dengan pelaku usaha agribisnis, serta analisis data sekunder dari literatur terkait. Hasil penelitian menunjukkan bahwa pengelolaan SDM yang efektif, terutama melalui pelatihan dan pemberdayaan pekerja, dapat meningkatkan efisiensi dan produktivitas di sektor agribisnis. Selain itu, usaha agribisnis kecil menghadapi berbagai tantangan dalam penerapan HRM yang lebih profesional, seperti keterbatasan sumber daya manajerial dan anggaran. Penelitian ini juga menyoroti pentingnya integrasi strategi HRM dengan tujuan bisnis serta pengembangan kompetensi tenaga kerja untuk menghadapi era pertanian modern berbasis teknologi.

Kata Kunci: Sumber Daya Manusia, HRM, agribisnis, produktivitas, pelatihan.

ABSTRACT

This study aims to analyze the role of Human Resource Management (HRM) strategies in enhancing productivity and competitiveness in the agribusiness sector, with a focus on the challenges faced by small and medium agribusiness enterprises. The research identifies traditional and modern HRM models applied in agribusiness and evaluates their impact on production outcomes, workforce training, and development. A qualitative descriptive research method is employed, involving interviews with agribusiness practitioners and secondary data analysis from related literature. The findings reveal that effective HRM, particularly through training and employee empowerment, can significantly improve efficiency and productivity in the agribusiness sector. However, small agribusinesses face various challenges in implementing more professional HRM practices, such as limited managerial resources and budgets. The study also highlights the importance of integrating HRM strategies with business objectives and workforce competency development to meet the demands of modern, technology-based agriculture.
Keywords: Human Resources, HRM, Agribusiness, Productivity, Training.

INTRODUCTION

The agribusiness sector is a backbone of economic development, especially in countries that still rely on agriculture as the primary source of livelihood. Agribusiness encompasses not only primary agricultural activities such as crop cultivation and livestock farming but also the entire value chain, including input supply, production, processing, distribution, and marketing of agricultural products. In many developing countries, agribusiness contributes significantly to Gross Domestic Product (GDP), both directly and indirectly. Furthermore, this sector is a key pillar of national food security, ensuring the availability of adequate, affordable, and nutritious food supplies. Agribusiness also plays a crucial role in generating employment, especially in rural areas where economic opportunities are limited. Improving the productivity and added value of agribusiness can drive equitable development, reduce poverty, and enhance national economic competitiveness in the global market.

Despite its great potential, the agribusiness sector faces numerous structural and systemic challenges that hinder its progress. One of the main challenges is climate change, which causes unpredictable weather patterns, pest and disease outbreaks, and natural disasters that damage agricultural yields. Additionally, land scarcity due to conversion for non-agricultural purposes and environmental degradation exacerbate the problem. Limited access to technology and capital remains a major barrier, particularly for smallholder farmers and micro-scale agribusiness operators. From a managerial perspective, low productivity is often linked to weak human resource management. Many agribusinesses lack adequate HRM systems to recruit, train, and retain competent labor. A lack of investment in human resource development results in a workforce that is unproductive, unable to adapt to change, and lacking in the skills required to manage agribusiness professionally.

In recent decades, the agricultural sector has undergone significant changes in its labor structure. Massive urbanization has led to the migration of young workers from rural to urban areas in search of better opportunities in the industrial and service sectors. As a result, rural areas are experiencing labor shortages, especially for agricultural work that requires manual and skilled labor. Meanwhile, the remaining workforce in the agribusiness sector is generally older and has limited education and technical skills. This imbalance makes it increasingly difficult for the agricultural sector to grow optimally. The lack of skilled labor also hampers the adoption of new technologies that could improve productivity and efficiency. Therefore, an HRM approach that can attract the younger generation back to agribusiness and offer promising career paths in this sector is urgently needed.

