JURNAL MULTIDISIPLIN MADANI (MUDIMA)

Homepage: https://mryformosapublisher.org/index.php/mudima
ISSN: 2808-5639 (Online)
Research Article

Volume 5, No 4, April (2025)	DOI: https://doi.org/10.55927/mudima.v5i4.208	Page: 379-385

Socioeconomic Analysis of Variety of Agroforestry Practices in Social Forestry in Forest Areas of Dompu District

Rizki Fadlika[1], Markum[2*], Andrie Ridzki Prasetyo[3]
Universitas Mataram
Corresponding Author: Markum markum.exp@gmail.com

ARTICLEINFO

Keywords: Social Forestry, Community Forestry, Agroforestry, Farmer Income

Received : 3 *February*
Revised : *20 March*
Accepted : *22 April*

ABSTRACT

The Government of Indonesia is targeting the acceleration of Social Forestry through Community Forestry, which applies a management pattern with a system of combining various types of plants from both trees and agricultural crops in a land known as Agroforestry (Puspasari et al., 2017). The people of Dompu Regency utilize forest areas as community forests for their social interests without considering the sustainability of forest. This research method uses descriptive research methods. Using two approaches, namely qualitative and quantitative approaches. The results showed that the mixed agroforestry pattern provides a higher net income (IDR 7,082,924/year) than the simple agroforestry pattern (IDR 2,938,820/year), although it requires higher production costs. In addition to income from agroforestry, some farmers also earned income from non-agroforestry sectors, such as farm labor, salaries, and self-employed businesses, with an average household income of Rp12,755,208/year. The highest income of farmer households was obtained from corn farming with an average contribution of 60%. Then followed by non-agroforestry income contributing 27%. If the contribution made by agroforestry 10% of the total income, it is very helpful in meeting needs (Octavianingsih, 2010) in (Sari et al., 2021). While farmer household income from agroforestry practices averaged 12%, this is because farmers have just implemented an agroforestry system on their cultivated land so that the contribution value of agroforestry to income is still relatively low with corn farming

INTRODUCTION

The Government of Indonesia targets to accelerate the Social Forestry Program. Community Forestry applies a management pattern by combining various types of plants both from trees and agricultural crops in a land known as Agroforestry (Puspasari et al., 2017). Management of agroforestry systems needs to adjust to diverse ecological and social contexts (Coe et al., 2014). The statement (Wulandari et al., 2014), which states that community involvement is able to optimize forest land by implementing an agroforestry system. The application of agroforestry systems is expected to optimize and increase land productivity so that the community manages the results sustainably.

Dompu District, West Nusa Tenggara Province is one of the districts targeted by the Social Forestry program. The area of community forest in Dompu district is 4020.89 hectares, covering four sub-districts: Dompu, Pajo, Manggelewa and Kempo (BPS NTB, 2016). Community of Dompu District After cutting down trees, the community cultivates seasonal crops such as corn, resulting in deforestation that risks deforestation (Dirawan & Mundar, 2022). If this situation continues, it will threaten the long-term sustainability of forest functions, be it ecological functions, social functions, or economic functions.

Agroforestry practices are a very important factor in the process of adopting social forestry by land users and developing agroforestry practices by researchers, extension workers, government and farmers themselves. This research is very important to find out the variety of agroforestry practices and analyze the contribution of agroforestry to the household income of managers of various agroforestry practices in Dompu District.

METHODS

This research uses descriptive research methods, with two approaches, namely qualitative and quantitative approaches. the tools used are: documentation tools (cameras), recording devices, data processing software (ms. Excel), stationery. The materials used in this study are questionnaires, while the materials used in this study are questionnaires. The research was conducted from October to December 2024, located in Dompu Regency, West Nusa Tenggara. The research location was determined by purposive sampling. The location was chosen with the consideration that there are communities that implement agroforestry practices in the working area of the Forest Management Unit (BKPH) (Odum, 1993).

