

## ADDED VALUE ANALYSIS OF LUGU'S ORGANIC PREMIUM TEA AGROINDUSTRY IN GUNUNG TALANG DISTRICT, SOLOK REGENCY

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### Abstract

In Indonesia, the tea processing agroindustry is dominated by large plantation companies. This research is motivated by farmers who are members of a cooperative that processes tea on a small scale and has successfully exported its products abroad. Therefore, this study aims to analyze the added value of the tea products produced in order to compete effectively with other companies. The analysis was carried out quantitatively using the Hayami method. Observations were conducted on the processing of tea leaves into dried tea products (black, green, and white tea). The results indicate that all three tea variants generate positive value-added. Black tea, green tea, and white tea yield value-added of Rp 23,080, Rp 41,201, and Rp 142,395 per kilogram, respectively. Notably, white tea demonstrates the highest value-added, with a profit of Rp 115,216/kg, while black tea and green tea generate profits of Rp 22,980/kg and Rp 41,075/kg, respectively. These findings are expected to provide valuable insights for tea farmers and agroindustry stakeholders in optimizing tea plantation management, improving operational efficiency, and maximizing profitability.

**Keywords:** *Agroindustry, Hayami, Organic tea, Value added.*

### INTRODUCTION

Plantation commodities in Indonesia play a vital role in supporting the national economy. The development of the plantation subsector depends significantly on collaboration between the government, the private sector, and farmers (Aditi et al., 2024; Limanseto, 2022; Mauerhofer, 2019; Munasinghe et al., 2019; UNEP, 2023). Indonesian plantation products show promising development prospects, with tea standing out as a world-class commodity. Tea is one of Indonesia's most exported goods and ranks as the second most consumed beverage globally (ITPC Osaka, 2022). According to the Central Statistics Agency (BPS), Indonesia exported 44,979 tons of tea in 2022 with a total export value of US\$89.9 million. In addition, during the World Tea Expo (WTE) held in Las Vegas from June 28 to 30, 2021, Indonesian tea products generated transactions amounting to approximately US\$5.5 million (Kementerian Perdagangan RI, 2021). This growth positions Indonesia's organic tea industry for rapid expansion (Ichwani et al., 2019). Notably, Indonesia's tea production has steadily increased from 2019 to 2022, although volumes remain below 75 tons (David et al., 2023).

From an agribusiness perspective, agroindustry serves as a subsystem responsible for processing agricultural harvests into semi-finished or consumer-ready products, including raw materials for industrial production (Noferly et al., 2021). This subsector encompasses both upstream (e.g., agricultural machinery and production inputs) and downstream activities (e.g., processing harvests into consumable goods or standardized industrial materials). Agroindustrial activities are recognized for their ability to generate added value (Annisa et al., 2020). Added value refers to the economic enhancement of a product or service for consumers, achieved by transforming raw materials into more functional and marketable goods (Tane et al., 2021). Its primary goal is to boost product appeal, competitive advantage, sales, and profitability (Noferly et al., 2021). As a critical metric in business development, added value influences pricing, profit margins, and market opportunities. Superior products—distinguished by quality or uniqueness—can attract consumer interest and expand market access. Additionally, value-added analysis aids in resource allocation, process optimization, and production efficiency. Quantifying value-added and profit generation is essential for strategic planning and operational improvement. Solok Regency possessed 521.50 hectares of smallholder tea plantations in 2022, making it the only district/city in West Sumatra with smallholder tea plantations (BPS Provinsi Sumatera Barat, 2024). The development of smallholder tea plantations in Solok Regency

began in 1987 through PT Perkebunan Nusantara VI (Hariance et al., 2023). In 2007, the Smart Foundation collaborated with the Solok District Government to initiate tea development in the area. Subsequently, in 2015, tea farmers united to support factories processing tea leaves. LUGU's Premium Tea represents a downstream business unit developed by KPTO-SJS (Organic Tea Farmers Cooperative Sebelas Jurai Saiyo) members. This processing converts tea leaves into loose tea, creating a distinctive Solok Regency beverage. The production process requires twenty-seven hours for black tea, twelve hours for green tea, and two hours for white tea. This processing enhances product value as the incurred costs contribute to the final price. However, although KPTO-SJS members have succeeded in developing the LUGU's Premium Tea product, there has been no research that quantitatively measures the amount of added value generated from this process.

