

Financial Feasibility Analysis of Jasmine Flower (*Jasminum Sambac* L.) Farming Business in Batang Regency, Central Java

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Financial Feasibility Analysis of Jasmine Flower (*Jasminum Sambac L.*) Farming Business in Batang Regency, Central Java

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Abstract. The objectives of the research were to: (i) analyze the productivity of jasmine flower farming business; (ii) analyze the production cost, revenue, and income of jasmine flower farming business; and (iii) analyze the financial feasibility of jasmine flower farming business in Batang Regency. Survey method was used among farmers of jasmine flower in Batang Regency. The sampling method was Purposive Quota Non Probability Sampling Method with the number of samples was 63 respondents. The data was analyzed by descriptive qualitative, descriptive quantitative using statistic i.e. data tabulation, business financial analysis, and analysis of One-Sample t-Test. The result of the research shows that: (i) average scale of jasmine flower farming business in Batang Regency was 0.499 acre/farmer with the productivity of 2,793.86 kg/year, or equal to 5,598.92 kg/acre/year; (ii) the value of jasmine flower farming business income was of Rp 36,999,466.74/0.499 acre/year, or equal to the value of Rp 74,147,277.93/acre/year; and (iii) comparison result with Regency's Minimum Wage and the Level of Deposit Interest Rate shows that jasmine flower farming business had a potential and was feasible to run and developed in Batang Regency.

1. Introduction

According to Heyne (1987) jasmine flower (*Jasminum sambac L.*) is a plant originated from the Indonesian archipelago and in each area it is recognized by various names, such as *malate* (Madura), *mlati* (Java), *manduru* (Manado), *mayora* (Timor), *selupan* (Malay), *mundu* (Bima), *melur* (Batak Karo), *elung* (Bugis), and *malati* (Sunda). The number of species and the family of *Jasminum* was originally reported to have 200 species, however, in 1988 it was reported to have 300 species and 47 species out of them are cultivated.

The demand for jasmine as a fresh flower keeps increasing. Moreover, the distribution of jasmine flower is not only to fulfill a domestic market need but also foreign market (such as Singapore). The delivery to Singapore in common days was higher compared to when it collides with some of important days in Muslim calendar. However, the competition in jasmine marketing in Singapore shows that the production of jasmine in Indonesia is inferior compared to the neighboring countries. The main obstacle of jasmine flower marketing from Indonesia is quality [2]. It is lower price compared to the price of jasmine from Thailand and Malaysia. The difference in quality could be seen by the size of the flower, shape uniformity, and their appearance. The quality standard of jasmine flower, either as a fresh flower, tea aroma, or in the perfume industry has not come to exist until today. Whereas, the information about the standard quality of jasmine is highly needed either by farmers, traders, exporter, or by tea producer and

perfume industry. The absence of standard on the shape, quality, and the maintenance of the jasmine flower to be exported caused jasmine flower's low price.

Jasmine flower (*Jasminum sambac L.*) is a horticultural sub-sector (ornamental plant) in the farming sector. The development of farming has an objective to manifest an advance, efficient, and formidable farming, where the existing resources are used optimally in order to fulfill market demands. The essence of farming development is to increase farmer's income/prosperity, to provide industrial and export raw material, to create the business field, to increase the role of organization and to achieve the balance between the usage and the preservation of natural resources. One of the developmental steps that ideally should be carried on is by approaching the commodity aspect into the agribusiness system. According to Saragih (2001), agribusiness development is the development that could give the improvement on farmer's income in a relatively high amount and create global competitiveness [3].

Batang Regency is the biggest center or production and development of jasmine flower in Indonesia. Such condition is reflected from the number of production of jasmine flower. In 2017, Batang Regency had contributed as much as 34.05% of Indonesia's total production of jasmine flower. The production of jasmine flower in Batang Regency in 2017 was 8,347,438 kg with the width area of harvesting of 3,514,999 m² while the production of jasmine flower in Indonesia was 24,514,175 kg with the width area of harvesting of 12,836,607 m² [4]. Jasmine flower in Batang Regency is commonly developed in the form of community's farming business with the business scale ranged between 0.1 up to 1.0 acre/farmer. In order to optimize jasmine flower farming business, it should be emphasized more on the technical approach. It needs to be reformed using management approach intensively through agribusiness system approach. Therefore, a preview of farming business analysis is needed as a foundation for better planning.