Responden

The respondent sample was determined using a census method, meaning that all agroforestry managers found in KPH Toffo Pajo Soromandi, KPH Ampang Riwo, and KPH Tambora were included as respondents.

Research Variables

(1) to determine the variety of agroforestry practices (objective 1), the variables studied include: plant names, number of plants, planting combinations, planting patterns; (2) to determine the social and institutional characteristics of the agroforestry management community (objective 2), the variables studied include: livelihood sources, origin of managers, community groups, social capital (social activities); (3) to analyze the contribution of agroforestry to farmers' household income, the variables studied are: (a) income from agroforestry includes: fixed costs and non-fixed costs, production, product prices, gross income, net income; (b) non-agroforestry farm income includes: income from farmland outside agroforestry (corn cultivation results, non-corn products), non-farm income is income from activities outside the farm of both farmers and family members such as: construction workers, motorcycle taxis, small businesses, village employees, and others.

Data Analysis

Analysis of the variety of agroforestry practices using descriptive analysis by making a description of the variety of plant types, number of , planting combinations, plant age, and pattern planting pattern based on combination variety crops, and describe social and institutional characteristics ranging from livelihood sources, origin of managers, community groups and social capital. Field notes were taken using a questionnaire to determine the situation and conditions of various agroforestry practices in social forestry in forest areas of Dompu District.

To determine the amount of costs and income from farmers, the following methods were used

recording method and calculation costs, income, and contribution from agroforestry (Mega, 2021).

The formula for calculating costs:

$$TC = FC + VC$$

Description :

TC = Total Cost (Rp)

FC = Fixed Cost (Rp)

VC = Variable Cost (Rp)

Income formula:

$$TP = TR - TC$$

Description :

TP = Net Income (IDR)

TR = Total Revenue (Rp)

TC = Total Cost (Rp)

Formula for calculating production value:

Total production (Kg/year) x Production Price (Rp/Kg)

Farmer household income :

Farmer income from Agroforestry + Farmer income from farming outside agroforestry + Farmer income from non-farming.

The formula for calculating the contribution of agroforestry to farmer income is as follows :

$$Kr = \frac{R}{Pt} \times 100\%$$

Description :

Kr = Contribution from agroforestry

R = Farmer income from agroforestry

Pt = Total income of farmers

RESULTS AND DISCUSSION

Based on the results of the study, the number of sample farmers was identified as 25 (people) with an average age of 45 years, which is still classified as productive. The age of farmers can basically affect farming activities and productivity, in this case affecting the physical condition and thinking ability of a person (Prasetya & Putro, 2019). Respondents have an average of 5 (people) family members where the number of family members is the number of family dependents.

Respondents have quite a long experience, namely with the average experience of respondents as a farmer for 18 years. A person who has a long experience in working or undergoing a job can influence the decisions or actions taken. The longer a person undergoes a job, the more experience he has gained (Septiadi & Nursan, 2021). Communities managing agroforestry practices in Social Forestry in the forest area of Dompu Regency still depend on forest products. Based on the research data, it was found that all 25 respondents who had been interviewed had the main job as farmers.

The majority of community members managing agroforestry practices in Dompu district have the highest level of education at the senior high school level (SMA), 11 people with a percentage of 44%. Thus, the higher the level of education, the better the understanding of various access to information and policy methods for capacity building as farmers. Gusti (2022) stated that farmers with a higher level of education have a more open mindset in accepting new innovations and understand more quickly in applying the latest technology so that they can develop and bring agricultural results to a better direction.

