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Farmer Corporation Management in Agroforestry Activities to Support Food Security

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ABSTRACT
This study aims to analyze the role of farmer corporate governance in agroforestry activities and its implications for strengthening food security in Indonesia. Data collection techniques included literature studies from books, national journals, articles, and previous theses related to this research. The results indicate a synergistic relationship between farmer corporate governance and agroforestry success. A strong relationship is believed to enhance cooperation, strengthen interactions, reduce transaction costs, and guarantee a stable market. Corporate governance fosters organized management, including the development of partnerships between farmers and downstream industries, thereby encouraging better market access and strengthening the bargaining position of agroforestry farmers. Well-managed farmer corporations typically include technical and managerial training for farmers, aimed at fostering the adoption of appropriate technology and effective business management, supporting agroforestry farmer independence in production, financing, and marketing. This, in turn, strengthens agroforestry business resilience and long-term prospects for success, both directly and indirectly.

Keywords:
Agroforestry, food security, farmer corporations

INTRODUCTION

Population growth, climate change, and natural resource degradation are global challenges that affect food security and have become strategic issues in Sustainable Development. The Food and Agriculture Organization (FAO, 2021) defines food security as a condition in which all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food. In Indonesia, food security continues to face structural and ecological constraints, ranging from low agricultural productivity, dependence on certain commodities, to vulnerability to climate change (Badan Ketahanan Pangan, 2020). Aminah et al., (2015) describe the structural problems faced by smallholder farmers as encompassing three main aspects: the small scale of many farming operations, which limits farmers' income and productivity; difficulties in marketing their harvests at profitable prices; and limited access to capital, which serves as a major barrier to the development of smallholder farming enterprises. Based on the above description, a significant role is therefore required in addressing these challenges.

The agriculture and forestry sectors play a highly crucial role in the economy and human life. The agricultural sector can produce food, serving as an energy source for other sectors, generating foreign exchange for the country, and increasing demand for industrial products, which in turn drives expansion in the secondary and tertiary sectors (Nadziroh, 2020). Meanwhile, the forestry sector plays a role in supplying raw materials, conserving the environment, supporting the local economy, and acting as a pillar of the regional economy (Alghifari et al., 2022). Overall, agriculture and forestry serve as the backbone of economic development in many regions of Indonesia, contributing to food supply, employment, foreign exchange earnings, and environmental preservation. The importance of these two sectors is also reflected in

the government's focus on developing human resource capacity, technology, and institutional frameworks to support their sustainability and competitiveness. In integrating the agricultural and forestry sectors, innovative approaches are needed that are not only oriented toward increasing production but also take into account environmental sustainability and the strengthening of farmer institutions.

One approach that has emerged to address these challenges is agroforestry. Agroforestry is a land-use system that integrates forestry trees with agricultural crops and/or livestock within a single management unit, either simultaneously or sequentially (Nair, 2012). This system has significant potential to support food security through diversification of food and income sources, improved land productivity, and conservation of natural resources (Garrity, 2004). In various regions, agroforestry practices have been proven to contribute to reducing farmers' vulnerability to climate change and market fluctuations.

The success of agroforestry implementation is highly dependent on the institutional capacity of farmers to manage operations in a coordinated and sustainable manner. Smallholder farmers in Indonesia generally face a range of constraints such as limited access to capital, markets, technology, and information. This highlights the need for institutional strengthening through farmer corporation models based on the principles of good governance. Farmer corporations enable collective management in the agricultural supply chain with principles of efficiency, transparency, participation, and accountability (Kementerian Pertanian RI, 2021).

In the context of agroforestry, farmer corporation governance can serve as a strategic means to promote the integration of production and conservation aspects, while also enhancing farmers' competitiveness within the agribusiness system. Thus, the establishment of farmer corporation institutions in agroforestry practices is not only economically relevant but also an integral part of the national strategy to support inclusive and sustainable food security. This study aims to analyze the role of farmer corporation governance in agroforestry activities and its implications for strengthening food security in Indonesia. Based on the aforementioned background, the research problem is formulated as follows: How can farmer corporation governance in agroforestry contribute to food security?

