Human Resource Management Practices and Entrepreneurship Performance in the Agricultural Sector: Indonesia Study

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Abstract — Entrepreneurship is driving growth in Indonesia's agricultural sector, but the link between it and Human Resource Management (HRM) practices is largely unknown. A quantitative study aims to investigate this relationship. This research surveyed 355 agricultural companies in different areas and sub-sectors using a questionnaire designed for cross-sectional research, on their HR practices and entrepreneurial performance. Using Smart-PLS 4, a strong correlation between HRM strategies and entrepreneurial behavior and performance founded. HRM practices like hiring qualified staff, providing training, fair compensation, and promoting engagement can encourage entrepreneurial behavior among employees, leading to better agricultural enterprise performance. Prioritizing HRM strategies that support an entrepreneurial culture can increase productivity, promote sustainability, and motivate the workforce to tackle industry challenges.

Keywords: Human Resource, Management, Entrepreneurship, Agricultural Sector, Indonesia

INTRODUCTION

The agricultural industry plays an important role in employment, economic growth and food security in the global economy. The industry is responsible for feeding the world's population and supplying raw materials. It also contributes significantly to sustainable development and poverty reduction (Hossain & Chen, 2022; Mottet & Tempio, 2017). Small-scale agriculture faces challenges such as limited access to resources, technology, and markets. Governments should provide support and implement policies to help small-scale farmers overcome challenges and promote growth in the agricultural sector (Mottet & Tempio, 2017). Sustainable agricultural development requires the development of entrepreneurship as well as farmer competencies. Entrepreneurial culture in the agricultural sector has been recognized as an important factor in the agricultural development process. In some countries in Europe, entrepreneurship education for farmers has
been found to contribute positively to the development of entrepreneurship in farmers with the aim of fostering agricultural development and farmer welfare.

Entrepreneurship is critical to fostering sustainable food production, provisioning, and protection of rural areas in the agricultural sector (Graziano, 2020; Taqwa et al., 2019). Innovative startups in agriculture and food technology have the potential to revolutionize the industry, addressing challenges such as food security and sustainability (Graziano, 2020). For example, in Australia, the traditional view of agriculture as a perfectly competitive market has shifted to recognize the complexity and competition of niches in agricultural markets, as well as opportunities for cooperation and innovation6. In developing countries such as India and Brazil, entrepreneurship has been recognized as a key factor in economic development (Arthmar & Teatini Salles, 2017; Singh, 2015). Entrepreneurship has been recognized by the Indian government and the Brazilian service industry as a powerful way to drive economic growth. In developing countries, rural entrepreneurship is particularly important as it can help reduce poverty and advance underdeveloped areas. However, rural entrepreneurs need support in areas such as infrastructure development, agricultural activities, education, and healthcare (Hlady‐Rispal & Jouison‐Laffitte, 2014; Singh, 2015; Soegoto et al., 2022). Rural entrepreneurs need assistance for infrastructure development, investment in agriculture, promotion of non-agricultural activities, education, and healthcare.

Human Resource Management (HRM) practices are essential in the agricultural sector to effectively manage an organization’s workforce. These practices help shape the motivation, skills, and performance of employees in agricultural enterprises. In this context, HRM practices play an important role in improving labor productivity and ensuring the successful functioning of the enterprise (Aimon, 2019; Sari & Kusumawati, 2022). Some of the key HRM practices in the agricultural sector include to effectively motivate employees, the head of the company must have an individualized approach to each member of the workforce. It is important to understand how HRM practices affect entrepreneurial behavior and overall performance of agricultural firms to promote sustainable agricultural development. In HRM practices in the agricultural sector, the application of human resource management can help improve the quality of farmers by improving the quality of vocational education and training, developing agricultural human resources, implementing agricultural mechanisms with agricultural expansion, and improving the quality of farmers' human resources.

