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Profitability of Melon Cultivated in Greenhouse in Semarang City, Indonesia

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ABSTRACT: This study aimed to analyze the profitability of melon farming in greenhouses. This study was conducted at Aisha Farm in Semarang City, Indonesia. This study analyzed melon farming during one planting period (70-75 days). The results showed a revenue of IDR 14,000,000 with production costs of IDR 16,000,000. The resulting profitability was 87.5%, meaning that every IDR 100 of production costs generated a net income of IDR 87.5%.

KEYWORDS: Profitability, melon, greenhouse, cost of production, income.

INTRODUCTION

Melons have high economic value, convincing farmers to cultivate them in various regions of Indonesia. Cultivating premium melons using a greenhouse system results in better quality, thus resulting in a higher selling price in the market. A greenhouse is a closed building designed to create an ideal environment for plant growth. Using a greenhouse for cultivation provides a way to manipulate the environment to suit the needs of the plant. Greenhouses do not require large areas of land, are seasonal, and there is no competition for nutrients among plants. Greenhouse systems require significant investment and intensive attention. Although they require a higher investment, cultivating premium melons in a greenhouse can provide more optimal results and greater profit than conventional methods. Greenhouse cultivation systems help produce an even and continuous harvest of premium-quality melons. Research on melon cultivation has been conducted by several researchers (Aroyehun et al. 2024, Bi et al. 2021, Brho et al. 2025, Campanile et al. 2025, Devani et al. 2023, and Garcia Espinoza et al. 2025).

Fixed costs are independent of production quantity and include greenhouse construction, machinery, and labor costs. Variable costs fluctuate according to changes in the quantity of products produced, including the purchase of seeds, fertilizers, pesticides, and daily labor costs. Melons are horticultural crops widely cultivated in various countries (Khatri et al. 2023, Lia and Rizki 2024, and Marakani et al. 2027).

Melon farming is said to be profitable, with a profitability value of over 20%. High melon income is due to business efficiency, as reflected by an R/C value greater than 1. This study aimed to analyze the profitability of melon farming in greenhouses.

MATERIALS AND METHODS

This study was conducted at Aisha Farm, Gunungpati, Semarang, which uses a greenhouse to grow melons. This study used a case study approach.

The research was conducted during a single melon planting period. This study was conducted by calculating revenue, production costs, and income.

Cost of production (IDR)

Production costs are the expenses incurred when cultivating melons in a greenhouse. Production costs are calculated starting from GH depreciation, water, electricity, insecticides and fungicides, fertilizers, labor, and other costs..

Revenue (IDR)

Revenue was calculated by multiplying the total weight of harvested melons (kg) by the selling price per kilogram. The selling price per kilogram was IDR 25,000.

Income

Income is the difference between revenue and the production costs. Income = revenue − cost of production

$$\pi = TR - TC$$

Profitability dihitung dengan rumus = (Income/cost of production)*100%

RESULTS AND DISCUSSION

As shown in Figure 1, greenhouses are highly productive areas for growing melons. Greenhouses can increase melon productivity. This increase in productivity is achieved because pests can be effectively controlled.

Figure 1. Greenhouse melon

The results of this study are presented in Table 1. The largest costs are other costs because these costs include greenhouse depreciation, maintenance costs, and internet costs. The total costs incurred for melon farming during 1 period were IDR 16,000,000.

Table 1. Cost of Production melon sold

Items	Total	%
Seed (IDR)	1,500,000	9.375
Fertilizer cost (IDR)	3,000,000	18.75
Worker cost (IDR)	5,000,000	31.25
Insecticide, Fungicide, leave fertilizer cost (IDR)	1,000,000	6.25
Electricity cost (IDR)	500,000	3.125
Water cost (IDR)	500,000	3.125
Others cost (IDR	4,500,000	28.125
Total	16,000,000	

As shown in Table 2, the profitability of melon farming was 87.5%. This means that every IDR 100 generated an income of 87.5%. This result is consistent with previous research findings (Ning et al. 2019, Ning et al. 2025, Palmitessa et al. 2024, and Zameer et al., 2022). Greenhouse melon cultivation is profitable.

Table 2. Profitability of melon cultivation in greenhouse

No	Items	Number
1	Revenue (IDR)	30,000,000
2	Production cost (IDR)	16,000,000
3	Income (IDR)	14,000,000
4.	Profitability	87.5%

CONCLUSION

The research results show that melon farming in a greenhouse is profitable. Every IDR 100 of production costs incurred generates an income of 87.5.

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