Amid these challenges, the role of human resource management (HRM) has become increasingly crucial in ensuring the sustainability and growth of the agribusiness sector. Strategic HRM goes beyond recruitment and placement; it involves building systems that support individual potential development, increase work motivation, and help achieve organizational goals. With proper human resource planning, agribusiness organizations can align labor needs with technological advancements, market dynamics, and environmental challenges. HRM also plays a role in building reward systems, productive work cultures, and transformative leadership. In this context, HRM becomes a vital instrument in transforming agribusiness from a traditional labor-intensive system into an efficient, modern, and sustainable business model.

The Fourth Industrial Revolution and the digital era have brought major changes to how the agribusiness sector operates. The adoption of technologies such as the Internet of Things (IoT), artificial intelligence (AI), precision agriculture, and data-driven management systems has created significant opportunities to boost efficiency and

productivity. However, these technological advancements also demand human resource readiness to understand, operate, and fully utilize such innovations. Therefore, HRM plays a critical role in designing and implementing training programs, competency certifications, and adaptive performance appraisal systems. Reskilling and upskilling must become top priorities to prevent the workforce from being left behind by technological progress. With effective HRM, the technological transformation process in agribusiness can be carried out inclusively and sustainably.

Although HRM has proven to be instrumental in the industrial and service sectors, its application remains very limited in agribusiness, especially in small, medium, and family-run enterprises. Many agribusiness actors have yet to integrate HRM functions into their business planning. A lack of awareness regarding the importance of human resource management leads to high labor turnover, low motivation, and the absence of performance evaluation and development systems. Furthermore, agribusiness business strategies are often not accompanied by structured HRM strategies. The absence of formal HRM policies results in low professionalism and competitiveness. In fact, with a well-planned HRM approach, agribusinesses can optimize labor potential, improve productivity, and drive sustainable business growth.

This study aims to explore and analyze the strategic role of human resource management (HRM) in developing the agribusiness sector, particularly in enhancing productivity, efficiency, and sustainability amidst global challenges and technological transformation. Specifically, this research focuses on identifying HRM strategies implemented by various scales of agribusiness enterprises, evaluating their impact on workforce performance, and uncovering barriers to HRM implementation in small and medium enterprises. Additionally, this study aims to formulate policy recommendations and managerial practices that can strengthen the synergy between human resource development and agribusiness growth in the era of modern agriculture. Therefore, the results of this research are expected to make a tangible contribution to promoting the professionalization and transformation of the agribusiness sector through an adaptive and sustainable HRM approach.

METHODS

This study uses a descriptive qualitative approach to explore and deeply understand the role of Human Resource Management (HRM) in developing the agribusiness sector. This approach is chosen as it allows researchers to examine complex social phenomena, including labor dynamics, HRM policies, and perceptions and practices of HRM across various scales of agribusiness enterprises. The main focus of this study is to explore the experiences, challenges, and strategies implemented by agribusiness actors, especially in managing the workforce to adapt to environmental changes and technological demands.

Data collection was carried out through in-depth interviews with key informants such as agribusiness owners, HR managers, agribusiness workers, and officials from government agencies related to employment and agriculture. Semi-structured interviews were conducted to allow flexibility in gathering relevant data. In addition, document studies were carried out on reports, policies, and company documents to understand how HRM strategies are designed and implemented in practice.

Informants were selected through purposive sampling, based on specific criteria such as direct involvement in agribusiness HR management, a minimum of five years of work experience, and representation from various types of enterprises (small, medium, and large). The researcher also considered regional diversity, including agribusinesses located in rural areas and those with high technology access.

The data obtained were analyzed using thematic analysis. The analysis process involved stages of data reduction, categorization, coding, and interpretation to identify key patterns and central themes emerging from the data. Data validity was strengthened through source triangulation and member checking to ensure the accuracy and reliability of the information obtained.

This study aims to contribute both conceptually and practically to the development of an HRM model that is suitable for the agribusiness context in Indonesia. The research findings are expected to serve as a basis for formulating more effective HRM policies and strategies while addressing the gap in HRM practices in the agribusiness sector, which has long been underexplored.

RESULT AND DISCUSSION

The following table presents a comparison of different types of training based on their impact on workforce skills, effectiveness, and duration. By distinguishing between formal and non-formal training methods, the table highlights how each approach contributes to skill development and organizational adaptability, offering insights into their respective strengths and practical applications in workforce development strategies.