Value creation plays a crucial role in industrial development to improve economic welfare. Added value positively impacts incomes for both farmers and business owners (Septiani et al., 2018). Value-added analysis measures the returns received by production factors from processing activities (Lestari et al., 2023). This motivates researchers to analyze the added value generated by the agroindustry. Without a concrete value-added analysis, it is difficult to understand how much profit each factor of production, including producers, labor, and other input contributions, actually receives. The lack of data from the aforementioned factors can hinder agro-industry owners from formulating optimal pricing strategies, efficient resource allocation, and ensuring fair profit distribution among the workforce. Therefore, this study aims to analyze the added value generated by the LUGU's Premium Tea agroindustry, measure the profits obtained, and examine the distribution between production factors, to provide a strong data foundation for strategic planning and improving the welfare of tea farmers.

## LITERATURE REVIEW

Agroindustry is defined as an industrial sector that utilizes agricultural products as its primary raw materials, emphasizing industrialization to increase the value-added and competitiveness of agricultural commodities. The success of an agroindustrial enterprise depends on the procurement of raw materials that satisfy three critical criteria: quantity, to optimize production capacity; quality, to meet consumer preferences; and continuity, to ensure long-term production stability. Within the premium tea sector, organic certification serves as a vital quality assurance mechanism. Organic processed food must be cultivated without synthetic chemicals and certified by authorized institutions to protect consumers and enhance market value. Standards require a minimum of 95% organic content, with strict prohibitions against irradiation and genetically modified organisms.

Value-added is the increase in a commodity's value resulting from processing, calculated as the difference between the product value and the costs of raw materials and other inputs, excluding labor. This study utilizes the Hayami Method, which incorporates technical factors (production capacity, labor) and market factors (output price, wages, input costs) to determine the value-added ratio and productivity. For accurate measurement, costs must be classified by function production, marketing, administration, and finance and by their behavior relative to production volume, specifically distinguishing between fixed and variable costs.

Previous research has established benchmarks for value-added ratios in beverage-based agroindustries, yet these studies often focus on single products or specific formats. For instance, Putri et al. (2023) reported a high value-added ratio of 88.42% for Bawang Dayak tea bags, while Wijayanti et al. (2022) found a 73.65% ratio for coffee-leaf tea bags. Novitasari (2022) demonstrated that premium packaging significantly elevates value-added ratios (58.28%) compared to standard packaging (40.28%) in the coffee industry. Regarding white tea specifically, Wiatha et al. (2021) identified that *white peony* varieties yield a substantially higher ratio (110.25%) than *silver needle* (47.77%). Despite these insights, a critical controversy persists in the literature regarding the calculation of "purchased services," such as transportation, which are often difficult to separate from personal expenses, potentially skewing the accuracy of value-added results. Furthermore, a significant research gap exists: while existing studies explore tea bags or specific high-end varieties, there is a lack of comparative analysis addressing three distinct types of loose tea—black, green, and white—within a single agroindustrial unit. This study aims to address this gap by evaluating the processing at Agroindustri Premium Tea LUGU's in Solok Regency, providing a comprehensive understanding of how different processing methods impact the rewards for production factors in a specific regional context.

## METHOD

This study employs a quantitative research methodology, which emphasizes the systematic analysis of numerical data using appropriate statistical techniques (Priadana et al., 2021). This study applies the Hayami method to assess value added, focusing primarily on the economic benefits generated through processing activities. This

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approach works by subtracting the cost of non-primary inputs, such as raw materials and supporting goods, from the total output value, which helps reveal the net contribution of local labor and resources (Hartuti et al., 2021; Lestari et al., 2023; Sundari et al., 2021). Through this calculation, the method offers a clear picture of how much added value is created along the production chain. It also serves as a practical tool to evaluate the efficiency of each stage in the process. As developed by Hayami (1987), this analytical framework measures value added through the formula presented in Table 1.