Theoretical Framework

1. Food Security

Food security is a multidimensional concept that encompasses the aspects of food availability, access, utilization, and stability. FAO (2021) defines food security as a condition in which all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs for an active and healthy life. This definition also includes the aspects of availability, accessibility, food safety, and the sustainability of fulfilling food needs in accordance with household preferences and requirements. In Indonesia, the definition of food security is regulated under Law Number 18 of 2012 on Food, which emphasizes the importance of affordability, equitable distribution, and the sustainability of the national food system. This law also links food security to food sovereignty, food self-sufficiency, and food safety, making availability, physical and economic accessibility, as well as food utilization, essential aspects in achieving food security. Thus, the definitions of food security according to FAO and Indonesia's Food Law reinforce each other, with both

emphasizing sustainable access to sufficient and nutritious food, as well as security and availability dimensions that consider the local social and cultural context.

The dimensions of food security are not viewed solely from the production perspective, but also from how distribution systems and institutions support equitable access to food. The stability of food security is influenced by various factors such as climate crises, price volatility, conflicts, and global pandemics, all of which require integrative and adaptive approaches within agricultural and food systems (Barrett, 2010). The aspects of food security include food availability, which refers to the physical presence of adequate food in both quantity and quality; food access, which ensures that individuals can obtain sufficient and safe food for consumption; food utilization, which means that food can provide health and productivity benefits; and food stability, which refers to the capacity of the food system to maintain the availability, access, and utilization of food in a sustainable manner, including resilience to shocks such as natural disasters, economic crises, price fluctuations, or socio-political situations that may disrupt food supply and access.

2. Agroforestry

Agroforestry is a sustainable land-use system that combines forestry trees, food crops, and livestock within a single management unit. It is designed to enhance both ecological and economic outcomes (Nair, 1993). This system serves as an important alternative in addressing issues related to land productivity, environmental degradation, and dependency on monoculture practices. According to Leakey (2017), agroforestry can increase the income of smallholder farmers, improve soil quality, and support biodiversity conservation, all of which contribute directly or indirectly to food security. As noted by Elfis (2024) in his book Agroforestry, the basic principles of agroforestry include diversity, which involves integrating various types of crops and livestock to enhance productivity and ecosystem stability; resource use efficiency, which involves utilizing synergies between components to maximize the use of land, water, and sunlight; and sustainability, which ensures that the system can operate over the long term without causing environmental degradation.

Agroforestry practices take various forms, such as agrosilviculture, which combines agriculture and trees; silvopasture, which integrates trees and livestock; and agrosilvopasture, which combines trees, crops, and livestock. Research by Garrity (2004) indicates that agroforestry can increase yields, reduce erosion, and improve carbon stocks and water quality. The choice among these main agroforestry practices can be adapted to local needs, socio-cultural conditions, and ecosystems to achieve the goals of productivity, sustainability, and environmental conservation. This system is particularly suitable for smallholder farming communities with limited resources that aim to optimize the ecological functions of their land.

Agroforestry offers economic, ecological, and social benefits (Subarno et al., 2024). The economic benefits include increasing land productivity through the cultivation of various high-value commodities and creating new employment opportunities for surrounding communities, thereby improving their livelihoods. The ecological benefits include fulfilling the principles of soil and water conservation. The social benefits include enhancing community welfare and fostering self-reliant communities. Agroforestry has proven to be a harmonious solution that combines improved land productivity with environmental conservation while strengthening the

social and economic foundations of communities in and around forest and agricultural areas.

3. Farmer Corporations and Institutional Governance

Farmer corporations are collective institutional models aimed at strengthening farmers' bargaining positions within the agribusiness system through a jointly managed, professional, and sustainable business approach. According to the Ministry of Agriculture of the Republic of Indonesia (2021), farmer corporations integrate multiple functions such as production, processing, distribution, and marketing into a single business unit operated by the farmers themselves or through institutions such as cooperatives, Village-Owned Enterprises (BUMDes), or farmer group associations (Gapoktan). The essence of fostering and developing farmer institutions is to enable collective action, based on the belief that collective action is more cost-effective and efficient (Sumaryanto et al., 2017).