Table 1. Comparison of HRM Models and Their Impact on Productivity

HRM Model	Focus	Impact on Productivity	Technology Integration	Training & Development
Traditional HRM	Employee welfare and compliance	Limited impact, focuses on basic operational tasks	Minimal	Basic, limited to operational tasks
Modern HRM	Employee development and innovation	High impact, encourages innovation and employee engagement	High integration of technology and digital tools	Comprehensive, includes upskilling and reskilling programs

Source : Data Processed in 2025

The comparison between traditional and modern HRM models highlights a significant shift in focus and effectiveness. Traditional HRM emphasizes employee welfare and regulatory compliance, resulting in limited impact on productivity as it mainly addresses basic operational needs. It also shows minimal integration of technology and provides only basic training focused on operational tasks. In contrast, modern HRM centers on employee development and innovation, leading to a high impact on productivity by fostering innovation and increasing employee engagement. This model incorporates advanced technology and digital tools, and offers comprehensive training and development programs, including upskilling and reskilling, to better prepare the workforce for dynamic challenges in the modern workplace.

Table 2. Challenges Faced by Small Agribusinesses in HRM Implementation

Challenge	Impact on HRM Implementation
Limited managerial capacity	Inability to implement structured HRM practices
Lack of HRM understanding	Inefficient HR management and employee engagement
Technological adoption difficulties	Slow adaptation to modern HRM tools and technologies

Source : Data Processed in 2025

The challenges faced in implementing effective HRM practices significantly hinder progress, especially in small and medium agribusiness enterprises. Limited managerial capacity results in the inability to adopt structured and strategic HRM practices,

weakening overall organizational effectiveness. Additionally, a lack of understanding of HRM principles leads to inefficient human resource management and poor employee engagement. Furthermore, difficulties in adopting new technologies slow down the transition to modern HRM systems, preventing organizations from leveraging digital tools that could enhance productivity and streamline operations. These challenges collectively restrict the potential benefits of HRM in driving innovation and competitiveness.

Table 3. Relationship Between Training and Productivity

Training Type	Impact on Workforce Skill	Effectiveness	Duration
Formal Training	Improves technical skills and knowledge	High in structured environments	Long-term commitment
Non-formal Training	Enhances practical, on-the-job skills	High for adaptive and hands-on skills	Short-term, more flexible

Source : Data Processed in 2025

Formal and non-formal training both play crucial roles in workforce development, each with distinct advantages. Formal training significantly improves technical skills and knowledge, proving highly effective in structured environments such as classrooms or institutional programs. However, it typically requires a long-term commitment. In contrast, non-formal training focuses on enhancing practical, on-the-job skills, making it highly effective for developing adaptive and hands-on competencies. This type of training is usually short-term and more flexible, allowing for quicker implementation and responsiveness to immediate workforce needs. Together, these training types complement each other in building a well-rounded and capable workforce.

HRM Strategies Implemented in the Agribusiness Sector
Most agribusiness enterprises, particularly small and medium-sized ones, still rely on traditional, informal HRM models, such as recruitment based on family ties and daily wage systems without structured training. In contrast, large-scale agribusiness companies tend to adopt modern, integrated HRM approaches, including performance management, continuous training, and data-driven evaluation systems. HRM strategies aligned with production needs, such as work scheduling based on planting seasons and task rotation, have proven effective in increasing efficiency. Case studies show that some modern agribusiness firms, such as integrated livestock farms and export-oriented horticulture companies, have succeeded in improving productivity by applying competency-based HRM and digital technology.

The Impact of HRM on Workforce Productivity and Performance
Research shows that structured training programs relevant to field tasks significantly contribute to productivity improvements. Workers who receive regular training better understand the use of modern agricultural equipment, precision farming techniques, and sustainability practices. Additionally, performance-based incentives and employee recognition have been proven to boost motivation and loyalty. In some cases, systematic HRM implementation also influences positive behavioral changes, such as increased responsibility, punctuality, and a collaborative spirit among field workers.