**Table 1.** Calculation of added value

No	Variables	Value
<b>Output, input, and price</b>		
1.	Output (kg/production)	A
2.	Raw materials (kg/production)	B
3.	Labor input (HOK/production)	C
4.	Conversion factor	D = A / B
5.	Labor coefficient	E = C / B
6.	Output price (IDR/kg)	F
7.	Average labor wages (IDR/HOK/production)	G
<b>Income and profit (IDR/kg of raw materials)</b>		
8.	Raw material price (IDR/kg)	H
9.	Other input contributions (IDR/kg)	I
10.	Output value (IDR/kg)	J = D × F
11.	a. Added value (IDR/kg)	K = J – H – I
	b. Value added ratio (%)	L% = (K / J) × 100%
12.	a. Labor compensation (IDR/kg)	M = E × G
	b. Labor share (%)	N% = (M / K) × 100%
13.	a. Profit (IDR/kg)	O = K – M
	b. Profit rate (%)	P% = (O / J) × 100%
<b>Production factors remuneration</b>		
14.	Margin (IDR/kg)	Q = J – H
	a. Labor income (%)	R% = (M / Q) × 100%
	b. Other input contribution (%)	S% = (I / Q) × 100%
	c. Profit (%)	T% = (O / Q) × 100%

## RESULTS AND DISCUSSION

The added value tea production process involves processing tea shoots into three distinct product variants: black tea, green tea, and white tea. This study conducts an added value analysis to (1) quantify the economic value generated at each processing stage, (2) assess the profitability of each tea variety, and (3) perform a comparative analysis of the value addition across all three product types.

Table 2. Results of Added Value Calculation

No	Variables	Value		
		Black tea	Green tea	White tea
<b>Output, input, and price</b>				
1	Output (kg/production)	190	286	3.08
2	Material standard (kg/production)	1055	1430	28
3	Power input work (HOK/production)	8.3	9.6	3.6
4	Factor conversion	0.18	0.2	0.11
5	Coefficient power work	0.007	0.006	0.129
6	Output price (IDR/kg)	500,000	500,000	2,500,000
7	Average wages of labor work (IDR/HOK/production)	2,872	4.307	20,085
<b>Income and profit</b>				
8	Price material standard (IDR/kg)	4,000	4,000	45,000
9	Other input contributions (IDR/kg)	63,007	54,876	50,553
10	Output value (IDR/kg)	90,047	100,000	275,000
11	Added value (IDR/kg)	23,040	41,124	179,447
	b. Ratio added value (%)	25.59	41.12	65.25
12	a. Rewards power work (IDR/kg)	23	29	2,593
	b. Section power work (%)	0.1	0.07	1.45
13	a. Profit (IDR/kg)	23,018	41,095	176,854
	b. Profit rate (%)	25.56	41.1	64.31
<b>Reply service factor production</b>				
14	Margin (IDR/Kg)	86,047	96,000	230,000
	a. Income power work (%)	0.03	0.03	1.13
	b. Other input contribution (%)	73.22	57.16	21.98
	c. Profit (%)	26.75	42.81	76.89

## Output, Input, And Price Groups

### 1. Output, raw materials, and prices

LUGU Premium Tea, in one month of production, can process 1,055 kilograms of wet tea shoots into 190 kilograms of black tea, 1,430 kilograms into 286 kilograms of green tea, and 28 kilograms of wet tea shoots into 3.08 kilograms of dry tea shoots. When measured by output, the white tea type produces only 3.08 kilograms of dry tea shoots, unlike the other two types. This difference is caused by the different raw materials used: black and green tea use the first three tea shoots, while white tea uses only the first *peko* shoots, whose leaves have not yet opened, so they cannot be produced in large quantities. This also affects the selling price of each product type: black and green tea can be purchased for IDR 500,000 per kilogram, while white tea must be purchased for IDR 2,500,000 per kilogram. Several studies have analyzed the added value of processing agricultural commodities into tea, namely research by Putri (2023) on the added value of processing Dayak onions into Dayak onion tea bags, Wijayanti (2022) on the added value of processing coffee leaves into Kahwa tea bags, and Wiartha et al., (2021) on the added value of processing tea into the silver needle and white peony types of white tea.

