THE PARTICIPATION OF FARMER'S WIVES IN SUPPORTING THE SUSTAINABILITY OF ARABICA COFFEE FARMING IN MANIKLIYU VILLAGE, KINTAMANI DISTRICT, BANGLI REGENCY, BALI PROVINCE

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ABSTRACT

Arabica coffee is one of the leading plantation commodities cultivated in Manikliyu Village. The increasing trend in demand for Arabica coffee presents an opportunity to promote the development of the Arabica coffee agribusiness. The sustainability of Arabica coffee farming does not solely depend on technical aspects such as land management and productivity improvement but also requires attention to socio-economic factors, including the role of women in farm management. This study aims to examine the participation of farmers' wives in supporting the sustainability of Arabica coffee farming in Manikliyu Village. The research was conducted in Manikliyu Village, Kintamani District, Bangli Regency, Bali Province. Data collection methods utilized primary and secondary data through observation and interviews using a questionnaire administered directly to respondents. The sample size consisted of 30 respondents selected using an accidental sampling technique. Data analysis was performed using a qualitative descriptive method with a Likert scale. The results indicated that the participation of farmers' wives in supporting the sustainability of Arabica coffee farming in Manikliyu Village falls under the "high" category. Their participation includes activities such as land preparation, fertilization, planting, pest and disease control, harvesting, and post-harvesting.

Keywords: *Participation, Arabica Coffee, Farmers' Wives, Likert Scale*

1. INTRODUCTION

Sustainable Development Goals (SDGs) serve as a global reference framework for economic development, social progress, and environmental preservation to be collectively managed in the long term. The agricultural sector in Indonesia is a key contributor to the national economy, driving economic growth, creating employment opportunities, providing food for the population, generating foreign exchange, and supplying raw materials for industries. Additionally, agriculture plays a strategic role in the economy, significantly contributing to the Gross Domestic Product (GDP) and offering employment opportunities for many, particularly in rural areas.

Indonesia is an agrarian country where most of its population resides in rural areas and works as farmers. Rural residents engage in agriculture to improve their living standards and support family farming to meet daily needs. According to the Central Statistics Agency (BPS) data (2023), the number of farmers utilizing agricultural land in Indonesia is approximately 27.799.280. However, the sustainability of agricultural practices faces challenges such as climate change, limited land availability, price fluctuations for organic products, and land-use conversion.

One branch of agriculture, the plantation sector, holds significant importance in supporting sustainable development. It is also a vital income source for developing countries. Plantation exports contribute significantly to foreign exchange earnings. Sustainable cultivation in the plantation sector can provide environmental benefits, such as adopting organic farming practices that reduce harmful chemical use, preserve soil and water quality, and protect biodiversity. Sustainable development in the plantation sector also involves empowering local communities.

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Coffee is one of the high-economic-value plantation commodities and a potential export commodity for Indonesia. Coffee is not a homogeneous commodity; it includes many varieties and processing techniques. Originating from the African continent, coffee belongs to the Rubiaceae family and the Coffea genus (Bahri, 1996). The four main types of coffee are Robusta, Arabica, Liberica, and Excelsa (Bahri, 1996). One of the coffee varieties cultivated in Indonesia is Arabica coffee. This type is also ideal for cultivation in Bali Province, where Bangli Regency is the largest coffee-producing region in Bali, and Kintamani District is the leading coffee producer in Bangli Regency.Arabica coffee, a flagship plantation commodity, plays a strategic role in supporting the rural economy, particularly in Manikliyu Village. With ideal agro-climatic conditions, including suitable altitude, adequate rainfall, and a cool climate, the region produces high-quality Arabica coffee beans (BPS Bangli Regency, 2022). Arabica coffee serves as a primary income source for farming families in this village. It also holds cultural significance as a symbol of social and cultural identity for the local community. Demand for Arabica coffee in domestic and international markets has shown an increasing trend (Agricultural Data and Information Center, 2020). This rising demand creates significant opportunities for Arabica coffee as a leading commodity to drive sustainable agribusiness development.The sustainability of Arabica coffee farming depends not only on technical aspects, such as land management and productivity improvement, but also on socio-economic factors, including the involvement of women in farming families. In this context, the role of farmers' wives becomes highly relevant. Their contributions to the sustainability of Arabica coffee farming are significant, enhancing farm productivity as additional labor, managing family finances to sustain farm capital, and participating in strategic decision-making for farm sustainability. Farmers' wives are not only responsible for household management but are also involved in various farming activities, from land preparation and plant maintenance to harvesting, post-harvest processing, and marketing. Their involvement highlights that the sustainability of Arabica coffee farming is a collaborative effort involving the entire family (Hadi, 2019).

