The Effect of Liquid Organic Fertilizer (LOF) Rabbit Urine on the Growth and Yield of Three Varieties of Shallots (*Allium ascalonicum* L.)

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Abstract

Background: Global climate change significantly affects carbon dynamics in perennial crop ecosystems, including agroforestry systems. This study aims to analyze carbon dynamics in three types of agroforestry systems: agrosilvopastura, agrosilvicultural based on horticultural crops, and agrosilvicultural based on woody plants, and to identify the vegetation diversity and composition. **Methods:** The study was conducted from January to March 2025 using field surveys and purposive sampling in Wonosalam, East Java, Indonesia. Laboratory analyses included physical properties (soil texture and bulk density) and chemical properties. **Results:** The results showed a strong relationship between biomass and total carbon stock (R2 = 0.7867) and a strong correlation between vegetation density and carbon stock (R2 = 0.7981). **Conclusions:** The agrosilvicultural system based on woody plants makes the highest contribution to carbon dynamics among agroforestry systems, due to its vegetation composition dominated by woody and perennial plants. The even distribution of the Importance Value Index (IVI) reflects a stable and balanced ecosystem, as observed in plot 3, where excelsa coffee (*Coffea excelsa*) has an IVI of 37,78%, Durian (*Durio zibethinus*) has 35,56%, and banana (*Musa spp*) also has 37,78%.

Keywords: Agroforestry; Biomass; Carbon Dynamics

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Introduction

Global climate change has significantly altered carbon dynamics within perennial crop ecosystems, including agroforestry systems. Agroforestry holds excellent potential for carbon sequestration and storage through both plant biomass and soil organic matter. Photosynthesis in durian plants contributes to the uptake of carbon dioxide (CO_2) from the atmosphere, which is then stored as plant biomass and soil organic matter (Bhaskara, 2018). Root systems and decomposed litter also store part of this carbon and serve as long-term carbon reservoirs. However, carbon dynamics across various agroforestry types are influenced by factors such as climate, soil fertility, and plant age. Fluctuations in temperature, rainfall, and erratic seasonal patterns can affect carbon flows in the ecosystem (Gunadi, 2020). The problem that arises is the lack of specific data on fluctuations in carbon absorption and release across various ecosystem conditions.

Carbon dynamics in different types of agroforestry, such as agrosilvopastura, horticulture-based agrosilviculture, and woody-plant-based agrosilviculture, vary in their effects on carbon sequestration and storage rates. These systems exhibit varying capacities to absorb carbon due to their biodiversity and ecological interactions, influenced by factors such as plant species, plant age, cropping patterns, and soil

management practices (Akbar, 2022). The decomposition of organic matter by soil microorganisms also plays a key role. For instance, the agrosilvopastoral system supports carbon storage through interactions among trees, crops, and livestock. Therefore, carbon dynamics influenced by land management practices represent an important area of research.

Wonosalam is known for its strong agroforestry potential, particularly in Tukum Hamlet. Based on its topographical relief, it falls within the volcanic hills category with 2–5% slopes (official portal of Jombang Regency). *Durio zibethinus* is a key commodity, with production increasing from 32,700 quintals in 2021 to 337,446 quintals in 2022 (BPS, 2023). In addition to durian, horticultural crops such as coffee and clove thrive due to the favorable land and climate. One of the crucial factors influencing durian quality is soil nutrient content, particularly carbon.