The objectives of the research were: (i) to analyze the productivity of jasmine flower farming business; (ii) to analyze the production cost, revenue, and income of jasmine flower farming business; and (iii) to analyze the financial feasibility of jasmine flower farming business. The outcome of the research was the increasing efficiency of jasmine flower farming business, as well as the improvement of productivity and income of jasmine flower farming business in Batang Regency.

2. Materials and Methods

The research was carried out in July-September 2018 in Sub-regency of Kandeman and Sub-regency of Batang which constitute the center of cultivation and production of jasmine flower in Batang Regency. The research was carried out using the survey method, and the farmer of jasmine flower was standardized as the sample factor. The sample was chosen using Purposive Quota Non-Probability Sampling Method to determine the research site, i.e. Sub-regency of Kandeman and Sub-regency of Batang which constitute the area of cultivation center as well as the production of jasmine flower in Batang Regency. A quota was applied to determine the number of the sample chosen as many as 63 respondents without counting the number of population as a sampling framework.

Empirical data/fact as research input came from the primary source and supported by a secondary source. Primary data was gathered through an interview to jasmine flower farmer using the given questionnaire. While, the secondary data was gathered from various relevant sources. Data were analysed using descriptive analysis, business financial analysis, one-sample t-test analysis, and multiple linear regression analysis.

Production cost, production quantity, revenue, and income of farmers were estimated during the activity of jasmine flower farming business carried out by the farmer. The production cost of jasmine flower farming business was counted based on its structure, i.e. permanent cost and variable cost. Variable costs were cost for seeds, fertilizer, pesticide, and labour. The production of jasmine flower based on the production quantity during the activity of business farming

carried out by farmers. The revenue of jasmine flower business farming was estimated using the analysis of business farming.

$$\pi = TR - TC$$

Remarks:

- π : Income of jasmine flower business farming (rupiah)
- TR : Total Revenue (rupiah)
- TC : Total Cost (rupiah)
- VC : Total variable cost (rupiah)
- FC : Total fixed cost (rupiah)

While for the financial feasibility of jasmine flower farming business was analyzed by comparing the income of farmers with the Regional Minimum Wage, and the comparison of profitability value of jasmine flower farming business with the level of bank's deposit interest rate using One-Sample t-Test.

3. Result and Discussion

Batang Regency is the center of cultivation and production of jasmine flower in Central Java Province and throughout Indonesia. Farm size and production of jasmine flower in 2015-2017 is presented in Table 1.

Table 1. Number of Production and Farm Size of jasmine flower in 2015-2017

No.	Farm Size/year	Batang Regency	Jawa Tengah	Indonesia
1.	Farm Size (m2):			
	▪ 1915	3.999.960	15.600.293	16.195.126
	▪ 1916	3.717.460	14.715.183	15.196.235
	▪ 1917	3.514.999	11.998.387	12.836.607
2.	Production (kg):			
	▪ 1915	13.487.431	27.790.759	31.597.698
	▪ 1916	12.046.047	27.521.237	31.183.991
	▪ 1917	8.347.438	20.600.849	24.514.175

Source: Statistical Office of Central Java Province, 2018.

Based on Table 1, it could be recognized that the contribution of production of jasmine flower in Batang Regency towards the production in the entire Central Java Province in 2015-2017 respectively were 48.53%, 43.77%, 40.52% while the contribution towards national production were 42.68%, 38.63%, and 34.05%. The proportion of the contribution of production of jasmine flower in Batang Regency was decreasing. It was caused by the increasing number of production of jasmine flower coming from outside Batang Regency.

From 15 sub-regencies in Batang Regency, jasmine flower had been cultivated by many farmers in two sub-regencies, namely: sub-Batang Regency and sub-Kandeman regency. Jasmine flower farming business was seen from its aspect of cultivation technology, most of them were still traditional. In a traditional pattern, the principal rules of the economy had not yet been applied optimally, and on the other side, the position and the bargaining power of the farmers related with marketing system were categorized as weak. The marketing of agricultural product in Central Java Province, in general, the farmers were still faced with middleman trader, and they rarely faced directly with the customers [5]. Such a condition would make the income earned by the farmers lower than the expectation. Hence, it need an effort to develop an efficiency in agricultural market through providing information for farmers regarding price and market opportunity as well as building networking with others stakeholders.

