

# HUMAN RESOURCE MANAGEMENT INNOVATION IN INCREASING AGRICULTURAL PRODUCTIVITY

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## ABSTRACT

*Agriculture as a strategic sector requires an innovative management approach to face global challenges in meeting increasing food needs. This research aims to investigate and analyze the implementation of human resource management (HR) innovation in the agricultural sector with a focus on increasing agricultural productivity. This research uses a qualitative approach with descriptive methods. The research results show that the implementation of Human Resources (HR) management innovations in the agricultural sector has a positive impact on production results and farmer welfare. Steps such as contextual training, application of information and communication technology, performance-based approaches, as well as empowerment through the formation of groups or cooperatives, and risk management make a significant contribution to increasing agricultural efficiency and sustainability. Farmers involved in these innovations demonstrate improved skills, access to information, efficient collaboration and the ability to manage risk. Thus, the results of this research provide a strong basis for stakeholders to adopt and expand the implementation of HR management innovations to encourage more adaptive, competitive and sustainable agriculture in the future.*

**Keywords:** *Innovation, Human Resource Management, Agricultural Productivity*

## I. INTRODUCTION

Indonesia, as an agricultural country, faces serious challenges related to agricultural productivity, which is the main livelihood for the majority of its population (Indraningsih, 2017). Currently, there is a significant decline in the results of processing rice fields, both in terms of quality and quantity. In-depth research indicates that one of the main factors causing this decline is the level of human resources (HR) which is still very low (Azahari, 2000). Farmers, as the spearhead of the agricultural sector, need increased skills, knowledge and management in carrying out agricultural activities (Latief et al, 2022).

The low level of human resources (HR) in the agricultural sector in remote areas can be attributed to the lack of available counseling (Ridwan et al, 2020). The existence of agricultural extension is crucial for increasing farmers' knowledge and skills in managing land, caring for plants, and dealing with various aspects of post-harvest handling effectively (Handono et al, 2020). Without adequate access to information and technical guidance, farmers tend to rely on traditional methods or handed down experiences that may not always be compatible with modern agricultural practices (Anantanyu, 2011).

Limited Human Resources (HR) and the lack of interest of the younger generation in the agricultural sector have a serious impact on the competitiveness of agricultural products in the global market (Arsanti, 2013). To overcome this challenge, strategic targets are needed that focus on increasing the productivity of superior commodities such as food crops, horticulture and plantation crops. In addition, improving the quality of counseling is key, by providing information and technical guidance that is relevant and easily accessible (Wahyudi, 2018). Growing the interest of the younger generation in the agricultural sector is also a priority, with strategic steps that include increasing the productive workforce in the agricultural sector and empowering farmer corporation-based agribusiness (Salamah, 2021)

Human Resources (HR) in the adaptive agricultural sector have a crucial role in responding to the complex dynamics of social, economic and environmental change (Hakim, 2014). The success of resilient agriculture is not only reflected in its ability to produce sustainably, but also in its ability to survive and adapt to unexpected changes (Sufyadi, 2015). Adaptive agricultural human resources must consider aspects such as fluctuating market changes, weather uncertainty and the threat of pest attacks. Concrete examples could include the ability to withstand the shocks of market volatility through effective risk management strategies, adapting agricultural technology to suit climate change, and increasing crop resistance to pest attacks (Tarigan, 2021). By focusing on resilience and adaptability, adaptive agricultural human resources can be the key to maintaining the sustainability of the agricultural sector in facing growing challenges.

Human Resources (HR) in the agricultural sector must also be innovative in order to understand and respond to dynamic aspects of change in agricultural development (Marina, 2017). This includes transformations in knowledge systems as well as accepting and applying new concepts such as New Agriculture. Innovation in the agricultural sector is an important need, especially for the millennial generation of farmers who play a key role in driving progress in this sector (Setiani et al, 2021). Agricultural human resource innovation can involve improving skills in efficient production, utilizing the latest technology, in-depth understanding of market dynamics, and adapting to institutional changes. By becoming agents of innovation, millennial farmers can create an agricultural system that is more adaptive, sustainable and able to compete at the global level. Top of Form

Abdurrahmat (2006) stated that human resources are the most important wealth and capital of every human activity. As the most important element, humans must be developed and analyzed in this way. For organizational or individual needs, ability, energy and time can be used optimally. Human resources have always been the object and subject of

development as the first and main factor in the development process. Human resource management also has a big influence on the administrative process.