The principles of effective institutional governance include transparency, accountability, participation, and responsiveness (UNDP, 1997). In agriculture, good governance enables democratic collective decision-making, efficient resource management, and protection of smallholder farmers' interests. Strong institutional governance is also key to building farmers' socio-economic resilience in the face of market uncertainties and climate change (Ribot, 2002). The effectiveness of farmer economic institutions is heavily dependent on the quality of leadership. According to Mutmainah et al., (2015), leadership is the main pillar in farmer corporations and institutional governance, serving as the driving force, the guarantor of transformation, and the determinant of organizational culture and the sustainability of collective farming enterprises. Participatory and transformational leadership models have been proven to be the keys to the success of resilient, modern, and adaptive farmer economic institutions in addressing contemporary challenges.

The integration of agroforestry and farmer corporation concepts enables the creation of a sustainable agricultural system that is competitive and resilient. Rusmono et al., (2019) note that integration refers to the unification of various elements within a system so that they operate cohesively and support each other in achieving common goals. Strong farmer institutions not only improve the efficiency of production and distribution in agroforestry but also strengthen community food security through approaches based on local resources and participation. In the context of agroforestry, this involves cooperatives, Village-Owned Enterprises, partnerships, and agribusiness clusters that focus on strengthening collaboration among stakeholders to manage resources sustainably and improve community welfare. Achieving institutional effectiveness requires designing organizational models and applying sound management practices. The agroforestry institutional model combines elements such as community involvement, collective resource management, and support from both government and private sectors to achieve greater effectiveness and sustainability. Good management emphasizes the professional, planned, and systematic operation of farmer economic institutions to increase production, business capacity, and the overall welfare of farmers. Farmer corporation management is an approach that integrates social, economic, technological, and organizational governance aspects with the principles of professionalism, business integration, member empowerment, and transformation toward a sustainable and equitable modern agribusiness system (Gultom et al., 2020).

METHOD

This study employs a descriptive qualitative research method with data collection techniques carried out through a literature review. According to Sarwono (2006), a literature review is the process of collecting data with the aim of identifying variables to be studied, distinguishing between what has already been done and what still needs to be done, conducting synthesis and gaining new perspectives, as well as identifying the meaning and relationships among variables.

The data analysis used in this study follows systematic stages with a focus on processing and interpreting textual data or written documents. According to Sugiyono (2022), data analysis activities include data reduction, data presentation, and drawing conclusions. This study draws from books, national journals, articles, and previous theses that share the same theme as this research, which are then analyzed and examined in-depth, critically, and systematically, and subsequently presented in a narrative form..

RESULTS AND DISCUSSION

1. The Urgency of Strengthening Farmer Governance in Agroforestry

The challenges of *agroforestry management* are explained in a *working paper* by Ghofiqi *et al.,* (2021) This system faces several challenges that must be faced, including:

a. Limited or lack availability of accurate data. The lack of accurate data on all aspects of *agroforestry systems and technologies* in Indonesia has led to a lack of support from the government, the private sector, and donors.
b. The difficulty of changing the view of agriculture and forestry regarding *agroforestry*. Many people still think that monoculture farming produces higher yields than multicultural systems. This is due to the assumption that *agroforestry* involves many types of crops, so that planting becomes less organized and is often considered as farmer laziness, thus reducing productivity. On the other hand, many people are reluctant or find it difficult to accept that *agroforestry* is a highly productive agricultural system.
c. The extent of land controlled by the community. In Indonesia, many *agroforestry* farmers manage land or forests that reach millions of hectares. These forests are state-owned. The social forestry scheme has been established based on the Regulation of the Minister of Forestry, which grants land management rights to farmers or communities for a long period of time (35 years). However, in practice, there are still many people who want land or forest ownership. This can be one of the challenges in the development of *agroforestry* in Indonesia.
d. Increasing land management needs due to population growth. In densely populated areas, the development of Agroforestry is very difficult because it requires enough land to ensure proper planting distances and minimize competition between crops. In areas with high population density, there is also a strong desire from the community to convert existing land or forest areas to meet their living needs.

