
CONTRIBUTION OF TRIGONA HONEY BEE BUSINESS (TRIGONA SP) TO FARMERS' INCOME IN BENGKAUNG VILLAGE, WEST LOMBOK REGENCY

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ABSTRAK

Penelitian dilakukan di Desa Bengkaung, Kecamatan Batu Layar, Kabupaten Lombok Barat dengan tujuan untuk mengetahui pendapatan petani dari usaha budidaya Lebah Madu Trigona (*Trigona sp*) dan usahatani perkebunan serta menganalisis kontribusi usaha budidaya lebah Trigona terhadap pendapatan total petani. Penelitian menggunakan data primer dan data sekunder. Data primer diperoleh dari hasil wawancara terhadap petani sedangkan data sekunder diperoleh dari instansi terkait. Jumlah responden sebanyak 36 petani, adapun analisis data berupa analisis pendapatan, analisis biaya serta analisis presentase kontribusi usaha budidaya Lebah Madu Trigona terhadap pendapatan Petani. Hasil menunjukkan rata-rata pendapatan petani per tahun dari usaha budidaya Madu Lebah Trigona sebesar Rp. 15.162.075,- sedangkan rata-rata pendapatan total petani per tahun sebesar Rp. 35.914.739,- yang berarti kontribusi usaha Budidaya Lebah Madu Trigona sebesar 42%. Sementara itu, kendala yang dihadapi dalam budidaya lebah Trigona yaitu terjadinya musim paceklik pakan ketika musim hujan, gangguan predator, kurangnya pengetahuan pasca panen yang menyebabkan ratu lebah ikut mati saat proses pemanenan serta ketidaktahuan petani terhadap waktu panen madu yang baik.

Kata Kunci: *Trigona, Kontribusi, Pendapatan Petani*

ABSTRACT

The research was conducted in Bengkaung Village, Batu Layar District, West Lombok Regency with the aim of finding out farmers' income from Trigona Honey Bee (*Trigona sp.*) cultivation and plantation farming as well as analyzing the contribution of Trigona Honey Bee cultivation to the total of farmers' income. The research uses primary data and secondary data. Primary data was obtained from interviews with farmers, while secondary data was obtained from related agencies. The number of respondents was 36 farmers. The data analysis took the form of income analysis, cost analysis and analysis of the percentage of contribution of the Trigona Honey Bee cultivation business to the total of farmers' income. The results show that the average annual income of farmers from the Trigona Honey Bee cultivation business is IDR. 15,162,075 while the average total income of farmers per year is IDR. 35,914,739 which means the contribution of the Trigona Honey Bee Cultivation is 42%. Meanwhile, the obstacles faced in cultivating Trigona Honey Bee are the shortages of bee's food during the rainy season, predator interference, lack of post-harvest knowledge which causes the queen of the bee to die during the harvesting process and the farmers' ignorance of good honey harvest times.

Keywords: *Trigona, Thecontribution, Farmers' Incom*

INTRODUCTION

Indonesia is a country that has great potential in the diversity of natural resources that can be profitable (Hermawati, NH, Herdiana., & Mappanganro). Honey products are one of the promising business commodities. Honey production comes from collection in nature and from cultivation. Collection of natural honey can fluctuate due to environmental changes. Deteriorating environmental conditions directly reduce the production of honey obtained. This causes the cultivation of honey producing bees to be developed. Apart from that, the increasing inequality between production levels and consumer needs has caused farmers' interest in cultivating honey bees to continue to increase (Yumantoko, et al. 2022)

Trigona bees (*Trigona sp.*) are small black insects, with a body length of between 3-4 mm, and a wingspan of 8 mm (Surata, 2017). Trigona bees are a social insect that lives in groups to form colonies, and one bee colony has between 300-80,000 bees. These bees produce honey, bee bread and propolis products.