Farmers' production results on their cultivated land can be influenced by the area of cultivated land they manage. The respondents' cultivated land area found that most farmers have a land area of 1 to 3 Ha, namely 18 farmers with a percentage of 72%. The total amount of land area cultivated by 25 respondents is 45.95 Ha with an average of

1.83 Ha / person. This is one of the factors that affect the diversity of farmers' income. The results of agroforestry are still not enough to meet the economic needs of farmers so that they encroach on the land. Land in the forest area to be planted with monoculture agricultural crops, namely corn, the area of forest land cultivated by farmers is 1 to 3 Ha with a percentage of 68% there are 18 farmers. The total area of forest land cultivated by 25 respondents amounted to 61 ha with an average of 2.5 ha/person.

The results show that farmers in Dompu district apply a variety of agroforestry systems with different types of crops managed on their cultivated land. The cultivated plants consist of several main categories, namely woody (forestry) plants, MPTS (Multi-Purpose Tree Species) plants, under-stand plants and other plants. Common woody plants include mahogany (*Swietenia mahagoni*), teak (*Tectona grandis*), rosewood (*Dalbergia latifolia*), jabon (*Neolamarckia cadamba*), and sandalwood (*Santalum album*). Meanwhile, widely cultivated MPTS plants include durian (*Durio zibethinus*), avocado (*Persea americana*), guava (*Psidium guajava*), jackfruit (*Artocarpus heterophyllus*), and candlenut (*Aleurites moluccana*). In addition, farmers also utilize under-stand crops such as chili (*Capsicum frutescens*), ginger (*Zingiber officinale*),

turmeric (*Curcuma longa*), and porang (*Amorphophallus muelleri*).

Although MPTS crops are starting to be developed, most farmers still rely on corn (*Zea mays*) as the main commodity because it is considered more profitable, especially in the rainy season. This shows that farmers' cropping patterns are still oriented towards commodities that have high economic value in the short term, even though agroforestry has begun to be implemented gradually.

Farmers apply a simple agroforestry pattern, characterized by a small number of forestry plants (less than 100 plants per hectare) and the dominance of under-stand crops such as chili, porang, ginger, turmeric and cassava. In addition, some farmers also grow other crops such as bananas and corn. A total of 72% of respondents applied this pattern, spread across several villages such as Raba Baka, Banggo, Kampasi, Madaprama and Kramabura. Although still simple, this pattern is starting to transition to a more sustainable system with the addition of MPTS (Multi-Purpose Tree Species) crops such as durian and avocado. This is expected to increase the economic value of cultivated land in the long term.

28% of respondents opted for mixed agroforestry patterns, which more diverse and allow for alternating harvests throughout the year, with many fruit crops already productive at more than five years old. Overall, there is a tendency for farmers to shift from a predominantly annual crop-dominated farming system to a more diverse and sustainable agroforestry system, especially with the increasing interest in MPTS crops.

Agroforestry cropping is an agricultural system that combines forestry crops with agricultural crops on the same land. This model aims to improve land use efficiency, as well as increase crop yields. A sketch of the cropping pattern is seen in the following figure:

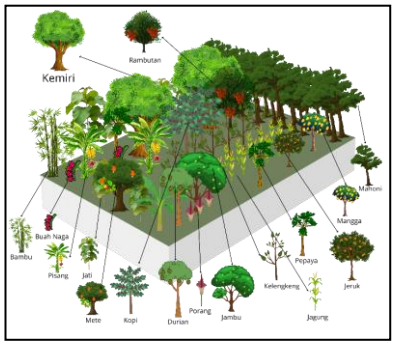

Figure 1. Sketch of the Planting Pattern Agroforestry Demonstration Plot in Dompu Sub-District

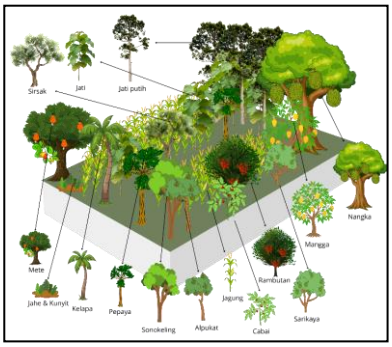

Figure 2. Sketch of Planting Pattern Woja Sub-District Agroforestry Demonstration Plot