2. Farmer Corporate Governance Model in Agroforestry

An example of the application of the farmer corporate governance model in *agroforestry* that we raised is the research by Pathibang *et al.,* (2023) with the title Application of the Agroforestry Model in the Fetomone Forest Farmer Group in Sillu

Village, Fatuleu District, Kupang Regency. The agroforestry model design applied is the pastoral agro silvo model with *an alley cropping* planting pattern. The planting pattern used is *the alley cropping* planting pattern, which is a planting pattern that combines annual crops (forestry) with seasonal crops (agriculture). Agricultural crops are planted in the passageways between rows of forestry plants as hedge crops. The hedge plant used is the lamtoro type. *Hedgerows*, in the lane farming system, use more non-leguminosa plants in cold climates as biomass producers, while in tropical areas more leguminosa plants are used as facilitators. In the subtropics, the two are relatively balanced in this regard to their existence. Plants selected to be used as intercrop crops must have high economic, ecological, and conservation value and be able to grow well in the planting area so that they interact positively with the growth of agricultural and forestry plants. The counseling involved as many as 53 communities and the results were that 96.2% of the community understood the benefits of the Agroforestry system. The demonstration plot training involved 37 members of the Forest Farmers Group (KTH) and the monitoring results after 3 months of activities showed that as many as 86.48% of KTH members had applied the Agroforestry model on privately owned land.

Another example of the application of the farmer corporate governance model in *agroforestry* is a study from Prayogo *et al.,* (2020) with the title Social and Economic Analysis of the Community in the Application of *Agroforestry* Patterns in Community Forests: A Case Study of Tebing Siring Village, Tanah Laut Regency. The pattern of *Agroforestry management* in Tebing Siring Village uses several patterns such as Apiculture, namely by planting rubber interspersed with kaliandra and kapuk randu. In addition, there is an Agrosilvapastura pattern that combines rubber with jengkol, cempedak, rice, candlenut, orange, coconut, gamal, elephant grass, as well as a location for raising cattle. The Agrisilviculture pattern combines rubber with coffee, gamal, mountain rice, and durian. The Silvofisheri pattern combines rubber with gamal and fish farming areas. Socially, the people of Tebing Siring Village have 40 respondents. The community likes *the agroforestry plant pattern*, but the initial results have not provided benefits for all respondents. Income from mountain rice production reaches Rp 6. 900.000 with an average of IDR 627. 272. The contribution of this income reached 673.85% with an average contribution of 61.26%.

Institutional functions are divided into four, namely production, distribution, financing, and market access functions. Farmer institutions function as collective entities that can strengthen farmers' positions, facilitate access to information, technology, financing, and assist in market integration. Through strong and optimally functioning institutions, farmers can increase business efficiency, product quality, and expand marketing reach (Yuniar, 2025)

The institutional functions of the production field include:

a. Accommodating communication between business actors, such as between agencies, farmer groups, and cooperatives.
b. Empowering farmers through training, counseling, and human resource capacity building.
c. Providing production facilities and infrastructure such as seeds, fertilizers, agricultural tools, and agricultural technology information.
d. Encourage the sustainability of the production system with environmentally friendly inputs and production cooperation.

The institutional functions of the Distribution field include:

a. Become an intermediary between producers (farmers) and consumers or other business actors.
b. Facilitate the process of distributing goods so that products from producers can reach consumers efficiently.
c. Performing buying and selling functions, physical provision functions (transportation, sorting, storage), and supporting functions such as market information and financing facilities.
d. Providing access to food or agricultural products more evenly and at more stable prices by forming a distribution network

The institutional functions of the financing sector include:

a. Complementing financial services to overcome the financing needs of the business world that are increasingly varied and increasing.
b. Addressing financing needs to finance medium/long-term, small-scale and medium-scale business activities (Nafisha *et al.*, 2024).