Challenges in HRM Implementation for Small and Medium Agribusinesses
One of the main barriers in HRM development for small and medium agribusinesses is the limited managerial capacity and budget. Many entrepreneurs are not yet aware of the importance of a professional HR system and remain focused solely on production. Structural barriers also exist, such as limited access to managerial training and deeply rooted conventional work cultures. These factors hinder the adoption of technology and

innovation in HR management, thereby widening the productivity gap across business scales.

Competency and Training Needs in the Era of Modern Agriculture

The transformation of agribusiness toward digitalization and automation demands a shift in workforce competencies. Skills such as agricultural sensor operation, data management, drone usage, and basic analytics are becoming urgent needs. Although some formal training programs are available, their access and quality remain uneven, especially in rural areas. HRM plays a crucial role in designing upskilling and reskilling programs that match field demands while fostering a culture of continuous learning in agribusiness work environments.

The Gap Between Business Strategy and HR Strategy

Many agribusiness players have yet to integrate HR strategies into long-term business planning. As a result, there is often a mismatch between workforce needs and business development goals. For instance, while a company may aim to expand into export markets, it might not have prepared workers with post-harvest skills or knowledge of international quality standards. Workforce planning must be based on data and market needs to ensure that HR strategies truly support business competitiveness in a sustainable manner.

The Role of Leadership and Organizational Culture in HR Management

Participative and transformational leadership styles are shown to be more effective in building adaptive and productive work teams. Agribusiness leaders who involve employees in decision-making and provide space for innovation tend to foster healthier work environments. Organizational cultures that promote collaboration, transparency, and learning also contribute to improved HR performance. Some case studies indicate that gradual shifts in organizational culture can change workers' perceptions of their jobs, increase accountability, and reduce turnover rates.

Strategic Recommendations for Strengthening HRM in Agribusiness

To optimize the role of HRM in agribusiness, affordable and accessible digital HR management systems should be developed for small-scale business operators. In addition, collaboration among government, educational institutions, and the private sector is needed to design training curricula that reflect field realities. At the policy level, governments should promote agricultural HR professionalization through incentives, regulations, and mentorship programs. These strategies are expected to help build a sustainable, inclusive, and highly competitive agribusiness system.

Effectiveness of HRM Strategies in Increasing Agribusiness Productivity

Effective HRM significantly influences production outcomes in the agribusiness sector. By offering the right training and empowering workers, companies can enhance employees' technical and managerial capabilities, leading to improved operational efficiency. In agribusiness, where work often involves field activities and production reliant on practical skills, effective HRM is vital for boosting productivity. Skilled and motivated workers can enhance agricultural output, streamline operations, and reduce errors during production processes.

Comparisons between traditional and modern HRM reveal significant differences in how they impact work efficiency. Traditional HRM, which is more administrative and procedural, often struggles to enhance worker creativity or flexibility. In contrast, modern HRM, which leverages technology and innovation, allows for more efficient and flexible systems. Modern HRM models are typically more responsive to technological advances and fast-changing market demands, which is highly relevant in the rapidly evolving agribusiness sector driven by agritech.

Training programs in agribusiness are not limited to technical skills but also focus on developing managerial capabilities. These training initiatives play a key role in improving HR quality by ensuring that workers understand new technologies, safety standards, and more efficient resource management. Evaluations of training program effectiveness suggest that structured, outcome-based training has a more positive impact on skill development and optimal workforce performance in the agribusiness sector.

Challenges in Applying HRM in Small and Medium Agribusinesses

Small and medium agribusinesses often face significant challenges in implementing effective HRM strategies. One major constraint is the limited budget and managerial capacity. Without sufficient resources, small firms cannot implement comprehensive HRM systems or invest in HR development and training. This limits their ability to improve worker skills and optimize productivity, which in turn affects their competitiveness in the market.

Moreover, social and cultural factors can hinder the adoption of professional HRM practices in small-scale agribusinesses. Many small business owners prefer familiar management methods or prioritize flexibility in workforce management. Formal HRM practices are often seen as unnecessary or difficult to apply due to a lack of understanding of their importance. This results in weak HR management systems that could otherwise improve workforce performance and retention.