3.1. *The Identification of Jasmine Flower Farmers*

Based on the research result, the average age of jasmine flower farmers in Batang Regency was 53.10 years/old or in other words, it could be categorized as a productive age. Productive age is the best condition of a person to support business activities both physical and mental condition. That such condition was positive support for farmers to run their farming business [6]. Average education of the farmers had a score of 1.93 meaning that they only finished their elementary school, with the average experience in the farming business of jasmine flower of 27.63 years. Education is a very influential internal factor component of the farmers in applying technology [5]. Low-level education generally would slow down the entrance of new innovations [7]. On the other side, the capability to perform in the field of farming was frequently related to the experienced that could be referred to from how long a farmer has been on his/her farming business. In fact, many respondents received their farming business experiences from their ancestors from generation to generation. Most of the respondents (98.42%) had the main job as farmers (especially cattle farmers, fisherman food crops, horticultural including jasmine flower). It reflects that jasmine flower farming business was performed much more by the farmers in the coastal area. Jasmine flower farming business for the farmers, in general, was still placed as a secondary farming business. Such condition was caused by a thought that working as fisherman (fish cultivation) is promising income more than jasmine flower farming business.

3.2. *Income and the Feasibility of Jasmine Flower Farming Business*

Based on the research result that the average scale of jasmine flower farming business in Batang Regency was 0.499 acre/farmer with the productivity of jasmine flower of 2,793.86 kg/year, or equal to 5,598.92 kg/acre/year. The income of the farming business was generated from selling jasmine flower. The income or profit of the farming business is the difference between the revenue deducted by all production costs [8]. The profit of farming business with positive value means that the related farming business could produce some profit, while the profit with negative value means that the business has encountered with loss. The profit of jasmine flower farming business could be estimated by recognizing the physical value and the price per unit of an input allocated or the output produced, further, the estimation was carried out towards the production costs and the revenue. The cost spent by a farmer in the production process and transform it into a product is called the cost of production [9]. Cost of production is all costs spent either in the form of goods, service, or cash used to produce the product in a certain period of time. Production cost could be categorized into fixed cost and variable cost. The component and the value of the cost of production of jasmine flower farming bussines is presented in Table 2.

Table 2. Production Cost of Jasmine Flower Farming Business per Year in Batang Regency on the Average Business Scale of 0.499 acre.

No.	Item	Production Cost	
		(rupiah)	(%)
	Fixed Cost	580.248,00	1,58
	Variable Cost		
1.	Cost for seedlings	3.088.888,89	8,39
2.	Fertilizer Cost	1.077.421,00	2,93
3.	Pestisides cost	837.039,70	2,27
4.	Labour cost	31.224.722,00	84,83
	Total Production cost	36.808.319,59	100,00

The value of the cost of production was Rp 36.808.319,59/0,499 acre/year equals to Rp 73.764.167/acre/year. Based on Table 2, labour cost was the highest (84.83%) of the cost of

production. Labour cost was allocated since the labour working on land processing to the farming business, maintenance, up to the jasmine flower harvesting. The labour usually comes from the inside or the outside of the farmers' families. According to Sudalmi (2009), that employment in farming business could be coming from within the family or outside farmers' families, yet the most important is from within the farmers' families [10]. The cost of seedling was the second biggest (8.39%). The seed used by the farmers was in the form of cuttings or buying polybag with the brand of Emprit Bandar Arum/JT/0.01.2012. The cost of fertilizer was in the third place (2.93%). The fertilizer used by the farmers was organic fertilizer (especially manure) and non-organic fertilizer (urea, TSP, ZA, phonska, etc). The fourth-biggest was the cost of pesticide (2.27%). A pesticide was used to prevent or to combat pest/disease disturbing the plants by spraying the pesticide that has previously been diluted to the plants. The types of pesticide used by jasmine flower farmers were such as demolish, glido, abasel, antracol, etc. The smallest cost of production was the fixed cost of 1.58%. Fixed cost of jasmine flower farming business was the total sum of depreciation cost, and tax/rent of the land for the farming business.

Revenue was the value of the product produced by a business. It means the amount of income earned by the farmers from selling their product, or in other words putting a price over the production of farming business with a certain market price (total value product). The amount of revenue of jasmine flower farming business on the average width of the field of 0.499 acre for one year was as much as Rp 73,807,786.33 or equals to Rp 147,911,395.45/acre/year. Such revenue came from the multiplication of production amount of 2,793.86 kg/0.499 acre/year with the price of per kilogram of jasmine flower varied on the level of the producing farmers of Rp 24,353.30 on average.