The institutional functions of the market access field include:

a. Institutions help farmers expand market access, both local, national, and international markets through partnerships, collective marketing, and the provision of market price information.
b. Strengthening the position of farmers in the negotiation of price and product quality, so that farmers get fairer prices and sustainable marketing (Sasmi *et al.,* 2024).

3. Contribution to Food Security

Agroforestry supports food diversification with agrisilviculture planting patterns and the use of multipurpose trees around moorland areas. This pattern adds to the variety of types of crops and food products produced by farmers, while increasing land productivity and reducing the risk of dependence on one type of food crop. Factors that support food diversification in *agroforestry* include social support, adequate resources, and farmers' personal freedom in choosing appropriate crops and farming patterns. Obstacles that can arise are limited access to information and situational conditions that are not conducive to acting in an optimal way to diversify (Wastutiningsih, 2014). Based on a weekly issue report published by the Expertise Agency of the House of Representatives of the Republic of Indonesia (2020), food diversification from *agroforestry* products strengthens food security because it provides a variety of food sources, reducing the risk of crop failure due to pest attacks, diseases, or climate change that can affect a single crop. By planting different types of crops, the risk of production losses can be reduced. Diversification of *agroforestry* products can increase farmers' income through products other than the main staple crop. For example, in *a cocoa-plant-based agroforestry system, farmers get additional income from fruits and protective crop products that generate economic value* (Wulandari *et al.,* 2023). Agroforestry food diversification is also important in the context of national food security and agricultural system sustainability, as *agroforestry* helps maintain the sustainability of natural resources by integrating food crops, horticulture, and woody trees in one more environmentally friendly system (Umiyati, 2015)

The contribution made by *agroforestry* is significant to increasing farmers' incomes, food security, and access to food. The *agroforestry* system provides a wide

variety of food crops as well as woody trees and *multi-purpose trees* in one land. This results in more food variety, thereby increasing the diversity of food sources and nutritional value available to farming families and surrounding communities. *Agroforestry* helps reduce the risk of food insecurity because if one type of crop fails to harvest, another crop can take its place. This system also strengthens household food security by providing a sustainable source of staple foods, vegetables, fruits, and other foodstuffs. In the context of climate change, *agroforestry* is able to provide protection and self-adjustment by providing food in all seasons and maintaining land sustainability (Herwanti, 2018).

Agroforestry contributes to increasing farmers' income through more diverse crops and the existence of by-products from trees or protective plants that have economic value (e.g. wood, rattan, fuel). Farmers' income from *agroforestry* can be very significant, for example a study in Indonesia shows that the contribution of household income from *agroforestry* reaches around 38-76% in certain regions. *Agroforestry* helps alleviate poverty by creating job opportunities in villages around forests, through equitable distribution of sources of income (Henny *et al.,* 2011)

With *the agroforestry* system, farmers are able to access food directly with a variety of products. This reduces dependence on foreign markets and middlemen, and strengthens local and national food security. Government programs, such as Social Forestry *agroforestry*, help combine forest crops with food crops to meet their own food needs and expand agricultural business opportunities for people living around forests.

The resilience of *agroforestry* ecosystems plays an important role as part of long-term food security because *agroforestry* integrates forestry crops with agricultural crops in a single land, thereby increasing land productivity in a sustainable manner and diversifying food sources. This system not only increases food production and farmers' incomes, but also helps maintain ecosystem balance, soil and water conservation, increases soil fertility, and increases biodiversity that is essential for long-term food security (Mayrowani et al., 2011)

Agroforestry supports food security through several mechanisms. Based on a weekly issue report published by the Expertise Body of the House of Representatives of the Republic of Indonesia (2020), food diversification by planting various types of food crops and forestry plants in one area minimizes the risk of crop failure due to pests, climate change, and is able to reduce diseases and create a more stable food supply. *Agroforestry* is able to increase productivity and land quality. This system is responsible for the food security of the communities around the forest (Mayrowani *et al.,* 2011)