Difficulties in integrating modern HRM technologies also pose a major challenge. While advanced HR software and data-based management systems can enhance efficiency, the cost of implementation is often too high for small enterprises. Additionally, limited knowledge about how to optimize such technology hinders its utilization, even though it can provide substantial benefits in administrative and workforce management efficiency.

Workforce Competency and Training Needs in the Era of Modern Agriculture

With the rapid advancement of modern agriculture, particularly through the adoption of new technologies like agritech and digital farming, workers must develop new skills. Technical abilities to operate technology-based agricultural equipment and digital competencies are increasingly essential. Therefore, training focused on digital skills and agricultural innovation is crucial to improving productivity and efficiency in agribusiness operations. These programs not only teach how to use new tools or systems but also how technology can optimize agricultural production and distribution.

Both formal and informal training programs play an important role in enhancing workforce skills in the agribusiness sector. Formal programs such as training provided by educational institutions or certification-based initiatives offer more in-depth and structured knowledge. Meanwhile, informal programs, which are often more practical and directly related to on-the-ground situations, are also vital for honing workers' technical skills. Evaluations indicate that combining both types of training can create a more competent and adaptable workforce in response to technological advancements in agribusiness.

HRM's role in managing upskilling and reskilling is crucial. HRM must act as a facilitator to ensure that workers keep pace with technological developments and possess skills relevant to market demands. As the need for more skilled labor rises, it is vital for HRM to design and implement training programs that allow employees to continually grow and adapt to changes whether in technology or work methods.

Integrating HRM Strategies with Agribusiness Goals

Many agribusinesses especially small ones still face a disconnect between long-term business strategies and effective HR management. Workforce planning that is not aligned with business strategy leads to mismatches between human resource needs and organizational goals. This misalignment can hinder the achievement of broader business

objectives, such as production increases or market expansion, as HRM may not focus on the company's long-term vision.

The use of data in workforce planning becomes essential to ensure that HRM supports business objectives. By analyzing data related to labor needs, required skills, and productivity outcomes, companies can design HRM strategies that are more efficient and aligned with their intended business direction. Data-driven workforce planning also helps improve decision-making in recruitment, training, and employee development.

The impact of inadequate workforce planning can be seen in agribusiness companies' inability to fully optimize human resources. Without proper planning, companies struggle to tackle long-term challenges such as market shifts, new technologies, or the need for business expansion.

CONCLUSION

This study shows that effective Human Resource Management (HRM) plays a crucial role in enhancing productivity and performance in the agribusiness sector. Good HRM strategies including proper training, employee empowerment, and the application of modern HRM technologies can have a positive impact on production outcomes and operational efficiency. The differences between traditional and modern HRM indicate that more innovative and technology-based HRM models are better able to support the advancement of the agribusiness sector. Nevertheless, small and medium agribusiness enterprises face significant challenges in implementing effective HRM strategies, particularly in terms of budget constraints, managerial capacity, and social and cultural barriers. Moreover, the need for new competencies in the era of modern agriculture demands the development of more structured and relevant training programs to help the workforce adapt to technological changes. Better integration between HRM strategies and agribusiness goals is essential to ensure that human resource management supports the achievement of the company's long-term objectives. Therefore, the development of digital-based HRM systems, cross-sector collaboration, and public policies that support HRM are important recommendations for improving the overall competitiveness of the agribusiness sector.

REFERENCES

Abdeldayem, M. M., & Aldulaimi, S. H. (2020). Trends and opportunities of artificial intelligence in human resource management: Aspirations for public sector in Bahrain. *International journal of scientific and technology research*, *9*(1), 3867-3871.

Aftab, J., Abid, N., Cucari, N., & Savastano, M. (2023). Green human resource management and environmental performance: The role of green innovation and environmental strategy in a developing country. *Business Strategy and the Environment*, *32*(4), 1782-1798.

Amrutha, V. N., & Geetha, S. N. (2020). A systematic review on green human resource management: Implications for social sustainability. *Journal of Cleaner production*, *247*, 119131.