Of these three studies, the research conducted by Wiartha et al., (2021) used the same raw materials as this study; the research was conducted at a company located in Gianyar Regency, Bali. The raw materials used in one month of the production process in the study were 15 kilograms of white peony and 10 kilograms of silver needle, which produced 4 kilograms of white peony and 3 kilograms of silver needle. When viewed from the input of raw materials, LUGU's Premium Tea has been able to process raw materials in larger quantities than the company studied in Wiartha et al., (2021). However, in terms of the output produced, LUGU's produces more output than this agro-industry. The differences in output can be caused by the production process, such as differences in the temperature used, drying methods, and drying times. White tea has greater added value than other teas because the process used to produce it also requires the highest-quality raw materials. In addition, white tea is also a tea with antioxidant and antimicrobial content, which is deemed good for health (Choiriyah et al., 2021).

**2. Labor input**

Labor input represents a critical factor in the production process (Rahman, 2020; Shahadat et al., 2022), defined as the total working time required to manufacture products, measured in kilograms per month of operation. In this agro-industry, labor requirements vary significantly across tea varieties due to their distinct processing methods. The specific labor inputs for each tea type are detailed in Table 3, which quantifies the human resources required for black, green, and white tea production. These differences in labor demands directly reflect the varying complexity and duration of each tea's processing stages, from initial shoot selection to final packaging.

**Table 3.** Labor input

Variants	Number of workers (person)	Working time (hours)	Labor input (HOK)
	[1]	[2]	[3]= [1]*[2]/8
Black tea	6	11.1	8.3
Green tea	6	12.8	9.6
White tea	4	7.23	3.6

The Hayami method calculation reveals significant differences in labor requirements across tea varieties. For black tea production, the labor input equals 8.3 HOK (Man-Hour Operational Units) per production cycle, derived by multiplying the number of workers by their working time and dividing by a standard 8-hour workday. The processing stages for black tea require: 1 hour for withering, 2.1 hours for rolling, 1 hour for fermentation, 5 hours for drying, and 2 hours for packaging. In total, the processing of black tea requires 11.1 working hours. A comparative analysis shows that green tea requires 9.6 HOK per production, while white tea requires only 3.6 HOK. These metrics demonstrate that white tea processing requires substantially less labor than both black tea (56.6% reduction) and green tea (62.5% reduction). This efficiency advantage stems from a simpler protocol in white tea processing, which involves fewer processing stages compared to the more complex procedures required for black and green tea varieties.

**3. Conversion factor**

The efficiency of raw material utilization in tea processing can be quantified using a conversion factor, defined as the ratio of output to input (kg of finished tea per kg of raw tea shoots). Our analysis reveals distinct conversion factors for each tea variety: 0.18 for black tea (indicating 0.18 kg output per 1 kg of raw shoots), 0.20 for green tea, and 0.11 for white tea. These metrics demonstrate that green tea exhibits the highest conversion efficiency among the three varieties, requiring less raw material per unit of finished product than either black tea (11% more efficient) or white tea (82% more efficient). The conversion factor is fundamentally determined by two key variables: (1) the total output yield and (2) the quantity of raw materials consumed in production. This relationship highlights how processing methods and tea variety characteristics significantly influence production efficiency.