The agricultural landscape in Indonesia is highly diverse, encompassing various subsectors such as crop cultivation, livestock, fisheries, and forestry (Kaido et al., 2021)(Suwasono et al., 2022). Over the years, the government has implemented policies and initiatives to modernize the sector and improve its competitiveness in domestic and international markets. However, challenges remain, ranging from limited access to financial resources and technological advancements to climate change and market uncertainty (Vebtasvili, 2017; Warlina et al., 2023). The agricultural sector in Indonesia plays an important role in the country’s economy, contributing significantly to employment, exports, and overall economic growth. With vast natural resources and a favorable climate, agriculture remains the main livelihood for most Indonesians, especially in rural areas. However, despite its importance, the sector faces various challenges that hamper its potential, such as low productivity, limited access to modern technology, and sustainability issues. In agriculture, HR management and entrepreneurship have an important role in improving the quality of farmers' human resources, increasing farm productivity and efficiency, improving the quality of agricultural products, increasing food self-sufficiency, encouraging innovation and creativity, increasing farmers' economic independence, and increasing the competitiveness of agricultural products.

The contribution of the agricultural sector to national GDP in 2021 was recorded to have decreased by 0.42 percentage points compared to the previous year which reached 13.7%. When compared to the position in 2010, the contribution of the agricultural sector also shrank by 0.65 percentage points. When measured based on GDP at constant prices 2010, the agricultural sector throughout 2021 only grew 1.84% compared to the previous year. Although higher than the 2020 achievement, the growth of the agricultural sector in 2021 is still lower than before the Covid-19 pandemic, where growth was always above 3% as shown in the graph. Therefore, it is very important to analyze the development of the agricultural sector to

![Figure 1. Contribution and Growth of Agriculture Sector to National GDP 2010-2021 (Percentage)](source: Kusnandar (2022))
be able to maximize the potential of Indonesia’s vast agricultural landscape. This study attempts to analyze and identify the important role of human resource management practices in driving entrepreneurial behavior and performance. Further research can delve deeper into specific human resource management interventions and their impact on entrepreneurial outcomes. The analysis and identification of human resource management practices is expected to assist in identifying farmers’ needs and providing the necessary training and support. This can lead to the creation of quality farmers who can contribute to achieving food security. On the other hand, entrepreneurship is crucial in driving innovation and creating new business opportunities in the agricultural sector. It can help farmers to identify new markets, develop new products and adopt new technologies. Entrepreneurship can also help transform farmers into more independent agripreneurs who can contribute to the growth of the agricultural sector.

RESEARCH METHODS
This study adopted a quantitative research approach, using a survey questionnaire to collect data from a sample of agricultural companies. Data were analyzed using Smart-PLS 4, a statistical software specifically designed for structural equation modeling (SEM) and partial least squares (PLS) analysis (Hair et al., 2017). The research design of this study was cross-sectional, as the data was collected at one specific point in time. Cross-sectional surveys are suitable for exploring relationships between variables and are widely used in social science research.

Data Collection
Data was collected through an online structured questionnaire consisting of two main sections:

a. HRM practices: This section assesses the HRM practices implemented in agricultural enterprises. This section will include items related to recruitment and selection, training and development, performance appraisal, compensation and rewards, and employee engagement (Ali et al., 2019; Gharbi et al., 2022; Hooi, 2014). Each item is measured using a Likert scale, which allows respondents to rate the extent to which certain HRM practices are implemented in their organizations.

b. Entrepreneurship: This section measures the level of entrepreneurial activity and performance in agricultural enterprises. The questions in this section focus on aspects such as innovation, risk-taking, and business growth (Alvarez & Barney, 2007; Mian, 2023; Mustafa et al., 2016). Again, a Likert scale will be used to capture respondents’ perceptions of entrepreneurial behavior in their organizations.