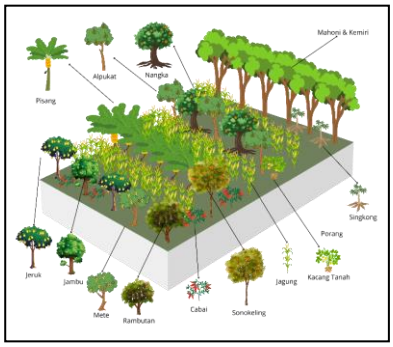

Figure 3. Sketch of Planting Pattern Agroforestry Demonstration Plot in Manggelewa sub-district

The agroforestry patterns implemented in the study area vary based on land characteristics and local farming traditions. In general, there are two main planting patterns used: random mixtures and alternate rows. In Dompu and Woja Districts (BKPH Toffo Pajo Soromandi and BKPH Ampang Riwo), farmers apply a random planting pattern, where forestry and agricultural crops are planted irregularly throughout the plot without a specific arrangement. This pattern is a long-standing tradition and is still widely used by forest farmers due to its ease of implementation and flexibility in land use. In Manggelewa District (BKPH Tambora), most farmers apply a row planting system, where forestry trees and agricultural crops are planted in alternating rows. This pattern offers advantages in improving land productivity, maintaining soil fertility, and providing both short-term economic returns from agricultural crops and long-term returns from forestry trees.

Income analysis of farmers on managed land shows variation depending on land area, types of crops planted, and management practices. The average annual income per hectare based on agroforestry patterns indicates that the average yield from all crops in the mixed agroforestry pattern reaches 192 kg/liter/bunch/unit/year, with an average price of IDR 34,879 per unit. The average gross

income from this mixed pattern is IDR 8,269,924/Ha/year. Meanwhile, the simple agroforestry pattern produces 235 kg/liter/bunch/unit/year, with an average price of IDR 24,556 per unit. The average gross income from this pattern is IDR 5,227,472/Ha/year. When compared, the gross income from the simple agroforestry pattern tends to be lower. This shows that the mixed agroforestry pattern can provide greater economic benefits for farmers.

The production costs in the mixed agroforestry pattern include fixed costs of IDR 207,000/Ha/year and variable costs of IDR 980,000/year, resulting in total production costs of IDR 1,187,000/Ha/year. Efficient management of costs, especially in the variable cost component, can be a key factor in increasing the profitability of the mixed agroforestry pattern. Based on Table 3, production costs in the simple agroforestry pattern consist of fixed costs of IDR 183,500/Ha/year and variable costs of IDR 466,667/year, making the total production cost IDR 650,167/Ha/year. This indicates that the simple agroforestry system has lower production costs, which may be a more efficient choice for farmers with limited operating capital.

The average total income from the mixed agroforestry pattern is IDR 8,269,924/Ha/year, with total production costs of IDR 1,187,000/Ha/year. This results in an average net income of IDR 7,082,924/Ha/year. This income is higher compared to the simple agroforestry pattern, indicating that the mixed pattern is more profitable, even though it requires higher production costs. Therefore, the mixed agroforestry pattern can be a more optimal choice for farmers to increase their economic outcomes. Meanwhile, the average total income from the simple agroforestry pattern is IDR 5,227,472/Ha/year, with total production costs of IDR 650,167/Ha/year, resulting in an average net income of IDR 4,577,305/Ha/year. Although lower than the mixed pattern, this system still provides significant benefits with lower production costs, making it a more efficient choice for farmers with limited capital.

The average total income of farmers from the agroforestry system reaches IDR 10,021,744/Ha/year, with an average of IDR 5,830,155/Ha/year per respondent, derived from the two main patterns, namely mixed and simple agroforestry. The mixed agroforestry pattern generates the highest income at IDR 7,082,924/Ha/year, while the simple agroforestry pattern produces IDR 4,577,305/Ha/year. This difference indicates that the mixed pattern is more profitable due to the greater variety and quantity of crops, thus contributing to increased productivity and farmer income.