Method

This study was conducted in Tukum Hamlet, Wonosalam District, Jombang Regency, East Java, from January to March 2025. The research site is geographically located at 7°42'05.15" S and 112°22'08 14" E, with an elevation of approximately 454.21 meters above sea level. The study area includes three agroforestry types: agrosilvopastura (AP) and agrosilviculture based on woody plants (AW), each covering approximately 7 hectares, and agrosilviculture based on horticultural crops (AH) with an area of 5000 m². The research employed a field survey method and purposive sampling. The field survey aimed to collect data naturally from selected sites using structured interviews and observations, while purposive sampling was used to select sample points based on specific criteria relevant to the research objectives (Sugiyono, 2020). Soil samples were then analyzed in the Soil Resource Laboratory, Faculty of Agriculture, National Development University "Veteran", East Java

Sample or Participant

Sampling locations were selected using purposive sampling to ensure representation of the entire study area across the three agroforestry types. Each land-use type was sampled in three replicates, each with three sampling points, yielding a total of 54 points. These were composited into 18 soil samples for laboratory analysis. This study observed three types of agroforestry systems:

a. Agrosilvopastura

The primary commodities are salak (*Salacca zalacca*), banana plants (*Musa paradisiaca*), durian (*Durio zibethinus*), teak (*Tectona grandis*), coconut (*Cocos nucifera*), mahogany (*Swietenia macrophylla*), ginger (Zingiber officinale), chili (Capsicum frutescens), and cattle and goats.

b. Agrosilvicultural System Based on Horticultural Crops

The main commodity is salak with variations of petai (*Parkia speciosa)*, mangosteen (*Garcinia mangostana)*, chili (*Capsicum frutescens)*, eggplant (*Solanum melongena)*, tomato (*Solanum lycopersicum)*, banana (*Musa paradisiaca*), and cassava (*Manihot esculenta*).

c. Agrosilvicultural System Based on Woody Plants

The primary commodities are durian (*Durio zibethinus)* and coffee, interspersed with teak (Tectona grandis), banana (Musa paradisiaca), and vanilla (*Vanilla planifolia).*

Instrument

The tools and equipment used included a GPS unit for mapping coordinates, a measuring tape, calipers for measuring tree diameter, soil augers, plastic bags for soil collection, and laboratory glassware. Biomass estimation used species-specific allometric equations as proposed by Hairiah & Rahayu (2011).

Data collection

Data collection included vegetation sampling and soil sampling. Soil samples were collected at each plot for physical, chemical, and biological analysis. Physical properties

measured included soil texture (pipette method) and bulk density (volumetric method). Chemical properties analyzed were pH (H_2O), organic carbon (Walkley and Black), and total nitrogen (Kjeldahl). Biological properties included aboveground biomass and necromass. Vegetation biomass was measured in plots based on tree diameter.
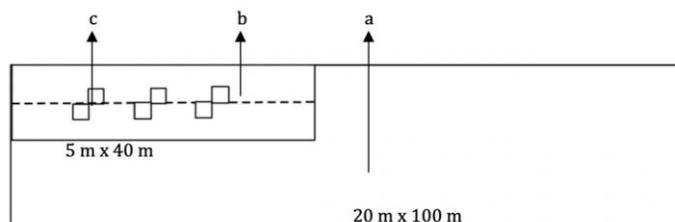

Figure 1. Biomass and Necromass Measurement Plots
Description:
a. The main plot measuring 20 m × 100 m (2.000 m²) is used to measure vegetation with a stem diameter greater than 30 cm (circumference > 95 cm), especially for woody plants. Tree diameter is measured at breast height (dbh = 1.3 m above ground level).
b. The subplot measuring 5 m × 40 m (200 m²) is used to measure vegetation with stem diameters between 5 cm and 30 cm (circumference 15–95 cm). It is further divided into sub-subplots measuring 2,5 m × 40 m. Diameter is also measured at breast height (dbh = 1,3 m above ground level).
c. Quadrats measuring 0.5 m × 0.5 m (0,25 m²) are used to collect samples of understory vegetation, litter, intact soil, and disturbed soil.

Procedure

Soil and vegetation data were collected systematically from three agroforestry systems. Each sampling point involved collecting soil samples from the 0–20 cm layer, the 20-40 cm layer, and compositing them per plot. For vegetation, trees were measured for diameter and height to estimate biomass using appropriate allometric models. Litter and herbaceous biomass were harvested, dried, and weighed to determine necromass. All samples were labeled and transported to the laboratory for further analysis. Sampling procedures and plot designs followed the guidelines from *Cadangan Karbon* by Hairiah and Rahayu (2011).