Sample Drawing
The target population for this study is agricultural firms operating in different regions of Indonesia. A stratified random sampling technique was used to ensure representation of different geographical locations and farm sizes. The selection of strata was based on factors such as geographic region, agricultural sub-sector, and farm size category. From each stratum, a sample of farm enterprises will be randomly selected to participate in the survey, 355 farm enterprises were questioned.

Data Analysis
Data were analyzed using Smart-PLS 4 software, which is specifically designed for PLS structural equation modeling. PLS-SEM is particularly suitable for this study as it allows for modeling complex relationships between latent constructs and observed variables, even with small sample sizes (Hair et al., 2017; Jarvis et al., 2003).

RESULT AND ANALYSIS
Sample Characteristics
A total of 355 agricultural enterprises participated in the survey, representing different regions and sub-sectors within the agricultural industry in Indonesia. The sample included a mix of small, medium, and large-scale farms, as well as agricultural cooperatives and agribusinesses. Demographic characteristics of respondents:

a. Age: Respondents’ ages ranged from 25 to 65 years old, with the majority between 35 to 50 years old.

b. Educational Background: Respondents’ educational backgrounds varied, with most having completed higher education in agricultural science, business management, or related fields.

c. Years of Experience: Respondents had varying levels of experience in the agricultural sector, with the majority having more than five years of experience.

Evaluation of the Measurement Model

<table>
<thead>
<tr>
<th>VAR</th>
<th>CD</th>
<th>LF</th>
<th>CA</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>REC</td>
<td>REC.1</td>
<td>0.819</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REC.2</td>
<td>0.889</td>
<td>0.825</td>
<td>0.896</td>
<td>0.742</td>
</tr>
<tr>
<td></td>
<td>REC.3</td>
<td>0.874</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRA</td>
<td>TRA.1</td>
<td>0.817</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TRA.2</td>
<td>0.897</td>
<td>0.832</td>
<td>0.899</td>
<td>0.749</td>
</tr>
<tr>
<td></td>
<td>TRA.3</td>
<td>0.880</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMP</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EMP.2</td>
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<td>0.888</td>
<td>0.923</td>
<td>0.750</td>
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<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EMP.4</td>
<td>0.930</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COM</td>
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<td>0.851</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COM.2</td>
<td>0.770</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The SmartPLS-4 study revealed a model that was appropriate for this project. The R-squared value in this investigation is explained in table 3:

### Table 3. Result Model

<table>
<thead>
<tr>
<th>Model Measures</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurship Performance</td>
<td>0.662</td>
</tr>
</tbody>
</table>

An R-squared value of 0.67 is considered strong, 0.33 is considered moderate, and less than 0.19 is considered weak, and it reflects the amount of variance in the entrepreneurship performance variable that can be explained by independent variables such as recruitment, training, performance assessment, compensation, and employee engagement (Chin, 1998). A high R-squared value, such as 0.662, suggests that the chosen HRM practices in the model have a strong collective influence on explaining the variations observed in Entrepreneurship Performance in the Agricultural Sector in Indonesia. This indicates that the selected HRM practices, such as recruitment, training, performance assessment, compensation, and employee engagement, together account for a significant portion of the changes observed in the performance of entrepreneurial activities within the agricultural context.

The value of 0.662 indicates that the model has reasonably good explanatory power, but it also implies that there may be other factors beyond the HRM practices that influence Entrepreneurship Performance. These additional factors may include external market conditions, technological advancements, government policies, and other industry-specific dynamics that were not included in the model.

### Hypotheses Testing

The structural model was analyzed using SmartPLS-4 to test the research hypotheses and examine the relationship between HRM practices and entrepreneurship in the Indonesian agricultural sector. Hypotheses are tested statistically via a bootstrap method in PLS SEM, a widely used approach defined by (Hair et al., 2017). The hypothesis is considered significant when the t-statistic value exceeds the t-statistic at the 95% confidence level (>1.96). The results reported below were obtained using the SmartPLS-4 bootstrap software.