At the moment, the demand for Trigona honey and bee propolis continues to increase, including in the Lombok Island region, NTB (Salatino et al., 2019). This is due to the medicinal

properties contained in the two Trigona bee products. Apart from its medicinal properties, Trigona bee honey has a higher price than the same product from the *Apis cerana* or *A. dorsata* bee species (Wahyuni, 2018). This has increased public interest in cultivating Trigona bees, in particular on Lombok Island. This is also supported by environmental conditions and feed availability are generally close to the cultivation location and have been available since before Trigona cultivation began (Wahyuni et al. 2021)

In West Lombok Regency, Batulayar District, specifically in Bengkaung Village, there are quite a lot of Trigona Bee cultivators and the population of Trigona Honey Bees is quite large. According to one beekeeping activist and chairman of the West Lombok Beekeeping Association (ASPE LOBAR), the potential that exists in Bengkaung Village is that almost 60 percent of the residents in Bengkaung Village keep Trigona sp bees, with a total of 10,000 colonies of Trigona honey bees producing an average of 3000 honey. – 4000 liters every year. In 2022, Bengkaung Village was designated by the Regional Government, in this case the Regent of West Lombok, as a center for cultivating trigona honey in West Lombok Regency (Suara NTB 2022).

In connection with the support of the Government program and the large potential of Trigona Honey Bees in Bengkaung Village, it is necessary to carry out research regarding the contribution of income from cultivating Trigona Honey Bees to the total income of farmers in Bengkaung Village.

In line with the background above, the problem formulation in this research is:

1. How much do farmers earn through the Trigona honey bee (*Trigona sp*) business in Bengkaung Village, Batulayar District, West Lombok Regency?
2. How much does the trigona honey bee business (*Trigona sp*) contribute to farmers' income in Bengkaung Village, Batulayar District, West Lombok Regency?
3. What obstacles do Trigona (*Trigona sp*) honey cultivation businesses face in Bengkaung Village, Batulayar District, West Lombok Regency?

The research aims to determine the amount of farmers' income through the trigona honey bee business (*Trigona sp*) and the amount of farmers' income from plantation farming as well as the contribution of the trigona honey bee business (*Trigona sp*) to the total income of farmers, as well as finding out what obstacles are faced by Trigona (*Trigona sp*) honey cultivation businesses, especially in Bengkaung Village, Batulayar District, West Lombok Regency?

The expected benefits of this research are as information material for the community and for Trigona (*Trigona sp*) honey bee cultivators and for beginners, as well as input for the government in developing the Trigona (*Trigona sp*) Honey Bee Business for the Community because it is very helpful in business Farmer.

METHODS

The research method is a descriptive method, namely a research conducted to determine the value of independent variables, either one or more variables (independent) without making comparisons or connecting them with other variables. This means that this research only wants to know how the variable itself is without any influence or relationship to other variables such as experimental or correlation research (Sugiyono, 2017).

Data collection uses survey techniques, namely to obtain data from certain natural (not artificial) places, but researchers carry out treatments in data collection, for example by distributing questionnaires, tests, structured interviews and so on (Sugiyono, 2017).

Research was conducted on farmers cultivating Trigona Honey Bees in Bengkaung Village. From the population of Trigona bee cultivating farmers in Bengkaung Village, respondents were then taken using a simple random sampling technique. The method used to randomly determine respondents is using the lottery method for members of the population who are considered homogeneous (Sugiyono, 2017). The sample size of respondents used was obtained using the formula: Total Population x 30%. With this formula, from a population of 120 farmers cultivating Trigona Honey Bees, the number of samples used was 36 respondents.

Research using sSource data in the form of primary data and secondary data. Data collection was carried out through literature study and interviews. Literature study is carried out by collecting data and information that is relevant to the problem to be researched, namely literature and other library materials such as articles, journals, books and previous research. Meanwhile, interviews were

conducted in a structured manner using questionnaires with Trigona bee cultivating farmers who were the research samples and with key informants.

Data collected through research include farmer characteristics (age, education, land area, land status, business experience), cultivation technology applied (cultivation techniques, harvest and post-harvest), prices of production inputs such as labor, production, productivity, and data others in accordance with research needs.

The variables used in this research are the independent variable and the dependent variable. The independent variable of this research is farming, while the dependent variable of this research is Trigona Honey Bee cultivators. The data analysis includes analysis of the farming business of cultivating Trigona Bees and other farming businesses, as well as calculating the contribution of the Trigona Bee cultivation business to the overall value of agricultural businesses carried out by farmers.