Data analysis

Collected data were analyzed using correlation and regression analyses to examine relationships between soil organic carbon and plant biomass. Statistical analyses were performed using IBM SPSS Statistics Viewer.

Result

Wonosalam is dominated by Andisols and Alfisols (Aji, 2024). Andisols are volcanic soils commonly found in highland areas, while Alfisols are young soils with clay accumulation in the subsoil horizon. The sampling sites cover various agroforestry types such as agrosilvopasture and agrosilviculture. The area has a hilly topography and high annual rainfall, ranging from 504.19 mm to 1,695.34 mm over the last five years (2020–2024). High rainfall increases the risk of leaching, especially in areas without vegetative cover.

Carbon dynamics in the agroforestry system reflect the accumulation and release of carbon through both biotic and abiotic components. This study found that carbon fluctuations are not only time-dependent but are also strongly influenced by vegetation diversity and density. Greater diversity and denser vegetation enhance the capacity to absorb and store carbon in both aboveground and belowground biomass. Carbon storage potential increases with higher vegetation cover and reduced land disturbance (Sari, 2020).

Soil Physical Properties (Soil Texture and Bulk Density)

Soil physical characteristics are supporting factors in determining carbon and nitrogen content in agroforestry systems. Soil texture, as a growing medium, influences the soil's capacity to retain organic matter such as carbon and nitrogen (Solekhah et al., 2024). Meanwhile, bulk density indicates the level of soil compaction, which affects pore space, air and water movement, as well as the soil's ability to store organic matter. The results of the soil texture and bulk density analyses across various agroforestry types in Dusun Tukum, Wonosalam, Jombang, are presented in Table 1.

Table 1. Results of Soil Physical Properties Analysis in the Study Area

Sample Code	% Fraction			Texture	Bulk Density (g/cm^3)
	Sand	Silt	Clay		
AP1	7,88	82,59	9,53	Sandy Loam	1,412
AP2	4,91	49,08	46,01	Sandy Loam	1,390
AP3	4,21	83,01	12,77	Sandy Loam	1,469
AH1	5,33	38,46	56,21	Sandy Loam	1,473
AH2	4,91	49,08	46,01	Sandy Loam	1,362
AH3	10,71	44,64	44,64	Sandy Loam	1,422
AW1	5,20	56,88	37,92	Sandy Loam	1,473
AW2	2,52	34,40	63,07	Sandy Loam	1,424
AW3	7,09	47,86	45,05	Sandy Loam	1,335

Note: AP= Agrosilvopastura, AH= Agrosilvicultural based on horticultural plants, AW= Agrosilvicultural based on woody plants

All agroforestry systems (AP, AH, AW) had similar soil textures, namely sandy loam, with sand content of 4,21–10,71%, silt 34,40–83,01%, and clay 9,53–63,07%. This similarity is due to the proximity of the sampling locations in Tukum Hamlet, Wonosalam (Table 1). Bulk density ranged from 1,335 to 1,473 g/cm^3, within the moderate category, indicating sufficient porosity for water, air, and soil organisms. This range supports agricultural activity and is still within optimal limits (Haryati, 2018). However, it is still included in the ideal soil for agriculture (Wuisan et al., 2021).

Soil Chemical Properties (pH, C-organic, N-total, and C/N Ratio)

Soil chemical characteristics play a vital role in regulating nutrient availability and organic matter dynamics in agroforestry systems. Parameters such as soil pH, organic carbon, and total nitrogen directly influence microbial activity, decomposition rates, and carbon storage capacity. The balance between carbon and nitrogen (C/N ratio) also determines the efficiency of nutrient cycling and soil fertility. This tends to decrease the C/N ratio (Suparto et al., 2025). The results of the chemical property analysis across different agroforestry types in Dusun Tukum, Wonosalam, Jombang, are presented in Table 2.