### Table 4. Hypotheses Testing Results

<table>
<thead>
<tr>
<th></th>
<th>T</th>
<th>O</th>
<th>M</th>
<th>STDEV</th>
<th>T-S</th>
<th>PV</th>
</tr>
</thead>
<tbody>
<tr>
<td>REC-&gt;ENP</td>
<td>0.456</td>
<td>0.474</td>
<td>0.084</td>
<td>5.446</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>TRA-&gt;ENP</td>
<td>0.393</td>
<td>0.387</td>
<td>0.062</td>
<td>6.318</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>EMP-&gt;ENP</td>
<td>0.243</td>
<td>0.256</td>
<td>0.057</td>
<td>4.345</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

### Model Fit Result

The measurement model was assessed for loading factor, reliability and validity. Loading factors for each code instrument showed consistent values above 0.70. The Cronbach’s alpha coefficient for each construct showed satisfactory internal consistency, with values ranging from 0.80 to 0.90. Composite reliability values are above 0.80 for all constructs, which indicates good internal consistency. In addition, the average variance extracted (AVE) exceeded 0.50 for all constructs, indicating convergent validity.
Moving on to the T-statistic column, it measures the difference between the sample mean and the hypothesized population mean, divided by the standard error. The T-statistic is used to assess whether the observed differences in the sample are statistically significant. In this table, all the T-statistics are relatively high, indicating strong differences between the sample means and the hypothesized population means. This further supports the conclusion that the relationships between the HRM practices and Entrepreneurship Performance are statistically significant. Lastly, the p-values column represents the probability of observing the T-statistic (or more extreme values) if the null hypothesis is true, i.e., if there is no relationship between the HRM practice and Entrepreneurship Performance. The extremely low p-values of 0.000 in each case indicate that the probability of observing the observed relationships by random chance is essentially zero. Consequently, we can confidently conclude that the observed relationships are statistically significant.

**Findings**

The findings of this study shed light on the crucial relationship between Human Resource Management (HRM) practices and Entrepreneurship Performance in the Agricultural Sector in Indonesia. The results revealed that recruitment, training, performance assessment, compensation, and employee engagement significantly impact entrepreneurial activities within the agricultural context. The high R-squared value of 0.662 indicates that approximately 66.2% of the variability in Entrepreneurship Performance can be attributed to the selected HRM practices. This implies that a substantial proportion of entrepreneurial success in the agricultural sector can be explained by the effectiveness of HRM strategies employed by agricultural organizations.

The positive relationship between recruitment practices and Entrepreneurship Performance underscores the significance of strategically selecting individuals with an entrepreneurial mindset and a propensity for innovative thinking. Hiring employees who are passionate about taking risks and driving innovation can create a workforce that is more open to exploring and pursuing entrepreneurial opportunities, ultimately fostering a culture of entrepreneurship within agricultural enterprises. Furthermore, the study's findings emphasize the importance of training programs in nurturing entrepreneurial skills and competencies among agricultural workers. By investing in training initiatives that focus on entrepreneurship, leadership, and problem-solving, organizations can equip their employees with the necessary tools to identify and capitalize on entrepreneurial opportunities. This can lead to increased innovation and adaptability, contributing to enhanced Entrepreneurship Performance.

Effective performance assessment practices emerged as a critical factor in driving
Entrepreneurship Performance. Regular evaluations and feedback can help identify and reward high-performing employees who exhibit entrepreneurial behavior, incentivizing them to continue their innovative efforts. Moreover, constructive feedback and support can facilitate continuous improvement, driving overall entrepreneurial success within the agricultural sector. The study also highlights the role of compensation and employee engagement in promoting entrepreneurship. Offering competitive and performance-based compensation packages can act as a powerful motivator for employees to take on entrepreneurial initiatives and deliver innovative solutions. Moreover, fostering a positive and engaging work environment can boost employee morale, creativity, and ownership, creating a conducive atmosphere for entrepreneurial ideas to flourish. While the study provides valuable insights into the relationship between HRM practices and Entrepreneurship Performance, it is essential to acknowledge some limitations. The focus on the agricultural sector in Indonesia restricts the generalizability of the findings to other industries or regions. Additionally, the reliance on self-reported data may introduce response bias and social desirability effects.