4. Development Challenges and Strategies

Policy and Regulatory Challenges include the lack of integrated cross-sectoral policies between the Ministry of Forestry, Agriculture, and related agencies so that *agroforestry* development is not optimal, existing policies are often one-sided so that they do not support comprehensive forestry and agricultural collaboration, ownership and land rights for communities that develop *agroforestry*, especially in social forest areas, is still unclear, there is still low knowledge of farmers about *agroforestry practices* and low agroforestry education and socialization, as well as the implementation of laws and regulations that sometimes overlap or are inconsistent in supporting *agroforestry practices.*

Development strategies in regulations and policies that must be taken include:

a. The recognition and strengthening of the rights of communities in social forest areas can be achieved through regulations that support their participation in natural resource management (Farina *et al.,* 2024).
b. Integrated and collaborative cross-sectoral policies between the Ministry of Forestry, Agriculture, and other agencies are essential for the development of effective and sustainable agroforestry. The government intensifies programs such as the Simultaneous Planting of Food Agroforestry which integrates food crops with forestry crops on forest social lands to increase productivity as well as forest conservation.
c. Integration *of agroforestry* in the formal education curriculum from elementary to university level to produce *agroforestry experts.*
d. Development of *agroforestry information systems* to make access to environmentally friendly knowledge and technology easier.
e. Provision of incentives for agroforestry farmers and developers, including support for environmentally friendly intensification technologies and sustainability monitoring systems.
f. Adoption of agroforestry *guidelines and principles* that have been initiated at the ASEAN regional level to encourage more targeted national policies.
g. Promote *agroforestry* as part of climate change adaptation and mitigation strategies by maximizing sustainable forest functions without opening up new productive forests

Capacity of farmers and extension workers

The capacity of farmers and extension workers is the main challenge in agroforestry development. Challenges in agroforestry development include:

a. Lack of knowledge and understanding of farmers about the benefits, techniques, and management of *agroforestry*. This makes the adoption of *agroforestry* systems slow, because farmers are reluctant or unable to implement sustainable methods.
b. Low motivation and initiative due to unclear land ownership rights, so farmers are less motivated to invest in *agroforestry in the long term*.
c. Limited access to training, plant seeds, and appropriate technology, coupled with a lack of financing support and production facilities that support *agroforestry activities.*
d. Agricultural extension workers who are limited in number and do not always have a special capacity *for agroforestry*, so that the guidance and assistance of farmers is less than optimal

Strategies for developing the capacity of farmers and extension workers in *agroforestry* include:

a. Special training and counseling, improving the understanding and skills of farmers and extension workers about agroforestry techniques and their benefits in a sustainable manner.
b. Increased access to superior planting materials, production facilities, and environmentally friendly technologies through government assistance and support programs and partnerships with the private sector.
c. Strengthening the motivation of farmers through the recognition of land rights, the provision of financial or non-financial incentives, and the direct involvement of farmers in the design and implementation of *agroforestry programs.*

d. Integration of agroforestry in the agricultural education curriculum as well as increasing the capacity of extension workers so that they can provide more targeted and sustainable guidance.
e. Creating a supportive information system and network to facilitate access for farmers and extension workers to knowledge, markets, and technology.

5. Technology support and market access

According to Taus *et al.,* (2024) *Agroforestry* requires the implementation of certain technologies and methods, including the selection of suitable crop types, planting methods, and maintenance to increase the yield and resilience *of agroforestry* businesses. However, many farmers tend to still use the old methods due to risk concerns and limited access to adequate new technologies. In addition, the limitation of knowledge and holistic management in combining trees with agricultural crops is also an obstacle. Therefore, training and technical assistance are essential to support farmers in adopting new agroforestry technologies. Policy support and incentives from the government are also needed to drive this transformation so that technology is widely and effectively accessible.