Table 2. Results of Soil Chemical Properties Analysis in the Study Area

Type of Agroforestry	pH	C-organic (%)		N-total (%)		C/N Ratio
		Value	Category	Value	Category	
Agrosilvopastura	6,92	1,35	R	0,12	R	18,09
Agrosilvicultural system based on horticultural crops	6,60	1,29	R	0,18	R	7,79
Agrosilvicultural system based on woody plants	6,56	1,31	R	0,17	R	7,71

The highest pH was found in agrosilvopastura systems (6.92), and the lowest in woody-plant-based agrosilviculture (6.56), both still within the optimal pH for plant growth. C-organic content was highest in AP (1.35%), followed by AB (1.31%) and AH (1.29%), while N-total ranged from 0.12% (AP) to 0.18% (AH). The highest C/N ratio was found in AP (18.09%), with lower ratios in AB and AH (7.71–7.79%).

Important Value Index

The Index of Importance (IVI) indicates a species' dominance in the community based on a combination of Relative Density (RD) and Relative Frequency (RF) values, thereby quantifying vegetation variety and abundance. A high IVI value indicates that a species has an important ecological role in the ecosystem (Hanafi et al., 2021).

Table 3. Relative Density, Relative Frequency, and Importance Value Index of Plant Species in Agrosilvopastura

No.	Type	RD (%)	RF (%)	IVI (%)
Plot 1				
1.	Durian (*Durio zibethinus*)	1,45%	16,67%	18,12%
2.	Salak (*Salacca zalacca*)	10,87%	16,67%	27,54%
3.	Banana (*Musa paradisiaca*)	3,62%	16,67%	20,29%
4.	Chili (*Capsicum frutescens*)	1,45%	16,67%	18,12%
5.	Coconut (*Cocos nucifera*)	0,72%	16,67%	17,39%
6.	Mahogany (*Swietenia macrophylla*)	1,45%	16,67%	18,12%
Plot 2				
1.	Durian (*Durio zibethinus*)	1,45%	14,29%	15,73%
2.	Salak (*Salacca zalacca*)	10,87%	14,29%	25,16%
3.	Banana (*Musa paradisiaca*)	3,62%	14,29%	17,91%
4.	Chili (*Capsicum frutescens*)	1,45%	14,29%	15,73%
5.	Coconut (*Cocos nucifera*)	0,72%	14,29%	15,01%
6.	Mahogany (*Swietenia macrophylla*)	1,45%	14,29%	15,73%
7.	Ginger (*Zingiber officinale*)	10,14%	14,29%	24,43%
Plot 3				
1.	Durian (*Durio zibethinus*)	1,45%	16,67%	18,12%
2.	Salak (*Salacca zalacca*)	17,39%	16,67%	34,06%
3.	Banana (*Musa paradisiaca*)	3,62%	16,67%	20,29%
4.	Coconut (*Cocos nucifera*)	0,72%	16,67%	17,39%
5.	Teak (*Tectona grandis*)	2,90%	16,67%	19,57%
6.	Mahogany (*Swietenia macrophylla*)	2,90%	16,67%	19,57%
Plot 4				
1.	Banana (*Musa paradisiaca*)	3,62%	16,67%	20,29%
2.	Salak (*Salacca zalacca*)	11,59%	16,67%	28,26%
3.	Chili (*Capsicum frutescens*)	0,72%	16,67%	17,39%
4.	Coconut (*Cocos nucifera*)	0,72%	16,67%	17,39%
5.	Teak (*Tectona grandis*)	2,17%	16,67%	18,84%
6.	Mahogany (*Swietenia macrophylla*)	2,90%	16,67%	19,57%

Description: RD= Relative Density, RF= Relative Frequency, IVI= Importance Value Index

Table 4. Relative Density, Relative Frequency, and Importance Value Index of Plant Species in Agrosilvicultural System based on Horticultural