However, the role of farmers' wives often goes unnoticed, as women in the agricultural sector are still perceived as complementary labor, leading to their contributions being frequently overlooked. Farmers' wives have the potential to act as agents of change in supporting the sustainability of family farming. Despite this, they face challenges such as a double burden of balancing domestic responsibilities, such as household management and child education, with productive roles in the agricultural sector. Moreover, limited access to resources, such as training, technology, and market information, remains a major obstacle to enhancing their contributions to farming (FAO, 2021). A lack of gender-responsive policies further compounds the issue, as the role of farmers' wives is often not formally recognized within agribusiness systems.This situation underscores the need for in-depth studies on the participation of farmers' wives in supporting the sustainability of Arabica coffee farming. By understanding their roles, challenges, and opportunities, more effective empowerment strategies can be formulated (Sutrisno, 2020). This study aims to identify the roles of farmers' wives in Arabica coffee farming in Manikliyu Village and to examine the factors influencing their level of participation in supporting family farming.

2. RESEARCH METODOLOGY

This research was conducted from November to December 2024 in Manikliyu Village, Kintamani Sub-district, Bangli Regency, Bali Province. The research location was selected purposefully because this area is one of the main Arabica coffee-producing regions in Bali Province, with the majority of its residents engaged in Arabica coffee farming as their primary livelihood.The study utilized both primary and secondary data. Primary data were collected through direct observation at the research site and face-to-face interviews with respondents using a structured

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questionnaire designed to align with the study's objectives. Secondary data were obtained from literature reviews and records from relevant institutions that support this research.The research sample was selected using an accidental sampling method, whereby respondents were chosen based on chance encounters. Specifically, the sample consisted of Arabica coffee farmers' wives encountered at the research site who were deemed appropriate sources of data. A total of 30 respondents were involved in the study.The research employed a qualitative descriptive approach, which aims to explore or describe the realities being studied. Descriptive research is conducted to identify, reveal, or depict a problem, condition, or event as it is. It is intended to disclose facts and provide an objective depiction of the actual state of the research subject (Nawawi, 2007).The qualitative descriptive analysis method involved conducting in-depth interviews using a questionnaire to identify the forms of participation by farmers' wives in supporting Arabica coffee farming in Manikliyu Village. The participation of farmers' wives was measured using indicators evaluated with the Likert scale method.

The indicators were analyzed descriptively and qualitatively by breaking them down into specific questions listed in the questionnaire. Each question was assigned a score as follows: very high (5), high (4), medium (3), low (2), and very low (1). For instance, with 35 questions, the maximum possible score is 175, and the minimum score is 35. If the categories are divided into five classes very high, high, medium, low, and very low—the class interval is determined using the formula below (Silalahi, 2015):

$$C = \frac{Xn - Xi}{K} = \frac{175 - 35}{5} = 28$$

Explanation:

C = Class Interval
Xn = Maximum Score
Xi = Minimum Score
K = Number of Classes

Based on the calculation above, the categories for the participation levels of Farmers' Wives in Supporting the Sustainability of Arabica Coffee Farming Can be Determined and are Displayed in Table 1.

Table 1 Provides a Breakdown of The Class Intervals for the Participation levels of farmers' wives in supporting the sustainability of Arabica coffee farming in Manikliyu Village

No.	Class Interval	The Participation Level of Farmers' Wives
1.	35,00 – 63,00	Very Low
2.	63,01 – 91,01	Low
3.	91,02 – 119,02	Medium
4.	119, 03 – 147,03	High
5.	147,04 – 175	Very High

Source: Primary Data (processed), 2024

3. LITERATUR REVIEW

Previous studies show that women's participation, particularly that of farmers' wives, has a significant impact on the sustainability of farming:

According to Apriyani et al. (2024), the time allocation of women coffee farmers as housewives (IRT) is predominantly devoted to domestic activities. Meanwhile, coffee farmers who also work as traders and service providers allocate most of their time to economic activities. On the other hand, women coffee farmers working as traders primarily divide their time between economic and domestic activities, leaving limited time for social activities.

