INCOME OF ROBUSTA COFFEE FARMING ON THE WESTERN SLOPE OF MOUNT SLAMET OF BANYUMAS REGENCY BASED ON LAND AREA LEVELS

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ABSTRAK

Usahatani kopi robusta merupakan salah satu sumber pendapatan petani di Kabupaten Banyumas dengan nilai ekonomi yang cukup tinggi, terutama di lereng barat Gunung Slamet Kabupaten Banyumas yang mempunyai cita rasa khas. Tujuan penelitian ini untuk mengetahui tingkat biaya dan pendapatan antar strata luas lahan usahatani serta kontribusi pendapatan usahatani serta kontribusi pendapatan usahatani kopi robusta terhadap pendapatan rumah tangga petani. Metode penelitian yang digunakan adalah metode deskriptif dengan pendekatan survei. Sampel ditentukan secara *purposive* untuk petani yang memiliki tanaman kopi yang berumur 11 tahun. Jumlah responden diperoleh secara *snowball sampling* sebanyak 69 orang. Hasil penelitian menunjukkan bahwa rata-rata pendapatan per tahun pada kelompok strata I dengan rata-rata luas lahan 0,28 ha adalah sebesar Rp 724.952,00, sedangkan pada kelompok strata II dengan rata-rata luas lahan 1,572 ha adalah sebesar Rp 3.685.309,00. Kontribusi pendapatan usahatani kopi robusta terhadap pendapatan rumah tangga petani di lereng barat Gunung Slamet Kabupaten Banyumas strata 1 sebesar 9,24 persen dan strata 2 sebesar 56,80 persen. Hal ini menunjukkan bahwa kegiatan usahatani kopi robusta strata 1 memberikan kontribusi yang kecil, karena kurang dari 50 persen, sehingga perlu pendampingan usahatani kopi yang berwawasan agribisnis.
Kata kunci: kopi robusta, pendapatan, skala luas usahatani

ABSTRACT

Robusta coffee farming business is one of the farmer income resources in Banyumas District with the high economic value, especially on the west slope of Slamet Mountain which has an exclusive taste of the coffee. The main aim of this research is to analyze cost and revenue in every level of broadland strata, and also the contribution of robusta coffee farming business towards farmer's household income. The method used in this research was descriptive with a survey approach. The sample was determined purposively for farmers who had 11 years old robusta coffee plants. Sixty-nine farmer respondents were determined with the snowball sampling method. The result showed that the average revenue in strata 1 with average broadland up to 0,28 ha was Rp 724.952,00. In the other side the average revenue in strata 2 with the average broadland up to 1,572 ha was Rp 3.605.309. The contribution of Robusta coffee farm income to the income of farmers households on the western slopes of Mount Slamet, Banyumas Regency, strata 1 was 9.24 percent and strata 2 was 80.20 percent. This shows that the robusta strata 1 coffee farming activities make a small contribution, because it is less than 50 percent, so it needs agribusiness-oriented coffee farming.
Keywords: farming business scale, income, robusta coffee

INTRODUCTION

Coffee is a plantation commodity that has essential economic value for Indonesia. Consuming coffee has currently become a lifestyle for the millennial generation, not necessarily for relieving sleepiness. It is marked by the emergence of cafes or outlets selling drinks from the brewing of coffee grounds from coffee originating from all over Indonesia and even abroad. Domestic demand for Robusta coffee is relatively high. Based on data from the International Coffee Organization (ICO) (2018), coffee consumption in Indonesia for the 2016/2017 period reached 4.6 million packs of 60 kg/lb (60 kg), ranking the country with the largest coffee consumption in the world after Russia. Coffee consumption in Indonesia from 2016 to 2021 period is predicted to grow with an average of 8.22% per year.

Around 94.5% of coffee production in Indonesia is supplied by smallholder coffee entrepreneurs. 81.87% of the national production is robusta, which comes from coffee centers in South Sumatra, Lampung, Bengkulu, East Java, and Central Java (Directorate General of Plantation, Ministry of Agriculture 2018). The establishment of coffee in Indonesia through the exploration of regional wealth is important to carry out to add coffee products as well as expand the coffee market at domestic and abroad. This opportunity should be utilized as a strategic step to improve farmer welfare (Aklimawati et al., 2014). It is expected that in the future, by achieving farmer welfare, it will also help government programs in poverty alleviation to create better welfare for the community.

The area of Indonesian coffee plantations currently reaches 1.2 million ha, of which of the area, 96% is smallholder coffee plantation land and the remaining 4% belongs to private and government plantations (PTP Nusantara). Therefore, Indonesian coffee production is highly dependent on smallholder plantations (AEKI, 2016). Commercially, there are two types of coffee produced in Indonesia, which are Arabica and Robusta coffee. Nearly 150,000 tons of Arabica coffee were produced from an area of 250,000 hectares, while 600,000 tons of Robusta coffee were produced from an area of 1.05 million hectares.