No.	Species Name	RD (%)	RF (%)	IVI (%)
Plot 1				
1.	Salak (*Salacca zalacca*)	14,34%	100%	114,3%
Plot 2				
1.	Salak (*Salacca zalacca*)	19,67%	50%	69,67%
2.	Bitter Bean (*Parkia speciosa*)	1,64%	50%	51,64%
Plot 3				
1.	Chili (*Capsicum frutescens*),	6,15%	14,29%	20,43%
2.	Salak (*Salacca zalacca*)	6,15%	14,29%	20,43%
3.	Banana (*Musa paradisiaca*)	3,28%	14,29%	17,56%
4.	Tomato (*Solanum lycopersicum*)	4,10%	14,29%	18,38%
5.	Cassava (*Manihot esculenta*)	2,46%	14,29%	16,74%
6.	Mangosteen (*Garcinia mangostana*)	0,82%	14,29%	15,11%
7.	Bitter Bean (*Parkia speciosa*)	2,46%	14,29%	16,74%
Plot 4				
1.	Chili (*Capsicum frutescens*)	10,25%	16,67%	26,91%
2.	Salak (*Salacca zalacca*)	12,30%	16,67%	28,96%
3.	Banana (*Musa paradisiaca*)	6,97%	16,67%	23,63%
4.	Cassava (*Manihot esculenta*)	5,74%	16,67%	22,40%
5.	Manggosteen (*Garcinia mangostana*)	1,23%	16,67%	17,90%
6.	Bitter Bean (*Parkia speciosa*)	2,46%	16,67%	19,13%

Description: RD= Relative Density, RF= Relative Frequency, IVI= Importance Value Index

Table 5. Relative Density, Relative Frequency, and Importance Value Index of Plant Species in a Horticultural Agrosilvicultural System based on Woody Plants

		Species Name	RD (%)	RF (%)	IVI (%)
	Plot 1				
	1.	Durian (*Durio zibethinus*)	5,56%	25,00%	30,56%
	2.	Coffee	4,44%	25,00%	29,44%
	3.	Banana *(Musa paradisiaca)*	11,11%	25,00%	36,11%
D	4.	Teak (*Tectona grandis*)	8,89%	25,00%	33,89%
e	Plot 2				
s	1.	Durian (*Durio zibethinus*)	5,56%	25,00%	30,56%
	2.	Coffee	4,44%	25,00%	29,44%
c	3.	Banana *(Musa paradisiaca)*	5,56%	25,00%	30,56%
r	4.	Teak (*Tectona grandis*)	10,00%	25,00%	35,00%
i	Plot 3				
p	1.	Durian (*Durio zibethinus*)	2,22%	33,33%	35,56%
t	2.	Coffee	4,44%	33,33%	37,78%
	3.	Banana *(Musa paradisiaca)*	4,44%	33,33%	37,78%
i	Plot 4				
o	1.	Durian (*Durio zibethinus*)	3,33%	25,00%	28,33%
n	2.	Coffee	4,44%	25,00%	29,44%
.	3.	Banana *(Musa paradisiaca)*	6,67%	25,00%	31,67%
	4.	Vanili (*Vanilla planifolia*)	18,89%	25,00%	43,89%

Description: RD= Relative Density, RF= Relative Frequency, IVI= Importance Value Index

The woody plant-based agrosilviculture system contributes most to carbon dynamics among agroforestry systems because it has vegetation dominated by woody and annual plants. This is shown in tables 3, 4, and 5, which illustrate the distribution of species and the Index of Importance values for the species that make up this system. This even distribution of the Index of Importance values reflects a stable, balanced ecosystem, as in plot 3, which has IVIs of 37,78% for coffee, 35,56% for durian, and 37,78% for banana. Although it does not have the highest IVI value in absolute terms in agrosilvopastura, the distribution of IVI values is more evenly spread across species, indicating a balanced, stable vegetation structure, with salak (34,06%), banana (20,29%), and mahogany (19,57%) among the most abundant.