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According to Widiastri et al. (2024), the roles of women farmers in Bali Sadhar Selatan Village are divided into three categories. The reproductive role involves managing domestic or household activities as housewives. The productive role involves earning a living as paddy field farmers and agricultural laborers. The social role includes participating in public or religious activities. Factors influencing women's roles include family factors, economic pressure, education, and habits. Balinese cultural perspectives on women's roles are generally positive, as these activities align with customary regulations (awig-awig) and fulfilling dharma (virtue/truth) as guided by Hindu religious teachings.
According to Ilmu et al. (2023), the household production activities of coffee farmers can be divided into two categories. First, farming production activities: 65% of these activities are carried out by women and 35% by men (husbands). Of the two types of productive work, 60% is performed by women and 40% by men. Reproductive activities are divided as follows: 6% by husbands, 78% by wives, and 18% conducted jointly. The level of participation in social activities by gender is 37.5% for men and 48.75% for women. Both access and benefits within coffee farming households show equal levels of authority. Currently, financial management in these households is handled by women in 85.7% of the 14 households studied. Women's contribution to household income in this study is significant, amounting to 54.4%. The higher women's productivity, the better the household's socio-economic conditions. To achieve stable and prosperous households, cooperation and balanced household management are essential, resulting in improved household finances.

4. RESULTS AND DISCUSSION

The participation of farmers' wives in supporting the sustainability of Arabica coffee farming can be seen from their involvement in supporting the coffee farming activities, starting from land preparation to decision-making. Based on the research results, the participation of farmers' wives in supporting the sustainability of Arabica coffee farming was measured using a Likert scale with 5 categories: "Very Low," "Low," "Moderate," "High," and "Very High." The following is an explanation based on the research results regarding the participation of farmers' wives in supporting Arabica coffee farming in Manikliyu Village.

Arabica Coffee Land Preparation

The participation of farmers' wives in Arabica coffee land preparation activities in Manikliyu Village falls into the "High" category with a score of 679 and an average score of 22.63 from 30 respondents. This category reflects the level of involvement of farmers' wives in land preparation, which is the foundation for the sustainability of their farming activities. The role of farmers' wives in land preparation includes land clearing, such as removing weeds, stones, and plant residues to prepare clean land ready for planting. In addition to land clearing, farmers' wives also play a role in applying basic fertilizers, such as compost, manure, and inorganic fertilizers. The participation of farmers' wives in land preparation activities is based on the understanding that the success of land preparation directly affects the harvest and influences the family's income. Family cooperation plays a crucial role, with the division of tasks between the husband and wife ensuring that land management is done efficiently. Properly managed land will result in healthy Arabica coffee plants that grow well, producing high-quality beans that meet the increasing market demand.

Determination of Clones

The participation of farmers' wives in the determination of Arabica coffee clones in Manikliyu Village falls into the "Moderate" category with a score of 439 and an average score of 14.63 from 30 respondents. The determination of clones is the process of selecting superior coffee varieties to be planted with the aim of increasing productivity and the quality of the harvest. Although the clone determination activity is dominated by male farmers, farmers' wives still contribute, such as participating in

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discussions with their husbands about the type of clones to be planted, considering factors such as yield potential, disease resistance, suitability to land conditions, and ease of management. Despite being categorized as “Moderate,” the participation of farmers' wives in clone determination still provides an important contribution to the sustainability of Arabica coffee farming. The input given by farmers' wives is based on their direct experience in managing the crops, helping ensure that the selected clones are not only productive but also suitable for the family farm's management capacity. By improving access to information and training, the participation of farmers' wives in clone determination can be enhanced, resulting in a more significant impact on the sustainability of Arabica coffee farming in Manikliyu Village.

Fertilization

The participation of farmers' wives in fertilization activities for Arabica coffee in Manikliyu Village falls into the “High” category with a score of 589 and an average score of 19.63 from 30 respondents. Fertilization is a critical stage in farming activities aimed at providing nutrients to plants, ensuring productivity, and making them resistant to pests and diseases. Farmers' wives are actively involved in fertilization activities, from preparation to application. They help prepare organic and inorganic fertilizers and ensure that the correct dosage is applied to improve soil fertility. In the application process, farmers' wives assist in distributing fertilizers evenly to the planting areas and ensuring proper timing. This high level of participation indicates that farmers' wives not only have a technical role in farming activities but also contribute strategically to supporting the sustainability of Arabica coffee farming, positively impacting productivity and the quality of coffee beans in Manikliyu Village.

Planting

The participation of farmers' wives in Arabica coffee planting activities in Manikliyu Village falls into the “High” category with a score of 592 and an average score of 19.73 from 30 respondents. Planting is an essential activity in the initial success of cultivation. Farmers' wives are actively involved in activities from seedling preparation to planting in the prepared land. In this activity, farmers' wives also ensure that the seedlings to be planted have good growth potential and are resistant to pests and diseases. During planting, farmers' wives assist in digging planting holes and managing planting distances. They also help place the seedlings in the holes and ensure the proper spacing for healthy plant growth. Farmers' wives also contribute to closing the planting holes using a mixture of soil and organic fertilizer. Participation in planting activities goes beyond just physical tasks and includes decision-making regarding the appropriate timing for planting, considering the season and water availability. The high participation of farmers' wives in planting reflects their awareness of efforts to increase Arabica coffee productivity. Their role also reflects the cooperative work pattern within the family farm that supports the sustainability of Arabica coffee agribusiness in Manikliyu Village.