The results of farming in the form of profits are the net income received by the entrepreneur, profits are obtained from total income minus the total costs incurred during the production process obtained (Zuhda, et al., 2023).

To calculate the income of farmers/cultivators from the Trigona cultivation business in one production process or harvest per season, it is obtained from the results of total revenue minus total production costs.

RESULT AND DISCUSSION

A. Trigona Cultivation Business Analysis

1). Fixed Costs (TC)

Fixed costs are costs that are static or do not change, such as the tools used, where the fixed costs in the Trigona sp cultivation business are depreciation of assets or equipment. The average fixed costs incurred by farmers in the Trigona sp cultivation business are IDR 392,647 per year. The tools used during honey production include Stup, Knife, Funnel, Sieve, Basin, Cage Rack, and PPE.

2). Variable cost

Non-fixed costs are costs whose nature can change or which are not static such as harvest wages, one of the non-fixed costs such as HOK or workers' wages. The average worker wages used are harvest work wages. Harvest wages are calculated based on the number of colonies either in bamboo or colonies in stup. The harvest price is Rp. 5000/colony, within a year farmers can harvest 3-4 times. According to research conducted by Kamaliya (2020) in one year for cultivating Trigona bees the harvest can be done 4 times.

3). Total Production Costs of Trigona sp Honey Bees

Total costs are all costs used in the production process, on In this research, the total costs come from fixed costs and variable costs. The total cost of producing Trigona sp honey is obtained from the sum of fixed costs plus variable costs with results totaling IDR 1,106,675.-

4). Total Production of Trigona sp. Honey Bee Business

The total production of the honey bee business referred to in this research is the amount of honey produced in units of measurement, namely (Liters). Meanwhile, the average production, selling price and total revenue from the Trigona honey bee business. The research results show The average annual production is 54 liters with the selling price per liter being Rp. 300,000,- so that the income in one year from honey production averages Rp. 16,268,750,-.

5). Income from Cultivation of Trigona sp.

The income obtained is the result of subtracting the total sales value from the production value to obtain a net profit. The following is the total value of Trigona bee cultivation business income for 36 respondents:

$$\begin{aligned} \text{Income} &= \text{Total Sales Results} - \text{Total Production Costs} \\ &= \text{IDR} \quad \quad \quad - \quad \quad \quad \text{IDR 1,106,675} \\ &= \text{Rp.} \\ &= 16,268,750 \\ &= 15,162,075. \end{aligned}$$

The income obtained from the Trigona cultivation business is still very profitable seen from the difference between total sales costs and total production. These results were obtained

with a total honey production of 54 liters from 143 Stup with a price per liter of Trigona honey of Rp. 300,000 so the average honey produced per Stup is 400 ml/year and if converted into Rp. 112,500. Thus, the more stockpiles or colonies, the greater the amount of honey production and the greater the profits obtained by farmers. Research conducted by Rahmayanti (2020) shows that the production of Trigona honey per batch is IDR 36,503/stup for one harvest with 320 ml of honey.

B. Plantation Farming Analysis

1). Fixed cost

Fixed costs are costs that do not change over a certain period of time or are static. The following are fixed costs in farming in the form of asset depreciation. Asset depreciation costs are depreciation costs for the use of tools during farming production, while the tools used during the production of agricultural products are in the form of hoes, machetes, etc.

2). Variable cost

Non-fixed costs in this farming business are costs that are not fixed or can still change depending on situations and conditions. The non-fixed costs in this research are in the form of labor wages for both the harvesting process and the transportation of the results. Labor wages include harvesting wages and transportation wages, amounting to IDR 9,364,653,-

3). Total Plantation Farming Production Costs

Total production costs are a combination of fixed costs and variable costs to become the total production costs of farming. The average total production costs of farming are fixed costs plus non-fixed costs, resulting in IDR 9,691,780.-

4). Total Production of Plantation Farming Businesses

The total production of farming referred to in this research is the total production of all commodities produced in units (kg/liter/grain). Meanwhile, the average production, selling price and total farming income include: sugar palm, coconut, melinjo, mango, rambutan, durian and avocado. RThe average total income in one year for farmers from plantation farming in Bengkaung Village, Batulayar District, West Lombok Regency originating from these 7 commodities is IDR 30,444,444,-