Based on the analysis of empiric data, the amount of average income of the farming business of jasmine flower is as presented in Table 3.

Table 3. The Income Value of Jasmine Flower Farming Business per year on the Average Business Scale of 0.499 acre.

No.	Items	Value (rupiah)
1	Total revenue	73.807.786,33
2	Total variable cos	36.228.071,59
3	Total fixed cost	580.248,00
4	Farmer income	36.999.466,74

The revenue of jasmine flower farming business on the average scale of farming business 0.499 acre/year was Rp 36,699,466.74 or equals to the value of Rp 74,147,227.93/acre/year. Based on the value of revenue and the cost of production of jasmine flower farming business in Batang Regency, further could be estimated the amount of average value of profitability or the level of cost of production capability to produce income, of 72.19%. Furthermore, the feasibility of the income of jasmine flower farming business was analyzed using One-Sample t-Test analysis, based on the value of income of jasmine flower farming business and based on its profitability value. The first analysis of One-Sample t-Test was carried out to compare the income of jasmine flower farming business in Batang Regency to the Regional Minimum Salary in Batang Regency in 2018, of Rp 1,749,900.00/month. The second analysis of One-Sample t-Test was performed to compare the profitability in all respondents with the deposit interest rate of 5.5% (amount of saving by the farmers smaller than Rp 100,000,000.00 with the period of one year). The analysis result of One-Sample t-Test comparison between the income of jasmine flower farming business with the Minimum Salary of Batang Regency in 2018 is presented in Table 4.

Table 4. Analysis of One-Sample t-Test, Comparison Value with Regional Minimum Salary in Batang Regency

	t	df	Sig. (2-tailed)	Test Value = 1749900		
				Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Income/month	2,102	62	,040	1267004,00	62144,65	2471863,35

Based on Table 4, it is known that the comparison value of income with the Regional Minimum Salary in Batang Regency in 2018 which was Rp 1,749,000/month was obtained the significant value of 0.040 or smaller than the level of error of 5% ($\alpha = 5\%$). Such condition showed that the nol hypothesis was rejected, which meant that the value of income of jasmine flower farming business had a significant difference with the Regional Minimum Salary. It means the value of income of jasmine flower farming business was bigger than the Regional Minimum Salary (Rp 3.083.288,89 > Rp 1.749.900). While the result of One-Sample t-Test analysis of the comparison between the profitability value of jasmine flower farming business and the level of deposit interest rate is presented in Table 5.

Table 5. One-Sample t-Test Analysis of Comparison of Profitability Value with the Level of Deposit Interest Rate of 5.5%

	t	df	Sig. (2-tailed)	Test Value = 5.5		
				Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Profitability	11,530	62	,000	66,67460	55,1154	78,2338

Based on Table 5, it is known that the comparison value of profitability with the level deposit interest rate of 5.5% the significance value of 0.00 is obtained or smaller than the level of error 5% ($\alpha = 5\%$). Such condition showed that the nol hypothesis was rejected, which meant that the value of income of jasmine flower farming business had a significant difference with the level of deposit's interest rate, i.e. profitability value was bigger than the level of deposit interest rate (72.19% > 5.5%).

From the analysis result of One-Sample t-Test, it was found that jasmine flower farming business in Batang Regency had a feasible business to run and develop. The farmer' income was higher than Regional Minimum Salary and the Level of Deposit Interest Rate. It can be concluded that the farming business was a feasible and profitable farming business. The higher value of financial feasibility level of the jasmine flower farming business was caused by the level of demand of the product of jasmine flower which is higher than its production level, relatively higher level of its product price level per unit, as well as the limited areas suitable to develop jasmine flower cultivation.

4. Conclusion

Average scale of jasmine flower farming business in Batang Regency was 0.499 acre/farmer with the productivity of 2,793.86 kg/year or equals to 5,598.92 kg/acre/year. Meanwhile, income value of jasmine flower farming business was Rp 36,999,466.74/0.499 acre/year or equals to the value of Rp 74,147,227.93/acre/year. Based on the comparison result with Regional Minimum Wage and the Level of Deposit Interest Rate, that jasmine flower farming business had a potential and was feasible for the business to run and develop in Batang

Regency. Hence, Motivational encouragement is needed for farmers in performing their business. They would not consider jasmine flower farming business as a side job hence they would always have a better orientation about financial profit. Moreover, the orientation of the sub-system application of jasmine flower product handling has met its time to apply since it is expected to be able to increase the added value and income of the farming business.

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