Carbon Stocks

Table 6. Results of Biomass, Necromass, and Littertrap Analysis

Type of AF	Aboveground Biomass	Understory Biomass	Woody Necromass	Litter Necromass	Littertrap
			--ton/ha--		
AP	34,8	0,77	92,08	2,25	0,545
AH	32,55	1,35	44,18	0,94	0,361
AW	44,69	1,68	39,66	1,70	0,632

Description: AP= Agrosilvopastura, AH= Agrosilvicultura based on horticultura, AW= Agrosilvicultural based on woody plant

Table 7. Result of Carbon Stocks

Type of AF	Total C Forest Stand	Total C Necromass	Total C Aboveground	Total C Below Ground	Total C-Stock Plants	Total
			--ton/ha--			
AP	35,57	94,33	129,90	77,00	60,005	137,01
AH	33,90	45,13	79,03	72,39	36,519	108,91
AW	46,37	41,36	87,73	73,93	40,648	114,58

Description: AP= Agrosilvopasture, AH= Agrosilviculture Based on Horticultural Crops, AW= Agrosilviculture Based on Woody Crops.

Agrosilvicultural system based on horticultural

a

Agrosilvopastural

b

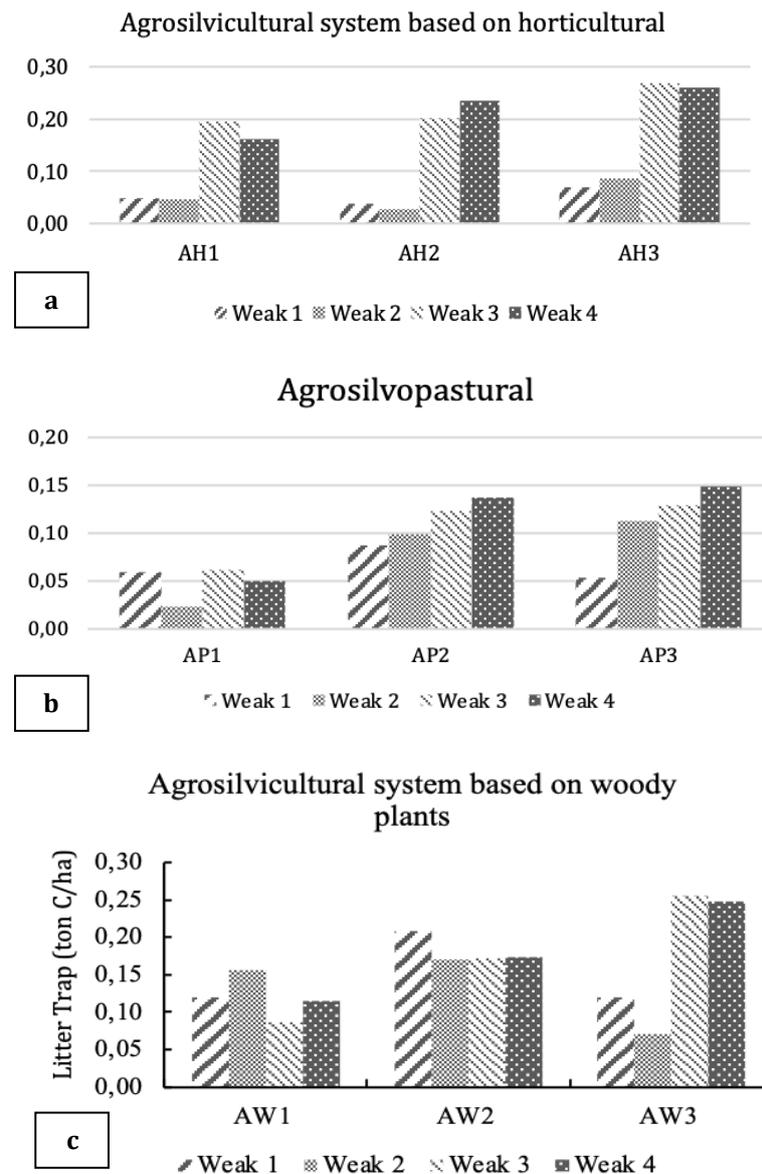### Agrosilvicultural system based on woody plants