Coffee production in Banyumas Regency in 2017 was 131.79 tons and increased in 2018 by 143.75 tons. It encourages farmers to improve the development of Robusta coffee farming as a superior commodity to improve the economy of coffee farmers, particularly on the western slope of Mount Slamet, Banyumas Regency which has a distinctive taste. The research location of the western slope of Mount Slamet included three villages of Sokawera, Sunyalangu, and Baseh. The problem is that coffee farming carried out by farmers mostly remains simple. Not all farmers grow coffee intensively and have an agribusiness perspective. Only a small proportion of coffee farmers have carried out it intensively and have an agribusiness perspective. Robusta coffee farmers in Banyumas Regency are still picking the coffee beans directly by picking all the coffee beans, including the green, yellow, or red ones. Farmers plant coffee by mixing it with other crops with irregular planting times and spacing. Thus far, coffee plants are only complementary crops on their land. Therefore, we need a feasibility analysis to determine the level of income generated by Robusta coffee farmers. Based on the description above, this study aimed to determine and analyze the contribution of Robusta coffee farming revenue between land area levels on the western slope of Mount Slamet, Banyumas Regency.

RESEARCH METHODS

The method used in this research was descriptive with a survey approach (Nasir, 2003). This research was conducted on the slope of Mount Slamet which included three districts in the Banyumas Regency of Cilongok, Karanglewas, and Kedungbanteng. The research was conducted from May to August 2019. The sample was determined

purposively for farmers who had coffee plants in 2019 aged 11 years, with the consideration that coffee farming was producing at the optimal level. The number of respondents was obtained by a snowball sampling of 69 people. Classification of the levels of coffee farmer respondents based on the area of land being cultivated was carried out so that the data obtained was spread across all farmers, both those with narrow and broad land. Therefore, the results of the analysis are not focused on one group of respondents. The calculation of the area interval for each level was done using the scale interval formula as follows (Nasir, 2013).

$$\text{Scale interval} = \frac{\text{the widest land} - \text{the smallest land}}{\text{Number of levels}}$$

Based on the above formula, the classification of Robusta coffee farming levels on the western slope of Mount Slamet is as follows.

$$\text{Scale interval} = \frac{2,1 - 0,014}{2}$$
$$= \frac{2,086}{2} = 1,043 \text{ ha}$$

The respondent distribution of Robusta coffee farmers on the western slope of Mount Slamet can be seen in Table 1 as follows.

Cost and Revenue Analysis

To find out the total cost of farming Robusta coffee, a quantitative descriptive analysis was used using the formula according to Soekartawi (2002) as follows.

$$TC = TFC + TVC$$

Notes:
TC   : Total Cost
TFC   : Total Fixed Cost

TVC   : Total Variable Cost

Total revenue is the result of the multiplication of the number of products produced (kilograms) and the product price per kilogram, which can be found using the following formula (Soekartawi, 2002).

$$TR = P \times Q$$

Notes:
TR   : Total Revenue
P   : Price
Q   : Quantity

Income is revenue that has been reduced by all production costs, as shown by the formula as follows (Soekartawi, 2002).

$$Pd = TR - TC$$

Information:
Pd   : Income
TR   : Total Revenue
TC   : Total Cost

Analysis of R/C Ratio

Analysis of R/C *ratio* is a comparative analysis between revenue and cost. According to Soekartawi (2002), to find out the value of the R/C ratio, the following formula is used.

$$R/C \; ratio = \frac{TR}{TC}$$

The criteria used are as follows:
If R/C ratio > 1, then the farming is feasible and profitable.
If R/C ratio > 1, then the farming is not profitable.
If R/C ratio = 1, then the farming experience break-even.

Income Contribution Analysis

To determine the contribution of income of Robusta coffee farming to the total household income of farmers, a formula based on Sundari et al. (2012) is used as follows.

Table 1. The Number of Robusta Coffee Farmers on the Western Slopes of Mount Slamet Based on the Business Scale of Land Area

Farming scale	Area (Ha)	Total (person)	Percentage (%)
Narrow	0,014-1,043	67	97,1
Wide	1,044-2,1	2	2,9
Total		69	100

Source: Processed Data, 2019

$$Kp = \frac{\sum_{t=1}^{n} Pk}{\sum_{t=1}^{n} Prt} \times 100\%$$

Notes:

Kp : The percentage contribution of income of Robusta coffee plantation business to the total income of Robusta coffee farmer families

Pk : The average income of Robusta coffee plantation business

Prt : The average total income of Robusta coffee farmer families

N : Number of observation samples

RESULT AND DISCUSSION

According to Suratiyah (2006), one of the agricultural production factors is land. A land is a place for the production of agricultural products which has a significant contribution to farming. The area of arable land affects the costs incurred and the income that will be obtained by farmers. The ownership area of arable land of Robusta coffee farmers on the western slope of Mount Slamet in level 1 ranged from 0.014 to 1.043 ha with an average land area of around 0.28 ha. Meanwhile, the land area of level 2 ranged from 1.044 ha to 2.1 ha with an average land area of around 1.572 ha. If the average land area is less than 0.5 ha, it indicates that some farmers are included in the category of small farmers, which are farmers who have narrow land of less than 0.5 ha (Suratiyah, 2001).