Pest and Disease Control

The participation of farmers' wives in pest and disease control activities is categorized as “High,” with a score of 624 and an average score of 20.80. In this activity, farmers' wives actively monitor plant conditions regularly, looking for early signs of pest attacks, and control pests and diseases using natural pesticides. They also help apply chemical pesticides if needed, following the recommended dosage and procedures from agricultural extension workers. Additionally, farmers' wives help remove weeds and plant residues that can harbor pests, preventing further spread of diseases. The high level of participation is driven by the awareness that effective pest and disease control directly affects the quality of the harvest. The role of farmers' wives in pest and disease control reflects their awareness of the importance of maintaining plant health as part of the sustainability of Arabica coffee farming.

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Harvesting and Post-Harvest

The participation of farmers' wives in harvesting and post-harvest activities falls into the “High” category with a score of 595 and an average score of 19.83. The harvesting and post-harvest activities include a series of tasks aimed at ensuring that the harvest quality is maintained so that it meets market standards and provides maximum profit for the family farm. During harvest, farmers' wives play an active role in selectively picking ripe coffee cherries. They are skilled at recognizing ripe coffee cherries based on color and texture, ensuring that only mature cherries are picked to maintain the quality of Arabica coffee beans. Farmers' wives also assist in gathering the harvest to the temporary storage location to prevent physical damage to the cherries. In post-harvest activities, farmers' wives are involved in washing, peeling, fermenting, and drying the beans. The high level of participation is influenced by their understanding of the importance of maintaining product quality to increase market value. Their involvement is also driven by economic awareness that proper harvest and post-harvest management directly impacts the family’s income.

Decision-Making

The participation of farmers' wives in decision-making activities is categorized as “Low,” with a score of 378 and an average score of 12.60. Decision-making, such as determining the type of clones to plant, budgeting for fertilizers and pesticides, and planning the sale of the harvest, is an area where farmers' wives have limited involvement, with male farmers predominating in the decision-making process. This low involvement could be caused by factors such as the husband’s role as the primary decision-maker, limited access to technical and market information for farmers' wives, and local cultural norms that influence role distribution, with women typically more involved in technical tasks than in strategic planning. Despite their limited participation in decision-making, farmers' wives still provide informal input based on their daily management experiences.

Factors Affecting the Participation of Farmers' Wives

The participation of farmers' wives in supporting Arabica coffee farming in Manikliyu Village is influenced by various factors, including:

1. Role Division within the Family

The role division within the family leads to farmers' wives being more involved in technical activities like land preparation, fertilization, harvesting, and post-harvest. Strategic decision-making is typically the responsibility of the husband.

2. Availability of Time and Workload

The involvement of farmers' wives is also influenced by their available time. Farmers' wives often have dual responsibilities in both household chores and farming activities. Household duties can limit their time and energy to be fully involved in farming activities.

3. Economic Factors

The family’s economic situation also affects the level of farmers' wives' participation in farming activities. As a result, farmers' wives are more active in farming to contribute to increasing the family’s income.

4. Awareness and Motivation

The awareness and motivation of farmers' wives about the importance of their role in the success of the farm is another key factor in increasing their participation, which helps both their family and farming productivity.

5. Support from Husbands and the Community

Support from husbands and farmer groups also plays a role in encouraging farmers' wives to participate. Husbands can provide trust and encouragement to their wives to actively engage in various farming activities. Support from the husband and the farming community also contributes to encouraging farmers' wives' participation.

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Farmer groups that involve women provide opportunities for wives to contribute more significantly to farming activities.

5. CONCLUSION

Based on the research results, the participation of farmers' wives in supporting the sustainability of Arabica coffee farming in Manikliyu Village, Kintamani District, Bangli Regency, Bali Province, is categorized as “High.” The participation of farmers' wives is observed in technical activities such as land preparation, fertilization, planting, pest and disease control, harvesting, and post-harvest processes. Meanwhile, the determination of clones falls into the “Moderate” category, and decision-making is categorized as “Low.”

The factors influencing the role of farmers' wives in supporting the family farm include the division of roles within the family, availability of time and workload, family economic conditions, awareness and motivation, and support from their husbands and the surrounding environment.

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