According to Armstrong & Taylor (2020), the components of human resource development are (1) Learning, namely the process when each person develops and acquires abilities, behavior, knowledge, attitudes and skills. This involves modifying attitudes with experience or more formal stages that can provide assistance to people learning both inside and outside the workplace; (2) development, namely the realization or growth of a person's potential and abilities by providing educational and learning experiences; (3) training, namely the systematic application of formal processes in helping people and imparting knowledge to obtain the skills needed so that the work carried out can run smoothly; (4) education, namely the values, understanding and development of knowledge needed in all aspects of life compared to skills and knowledge related to several areas of certain activities.

This research aims to investigate the role of Human Resources (HR) management innovation in increasing the productivity of the agricultural sector in Indonesia, with a focus on improving the quality and efficiency of agricultural practices. By understanding the obstacles to low human resources in the agricultural sector, this research is expected to provide in-depth insight into the impact of implementing HR management innovations on increasing productivity and farmer welfare. The benefits of this research involve the potential for significant improvements in aspects such as land management, plant care, and post-harvest handling, which could overall increase the competitiveness of local agricultural products. In addition, this research can provide a basis for developing more effective policies and training programs, aimed at improving the skills and knowledge of agricultural human resources in Indonesia, especially in marginalized areas.

## II. LITERATURE REVIEW

### A. *Human Resource Management*

Human Resource Management (HRM) refers to the strategic approach to managing an organization's most valuable asset: its people. This field encompasses various functions and activities aimed at effectively utilizing and developing human resources to achieve organizational goals and objectives. The key areas of focus in Human Resource Management include recruitment, selection, training and development, performance management, compensation and benefits, employee relations, and workforce planning. Here are some key components and functions of Human Resource Management:

1) Recruitment and Selection (Malik et al. 2020):

Attracting and hiring qualified individuals who fit the organization's culture and contribute to its success.

2) Training and Development (Dirani et al., 2020):

Providing employees with the necessary skills and knowledge to perform their jobs effectively and supporting their ongoing professional growth.

3) Performance Management (Mousa and Othman, 2020):

Evaluating and managing employee performance to ensure alignment with organizational goals and providing feedback for improvement.

4) Compensation and Benefits (Anwar and Abdullah, 2021):

Designing and administering fair and competitive salary and benefit programs to attract, retain, and motivate employees.

5) Employee Relations (Duggan et al., 2020):

Managing relationships between employees and the organization, addressing concerns, and fostering a positive work environment.

6) Workforce Planning (Abdeldayem and Abdulaimi, 2020):

Anticipating and planning for the organization's future workforce needs to ensure the right people are in the right roles at the right time.

7) Compliance and Legal Issues (Stahl et al., 2020):

Ensuring that HR practices comply with labor laws and regulations, promoting a fair and ethical workplace.

8) Employee Engagement (Cherif, 2020):

Promoting a positive and inclusive work culture where employees are motivated, satisfied, and committed to their work.

Effective Human Resource Management is crucial for organizational success as it contributes to employee satisfaction, productivity, and overall business performance. It involves aligning HR practices with the strategic goals of the organization and adapting to the evolving needs of the workforce.

### *B. Human Resource Management Innovation*

Human Resource Management (HRM) innovation refers to the introduction of new and creative approaches, strategies, and technologies in managing the human capital within an organization. It involves adopting novel methods to enhance HR processes, employee engagement, talent management, and overall organizational effectiveness. HRM innovation is crucial for staying competitive in a rapidly changing business environment and addressing the evolving needs and expectations of the workforce. Here are some aspects of HRM innovation:

1) Technology Integration:

Implementing advanced HR technologies, such as artificial intelligence (AI), machine learning, and HR analytics, to streamline processes like recruitment, performance management, and employee data management (Sharma, 2023); (Varshney, 2020); (Haque, 2020); (Johar and Singh, 2023).

2) Digital HR Platforms:

Utilizing digital platforms and cloud-based HR solutions for more efficient and accessible human resource administration, employee self-service, and data management.

3) Employee Experience:

Focusing on creating a positive and personalized employee experience by introducing innovative benefits, flexible work arrangements, and wellness programs.

4) Learning and Development:

Incorporating innovative learning methods, such as e-learning, virtual reality, and microlearning, to enhance employee skills and adaptability.

5) Performance Management Redesign:

Moving away from traditional performance appraisal methods and adopting continuous feedback, real-time performance tracking, and goal-setting tools.

6) Agile HR Practices:

Embracing agile methodologies in HR processes, allowing for quicker adaptation to changing business needs and fostering a more responsive organizational culture.

7) Data-Driven Decision-Making:

Using HR analytics to gather insights from employee data, enabling more informed decision-making related to talent acquisition, retention, and workforce planning.