c

Figure 2. Litter Trap Graph in Various Types of Agroforestry
Note: AP= Agrosilvopastura system, AH= Agrosilviculture system based on horticulture, AW= Agrosilviculture system based on woody plants

The measurement of litterfall carbon dynamics showed variations across systems and observation points. Denser tree populations generally produce higher litter quantities (Yulma et al., 2018). The agrosilvopastura system tended to exhibit fluctuations and a declining litter input trend, particularly at point AP1, indicating low vegetation density and the influence of livestock activity. In contrast, the horticulture-based agrosilviculture system demonstrated significant increases in litterfall at points AH1 and AH3, while AH2 showed a fluctuating pattern likely due to environmental factors. The tree-based agrosilviculture system exhibited the most stable performance and the highest litter accumulation, particularly at points AW2 and AW3, reflecting the land's stability and capacity to provide a consistent organic matter input. These patterns indicate that systems with dense canopy cover and woody plant structure contribute more substantially to carbon accumulation through litter production (Figure 2).
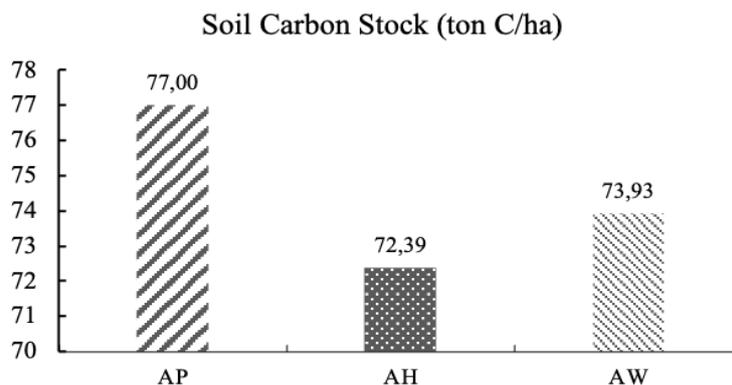
Soil Carbon Reserves and Total Carbon Stocks

Soil Carbon Stock (ton C/ha)

Figure 3. Graph of Soil Carbon in Different Types of Agroforestry
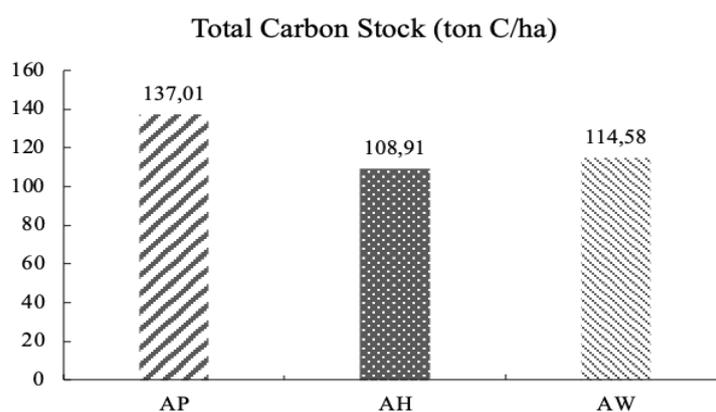
Total Carbon Stock (ton C/ha)

Figure 4. Graph of Total Carbon Stock in Various Agroforestry Types

Soil carbon is a relatively stable carbon pool, but it is still changing dynamically. Carbon input into the soil comes from both upper and lower plant biomass and necromass (Bagaskara et al., 2024). The agrosilvopastura system had the highest soil C value of 77 tons/ha (Table 4.8). The higher the C-organic value and tree density, the higher the carbon stock. Meanwhile, an increase in soil bulk density reduces organic carbon (Nainawa et al., 2023). Conversely, extremes in temperature and moisture significantly influence the activity and survival of soil organisms (Wasis et al., 2024).