**4. Labor coefficient**

The labor coefficient serves as a key metric for evaluating production efficiency, calculated by dividing labor input in HOK or Man-Hour Operational Units by the quantity of raw materials processed (Chinh et al., 2021). This coefficient represents the working hours required per kilogram of raw material during one monthly production cycle. As presented in Table 2, the calculated labor coefficients are: 0.007 HOK or 0.056 hours for black tea, 0.006 HOK or 0.048 hours for green tea, and 0.129 HOK or 1.032 hours for white tea production. These values reveal significant efficiency differences, with green tea emerging as the most labor-efficient product, requiring only 0.006 HOK per kilogram of raw material, which is 14.3% more efficient than black tea and 95.3% more efficient than white tea. This efficiency hierarchy demonstrates how processing methods and product characteristics substantially impact labor requirements in tea manufacturing.

**5. Average labor wages**

The average wage per kilogram of raw material is calculated by dividing total labor costs by the total working hours required per kilogram of input in the loose tea production process. Our findings reveal significant variation across tea varieties: black tea production shows the lowest average wage at IDR 2,872 per kilogram, green tea requires IDR 4,307 per kilogram, while white tea commands the highest average wage of IDR 20,085 per kilogram, approximately 7 times higher than black tea and 4.7 times higher than green tea. This substantial wage difference

reflects both the varying labor intensity and skill requirements across different tea processing methods (Rahman, 2020). The complete breakdown of labor wage costs is presented in Table 4, which details the compensation structure for each production stage.

Table 4. Average labor wages

Type	Total cost wages (IDR)	Total HOK	Average labor wages (IDR)	Production (kg)	Average wage/production (IDR)
	[1]	[2]	[3]= [1]/[2]	[4]	[5]= [3]/[4]
Black tea	1.091.266	2	545.633	190	2.872
Green tea	1.231.742	1	1.231.742	286	4.307
White tea	556,760	3	185,587	9.24	20,085

## Income and Profit Group

### 1. Raw material prices

The pricing structure of raw materials varies significantly between tea varieties due to distinct quality requirements. For black and green tea production, the agroindustry utilizes either four *peko* shoots or three bird shoots, priced uniformly at IDR 4,000/kg. In contrast, white tea exclusively requires unopened *peko* shoots with a premium price of IDR 45,000/kg, which is 11.25 times higher than conventional shoots. This substantial price differential stems from three key factors: (1) the superior quality of white tea shoots, (2) pre-sorting by farmers that reduces processing time, and (3) limited availability of suitable shoots. Interviews with key informants reveal that raw material prices in this agroindustry remain dynamic, adjusting to market trends, while maintaining a baseline price established by the processing facility. Comparative analysis with Wiarta's (2021) study of Balinese tea processing reveals even more extreme pricing differentials. The Bali company reported raw material costs of IDR 250,000/kg for silver needle white tea, which uses the same unopened shoot criteria, and IDR 200,000/kg for white peony tea in 2019, approximately 5.6-8.3 times higher than LUGU's white tea shoot pricing. This comparison underscores two critical findings: (1) the inherent premium value of white tea raw materials across production regions, and (2) the relative cost efficiency achieved by this local agroindustry in raw material procurement.

### 2. Other input contributions

Beyond raw materials and labor, the production process incurs several other input costs calculated per kilogram of processed raw materials. These supplementary costs include: (1) depreciation of fixed assets (production facilities, equipment, and machinery), (2) gas consumption for black and green tea processing, (3) electricity usage, and (4) packaging materials. As detailed in Table 5, the total additional input costs vary significantly by product type: black tea production requires IDR 63,007/kg, green tea IDR 54,876/kg, and white tea IDR 50,553/kg. Notably, black tea has the highest additional input costs (14.8% higher than green tea and 24.6% higher than white tea), reflecting its more energy-intensive processing requirements, particularly during fermentation and drying. These cost differences highlight how production techniques and resource requirements substantially impact operational expenditures across different tea varieties.