The main source of income comes from salaries, accounting for 51%, with an average income per respondent of IDR 25,800,000/year. Income from agricultural labor contributes only 4%, with an average of IDR 1,785,714/year per respondent, indicating that this sector has the lowest income compared to other sources. The total household income amounts to IDR 195,000,000, with an average annual household income of IDR 48,750,000, or about IDR 12,755,208 per respondent.

The highest production cost in corn cultivation is labor, accounting for 35% or IDR 4,055,200/Ha/year. This amount is spent on land clearing, planting, maintenance, and harvesting. Most of the labor comes from outside the family. The smallest cost component is packaging sacks, accounting for 2% or IDR 263,400/Ha/year, due to their affordable price.

Income is the total amount of money received by farmers from selling their products (Mardani & Halus, 2017). Based on the average corn production in one cycle of cultivation, which is 9,146 kilograms, and the average selling price of corn at IDR 4,338/kg, the average income from corn farming in one cycle is IDR 39,675,348/Ha/year. Meanwhile, the average production cost for corn farming is IDR 11,450,200/Ha/year. Thus, the average net income from corn farming in Dompu Regency is IDR 28,225,148/Ha/year per production cycle.

Based on the income analysis of agroforestry farmers, the extent to which agroforestry practices contribute to household income in Dompu Regency can be determined. The data shows that the highest household income comes from corn cultivation, with an average contribution of IDR 28,225,148/year or 60%. Next is non-agroforestry income, contributing 27% or IDR 12,755,208/year. Meanwhile, income from agroforestry practices contributes an average of IDR 5,830,155/year or 11%. This is because farmers are only beginning to implement agroforestry systems on their managed land, so the contribution

value is still relatively low compared to corn cultivation.

Thus, the average total household income of farmers in Dompu Regency is IDR 46,810,471/year. The contribution of income from agroforestry practices to household income can be seen in the following diagram:

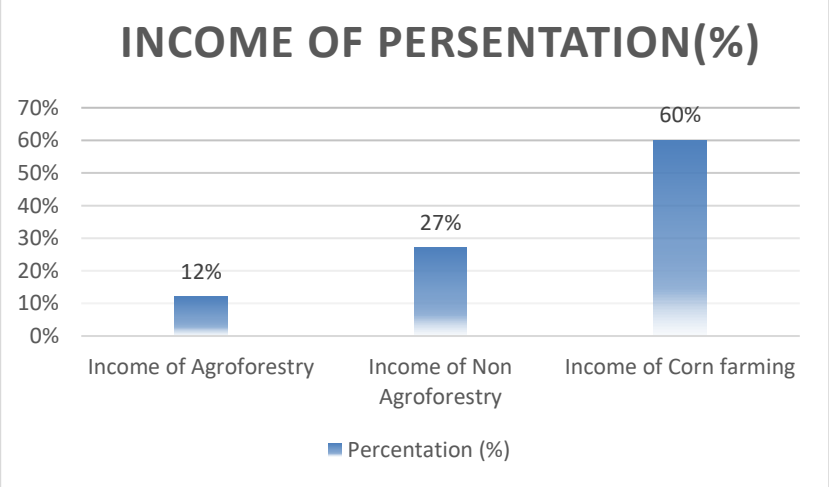

Figure 4. Income Contribution Diagram

Based on the figure above, it can be seen that the contribution from agroforestry crops is 12%, non-agroforestry 27%, and corn cultivation 60% of the total income earned. If the contribution from agroforestry reaches 10% of total income, it is already significantly helpful in meeting household needs (Octavianingsih, 2010 in Sari et al., 2017). Therefore, it can be said that agroforestry practices are quite capable of contributing to farmers' income. It is expected that all forest farmers in Dompu Regency will begin to apply agroforestry systems to their managed land, as agroforestry plays an important role and can be sustainably utilized. Moreover, the land managed by farmers can have positive impacts not only economically, but also socially and ecologically.