5). Plantation Farming Income

The income obtained is the result of subtracting the total sales value from the production value to obtain a net profit. The following is the total value of plantation farming income for the 36 respondents as follows:

$$\begin{aligned} \text{Revenue} &= \text{Total Sales Results} - \text{Total Production Costs} \\ \text{Income} &= \text{IDR } 30,444,444 - \text{IDR } 9,691,780 \\ &= \text{IDR } 20,752,664 \end{aligned}$$

Based on the calculation of the total net profit value of the average farmer with an average area of 1.25 Ha and the average income of farmers from producing farming is IDR 20,752,664 per year. This amount is obtained based on the unit price of plantation farming commodities produced by farmers.

C. Total Farmer Income

The average income of farmers from both Trigona sp cultivation business income and plantation farming can be calculated by adding up the total income from Trigona sp honey cultivation business with the total average income from plantation farming. RThe average total income of farmers from both Trigona sp bee cultivation and plantation farming is IDR 35,914,739 per year.

D. Contribution of Trigona Bee Cultivation to Farmers' Income

Bee farming income in a year refers to the total net profit in the production and sales process of Trigona honey produced in the production process, while plantation farming income is obtained from the net income from the total sales of seven plantation farming commodities. The results of Trigona Bee Cultivation's contribution to Farmer Income are as follows:

According to Kamaliya (2020). To calculate contributions use the formula:

$$\text{Contribution} = (\text{Trigona Bee Cultivation Income} / \text{Farmer Income}) \times 100\%$$

$$\text{Contribution} = (\text{Rp. } 15,162,075 / \text{Rp. } 35,914,739) \times 100 \%$$

$$= 0.42 \times 100\%$$
$$= 42 \%$$

From the results of the contribution calculation, it was found that the results of Trigona bee cultivation on farmer income were 42%. These results are included in the good criteria because the results are above 40% so that the trigona bee cultivation business in Bengkaung Village is very profitable and has the potential to be developed because it is sufficient to support the farmer's economy. This condition is possible considering that on average farmers have quite a lot of colonies and the availability of food sources is also sufficient and varied.

E. Obstacles in cultivating Trigona Honey Bees

Some of the obstacles faced by farmers when cultivating trigona are:

- 1). There is a shortage of food sources during the rainy season, because during the rainy season the vegetation rarely flowers, resulting in a food shortage that will cause trigona bees to lack food, resulting in the death and extinction of the colony. During food shortages, wars often occur between colonies, so that many weak colonies become victims and leave their nests.
- 2). If the colony is disturbed, if they feel that the environment they live in is not comfortable and safe, they will leave the nest to look for a better nest. The migration of the kelulut colony can be triggered, among other things, by the disturbance of predators such as spiders, lizards, predatory insects and the presence of other stronger colonies.

The decline in the number of colonies is due to harvesting errors due to not knowing the position of the queen bee and the inappropriate harvest time, which causes the colony to decrease because the queen whose function is to lay eggs is no longer there because she died during harvesting.

CONCLUSION

Farmers' income in one year from the Trigona Bee Cultivation business is IDR 545,834,712.50,- obtained from honey production was 1,952 liter with a price per liter of IDR 300,000,- with a total of 36 respondents so that the average income of farmers from the Trigona sp bee cultivation business is IDR 15,162,075,- per year. The contribution of the Trigona bee cultivation business to farmer income is 42%. The percentage is obtained from the total income of the trigona cultivation business divided by the total income of the farmer multiplied by 100%. Where the average income of the Trigona sp cultivation business is IDR 15,162,075,- and the average income of farmers is IDR 35,914,739,- which means that with these results the contribution of the Trigona Bee Cultivation business is included in the good criteria. Obstacles faced by Trigona bee cultivators include: 1. There is a food shortage in the rainy season, 2. Many colonies leave their nests and die due to predator interference, 3. The number of colonies shrinks or decreases after harvest because the queen bee also dies during the harvesting process and ignorance of good harvest times by farmers.

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