8) Diversity and Inclusion Initiatives:

Implementing innovative strategies to promote diversity and inclusion, such as unconscious bias training, mentorship programs, and inclusive hiring practices.

9) Remote Work Policies:

Developing and implementing policies and tools that support remote work, especially in response to global trends and events that impact the way work is conducted.

10) Collaborative HR Platforms:

Using collaborative tools and platforms to enhance communication and teamwork within HR departments and across the organization.

HRM innovation is essential for organizations aiming to attract, retain, and develop top talent while adapting to the challenges and opportunities presented by a dynamic business landscape. It involves a continuous effort to explore, test, and implement new ideas that improve HR processes and contribute to the overall success of the organization.

### *C. Agricultural Productivity*

Agricultural productivity refers to the efficiency with which agricultural inputs, such as land, labor, seeds, and capital, are used to produce agricultural outputs, including crops and livestock (Liu et al., 2020). It is a measure of the quantity and quality of agricultural products produced per unit of input. Agricultural productivity is a key factor in determining the overall efficiency and sustainability of agricultural systems. Several factors influence agricultural productivity (Yasmin et al., 2022); (Ahmadzai et al., 2021); (Ramzan and Li, 2023):

- 1) **Technological Advances:** The adoption of advanced agricultural technologies, such as improved seeds, fertilizers, pesticides, and machinery, can significantly enhance productivity by increasing yields and reducing resource wastage.
- 2) **Crop Management Practices:** Effective crop management, including proper irrigation, crop rotation, and pest control, can contribute to increased productivity by optimizing resource use and minimizing losses.
- 3) **Research and Development:** Ongoing research and development in agriculture lead to the discovery of new and improved varieties of crops, better farming practices, and innovative technologies that can boost productivity.
- 4) **Infrastructure:** Access to essential infrastructure, such as reliable transportation, storage facilities, and markets, is crucial for ensuring that agricultural products reach consumers efficiently, reducing post-harvest losses, and improving overall productivity.
- 5) **Education and Extension Services:** Providing farmers with access to education, training, and extension services helps disseminate knowledge about modern farming techniques, sustainable practices, and the effective use of inputs.
- 6) **Policy Environment:** Government policies related to land tenure, subsidies, trade, and agricultural research can influence productivity. Supportive policies can create an environment conducive to increased agricultural output.
- 7) **Climate and Weather Conditions:** Climate plays a significant role in agricultural productivity. Favorable weather conditions, including adequate rainfall and temperature, contribute to optimal crop growth and yields.
- 8) **Market Access:** Access to markets and fair prices for agricultural products incentivize farmers to invest in their operations, leading to increased productivity.
- 9) **Sustainable Practices:** Adopting sustainable agricultural practices, such as organic farming and conservation agriculture, can contribute to long-term productivity by maintaining soil health and minimizing environmental impact.
- 10) **Globalization:** Integration into global markets can provide farmers with opportunities to access a larger consumer base, leading to increased productivity and income.

Monitoring and improving agricultural productivity are essential for ensuring food security, economic development in rural areas, and the sustainable use of natural resources. Efforts to enhance productivity often involve a combination of technological innovation, education and training, policy support, and infrastructure development.

### III. RESEARCH METHODOLOGY

This research uses a qualitative approach with descriptive methods. Qualitative methods are often referred to as naturalistic research methods because the research is conducted in natural conditions (natural setting). (Sigiyono, 2009:8) Qualitative methods are defined as research methods in the social sciences that collect and analyze data in the form of words and actions of humans. Researchers do not attempt to calculate or quantify the qualitative data obtained, and therefore, they do not analyze numerical values (Afrizal, 2016:13).

According to Nana Syaodih Sukmadinata (2011: 73), qualitative descriptive research is aimed at describing and depicting existing phenomena, whether natural or human-made, with a focus on characteristics, qualities, and the interrelation between activities. Moreover, descriptive research does not involve treatment, manipulation, or changes to the variables under study; instead, it portrays a condition as it is. The only treatment given is the research itself, conducted through observation, interviews, and documentation. Based on the statements of several experts above, it can be concluded that qualitative descriptive research is a series of activities to obtain data that is as it is, without being in a specific condition, with the results emphasizing meaning. Data collection techniques using literature studies using previous research related to the problem to be studied (Anggito & Setiawan, 2018).

A literature review is a search in which the research subject is extracted from a number of documents or library materials such as books, scientific journals and research supporting documents. The author uses previous studies that are relevant to this paper to critically examine knowledge about scientific ideas and findings by drawing from various literature related to human resource management innovation in increasing agricultural productivity. The data analysis method was carried out descriptively qualitatively, according to Milles and Hubberman's interactive model which consists of 3 stages, namely the data reduction stage, data testing or analysis, and the conclusion drawing and verification stage and can be seen in figure 1.