The respondent characteristics of farmers of robusta coffee farming on the western slope of Mount Slamet, Banyumas Regency included age, education level, land area, and the number of family dependents. The age of Robusta coffee farmers on the western slope of Mount Slamet ranged from 25-80 years with an average age of 49 years. According to Nurhasikin (2013), humans are considered to be productive when they are 15-64 years old. Therefore, Robusta coffee farmers on the western slope of Mount Slamet who were of the productive age reached 88 percent.

Education greatly determines the competence level of farmers in performing agricultural activities (Manyamsari and Mujiburrahmad, 2014). The education level of Robusta coffee farmers on the western slope of Mount Slamet was dominated by Elementary School (67%). The remaining 10% did not complete elementary school, 20% of the respondents were graduates of junior high school, and 3% were graduates of senior high school/vocational high school. It shows that the respondent education of the farmers was relatively low, in line with research conducted by Dewi et al. (2018).

The number of dependents of each farmer ranged from 1-6 people, with an average number of dependents of each farmers' family of 3 people. A high number of family dependents can be one of the reasons for a household to be poor (Afandi, 2010), particularly if the majority of family members are of non-productive age. The number of dependents in a family of three is categorized as moderate.

Costs and Income of Robusta Coffee Farming Between Land Area Levels on the Western Slope of Mount Slamet, Banyumas Regency.

The costs incurred in Robusta coffee farming on the western slope of Mount Slamet consisted of costs of investment and working capital. Working capital consists of fixed costs and variable costs (Ibrahim and Yacob, 2003).

Table 2 shows that there is a distribution of the total cost of production based on different land areas. One farmer had a narrow coffee plant area of only 0.014 ha. It is due to the ability of the farmer to farm, but have hopes of earning income from coffee farming. Meanwhile, some farmers had coffee plantations of around 2.1 ha, indicating that some coffee farmers were working commercially.

Fixed costs consist of depreciation and tax costs. Equipment used in coffee farming includes hoes, sickles, mortars/buckets, pestle, tray, shovel, sprayer, crusher machine,

Tabel 2. The Average Cost of Farming Robusta Coffee Per Year on the Western Slopes of Mount Slamet, Banyumas Regency, 2007-2019

Kind of Cost	Level I (0,014-1,043 ha) (Rp/th)	Level II (1,044-2,1 ha) (Rp/th)
Investment Costs		
1. Seeds	36.055	1.100.000
Fixed Cost		
1. Land tax	13.628	75.000
2. Cost of depreciation	136.168	191.983
Variable Cost		
1. Labor	291.886	900.417
2. Maintenance	133.421	191.983
Total Cost	611.157	2.459.383

Source: Processed Data, 2019

and filter machine. Variable costs consist of labor and maintenance costs. Labor costs are costs incurred by farmers to pay for the worker employed by farmers. The amount of wages per day incurred by each farmer differs depending on the agreement between the farmer and the worker. The average amount of labor wages per day for 5-7 hours was IDR 35,500.00. The average labor required for coffee farming in the 11th year per hectare was around 396.25 HKSP (male equivalent working days). The results of the calculation in level I show that the average area of coffee land was approximately 0.28 ha and the production cost was approximately IDR. 611,157 with approximately 155 trees. In level 2, the average area of coffee land was approximately 1,572 ha and the production cost was approximately IDR 2,459,383 with a total of 1,100 trees. The coffee harvest was usually done from May to July.

Investment costs are costs incurred by farmers when starting coffee farming, which is the cost of seeds. The types of work of coffee farming with an age of 11 years in the first year include land preparation, planting, fertilizing, weeding, spraying, pruning. The coffee plants can be harvested in the third year. The picking of the coffee berries is not consistent with the picking of the red fruit, in which many farmers still pick the coffee berry that is not yet red. Then, post-harvest

activities are done, which are sorting and drying. Then they are sold in the form of grills/seeds. Only a few are sold in the form of powder. The average labor required for coffee farming from year one to year 11 is 396.25 HKSP (Male Equivalent Working Days).