Ariandi *et al.,* (2023) stated that good market access greatly determines the success of *agroforestry development.* Agroforestry farmers face obstacles such as market uncertainty, unattractive prices, and low bargaining positions, which hinder investment and business development. In addition, the information gap between *agroforestry* producers and the processing industry poses a dilemma, where the industry lacks supply of raw materials while farmers experience difficulties in market access. Institutional improvements and supportive market policies are also urgently needed so that transaction costs can be reduced and the *agroforestry business*

6. Economic Theory Perspective

From an economic perspective, agroforestry systems can be analyzed through various theoretical lenses, including externalities, transaction costs, and property rights, to understand their efficiency and sustainability. For instance, the positive externalities associated with agroforestry, such as enhanced biodiversity and soil conservation, often go uncompensated by market mechanisms, leading to underinvestment in these practices (Harou, 1983). Similarly, high transaction costs in coordinating diverse stakeholders and accessing niche markets can impede the widespread adoption of agroforestry, despite its potential benefits (Gosling et al., 2021). Moreover, insecure or unclear land tenure and property rights can disincentivize long-term investments in tree planting and agroforestry practices, as farmers lack assurance over future returns from their labor and land (“Agroforestry for Landscape Restoration,” 2017). Addressing these economic challenges requires a combination of policy interventions, market-based incentives, and institutional reforms aimed at internalizing externalities, reducing transaction costs, and clarifying property rights (Erskine, 1991). Furthermore, the farmer's decision to adopt agroforestry is influenced by their perception of its superiority over other land-use options, considering limitations in resources such as labor, capital, and knowledge (Reardon, 1992). Understanding the economic logic behind such decisions, including how non-market goods and services can be internalized to benefit landowners, is crucial for increasing the adoption of agroforestry systems (Alavalapati et al., 2004). This perspective underscores the necessity of economic models that accurately capture the multifaceted value of agroforestry, including its ecological and social benefits, to

guide effective policy design and promote sustainable land management practices. Such models are essential for demonstrating the profitability of agroforestry, thereby encouraging its broader implementation as a viable and beneficial land-use strategy (Molua, 2003). This holistic economic appraisal helps to transition away from monoculture practices towards more integrated and resilient agricultural systems. The financial viability of agroforestry is increasingly recognized as a sustainable alternative to monoculture production, offering both economic and ecological advantages (Nair, 2007). This economic viability extends to increased land productivity, enhanced farmer incomes, and the development of local economies, alongside meeting community needs for essential resources (Ruhimat & Widiyanto, 2021). This integrated approach not only diversifies income streams for farmers but also enhances the ecological resilience of agricultural landscapes, fostering long-term sustainability (Dollinger & Jose, 2018). Agroforestry offers significant benefits, including improved soil quality and enhanced ecosystem services, by integrating trees into agricultural systems (Pralhad et al., 2020) (Miller et al., 2019). These systems can mitigate climate change impacts through carbon sequestration and reduce the need for external inputs, thereby lowering production costs and improving resource efficiency (Nair, 2007). Furthermore, the incorporation of trees into agricultural practices enhances biodiversity, creating more robust and adaptive agroecosystems (Leakey, 2017). These multifaceted advantages underscore why agroforestry is increasingly viewed as a critical strategy for achieving food security and environmental sustainability simultaneously (Pantera et al., 2021).

CONCLUSION

Based on the results of the study, it is known that there is a synergistic relationship between farmer corporate governance and the success of agroforestry. The existence of a strong relationship is ensured to be able to increase cooperation, strengthen interactions, reduce transaction costs, and provide a stable market guarantee. Corporate governance is able to create organized management, including the development of partnerships between farmers and downstream industries, thereby encouraging better market access and strengthening the bargaining position of agroforestry farmers. A well-managed farmer corporation is usually also accompanied by technical and managerial training efforts for farmers with the aim of assisting the adoption of appropriate technology and effective business management in supporting the independence of agroforestry farmers in the form of production, capitalization, and marketing of products that are able to strengthen the resilience of agroforestry businesses and the prospects for long-term success both directly and indirectly

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