Discussion

Human Resource Management (HRM) practices play an important role in improving entrepreneurial performance, particularly in the agricultural sector in Indonesia. These practices include recruitment, training, performance appraisal, compensation, and employee engagement. Implementing effective HRM practices can improve productivity, employee satisfaction, and overall business performance. This research is in line with several previous studies such as (Ali et al., 2019; Alvarez & Barney, 2007; Hooi, 2014; Laukiti et al., 2014; Mian, 2023; Mustafa et al., 2016; Soegoto et al., 2022; Warr, 2005). Recruitment is critical to attracting and selecting the right candidates with the necessary skills and knowledge to contribute to the growth of the agricultural sector. A well-structured recruitment process ensures that organizations hire individuals who can adapt to the dynamic nature of the agriculture industry and contribute to its development (Mian, 2023; Thaker et al., 2020).

Training and development programs are essential to improve employees' skills and knowledge, so that they can perform their duties efficiently and effectively. Continuous training helps employees to stay up-to-date with the latest agricultural technologies and practices, leading to increased productivity and innovation (Ayunda et al., 2021; Azinga et al., 2018). Performance appraisals are essential to evaluate employee performance and identify areas for improvement. Regular performance evaluations help organizations identify high-performing employees and provide them with opportunities for growth and development. This, in turn, motivates employees to perform better and contribute to the success of the organization (Yamin & Pusparini, 2022).

Compensation plays an important role in retaining and motivating employees. Offering competitive salaries and benefits can help organizations attract and retain skilled employees, reducing turnover and associated costs (Azinga et al., 2018). In addition, implementing an incentive-based compensation system can encourage employees to perform better and contribute to the overall performance of the organization (Mian, 2023; Naga & Amalou, 2023). Employee engagement is an important factor in improving job performance. Engaged employees are more likely to be committed to their work, which leads to increased productivity and overall business performance (Yamin & Pusparini, 2022). Flexible work arrangements and perceived organizational support can have a positive impact on employee engagement, resulting in better job performance (Gharbi et al., 2022; Zainol et al., 2018). In the context of the agricultural sector in Indonesia, the implementation of effective HRM practices can help overcome challenges such as lack of credit accessibility and the need for social entrepreneurship innovation (Kaido et al., 2021; Suwasono et al., 2022; Thaker et al., 2020; Warlina et al., 2023). The discussion of social entrepreneurship will be an interesting topic of discussion in the future because role of social entrepreneurship in Indonesia has a huge impact on the economy in Indonesia. It can absorb a lot of qualified labor and people who do not get opportunities in the formal sector (Sofia, 2017). By focusing on HRM practices, organizations can improve their overall performance and contribute to the growth and development of the agricultural sector in Indonesia.

CONCLUSION

In conclusion, this study highlights the importance of HRM practices in influencing entrepreneurial behavior and performance in the Indonesian agricultural sector. By adopting effective HRM strategies, agricultural firms can foster an entrepreneurial culture that promotes innovation and sustainable development. The findings offer actionable insights for policymakers, agricultural stakeholders, and entrepreneurs looking to improve the entrepreneurial ecosystem in the agricultural sector. By promoting human resource management practices that attract, retain, and motivate a skilled workforce, Indonesia's agricultural sector can embrace innovation and remain competitive in the global market. As this study identified the important role of HRM practices in driving entrepreneurial behavior and performance, further research can delve deeper into specific HRM interventions and their impact on entrepreneurial outcomes. By addressing the limitations of the study and building on these
findings, future research can contribute to the growth and prosperity of Indonesia’s agricultural sector.

REFERENCES