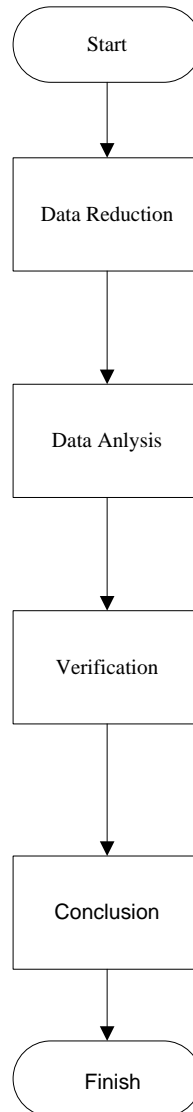


Figure 1. Reseach Methodology

#### IV. RESULT AND DISCUSSION

According to Hasibuan (2008) human resources are the ability to think and use physical strength together. Actors and their characteristics are the result of their heredity and environment. Their work performance is motivated by the desire to fulfill their satisfaction. Human resources or human power in short, human resources are owned by every human being. Human resources (HR) consist of every human being's ability to think and use physical strength. Human resources have always been an important part of development, with the importance of continuing to develop as the first and main factor in the process (Sadono, 2008). Administrative processes are also greatly influenced by human resource management. According to Ermaya (1996), an administrator is a person who has the authority to place, control and direct the achievement of goals. The human or person who controls and leads the work so that the process of achieving the goals carried out according to the plan can be achieved is called a manager.

The criteria for HR Management in the agricultural sector are to have innovative and non-manipulative competencies. Farmers are the main implementers of agricultural development, so the success of agricultural development is very dependent on the quality

of farmers' human resources (Supatminingsih, 2022). Human Resource (HR) management innovation in increasing agricultural output includes several strategic aspects, namely:

*A. Implementation of a Contextual Agricultural Training and Development System*

Implementing a contextual training and development system is a key step in improving farmer skills, with a focus on land management, use of modern agricultural technology and sustainable practices. First of all, land management training can include effective tillage methods, appropriate use of fertilizers, and efficient irrigation strategies. This helps farmers increase their crop yields and maintain the sustainability of agricultural land.

Furthermore, training in the use of modern agricultural technology is essential. This includes understanding the use of sensors, drones and other smart devices to monitor and manage agriculture with greater precision. The integration of these technologies can increase production efficiency, reduce resource waste, and ensure more sustainable agriculture. Sustainable agricultural practices are also a main focus. Training in organic methods, environmentally friendly planting patterns, and agricultural waste management can help farmers reduce negative impacts on the environment, while improving the quality of agricultural products.

In this context, it is important to organize training that is appropriate to local needs and context. A contextual approach ensures that training is tailored to geographical conditions, environmental sustainability and the specific needs of farming communities. Thus, the implementation of a contextual training and development system will be an important foundation in creating more skilled farmers, wisely applied technology, and more sustainable agricultural practices.

*B. Application of Information and Communication Technology in Agricultural Management*

The application of information and communication technology (ICT) in agricultural management has a significant impact on efficiency and productivity. One of the main aspects of this implementation is the use of mobile applications and online platforms designed specifically for farmers' needs. First of all, the mobile application provides farmers with direct access to up-to-date weather information. By understanding weather changes, farmers can better plan their agricultural activities, such as planting or harvesting, so as to optimize agricultural yields.

Furthermore, the application also allows farmers to monitor market prices in real-time. Accurate price information allows farmers to make smarter decisions when it comes to selling and marketing their products. By adjusting strategies based on market trends, farmers can increase the profitability of their businesses. Additionally, online platforms can be a valuable resource for sharing best agricultural practices. Farmers can access tutorials, guides and the latest information on innovative farming techniques. Collaboration through this platform also enables knowledge exchange between farmers, creating a community that supports mutual growth.

The application of information and communication technology not only makes access to information easier for farmers, but also opens up new opportunities in more efficient and sustainable agricultural management. By continuing to develop and improve this technology, the agricultural sector can continue to adapt to dynamic changes and increase its competitiveness in the global market.

*C. Performance-based Management Approach*

The performance-based management approach is an innovative strategy in encouraging farmers to achieve optimal production results while maintaining environmental sustainability. First of all, in the context of production results, this incentive system encourages farmers to increase the productivity and quality of their agricultural products. Incentives can take the form of financial incentives, subsidies, or better access to



markets for farmers who reach or exceed certain production targets. Thus, farmers become more motivated to increase efficiency and innovation in their agricultural practices.