Tabel 3. Average Costs, Revenues, and Incomes of Robusta Coffee on the Western Slopes of Mount Slamet From May to July In 2019

Information	Level I (IDR/year)	Level II (IDR/year)
Cost	611.157	2.459.383
Revenue	1.336.109	6.144.691
Income	724.952	3.685.309

Source: Processed Data, 2019

Coffee can be harvested from May to July every year. In the 11th year, the coffee production produced in level I was 66.81 kg. The production in level II was approximately 307.23 kg. The price of dry coffee beans was an average of IDR 20,000/kg. The analysis of revenue of Robusta coffee farming on the western slope of Mount Slamet was only aimed at the age of coffee plants around 11 years. Overall, the total income of coffee farming on the western slope of Mount Slamet was an average of IDR 1,778,187.00

per month. Details of revenue, total cost, and income of coffee farming between land area levels are presented in Table 3.

R/C ratio analysis was used to determine the ratio between total revenue and total costs. Therefore, it can be seen that the

Tabel 4. The Results of the R / C Ratio Analysis of Robusta Coffee Farming on the Western Slopes of Mount Slamet

Farming Scale	R/C Ratio	Information
Level I (0,014-1,043 ha)	2,19	Worthy
Level II (1,044-2,1 ha)	2,50	Worthy

Source: Processed Data, 2019

farming is profitable.

Table 4 shows that coffee farming on the western slope of Mount Slamet in the Banyumas Regency was profitable for farmers. The R/C value of coffee farming in level I was 2.19. It indicates that every IDR. 100.00 cost used resulted in an income of IDR. 219.00 or the costs incurred of IDR. 1,000,000.00 resulted in an income of IDR. 2,190,000.00. The R/C value of coffee farming in level II was 2.50. It indicates that every IDR. 100.00 cost used resulted in an income of IDR. 250.00 or the costs incurred of IDR.1,000,000.00 resulted in an income of IDR. 2,500,000.00.

Contribution of Income of Coffee Farming to Total Household Income

The total household income of the farmers was calculated from the total on-farm income of Robusta coffee, on-farm income other than Robusta coffee, off-farm income, and non-farm income. The analysis of the contribution of the income of Robusta coffee farming was calculated by comparing the on-farm income of Robusta coffee with the total household income of farmers in percentage. The contribution of income of Robusta coffee farming to the total household income of farmers can be seen in Table 5.

Table 5 shows that the contribution of the income of coffee farming in level I was 9.24%, indicating that the contribution of farming remained low below 50%. According to Sofwan (2016), if farming contributes less than 50 percent to the farmers' household income, then the contribution given is small. It can be said that coffee farming in level I is a complementary or side crop. Therefore, it does not receive the attention of intensive coffee cultivation. To increase the production of coffee plants, it is important to increase the area of land by utilizing dry land clearing and idle land. One of the efforts to improve the productivity of Robusta coffee is by

Table 5. The Monthly Contribution of Robusta Coffee Farming on the West Slope of Mount Slamet to Total Household Income.

Kind of Incomes	Level I		Level II	
	Income (IDR)	Contribution (%)	Income (IDR)	Contribution (%)
Robusta coffee on-farm income	190.251,75	9,24	1.196.327,25	56,80
On farm income other than robusta coffee	857.636,00	41,66	110.000,00	05,22
Off farm income	563.182,00	27,35	800.000,00	37,98
Non farm income	447.727,00	21,75	0	0
Total Household Income	**2.058796,75**		**2.106.327,25**	

Source: Processed Data, 2019

improving planting materials. Replacement of recommended planting material can be carried out in stages, either by grafting method in the field on existing coffee plants or by planting new plants with plant material from cuttings.

In level 1, in addition to coffee farming, the source of income that provides the highest contribution was on-farm income other than Robusta coffee (41.66%). On-farm activities included rice and secondary crops farming and farm labor. Off-farm income (27.35%), which included coconut sugar tapper activities. Non-farm income, which included the work of civil servants and entrepreneurs contributed 21.75%.

The contribution of income of coffee in level II was 56.80%, indicating that it contributed more than 50% of the total household income of the farmers. It shows that coffee farming with an area of more than 1 ha can contribute to household income by more than 50%. It indicates that the more land that is cultivated for coffee farming, the higher the income.

CONCLUSION

Based on the results and discussion, it can be concluded that the average annual income in the level I group with an average land area of 0.28 ha was IDR 724,952.00. Meanwhile, in the level II group with an average land area of 1,572 ha was IDR 3,685,309.00. The contribution of income of Robusta coffee farming to the household income of farmers on the western slope of Mount Slamet of Banyumas Regency in level I was 9 percent, while in level II was 56.80%. It indicates that the wider the farmers' land, the more intensive they are in coffee farming.

Robusta coffee farming on the western slope of Mount Slamet of Banyumas Regency is considered potential and profitable. Therefore, consideration of the development is needed in the form of assistance to coffee farmer groups to become prosperous, particularly in increasing production and quality of products with an agribusiness

perspective. Therefore, it can increase the contribution of income for farmers and the region.

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