Table 5. Average labor wages

Cost	Cost		
	Black tea (IDR) (190 Kg)	Green tea (IDR) (286 Kg)	White tea (IDR) (9.24 Kg)
Depreciation	784	578	29,532
Gas	52,778	42,222	0
Electricity	7,906	10,913	6,681
Packaging	1,539	1,163	14,340
<b>Total cost</b>	<b>63,007</b>	<b>54,876</b>	<b>50,553</b>

The additional input costs in this agroindustry remain relatively modest when benchmarked against similar studies. Wiarta's (2021) research on premium white tea processing reported substantially higher input costs of IDR 1,440,000/kg for White Peony and IDR 1,080,000/kg for Silver Needle varieties, approximately 28.5x and 21.4x greater than LUGU's white tea production costs respectively. This dramatic differential likely reflects the Balinese operation's specialized equipment requirements and premium positioning in international markets. Conversely,

Wijayanti's (2022) study of coffee leaf processing presents a contrasting scenario, with remarkably low additional input costs of just IDR 65/kg - approximately 0.1% of this agroindustry's black tea production costs. This extreme variance underscores how production scale, technology adoption, and product positioning create wide disparities in operational costs across different agricultural processing sectors. Our findings occupy an intermediate position in this spectrum, suggesting balanced cost-efficiency while maintaining quality standards.

### **3. Output value**

The output value, calculated by multiplying the conversion factor by the product price, represents the gross revenue generated per kilogram of processed raw materials. Our analysis reveals distinct output values across tea varieties: IDR 90,047/kg for black tea, IDR 100,000/kg for green tea, and IDR 275,000/kg for white tea. These results demonstrate a clear value hierarchy, with white tea delivering 3.1 times greater output value than black tea and 2.8 times greater than green tea. Comparative data from Wiarta et al., (2021) shows significantly higher output values in commercial-scale operations - IDR 900,000/kg for Silver Needle and IDR 780,000/kg for White Peony, representing 3.3 to 6.6 times the value achieved by this community-based agroindustry. While these disparities reflect differences in production scale and market positioning, LUGU's Premium Tea operation demonstrates remarkable viability, consistently generating profits exceeding IDR 90,000 per kilogram of processed tea shoots. This performance is particularly noteworthy given the community-scale context and resource constraints of the operation.

### **4. Value-added**

The value-added metric, calculated as the difference between output value and the sum of raw material costs added with other input contributions, demonstrates significant variation across products: IDR 23,040/kg for black tea, IDR 41,124/kg for green tea, and IDR 179,447/kg for white tea. Following Setiawan's (2020) classification criteria, all products generate positive value-added (>0), confirming profitable operations across all tea varieties in this agroindustry. Notably, white tea delivers 7.8 times greater value-added than black tea and 4.4 times greater than green tea, establishing its position as the most economically advantageous product. Comparative analysis with previous studies further indicates notable differences in value creation per kilogram of processed product. Putri (2023) reported that Dayak onion tea processing generated revenue of IDR 168,000 per kilogram, while Wijayanti (2022) found that coffee leaf processing produced IDR 139,935 per kilogram. In contrast, Wiarta (2021) documented substantially higher figures in specialty tea processing, with White Peony reaching IDR 860,000 per kilogram and Silver Needle valued at IDR 430,000 per kilogram. These disparities illustrate how product differentiation, quality grading, and target market segments significantly affect unit value, with premium tea products commanding considerably higher prices than more conventional herbal or leaf-based products. While these values exceed our findings by 2.4-37.3 times, LUGU's demonstrates that small-scale tea processing remains economically viable, generating substantial value-added despite resource constraints. The results prove that community-based operations can successfully transform raw tea shoots into profitable products while maintaining competitive value creation in their market segment.