CONCLUSION

The majority of farmers in Dompu Regency still rely on forest products and simple agroforestry practices, with cultivated land areas ranging from 1 to 3 hectares. Most farmers have around 18 years of farming experience, with the highest level of education averaging senior high school (44%). The agroforestry systems implemented are categorized into two main patterns: simple agroforestry (68%) and mixed agroforestry (32%). Research findings indicate that the mixed agroforestry pattern generates a higher net income (IDR 7,082,924/year) compared to the simple agroforestry pattern (IDR 4,577,305/year), although it requires higher production costs.

In addition to income from agroforestry, some farmers also earn income from non-agroforestry sectors such as agricultural labor, salaries, and self-employment, with an average household income of IDR 12,755,208/year. Although agroforestry has been adopted, many farmers still rely on monoculture crops such as maize to boost short-term income. Transitioning to a more diverse and sustainable agroforestry system has the potential to improve farmers' economic well-being in the long term.

REFERENCES

Coe, R., Sinclair, F., & Barrios, E. (2014). Scaling up agroforestry requires research “in” rather than “for” development. *Current Opinion in Environmental Sustainability*, *6*(1), 73–77. https://doi.org/10.1016/j.cosust.2013.10.013

Dirawan.G.D, & Mundar. (2022). 5448-14602-1-Pb. *Jurnal Penelitian Humano*, *13*(2), 65–73.

Gusti, I. M., Gayatri, S., & Prasetyo, A. S. (2022). The Affecting of Farmer Ages, Level of Education and Farm Experience of the farming

knowledge about Kartu Tani beneficial and method of use in Parakan Distric, Temanggung Regency. *Jurnal Litbang Provinsi Jawa Tengah*, *19*(2), 209–221. https://doi.org/10.36762/jurnaljateng.v19i2.926

Mega Sari , Iskandar Hasan, B. I. (2021). *Peran Dan Kontribusi Pendapatan Usahatani Agroforestri Terhadap Pendapatan Rumahtangga Petani Di Kabupaten Luwu Utara*. *4*(1), 577–588.

Prasetya, N. R., & Putro, S. (2019). Hubungan Tingkat Pendidikan dan Umur Petani dengan Penurunan Jumlah Rumah Tangga Usaha Pertanian Sub Sektor Tanaman Pangan di Desa Meteseh Kecamatan Boja Kabupaten Kendal Nadya. *Edu Geography*, *7*(1), 47–56.

Puspasari, E., Wulandari, C., Darmawan, A., & Banuwa, I. S. (2017). Aspek Sosial Ekonomi pada Sistem Agroforestri di Areal Kerja Hutan Kemasyarakatan (HKm) Kabupaten Lampung Barat, Provinsi Lampung. *Jurnal Sylva Lestari*, *5*(3), 95. https://doi.org/10.23960/jsl3595-103

Sari, E. N., Handayani, L., & Saufi, A. (2017). Hubungan Antara Umur dan Masa Kerja dengan Keluhan Musculoskeletal Disorders (MSDs) pada Pekerja Laundry. *Jurnal Kedokteran Dan Kesehatan*, *13*(2), 183. https://doi.org/10.24853/jkk.13.2.183-194

Septiadi, D., & Nursan, M. (2021). Analisis Pendapatan Dan Kelayakan Usahatani Jagung di Kabupaten Dompu. *Agroteksos*, *31*(2), 93–100.

Wulandari, C., Budiono, P., Yuwono, S. B., & Herwanti, S. (2014). Adoption of agro-forestry patterns and crop systems around register 19 forest park, lampung province, Indonesia. *Jurnal Manajemen Hutan Tropika*, *20*(2), 86–93. https://doi.org/10.7226/jtfm.20.2.86