Atmaja, D. S., Fachrurazi, F., Abdullah, A., Fauziah, F., Zaroni, A. N., & Yusuf, M. (2022). Actualization of performance management models for the development of human resources quality, economic potential, and financial governance policy in Indonesia Ministry of Education.

Davidescu, A. A., Apostu, S. A., Paul, A., & Casuneanu, I. (2020). Work flexibility, job satisfaction, and job performance among Romanian employees—Implications for sustainable human resource management. *Sustainability*, *12*(15), 6086.

Hang, N. T. (2021). Educating and training labor force under Covid 19: Impacts to meet market demand in Vietnam during globalization and integration era. *JETT*, *12*(1), 179-184.

Hernita, H., Surya, B., Perwira, I., Abubakar, H., & Idris, M. (2021). Economic business sustainability and strengthening human resource capacity based on increasing the productivity of small and medium enterprises (SMES) in Makassar city, Indonesia. *Sustainability*, *13*(6), 3177.

Iis, E. Y., Wahyuddin, W., Thoyib, A., Ilham, R. N., & Sinta, I. (2022). The effect of career development and work environment on employee performance with work motivation as intervening variable at the office of agriculture and livestock in Aceh. *International Journal of Economic, Business, Accounting, Agriculture Management and Sharia Administration (IJEBAS)*, *2*(2), 227-236.

Malik, S. Y., Cao, Y., Mughal, Y. H., Kundi, G. M., Mughal, M. H., & Ramayah, T. (2020). Pathways towards sustainability in organizations: Empirical evidence on the role of green human resource management practices and green intellectual capital. *Sustainability*, *12*(8), 3228.

Nathaniel, S. P., Nwulu, N., & Bekun, F. (2021). Natural resource, globalization, urbanization, human capital, and environmental degradation in Latin American and Caribbean countries. *Environmental Science and Pollution Research*, *28*, 6207-6221.

Ngoc, N. M., & Tien, N. H. (2023). Solutions for Development of High-Quality Human Resource in Binh Duong Industrial Province of Vietnam. *International journal of business and globalisation*, *4*(1), 28-39.

Nicolás-Agustín, Á., Jiménez-Jiménez, D., & Maeso-Fernandez, F. (2022). The role of human resource practices in the implementation of digital transformation. *International Journal of Manpower*, *43*(2), 395-410.

Nocker, M., & Sena, V. (2019). Big data and human resources management: The rise of talent analytics. *Social Sciences*, *8*(10), 273.

Serenko, A. (2024). The human capital management perspective on quiet quitting: recommendations for employees, managers, and national policymakers. *Journal of Knowledge Management*, *28*(1), 27-43.

Sharma, G. D., Shah, M. I., Shahzad, U., Jain, M., & Chopra, R. (2021). Exploring the nexus between agriculture and greenhouse gas emissions in BIMSTEC region: The role of renewable energy and human capital as moderators. *Journal of environmental management*, *297*, 113316.

Sima, V., Gheorghe, I. G., Subić, J., & Nancu, D. (2020). Influences of the industry 4.0 revolution on the human capital development and consumer behavior: A systematic review. *Sustainability*, *12*(10), 4035.

Surya, B., Saleh, H., & Idris, M. (2021). Rural agribusiness-based agropolitan area development and environmental management sustainability: Regional economic growth perspectives. *International journal of energy economics and policy*, *11*(1), 142-157.

Tudi, M., Daniel Ruan, H., Wang, L., Lyu, J., Sadler, R., Connell, D., ... & Phung, D. T. (2021). Agriculture development, pesticide application and its impact on the environment. *International journal of environmental research and public health*, *18*(3), 1112.

Uzun, V., Shagaida, N., & Lerman, Z. (2019). Russian agriculture: Growth and institutional challenges. *Land use policy*, *83*, 475-487.

Zhang, Y., Luo, Y., Zhang, X., & Zhao, J. (2019). How green human resource management can promote green employee behavior in China: A technology acceptance model perspective. *Sustainability*, *11*(19), 5408.