Second, environmental sustainability aspects are an important focus in this approach. Farmers are given incentives not only based on production results, but also the sustainability of their agricultural actions. This can include the use of environmentally friendly agricultural practices, sustainable management of natural resources, and protection of biodiversity. Performance-based incentives provide a strong signal that agricultural practices that maintain ecology and sustainability are a priority.

Furthermore, this incentive system encourages transparency and accountability among farmers. Through rigorous monitoring and evaluation, farmers can see the direct impact of their actions on yields and environmental sustainability. This creates a positive feedback cycle that encourages continuous learning and improvement. By implementing a performance-based management approach, the agricultural sector can achieve better results economically while ensuring that agricultural practices contribute positively to environmental sustainability. Alignment between economic and environmental interests is the basis for competitive and sustainable agriculture in an era that continues to change.

#### *D. Empowerment of Farmers through Groups and Cooperatives*

Empowering farmers through the formation of groups or cooperatives is a very strategic approach in increasing their capacity and competitiveness in the agricultural sector. First of all, through the formation of groups, farmers can come together to share resources. This includes shared use of agricultural equipment, venture capital, and shared access to services that can improve production efficiency. This collaboration helps reduce the burden on individual farmers and increases their access to critical aspects of agriculture.

Second, the formation of groups or cooperatives allows the exchange of knowledge and experience between farmers. In this collaborative environment, farmers can learn from each other about best agricultural practices, technological innovations, and effective marketing strategies. This not only enhances their skills and knowledge, but also creates a community that supports mutual growth. Furthermore, through collective power, groups or cooperatives can be more effective in accessing outside resources such as training, technical assistance, and business capital. This creates an environment where farmers can more easily adopt modern technology, improve the sustainability of agricultural businesses, and optimize production yields.

Thus, empowering farmers through groups or cooperatives is not just about sharing physical resources, but also about creating strong social and economic networks. This collaboration can address some of the individual challenges faced by farmers and form the foundation for more resilient and sustainable agriculture at the community level.

#### *E. Implementation of Risk Management Methods*

Implementing risk management methods in the agricultural sector is a crucial foundation in helping farmers face the challenges of market fluctuations, climate change and other threats. First of all, risk management can involve diversifying farmers' businesses, such as growing different types of crops or raising different types of animals, so that they are not completely dependent on one commodity. This diversification can help cushion the impact of market fluctuations, where success in one sector can offset losses in other sectors.

Second, risk management in the context of climate change involves the adoption of adaptive agricultural practices. This includes using crop varieties that are resistant to climate change, selecting efficient irrigation methods, and implementing soil conservation practices to deal with challenges such as increasing temperatures and unstable rainfall. By integrating these strategies, farmers can increase their agricultural resilience to climate change.

Furthermore, risk management also involves the use of financial instruments such as agricultural insurance to protect farmers from financial losses that can result from natural disasters or other unexpected events. This insurance can provide financial security to farmers, allowing them to recover more quickly after losses.

In this context, educating and training farmers on risk management practices is important. Farmers need to understand the risks they face and learn how to identify, measure and manage those risks. By implementing risk management methods, farmers can optimize the potential of their agricultural yields while protecting themselves from adverse impacts that may occur.

#### KESIMPULAN

Implementing innovation in Human Resources (HR) management in the agricultural sector is an important key to increasing agricultural yields and farmer welfare. Steps such as contextual training, application of information and communication technology, performance-based approaches, as well as empowerment through the formation of groups or cooperatives, and risk management provide a strong foundation for sustainable and adaptive agriculture. Contextual training helps farmers improve their skills in land management, application of modern technology and sustainable farming practices. Meanwhile, the application of information and communication technology, such as mobile applications and online platforms, makes it easier for farmers to access critical information such as weather and market prices.

The performance-based approach provides incentives that encourage farmers to achieve optimal production results and maintain environmental sustainability. Empowerment through the formation of groups or cooperatives creates efficient collaboration, enabling the sharing of resources, knowledge and technology. In addition, implementing risk management helps farmers face market fluctuations, climate change and other threats with adaptive strategies, such as business diversification and adopting agricultural practices that are resilient to climate change. Overall, these innovations bring positive changes to the agricultural sector, helping farmers optimize their production, increase competitiveness in the market, and maintain environmental sustainability. Implementing these measures not only creates more skilled and adaptive farmers but also supports the growth of the agricultural sector as a whole. Therefore, understanding and implementing HR management innovations is essential in responding to the challenges and opportunities faced by the agricultural sector in the future.

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