### **5. Value added ratio**

The value-added ratio represents the percentage of added value relative to output value, calculated by dividing added value by output value and multiplying by 100%. Analysis shows the value-added ratios are 25.59% for black tea, 41.12% for green tea, and 65.25% for white tea. Based on Reyne's criteria in Hubeis (1997), both white tea and green tea demonstrate ratios above 40%, indicating that both green and white tea generate high added value from raw material processing, while black tea falls within the 15-40% moderate added value range. Comparative studies of agricultural commodity processing reveal a similar high value-added ratio that exceeds 40%, confirming that tea processing typically generates substantial value addition. Putri's (2023) research on Dayak onion processing achieved an 88.42% ratio, Wijayanti (2022) reported 73.65% for coffee leaf processing, and Wiarta (2021) found 110% for white peony and 47% for silver needle in tea processing. Notably, LUGU's Premium Tea white tea shows a higher value-added ratio (65.25%) compared to Wiarta's silver needle product (47%), demonstrating competitive performance despite operating at a smaller scale. These results collectively prove that even small-scale tea processing can create significant economic value through proper production methods and product differentiation.

### **6. Employee benefits**

Labor compensation represents the income generated per kilogram of processed raw materials during production, calculated by multiplying the labor coefficient by the average wage rate. The analysis reveals significant

variation across tea varieties: black tea yields IDR 23/kg, green tea IDR 29/kg, and white tea IDR 2,593/kg in labor compensation. This differentiation directly reflects the combined influence of two key factors: (1) the labor coefficient (representing work hours required per unit) and (2) the average wage rates for each production process. When examined as a percentage of total value added, labor's share constitutes 0.09% for black tea, 0.06% for green tea, and 1.43% for white tea production. This proportion analysis demonstrates that while white tea processing commands substantially higher absolute labor compensation (112.7 times greater than black tea), its relative share remains modest across all product types. Hence, suggesting opportunities for improved labor value distribution in the production chain (Daum et al., 2023; Gyapong, 2020).

## **7. Profit**

The Hayami method offers the distinct advantage of specifically measuring profits at the processing level by deducting labor compensation from the calculated added value (Hartuti et al., 2021; Lestari et al., 2023; Sundari et al., 2021). Our analysis reveals substantial profit variations across tea varieties: black tea yields IDR 23,018/kg with 25.56% profit rate, green tea IDR 41,095/kg with 41.10% profit rate, and

## **8. Margin**

Margin represents the economic surplus generated from tea leaf processing, distributed across three key components: (1) labor income, (2) other input contributions, and (3) agro-industry profits. Calculated as the difference between output value and raw material costs, our analysis reveals significant product differentiation: black tea yields IDR 86,047/kg, green tea IDR 96,000/kg, and white tea IDR 230,000/kg of processed raw materials. White tea emerges as the most margin-generative product, producing 2.7 times greater margin than black tea and 2.4 times greater than green tea. Comparative analysis with Wiarta's (2021) study of commercial-scale silver needle production shows this community-based agro-industry's margin (IDR 230,000/kg) represents approximately 35% of the IDR 650,000/kg achieved by industrial processors. While this differential reflects scale advantages and technological disparities in commercial operations, the current margin levels demonstrate remarkable viability for a people's tea agro-industry. These results substantiate that small-scale tea processing can generate substantial economic value, with white tea processing showing particular promise for community-based enterprises seeking to enhance profitability through product differentiation.

## **CONCLUSION**

The analysis demonstrates that LUGU's Premium Tea successfully generates positive value-added across all three tea varieties through its processing of tea shoots into loose tea products. The calculated value-added per kilogram of raw material is IDR 23,040 for black tea, IDR 41,124 for green tea, and significantly higher at IDR 179,447 for white tea. Among these, white tea emerges as the most economically advantageous product, delivering the highest profit at IDR 176,854/kg, compared to IDR 23,018/kg for black tea and IDR 41,095/kg for green tea. The margin distribution analysis reveals a consistent allocation pattern across all products: (1) other input costs receive the largest share (including equipment, utilities, and packaging), (2) agro-industry profits constitute the middle portion, and (3) labor income represents the smallest proportion. This distribution structure indicates that while the operation generates substantial economic value, opportunities exist to improve labor compensation within the value chain. The findings collectively demonstrate that small-scale tea processing can be economically viable, with white tea processing showing particular promise for enhancing profitability and value creation in community-based agro-industries.

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