The highest total *carbon stock* was found in the agrosilvopastura system (AP) at 137,01 tons/ha, followed by agrosilviculture based on woody plants (AW) at 114,58 tons C/ha, and the lowest was agrosilviculture based on horticultural plants (AH) at 108,91 tons C/ha. AP systems that combine forestry, agriculture, and livestock components tend to produce more complex and diverse stand structures, thereby increasing biomass, necromass, and carbon stock accumulation (Jose, 2020). Based on Hairiah et al. (2011), Irvianty (2023) *categorizes the stored carbon stock into three parts: the living part (biomass), the dead part (necromass), and* soil (soil organic matter).

Correlation Regression Analysis

The R^2 value of 0.6408 indicates that biomass is reasonably strongly related to soil organic carbon content. This is because an increase in biomass in a field is followed by an increase in the input of organic matter into the soil through the fall of leaves, dead roots, and other vegetation residues, thereby increasing organic carbon stocks in the soil (Lal, 2020). The R^2 value of 0.8413 indicates that vegetation density is strongly related to soil organic C content. In contrast, land with sparse vegetation has decreased organic carbon content due to erosion and limited organic matter input (Wang et al., 2019).

The relationship between plant biomass and total C stock showed a high correlation value of 0.992 (p < 0.01). Meanwhile, vegetation density was strongly correlated with total C stock, with a correlation coefficient of 0.908 (p < 0.01). The amount of carbon stock in a stand is influenced by several factors, including tree size, tree species diversity, and individual density (Indrajaya & Mulyana, 2017). The denser a stand is, the greater its ability to absorb carbon in the urban forest area (Handika et al., 2020).

Discussion

The research findings indicate that agrosilvopastoral and tree-based agrosilvicultural systems significantly influence carbon dynamics. The agrosilvopastura system showed the highest values for total biomass (77.00 ton/ha) and soil carbon (137.01ton C/ha). This result is influenced by the presence of woody plants, shrubs, horticultural crops, and livestock that increase organic input.

The tree-based agrosilviculture system also showed a stable carbon contribution, supported by a balanced distribution of IVI values such as *Coffea sp.* and *Musa paradisiaca* (37,78%) and *Durio zibethinus* (35,56%). The even IVI distribution indicates a more stable vegetation structure. In contrast, the horticulture-based agrosilviculture system showed high IVI values for particular species, such as *Salacca zalacca* (114,3%). However, most crops are short-lived and low in biomass, reducing their carbon contribution. Litterfall dynamics are influenced by vegetation density and weather factors. Systems with woody species and stable canopy structure tend to provide higher and more consistent carbon input through litter.

Conclusions

The results showed that both agrosilvopastura and tree-based agrosilviculture systems contributed significantly to carbon dynamics. The agrosilvopastura system recorded the highest total plant biomass (77,00 ton/ha) and total soil carbon (137,01ton C/ha), indicating a high organic input from the integration of woody plants, horticultural crops, shrubs, and livestock. Meanwhile, the tree-based agrosilviculture system demonstrated the most stable vegetation structure supported by evenly distributed IVI values such as *Coffea sp.* and *Musa paradisiaca* (37,78%) and *Durio zibethinus* (35,56%), suggesting a balanced ecosystem. Although the agrosilvopastura system showed the highest biomass accumulation, the balanced IVI distribution in the tree-based system, including *Salacca zalacca* (34,06%), *Musa paradisiaca* (20,29%), and *Swietenia macrophylla* (19,57%), indicates a more stable long-term contribution to carbon sequestration.

Acknowledgments

Declaration statement

The authors report no potential conflict of interest.

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